CURRÍCULUM VÍTAE NORMALIZADO

Raúl Herranz Barranco

Generated from: Editor CVN de FECYT

Date of document: 26/06/2024

v 1.4.3

0f3e979eb278d81e68ccb466b6e6d62d

GOBIERNO DE ESPAÑA
MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

FECYT INNOVACIÓN

Summary of CV

This section describes briefly a summary of your career in science, academic and research; the main scientific and technological achievements and goals in your line of research in the medium -and long- term. It also includes other important aspects or peculiarities.

PhD in Biochemistry by the UAM in 2004, prepared his first experiment for execution in orbit in 2003 (Spanish Cervantes SOYUZ Mission, 3 Experiments: GENE, AGEING, ROOT). Post-doctoral research training in several simulated microgravity facilities in Europe (GBF), particularly at ESTEC (ESA) in the Netherlands, creating a consortium for ESA GBF grants. Returned to Spain in 2008 as Hired Doctor Researcher (JAE-DOC, CIB (CSIC), later modified as INF with “Titulado Superior ATyP (Doctor)” level), acting as PI/coordinator of a National (AYA2009-07792-E) and 2 GBF (ESA) Grants to transfer Space Omics expertise from Insect to Plant models in simulated microgravity (see review, Herranz et al 2013).ESA/NASA Seedling Growth European co-I (2012-18)- The largest plant biology experiment on board ISS (ELGRA Gravity Spotlight Team & NASA Group Achievement Awards).

Teaching habilitations: CAP secondary level (UCM) and PCD/PUP (ANECA) university level. Primary School outreach. Co-supervision of 2 research practicals, 2 TFM and 4 PhD Thesis.

Research evaluations: I3 excellent research track (AEI, 2019). Staff research exams passed 3 times (CT in 2014 y 2015 (INTA) and ID in 2019 (CAB-CSIC)).

Publications: Total 71, Q1 42, First author 15, Corresponding (AC) 26, Book/outreach 8, Reviews: 13. Conferences 107 (6 invited). H index 26, Citations >2400. Grants (PI /co-I /work team): Total 20, Spanish PN (1/4/5), European (4/3/3), ESA/NASA (0/3/6) involving hardware development (technology transfer to Spanish companies, SENER Espacio).

Today, acts as European Coordinator of the GIA2 (3rd GBF project), the Space Omics Topical Team (ESA) and ISSOP (http://issop.space). He is full member of 2 Genelab AWG (Plants and Animal, NASA) and ESA Life Science Working Group. The following sections are main achivements from 2010 (2 fatherhood career interruptions).

General quality indicators of scientific research

This section describes briefly the main quality indicators of scientific production (periods of research activity, experience in supervising doctoral theses, total citations, articles in journals of the first quartile, H index...). It also includes other important aspects or peculiarities.

Como investigador contratado no ha podido solicitar sexenios de investigación aunque su producción en los últimos años (desde la lectura de su tesis en 2004) ha sido muy significativa, continua y al alza en responsabilidad, impacto y citas recibidas. Desde el punto de vista docente, tutela trabajos fin de máster a nivel nacional e internacional y ha codirigido 4 tesis doctorales (todas ellas Sobresaliente cum laude por unanimidad, dos con mención Internacional/Europea).

El número de citas totales supera las 2400 (1000 citas en 2021-23), más de 70 artículos científicos (la mayoría en el primer cuartil Q1 y/o con alto grado de contribución como primer y/o autor de correspondencia) y generando un índice h=27 (https://scholar.google.es/citations?user=rQhHOuwAAAAJ&hl=en&oi=ao, en 2021/22 se registran 23 publicaciones nuevas). Se completa su perfil de publicaciones con un centenar de contribuciones a congresos/seminarios, y 10 artículos de divulgación y/o capítulos de libro (con premios internacionales y reediciones). Es revisor habitual en publicaciones internacionales. Ha publicado en bases de datos indexadas 126 secuencias/anotaciones, 6 estudios de expresión por microarrays (279 muestras) y por RNA-seq (38 secuenciaciones publicadas, 44 pendientes de publicación).

Ha participado en 23 proyectos científicos. Actuó como miembro del equipo de trabajo (desde 2000) y como co-investigador (desde 2010) en proyectos del Plan Nacional (uno como IP), en 4 misiones a la Estación Espacial Internacional (Misión Cervantes en 2003 y Misiones SG1, SG2 y SG3 recientemente). Ha sido coordinador de varios proyectos europeos (European Space Agency) e internacionales (Naciones Unidas) para el uso de instrumentación de microgravedad simulada. Como líder nacional en microgravedad simulada, proporciona acceso a estos equipos a científicos y empresas nacionales que desean validar nuevos equipos.

Reconocimientos y premios. Fue acreditado como Profesor de Universidad Privada y como Profesor Contratado Doctor en 2010 e Investigador I3 en 2019. Obtuvo el reconocimiento como Personal Contratado Indefinido no fijo desde 2008 (categoría de Titulado Superior de ATYP Doctor), y actualmente es candidato a Científico Titular de OPIs (ha superado todos los ejercicios del proceso selectivo de CT en especialidad de "Ciencia y Tecnología en Sistemas Espaciales" en las convocatorias de 2014 y 2015 con la mejor puntuación entre los candidatos con perfil de Biología Espacial (superado por ingenieros/astrofísicos) y en el proceso de Investigador Distinguido 2019 en la especialidad "Sistemas evolutivos y complejidad en Astrobiología" (primer suplente tras un matemático)). También en 2019 ha recibido personalmente premios de la NASA y la ELGRA como co-investigador de Seedling Growth, y el reconocimiento de la medalla COSPAR a la coorperación internacional a los IPs de este proyecto.

Actualmente integra diversos paneles de expertos para la definición de políticas espaciales en ESA SciSpace (Roadmaps y LSWG) y NASA (Decadal Survey). Colabora en consorcios internacionales de analisis de datos ómicos (Genelab Analysis Working Groups), siendo el coordinador del consorcio europeo ESA funded Space Omics Topical Team y representante europeo del consorcio internacional ISSOP (International Standards for Space Omics

Processing) y Co-I del proyecto PRIMO de la ESA para ejecución en la Luna. Es miembro electo del comité ejecutivo de ELGRA y del Comité de Empresa de CSIC (Madrid).

Raúl Herranz Barranco

Surname(s): **Herranz Barranco**
Name: **Raúl**
ORCID: **0000-0002-0246-9449**
ScopusID: **7005739372**
ResearcherID: **A-6510-2010**
Contact aut. region/reg.: **Community of Madrid**
Email: **r.herranz@csic.es, rherranz@cib.csic.es**
Personal web page: **https://issop.space/space-omics-topical-team/**

Current professional situation

Employing entity: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
Department: Biotecnología microbiana y de plantas, Centro de Investigaciones Biológicas Margarita Salas
Professional category: Titulado Superior de Actividades Tecnicas y Profesionales (Doctor) / Postdoctoral Research Associate
City employing entity: Spain
Phone: (+34) 918373112 - 4260
Start date: 01/09/2008
Type of contract: Permanent employment contract **Dedication regime:** Full time
Primary (UNESCO code): 241502 - Molecular biology of plants; 251201 - Exobiology
Secondary (UNESCO code): 240700 - Cell biology; 241700 - Plant Biology (Botany)
Tertiary (UNESCO code): 241302 - Insect development; 241500 - Molecular biology; 251299 - Other
Performed tasks: Suboptimal environments - Environmental Stress Synergies - Evolution of gene redundancy - Adaptation to unusual environments - Space agronomy Altered gravity (including Microgravity) environments, International Space Station (ISS), Space Biology - Altered gravity simulation (including clinostat, RPM, LDC, magnetic levitation) - Model Organisms: Drosophila, Arabidopsis, in vitro cell cultures - Experimental approaches: microarray, qRT-PCR, gene expression, flow citometry, genomics, proteomics - Experimental questions: plant development, seedling growth, cell cycle, auxins, gravitropism - Application to autonomus Life-support systems for space biology
Identify key words: Space r&d; Exobiology; Evolutionary biology; Molecular biology; Plants and animal biology and ecology; Environmental biology

Previous positions and activities

	Employing entity	Professional category	Start date
1	Consejo Superior de Investigaciones Científicas	Investigador Contratado Doctor (JAE-Doc) Postdoctoral Research Associate	01/09/2008
2	European Space Agency	Spanish Posdoctoral trainee	01/04/2008
3	Universidad Autónoma de Madrid	Investigador Contratado doctor (Postdoctoral Research Associate)	11/09/2007

	Employing entity	Professional category	Start date
4	Ogilvy Commonhealth Worldwide (Ogilvy Healthworld Spain)	Consultant and Scientific editor	16/05/2005
5	Universidad Autónoma de Madrid	Investigador Contratado doctor (Postdoctoral Research Associate)	01/06/2004
6	Universidad Autónoma de Madrid	NTE-CSIC and FPI fellowships (PhD student)	30/11/1999

1 **Employing entity:** Consejo Superior de Investigaciones Científicas **Type of entity:** State agency

Department: Dpto. de Bioquímica (UAM-CSIC) / Dpto. Biología Medioambiental, Instituto de Investigaciones Biomédicas / Centro de Investigaciones Biológicas

Professional category: Investigador Contratado Doctor (JAE-Doc) Postdoctoral Research Associate

Start-End date: 01/09/2008 - 31/08/2011 **Duration:** 3 years

Type of contract: Temporary employment contract

Performed tasks: 3-year posdoctoral contract JAEDoc. Due to the decease of the tutor at University Autonoma de Madrid, I moved to Centro de Investigaciones Biologicas to finish Drosophila associated research and restart a new phase in my research career associated with Dr. Medina (Arabidopsis).

Area of leadership and/or management activity: Public Research Body

2 **Employing entity:** European Space Agency **Type of entity:** State agency

Department: Dpto. TEC-MMG (Life and Physical Science Instrumentation Section), European Science & Technology Research Center (ESTEC-ESA)

City employing entity: Noordwijk, Holland

Professional category: Spanish Posdoctoral trainee

Start-End date: 01/04/2008 - 31/08/2008 **Duration:** 5 months

Type of contract: Grant-assisted student (pre or post-doctoral, others)

Performed tasks: 2-years Spanish trainee position at the European Space Agency awarded within the Specialization in Singular Research Facilities and International Organisms" action of the Spanish government that allows both Pre-Doc and Post-Doc candidates to work in European Singular Research Facilities including the European Space Agency, EMBL, CERN, etc… This stay objective was the optimization of new Ground Based Facilities (LDC and HFML levitator magnet) to be widely used by biologist. The stay was suddenly interrupted due to scientific (award of a higher responsibility 3-year research position in Spain that allowed me to lead and intensify the same research line from Spain) and familiar conciliation (birth of my first child and my wife holding a permanent position in a Spanish research center) reasons.

Applicability in teaching and/or research: (Postdoctoral Research Associate)

3 **Employing entity:** Universidad Autónoma de Madrid **Type of entity:** University

Department: Dpto. de Bioquimica, Medicina

Professional category: Investigador Contratado doctor (Postdoctoral Research Associate)

Start-End date: 11/09/2007 - 31/03/2008 **Duration:** 6 months - 19 days

Type of contract: Temporary employment contract

Performed tasks: Together with previous Postdoctoral Research Associate periods since my PhD lecture (January 2004) it constitute more than 2 years of posdoctoral stay in UAM working with Drosophila model system.

Area of leadership and/or management activity: University

Applicability in teaching and/or research: Postflight analises of Cervantes Mission experiments (8th expedition to the International Space Station, 18-28 October 2003). Experiments AGEING & GENE EXPRESSION

4 **Employing entity:** Ogilvy Commonhealth Worldwide (Ogilvy Healthworld Spain) **Type of entity:** Healthcare Institutions
Department: Medical/Scientific department
City employing entity: Las Rozas (Madrid), Spain
Professional category: Consultant and Scientific editor
Start-End date: 16/05/2005 - 26/07/2007 **Duration:** 2 years - 2 months - 10 days
Type of contract: Permanent employment contract
Dedication regime: Full time
Performed tasks: Biomedical consultancy, bibliographical research and editorial activities to elaborate scientific materials for pharmaceutical companies, including promotional, technical, legal and medical education documents (slide kits, pharmaceutical bibliographical reviews, etc...) This posdoctoral research activity constitutes more than 2 years of posdoctoral stay in a pharmaceutical company I+D department.

5 **Employing entity:** Universidad Autónoma de Madrid **Type of entity:** University
Department: Dpto. de Bioquimica, Medicina
Professional category: Investigador Contratado doctor (Postdoctoral Research Associate)
Start-End date: 01/06/2004 - 15/05/2005 **Duration:** 11 months - 15 days
Type of contract: Temporary employment contract
Performed tasks: Together with other Postdoctoral Research Associate periods since my PhD lecture (January 2004) it constitutes more than 2 years of posdoctoral stay in UAM working with Drosophila model system.
Area of leadership and/or management activity: University
Applicability in teaching and/or research: Postflight preliminar analisys of Cervantes Mission experiments (8th expedition to the International Space Station, 18-28 October 2003). Experiments AGEING & GENE EXPRESSION

6 **Employing entity:** Universidad Autónoma de Madrid **Type of entity:** University
Department: Dpto. de Bioquimica, Medicina
Professional category: NTE-CSIC and FPI fellowships (PhD student)
Start-End date: 30/11/1999 - 31/05/2004 **Duration:** 4 years - 7 months
Type of contract: Grant-assisted student (pre or post-doctoral, others)
Performed tasks: My PhD thesys was divided in two main parts funded first by a Predoctoral fellowship CSIC-NTE Optimisation of a Drosophila Cultivation unit of Drosophila for the ISS" and later a single FPI (MEC/MCyT) 4 years grant. The topics were Gene evolution of the Troponin Complex in Insects and Preparation and performance of the Cervantes ISS Mission (8th expedition to the ISS, 18-28 October 2003). Experiments AGEING & GENE EXPRESSION

Education

University education

1st and 2nd cycle studies and pre-Bologna degrees

1 **University degree:** Master (Especialista universitario - 450 horas)
Name of qualification: Periodismo y comunicación científica
Degree awarding entity: Universidad Nacional de Educación a Distancia (UNED-El mundo)
Date of qualification: 07/2007

2 **University degree:** Master (180 horas, Acreditación Docente ESO)
Name of qualification: Certificado de Aptitud Pedagógica (CAP)
Degree awarding entity: Universidad Complutense Madrid
Date of qualification: 06/2001

3 **University degree:** Master (Titulo propio Especialista Universitario - 180 horas)
Name of qualification: Metodología de la investigación y técnicas estadísticas en ciencias de la vida
Degree awarding entity: Universidad Autónoma de Madrid **Type of entity:** University
Date of qualification: 06/2000

4 **University degree:** Higher degree
Name of qualification: Licenciado en Bioquímica
Degree awarding entity: Universidad Autónoma de Madrid **Type of entity:** University
Date of qualification: 09/1999

5 **University degree:** Higher degree
Name of qualification: Diplomado en Ciencias Químicas
Degree awarding entity: Universidad Autónoma de Madrid **Type of entity:** University
Date of qualification: 06/1997

Doctorates

Doctorate programme: Doctor en Bioquímica (Biochemistry PhD)
Degree awarding entity: Universidad Autónoma de Madrid **Type of entity:** University
Date of degree: 19/01/2004
Thesis title: Evolución génica del complejo Troponina en insectos
Thesis director: Roberto Marco Cuellar
Obtained qualification: Sobresaliente cum laude por unanimidad
Recognition of quality: Yes

Other postgraduate university studies

1 **Type of education:** Postgraduate
Postgraduate qualification: Astrobiología (Astrobiology 30h)
Degree awarding entity: Universidad Complutense de Madrid
Faculty, institute or centre: Cursos de verano El Escorial
Date of qualification: 26/07/2002

2 **Type of education:** Postgraduate
Postgraduate qualification: "Biology in Space" Programa Sócrates (80h)
Degree awarding entity: Laboratoire Arago (Banyuls sur mer (Francia))
Date of qualification: 09/2000

3 **Type of education:** Postgraduate
Postgraduate qualification: Curso Práctico de Regulación Transcripcional y Terapia Génica (Practical course on gene therapy and transcriptional regulation (80h)
Degree awarding entity: Universidad Autónoma de Madrid **Type of entity:** University
Faculty, institute or centre: Centro de Biología Molecular Severo Ochoa" (UAM-CSIC)
Date of qualification: 09/2000

4 **Type of education:** Postgraduate
Postgraduate qualification: Curso Básico de Radiactividad (Basic Radiactivity course for researchers 12h)
Degree awarding entity: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
Faculty, institute or centre: Instituto de Investigaciones Biomédicas Alberto Sols" (UAM-CSIC)
Date of qualification: 01/1999

Specialised, lifelong, technical, professional and refresher training (other than formal academic and healthcare studies)

1 **Training title:** Formación Psicoemocional Proyecto #BIEM CSIC 360
Awarding entity: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
End date: 22/11/2023 **Duration in hours:** 25 hours

2 **Training title:** Capacidad de gestión y liderazgo de equipos en Ciencia
Awarding entity: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
End date: 12/05/2023 **Duration in hours:** 18 hours

3 **Training title:** Iniciación a la programación en Python
Awarding entity: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
End date: 21/05/2021 **Duration in hours:** 35 hours

4 **Training title:** Tecnologías de secuenciación de nueva generación (NGS) y sus aplicaciones
Awarding entity: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency

End date: 21/05/2021 **Duration in hours:** 25 hours

5 **Type of training:** Course
Training title: UNITY 3D, Programación de Videojuegos
Awarding entity: Oracle University / Centro de Formación en Tecnologías de la información y las Comunicaciones (CFTIC)
End date: 31/03/2016 **Duration in hours:** 200 hours

6 **Type of training:** Course
Training title: Programación SHELL/PERL/AWK en Sistemas IBM AIX (UNIX)
Awarding entity: ARROW IBM partner / Centro de Formación en Tecnologías de la información y las Comunicaciones (CFTIC)
End date: 22/12/2015 **Duration in hours:** 100 hours

7 **Type of training:** Course
Training title: Desarrollo de Aplicaciones para Dispositivos Móviles (JavaME y ANDROID)
Awarding entity: Oracle University / Centro de Formación en Tecnologías de la información y las Comunicaciones (CFTIC)
End date: 09/11/2015 **Duration in hours:** 100 hours

8 **Type of training:** Course
Training title: Fundamentos de Desarrollo de Aplicaciones JAVA (JavaSE y JavaEE)
Awarding entity: Oracle University / Centro de Formación en Tecnologías de la información y las Comunicaciones (CFTIC)
End date: 15/10/2015 **Duration in hours:** 160 hours

9 **Training title:** Iniciación a la estadística aplicada con STATA
Awarding entity: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
End date: 27/04/2012 **Duration in hours:** 25 hours

10 **Training title:** Usuario Web of Knowledge – Nivel Avanzado
Awarding entity: Fundación Española para la Ciencia y la Tecnología **Type of entity:** Fundacion
End date: 18/04/2012 **Duration in hours:** 3 hours

11 **Training title:** Inglés específico: Reuniones Internacionales en Inglés
Awarding entity: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
End date: 15/03/2012 **Duration in hours:** 20 hours

12 **Training title:** Inglés Científico (nivel Intermedio)
Awarding entity: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
End date: 16/03/2010 **Duration in hours:** 20 hours

13 **Training title:** Presentaciones en Inglés Científico para Congresos
Awarding entity: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
End date: 23/11/2009 **Duration in hours:** 15 hours

14 **Training title:** Ciclo de Conferencias "ORIGEN Y EVOLUCIÓN DE LA VIDA"
Awarding entity: FUNDACIÓN COSMOCAIXA Museo de las Ciencias Alcobendas (Madrid) **Type of entity:** Divulgacion
End date: 05/2001 **Duration in hours:** 12 hours

15 **Training title:** Ciclo de Conferencias "EL ORIGEN DE LAS ESPECIES"
Awarding entity: FUNDACIÓN COSMOCAIXA Museo de las Ciencias Alcobendas (Madrid) **Type of entity:** Divulgacion
End date: 03/2001 **Duration in hours:** 18 hours

16 **Training title:** Lengua Inglesa (nivel B, A1 y A2)
Awarding entity: Universidad Autónoma de Madrid **Type of entity:** University
End date: 06/1998 **Duration in hours:** 300 hours

17 **Training title:** Usuario de Internet
Awarding entity: Instituto Madrileño Formación
End date: 10/1997 **Duration in hours:** 60 hours

18 **Training title:** Gestión de Hoja de Calculo
Awarding entity: Instituto Madrileño Formación
End date: 10/1996 **Duration in hours:** 50 hours

19 **Training title:** Gestión de Base de Datos
Awarding entity: Instituto Madrileño Formación **Type of entity:** IMF (CAM)
End date: 07/1996 **Duration in hours:** 50 hours

20 **Training title:** Curso preparación First Certificate
Awarding entity: Academia Welcome (Alcorcón,Madrid) **Type of entity:** Business
End date: 06/1994 **Duration in hours:** 134 hours

21 **Training title:** Programación en Basic
Awarding entity: Academia Delfos (Alcorcón,Madrid) **Type of entity:** Business
End date: 06/1990 **Duration in hours:** 100 hours

Attended advanced, improvement and innovative teacher training and new technology courses and seminars focused on improving teaching

1 **Title of course/seminar:** Desarrollo y Programación de Aplicaciones y Videojuegos Multiplataforma
Goals of the course/seminar: Intensive course in JAVA/Android/Shell/UNITY based programming tools I can use to produce Scientific or Educational software
Organising entity: Centro de Formación en Tecnologías de la Información y la Comunicación (CFTIC, CAM)
Duration in hours: 560 hours
Start-End date: 09/2015 - 03/2016

2 **Title of course/seminar:** Periodismo y comunicación científica
Goals of the course/seminar: Master course to increase teaching, writting and oral communication skills to communicate scientific contents to all kinds of audiences
Organising entity: Universidad Nacional de Educación a Distancia (UNED-El mundo)
Duration in hours: 450 hours
Start-End date: 10/2006 - 07/2007

3 **Title of course/seminar:** Inteligencia emocional, equilibrio y automotivación
Goals of the course/seminar: Specific course to improve leadership and teaching skills in a social environment
Organising entity: Institut Serveis de Formació Tadel
Duration in hours: 15 hours
Start-End date: 27/09/2006 - 28/09/2006

4 **Title of course/seminar:** Certificado de Aptitud Pedagógica (CAP)
Goals of the course/seminar: Specific pedagogical master course required to obtain teaching habilitation
Organising entity: Universidad Complutense Madrid (Inst. Ciencias de la Educación)
Duration in hours: 180 hours
Start-End date: 10/2000 - 06/2001

Language skills

Language	Listening skills	Reading skills	Spoken interaction	Speaking skills	Writing skills
English	C1	C2	C1	C1	C2
Spanish	C2	C2	C2	C2	C2

Teaching experience

General teaching experience

1 **Type of teaching:** International teaching
Name of the course: Space Plant Biology
Professional category: Investigador Contratado Doctor
Type of programme: ERASMUS **Type of teaching:** Virtual
University degree: ESA-ELGRA Gravity-Related Research Summer School (ERASMUS)
Start date: 24/06/2024 **End date:** 28/06/2024
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 50
Entity: ESA ESEC-Galaxia (Redu, BELGIUM)
Subject language: English

2 **Type of teaching:** International teaching
Name of the course: Space Plant Biology
Professional category: Investigador Contratado Doctor
Type of programme: ERASMUS **Type of teaching:** In person theory
University degree: ESA-ELGRA Gravity-Related Research Summer School (ERASMUS)
Start date: 24/06/2019 **End date:** 28/06/2019
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 50
Entity: ESA ESEC-Galaxia (Redu, BELGIUM)
Subject language: English

3 **Type of teaching:** International teaching
Name of the course: The Origins of Life and Life in Space
Professional category: Investigador Contratado Doctor
Type of programme: ERASMUS **Type of teaching:** In person theory
University degree: Exobiology Summer University (ERASMUS)
Start date: 2007 **End date:** 2008
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 50
Entity: Universidad de Florencia (Firenze, ITALY)
Subject language: English

4 **Type of teaching:** Official teaching
Name of the course: BIOFÍSICA (BIOLOGÍA COMPUTACIONAL Y DE SISTEMAS)
Professional category: Investigador Contratado Doctor
Type of programme: Diploma **Type of teaching:** In person theory
Type of subject: Obligatory
University degree: Licenciado en Bioquímica
Start date: 2007 **End date:** 2008
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 20
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Faculty, institute or centre: Biochemistry department (Medicine Faculty)

5 **Type of teaching:** International teaching
Name of the course: Life in Space (ERASMUS)
Professional category: Investigador Contratado Doctor
Type of programme: ERASMUS **Type of teaching:** Virtual
University degree: Space Biology Virtual University (ERASMUS)
Start date: 2005 **End date:** 2005
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 10
Entity: Curso de intercambio virtual entre cinco universidades europeas (Paris VI, Bonn, Sassari, Nothingham y la Universidad Autónoma de Madrid)
Subject language: English

6 **Type of teaching:** Official teaching
Name of the course: BIOINFORMÁTICA
Type of programme: Diploma **Type of teaching:** Practical work (classroom-problems)
Type of subject: Optional
University degree: Licenciado en Bioquímica
Start date: 2000 **End date:** 2003
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 40
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Faculty, institute or centre: Biochemistry department (Medicine Faculty)
Department: Bioquímica

7 **Type of teaching:** Official teaching
Name of the course: Prácticas BIOQUÍMICA-BIOFÍSICA y BQ EXPERIMENTAL AVANZADA
Type of programme: Diploma **Type of teaching:** Laboratory work
Type of subject: Core

University degree: Licenciado en Medicina y Cirugía y Bioquímica
Start date: 1999 **End date:** 2003
Type of hours/ ECTS credits: Hours
Hours/ECTS credits: 160
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Faculty, institute or centre: Biochemistry department (Medicine Faculty)

Experience supervising doctoral thesis and/or final year projects

1 **Project title:** Practicas externas en Biología Espacial de Plantas (4 meses)
Type of project: Practicas Externas TFG
Co-director of thesis: F Javier Medina Diaz
Entity: Universitat Rovira i Virgili **Type of entity:** University
City of entity: Madrid,
Student: Victor Vazquez Vilriales
Date of reading: 27/06/2022

2 **Project title:** Efecto de los compuestos volátiles producidos por el hongo Alternaria alternata sobre el crecimiento y desarrollo de plántulas de Arabidopsis thaliana sometidas a condiciones de microgravedad simulada
Type of project: Trabajo Fin de Máster
Co-director of thesis: F Javier Medina Diaz
Entity: Universidad Complutense de Madrid **Type of entity:** University
Student: Adela Villasante Fernandez
Obtained qualification: 10/10
Date of reading: 10/10/2019

3 **Project title:** Practicas externas en Biología Espacial de Plantas (4 meses)
Type of project: Practicas Externas Master
Co-director of thesis: F Javier Medina Diaz
Entity: Universidad Autónoma de Madrid **Type of entity:** University
City of entity: Madrid,
Student: Pablo Pastor Llorca
Date of reading: 30/06/2019

4 **Project title:** Efecto sinérgico de la luz y la gravedad sobre el crecimiento y la proliferación celular en Arabidopsis thaliana
Type of project: Doctoral thesis
Co-director of thesis: Francisco J. Medina Diaz
Entity: Universidad Complutense de Madrid **Type of entity:** University
City of entity: Madrid, Spain
Student: Aránzazu Manzano Pérez
Obtained qualification: Sobresaliente cum laude
Date of reading: 22/03/2019
European doctorate: Yes **Date of recognition:** 15/03/2019

5 **Project title:** Interaccion entre la percepción de la luz y la gravedad sobre el crecimiento y la proliferación celular en Arabidopsis thaliana: Simulación en tierra y Definicion del Experimento Espacial Seedling Growth
Type of project: Doctoral thesis
Co-director of thesis: Eugenie Carnero Diaz
Entity: Universidad Complutense de Madrid **Type of entity:** University

City of entity: Madrid, Spain
Student: Miguel A. Valbuena Crespo
Obtained qualification: Sobresaliente Cum Laude por unanimidad
Date of reading: 11/03/2016
European doctorate: Yes

6 **Project title:** Alteraciones Inducidas por cambios gravitatorios en Células Proliferantes en Cultivo de Arabidopsis thaliana
Type of project: Doctoral thesis
Co-director of thesis: F Javier Medina Diaz
Entity: Universidad Complutense de Madrid **Type of entity:** University
Student: Khaled Yousef Kamal Mostafa
Obtained qualification: Sobresaliente "cum laude" por unanimidad
Date of reading: 17/12/2014
European doctorate: Yes
Quality recognition: No

7 **Project title:** Proliferación de células vegetales en condiciones ambientales de gravedad alterada
Type of project: Trabajo Fin de Máster
Co-director of thesis: F Javier Medina Diaz
Entity: Universidad Autónoma de Madrid **Type of entity:** University
City of entity: Madrid,
Student: Aránzazu Manzano Pérez
Obtained qualification: 9,6 / 10 (Sobresaliente)
Date of reading: 10/09/2013

8 **Project title:** Cambios funcionales en células proliferantes de Arabidopsis thaliana crecidas en ambientes de gravedad alterada
Type of project: Doctoral thesis
Co-director of thesis: F Javier Medina Diaz
Entity: Universidad Complutense de Madrid **Type of entity:** University
Student: Ana Isabel Manzano Pérez
Obtained qualification: Sobresaliente cum laude por unanimidad
Date of reading: 02/02/2012
Quality recognition: Yes

9 **Project title:** Relation between gene expression, motility and accelerated aging in selected Drosophila strains under altered gravity conditions
Type of project: Posgraduate Research trainee
Entity: European Space Agency (ESA-ESTEC) **Type of entity:** R&D Centre
City of entity: Noordwijk, Holland
Student: Paloma Serrano San Román
Obtained qualification: Laboratory work supervised from Madrid of a Spanish trainee (Biology degree) working at ESTEC (ESA) associated to the GBF project Drosophila line which I am the PI. This work has been published in 2 articles (Serrano as first author and Herranz as Senior author)
Date of reading: 30/06/2011

Materials and other teaching or educational publications.

1 Raul Herranz Barranco. De cómo entrar en el siglo XXI de la mano de un gran…Roberto, Encuentros multidisciplinares. 33 - XI, pp. 58 - 67. ISSN 1139-9325
Name of the materials: Universitary discussion and diffusion of space science article
Date of drafting: 2009
Format: Article(s)
Description Narrative: Review article connecting Prof. Roberto Marco research and teaching activities during the last decade of his life (untis his decease in 2008). The whole issue is dedicated to his memory. This article is a good lecture for students who wants to have a better idea of how a university department works and what is the role of a teacher and a researcher in our educational system, always from my personal biographical point of view about Prof. Roberto Marco.

2 Roberto Marco; Raul Herranz. Bibliographic debate tools in Biofisica,
Name of the materials: Use of KnowCat online resources
Date of drafting: 2008
Format: Research software
Description Narrative: During the course of Biofisica (Systems biology) 2007/2008, we used the Knowcat tool to allow the students to share their bibliographic references and promote debate activities in the classroom (Blog based education). This was a pilot study anticipating the present concept of mentorship to promote a horizontal learning more than a vertical, one-direction classical teaching.

3 Raul Herranz. Scientific documents for pharmaceutical companies (KIVEXA® - Abacavir/Lamivudina Company: GSK),
Name of the materials: 200 SLIDES ABOUT LIPOATROPHY, RENAL TOXICITY AND DRUG RESISTANCES IN THE TREATMENT OF HIV
Target group profile: MEDICAL EDUCATION MATERIAL FOR AIDS DOCTORS
Date of drafting: 2006
Format: Slide Kit
Description Narrative: Preparation of scientific documents for pharmaceutical companies including training, technical/legal and promotional materials. Some of them very innovative and in the frontier of knowledge, and also some of them have been awarded in public contests (ASPID Awards)

4 Raul Herranz. Scientific documents for pharmaceutical companies (GSK (GLAXO SMITH KLINE)),
Name of the materials: BOLETIN VIH
Target group profile: AIDS Patients and relatives
Date of drafting: 2006
Format: Article(s)
Description Narrative: Preparation of a 8 pages monthly trade journal for AIDS patients (not adverstising but educational contents). I was member of the editorial commitee during 6 issues.

5 Raul Herranz. Scientific documents for pharmaceutical companies (Bondronat-ácido ibandrónico Roche),
Name of the materials: Bibliographical Summaries and Comments (attached to the original articles) in cooperation with specialists
Target group profile: Reumathologist
Date of drafting: 2006
Format: Notes
Description Narrative: Preparation of scientific documents for pharmaceutical companies including training, technical/legal and promotional materials. Some of them very innovative and in the frontier of knowledge, and also some of them have been awarded in public contests (ASPID Awards)

6 Raul Herranz. Scientific documents for pharmaceutical companies (SPANISH ASOTIATION OF MEDICAL ONCOLOGY (SEOM)),
Name of the materials: COLLECTION ONCOVIDA & AERO
Target group profile: Cancer Patients and relatives
Date of drafting: 2006
Format: Article(s)
Description Narrative: Preparation of monographycal cancer related booklet (not adverstising but educational contents). I elaborated Oncovida 2 (Cooperative groups), 4 (Cancer awareness), 5 (Renal cancer), 6 (GIST), 7 (Paliative cares) and AERO Boletin ACTUA.

7 Raul Herranz. Scientific documents for pharmaceutical companies (CIALIS®-Tadalafilo Company: LILLY),
Name of the materials: TABLET-PC CONTENTS PREPARATION AND UPGRADE (USE OF INFORMATICS TOOLS FOR MARKETING DELEGATES).
Target group profile: Marketing delegates/Urologists
Date of drafting: 2006
Format: Tablet PC
Description Narrative: Another example of scientific documents for pharmaceutical companies.

8 Raul Herranz. Scientific documents for pharmaceutical companies (TEMODAL®-Temozolomida Company: SCHERING-PLOUGH),
Name of the materials: TRANSLATION OF THE PRODUCT MONOGRAPH (LEGAL DOCUMENT) AND WRITTING OF A SUPPLEMENTARY BOOK WITH NEW APPLICATIONS (50 PAGES CLINICAL REVIEW WITH 80 REFERENCES FROM THE LAST 3 YEARS) & A TOOL FOR DOSAGE CALCULATION
Target group profile: Oncologists
Date of drafting: 2006
Format: Chapters of books
Description Narrative: Preparation of scientific documents for pharmaceutical companies including training, technical/legal and promotional materials. Some of them very innovative and in the frontier of knowledge, and also some of them have been awarded in public contests (ASPID Awards)

9 Roberto Marco; Raúl Herranz. Curso virtual Biology in Space" 2006/2008,
Name of the materials: Use of teleconference eLearning system
Date of drafting: 2006
Format: Research software
Description Narrative: During the courses 2006/2007 & 2007/2008, the "Life in Space" Socrates course was complemented with monthly webminars coodinated from Spain. We used the eLearning system to connect students and teachers from several european universities in order to prepare the students for the intensive 2 weeks summer course after that.

Participation in conferences with talks focused on teacher training

1 **Name of the event:** XXIII Meeting of the Spanish Society of Plant Physiology/XVI Spanish Portuguese Congress of Plant Physiology
Type of event: Conference
Presentation language: Spanish
City of event: Pamplona, Spain
Date of presentation: 26/06/2019
Organising entity: Planeta STEM - iGEM - Biogalaxy **Type of entity:** Associations and Groups
Entrevista compartida con el Dr. Gonzalez-Pastor (CAB) con estudiantes que están preparando un proyecto internacional de Biología Espacial de Plantas.

2 **Name of the event:** III Congreso del Laboratorio para Experimentación en Espacio y Microgravedad (LEEM)
Type of event: Conference
Type of participation: Participatory - invited/keynote talk
Aims of the event: To promote Microgravity research careers in Spanish young researchers
Target group profile: PhD Students
Presentation language: Spanish
City of event: Zaragoza, Spain
Date of presentation: 27/11/2008
Organising entity: S3 (Spanish Space Students) **Type of entity:** Associations and Groups
EXPERIENCIA DE UN SPANISH TRAINEE DEL CDTI EN LAS INSTALACIONES DE MICROGRAVEDAD DE LA ESA (ESTEC).

Awards received for innovation in the field teaching

1 **Name of the prize:** COLLECTION "ADVISORYBOARD".A REVIEW OF CONCLUSIONS FROM BREAST CANCER KEY OPINION LEADERS. ASPID DE ORO 2006* TO THE BEST PRESS FOR SPECIALISTS.
Awarding entity: X edition Iberoamerican ASPID health & pharmaceutical advertising awards **Type of entity:** Business
City awarding entity:
Proposed by: AROMASIL® (Exemestano) - Company: PFIZER
Conferral date: 2006

2 **Name of the prize:** PERSPECTIVES MATERIAL, MEETINGS SUMMARIES AND DELEGATES TRAINING MATERIALS. ASPID DE ORO 2006* TO THE BEST CAMPAIGN FOR SPECIALISTS
Awarding entity: X edition Iberoamerican ASPID health & pharmaceutical advertising awards **Type of entity:** Business
City awarding entity:
Proposed by: VELCADE® (Bortezomib) - Company: JANSSEN-CILAG
Conferral date: 2006

3 **Name of the prize:** SCIENTIFIC COORDINATOR OF AN INTERNATIONAL CAMPAIGN OF A PRODUCT LAUNCH FROM A SPANISH PHARMACEUTICAL COMPANY. ASPID DE ORO 2006* TO THE BEST CAMPAIGN FOR GENERAL PRACTICIONERS (ATENCIÓN PRIMARIA)
Awarding entity: X edition Iberoamerican ASPID health & pharmaceutical advertising awards **Type of entity:** Business
City awarding entity:
Proposed by: EBASTINE FDT® (Ebastina) - Company: ALLMIRALL
Conferral date: 2006

4 **Name of the prize:** SCIENTIFIC COORDINATOR OF BUCKLER 0,0 CAMPAIGN. ASPID DE ORO 2006* TO THE BEST GENERAL CONSUMER CAMPAIGN (PUBLIC)
Awarding entity: X edition Iberoamerican ASPID health & pharmaceutical advertising awards **Type of entity:** Business
City awarding entity:
Proposed by: Buckler 0,0: Salud y sabor - Company: HEINEKEN
Conferral date: 2006

Other activities/achievements not included above

1 **Description of the activity:** Acreditación como Profesor Universitario Contratado Doctor y de Universidad Privada (Habilitation as Associate University Professor)
Organising entity: Agencia Nacional de Evaluación de la Calidad y Acreditación **Type of entity:** ANECA
End date: 07/2010

2 **Description of the activity:** Acreditación como Profesor de Secundaria y Bachillerato (Habilitation as Secondary/High School Teacher)
Organising entity: Instituto de Ciencias de la Educacion (UCM) **Type of entity:** University
End date: 2001

3 **Description of the activity:** Primary School activities around Spaceflight (Seedling Growth project) and Ground microgravity (Clinostat ONU project) - Annual since 2014
Organising entity: CIB (CSIC) and CEIP Victoria Kent (Rivas-vaciamadrid) **Type of entity:** Public Research Body

Scientific and technological experience

Research and development groups/teams

1 **Name of the group:** Molecular plant/virus/vector interactions lab - Environmental Biology Department
Aims of the group: Study of interactions of plant and virus (microgravity research line)
Name of principal investigator: F Javier Medina **Number of members in the group:** 5
Type of collaboration: Co-authorship of projects and their development
Affiliation entity: Centro de Investigaciones Biológicas Margarita Salas - CSIC
Number of directed thesis: 4
Start date: 16/07/2023 **Duration:** 1 year - 4 months

2 **Name of the group:** International Standards for Space Omics Processing (ISSOP)
Aims of the group: Provide consensus guidelines for Space Biology research at the international level
Name of principal investigator: Raul Herranz **Number of members in the group:** 25
Type of collaboration: Co-authorship of international collaboration
Affiliation entity: Space biology researchers from NASA (USA), ESA (Europe) and JAXA (Japan) **Type of entity:** Associations and Groups
Narrative explanation: I am the European coordinator of the Space Omics Topical Team and ISSOP. Shared publications in CELL press journals. Co-PI are Jonathan M Galazka (USA) and Masafumi Muratani (Japan)
Start date: 2019 **Duration:** 2 years

3 **Name of the group:** GENELAB Analysis Working Groups (Plants and Animals)
Aims of the group: Connect the Space Biology scientist and co-analyze the new GENELAB space omics database to make spaceflight mission results more accessible to the scientific community and general public
Name of principal investigator: Sylvain V Costes **Number of members in the group:** 150
Type of collaboration: Co-authorship of international collaboration
Affiliation entity: NASA (USA)

Narrative explanation: I am full member of two NASA GENELAB analysis working groups (as spaceflight experiments co-I in the Plant and PI in the Animals (invertebrate) working group. Shared publications in CELL press journals.
Start date: 2017 **Duration:** 4 years

4 **Name of the group:** Plant Cell Nucleolus, Proliferation & Microgravity group - Environmental Biology Department
Aims of the group: Study Arabidopsis cell growth & proliferation in Space
Name of principal investigator: F Javier Medina **Number of members in the group:** 5
Type of collaboration: Co-authorship of projects and their development
Affiliation entity: Centro de Investigaciones Biológicas Margarita Salas - CSIC
Number of directed thesis: 4
Start date: 16/05/2009 **Duration:** 14 years - 2 months

5 **Name of the group:** Madrid Developmental Biology Microgravity Laboratory (MDBML) - Dept. Biochemistry / Inst. Inv. Biomédicas Alberto Sols
Aims of the group: Study drosophila behavior, aging and development in Space
Name of principal investigator: R. Marco Cuellar **Number of members in the group:** 5
Type of collaboration: Co-authorship of projects and their development
Affiliation entity: Universidad Autónoma de Madrid / CSIC
Start date: 01/11/1999 **Duration:** 8 years

Scientific or technological activities

R&D projects funded through competitive calls of public or private entities

1 **Name of the project:** Spanish contribution to the PRIMO experiment on the Moon and the SOS:Microgravity! App
Geographical area: National
Degree of contribution: Coordinator of total project, network or consortium
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Dr. Raúl Herranz Barranco
Nº of researchers: 3
Funding entity or bodies:
Ministerio de Ciencia e Innovación. PROYECTOS DE GENERACIÓN DE CONOCIMIENTO 2023

Type of participation: Principal investigator
Code according to the funding entity: PID2023-150842OB-I00
Start-End date: 2024 - 2027 **Duration:** 3 years
Participating entity/entities: CSIC
Total amount: 107.380 €
Applicant's contribution: (Pending of FUNDING). I act as the sole PI, so the focus of the project is shifted to molecular biology experiments and/or experiments performed in simulated microgravity facilities. Additional plant phisiology and microscopical analysis are supported by Prof. Veronica de Micco (ITALY) and Dr. Carnero-Diaz (FRANCE) as international team members. It is also included our participation in the GENELAB/ISSOP/ESA TT activities in close collaboration with other NASA/JAXA/ESA researchers as well as PRIMO ESA funded spaceflight opportunity.

2 **Name of the project:** Priming Radiation-Induced plants' adaptation to Moon: make an enemy your friend (PRIMO)
Geographical area: European Union

Degree of contribution: Researcher
Entity where project took place: International Space Station (ISS)
Name principal investigator (PI, Co-PI....): Giovanna Aronne; Veronica De Micco; Paola Adamo; Raimondo Fortezza; Antonio Ceriello; Carmen Arena; Marco Durante; Stefania De Pascale; Walter Tinganelli; Eugénie Carnero Diaz; Dario Castagnolo; Raul Herranz; Veronica Pereda Loth; Isabel Le Disquet
Nº of researchers: 14
Funding entity or bodies:
European Space Agency (ESA)

Type of participation: Co-Investigator
Name of the programme: ESA Campaign: Reserve Pool of Science Activities for the Moon: A SciSpacE Announcement of Opportunity
Code according to the funding entity: Idea I-2022-04105
Start-End date: 2023 - 2026 **Duration:** 3 years
Participating entity/entities: Centro de Investigaciones Biológicas Margarita Salas (CSIC); GSBMS-EVOLSAN, University of Toulouse III (GSBMS); Institut de Systématique, Evolution, Biodiversité-Sorbonne University (ISYEB-SU); Telespazio; The Helmholtz Centre for Heavy Ion Research in Darmstadt (GSI); University of Naples Federico II (UNINA)
Applicant's contribution: This Spaceflight project is an ESA mission to get samples for our group in Europe to perform the Space Omics research with partial g samples at the Moon & Moon orbiter. I participate as European Co-I in the experiments due to my experitse particularly in SG3 focused on Space transcriptomics. The project have been selected by ESA and it is in the technical definition phase.

3 **Name of the project:** Partial gravity studies on the ISS: An essential reference for growing plants on the Moon
Geographical area: Non EU International
Degree of contribution: Researcher
Entity where project took place: International Space Station (ISS)
Name principal investigator (PI, Co-PI....): Dr. Christopher McKay; Dr. John Z. Kiss (NASA PI); Dr. Raul Herranz (ESA CoI)
Nº of researchers: 3
Funding entity or bodies:
National Aeronautics and Space Administration (NASA)

Type of participation: European Co-Investigator
Code according to the funding entity: NNH21ZDA001N-SBPS
Start-End date: 2022 - 2025 **Duration:** 3 years
Participating entity/entities: AMES research Center (NASA, California USA); CSIC; UNC Greensboro (North Carolina, USA)
Applicant's contribution: (Phase II - Score GOOD - Not funded). This Spaceflight project is a NASA mission to providing samples for our group in europe to perform the Space Omics research with partial g samples at the ISS, as a first step to a lunar lander mission. I participate as European Co-I in the experiments due to my experitse particularly in SG3 focused on Space transcriptomics with the same American PI (J. Kiss).

4 **Name of the project:** GIA2 Project: From GBF to ISS with A. thaliana and Crop species. Utilization of ground based low-gravity and radiation facilities to complement and optimize the scientific knowledge from plant experiments in the ISS
Geographical area: European Union
Degree of contribution: Coordinator of total project, network or consortium
Name principal investigator (PI, Co-PI....): Dr. Raúl Herranz Barranco; F Javier Medina Diaz; Eugenie Carnero-Diaz; Eduardo Gonzalez-Pastor
Nº of researchers: 4
Funding entity or bodies:

European Space Agency

Type of participation: Principal investigator
Name of the programme: ESA GBF Access Program
Start-End date: 01/01/2020 - 30/06/2024 **Duration:** 4 years - 6 months
Participating entity/entities: Amsterdam (ESTEC-DESC); CAB-CSIC (Torrejón); CIB-CSIC (Madrid); Universities of Paris VI & Paul Sabatier (Toulouse) Ground based Facilities in Toulouse (GSBMS)
Total amount: 49.000 €
Applicant's contribution: This is my third GBF project that it is currentlty granted (2 years with an extension to be executed after COVID19 situation) to expose plants to Mars Environment (radiation and partial g). I have the role of principal Investigator of one of the 4 subprojects (Molecular Biology Approach) and assumed the role of scientific coordinator of the project in summer 2022 after retirement of my lab head Dr. Medina (assisted by 2 local GBF coordinators, Veronica Pereda and Jack van Loon).

5 **Name of the project:** ESA Topical Team: Space Omics: Towards an integrated ESA/NASA –omics database for spaceflight and ground facilities experiments
Degree of contribution: Coordinator of total project, network or consortium
Entity where project took place: European Space Agency
Name principal investigator (PI, Co-PI....): Raul Herranz; Willian da Silveira; Daniela Bezdan; Nathaniel Szewczyk
Nº of researchers: 15
Funding entity or bodies:
European Space Agency

Type of participation: Co-ordinator
Name of the programme: ESA Topical Team
Code according to the funding entity: Contract # 4000131202/20/NL/PG/pt
Start-End date: 01/07/2020 - 31/12/2022 **Duration:** 2 years
Participating entity/entities: CIB-CSIC (Madrid)
Total amount: 20.000 €
Applicant's contribution: Coordinator of the European consortium on Space omisc research. See link https://issop.space/space-omics-topical-team/ Main goal of this topical team is to coordinate european effortsand advise ESA policies to gain more visibility at the International level (including our ongoing collaborations with Genelab and the participation in ISSOP consortium, in which I am also European Coordinator). I am also one (Plants) of the four POC for Genelab AWG.

6 **Name of the project:** Accion Extraordinaria para la Preparación de Proyectos 2021
Geographical area: National
Degree of contribution: Researcher
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Dr. F. Javier Medina Diaz; Dr. Raúl Herranz Barranco
Nº of researchers: 2
Funding entity or bodies:
CSIC

Type of participation: Principal investigator
Code according to the funding entity: 2021AEP135
Start-End date: 01/01/2022 - 31/08/2022 **Duration:** 9 months
Participating entity/entities: CSIC
Total amount: 520.000 €
Applicant's contribution: Complementary grant to be executed in the context of PID2021-126507OB-I00 (PI Dr. Medina) project for the preparation of the activities (mainly ESA simulation facilities experiments) to be developed before the next project PID2021-126507OB-I00 (PI Dr. Herranz) is granted.

7 **Name of the project:** Plantas para la exploración espacial. Resultados de experimentos en la ISS y nuevos experimentos europeos
Geographical area: National
Degree of contribution: Researcher
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Dr. F. Javier Medina Díaz; Dr. Raúl Herranz Barranco
Nº of researchers: 2
Funding entity or bodies:
Ministerio de Economía y Competitividad. Programa Nacional de I+d+i

Type of participation: Team member
Code according to the funding entity: RTI2018-099309-B-I00
Start-End date: 01/01/2019 - 29/07/2022 **Duration:** 3 years - 7 months
Participating entity/entities: CSIC
Total amount: 177.000 €
Applicant's contribution: As member of the research team, I am in charge of the molecular biology experiments and/or experiments performed in simulated microgravity facilities (ESA GBF projects).

8 **Name of the project:** ROOTROPS - Tackling the roots of bending
Geographical area: European Union
Degree of contribution: Researcher
Name principal investigator (PI, Co-PI....): Giovanna Aronne; Jack W.A. van Loon; F Javier Medina Diaz; John Z. Kiss
Nº of researchers: 4
Funding entity or bodies:
European Space Agency

Type of participation: Team member
Name of the programme: ESA GBF Access Program
Start-End date: 2019 - 2020 **Duration:** 2 years
Participating entity/entities: CIB-CSIC (Madrid); ESTEC-DESC (Amsterdam); UNINA (Naples)
Total amount: 34.000 €
Applicant's contribution: My expertise on other GBF have been used as a team member and consultant in the preparation of the proposal and execution. Granted in January 2019.

9 **Name of the project:** The Plant Adaptation to Space Environment. Lessons learned from a major ESA/NASA joint experiment in Plant Biology on board ISS. Organization of a Workshop to discuss the results and conclusions of the SEEDLING GROWTH experiment
Geographical area: European Union
Degree of contribution: Researcher
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): F Javier Medina Diaz; John Z. Kiss; Eugenie Carnero Diaz; Raúl Herranz Barranco
Nº of researchers: 4
Funding entity or bodies:
European Low-Gravity Research Association **Type of entity:** Associations and Groups

Type of participation: Team member
Name of the programme: Gravity Spotlight Team
Start-End date: 2019 - 2020 **Duration:** 6 months

Participating entity/entities: CIB-CSIC (Madrid); ESTEC-DESC (Amsterdam); Institut Systématique, Evolution, Biodiversité (ISYEB), Museum National d'Histoire Naturelle, CNRS, Sorbonne Université, EPHE.57 rue Cuvier CP39, 75005 Paris,; University of North Carolina at Greensboro, Greensboro, NC 27402, USA

Total amount: 5.000 €

Applicant's contribution: Grant for the the organization of a dedicated workshop in Granada in 2019 which the results of the space experiment "Seedling Growth" (SG, 2012-2018, recently been completed in both the spaceflights and ground segments. It has been one of the most complex and ambitious projects carried out in the International Space Station (ISS) on Plant Biology until now, as a result of NASA/ESA cooperation) led by the consortium endorsing this proposal will be discussed and summarized and relevant conclusions are reached and shared.

10 **Name of the project:** United Nations Human Space Technology Initiative (UN-HSTI) Zero-Gravity Instrument Project (ZGIP)

Type of project: Basic research (including archaeological digs, etc)

Geographical area: Non EU International

Degree of contribution: Coordinator of total project, network or consortium

Entity where project took place: Centro de Investigaciones Biológicas

Type of entity: State agency

Name principal investigator (PI, Co-PI....): Raul Herranz; F Javier Medina

Nº of researchers: 2

Funding entity or bodies:

United Nations Office for Outer Space Affairs

Type of entity: Foundation

City funding entity: Vienna, Switzerland

Type of participation: Co-Investigador

Start-End date: 01/09/2014 - 31/08/2019

Duration: 5 years

Applicant's contribution: My role is the coordination of the use of a microgravity simulation facility (clinostat) to be used in our lab (Research activity) and also for demonstrations in a related Primary School (Educational/outreach activity). in the context of a real Spaceflight mission Ground controls experiments. Due to the success of the first 2 years project, a continuation project (a second clinostat unit) was granted, so the duration of the project was extended up to 5 years. The Facilities will remain in our lab after the duration of the project so the activity will be extended as long as possible.

11 **Name of the project:** Crecer plantas en el espacio. Experimentos en la Estación Espacial Internacional con liderazgo español

Geographical area: National

Degree of contribution: Researcher

Entity where project took place: Centro de Investigaciones Biológicas

Type of entity: State agency

Name principal investigator (PI, Co-PI....): Dr. F. Javier Medina Díaz; Dr. Eugénie Carnero-Diaz; Dr. Julio Sáez-Vasquez; Dr. Raúl Herranz Barranco

Nº of researchers: 4

Funding entity or bodies:

Ministerio de Economía y Competitividad. Programa Nacional de I+d+i

Type of participation: Team member

Code according to the funding entity: ESP2015-64323-R

Start-End date: 01/01/2016 - 30/06/2019

Duration: 3 years - 6 months

Participating entity/entities: CSIC

Total amount: 150.000 €

Applicant's contribution: Starting on october 2017, I requested to be member of the research team, being in charge of the molecular biology experiments and/or experiments performed in simulated microgravity facilities.

12 **Name of the project:** PLANT DEVELOPMENT project (A SERIES OF ESA SPACEFLIGHTS to ISS)
Geographical area: Non EU International
Degree of contribution: Researcher
Entity where project took place: International Space Station (ISS)
Name principal investigator (PI, Co-PI....): Dr.Medina (PI); Dr.Carnero-Diaz (Co-PI); Dr.Kittang (Co-PI); Dr. Raul Herranz; Dr. Elodie Boucheron-Dubuison; Dr. Veronica Pereda; Dr. Cristian Mazars; Prof. tor-Henning Iversen
Nº of researchers: 9
Funding entity or bodies:
European Space Agency (Mission to the International Space Station)

Type of participation: Team member
Code according to the funding entity: ILSRA-2001-001 (Genara-B) / ILSRA-2004-028 (Root Cell Proliferation / ILSRA-2001-051 (Multigen-2)
Start-End date: 2012 - 2018 **Duration:** 15 years
Participating entity/entities: CSIC (Spain); Paris VI and Toulouse Universities (France); Trondheim (Norway)
Total amount: 0 €
Applicant's contribution: This was a JOINT EUROPEAN Arabidopsis thaliana ISS PROJECT currently removed from the ESA pipeline of projects. It was approved as three individual projects, Plant Proliferation (PI, Dr. Medina) in Madrid, together with other partners projects, namely, GENARA-B (PI, Dr. Medina / Dr. Carnero) and MULTIGEN-2 (PI, Prof. Iversen) but not performed due to ESA budget constrains. After 15 years of working in different versions (I joint the project by mid 2011) following ESA managers requirements, a combined european project on plant biology was finally deselected when the Plant Biology EMCS facility was unboarded from the ISS.

13 **Name of the project:** SEEDLING GROWTH project (3 ESA/NASA SPACEFLIGHTS to ISS)
Geographical area: Non EU International
Degree of contribution: Researcher
Entity where project took place: International Space Station (ISS)
Name principal investigator (PI, Co-PI....): Dr. F. J. Medina (ESA PI); Dr. John Z. Kiss (NASA PI); Dr. Raul Herranz (ESA CoI); Dr. Richard E. Edelmann (NASA CoI); Dr. Eugénie Carnero-Diaz; Dr. Elodie Boucheron-Dubuisson; Dr. Julio Saez-Vasquez
Nº of researchers: 7
Funding entity or bodies:
European Space Agency (ESA))

National Aeronautics and Space Administration (NASA)

Type of participation: Co-Investigador
Code according to the funding entity: ILSRA2009-0932/ILSRA2009-1177
Start-End date: 2012 - 2018 **Duration:** 7 years
Participating entity/entities: CSIC; Miami University (OH, USA); Paris VI; Toulouse and Perpignan Universities (France)
Applicant's contribution: This Spaceflight project entitled "Transduction of the light stimulation signal and its effects on cell growth and proliferation under spaceflight conditions in Arabidopsis thaliana (SEEDLING GROWTH)" is a Joint ESA/NASA mission to maximize the output of the european and northamerican parners. Three spaceflights for 2013, 2014 and 2015 has been granted. Finally the last fight was performed in 2017 and the last Ground Control activity will be completed in summer 2018 completing the project. I acted as European Co-I in the experiments (particularly in SG3 focused on Space transcriptomics).

14 **Name of the project:** Plants in the International Space Station. Space and ground-based research included in ESA and NASA programmes
Geographical area: National

Degree of contribution: Researcher
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Dr. F. Javier Medina Díaz; Dr. Eugénie Carnero-Diaz; Dr. Julio Sáez-Vasquez; Raul Herranz Barranco
Nº of researchers: 4
Funding entity or bodies:
Ministerio de Economía y Competitividad. Programa Nacional de I+d+i

Type of participation: Team member
Code according to the funding entity: AYA2012-33982
Start-End date: 01/01/2013 - 31/12/2015 **Duration:** 3 years
Participating entity/entities: CSIC
Total amount: 84.000 €
Applicant's contribution: Posdoctoral Associate researcher

15 **Name of the project:** GIA Project: From GBF to ISS with A. thaliana. Utilization of ground based microgravity simulation to improve the scientific knowledge and expected returns from already approved experiments to be performed with Arabidopsis thaliana in ISS
Geographical area: European Union
Degree of contribution: Scientific coordinator
Name principal investigator (PI, Co-PI....): Dr. Raúl Herranz Barranco; F Javier Medina Diaz; Eugenie Carnero-Diaz; Christian Mazars
Nº of researchers: 4
Funding entity or bodies:
European Space Agency

Type of participation: Co-ordinator
Name of the programme: ESA GBF Access Program
Code according to the funding entity: ESA Contract 4000105761
Start-End date: 01/01/2012 - 31/12/2013 **Duration:** 2 years
Participating entity/entities: Amsterdam (DESC) and Cologne (DLR); CIB-CSIC (Madrid); Universities of Paris VI & Paul Sabatier (Toulouse) Ground based Facilities in Toulouse (GSBMS)
Total amount: 46.900 €
Applicant's contribution: Scientific coordinator of the project (assisted by 3 local GBF coordinators, Veronica Pereda, Jack van Loon and Ruth Hemmersbach) Principal Investigator of one of the 4 subprojects (Molecular Biology Approach)

16 **Name of the project:** ESA Topical Team: Arabidopsis thaliana space experiments utilising existing or planned experiment hardware and facilities on ISS”
Degree of contribution: Researcher
Entity where project took place: European Space Agency
Name principal investigator (PI, Co-PI....): Dr. Ann-Iren Kittang (Chair from NTNU Norway); Abdul Basit Mohammad; F Javier Medina; Elodie Boucheron; Eugenie Carnero-Diaz; Raul Herranz; Tor-Henning Iversen; Christian Mazars; Veronica Pereda
Nº of researchers: 9
Funding entity or bodies:
European Space Agency

Type of participation: Team member
Name of the programme: ESA Topical Team
Code according to the funding entity: Contract # 4000106052/12/NL/VJ
Start-End date: 01/01/2012 - 31/12/2012 **Duration:** 1 year

Participating entity/entities: CIB-CSIC (Madrid); Norway; Trondheim; Universities of Paris VI & Paul Sabatier (Toulouse) and Norwegian University of Science and Technology (NTNU)
Total amount: 25.000 €
Applicant's contribution: As a full member of this ESA Topical Team project, I have the opportunity of discuss the further steps in European research strategy to be applies in Biological microgravity field with the major players of this field in Europe.

17 **Name of the project:** Alteraciones Funcionales en Plantas Causadas por la Microgravedad. Investigaciones en el Espacio y en Tierra en el marco de Proyectos Multilaterales Europeos
Geographical area: National
Degree of contribution: Researcher
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Dr. F. Javier Medina Díaz; Dr. Eugénie Carnero-Diaz; Ana I Manzano Perez; Raul Herranz Barranco
Nº of researchers: 3
Funding entity or bodies:
Ministerio de Ciencia y Tecnología. Programa Nacional de I+d+i

Type of participation: Team member
Code according to the funding entity: AYA2009-07952
Start-End date: 01/01/2010 - 31/12/2012 **Duration:** 3 years
Participating entity/entities: CSIC
Total amount: 99.000 €
Applicant's contribution: Posdoctoral Associated Researcher

18 **Name of the project:** Financiación nacional para experimentos cofinanciados por la ESA en GBF europeas de microgravedad simulada: Drosophila
Geographical area: National
Degree of contribution: Researcher
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Dr. Raul Herranz Barranco (PI); F Javier Medina Diaz
Nº of researchers: 2
Funding entity or bodies:
Ministerio de Ciencia e Innovación **Type of entity:** Body, others

Type of participation: Co-ordinator
Name of the programme: Acción Especial Plan Nacional de I+D+i
Code according to the funding entity: AYA2009-07792-E
Start-End date: 01/03/2011 - 31/08/2012 **Duration:** 1 year - 6 months
Participating entity/entities: CSIC
Total amount: 23.000 €
Applicant's contribution: This project allowed me, as Principal Investigator, to fund some space omics (microarray-related) remaining experiments with samples obtained during my Research Stay in The Netherlands. The project was successfully finished by the publication of three first quartile articles concerning microarray results and three additional articles already submitted and in different degrees of the editorial process.

19 **Name of the project:** Magnetic Levitation of plant cell cultures: its effects on cell proliferation and cell growth
Geographical area: European Union
Degree of contribution: Researcher

Entity where project took place: High Field Magnet Laboratory at Nijmegen Radbound University **Type of entity:** University
City of entity: Nijmegen, Holland
Name principal investigator (PI, Co-PI....): Dr. R. Herranz; Dr. F. J. Medina
Nº of researchers: 2
Funding entity or bodies:
European Union

Type of participation: Principal investigator
Name of the programme: European Union EUROMAGNET II
Code according to the funding entity: Project 2010.17 (NSO06-209)
Start-End date: 01/01/2010 - 31/12/2011 **Duration:** 2 years
Participating entity/entities: CIB-CSIC (Madrid)
Total amount: 50 €
Applicant's contribution: As a consequence of the ESA GBF project I coordinated, all GBF partners had the opportunity to apply for magnetic time and travelling costs to the Transnational Access to the HFML. Our group exposed cell cultures and seedlings in 50 hours.

20 **Name of the project:** Systematic Evaluation of the ground based (micro-) gravity simulation paradigms available in Europe. First Phase: Similarities and Differences between the different approaches. SEGMGSPE_Ph1
Geographical area: European Union
Degree of contribution: Scientific coordinator
Name principal investigator (PI, Co-PI....): Dr. Raúl Herranz Barranco; Ralf Anken; Johannes Boonstra; Markus Braun; Reinhard Hilbig; F Javier Medina; Jack van Loon; Ruth Hemmersbach; Ralf Anken
Nº of researchers: 9
Funding entity or bodies:
European Space Agency

Type of participation: Co-ordinator
Name of the programme: ESA GBF Access program
Code according to the funding entity: ESA contract 4200022650
Start-End date: 01/01/2010 - 31/12/2011 **Duration:** 2 years
Participating entity/entities: Amsterdam (in The Netherlands) & Zurich (in Switzerland); Bonn & Hohenheim (in Germany); CIB-CSIC (Madrid); Ground based Facilities in Amsterdam (DESC) and Cologne (DLR); Universities of Erlangen; Utrecht
Total amount: 48.900 €
Applicant's contribution: Scientific coordinator of the project (assisted by 2 local GBF coordinators, Jack van Loon and Ruth Hemmersbach) Principal Investigator of one of the 7 subprojects (Drosophila). See publication #10. Thanks to the expertise obtained in the previous stay, I was awarded this project, headed and coordinated by me, which included the top microgravity biologists in Europe. It was completely successful, allowing individual researchers access to European Community funding to use the HFML facilities and it has been generated (in addition to each group publications) a publication review with important agreements for future use of this facilities in Europe.

21 **Name of the project:** Experimentos Biológicos en Microgravedad Real y Simulada en el Marco del Programa ELIPS-2 de la Agencia Espacial Europea" ESP2006-13600-C02-01.
Degree of contribution: Researcher
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
Name principal investigator (PI, Co-PI....): Prof. Dr. Roberto Marco Cuellar; F Javier Medina Diaz; Raul Herranz Barranco
Nº of researchers: 3
Funding entity or bodies:

Ministerio de Ciencia y Tecnología. Programa Nacional del Espacio

Type of participation: Others
Code according to the funding entity: ESP2006-13600-C02-01
Start-End date: 2007 - 2009
Participating entity/entities: UAM - CSIC
Total amount: 128.000 €
Applicant's contribution: Hired Researcher

22 **Name of the project:** Experimentos de Drosophila melanogaster en la Estación Espacial Internacional ligados a la Misión Soyuz Española" Ayuda Especial.
Degree of contribution: Researcher
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
Name principal investigator (PI, Co-PI....): Prof. Dr. Roberto Marco Cuellar; F Javier Medina Diaz; Raul Herranz Barranco
Nº of researchers: 3
Funding entity or bodies:
Ministerio de Ciencia y Tecnología. Programa Nacional del Espacio

Type of participation: Others
Start-End date: 2004 - 2007 **Duration:** 3 years
Participating entity/entities: UAM - CSIC
Total amount: 200.000 €
Applicant's contribution: Hired Researcher

23 **Name of the project:** Experimentos preparatorios para la utilización científica de la Estación Espacial Internacional
Degree of contribution: Technician
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
Name principal investigator (PI, Co-PI....): Prof. Dr. Roberto Marco Cuellar
Nº of researchers: 4
Funding entity or bodies:
Ministerio de Ciencia y Tecnología. Programa Nacional del Espacio

Start-End date: 2003 - 2005 **Duration:** 3 years
Participating entity/entities: UAM - CSIC
Total amount: 169.400 €
Applicant's contribution: Responsible of the technical handling of samples in the Cervantes mission to the ISS

24 **Name of the project:** Experimentos de Drosophila melanogaster en la Estación Espacial Internacional ligados a la Misión Soyuz Española (Spanish Soyuz Misión). ESP2002-11913.
Degree of contribution: Current university student
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
Name principal investigator (PI, Co-PI....): Prof. Dr. Roberto Marco Cuellar
Nº of researchers: 5
Funding entity or bodies:
Ministerio de Ciencia y Tecnología. Programa Nacional del Espacio

Code according to the funding entity: ESP2002-11913
Start-End date: 2002 - 2004 **Duration:** 3 years

Participating entity/entities: UAM - CSIC
Total amount: 200.000 €
Applicant's contribution: Responsible of the technical handling of samples in the Cervantes mission to the ISS

25 **Name of the project:** SOYUZ SPACEFLIGHT - MISION CERVANTES (GENE, AGEING & ROOT experiments)
Degree of contribution: Current university student
Entity where project took place: International Space Station (ISS)
Name principal investigator (PI, Co-PI....): Prof. Marco (GENE/ AGEING PI); Dr.Medina (ROOT PI) .
Nº of researchers: 2
Funding entity or bodies:
European Space Agency

Type of participation: Investigador Predoctoral
Start-End date: 10/2003 - 10/2003 **Duration:** 10 days
Participating entity/entities: Centro de Investigaciones Biológicas; Universidad Autónoma de Madrid
Applicant's contribution: As the Predoctoral fellow associated to these experiments done in the International Space Station, I performed the preflight tests, flight hardware preparation, recovery of the ISS flight samples and processing of the samples on landing site (Moscow, Starcity).

26 **Name of the project:** La Estación Espacial Internacional y la adaptación de los seres vivos a la microgravedad: Diseño y puesta a punto de experimentos durante su fase de ensamblaje 2000-2002.
Degree of contribution: Current university student
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
Name principal investigator (PI, Co-PI....): Prof. Dr. Roberto Marco Cuellar
Nº of researchers: 5
Funding entity or bodies:
CICYT - Programa Nacional de Investigación Espacial

Start-End date: 2000 - 2002 **Duration:** 3 years
Participating entity/entities: UAM - CSIC
Total amount: 80.000 €
Dedication regime: Part time
Applicant's contribution: Optimization of protocols and hardware to be done in Space

27 **Name of the project:** Aislamiento, caracterización molecular y genética de los componentes Troponina de Drosophila melanogaster.
Degree of contribution: Current university student
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
Name principal investigator (PI, Co-PI....): Prof. Dr. Roberto Marco Cuellar
Nº of researchers: 3
Funding entity or bodies:
Programa Nacional de Promoción General del Conocimiento **Type of entity:** Public Research Body

Start-End date: 1999 - 2000 **Duration:** 2 years
Participating entity/entities: UAM – CSIC
Total amount: 60.000 €
Dedication regime: Part time
Applicant's contribution: Identification and evolutionary characterization of the insects troponin genes

R&D non-competitive contracts, agreements or projects with public or private entities

1 **Name of the project:** Diseño de una unidad de fijación (FIX-BOX, ESA) para el experimento SEEDLING GROWTH compatible con el hardware TROPI (NASA)

Type of project: Technical viability study

Entity where project took place: Centro de Investigaciones Biológicas

Degree of contribution: Researcher

Entity where project took place: Centro de Investigaciones Biológicas

Type of entity: State agency

Name principal investigator (PI, Co-PI....): Dr. F Javier Medina; Dr. Raul Herranz

Nº of researchers: 2

Funding entity or bodies:

NTE (Nuevas Tecnologías Espaciales SL) - SENER

Start date: 2013

Duration: 3 years

Relevant results: Adaptation of a fixation unit to the existing TROPI hardware to be used in Seedling Growth mission 2 and 3. This activity has supposed an industrial return of more than one million euros as a consequence of our research projects.

2 **Name of the project:** Preservación de muestras biológicas (fijadas y no-fijadas) en la investigación espacial

Type of project: Industrial research

Entity where project took place: Universidad Autónoma de Madrid

Degree of contribution: Current university student

Entity where project took place: Universidad Autónoma de Madrid

Type of entity: University

Name principal investigator (PI, Co-PI....): Dr. F Javier Medina (Chair); Dr. Roberto Marco

Nº of researchers: 2

Funding entity or bodies:

European Space Agency

Type of entity: State agency

NTE (Nuevas Tecnologías Espaciales SL)

Type of entity: Business

City funding entity: Barcelona, Spain

DISTCOM Antenas SL

Type of entity: Business

City funding entity: Torrelodones, Community of Madrid, Spain

Name of the programme: European Space Agency Life Science Topical Teams

Start date: 2001

Duration: 2 years

Relevant results: Design of new fixation protocols to be used in automatic hardware in the International Space Station (Herranz et al. J Gravit Physiol 2005).

3 **Name of the project:** Perfeccionamiento de un nuevo tipo de unidad automatizada para el cultivo de Drosophila y de instrumentación complementaria para su uso en la ISS.

Type of project: Industrial research

Entity where project took place: Consejo Superior de Investigaciones Científicas

Degree of contribution: Current university student

Entity where project took place: Consejo Superior de Investigaciones Científicas

Type of entity: State agency

Name principal investigator (PI, Co-PI....): Prof. Roberto Marco

Nº of researchers: 1

Funding entity or bodies:

Consejo Superior de Investigaciones Científicas

Type of entity: State agency

City funding entity: Madrid, Community of Madrid, Spain

NTE (Nuevas Tecnologías Espaciales SL) **Type of entity:** Business
City funding entity: Barcelona, Spain

Name of the programme: Formación y Especialización en Líneas de Interés Industrial
Start date: 01/11/1999 **Duration:** 1 year
Relevant results: Knowledge transfer to the spanish productive sector in the emerging field of Aerospace enginering (optimization of a cultivation unit of Drophila for the ISS, Herranz et al 2002).

Results

Industrial and intellectual property

1 **Title registered industrial property:** Support to Spanish companies (Carlos SanMiguel) in the development of new 3D microgravity simulation devices (RPM)
Country of inscription: Spain, Basque Country
Date of register: 2022

2 **Title registered industrial property:** DESIGN OF HARDWARE FOR MICROGRAVITY SIMULATION GIA2 PROJECT (D-BOX)
Entity holder of rights: CSIC
Country of inscription: Spain, Catalonia
Date of register: 2020

3 **Title registered industrial property:** DESIGN OF HARDWARE FOR MICROGRAVITY SIMULATION ROOTROPS PROJECT (D-BOX)
Entity holder of rights: University of Naples
Country of inscription: Italy
Date of register: 2019

4 **Title registered industrial property:** Support to Spanish companies (INGESEA) in the development of new 3D microgravity simulation devices (RPM)
Country of inscription: Spain, Basque Country
Date of register: 2018

5 **Title registered industrial property:** DESIGN OF A FIX – BOX FOR THE SEEDLING GROWTH EXPERIMENT TO BE PERFORMED INTO THE TROPI HARDWARE (EMCS AT INTERNATIONAL SPACE STATION)
Type of industrial property: Collaboration in the Design and Testing of Spaceflight Experiments Hardware
Entity holder of rights: European Space Agency (Built by Airbus Space (formerly NTE-SENER))
Country of inscription: Spain, Catalonia
Date of register: 2016

6 **Title registered industrial property:** ESTABLISHMENT OF A PERMANENT COLONY OF Drosophila IN THE ISS: Hardware Test and Adaption of Techniques
Type of industrial property: Collaboration in the Design and Testing of Spaceflight Experiments Hardware
Entity holder of rights: European Space Agency (Built by NTE SL (Nuevas Tecnologías Espaciales)
Country of inscription: Spain, Catalonia
Date of register: 2002

Scientific and technological activities

Scientific production

H index: 27
Date of application: 26/06/2024
Source of H-Index: GOOGLE SCHOLAR

Publications, scientific and technical documents

1 Lindsay Rutter; Henry Cope; Matthew J MacKay; Raúl Herranz; Sergey A Ponomarev; Sylvain V Costes; Amber M Paul; Richard Barker; Deanne M Taylor; Daniela Bezdan; Nathaniel J Szewczyk; Masafumi Muratani; Christopher E Mason; Stefania Giacomello. Astronaut omics and the impact of space on the human body at scale. Nature Communications. 15 - 1, pp. 4952. NATURE Publishing Group, 11/06/2024. ISSN 2373-8065

Type of production: Scientific paper
Format: Journal
Position of signature: 4
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 14
Corresponding author: No
Impact source: ISI
Category: Science Edition - MULTIDISCIPLINARY SCIENCES
Impact index in year of publication: 14.7
Journal in the top 25%: Yes
Position of publication: 8
No. of journals in the cat.: 134

Relevant results: Main publication of the ISSOP consortium I have been contributing as European Coordinator since 2019. Identify the importance of international standars in Human Space Omics.
Relevant publication: Yes

2 Trent Davis; Kevin Tabury; Shouan Zhu; Debora Angeloni; Sarah Baatout; Alexandra Benchoua; Juergen Bereiter-Hahn; Daniele Bottai; Judith-Irina Buchheim; Marco Calvaruso; Eugénie Carnero-Diaz; Sara Castiglioni; Duccio Cavalieri; Gabriele Ceccarelli; Alexander Choukér; Francesca Cialdai; Gianni Ciofani; Giuseppe Coppola; Gabriella Cusella; Andrea Degl'Innocenti; Jean-Francois Desaphy; Jean-Pol Frippiat; Michael Gelinsky; Giada Genchi,; Maria Grano; Daniela Grimm; Alain Guignandon; Christiane Hahn; Jason Hatton; Raúl Herranz; Christine E Hellweg; Carlo Saverio Iorio; Thodoris Karapantsios; Jack Van Loon; Matteo Lulli; Jeanette Maier; Jos Malda; Emina Mamaca; Lucia Morbidelli; Angelique Van Ombergen; Andreas Osterman; Aleksandr Ovsianikov; Francesco Pampaloni; Elizabeth Pavezlorie; Veronica Pereda-Campos; Cyrille Przybyla; Christopher Puhl; Petra Rettberg; Angela Maria Rizzo; Kate Robson-Brown; Leonardo Rossi; Giorgio Russo; Alessandra Salvetti; Daniela Santucci; Matthias Sperl; Sara Tavella; Christiane Thielemann; Ronnie Willaert; Nathaniel J Szewczyk; Monica Monici. How are cell and tissue structure and function influenced by gravity and what are the gravity perception mechanisms?. NPJ Microgravity. 10 - 1, pp. 16. NATURE Publishing Group, 10/02/2024. ISSN 2373-8065

Type of production: Scientific paper
Format: Journal
Position of signature: 30
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 60
Corresponding author: No
Impact source: ISI
Category: Agricultural and Biological Sciences (miscellaneous) (Q1);
Impact index in year of publication: 4.87
Journal in the top 25%: Yes
Position of publication: 45
No. of journals in the cat.: 355

Relevant results: Main publication of the ESA research community to SpaceSci Human and Robotics exploration at the graviperception level. More than 60 researchers, key players in the European microgravity research community in the last decade.
Relevant publication: Yes

3 Craig RG Willis; Marco Calvaruso; Debora Angeloni; Sarah Baatout; Alexandra Benchoua; Juergen Bereiter-Hahn; Daniele Bottai; Judith-Irina Buchheim; Marco Calvaruso; Eugénie Carnero-Diaz; Sara Castiglioni; Duccio Cavalieri; Gabriele Ceccarelli; Alexander Choukér; Francesca Cialdai; Gianni Ciofani; Giuseppe Coppola; Gabriella Cusella; Andrea Degl'Innocenti; Jean-Francois Desaphy; Jean-Pol Frippiat; Michael Gelinsky; Giada Genchi; Maria Grano; Daniela Grimm; Alain Guignandon; Raúl Herranz; Christine E Hellweg; Carlo Saverio Iorio; Thodoris Karapantsios; Jack Van Loon; Matteo Lulli; Jeanette Maier; Jos Malda; Emina Mamaca; Lucia Morbidelli; Andreas Osterman; Aleksandr Ovsianikov; Francesco Pampaloni; Elizabeth Pavezlorie; Veronica Pereda-Campos; Cyrille Przybyla; Petra Rettberg; Angela Maria Rizzo; Kate Robson-Brown; Leonardo Rossi; Giorgio Russo; Alessandra Salvetti; Chiara Risaliti; Daniela Santucci; Matthias Sperl; Kevin Tabury; Sara Tavella; Christiane Thielemann; Ronnie Willaert; Monica Monici; Nathaniel J Szewczyk. How to obtain an integrated picture of the molecular networks involved in adaptation to microgravity in different biological systems?. NPJ Microgravity. 10 - 1, pp. 50. NATURE Publishing Group, 05/01/2024. ISSN 2373-8065

Type of production: Scientific paper
Format: Journal
Position of signature: 27
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 57
Corresponding author: No
Impact source: ISI
Category: Agricultural and Biological Sciences (miscellaneous) (Q1);
Impact index in year of publication: 4.87
Journal in the top 25%: Yes
Position of publication: 45
No. of journals in the cat.: 355

Relevant results: Main publication of the ESA research community to SpaceSci Human and Robotics exploration at the molecular level. Nearly 60 researchers, key players in the European microgravity research community in the last decade.
Relevant publication: Yes

4 Francesca Cialdai; Austin M Brown; Cory W Baumann; Debora Angeloni; Sarah Baatout; Alexandra Benchoua; Juergen Bereiter-Hahn; Daniele Bottai; Judith-Irina Buchheim; Marco Calvaruso; Eugénie Carnero-Diaz; Sara Castiglioni; Duccio Cavalieri; Gabriele Ceccarelli; Alexander Choukér; Gianni Ciofani; Giuseppe Coppola; Gabriella Cusella; Andrea Degl'Innocenti; Jean-Francois Desaphy; Jean-Pol Frippiat; Michael Gelinsky; Giada Genchi,; Maria Grano; Daniela Grimm; Alain Guignandon; Christiane Hahn; Jason Hatton; Raúl Herranz; Christine E Hellweg; Carlo Saverio Iorio; Thodoris Karapantsios; Jack Van Loon; Matteo Lulli; Jeanette Maier; Jos Malda; Emina Mamaca; Lucia Morbidelli; Angelique Van Ombergen; Andreas Osterman; Aleksandr Ovsianikov; Francesco Pampaloni; Elizabeth Pavezlorie; Veronica Pereda-Campos; Cyrille Przybyla; Christopher Puhl; Petra Rettberg; Chiara Risaliti; Angela Maria Rizzo; Kate Robson-Brown; Leonardo Rossi; Giorgio Russo; Alessandra Salvetti; Daniela Santucci; Matthias Sperl; Felice Strollo; Kevin Tabury; Sara Tavella; Christiane Thielemann; Ronnie Willaert; Nathaniel J Szewczyk; Monica Monici. How do gravity alterations affect animal and human systems at a cellular/tissue level?. NPJ Microgravity. 9 - 1, pp. 84. NATURE Publishing Group, 21/10/2023. ISSN 2373-8065

Type of production: Scientific paper
Format: Journal
Position of signature: 29
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 62
Corresponding author: No
Impact source: ISI
Category: Agricultural and Biological Sciences (miscellaneous) (Q1);
Impact index in year of publication: 4.87
Journal in the top 25%: Yes
Position of publication: 45
No. of journals in the cat.: 355

Relevant results: Main publication of the ESA research community to SpaceSci Human and Robotics exploration. More than 60 researchers, key players in the European microgravity research community in the last decade.
Relevant publication: Yes

5 Aranzazu Manzano; Silvio Weging; Daniela Bezdan; Joseph Borg; Thomas Cahill; Eugenie Carnero-Diaz; Henry Cope; Colleen S Deane; Timothy Etheridge; Stefania Giacomello; Gary Hardiman; Natalie Leys; Pedro Madrigal; Felice Mastroleo; F Javier Medina; Jakub Mieczkowski; Manuel A Fernandez-Rojo; Keith Siew; Nathaniel Szewczyk; Stephen B Walsh; Wilian da Silveira; Raul Herranz. Enhancing European capabilities for application of multi-omics studies in biology and biomedicine space research. iScience. 26 - 9, pp. 107289 - 0. Cell Press Journals, 15/09/2023. ISSN 25890042

Type of production: Scientific paper
Format: Journal
Position of signature: 22
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 22
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MULTIDISCIPLINARY SCIENCES
Impact index in year of publication: 5,08
Journal in the top 25%: Yes

Relevant results: Last review of the Space Omics research in europe (I hold the role of coordinator of the ESA Space Omics Topical Team). This paper compile the recomendations for the European Space Omics Collection as the closure of the Cell Press 2022 collection (co-guest editored by me).
Relevant publication: Yes

6 Veronica De Micco; Giovanna Aronne; Nicol Caplin; Eugénie Carnero-Diaz; Raúl Herranz; Nele Horemans; Valérie Legué; F Javier Medina; Veronica Pereda-Loth; Mona Schiefloe; Sara De Francesco; Luigi Gennaro Izzo; Isabel Le Disquet; Ann-Iren Kittang Jost. Perspectives for plant biology in space and analogue environments. NPJ Microgravity. 9 - 1, pp. 67. NATURE Publishing Group, 21/08/2023. ISSN 2373-8065

Type of production: Scientific paper
Format: Journal
Position of signature: 5
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 14
Corresponding author: No
Impact source: ISI
Category: Agricultural and Biological Sciences (miscellaneous) (Q1);
Impact index in year of publication: 4.87
Journal in the top 25%: Yes
Position of publication: 45
No. of journals in the cat.: 355

Relevant results: Main publication of the Plant Roadmap definition team I have been contributing since 2019. Identify the keypoint to be researched in Plant Biology for Spaceflight research
Relevant publication: Yes

7 Richard Barker; Colin PS Kruse; Christina Johnson; Amanda Saravia-Butler; Homer Fogle; Hyun-Seok Chang; Ralph Møller Trane; Noah Kinscherf; Alicia Villacampa; Aranzazu Manzano; Raul Herranz; Laurence B Davin; Norman G Lewis; Imara Perera; Chris Wolverton; Parul Gupta; Pankaj Jaiswal; Sigrid S Reinsch; Sarah Wyatt; Simon Gilroy. Meta-analysis of the space flight and microgravity response of the Arabidopsis plant transcriptome. NPJ Microgravity. 9 - 1, pp. 21. NATURE Publishing Group, 20/03/2023. ISSN 2373-8065

Type of production: Scientific paper
Format: Journal
Position of signature: 11
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 20
Corresponding author: No
Impact source: ISI
Category: Agricultural and Biological Sciences (miscellaneous) (Q1);
Impact index in year of publication: 4.87
Journal in the top 25%: Yes
Position of publication: 45
No. of journals in the cat.: 355

Relevant results: Main publication of the NASA GeneLab Plant AWG I have been contributing since 2019. Identify the importance of suboptimal environmental conditions for spaceflight experiments, mainly due to hardware used, as I described for Drosophila in 2010.
Relevant publication: Yes

8 Colleen S Deane; Joseph Borg; Thomas Cahill; Eugenie Carnero-Diaz; Timothy Etheridge; Gary Hardiman; Natalie Leys; Pedro Madrigal; Aranzazu Manzano; Felice Mastroleo; F Javier Medina; Manuel A Fernandez-Rojo; Keith Siew; Nathaniel Szewczyk; Alicia Villacampa; Stephen b Walsh; Silvio Weging; Daniela Bezdan; Stefania Giacomello; Wilian da Silveira; Raul Herranz. Space omics research in Europe: contributions, geographical distribution and ESA member state funding schemes. iScience. 25 - 3, pp. 103920 - 0. Cell Press Journals, 18/03/2022. ISSN 25890042

Type of production: Scientific paper
Format: Journal
Position of signature: 21
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 21
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MULTIDISCIPLINARY SCIENCES
Impact index in year of publication: 5,08
Journal in the top 25%: Yes

Relevant results: First review of the Space Omics research in europe (I hold the role of coordinator of the ESA Space Omics Topical Team). This paper is the flagship of a European Space Omics Collection to publish aprox. 20 papers simultaneously in Summer 2022 in Cell Press journals (co-guest editored by me).
Relevant publication: Yes

9 Tatsiana Shymanovich; Joshua P Vandenbrink; Raul Herranz; F Javier Medina; John Z Kiss. Spaceflight studies identify a gene encoding an intermediate filament involved in tropism pathways. Plant Physiology and Biochemistry. 171 - 1, pp. 191 - 200. Elsevier Masson, 15/01/2022. Available on-line at: <https://doi.org/10.1016/j.plaphy.2021.12.039>.

Type of production: Scientific paper
Format: Journal
Position of signature: 5
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 6
Impact source: ISI
Category: Science Edition - PLANT SCIENCES
Impact index in year of publication: 4,27
Journal in the top 25%: Yes
Position of publication: 29
No. of journals in the cat.: 445

Relevant results: Follow up study validating on ground simulation studies the effects on genes previously identified in the Seedling Growth Experiment.
Relevant publication: Yes

10 Giovanna Aronne; Lucius Wilhelminus Franciscus Muthert; Luigi Gennaro Izzo; Leone Ermes Romano; Maurizio Iovane; Fiore Capozzi; Aránzazu Manzano; Malgorzata Ciska; Raúl Herranz; F Javier Medina; John Z Kiss; Jack JWA van Loon. A novel device to study altered gravity and light interactions in seedling tropisms. Life Sciences in Space Research. 32, pp. 8 - 16. Elsevier, 02/01/2022.

Type of production: Scientific paper
Format: Journal
Position of signature: 9
Degree of contribution: Author or co-author of chapter in book
Total no. authors: 12
Corresponding author: No
Impact source: ISI
Category: Science Edition - BIOLOGY
Impact index in year of publication: 2.082
Journal in the top 25%: No
Position of publication: 50
No. of journals in the cat.: 93

Relevant results: Hardware description previous to the results of the GBF project Rootrop in collaboration with Dr. Aronne group
Relevant publication: Yes

11 Luigi Gennaro Izzo; Leone Ermes Romano; Lucius Wilhelminus Franciscus Muthert; Maurizio Iovane; Fiore Capozzi; Aránzazu Manzano; Malgorzata Ciska; Raúl Herranz; F Javier Medina; John Z Kiss; Jack JWA van Loon; Giovanna Aronne. Interaction of gravitropism and phototropism in roots of Brassica oleracea. Environmental and Experimental Botany. 193, pp. 104700. Elsevier, 01/01/2022. Available on-line at: <https://doi.org/10.1016/j.envexpbot.2021.104700>.

Type of production: Scientific paper
Format: Journal
Position of signature: 8
Degree of contribution: Author or co-author of chapter in book
Total no. authors: 12
Corresponding author: No
Impact source: ISI
Category: Science Edition - PLANT SCIENCES
Impact index in year of publication: 5.54
Journal in the top 25%: Yes
Position of publication: 23
No. of journals in the cat.: 445

Relevant results: First report of the results of the GBF project Rootrops in collaboration with Dr. Aronne group
Relevant publication: Yes

12 Thomas Cahill; Henry Cope; Joseph J. Bass; Eliah G. Overbey; Rachel Gilbert; Willian Abraham da Silveira; Amber M. Paul; Tejaswini Mishra; Raúl Herranz; Sigrid S. Reinsch; Sylvain V. Costes; Gary Hardiman; Gary Hardiman; Candice G. T. Tahimic. Mammalian and Invertebrate Models as Complementary Tools for Gaining Mechanistic Insight on Muscle Responses to Spaceflight. Int. J. Mol. Sci. 22 - 17, pp. 9470. MDPI, 31/08/2021. ISSN 1422-0067

Type of production: Scientific paper
Format: Journal
Position of signature: 9
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 14
Corresponding author: No
Impact source: ISI
Category: Science Edition - BIOCHEMISTRY & MOLECULAR BIOLOGY
Impact index in year of publication: 5.923
Journal in the top 25%: Yes

Relevant results: Article revisiting the use of animal models (Drosophila/ C. elegans) to advance in space biology, in this moment in which rodent missions datasets have been added to GeneLab
Relevant publication: Yes

13 Eliah G Overbey Amanda M Saravia-Butler Zhe Zhan. NASA GeneLab RNA-Seq Consensus Pipeline: Standardized Processing of Short-Read RNA-Seq Data. iScience. pp. 102361. Cell Press Journals, 23/04/2021.

Type of production: Scientific paper
Format: Journal
Position of signature: 21
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 46
Corresponding author: No
Impact source: ISI
Category: Science Edition - MULTIDISCIPLINARY SCIENCES
Impact index in year of publication:
Journal in the top 25%: Yes

Relevant results: Companion paper to the NASA Spaceflight results special issue published in the Cell November 2020 , ellaborating on new pipelines for Space Omics Full issue: https://www.cell.com/c/the-biology-of-spaceflight
Relevant publication: Yes

14 Aranzazu Manzano; Veronica Veronica Pereda-Loth; Anne de Bures; Julio Julio Sáez-Vásquez; Raul Herranz; F Javier Medina. Light signals counteract alterations caused by simulated microgravity in proliferating plant cells. American Journal of Botany. 108 - 1, pp. 1775 - 1792. Botanical Society of AMERICA, 20/04/2021.

Type of production: Scientific paper
Format: Journal
Position of signature: 5
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 6

Impact source: ISI
Category: Science Edition - PLANT SCIENCES
Impact index in year of publication: 2,84
Journal in the top 25%: Yes
Position of publication: 21
No. of journals in the cat.: 190

Relevant results: Multidisciplinary approach article summarizing Dr. Manzano´s thesis main achievements using the microgravity simulation with seedlings.
Relevant publication: Yes

15 Alicia Villacampa; Ludovico Sora; R. Herranz; F.J. Medina; Malgorzata Ciska. Analysis of Graviresponse and Biological Effects of Vertical and Horizontal Clinorotation in Arabidopsis thaliana Root Tip. Plants. 10 - 4, pp. 734. MDPI, 09/04/2021. ISSN 1531-1074
Type of production: Scientific paper
Format: Journal
Position of signature: 3
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: No
Impact source: ISI
Category: Science Edition - GEOSCIENCES, MULTIDISCIPLINARY
Impact index in year of publication: 2,369
Journal in the top 25%: Yes
Position of publication: 34
No. of journals in the cat.: 167

Relevant results: Nice report on the effects of clinorotation modes in the root development. https://doi.org/10.3390/plants10040734
Relevant publication: Yes

16 A. Villacampa; M. Ciska; A. Manzano; J. Vandenbrink; J. Z Kiss; R. Herranz; F.J. Medina. From spaceflight to Mars g-levels: adaptive response of A. thaliana seedlings in a reduced gravity environment is enhanced by red light photostimulation. Int. J. Mol. Sci. 22 - 899, MDPI, 18/01/2021. ISSN 1422-0067
Type of production: Scientific paper
Format: Journal
Position of signature: 6
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 7
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - BIOCHEMISTRY & MOLECULAR BIOLOGY
Impact index in year of publication: 5.923
Journal in the top 25%: Yes
Citations: 4

Relevant results: Seedling Growth project results on the collection of wild type plants exposed to red ligth.
Relevant publication: Yes

17 Aranzazu Manzano; Eva Creus; Albert Tomas; Miguel Angel Valbuena; Alicia Villacampa; Malgorzata Ciska; Richard E. Edelmann; John Kiss; F Javier Medina; Raul Herranz. The FixBox: Hardware to provide on-orbit fixation capabilities to the EMCS on the ISS. Microgravity Science and Technology. 32 - 6, pp. 1105 - 1120. Elsevier, 22/12/2020.
DOI: 10.1007/s12217-016-9531-8
Type of production: Scientific paper
Format: Journal
Position of signature: 10
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 10
Corresponding author: Yes
Relevant results: I am the Corresponding author of this work that introduce a new piece of hardware that have been developed by ESA and built by Airbus Space with our collaboration
Relevant publication: Yes

18 Pedro Madrigal; Alexander Gabel; Alicia Villacampa; Aranzazu Manzano; Colleen S Deane; Daniela Bezdan; Eugenie Carnero-Diaz; F Javier Medina; Gary Hardiman; Ivo Grosse; Nathaniel Szewczyk; Silvio Weging; Stefania Giacomello; Stephen Harridge; Tessa Morrison-Paterson; Thomas Cahill; Wilian da Silveira; Raul Herranz. Revamping Space-omics in Europe. Cell Systems. S2405-4712 - 20, pp. 30413 - 0. Cell Press Journals, 16/12/2020. ISSN 2405-4720

Type of production: Scientific paper
Format: Journal
Position of signature: 18
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 18
Corresponding author: Yes
Impact source: ISI
Category: Biochemistry
Impact index in year of publication: 8,673
Journal in the top 25%: Yes
Citations: 5

Relevant results: Letter introducing a new european group for Space Omics research in europe (I hold the role of coordinator of the ESA Space Omics Topical Team).
Relevant publication: Yes

19 Lindsay Rutter; Richard Barker; Daniela Bezdan; Henry Cope; Sylvain V. Costes; Lovorka Degoricija; Kathleen M. Fisch; Mariano I. Gabitto; Samrawit Gebre; Stefania Giacomello; Simon Gilroy; Stefan J. Green; Christopher E. Mason; Sigrid S. Reinsch; Nathaniel J. Szewczyk; Deanne M. Taylor; Jonathan M. Galazka; Raul Herranz; Masafumi Muratani. A New Era for Space Life Science: International Standards for Space Omics Processing (ISSOP). Patterns. 100148, Cell Press, 25/11/2020. ISSN 2666-3899

Type of production: Scientific paper
Format: Journal
Position of signature: 18
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 19
Corresponding author: Yes
Citations: 13

Relevant results: State of the art description of the Space Omics research requirements including the introduction of a new international consortium ISSOP. My contribution as co-corresponding author for Europe It derives from the role of coordinator of the ESA Space Omics Topical Team. Journal is new (expect high IF)
Relevant publication: Yes

20 Aranzazu Manzano; Alicia Villacampa; Julio Julio Sáez-Vásquez; John Kiss; F Javier Medina; Raul Herranz. The importance of Earth reference controls in spaceflight –omics experiments: Dissecting transcriptional responses of nucleolin mutants to red light stimulation. iScience. 23, pp. 101686. Cell Press Journals, 20/11/2020. ISSN 2589-0042

Type of production: Scientific paper
Format: Journal
Position of signature: 6
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 6
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - MULTIDISCIPLINARY SCIENCES
Impact index in year of publication:
Journal in the top 25%: Yes
Citations: 4

Relevant results: Companion paper to the NASA Spaceflight results special issue published in the Cell November 2020 , ellaborating on our spaceflight 1g control transcriptional status. Cover iScience: https://www.cell.com/iscience/issue?pii=S2589-0042(20)X0011-3 Full issue: https://www.cell.com/c/the-biology-of-spaceflight
Relevant publication: Yes

21 Khaled Y Kamal; Jack JWA van Loon; F Javier Medina; Raul Herranz. Differential transcriptional profile through cell cycle progression in Arabidopsis cultures under simulated microgravity. Genomics. 111 - 6, pp. 1956 - 1965. Elsevier, 01/12/2019. Available on-line at: <https://doi.org/10.1016/j.ygeno.2019.01.007>. ISSN 0888-7543

Type of production: Scientific paper
Format: Journal
Position of signature: 4
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4
Corresponding author: Yes
Impact source: ISI
Category: Genetics and heredity
Impact index in year of publication: 3.16
Journal in the top 25%: No
Position of publication: 65
No. of journals in the cat.: 173
Citations: 10

Relevant results: Although we choose a journal not indexed in Plant Biology, such an impact factor 3.16) fall into the first quartile in the case of Plant Biology journals. I am corresponding author. Published online on January 2019.
Relevant publication: Yes

22 R. Herranz; J. P. Vandenbrink; A. Villacampa; A. Manzano; W. L. Poehlman; F. A. Feltus; J. Z. Kiss; F. J. Medina. RNAseq Analysis of the Response of Arabidopsis thaliana to Fractional Gravity Under Blue-Light Stimulation During Spaceflight. Frontiers in Plant Science. 10 - 1529, Frontiers, 26/11/2019. ISSN 1664-462X

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 8
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - PLANT SCIENCES
Impact index in year of publication: 4.495
Journal in the top 25%: Yes
Position of publication: 15
No. of journals in the cat.: 222
Citations: 22

Relevant results: Submitted by invitation in the Research Topic:Higher Plants, Algae and Cyanobacteria in Space Environments. Second report of our Seedling Growth transcriptomics studies. In this case we report the effects of blue light stimulation on wildtype samples exposed to a gradient of gravity levels from microgravity to 1g on board the ISS.
Relevant publication: Yes

23 J.P. Vandenbrink; R. Herranz; W. L. Poehlman; F. A. Feltus; A. Villacampa; M. Ciska; F. J. Medina; J. Z Kiss. RNA-seq analyses of Arabidopsis thaliana seedlings after exposure to blue-light phototropic stimuli in microgravity. American Journal of Botany. 106 - 11, pp. 1466 - 1476. Botanical Society of America, 10/11/2019. ISSN 1537-2197

Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 8
Corresponding author: No
Impact source: ISI
Category: Science Edition - PLANT SCIENCES
Impact index in year of publication: 2.788
Journal in the top 25%: Yes
Position of publication: 49
No. of journals in the cat.: 222
Citations: 24

Relevant results: First report of our Seedling Growth transcriptomics studies. In this case we report the effects of blue light stimulation on wildtype samples exposed to microgravity on the ISS.
Relevant publication: Yes

24 K. Y. Kamal; R. Herranz; J.J.W.A. van Loon; F. J. Medina. Cell cycle acceleration and changes in essential nuclear functions induced by simulated microgravity in a synchronized Arabidopsis cell culture. Plant Cell and Environment. 42 - 2, pp. 480 - 494. John Wiley & Sons Ltd, 01/02/2019. ISSN 1365-3040

Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4
Corresponding author: No
Impact source: ISI
Category: Plant Sciences
Impact index in year of publication: 5.415
Journal in the top 25%: Yes
Position of publication: 13
No. of journals in the cat.: 222
Citations: 20

Relevant results: Main publication from Dr. Kamal PhD thesys, demostrating that microgravity produces an unequivocal acceleration in cell cycle progresion due to a bypass of the G2/M transition checkpoint.
Relevant publication: Yes

25 Miguel A Valbuena; Aranzazu Manzano; Joshua P Vandenbrink; Veronica Pereda-Loth; Eugenie Carnero-Diaz; Richard E Edelmann; John Z Kiss; Raul Herranz; F Javier Medina. The combined effects of real or simulated microgravity and red-light photoactivation on plant root meristematic cells. Planta. 08/06/2018. ISSN 0032-0935

Type of production: Scientific paper
Format: Journal
Position of signature: 8
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 9
Corresponding author: Yes
Impact source: ISI
Category: Plant Sciences
Impact index in year of publication: 3.249
Journal in the top 25%: Yes
Position of publication: 32
No. of journals in the cat.: 205
Citations: 20

Relevant publication: Yes

26 K.Y. Kamal; R. Herranz; J.J.W.A. van Loon; F.J. Medina. Simulated microgravity, Mars gravity, and 2g hypergravity affect cell cycle regulation, ribosome biogenesis, and epigenetics in Arabidopsis cell cultures. Scientific Reports. 8 - 6424, NATURE Publishing Group, 23/04/2018.

Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4
Corresponding author: No
Impact source: ISI
Category: MULTIDISCIPLINARY SCIENCES
Impact index in year of publication: 4,122
Journal in the top 25%: Yes
Position of publication: 12
No. of journals in the cat.: 64
Citations: 27

Relevant publication: Yes

27 Aranzazu Manzano; Raul Herranz; Leonardus A den Toom; Sjoerd te Slaa; Guus Borst; Martijn Visser; F Javier Medina; Jack JWA van Loon. Novel, Moon and Mars, partial gravity simulation paradigms and their effects on the balance between cell growth and cell proliferation during early plant development. NPJ Microgravity. 4 - 9, pp. 1. NATURE Publishing Group, 04/04/2018. ISSN 2373-8065

Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 8
Corresponding author: No

Impact source: ISI
Impact index in year of publication: 2
Position of publication: 20
Category: MULTIDISCIPLINARY SCIENCES
Journal in the top 25%: No
No. of journals in the cat.: 64
Citations: 33

Relevant publication: Yes

28 Khaled Y Kamal; Jack JWA van Loon; F Javier Medina; Raul Herranz. Embedding Arabidopsis Plant Cell Suspensions in Low-Melting Agarose Facilitates Altered Gravity Studies. Microgravity Science and Technology. 29, pp. 115 - 119. Elsevier, 31/01/2017.
DOI: 10.1007/s12217-016-9531-8
Type of production: Scientific paper
Position of signature: 4
Format: Journal
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes
Relevant results: I am the Corresponding author of this work that complements the article published in LifeScience in Space Biology.
Relevant publication: Yes

29 Elodie Boucheron-Dubuisson; Ana Isabel Manzano; Isabel Le Disquet; Isabel Matía; Julio Sáez-Vasquez; Jack JWA van Loon; Raúl Herranz; Eugenie Carnero-Diaz; F Javier Medina. Functional Alterations of Root Meristematic Cells of Arabidopsis thaliana induced by Simulated Microgravity Environment. Journal of Plant Physiology. 207, pp. 30 - 41. WILEY-BLACKWELL, 19/10/2016. ISSN 0176-1617
Type of production: Scientific paper
Position of signature: 7
Format: Journal
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 9
Impact source: ISI
Impact index in year of publication: 2.971
Position of publication: 38
Category: Science Edition - PLANT SCIENCES
Journal in the top 25%: Yes
No. of journals in the cat.: 209
Citations: 24

Relevant publication: Yes

30 J.P. Vandenbrink; R. Herranz; F.J. Medina; R.E. Edelmann; J.Z. Kiss. A novel blue-light phototropic response is revealed in roots of Arabidopsis thaliana in microgravity. Planta. 244, pp. 1201 - 1215. SPRINGER, 09/08/2016. Available on-line at: <DOI 10.1007/s00425-016-2581-8>. ISSN 0032-0935
Type of production: Scientific paper
Position of signature: 2
Format: Journal
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 5
Impact source: ISI
Impact index in year of publication: 3.239
Position of publication: 32
Category: Science Edition - PLANT SCIENCES
Journal in the top 25%: Yes
No. of journals in the cat.: 209
Citations: 39

Relevant publication: Yes

31 Khaled Y Kamal; Raul Herranz; Jack JWA van Loon; Peter CM Christianen; F Javier Medina. Evaluation of Simulated Microgravity Environments induced by Diamagnetic Levitation of Plant Cell Suspension Cultures. Microgravity Science and Technology. 28 - 3, pp. 309 - 317. Elsevier, 06/2016.
DOI: 10.1007/s12217-015-9472-7

Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes
Relevant results: . am the Corresponding author of this work that complements the article published in LifeScience in Space Biology.
Relevant publication: Yes

32 Ana Isabel Manzano; Raúl Herranz; Aranzazu Manzano; Jack JWA van Loon; F Javier Medina. Early Effects of Altered Gravity Environments on Plant Cell Growth and Cell Proliferation: Characterization of Morphofunctional Nucleolar Types in an Arabidopsis Cell Culture System. Frontiers in Astronomy and Space Science. 3 - 2, Oxford Journals, 02/2016. ISSN 2296-987X
DOI: 10.3389/fspas.2016.00002
Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 5
Relevant results: Shared first coauthorship and correspondence author, relevant multidisciplinary approach on cellular levels effect of simulated microgravity.
Relevant publication: Yes

33 Khaled Y Kamal; Ruth Hemmersbach; F Javier Medina; Raul Herranz. Proper selection of 1 g controls in simulated microgravity research as illustrated with clinorotated plant cell suspension cultures. Life Sci Space Res (Amst). 5, pp. 47 - 52. Elsevier, 04/2015. Available on-line at: <doi: 10.1016/j.lssr.2015.04.004.>. ISSN 2214-5524
Type of production: Scientific paper
Format: Journal
Position of signature: 4
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes
Relevant results: New journal inherited the Biological half of the famous "Advances in Space Research". No IF information is available yet (but it is expected be in the first quartile)
Relevant publication: Yes

34 A.I. Manzano; C.E. Dijkstra; O.J. Larkin; P. Anthony; M.R. Davey; L. Eaves; R.J.A. Hill; R. Herranz; F.J. Medina. Meristematic cell proliferation and ribosome biogenesis are decoupled in diamagnetically levitated Arabidopsis seedlings. BMC Plant Biology. 13 - 124, pp. 1 - 15. BioMed Central, 09/2013. Available on-line at: <http://www.biomedcentral.com/1471-2229/13/124>.
Type of production: Scientific paper
Format: Journal
Position of signature: 8
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Total no. authors: 9
Impact source: ISI
Category: Science Edition - PLANT SCIENCES
Impact index in year of publication: 3,44
Journal in the top 25%: Yes
Position of publication: 21
No. of journals in the cat.: 190

Citations: 42

Relevant results: Multidisciplinary approach article summarizing Dr. Manzano´s thesis main achievements using the Magnetic levitation facility with seedlings.
Relevant publication: Yes

35 R. Herranz; R. Hill; I. Lopez-Vidriero; J.J.W.A. van Loon; F.J. Medina. Suboptimal evolutionary novel environments promote singular altered gravity responses of transcriptome during Drosophila metamorphosis. BMC Evolutionary Biology. 13 - 133, BioMed Central, 06/2013. Available on-line at: <http://www.biomedcentral.com/1471-2148/13/133>. ISSN 1471-2148

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: Yes
Impact source: ISI
Category: Genetics and heredity
Impact index in year of publication: 4,294
Journal in the top 25%: Yes
Position of publication: 29
No. of journals in the cat.: 146
Citations: 13

Relevant results: Final publication of the serie of articles expanding on microgravity simulation effects on Drosophila overall genome effects. It elaborates on previous Mol Ecol, BMC Genomics and J R S Interface publications to produce a final conclusion about overall genoma sinergic and fine-tuning effects.
Relevant publication: Yes

36 Raul Herranz; Richard JA Hill; Camelia E Dijkstra; Laurance Eaves; Jack JWA van Loon; F Javier Medina. The behavioural-driven response of the Drosophila imago transcriptome to different types of modified gravity. Genomics Discovery. 1 - 1, pp. 1 - 7. HOAJ - Herbert Open Access Journals, 05/2013. Available on-line at: <doi: 10.7243/2052-7993-1-1>. ISSN 2052-7993

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: Yes
Relevant results: Article in a new online open access journal (No impact factor available). It expands on previous results published in BMC genomics and Mol Ecology but with a larger dataset of microarray data (environmentally constrained).
Relevant publication: Yes

37 R. Herranz; A. I. Manzano; P.C.M. Christianen; J. J.W.A. van Loon; F.J. Medina. Proteomic signature of Arabidopsis cell cultures exposed to mechanical or magnetical simulators of hyper- and microgravity environments. Astrobiology. 13 - 3, pp. 217 - 224. Mary Ann Liebert Publishers, 03/2013. ISSN 1531-1074

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - GEOSCIENCES, MULTIDISCIPLINARY
Impact index in year of publication: 2,369
Journal in the top 25%: Yes
Position of publication: 34
No. of journals in the cat.: 167
Citations: 34

Relevant results: I am co-first and corresponding author of this article, published in a first quartile journal of the generally low impact factor field of Space Research, in which we have applied a brand new proteomic tecnique to validate our previous genomic approach (Manzano et al. BMC 2012).
Relevant publication: Yes

38 P. Serrano; J.J.W.A. van Loon; F.J. Medina; R. Herranz. Relation between gene expression, motility and accelerated aging in selected Drosophila strains under altered gravity conditions. Microgravity Science and Technology. 25 - 1, pp. 67 - 72. SPRINGER, 11/2012. Available on-line at: <doi:10.1007/s12217-012-9334-5>. ISSN 0938-0108

Type of production: Scientific paper
Format: Journal
Position of signature: 4
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: Yes

Impact source: ISI
Impact index in year of publication: 0,713
Position of publication: 9
Category: engineering aeroespace
Journal in the top 25%: No
No. of journals in the cat.: 27

Relevant results: The articles have been published online (press version is pagination pending) in this relevant, First Tercil journal of the microgravity multidisciplinary research field constitute a series of pieces describing my PhD students results using Ground Base Facilities experiment samples and their proper controls. I am proud to be corresponding author in all of them.
Relevant publication: Yes

39 A. I. Manzano; R. Herranz; J.J.W.A. van Loon; F.J. Medina. A hypergravity environment induced by centrifugation alters plant cell proliferation and Growth in an opposite way to Microgravity. Microgravity Science and Technology. 24 - 6, pp. 373 - 381. SPRINGER, 06/2012. Available on-line at: <doi:10.1007/s12217-012-9301-1>. ISSN 0938-0108

Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Impact index in year of publication: 0,713
Position of publication: 9
Category: engineering aeroespace
Journal in the top 25%: No
No. of journals in the cat.: 27

Relevant results: The articles published in this relevant, First Tercil journal of the microgravity multidisciplinary research field constitute a series of pieces describing my PhD students results using Ground Base Facilities experiment samples and their proper controls. I am proud to be corresponding author in all of them.
Relevant publication: Yes

40 A. I. Manzano; J.J.W.A. van Loon; P. Christianen; F.J. Medina; R. Herranz. Gravitational and magnetic field variations synergize to cause subtle variations in the global transcriptional state of Arabidopsis in vitro callus cultures. BMC Genomics. 13 - 105, BioMed Central, 03/2012. Available on-line at: <doi:10.1186/1471-2164-13-105>. ISSN 1471-2164

Type of production: Scientific paper
Format: Journal
Position of signature: 5
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: Yes
Impact source: ISI
Impact index in year of publication: 4,21
Position of publication: 34
Category: Genetics and heredity
Journal in the top 25%: Yes
No. of journals in the cat.: 156
Citations: 46

Relevant results: This article is the result of the transference of my expertise in Drosophila microgravity research at the molecular level to the Arabidopsis system. In addition to the outcome for the PhD student (A. Manzano) training and CV, this work is an additional proof of the added value that I am providing to the host laboratory headed by Dr. Medina at CIB (CSIC) and that will have the maximum reflection in the next 5 years activities. As a consequence of our international leadership in both Arabidopsis Space biology (Dr. Medina) and Ground Based Facilities (Dr. Herranz) we will have the opportunity of use a double cellular biology and a molecular biology approach to the samples from 5 annual flights to the International Space Station under Dr. Medina leadership (2013-2017).
Relevant publication: Yes

41 R. Herranz; O. Larkin; C. Dijkstra; R. Hill; P. Anthony; M. R. Davey; L. Eaves; J.J.W.A. van Loon; F.J. Medina; R. Marco. Microgravity simulation by diamagnetic levitation: effects of a strong gradient magnetic field on the transcriptional profile of Drosophila melanogaster. BMC Genomics. 13 - 52, BioMed Central, 02/2012. Available on-line at: <doi:10.1186/1471-2164-13-52>. ISSN 1471-2164

Type of production: Scientific paper
Format: Journal

Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 10
Corresponding author: Yes
Impact source: ISI
Category: Genetics and heredity
Impact index in year of publication: 4,21
Journal in the top 25%: Yes
Position of publication: 34
No. of journals in the cat.: 156
Citations: 56

Relevant results: These two articles (together with Hill et al. JRS Interface, 2012) demonstrate my competence to establish fruitful international cooperation agreements and top quality results. Particularly we have obtained free access to the exclusive and expensive technology of magnetic levitation in collaboration with a group from the Physics School at the University of Nottingham and we have shared the authorship of the top quality multidisciplinary scientific articles produced using our expertise with Drosophila melanogaster as a microgravity model organism. In the parner publication I played the senior article role in a paper analyzing flies behavior from the physics point of view and in the present article I am first author in an article using a whole genome molecular biology approach. In both cases we validated the use of the magnetic levitator facility as a new microgravity research facility and expended our knowledge about environmental stresses.
Reviews in journals: 56
Relevant publication: Yes

42 R. Hill; O. Larkin; C. Dijkstra; A. I. Manzano; E. de Juan; M. R. Davey; P. Anthony; L. Eaves; F.J. Medina; R. Marco; R. Herranz. Microgravity induced by diamagnetic levitation increases the random walk difusion constant of fruit flies. Journal of the Royal Society Interface. 9 - 2, pp. 1438 - 1449. Royal Society Publishing Group, 01/2012. Available on-line at: <doi: 10.1098/rsif.2011.0715>. ISSN 1742-5689

Type of production: Scientific paper
Format: Journal
Position of signature: 11
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 11
Corresponding author: Yes
Impact source: ISI
Category: Multidisciplinary
Impact index in year of publication: 4,26
Journal in the top 25%: Yes
Position of publication: 4
No. of journals in the cat.: 59
Citations: 23

Relevant results: See previous citation joint comment.
Relevant publication: Yes

43 I. Matía; F. González-Camacho; R. Herranz; J.Z. Kiss; G. Gasset; J.J.W.A. van Loon; R. Marco; F.J. Medina. Plant cell proliferation and growth are altered by microgravity conditions in spaceflight. Journal of Plant Physiology. 167 - 3, pp. 184 - 193. ELSEVIER, 2010. ISSN 0176-1617

Type of production: Scientific paper
Format: Journal
Position of signature: 3
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 8
Impact source: ISI
Category: Science Edition - PLANT SCIENCES
Impact index in year of publication: 2,677
Journal in the top 25%: Yes
Position of publication: 33
No. of journals in the cat.: 188
Citations: 140

Relevant results: I would like to highlight this article published in a first quartile Plant Sciences journal despite I am not the main author of the manuscript. This paper resembles quite well the kind of research that I have started to perform since I joint CIB-CSIC, and it is consequently very close related with future research lines which I am applying for. This article includes the results from the ROOT experiment, a partner experiment of the GENE one in the Spanish Soyuz Mission cited in the previous reference. Results are partially complementary with the ones in

the GENE experiment; the microgravity related environmental factors disrupt the finely regulated balance between meristematic cells proliferation and growth. Further tests using ground based facilities are already ongoing and will be published soon by our group, characterized for an important international and multidisciplinary composition.
Relevant publication: Yes

44 R. Herranz; A. Benguria; D.A. Lavan; I. Lopez-Vidriero; G. Gasset; F.J. Medina; J. van Loon; R. Marco. Spaceflight-related suboptimal conditions can accentuate the altered gravity response of Drosophila transcriptome. Molecular Ecology. 19 - 19, pp. 4255 - 4264. WILEY, 2010. ISSN 0962-1083

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 8
Corresponding author: Yes

Impact source: ISI
Category: Molecular Biology
Impact index in year of publication: 6,46
Journal in the top 25%: Yes
Position of publication: 38
No. of journals in the cat.: 286

Impact source: ISI
Category: Molecular Ecology
Impact index in year of publication: 6,46
Journal in the top 25%: Yes
Position of publication: 5
No. of journals in the cat.: 130

Impact source: ISI
Category: Science Edition - EVOLUTIONARY BIOLOGY
Impact index in year of publication: 6,46
Journal in the top 25%: Yes
Position of publication: 5
No. of journals in the cat.: 45

Citations: 42

Relevant results: This article, as a mature, refined and extended version of preliminary reports published in Microgravity Science and Technology, contains the main analysis of the GENE experiment in the Cervantes Mission to the International Space Station. It has been published in the second most relevant journal of the ecology field together with an editorial (pages 4105-7) to highlight the impact of this article to a heterogeneous reader of the environmental biology research area. Main objective was to assay the impact of microgravity in Drosophila gene expression through the metamorphosis process. Despite previous references suggest little transcriptional effects of this environmental parameter, and taking into account that some mission constraints included suboptimal conditions of oxygen and temperature, we detected a synergic effect of these ecological parameters over pupation developmental process. The modification in thousands of genes expression levels, statistically relevant although not very important in amount, was confirmed in ground based microgravity simulation experiments, and more than that, the opposite effect was observed when the organism was exposed to hypergravity in a dedicated centrifuge.
Relevant publication: Yes

45 R. Herranz; J. Mateos; R. Marco. Diversification and independent evolution of TpnC genes in insects. J Mol Evol. 60 - 1, pp. 31 - 44. SPRINGER, 2005. ISSN 0022-2844

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: ISI
Category: Biochemistry
Impact index in year of publication: 2,703
Journal in the top 25%: No
Position of publication: 108
No. of journals in the cat.: 261

Impact source: ISI
Category: Science Edition - EVOLUTIONARY BIOLOGY
Impact index in year of publication: 2,703
Journal in the top 25%: No
Position of publication: 13
No. of journals in the cat.: 33

Relevant results: This contribution is especially significant for me because it is my first publication in a medium-high impact journal as the first author (J Mol Evol is one of the most read journals in Molecular Evolution area). This article includes the first half of my PhD results. Once we located and described the five genes that encode for Troponin C in Drosophila (see Herranz et al 2004) we described here how and why there are so many

and variable TpnC genes in insects, bees and mosquitoes included. We also found that the evolution of these genes was independent in each insect order, although the final gene repertoire was similar among them (due to the indirect flight muscle special needing).
Relevant publication: Yes

46 R. Herranz; J. Mateos; J.A. Mas; E. García-Zaragoza; M. Cervera; R. Marco. The co-evolution of insect muscle TpnT and TpnI genes. Mol Biol Evol. 22 - 11, pp. 2231 - 2242. Oxford Journals, 2005. ISSN 0737-4038

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: ISI
Category: Biochemistry
Impact index in year of publication: 9,872
Journal in the top 25%: Yes
Position of publication: 17
No. of journals in the cat.: 283

Impact source: ISI
Category: Science Edition - EVOLUTIONARY BIOLOGY
Impact index in year of publication: 9,872
Journal in the top 25%: Yes
Position of publication: 2
No. of journals in the cat.: 44

Relevant results: Undoubtedly, this is the best article that I have contributed to the scientific community reaching almost 10 points impact factor. It contains the second half of my PhD thesis results, extending the results that we found for TpnC (Herranz et al. JMolEvol 2005) to the other two components of the Troponin complex (TpnT y TpnI). Summarizing, these genes have been coevolving in the different organisms to obtain a collection of complementary isoforms in each species, but curiously, this has happened several times independently during evolution (so the number and properties of each component is different in each species). Together with Herranz et al. JMolEvol 2005, it constitutes a good lesson about how different mechanisms operate on molecular evolution of genes and how they can be linked to the functional properties of a protein complex.
Relevant publication: Yes

47 Raul Herranz. Biología Espacial: Buscando las claves de la adaptación a ambientes extraterrestres para la exploración y colonización del Sistema Solar. Centro de Investigaciones Biologicas Margarita Salas Newsletter. 3, pp. 8 - 11. CSIC, 01/07/2021.

Type of production: Popular science article
Format: Journal
Corresponding author: Yes
Relevant results: Resumen del estado actual de la línea de nuestro grupo en Space Omics en el contexto Europeo.
Relevant publication: Yes

48 Raul Herranz; Miguel A. Valbuena; Aranzazu Manzano; Khaled Youssef; Alicia Villacampa; Malgorzata Ciska; Jack van Loon; F Javier Medina. Use of reduced gravity simulators for plant biological studies. Methods Mol Biol.2368, pp. 241 - 265. New York(United States of America): Humana, 01/2022. Available on-line at: <https://doi.org/10.1007/978-1-0716-1677-2_16>. ISBN 978-1-0716-1676-5

Collection: Plant Gravitropism: Methods and Protocols
Type of production: Book chapter
Format: Book
Position of signature: 1
Degree of contribution: Author or co-author of chapter in book
Total no. authors: 8
Corresponding author: Yes
Relevant results: Publication by invitation of the editor (Elison Blancaflor). Most relevant american researchers in the field have been invited but only a couple of europeans are. More than 10000 views have promote the editors to ask for this revised second edition (published online 14 October 2021).
Relevant publication: Yes

49 Ruth Benavides-Piccione; F Javier Medina; Eduardo RS Roldán; Cayetano Von Kobbe; Luis M Rodríguez-Lorenzo; Pedro Revilla Temiño; Beatriz Martínez Fernández; Miguel Angel Sentandreu; José Eduardo González-Pastor; Juan Miguel González Grau; Raul Herranz. Volumen 12. Our future? Space colonization &

exploration. Challenge 4:Sustaining Human life in Space. CSIC Scientific Challenges: Towards 2030. 12, pp. 8 - 11. CSIC, 01/07/2021. ISBN 978-84-00-10760-4

Type of production: Book chapter **Format:** Book

Corresponding author: Yes

Relevant results: Contribución de nuestro grupo en Space Omics en el contexto CSIC de desafios 2030 (Volumen 12: investigación espacial).

Relevant publication: Yes

50 F Javier Medina; Aranzazu Manzano; Khaled Youssef; Malgorzata Ciska; Raul Herranz. Plants in Space: novel physiological challenges and adaptation mechanisms. Progress in Botany. Springer, 02/05/2021. ISSN 0340-4773

Type of production: Book chapter **Format:** Book

Position of signature: 5 **Degree of contribution:** Author or co-author of chapter in book

Total no. authors: 5 **Corresponding author:** Yes

Relevant results: Review chapter on Plant Space Biology and our group results in the last two decades.

Relevant publication: Yes

51 R. Herranz; M.A. Valbuena; A. Manzano; K. Youssef; A. Villacampa; M. Ciska; J. van Loon; F.J. Medina. Chapter 16. Use of reduced gravity simulators for plant biological studies. Methods Mol Biol.2368, Springer, 2021. Available on-line at: <doi: 10.1007/978-1-4939-2697-8_18.>. ISSN 1064-3745

Collection: Plant Gravitropism: Methods and Protocols

Type of production: Book chapter **Format:** Book

Position of signature: 1 **Degree of contribution:** Author or co-author of chapter in book

Total no. authors: 8 **Corresponding author:** Yes

Relevant results: Updated chapter provided for the Second Edition by invitation of the editor (Elison Blancaflor). Most relevant american researchers in the field have been invited but only a couple of europeans are. More than 10000 views have promote the editors to ask for this revised second edition in 2021.

Relevant publication: Yes

52 F Javier Medina; Carmen Arena; Raul Herranz; Giovanna Aronne; Veronica de Micco. Chapter 24: Growing Plants under Generated Extra-Terrestrial Environments: Effects of Altered Gravity and of Radiation. Generate on Earth an Extra-Terrestrial Environment. 6, pp. 239 - 254. Aalborg(Denmark): River Publishers, 06/2015. ISBN 978-87-93237-53-7

Collection: River Publishers series in Standardisation

Type of production: Book chapter **Format:** Book

Position of signature: 3

Total no. authors: 5

Relevant results: Editors: Daniel Beysens and Jack van Loon. It was the winner of the 2017 Best Engineering Book Award by the International Academy of Astronautics.

Relevant publication: Yes

53 Raul Herranz; Miguel A. Valbuena; Aranzazu Manzano; Khaled Youssef; F Javier Medina. Use of microgravity simulators for plant biological studies. Methods Mol Biol.1309, pp. 239 - 254. Springer, 2015. Available on-line at: <doi: 10.1007/978-1-4939-2697-8_18.>. ISSN 1064-3745

Collection: Plant Gravitropism: Methods and Protocols

Type of production: Book chapter **Format:** Book

Position of signature: 1 **Degree of contribution:** Author or co-author of chapter in book

Total no. authors: 5 **Corresponding author:** Yes

Relevant results: Publication by invitation of the editor (Elison Blancaflor). Most relevant american researchers in the field have been invited but only a couple of europeans are. More than 10000 views have promote the editors to ask for a revised second edition in 2020.

Relevant publication: Yes

54 Nicola Marziliano; Raul Herranz. Chapter 12. Genetic Signatures in adaptation to loading/unloading. Cell Mechanochemistry. Biological Systems and Factors Inducing Mechanical Stress, Such as Light Pressure and Gravity. 12, pp. 245 - 266. Transworld Research Network, 2010. ISBN 978-81-7895-458-5

Type of production: Book chapter **Format:** Book
Position of signature: 2
Total no. authors: 2 **Corresponding author:** Yes
Relevant results: Molecular biology chapter of a book, in which I contributed the half of the invertebrate information and the coauthor contributed with the vertebrate/mammalian one.
Relevant publication: Yes

55 R. Marco; D. Husson; R. Herranz; J. Mateos; F.J. Medina. Drosophila melanogaster and the future of 'evo-devo' biology in space. Challenges and problems in the path of an eventual colonization project outside the earth. Adv Space Biol Med - Developmental Biology Research in Space, 1st Edition. 9, pp. 41 - 81. ELSEVIER, 2003. Available on-line at: <http://store.elsevier.com/Developmental-Biology-Research-in-Space/isbn-9780444513533/>. ISSN 1569-2574, ISBN 978-0-444-51353-3

Type of production: Book chapter **Format:** Book
Relevant results: Review article (chapter devoted to Drosophila) published in a monographic hand-book concerning the Developmental Biology Research in Space, edited by H.-J. Marthy. ISBN 13: 978-0-444-51353-3
Relevant publication: Yes

56 F. Javier Medina; Aranzazu Manzano; Raul Herranz; John Z. Kiss. Red Light Enhances Plant Adaptation to Spaceflight and Mars g-Levels. Life. 12 - 10, pp. 1484. MDPI journals, 24/09/2022.

Type of production: Review **Format:** Journal
Position of signature: 3 **Degree of contribution:** Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4 **Corresponding author:** No
Relevant results: This article is a review and update on the results of the Seedling Growth experiments on board the International Space Station.
Relevant publication: Yes

57 Aranzazu Manzano; Eugenie Carnero-Diaz; Raul Herranz; F. Javier Medina. Recent transcriptomic studies to elucidate the plant adaptive response to spaceflight and to simulated space environments. iScience. pp. 104687. Cell Press Journals, 30/06/2022.

Type of production: Review **Format:** Journal
Position of signature: 3 **Degree of contribution:** Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4 **Corresponding author:** No
Relevant results: Review of the results obtained from the Space Omics datsets available in GeneLab in the Plants area of knowledge. Special attention is paid to European information (in the context of the Cell Press collection 2022).
Relevant publication: Yes

58 F Javier Medina; Aranzazu Manzano; Alicia Villacampa; Malgorzata Ciska; Raul Herranz. Understanding Reduced Gravity Effects on Early Plant Development Before Attempting Life-Support Farming in the Moon and Mars. Frontiers in Astronomy and Space Science. 8, pp. 729154. Frontiers, 03/09/2021. ISSN 0340-4773

Type of production: Review **Format:** Journal
Position of signature: 5 **Degree of contribution:** Author or co-author of chapter in book
Total no. authors: 5 **Corresponding author:** No
Relevant publication: Yes

59 Joshua P Vandenbrink; John Z Kiss; Raul Herranz; F Javier Medina. Light and gravity signals synergize in modulating plant development. Frontiers in Plant Science. Frontiers, 28/10/2014. Available on-line at: <doi: 10.3389/fpls.2014.00563>. ISSN 1664-462X

Type of production: Review
Format: Journal
Position of signature: 3
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 4
Impact source: ISI
Category: Science Edition - PLANT SCIENCES
Impact index in year of publication: 3,637
Journal in the top 25%: Yes
Position of publication: 23
No. of journals in the cat.: 199
Citations: 68

Relevant results: Highly relevant review about the cross-link between gravitational and light signalling in plant development, writing in the context of a transcontinental collaboration with our Seedling Growth Spaceflight Experiment in USA.
Relevant publication: Yes

60 Ann-Iren Kittang; Tor-Henning Iversen; Knut R Fossum; Christian Mazars; Eugenie Carnero-Diaz; Elodie Boucheron-Dubuisson; Isabel Le-Disquet; Valerie Legue; Raul Herranz; Veronica Pereda-Loth; F Javier Medina. Exploration of plant growth and development using the EMCS Facility on the International Space Station. Plant Biology. 16 - 3, pp. 528 - 538. Wiley, 17/01/2014. Available on-line at: <DOI: 10.1111/plb.12132>.

Collection: "Space Biology Special Issue"
Type of production: Review
Format: Journal
Position of signature: 9
Degree of contribution: Author or co-author of review
Total no. authors: 11
Impact source: ISI
Category: Science Edition - PLANT SCIENCES
Impact index in year of publication: 2,409
Journal in the top 25%: Yes
Position of publication: 42
No. of journals in the cat.: 188
Citations: 47

Relevant results: Review article in a special issue concerning Plant Space Biology experiments in the EMCS.
Relevant publication: Yes

61 Raul Herranz; F Javier Medina. Cell proliferation and plant development under novel altered gravity environments. Plant Biology. 16 - s1, pp. 23 - 30. Wiley, 24/09/2013. Available on-line at: <DOI: 10.1111/plb.12103>.

Collection: "Space Biology Special Issue"
Type of production: Review
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of review
Total no. authors: 2
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - PLANT SCIENCES
Impact index in year of publication: 2,409
Journal in the top 25%: Yes
Position of publication: 42
No. of journals in the cat.: 188
Citations: 49

Relevant results: Review article in a spetial issue concerning Plant Space Biology.
Relevant publication: Yes

62 R. Herranz; R. Anken; J. Boonstra; M. Braun; P.C.M. Christianen; M. de Geest; J. Hauslage; R. Hilbig; R.J.A. Hill; M. Lebert; F.J. Medina; N. Vagt; O. Ullrich; J. J.W.A. van Loon; R. Hemmersbach. Ground-based facilities for simulation of microgravity, including terminology and organism-specific recommendations for their use. Astrobiology. 13 - 1, pp. 1 - 17. Mary Ann Liebert Publishers, 01/2013. Available on-line at: <DOI 10.1089/ast.2012.0876>. ISSN 1531-1074

Type of production: Review
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 15
Corresponding author: Yes
Impact source: ISI
Category: Science Edition - GEOSCIENCES, MULTIDISCIPLINARY
Impact index in year of publication: 2,369
Journal in the top 25%: Yes
Position of publication: 34
No. of journals in the cat.: 167
Citations: 309

Relevant results: This review article, published in a first quartile journal of the generally low impact factor field of Space Research, is the best proof of my skills to work, to coordinate and to play a leader role in an International context. Now, a number of international key partners has been located and we are ready to apply for European Union funding, what it will be of the outmost importance in the hard years we expect to deal with, particularly in Spain.
Relevant publication: Yes

63 F.Javier Medina; F. González-Camacho; A. I. Manzano; A. Manrique; Raul Herranz. Nucleolin, a major conserved multifunctional nucleolar phosphoprotein of proliferating cells. Journal of Applied Biomedicine. 8 - 3, pp. 141 - 150. aculty of Health and Social Studies, University of South Bohemia, Czech Republic, 2010. ISSN 1559-2316

Type of production: Review
Format: Journal
Position of signature: 5
Degree of contribution: Author or co-author of review
Impact source: ISI
Category: Science Edition - PHARMACOLOGY & PHARMACY
Impact index in year of publication: 1,933
Position of publication: 147
No. of journals in the cat.: 261

Relevant results: Review of the last decade results concerning our main research topics including nucleolin properties as a nucleolar activity marker. This review was written by invitation of the editors: Josef Berger, Jiri Patocka and Karel Smetana.
Relevant publication: Yes

64 Eliah Overbey; Saswati Das; Henry Cope; Pedro Madrigal; Zaneta Andrusivova; Solène Frapard; Rebecca Klotz; Daniela Bezdan; Ryan Scott; Jiwoon Park; Dawn Chirko; Jonathan M. Galazka; Sylvain V. Costes; Christopher E. Mason; Raul Herranz; Nathaniel J. Szewczyk; Joseph Borg; Stefania Giacomello. Challenges and considerations for single-cell and spatially resolved transcriptomics sample collection during spaceflight. Cell Reports Methods. pp. 100325. Cell Press Journals, 31/10/2022.

Type of production: Perspective
Format: Journal
Position of signature: 15
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 18
Corresponding author: No
Relevant results: A relevant publication in the European Space Omics 2022 Cell Press Collection (acting as coauthor and guest editor)
Relevant publication: Yes

65 Raul Herranz; Wilian da Silveira; Daniela Bezdan; Stefania Giacomello; Nathaniel Szewczyk. Building the Space Omics Topical Team to boost European space researchers' role in the international consortia redefining spaceflight-generated datasets. iScience. 25 - 9, pp. 104868 - 0. Cell Press Journals, 16/09/2022. ISSN 25890042

Type of production: Backstory
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 5
Corresponding author: Yes
Impact source: ISI

Category: Science Edition - MULTIDISCIPLINARY SCIENCES
Impact index in year of publication: 5,08 **Journal in the top 25%:** Yes

Relevant results: Backstory of the Space Omics research in europe (I hold the role of coordinator of the ESA Space Omics Topical Team). This paper explain the origins and aims of the European Space Omics Topical Team consortium in the Cell Press journals Space Omics in Europe collection (co-guest editored by me).
Relevant publication: Yes

66 Henry Cope; Craig RG Willis; Matthew J. MacKay; Lindsay A. Rutter; Li Shean Toh; Philip M. Williams; Raul Herranz; Joseph Borg; Daniela Bezdan; Stefania Giacomello; Masafumi Muratani; Christopher E. Mason; Timothy Etheridge; Nathaniel J. Szewczyk. Routine Omics Collection is a Golden Opportunity for European Human Research in Space and Analogue Environments. Patterns. pp. 100550. Cell Press Journals, 30/07/2022.
Type of production: Perspective **Format:** Journal
Position of signature: 7 **Degree of contribution:** Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 14 **Corresponding author:** No
Relevant results: A relevant publication in the European Space Omics 2022 Cell Press Collection (acting as coauthor and guest editor)
Relevant publication: Yes

67 Raul Herranz; Miguel A. Valbuena; Khaled Youssef; F Javier Medina. Mechanisms of disruption of meristematic competence by microgravity in Arabidopsis seedlings. Plant Signalling & Behavior. 9 - 2, pp. 28289. Landes Biosciences Publications, 10/03/2014. Available on-line at: <DOI: 10.4161/psb.28289>.
Type of production: Mini-Review **Format:** Journal
Position of signature: 1 **Degree of contribution:** Author or co-author of article in journal without external admissions assessment committee
Total no. authors: 4
Impact source: Expected from h-index Google Schoolar
Impact index in year of publication: 2
Citations: 19

Relevant results: Review about different mechanism acting on different cellular biological models of plant response to altered gravity.
Relevant publication: Yes

68 F.Javier Medina; Raul Herranz. Microgravity environment uncouples cell growth and cell proliferation in root meristematic cells. Plant Signaling & Behavior. 5 - 2, pp. 176 - 179. Landes Bioscience Journals, 2010. ISSN 1559-2316
Type of production: Addendum-Comment **Format:** Journal
Position of signature: 2 **Degree of contribution:** Author or co-author of review
Impact source: Expected by H-index Google Scholar
Impact index in year of publication: 2,0

Relevant results: Review concerning our main research topics including the uncoupling of cell growth and cell proliferation in altered gravity conditions. This review was written by invitation of the editor: Frantisek Baluska.
Relevant publication: Yes

69 Khaled Y Kamal; Mortaza Khodaeiaminjan; Ahmed Tantawy; Diaa Abdel Moneim; Asmaa Abdel Salam; Salwa Ash-shormillesy; Ahmed Attia; Mohamed Ali; Raul Herranz; Mohamed El-Esawi; Amr Nassrallah; Mohamed Fawzy Ramadan. Evaluation of growth and nutritional value of Brassica microgreens grown under red, blue and green LEDs combinations. Physiologia Plantarum. 169 - 4, pp. 625 - 638. Wiley, 04/03/2020. ISSN 1399-3054
DOI: 10.1111/ppl.13083

Type of production: Scientific paper
Format: Journal
Position of signature: 9
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Total no. authors: 12
Corresponding author: No
Impact source: ISI
Category: Plant Science
Impact index in year of publication: 4,148
Journal in the top 25%: No
Position of publication: 24
No. of journals in the cat.: 234

Relevant results: Collaboration after Dr. Kamal PhD thesys, preliminary study to prepare a deeper microgravity related project.
Relevant publication: No

70 R. Herranz; D.A. Lavan; F.J. Medina; J. van Loon; R. Marco. The Gene" Experiment in the Spanish Soyuz Mission to the International Space Station. II. Effects of oxygen concentration constrain. Microgravity Science and Technology. 21 - 4, pp. 299 - 304. SPRINGER, 2009. Available on-line at: <DOI 10.1007/s12217-008-9097-1>. ISSN 0938-0108

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: Yes
Impact source: ISI
Category: Engineering/Aerospace
Impact index in year of publication: 0,713
Journal in the top 25%: No
Position of publication: 9
No. of journals in the cat.: 27

Relevant results: The articles published in this relevant, First Tercil journal of the microgravity multidisciplinary research field constitute a series of pieces describing the process of analisis of the valuable International Space Station experiment samples and their proper controls.

71 L. J. Leandro; N.J. Szewczyk; A. Benguría; R. Herranz; D. A. Lavan; F.J. Medina; G. Gasset; J. van Loon; A. Conley; R. Marco. Comparative analysis of Drosophila melanogaster and Caenorhabditis elegans gene expression experiments in the European Soyuz Flights to the International Space Station. Advances in Space Research. 40 - 4, pp. 506 - 512. ELSEVIER, 2007. ISSN 0273-1177

Type of production: Scientific paper
Format: Journal
Position of signature: 4
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Category: Engineering/Aerospace
Impact index in year of publication: 0,774
Journal in the top 25%: Yes
Position of publication: 6
No. of journals in the cat.: 25

Relevant results: An example of international collaboration to share International Space Station materials and results published in a First Quartile, although specialized, journal.

72 E. de Juan; A. Benguría; A. Villa; L. J. Leandro; R. Herranz; P. Duque; E. Horn; F.J. Medina; J. van Loon; R. Marco. The AGEING" Experiment in the Spanish Soyuz Mission to the International Space Station. Microgravity Science and Technology. 19 - 5/6, pp. 170 - 174. SPRINGER, 2007. ISSN 0938-0108

Type of production: Scientific paper
Format: Journal
Position of signature: 5
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Category: Engineering/Aerospace
Impact index in year of publication: 0,713
Journal in the top 25%: No
Position of publication: 9
No. of journals in the cat.: 27

Relevant results: The articles published in this relevant, First Tercil journal of the microgravity multidisciplinary research field constitute a series of pieces describing the process of analisis of the valuable International Space Station experiment samples and their proper controls.

73 R. Herranz; D.A. Lavan; A. Benguría; P. Duque; L.J. Leandro; G. Gasset; A. Zaballos; F.J. Medina; J. van Loon; R. Marco. The Gene" Experiment in the Spanish Soyuz Mission to the International Space Station. Effects of cold transportation. Microgravity Science and Technology. 19 - 5/6, pp. 196 - 200. SPRINGER, 2007. ISSN 0938-0108

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Category: Engineering/Aerospace
Impact index in year of publication: 0,713
Journal in the top 25%: No
Position of publication: 9
No. of journals in the cat.: 27

Relevant results: The articles published in this relevant, First Tercil journal of the microgravity multidisciplinary research field constitute a series of pieces describing the process of analisis of the valuable International Space Station experiment samples and their proper controls.

74 J. Mateos; R. Herranz; A. Domingo; J.C. Sparrow; R. Marco. The structural role of high molecular weight tropomyosins in dipteran indirect flight muscle and the effect of phosphorylation. J Muscle Res Cell Motil. 27 - 3-4, pp. 189 - 201. SPRINGER, 2006. ISSN 0142-4319

Type of production: Scientific paper
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Category: Cell Biology
Impact index in year of publication: 1,731
Journal in the top 25%: No
Position of publication: 122
No. of journals in the cat.: 154

75 R. Herranz; D. Husson; A. Villa; M. Pastor; F.J. Medina; R. Marco. Modifications in basic handling techniques to study the consequences of the Drosophila melanogaster exposure to the space environment. J Gravit Physiol. 12 - 2, pp. 51 - 60. Galileo Fundation, 2005. ISSN 1077-9248

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Relevant results: Together with the space developmental biology book chapter and the short contributions to J Gravit Physiol (meeting contributions), this article summarizes quite comprehensively how we adapted new hardware and fixation techniques to perform common experiments in the International Space Station conditions during my PhD student stay in Prof Marco´s lab. It also reflects our efforts in terms of collaboration with external companies and the multidisciplinary approach that we have been using in our research. The journal does not fit with the usual Quality standards due to extreme specialization in the multidisciplinary Space Biology field but it is Medline indexed and very useful for our small research community.

76 R. Herranz; C. Díaz-Castillo; T.G. Nguyen; T.L. Lovato; R.M. Cripps; R. Marco. Expression pattern characterization of the whole Troponin C gene repertoire during Drosophila development. Gene Expression Patterns. 4 - 2, pp. 183 - 190. ELSEVIER, 2004. ISSN 1567-133X

Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Category: Genetics
Impact index in year of publication: 1,794
Journal in the top 25%: No
Position of publication: 79
No. of journals in the cat.: 124

77 Raul Herranz. De cómo entrar en el siglo XXI de la mano de un gran…Roberto. Encuentros multidisciplinares. 33 - XI, pp. 58 - 67. Universidad Autonoma de Madrid, 2009. Available on-line at: <http://www.encuentros-multidisciplinares.org/>. ISSN 1139-9325

Type of production: Popular science article
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: Yes

78 Raul Herranz. VOLUME 12 OUR FUTURE? SPACE COLONIZATION & EXPLORATION.Section 4.5 Sustaining Human Life in Space - Space –omics. Use of spaceflight generated biological datasets.LIBRO BLANCO: DESAFIOS CIENTIFICOS EN TEMÁTICAS ESTRATÉGICAS CSIC 2030. Perspectiva de la Ciencia del Siglo XXI en el CSIC. CSIC, 2021.

Type of production: Scientific book or monograph
Format: Book
Relevant results: Elaboración de la sección de Space Omics en el contexto de los expertos del CSIC en el Area Temática 12: ¿Nuestro Futuro? Exploración y colonización del Espacio.

79 D. Husson; R. Herranz; A. Villa; C. Díaz; J. Mateos; J. Lesher; M. Pastor; F.J. Medina; R. Marco. Design and development of hardware for long term cultivation of Drosophila melanogaster in the International Space Station. Drosophila Information Service. 87, pp. 124 - 130. Dpt. of Genetics Cold Spring Harbor laboratory, NY (since 1934), 2004. Available on-line at: <http://www.ou.edu/journals/dis/DIS87/>.

Type of production: Scientific-technical report
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Relevant results: Special Report http://www.ou.edu/journals/dis/DIS87/ Technical publication for Drosophila researchers

80 R. Marco; R. Herranz; A. Villa; U. Kirchnick; E. Horn; G. Gasset; H.-J. Agricola; J. van Loon; F.J. Medina. The experiments Gene and Ageing performed in the International Space Station (ISS) during the Spanish Soyuz Mission. Advances in Space Research. 33, pp. 2914 - 2914. ELSEVIER, 2004. ISSN 0273-1177

Type of production: Brevia
Format: Journal
Position of signature: 2
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Impact source: ISI
Category: Engineering/Aerospace
Impact index in year of publication: 0.774
Journal in the top 25%: Yes
Position of publication: 6
No. of journals in the cat.: 25
Relevant results: First description of the GENE & AGEING experiments performed during the Cervantes Mission to the ISS

Works submitted to national or international conferences

1 **Title of the work:** A Space Omics approach to evaluate light and gravity balance at early plant development
Name of the conference: 28th European Low Gravity Research Association Biennial Symposium and General Assembly 2024
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Corresponding author: Yes
City of event: Liverpool, United Kingdom
Date of event: 02/09/2024
End date: 06/09/2024
Organising entity: ELGRA
Publication in conference proceedings: Yes

Herranz; Luigi Gennaro Izzo; Giovanna Aronne; Jack J.W.A. van Loon3; Eugenie Carnero-Diaz; John Z. Kiss.

2 **Title of the work:** General Assembly
Name of the conference: 28th European Low Gravity Research Association Biennial Symposium and General Assembly 2024
Type of event: Conference **Geographical area:** European Union
Type of participation: Organizational - Scientific and organizing committee
Corresponding author: Yes
City of event: Liverpool, United Kingdom
Date of event: 02/09/2024
End date: 06/09/2024
Organising entity: ELGRA
Publication in conference proceedings: Yes
Philip Carvil; Ricard González-Cinca; Elisa Raffaella Ferre; Thorben Könemann; Christian Lockowandt; Anna Sabaté Garcia; Herranz.

3 **Title of the work:** Recommendations from The ESA Space Omics Topical Team for Plant Space Biology development in Europe
Name of the conference: 28th European Low Gravity Research Association Biennial Symposium and General Assembly 2024
Type of event: Conference **Geographical area:** European Union
Type of participation: Participatory - oral communication
Corresponding author: Yes
City of event: Liverpool, United Kingdom
Date of event: 02/09/2024
End date: 06/09/2024
Organising entity: ELGRA
Publication in conference proceedings: Yes
Herranz; on behalf of the Space Omics Topical Team.

4 **Title of the work:** Recommendations to develop the Space Omics research field in Europe: Evolution from an ESA-funded Topical Team to a European Space Omics Network
Name of the conference: EANA (European Astrobiology Network Association) 2023 conference
Type of event: Conference **Geographical area:** European Union
Type of participation: 'Participatory - poster
Corresponding author: Yes
City of event: Universidad Carlos III-Puerta Toledo, Madrid, Spain
Date of event: 19/09/2023
End date: 22/09/2023
Organising entity: EANA **Type of entity:** Associations and Groups
Publication in conference proceedings: Yes
Willian da Silveira; Herranz. EPSC Abstracts Vol. 16, EPSC2023-1055, 2023, Available on-line at: <https://doi.org/10.5194/epsc2022-1055>.

5 **Title of the work:** The Space Omics and Simulated Microgravity lab: Two decades of CSIC leadership in Europe and Services provided to the Space Biology and Astrobiology communities in Spain
Name of the conference: EANA (European Astrobiology Network Association) 2023 conference
Type of event: Conference **Geographical area:** European Union
Type of participation: Participatory - oral communication
Corresponding author: Yes
City of event: Universidad Carlos III-Puerta Toledo, Madrid, Spain

Date of event: 19/09/2023
End date: 22/09/2023
Organising entity: EANA
Type of entity: Associations and Groups
Publication in conference proceedings: Yes
Herranz. EPSC Abstracts Vol. 16, EPSC2023-1055, 2023, Available on-line at: <https://doi.org/10.5194/epsc2022-1055>.

6 **Title of the work:** Analysis of the effects of microgravity in the Arabidopsis phytochrome A mutant
Name of the conference: Annual Meeting of the ASGSR 2022
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - others
Reasons for participation: Review before acceptance
Corresponding author: No
City of event: Houston, Texas, United States of America
Date of event: 09/11/2022
End date: 12/11/2022
Organising entity: ASGSR
Joshua Vandenbrink; John Z. Kiss; R. Herranz; F. J. Medina; Claudia Tyler.

7 **Title of the work:** Opportunities and recomendations for space omic research in Europe: Towards an integrated interanational effort for spaceflight and ground facilities experiments
Name of the conference: Annual Meeting of the ASGSR 2022
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: No
City of event: Houston, Texas, United States of America
Date of event: 09/11/2022
End date: 12/11/2022
Organising entity: ASGSR
Daniela Bezdan; Stefania Giacomello; R. Herranz; Willian A. da Silveira; on behalf of the ESA Topical Team.

8 **Title of the work:** SEEDLING GROWTH: results from the largest ESA/NASA Arabidopsis experiment on the ISS looking into the molecular adaptation of plants to the Moon gravity and other life support system relevant scenarios
Name of the conference: MELiSSA conference 2022 - CURRENT AND FUTURE WAYS TO CLOSED LIFE SUPPORT SYSTEMS
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Corresponding author: Yes
City of event: Toulouse, France
Date of event: 08/11/2022
End date: 10/11/2022
Organising entity: MELiSSA Foundation
Raul Herranz; Joshua Vandenbrink; John Z. Kiss; F. Javier Medina.

9 **Title of the work:** Limits of life at spaceflight conditions: survival of lichens to simulated microgravity
Name of the conference: Europlanet Science Congress 2022
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Corresponding author: No

City of event: Granada, Spain
Date of event: 18/09/2022
End date: 23/09/2022
Organising entity: EANA
Publication in conference proceedings: Yes
R. de la Torre Noetzel; M.V. Ortega; O. Bassy; L.G. Sancho; A. Villasante; J. del Olmo; J. P. de Vera; Herranz. EPSC Abstracts Vol. 16, EPSC2022-1055, 2022, Available on-line at: <https://doi.org/10.5194/epsc2022-1055>.

10 **Title of the work:** Improved molecular response to spaceflight and Mars gravity by disruption of nuc2 stress-related gen
Name of the conference: 27th ELGRA Biennial symposium and General assembly
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Lisbon, Portugal
Date of event: 06/09/2022
End date: 09/09/2022
Organising entity: ELGRA
Aranzazu Manzano; Alicia Villacampa; John Kiss; Julio Saez-Vasquez; F. Javier Medina; R. Herranz.

11 **Title of the work:** Next steps for Space Omics research development in Europe: recommendations from an ESA Topical Team
Name of the conference: 27th ELGRA Biennial symposium and General assembly
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Lisbon, Portugal
Date of event: 06/09/2022
End date: 09/09/2022
Organising entity: ELGRA
R. Herranz; on behalf of the ESA Topical Team.

12 **Title of the work:** Role of auxin in the early adaptive response of plants under the combined action of red light and different levels of gravity
Name of the conference: 44th COSPAR scientific assembly
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
Corresponding author: No
City of event: Athens, Greece
Date of event: 16/07/2022
End date: 24/07/2022
Organising entity: COSPAR
Eugenie Carnero Diaz; John Z Kiss; R. Herranz; F Javier Medina; Miguel Angel Valbuena; Isabel Le Disquet; Joshua Vandenbrink.

13 **Title of the work:** NUC2, a stress-related mutant, shows an improved molecular response to Spaceflight and Mars gravity level in the Seedling Growth Experiment
Name of the conference: 44th COSPAR scientific assembly

Type of event: Conference
Type of participation: Participatory - oral communication
Corresponding author: Yes
City of event: Athens, Greece
Date of event: 16/07/2022
End date: 24/07/2022
Organising entity: COSPAR
Geographical area: Non EU International
Reasons for participation: Review before acceptance
Aranzazu Manzano; R. Herranz; F. Javier Medina; Julio Saez-Vasquez; John Kiss.

14 **Title of the work:** Opportunities and Recomendations for Space Omics Research in Europe: Towards an integrated international effort for spaceflight and ground facilities experiment database
Name of the conference: 44th COSPAR scientific assembly
Type of event: Conference
Type of participation: Participatory - oral communication
Corresponding author: Yes
City of event: Athens, Greece
Date of event: 16/07/2022
End date: 24/07/2022
Organising entity: COSPAR
Geographical area: Non EU International
Reasons for participation: Review before acceptance
R. Herranz; on behalf of the ESA Topical Team.

15 **Title of the work:** Red light enhances plant adaptation to spaceflight and Mars g-level, results of the Seedling Growth experiments on the International Space Station
Name of the conference: 44th COSPAR scientific assembly
Type of event: Conference
Type of participation: Participatory - oral communication
Corresponding author: Yes
City of event: Athens, Greece
Date of event: 16/07/2022
End date: 24/07/2022
Organising entity: COSPAR
Geographical area: Non EU International
Reasons for participation: Review before acceptance
F. Javier Medina; Aranzazu Manzano; Alicia Villacampa; Miguel A. Valbuena; Joshua Vandenbrink; Eugenie Carnero Diaz; Julio Saez-Vasquez; Malgorzata Ciska; R. Herranz; John Kiss.

16 **Title of the work:** Spaceflight Studies identify a gene encoding in intermediate filament involved in tropism pathways
Name of the conference: 44th COSPAR scientific assembly
Type of event: Conference
Type of participation: Participatory - oral communication
Corresponding author: Yes
City of event: Athens, Greece
Date of event: 16/07/2022
End date: 24/07/2022
Organising entity: COSPAR
Geographical area: Non EU International
Reasons for participation: Review before acceptance
John Kiss; Joshua Vandenbrink; R. Herranz; F. Javier Medina.

17 **Title of the work:** Space studies identify several novel genes in tropism pathways
Name of the conference: Annual Meeting American Society for Gravitational and Space Research
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: No
City of event: Baltimore, United States of America
Date of event: 03/11/2021
End date: 06/11/2021
Organising entity: ASGSR (American Society for Gravitational and Space Research)
John Z. Kiss; T. Shymanovich; J. P. Vandenbrink; Raul Herranz; F.J. Medina; A.M. Hughes.

18 **Title of the work:** Auxin involvement on combining effects of red light and microgravity on the growth of Arabidopsis thaliana during the Seedling Growth Experiment
Name of the conference: 43rd COSPAR scientific assemby: Connecting space research for global impact
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: No
City of event: International convenction center, Sydney, Australia
Date of event: 28/01/2021
End date: 04/02/2021
Organising entity: COSPAR
John Kiss; Joshua Vandenbrink; Alicia Villacampa; Malgrozata Ciska; R. Herranz; F.J. Medina.

19 **Title of the work:** Detailed gene expression profile by RNA-seq of three collections of Arabidopsis mutants exposed to reduced gravity at the ISS Seedling Growth experiment
Name of the conference: 43rd COSPAR scientific assemby: Connecting space research for global impact
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: International convenction center, Sydney, Australia
Date of event: 28/01/2021
End date: 04/02/2021
Organising entity: COSPAR
R. Herranz; Alicia Villacampa; Arancha Manzano; Christine Llauro-Berger; Isabel Le Disquet; Joshua Vandenbrink; John Kiss; Eugenie Carnero-Diaz; Julio Saez-Vasquez; F.J. Medina.

20 **Title of the work:** Loss of meristematic competence caused by simulated microgravity in plant cells is counteracted by growing seedlings under a photoperiod regime
Name of the conference: 43rd COSPAR scientific assemby: Connecting space research for global impact
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: International convenction center, Sydney, Australia
Date of event: 28/01/2021
End date: 04/02/2021
Organising entity: COSPAR
F.J. Medina; Arancha Manzano; Veronica Pereda-Loth; Anne de Bures; Julio Saez-Vasquez; R. Herranz.

21 **Title of the work:** Results and opportunities from the ESA Space Omics Topical Team: Towards an integrated ESA/NASA –omics database for spaceflight and ground facilities experiments
Name of the conference: 43rd COSPAR scientific assemby: Connecting space research for global impact
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: International convenction center, Sydney, Australia
Date of event: 28/01/2021
End date: 04/02/2021
Organising entity: COSPAR
Willian A. da Silveira; Nathaniel Szewczyk; Daniela Bezdan; R. Herranz; on behalf of the ESA Topical Team.

22 **Title of the work:** Effects of red light photostimulation of Arabidopsis seedlings in microgravity and Mars gravity
Name of the conference: Virtual Annual Meeting American Society for Gravitational and Space Research
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: No
City of event: Virtual meeting (hosted at Houston, Texas), United States of America
Date of event: 05/11/2020
End date: 06/11/2020
Organising entity: ASGSR (American Society for Gravitational and Space Research)
Alicia Villacampa; Aranzazu Manzano; Raul Herranz; Malgorzata Ciska; John Z. Kiss; F.J. Medina.

23 **Title of the work:** Exploring in ground mutant transcriptomes providing better chances of adaptive responses of plants to spaceflight environment
Name of the conference: Virtual Annual Meeting American Society for Gravitational and Space Research
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Virtual meeting (hosted at Houston, Texas), United States of America
Date of event: 05/11/2020
End date: 06/11/2020
Organising entity: ASGSR (American Society for Gravitational and Space Research)
Arancha Manzano; Alicia Villacampa; Julio Saez-Vasquez; John Z. Kiss; F.J. Medina; R. Herranz.

24 **Title of the work:** Loss of meristematic competence caused by simulated microgravity in plant cells is counteracted by growing seedlings under a photoperiod regime
Name of the conference: Virtual Annual Meeting American Society for Gravitational and Space Research
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: No
City of event: Virtual meeting (hosted at Houston, Texas), United States of America
Date of event: 05/11/2020
End date: 06/11/2020
Organising entity: ASGSR (American Society for Gravitational and Space Research)
F.J. Medina; Arancha Manzano; Veronica Pereda-Loth; Anne de Bures; Julio Saez-Vasquez; R. Herranz.

25 **Title of the work:** Simulated microgravity and 1g controls in Space omics: Lessons learnt from and for spaceflight experiments interpretation
Name of the conference: Virtual Annual Meeting American Society for Gravitational and Space Research
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Virtual meeting (hosted at Houston, Texas), United States of America
Date of event: 05/11/2020
End date: 06/11/2020
Organising entity: ASGSR (American Society for Gravitational and Space Research)
R. Herranz; Arancha Manzano; Alicia Villacampa; Julio Saez-Vasquez; John Z. Kiss; F.J. Medina.

26 **Title of the work:** Adaptation of plant transcriptional profile to Moon and Mars g-levels on board SEEDLING GROWTH spaceflight experiment
Name of the conference: 35th Annual Meeting American Society for Gravitational and Space Research
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Sheraton Denver Downtown in Denver, CO, United States of America
Date of event: 20/11/2019
End date: 23/11/2019
Organising entity: ASGSR (American Society for Gravitational and Space Research)
Alicia Villacampa; Arancha Manzano; Joshua P. Vandenbrink; John Z. Kiss; F.J. Medina; R. Herranz.

27 **Title of the work:** Meta-analysis of the Arabidopsis spaceflight transcriptome revealing changes to respiration and photosynthesis apparatus as a core response to microgravity and induction of HSP's as part of a high light ROS signalling pathway as core response to radiation
Name of the conference: 35th Annual Meeting American Society for Gravitational and Space Research
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Sheraton Denver Downtown in Denver, CO, United States of America
Date of event: 20/11/2019
End date: 23/11/2019
Organising entity: ASGSR (American Society for Gravitational and Space Research)
Richard Barker; Colin Kruse; R. Herranz; Ivo Grosse; Matthew Geniza; Sigrid Reinsch; Sarah Wyatt; Simon Gilroy.

28 **Title of the work:** RNAseq Pathway Analysis of Arabidopsis thaliana grown in conditions of microgravity onboard the International Space Station
Name of the conference: 35th Annual Meeting American Society for Gravitational and Space Research
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Sheraton Denver Downtown in Denver, CO, United States of America
Date of event: 20/11/2019
End date: 23/11/2019
Organising entity: ASGSR (American Society for Gravitational and Space Research)

Joshua P. Vandenbrink; R. Herranz; William Poehlman; F. Alex Feltus; Alicia Villacampa; Malgorzata Ciska; F.J. Medina; John Z. Kiss.

29 **Title of the work:** Dissection of the gene expression profile by RNA-seq of the plant response to partial gravity (Moon and Mars levels on board ISS SEEDLING GROWTH experiment)
Name of the conference: 26th ELGRA Symposium and General Assembly
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Granada, Andalusia, Spain
Date of event: 24/09/2019
End date: 27/09/2019
Organising entity: ELGRA (European Low Gravity Research Association)
R. Herranz; Julio Saez-Vasquez; Alicia Villacampa; Arancha Manzano; C. Llauro-Berger; Joshua P. Vandenbrink; John Z. Kiss; F.J. Medina.

30 **Title of the work:** Effects of red light stimulation on plant growth and on auxin polar transport under microgravity condition in Arabidopsis thaliana. A morphometric study
Name of the conference: 26th ELGRA Symposium and General Assembly
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: No
City of event: Granada, Andalusia, Spain
Date of event: 24/09/2019
End date: 27/09/2019
Organising entity: ELGRA (European Low Gravity Research Association)
Eugenie Carnero Diaz; Miguel A. Valbuena; Isabel Le Disquet; F.J. Medina; Aranzazu Manzano; Alicia Villacampa; Joshua P. Vandenbrink; Julio Saez-Vasquez; Malgorzata Ciska; R. Herranz; John Z Kiss.

31 **Title of the work:** Nuts & Bolts: Bringing Science and Hardware Together for Spaceflight
Name of the conference: 26th ELGRA Symposium and General Assembly
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: No
City of event: Granada, Andalusia, Spain
Date of event: 24/09/2019
End date: 27/09/2019
Organising entity: ELGRA (European Low Gravity Research Association)
Richard E Edelmann; John Z. Kiss; Joshua P. Vandenbrink; R. Herranz; F.J. Medina.

32 **Title of the work:** The Seedling Growth (SG) spaceflight project on the International Space Station (ISS): Red light contributes to a better adaptation of plants to the space environment
Name of the conference: 26th ELGRA Symposium and General Assembly
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: No
City of event: Granada, Andalusia, Spain
Date of event: 24/09/2019

End date: 27/09/2019
Organising entity: ELGRA (European Low Gravity Research Association)
F.J. Medina; Arancha Manzano; Alicia Villacampa; Miguel A Valbuena; Joshua P. Vandenbrink; Eugenie Carnero-Diaz; Julio Saez-Vasquez; Malgorzata Ciska; R. Herranz; John Z. Kiss.

33 **Title of the work:** What is the Perfect Ground-Based Facility for Microgravity Simulations?
Name of the conference: 26th ELGRA Symposium and General Assembly
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Granada, Andalusia, Spain
Date of event: 24/09/2019
End date: 27/09/2019
Organising entity: ELGRA (European Low Gravity Research Association)
R Hemmersbach; T Hammond; J van Loon; R. Herranz.

34 **Title of the work:** Plant cell growth and cell proliferation balance under novel, Moon and Mars, partial gravity simulation paradigms
Name of the conference: XXIII Meeting of the Spanish Society of Plant Physiology/XVI Spanish Portuguese Congress of Plant Physiology
Type of event: Conference
Geographical area: National
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Pamplona, Foral Community of Navarre, Spain
Date of event: 26/06/2019
End date: 28/06/2019
Organising entity: Sociedad Española de Fisiologia Vegetal
Type of entity: Associations and Groups
R. Herranz; Aranzazu Manzano; Khaled Y Kamal; Jack van Loon; F.J. Medina.

35 **Title of the work:** UNOOSA ZGIP experience in Spain: from the primary school to the research centre level
Name of the conference: United Nations Expert Meeting on Human Space Technology - “Providing Access to Space”
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Vienna, Austria
Date of event: 04/12/2018
End date: 06/12/2018
Organising entity: UNOOSA (United Nations Office for Outer Space Affairs)
R. Herranz; A. Villacampa; M. Ciska; F.J. Medina.

36 **Title of the work:** Analysis of Genes Associated with a Novel Blue-Light Phototropic Response in Plants Utilizing RNA-Seq
Name of the conference: 34th Annual Meeting American Society for Gravitational and Space Research
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Bethesda North Marriott and Conference Center in Bethesda, MD, United States of America

Date of event: 31/10/2018
End date: 03/11/2018
Organising entity: ASGSR (American Society for Gravitational and Space Research)
Joshua P. Vandenbrink; Richard E. Edelmann; R. Herranz; F.J. Medina; John Z. Kiss.

37 **Title of the work:** ALTERED GRAVITY SIMULATION AND RADIATION TO COMPARE PLANT MODEL AND CROP SPECIES ADAPTATION TO SPACEFLIGHT AND MARS-LIKE ENVIRONMENTS
Name of the conference: 69th International Astronautical Congress
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: Bremen, Germany
Date of event: 01/10/2018
End date: 05/10/2018
Organising entity: International Aeronautical Federation
R. Herranz; J.J.W.A. van Loon; V. Pereda-Loth; E. Gonzalez-Pastor; E. Carnero-Diaz; F.J. Medina.

38 **Title of the work:** EFFECTS OF SPACE ENVIRONMENT ON PLANT CELL GROWTH AND PROLIFERATION. ROLE OF RED LIGHT IN COUNTERACTING GRAVITATIONAL STRESS AND PROMOTING ADAPTATION
Name of the conference: 69th International Astronautical Congress
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Bremen, Germany
Date of event: 01/10/2018
End date: 05/10/2018
Organising entity: International Aeronautical Federation
F.J. Medina; A. Manzano; M.A. Valbuena; A. Villacampa; J.P. Vandenbrink; E. Carnero-Diaz; J. Saez-Vasquez; M. Ciska; R. Herranz; J.Z. Kiss.

39 **Title of the work:** Arabidopsis thaliana root growth under simulated microgravity
Name of the conference: 42ND Committee on Space Research Scientific Assemby
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Pasadena (California), United States of America
Date of event: 14/07/2018
End date: 22/07/2018
Organising entity: COSPAR
Miguel A Valbuena; Lisa Tordjman; Isabel Le Disquet; Marco da Costa; R. Herranz; F. J. Medina; Eugenie Carnero-Diaz.

40 **Title of the work:** DIFFERENTIAL GENE EXPRESSION AND PHOTOTROPISM IN SEEDLINGS OF ARABIDOPSIS GROWN IN MICROGRAVITY
Name of the conference: 42ND Committee on Space Research Scientific Assemby
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Pasadena (California), United States of America
Date of event: 14/07/2018

End date: 22/07/2018
Organising entity: COSPAR
John Z. Kiss; Joshua P. Vandenbrink; Richard E. Edelmann; R. Herranz; F.J. Medina.

41 **Title of the work:** Plant seedlings and cell cultures under hypergravity in the Large Diameter Centrifuge (LDC)
Name of the conference: LDC Hypergravity Workshop
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: European Space Technology Center (ESTEC-Noordwijk), Holland
Date of event: 25/01/2018
End date: 26/01/2018
Organising entity: ESA - European Space Agency
F.J. Medina; K.Y. Kamal; A.I. Manzano; J.J. van Loon; R. Herranz.

42 **Title of the work:** The LDC as a tool to expand Drosophila behaviour results from magnetic levitation and RPM simulated microgravity
Name of the conference: LDC Hypergravity Workshop
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
Corresponding author: Yes
City of event: European Space Technology Center (ESTEC-Noordwijk), Holland
Date of event: 25/01/2018
End date: 26/01/2018
Organising entity: ESA - European Space Agency
R. Herranz; P. Serrano; J.J. van Loon; F.J. Medina.

43 **Title of the work:** RNA-SEQ ANALYSIS OF PLANTS EXHIBITING NOVEL PHOTOTROPIC RESPONSES IN CONDITIONS OF MICROGRAVITY
Name of the conference: 33rd Annual Meeting American Society for Gravitational and Space Research
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Seattle (Washington), United States of America
Date of event: 25/10/2017
End date: 28/10/2017
Organising entity: ASGSR (American Society for Gravitational and Space Research)
Joshua P. Vandenbrink; R. Herranz; F.J. Medina; Richard E. Edelmann; John Z. Kiss.

44 **Title of the work:** COMBINED EFFECT OF MICROGRAVITY AND LIGHT ON CELL GROWTH AND PROLIFERATION IN ARABIDOPSIS THALIANA PLANTS
Name of the conference: ISPS-7 & ELGRA-25 Symposium 2017
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Conference Centre of Antibes, Juan-les-Pins, France
Date of event: 05/10/2017
End date: 06/10/2017

Type of entity: Associations and Groups

Organising entity: ELGRA (European Low Gravity Research Association)

Aranzazu Manzano; Veronica Pereda-Loth; Malgorzata Ciska; R. Herranz; Julio Sáez-Vásquez; F.J. Medina.

45 **Title of the work:** ROLE OF LIGHT IN THE ADAPTATION OF PLANTS TO MICROGRAVITY, AS SHOWN BY CHANGES IN GENE EXPRESSION AFTER AN ISS EXPERIMENT

Name of the conference: ISPS-7 & ELGRA-25 Symposium 2017

Type of event: Conference **Geographical area:** European Union

Type of participation: Participatory - invited/keynote talk **Reasons for participation:** Review before acceptance

City of event: Conference Centre of Antibes, Juan-les-Pins, France

Date of event: 05/10/2017

End date: 06/10/2017

Organising entity: ELGRA (European Low Gravity Research Association) **Type of entity:** Associations and Groups

F.J. Medina; Aranzazu Manzano; R. Herranz; Joshua Vandenbrink; Julio Sáez-Vásquez; John Kiss.

46 **Title of the work:** NEW MECHANISMS OF PHOTOTROPISM ARE REVEALED FROM EXPERIMENTS USING THE EMCS ON THE ISS

Name of the conference: ELGRA Biennial Symposium 2015 "From Pitagoras to Free Fall"

Type of event: Conference **Geographical area:** European Union

Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance

City of event: Corfu Isl., Greece

Date of event: 29/09/2015

End date: 01/10/2015

Organising entity: ELGRA (European Low Gravity Research Association) **Type of entity:** Associations and Groups

John Z. Kiss; Josh P. Vandenbrink; Richard E. Edelmann; R. Herranz; F.J. Medina.

47 **Title of the work:** PROGRESSIVE EFFECTS FROM SIMULATED MICRO GRAVITY TO HYPER GRAVITY ON CELL GROWTH AND CELL PROLIFERATION IN THE BRASICACEAE FAMILY

Name of the conference: ELGRA Biennial Symposium 2015 "From Pitagoras to Free Fall"

Type of event: Conference **Geographical area:** European Union

Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance

City of event: Corfu Isl., Greece

Date of event: 29/09/2015

End date: 01/10/2015

Organising entity: ELGRA (European Low Gravity Research Association) **Type of entity:** Associations and Groups

Leonardus A. den Toom; Aranzazu Manzano; Guus Borst; Martijn Visser; Alan Dowson; Miguel A. Valbuena; F.J. Medina; R. Herranz; Jack van Loon.

48 **Title of the work:** PROGRESSIVE EFFECTS FROM SIMULATED MICRO GRAVITY, PARTIAL GRAVITY AND HYPER GRAVITY ON CELL GROWTH AND CELL PROLIFERATION AND GENE EXPRESSION IN THE BRASICACEAE FAMILY

Name of the conference: 36th International Society for Gravitational Physiology Annual Meeting

Type of event: Conference **Geographical area:** European Union

Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance

City of event: Ljubljana, Slovenia

Date of event: 11/06/2015
End date: 11/06/2015
Organising entity: ISGP
Aranzazu Manzano; Leonardus A. den Toom; Guus Borst; Martijn Visser; Alan Dowson; Miguel A. Valbuena; F.J. Medina; R. Herranz; Jack van Loon.

49 **Title of the work:** EXAMINATION OF PLANT TROPISMS AND THE CELL CYCLE IN MICROGRAVITY
Name of the conference: 30th ANNUAL MEETING OF THE ASGSR
City of event: WESTIN - PASADENA, CA, United States of America
Date of event: 22/10/2014
End date: 26/10/2014
Organising entity: ASGSR (American Society for Gravitational and Space Research)
John Z Kiss; Josh P Vandenbrink; Katherine DL Millar; Richard E Edelmann; F Javier Medina; Raul Herranz.

50 **Title of the work:** PROGRESSIVE EFFECTS FROM SIMULATED MICROGRAVITY TO HYPERGRAVITY ON CELL GROWTH AND PROLIFERATION AND ON GENE EXPRESSION IN THE BRASICACEAE FAMILY
Name of the conference: 30th ANNUAL MEETING OF THE ASGSR
City of event: WESTIN - PASADENA, CA, United States of America
Date of event: 22/10/2014
End date: 26/10/2014
Organising entity: ASGSR (American Society for Gravitational and Space Research)
Arancha Manzano; Arno den Toom; Alan Dowson; Miguel A Valbuena; F Javier Medina; Raul Herranz; Jack van Loon.

51 **Title of the work:** MERISTEMATIC COMPETENCE IS DISRUPTED BY MICROGRAVITY, REAL OR SIMULATED, IN SEEDLINGS AND CULTURED CELLS OF ARABIDOPSIS
Name of the conference: The 40th COSPAR Scientific Assembly
City of event: Moscow, Russia
Date of event: 02/08/2014
End date: 10/08/2014
Organising entity: COSPAR **Type of entity:** Associations and Groups
Francisco Javier Medina; Miguel Angel Valbuena; Khaled Youssef; John Z Kiss; Jack JWA van Loon; Raúl.

52 **Title of the work:** PHOTOTROPISM EXPERIMENTS IN MICROGRAVITY–THE SEEDLING GROWTH PROJECT IN THE EMCS ON THE ISS
Name of the conference: The 40th COSPAR Scientific Assembly
City of event: Moscow, Russia
Date of event: 02/08/2014
End date: 10/08/2014
Organising entity: COSPAR
John Z Kiss; Katherine DL Millar; Richard E Edelmann; Raúl; Francisco Javier.

53 **Title of the work:** DISRUPTION OF CELL GROWTH AND PROLIFERATION INDUCED BY SIMULATED MICROGRAVITY ON SYNCHRONIC PLANT CELL CULTURES
Name of the conference: 29th ASGRS and 5th International Symposium for Physical Sciences in Space
Type of event: Conference
Type of participation: 'Participatory - poster
City of event: Orlando (Florida), United States of America
Date of event: 03/11/2013
End date: 08/11/2013

Organising entity: ASGSR (American Society for Gravitational and Space Research)
With external admission assessment committee: Yes
Khaled Youssef; Jack JWA Van Loon; Raul Herranz; F. Javier Medina.

54 **Title of the work:** A COMPARATIVE EVOLUTIONARY APPROACH TO UNRAVEL GENE REDUNDANCY CONTRIBUTION TO UNIQUE TRANSCRIPTOMIC STATES UNDER ALTEREDGRAVITY AND/OR OTHER SUBOPTIMAL ENVIRONMENTS
Name of the conference: ELGRA Biennial Meeting 2013 "In the spirit of Discovery"
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Vatican, Rome, Italy
Date of event: 11/09/2013
End date: 14/05/2013
Organising entity: ELGRA (European Low Gravity Research Association)
Type of entity: Associations and Groups
R. Herranz; Arancha Manzano; F.J. Medina. En: Abstract submitted.

55 **Title of the work:** ALTERED GRAVITY INDUCES CHANGES IN THE PLANT CELL CYCLE: GROWTH OF A SYNCHRONIC CELL CULTURE IN A RANDOM POSITIONING MACHINE
Name of the conference: ELGRA Biennial Meeting 2013 "In the spirit of Discovery"
Type of event: Conference
Geographical area: European Union
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Vatican, Rome, Italy
Date of event: 11/09/2013
End date: 14/05/2013
Organising entity: ELGRA (European Low Gravity Research Association)
Type of entity: Associations and Groups
Khaled Youssef; Jack van Loon; R. Herranz; F.J. Medina. En: Abstract submitted.

56 **Title of the work:** EFFECTS OF LIGHT STIMULATION ONPLANT CELL GROWTH AND PROLIFERATION IN SPACE: PREPARATION OF ANESA/NASA SPACE FLIGHT EXPERIMENT
Name of the conference: ELGRA Biennial Meeting 2013 "In the spirit of Discovery"
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Vatican, Rome, Italy
Date of event: 11/09/2013
End date: 14/05/2013
Organising entity: ELGRA (European Low Gravity Research Association)
Type of entity: Associations and Groups
Miguel Angel Valbuena; R. Herranz; John Z. Kiss; F.J. Medina. "Awarded with the Best Life Science Student presentation ELGRA 2013". En: Abstract submitted.

57 **Title of the work:** PLANT CELL CYCLE IS ALTERED BY MICROGRAVITY, REAL OR SIMULATED, IN ROOT MERISTEMATIC AND IN CULTURED CELLS
Name of the conference: ELGRA Biennial Meeting 2013 "In the spirit of Discovery"
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Vatican, Rome, Italy

Date of event: 11/09/2013
End date: 14/05/2013
Organising entity: ELGRA (European Low Gravity Research Association) **Type of entity:** Associations and Groups
F.J. Medina; Ana I. Manzano; Khaled Youssef; Miguel A. Valbuena; John Z Kiss; Jack van Loon; R. Herranz. En: Abstract submitted.

58 **Title of the work:** PLANT DEVELOPMENT EXPERIMENT
Name of the conference: ELGRA Biennial Meeting 2013 "In the spirit of Discovery"
Type of event: Conference **Geographical area:** European Union
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Vatican, Rome, Italy
Date of event: 11/09/2013
End date: 14/05/2013
Organising entity: ELGRA (European Low Gravity Research Association) **Type of entity:** Associations and Groups
Eugenie Carnero-Diaz; Ann-Iren Kittang; Elodie Boucheron-Dubuisson; Isabel Le-Disquet; Raul Herranz; Miguel A Valbuena; Christian Mazars; Sabine Grat; Tor-Hening Iversen; A. B. Mohammad; Knut R Fossum; Veronica Pereda-loft; B. Eche; F.J. Medina. En: Abstract submitted.

59 **Title of the work:** SEEDLING GROWTH—A NEW SERIES OF EXPERIMENTS ON PLANT TROPISMS AND THE CELL CYCLE ON THE ISS
Name of the conference: ELGRA Biennial Meeting 2013 "In the spirit of Discovery"
Type of event: Conference **Geographical area:** European Union
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Vatican, Rome, Italy
Date of event: 11/09/2013
End date: 14/05/2013
Organising entity: ELGRA (European Low Gravity Research Association) **Type of entity:** Associations and Groups
John Z Kiss; Kathy DL Millar; Richard E Edelmann; F.J. Medina; R. Herranz. En: Abstract submitted.

60 **Title of the work:** THE NEW HARDWARE “FIXBOX” FOR MICROSCOPICAL FIXATION OF PLANT SAMPLES IN SPACE REQUIRES THE ADDITION OF FERROFLUID® WITHOUT ALTERING STRUCTURAL OR ANTIGENIC PRESERVATION
Name of the conference: ELGRA Biennial Meeting 2013 "In the spirit of Discovery"
Type of event: Conference **Geographical area:** European Union
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
City of event: Vatican, Rome, Italy
Date of event: 11/09/2013
End date: 14/05/2013
Organising entity: ELGRA (European Low Gravity Research Association) **Type of entity:** Associations and Groups
Miguel A. Valbuena; Eva Craus; Albert Tomas; R. Herranz; F.J. Medina. En: Abstract submitted.

61 **Title of the work:** EFFECTS OF ALTERED GRAVITY ON MERISTEMATIC AND CULTURED PROLIFERATING CELLS OF ARABIDOPSIS THALIANA
Name of the conference: Plant Biology Congress Freiburg 2012 - ISLSWG Satellite Symposium Plant Biology in Space”

Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Upon invitation
City of event: Freiburg, Germany
Date of event: 29/07/2012
End date: 03/08/2012
Organising entity: FESPB (Federation of European Societies of Plant Biologists) - EPSO (European Plant Science Organisation)
F.J. Medina; A.I. Manzano; R. Herranz.

62 **Title of the work:** ALTERATION OF MERISTEMATIC COMPETENCE IN PLANT CELL CULTURES IN VITRO REVEALS A SPECIFIC EFFECT OF GRAVITATIONAL STRESS ON PLANT CELL FUNCTIONS
Name of the conference: Joint ESA Life Sciences Meeting "Life in Space for Life on Earth"
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Aberdeen, United Kingdom
Date of event: 18/06/2012
End date: 22/06/2012
Organising entity: European Space Agency (ESA) International Society for Gravitational Physiology (ISGP)
F.J. Medina; A.I. Manzano; J. van Loon; R. Herranz.

63 **Title of the work:** AUXIN TRANSPORT AND RIBOSOME BIOGENESIS MUTANTS/REPORTER LINES TO STUDY PLANT CELL GROWTH AND PROLIFERATION UNDER ALTERED GRAVITY
Name of the conference: Joint ESA Life Sciences Meeting "Life in Space for Life on Earth"
Type of event: Conference
Geographical area: European Union
Type of participation: 'Participatory - poster
City of event: Aberdeen, United Kingdom
Date of event: 18/06/2012
End date: 22/06/2012
Organising entity: European Space Agency (ESA) International Society for Gravitational Physiology (ISGP)
With external admission assessment committee: Yes
Type of contribution: Scientific paper
M.A. Valbuena; A.I. Manzano; J. van Loon; J. Sáez-Vásquez; E. Carnero-Diaz; R. Herranz; F.J. Medina. En: Proc. 'Life in Space for Life on Earth' 18-22 June 2012, Aberdeen, UK (ESA SP-706, February 2013). pp. P309.

64 **Title of the work:** ROLE OF GENE AND PATHWAYS REDUNDANCY IN PLANT AND ANIMAL UNIQUE TRANSCRIPTOMIC STATES UNDER ALTERED GRAVITY SUBOPTIMAL ENVIRONMENTS
Name of the conference: Joint ESA Life Sciences Meeting "Life in Space for Life on Earth"
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Aberdeen, United Kingdom
Date of event: 18/06/2012
End date: 22/06/2012
Organising entity: European Space Agency (ESA) International Society for Gravitational Physiology (ISGP)
R. Herranz; F.J. Medina.

65 **Title of the work:** GENE EXPRESSION AND CELLULAR FUNCTIONS ARE UNCOUPLED UNDER ALTERED GRAVITY ENVIRONMENTS IN PLANT IN VITRO SOLID CELL CULTURES
Name of the conference: XIV Congreso de la Sociedad Española de Biología Celular

Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Torremolinos, Spain
Date of event: 12/12/2011
End date: 15/12/2011
Organising entity: SEBC (Sociedad Española de Biologia Celular)
R. Herranz; A. I. Manzano; J. van Loon; F.J. Medina.

66 **Title of the work:** ALTERED GROWTH AND PROLIFERATION IN IN VITRO CELL CULTURES FROM Arabidopsis thaliana UNDER MAGNETIC LEVITATION CONDITIONS
Name of the conference: 21st ELGRA Biennial Symposium "Gravity: from µ to x !"
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Antwerp, Belgium
Date of event: 06/09/2011
End date: 09/09/2011
Organising entity: ELGRA (European Low Gravity Research Association)
A. I. Manzano; J. van Loon; P. Christianen; R. Herranz.

67 **Title of the work:** DIAMAGNETIC LEVITATION
Name of the conference: 21st ELGRA Biennial Symposium "Gravity: from µ to x !"
Type of event: Conference
Geographical area: European Union
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Antwerp, Belgium
Date of event: 06/09/2011
End date: 09/09/2011
Organising entity: ELGRA (European Low Gravity Research Association)
R. Hill; R. Herranz.

68 **Title of the work:** SYSTEMATIC GBF COMPARISONS OF ALTERED GRAVITY: DROSOPHILA MOTILITY AND GENE EXPRESSION
Name of the conference: 21st ELGRA Biennial Symposium "Gravity: from µ to x !"
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Antwerp, Belgium
Date of event: 06/09/2011
End date: 09/09/2011
Organising entity: ELGRA (European Low Gravity Research Association)
R. Herranz; P. Serrano; R. Hill; J. van Loon; F.J. Medina.

69 **Title of the work:** SYSTEMATIC GBF COMPARISONS OF ALTERED GRAVITY: GENE EXPRESSION AND CELLULAR FUNCTIONS IN PLANT CULTURES
Name of the conference: 21st ELGRA Biennial Symposium "Gravity: from µ to x !"
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Antwerp, Belgium
Date of event: 06/09/2011

End date: 09/09/2011
Organising entity: ELGRA (European Low Gravity Research Association)
A. I. Manzano; J. van Loon; P. Christianen; R. Herranz; F.J. Medina.

70 **Title of the work:** GENE EXPRESSION & BEHAVIOR (DROSOPHILA)
Name of the conference: 2nd Intermediate Meeting Access to ground based facilities project SEGMGSPE_Ph1",
Type of event: Workshop **Geographical area:** European Union
Type of participation: Participatory - oral communication
City of event: Madrid, Spain
Date of event: 08/05/2011
End date: 10/05/2011
Organising entity: Centro de Investigaciones Biológicas (CSIC)
Raul Herranz.

71 **Title of the work:** GROUND BASED FACILITIES FOR GRAVITY ALTERATION & PLANT CELL CULTURES: EFFECTS ON CELL PROLIFERATION & GROWTH
Name of the conference: American Society for Gravitational and Space Biology 26th Annual Meeting
Type of event: Conference **Geographical area:** Non EU International
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
City of event: Washington DC, United States of America
Date of event: 04/11/2010
End date: 07/11/2010
Organising entity: ASGSB (American Society for Gravitational and Space Biology)
A.I. Manzano; J. van Loon; P. C. M. Christianen; F.J. Medina; R. Herranz.

72 **Title of the work:** EFFECTS OF REAL OR SIMULATED MICROGRAVITY ON PLANT CELL GROWTH AND PROLIFERATION
Name of the conference: 38th COSPAR scientific assembly 2010
Type of event: Conference **Geographical area:** Non EU International
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Bremen, Germany
Date of event: 18/07/2010
End date: 25/07/2010
Organising entity: COSPAR (COmmittee on SPAce Research)
F.J. Medina; A.I. Manzano; R. Herranz; C. Dijkstra; O. Larkin; R. Hill; E. Carnero-Diaz; J. van Loon; P. Anthony; M.R. Davey; L. Eaves.

73 **Title of the work:** COMPENSATION OF THE GRAVITY VECTOR BY MAGNETIC LEVITATION CAUSES ALTERATIONS IN CELL CYCLE, RIBOSOME BIOGENESIS AND AUXIN DISTRIBUTION IN ARABIDOPSIS ROOT TIPS
Name of the conference: Joint ESA Life Sciences Meeting "Life in Space for Life on Earth"
Type of event: Conference **Geographical area:** Non EU International
Type of participation: Participatory - oral communication **Reasons for participation:** Review before acceptance
City of event: Trieste, Italy
Date of event: 13/06/2010
End date: 18/06/2010
Organising entity: European Space Agency (ESA) International Society for Gravitational Physiology (ISGP) ISSBB Symposium European Low Gravity Research Association (ELGRA)

F.J. Medina; A.I. Manzano; C. Dijkstra; O. Larkin; R. Hill; R. Herranz; P. Anthony; E. Carnero-Diaz; M.R. Davey; L. Eaves.

74 **Title of the work:** SELECTION OF DROSOPHILA ALTERED BEHAVIOUR AND AGING STRAINS FOR MICROGRAVITY RESEARCH
Name of the conference: Joint ESA Life Sciences Meeting "Life in Space for Life on Earth"
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Trieste, Italy
Date of event: 13/06/2010
End date: 18/06/2010
Organising entity: European Space Agency (ESA) International Society for Gravitational Physiology (ISGP) ISSBB Symposium European Low Gravity Research Association (ELGRA)
Type of contribution: Scientific paper
P. Serrano; J.J. van Loon; A.I. Manzano; F.J. Medina; R. Herranz. "Selection of Drosophila Altered Behaviour & Aging strains for microgravity research". En: J Gravit Physiol (in press) & Proceedings of the ESA ´Life in Space for Life on Earth Symposium´ Trieste, Italy (ESA SPS-685). 18/06/2010. Available on-line at: <http://hdl.handle.net/10261/39192>. ISSN 1077-9248

75 **Title of the work:** UTILIZATION OF DROSOPHILA ALTERED BEHAVIOUR AND AGING STRAINS IN ESA ALTERED GRAVITY GROUND BASED FACILITIES
Name of the conference: Joint ESA Life Sciences Meeting "Life in Space for Life on Earth"
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Trieste, Italy
Date of event: 13/06/2010
End date: 18/06/2010
Organising entity: European Space Agency (ESA) International Society for Gravitational Physiology (ISGP) ISSBB Symposium European Low Gravity Research Association (ELGRA)
R. Herranz; P. Serrano; A.I. Manzano; J.J. van Loon; F.J. Medina.

76 **Title of the work:** EXPOSURE OF DROSOPHILA MELANOGASTER TO MAGNETIC LEVITATION: CHANGES IN THE BEHAVIOUR, DEVELOPMENT AND GENE EXPRESSION PROFILE AND EXPLOITATION AS A LONG-TERM ALTERED GRAVITY SIMULATOR
Name of the conference: International Conference on Magneto-Science 2009
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Nijmegen, Holland
Date of event: 26/10/2009
End date: 29/10/2009
Organising entity: HFML (High Magnetic Field Laboratory - University Radbound)
R. Herranz; O. Larkin; C. Dijkstra; E. de Juan; J. van Loon; F.J. Medina; M. Davey; L. Eaves; R. Marco.

77 **Title of the work:** DROSOPHILA AS A MODEL SYSTEM IN MICROGRAVITY GROUND SUPPORT FACILITIES.REVIEW OF OUR LAST FIVE YEARS EXPERIMENTS
Name of the conference: 20th ELGRA Biennial Symposium "In the Footsteps of Columbus"
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance

City of event: Bonn, Germany
Date of event: 01/09/2009
End date: 04/09/2009
Organising entity: ELGRA (European Low-gravity Research Association)
Raul Herranz.

78 **Title of the work:** GENE EXPRESSION & BEHAVIOR (DROSOPHILA)
Name of the conference: Kick-off Meeting Access to ground based facilities project SEGMGSPE_Ph1",
Type of event: Workshop **Geographical area:** European Union
Type of participation: Participatory - oral communication
City of event: Cologne, Germany
Date of event: 08/06/2009
End date: 10/06/2009
Organising entity: DLR (European Space Agency)
Raul Herranz.

79 **Title of the work:** EXPERIENCIA DE UN SPANISH TRAINEE DEL CDTI EN LAS INSTALACIONES DE MICROGRAVEDAD DE LA ESA (ESTEC)
Name of the conference: III Congreso del Laboratorio para Experimentación en Espacio y Microgravedad (LEEM)
Type of event: Workshop **Geographical area:** National
Type of participation: Participatory - invited/keynote talk **Reasons for participation:** Upon invitation
City of event: Zaragoza, Spain
Date of event: 27/11/2008
End date: 28/11/2008
Organising entity: S3 (Spanish Space Students)
Raúl Herranz.

80 **Title of the work:** OVERALL GENOMIC EFFECTS OF THE EXPOSURE TO REAL AND SIMULATED GRAVITY DURING DROSOPHILA MELANOGASTER METAMORPHOSIS
Name of the conference: 37th COSPAR Scientific Assembly
Type of event: Conference **Geographical area:** Non EU International
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
City of event: Montreal, Canada
Date of event: 13/07/2008
End date: 20/07/2008
Organising entity: COSPAR (COmmittee on SPAce Research)
R. Marco; R. Herranz; D. Laván; A. Villa; F.J. Medina; J. van Loon.

81 **Title of the work:** DROSOPHILA BEHAVIOUR & GENE EXPRESSION IN ALTERED GRAVITY CONDITIONS: COMPARISON BETWEEN SPACE AND GROUND FACILITIES
Name of the conference: 14th European Symposium on Life Sciences Research in Space: "Life in Space for Life on Earth"
Type of event: Conference **Geographical area:** Non EU International
Type of participation: 'Participatory - poster **Reasons for participation:** Review before acceptance
City of event: Angers, France
Date of event: 22/06/2008
End date: 27/06/2008

Organising entity: European Space Agency (ESA) - International Society for Gravitational Physiology (ISGP)
Type of contribution: Scientific paper
R. Herranz; D.A. Laván; C. Dijkstra; O. Larkin; M. Davey; F.J. Medina; J.J. van Loon; R. Marco; P. Schiller. "Drosophila Behaviour & Gene expression in altered gravity conditions: Comparison between Space and ground facilities". En: J Gravit Physiol & Proc of the 'Life in Space for Life on Earth Symposium', Angers, France, 22-27 June 2008, (ESA SP-663). 12/2008. Available on-line at: <http://hdl.handle.net/10261/21988>. ISSN 1077-9248

82 **Title of the work:** GENE EXPRESSION VARIATIONS DURING DROSOPHILA METAMORPHOSIS IN ISS VS. RPM MICROGRAVITY AND BEYOND
Name of the conference: Technology for Artificial Gravity and Microgravity Simulation Meeting
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: European Space Technology Center (ESTEC-Noordwijk), Holland
Date of event: 10/12/2007
End date: 12/12/2007
Organising entity: ESA - European Space Agency
R. Herranz; D.A. Laván; F.J. Medina; J.J. van Loon; R. Marco.

83 **Title of the work:** MODIFICATIONS OF DROSOPHILA BEHAVIOUR IN MICROGRAVITY: COMPARISON BETWEEN SPACE, RANDOM POSITION MACHINE (RPM) AND MAGNETIC LEVITATION
Name of the conference: Technology for Artificial Gravity and Microgravity Simulation Meeting
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: European Space Technology Center (ESTEC-Noordwijk), Holland
Date of event: 10/12/2007
End date: 12/12/2007
Organising entity: ESA - European Space Agency
R. Marco; C. Dijkstra; O. Larkin; R. Herranz; D.A. Laván; E. de Juan; P. Anthony; M. Davey; R.J.A. Hill; L. Eaves; F.J. Medina; J.J. van Loon.

84 **Title of the work:** GENE EXPRESSION CHANGES DURING DROSOPHILA METAMORPHOSIS INDUCED BY POTENTIALLY IMPORTANT EVOLUTIONARY PHYSICAL ENVIRONMENTAL PARAMETERS
Name of the conference: 1st Functional Genomics and Systems Biology
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Hinxton Genome Campus (Cambridgeshire), United Kingdom
Date of event: 10/10/2007
End date: 13/10/2007
Organising entity: Joint Cold Spring Harbor Laboratory/ Wellcome Trust Conference
R. Marco; R. Herranz; D. Laván; J.J. van Loon; F.J. Medina.

85 **Title of the work:** THE COEVOLUTION OF MUSCLE THIN FILAMENT PROTEINS IN DIPTERA
Name of the conference: 1st Functional Genomics and Systems Biology
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance

City of event: Hinxton Genome Campus (Cambridgeshire), United Kingdom
Date of event: 10/10/2007
End date: 13/10/2007
Organising entity: Joint Cold Spring Harbor Laboratory/ Wellcome Trust Conference
R. Herranz; D. Laván; R. Marco.

86 **Title of the work:** GENE EXPRESSION VARIATIONS DURING DROSOPHILA METAMORPHOSIS IN REAL AND SIMULATED GRAVITY
Name of the conference: 47th Annual Drosophila Research Conference
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Houston (Texas), United States of America
Date of event: 29/03/2006
End date: 02/04/2006
Organising entity: GSA (Genetics Society of America)
R. Marco; L.J. Leandro-Garcia; A. Benguria; R. Herranz; A. Zaballos; G. Gasset; J.J. van Loon; F.J. Medina.

87 **Title of the work:** THE COEVOLUTION OF MUSCLE TROPONIN GENE ISOFORMS IN DROSOPHILIDS
Name of the conference: 47th Annual Drosophila Research Conference
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Houston (Texas), United States of America
Date of event: 29/03/2006
End date: 02/04/2006
Organising entity: GSA (Genetics Society of America)
L.J. Leandro-Garcia; R. Herranz; R. Marco.

88 **Title of the work:** THE COEVOLUTION OF MUSCLE TROPONIN GENE ISOFORMS IN DROSOPHILIDS
Name of the conference: Systems Biology: Global regulation of Gene Expression
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Cold Spring Harbor Laboratory (NY), United States of America
Date of event: 23/03/2006
End date: 26/03/2006
Organising entity: Cold Spring Harbor Laboratory
L.J. Leandro-Garcia; R. Herranz; R. Marco.

89 **Title of the work:** GENE EXPRESSION VARIATIONS DURING DROSOPHILA METAMORPHOSIS IN SPACE. THE GENE EXPERIMENT IN THE SPANISH CERVANTES MISSION TO THE ISS
Name of the conference: 9th European Symposium on Life Sciences Research in Space: "Life in Space for Life on Earth"
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Cologne, Germany
Date of event: 26/06/2005
End date: 01/07/2005

Organising entity: European Space Agency (ESA) - International Society for Gravitational Physiology (ISGP)
Type of contribution: Scientific paper
R. Herranz; A. Benguria; E. Fernández-Pineda; F.J. Medina; G. Gasset; J.J. van Loon; A. Zaballos; R. Marco. "Gene Expression Variations During Drosophila Metamorphosis in Space. The GENE Experiment in the Spanish Cervantes Mission to the ISS". En: J Gravit Physiol. 12 - 1, pp. 253 - 254. 2005. ISSN 1077-9248

90 **Title of the work:** THE DROSOPHILA EXPERIMENTS "AGEING" AND "GENE" PERFORMED IN THE ISS DURING THE SPANISH SOYUZ MISSION IN 2003
Name of the conference: 35th COSPAR Scientific Assembly
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Paris, France
Date of event: 18/07/2004
End date: 25/07/2004
Organising entity: COSPAR (COmmittee on SPAce Research)
R. Marco; R. Herranz; A. Villa; U. Kirshnick; E. Horn; G. Gasset; H. Agricola; J. van Loon; F.J. Medina.

91 **Title of the work:** AN EVO-DEVO APPROACH LEADING TO A STRUCTURAL-FUNCTIONAL MODEL OF TROPONIN GENES IN INSECTS
Name of the conference: 45th Annual Drosophila Research Conference
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Washington DC, United States of America
Date of event: 24/03/2004
End date: 28/03/2004
Organising entity: GSA (Genetics Society of America)
R. Herranz; J. Mateos; J.A. Mas; E. García-Zaragoza; M. Cervera; R. Marco.

92 **Title of the work:** DIVERSIFICATION AND INDEPENDENT EVOLUTION OF TROPONIN C GENES IN INSECTS
Name of the conference: 45th Annual Drosophila Research Conference
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Washington DC, United States of America
Date of event: 24/03/2004
End date: 28/03/2004
Organising entity: GSA (Genetics Society of America)
R. Herranz; J. Mateos; C. Diaz; T. P. Nguyen; T. L. Lovato; R. M. Cripps; R. Marco.

93 **Title of the work:** PAST, PRESENT AND FUTURE OF EUROPEAN DROSOPHILA RESEARCH IN MICROGRAVITY
Name of the conference: 45th Annual Drosophila Research Conference
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Washington DC, United States of America
Date of event: 24/03/2004

End date: 28/03/2004
Organising entity: GSA (Genetics Society of America)
R. Marco; R. Herranz; E. Martin; E. Horn.

94 **Title of the work:** AN EVO-DEVO APPROACH LEADING TO A STRUCTURAL-FUNCTIONAL MODEL OF TROPONIN GENES IN INSECTS
Name of the conference: 18th European Drosophila Research Conference Eurofly 2003"
Type of event: Conference
Geographical area: European Union
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Göttingen, Germany
Date of event: 02/10/2003
End date: 04/10/2003
Organising entity: University of Göttingen
R. Herranz; J. Mateos; J.A. Mas; E. García-Zaragoza; M. Cervera; R. Marco.

95 **Title of the work:** THE LONG TERM ADAPTATION OF MULTICELLULAR MODEL ORGANISM TO NON-TERRESTRIAL AND SPACE ENVIROMENTS
Name of the conference: 8th European Symposium on Life Sciences Research in Space: "Life in Space for Life on Earth"
Type of event: Conference
Geographical area: Non EU International
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Stockholm, Sweden
Date of event: 02/06/2002
End date: 07/06/2002
Organising entity: European Space Agency (ESA) - International Society for Gravitational Physiology (ISGP)
Type of contribution: Scientific paper
R. Marco; D. Husson; R. Herranz; M. Pastor; J.M. Ruiz; C. Diaz; J. Mateos; A. Villa. "The long term adaptation of multicellular model organism to non-terrestrial and space enviroments". En: J Gravit Physiol. 9 - 1, pp. 201 - 202. 2002. ISSN 1077-9248

96 **Title of the work:** TOWARDS THE ESTABLISHMENT OF A PERMANENT COLONY OF DROSOPHILA IN THE INTERNATIONAL SPACE STATION: HARDWARE AND ADAPTATION OF TECHNIQUES
Name of the conference: 8th European Symposium on Life Sciences Research in Space: "Life in Space for Life on Earth"
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Stockholm, Sweden
Date of event: 02/06/2002
End date: 07/06/2002
Organising entity: European Space Agency (ESA) - International Society for Gravitational Physiology (ISGP)
Type of contribution: Scientific paper
R. Herranz; D. Husson; M. Pastor; J.M. Ruiz; C. Diaz; J. Mateos; A. Villa; F.J. Medina; R. Marco. "Towards the establishment of a permanent colony of Drosophila in the international space station (ISS): Hardware and adaptation of techniques". En: J Gravit Physiol. 9 - 1, pp. 357 - 358. 2002. ISSN 1077-9248

97 **Title of the work:** CHARACTERIZATION OF ISOFORM PATTERNS OF THE COMPONENTS OF DROSOPHILA TROPONIN AT THE PROTEIN LEVEL
Name of the conference: 43rd Annual Drosophila Research Conference
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: San Diego (California), United States of America
Date of event: 04/2002
End date: 04/2002
Organising entity: GSA (Genetics Society of America)
J.M. Ruiz; R. Herranz; C. Diaz; J. Mateos; M. Cervera; R. Marco.

98 **Title of the work:** EMBRIONARY EXPRESSION OF A NON-MUSCLE PROTEIN INCORPORATING ONE OF THE DIFFERENTIAL EXONS FOUND IN TROPONIN H, AN IFM SPECIFIC ISOFORMHE COMPONENTS OF DROSOPHILA TROPONIN AT THE PROTEIN LEVEL
Name of the conference: 43rd Annual Drosophila Research Conference
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: San Diego (California), United States of America
Date of event: 04/2002
End date: 04/2002
Organising entity: GSA (Genetics Society of America)
J. Mateos; C. Diaz; R. Herranz; J.M. Ruiz; M. Cervera; R. Marco.

99 **Title of the work:** TOWARDS THE ESTABLISHMENT OF A PERMANENT COLONY OF DROSOPHILA IN THE INTERNATIONAL SPACE STATION: HARDWARE AND ADAPTATION OF TECHNIQUES
Name of the conference: 43rd Annual Drosophila Research Conference
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: San Diego (California), United States of America
Date of event: 04/2002
End date: 04/2002
Organising entity: GSA (Genetics Society of America)
D. Husson; M. Pastor; R. Herranz; J.M. Ruiz; C. Diaz; J. Mateos; A. Villa; R. Marco.

100 **Title of the work:** SAMPLE PRESERVATION, ONE OF THE BIG CHALLENGES FOR THE NEXT PHASE OF SPACE RESEARCH: PROBLEMS AND POSSIBLE SOLUTIONS
Name of the conference: ELGRA Biennial Meeting and General Assembly
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Banyuls sur Mer, France
Date of event: 25/09/2001
End date: 28/09/2001
Organising entity: ELGRA (European Low Gravity Research Association)
Roberto Marco; F. Leria; David Husson; Raul Herranz; Jose M. Ruiz; Jesus Mateos; Aida Villa; F Javier Medina.

101 **Title of the work:** THE LONG-TERM ADAPTATION OF DROSOPHILA MELANOGASTER TO THE SPACE ENVIROMENT: DESIGN; DEVELOPMENT & TEST OF EXPERIMENTS & HARDWARE FOR ISS
Name of the conference: ELGRA Biennial Meeting and General Assembly
Type of event: Conference
Geographical area: European Union
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Banyuls sur Mer, France
Date of event: 25/09/2001
End date: 28/09/2001
Organising entity: ELGRA (European Low Gravity Research Association)
David Husson; Raul Herranz; F Javier Medina; Roberto Marco.

102 **Title of the work:** MODIFICACIONES POST-TRADUCCIONALES EN LA TROPONINA H DE DROSOPHILA. PAPEL EN LA FUNCIONALIDAD DEL MÚSCULO INDIRECTO DE VUELO
Name of the conference: XXIV Congreso de la Sociedad Española de Bioquímica y Biología Molecular
Type of event: Conference
Geographical area: National
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Valencia (Facultad de Ciencias), Spain
Date of event: 18/09/2001
End date: 21/09/2001
Organising entity: Sociedad Española de Bioquímica y Biología Molecular (SEBBM)
Jesús Mateos; Alberto Domingo; A. Marina; R. Rogado; Carlos Díaz; Raúl Herranz; Jose M Ruiz; Jesús Vazquez; Margarita Cervera; Roberto Marco.

103 **Title of the work:** SEQUENCE DIVERGENCE AND EXPRESSION PATTERN OF TROPONIN C GENES IN DROSOPHILIDAE
Name of the conference: 42nd Annual Drosophila Research Conference. "2001: A Fly Odyssey"
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Washington DC, United States of America
Date of event: 21/03/2001
End date: 25/03/2001
Organising entity: Genetics Society of America (GSA)
Carlos Díaz; Raúl Herranz; Jesús Mateos; Jose M Ruiz; Margarita Cervera; Roberto Marco.

104 **Title of the work:** POST-TRANSLATIONAL MODIFICATIONS IN DROSOPHILA TpnH, AN IFM SPECIFIC TROPOMYOSIN ISOFORM
Name of the conference: Molecular Biology Of Muscle Development And Disease Meeting
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
Reasons for participation: Review before acceptance
City of event: Pacific Grove (California), United States of America
Date of event: 21/05/2000
End date: 26/05/2000
Organising entity: Asilomar Conference Center
Jesús Mateos; Alberto Domingo; A. Marina; R. Rogado; Carlos Díaz; Raúl Herranz; Jesús Vazquez; Margarita Cervera; Roberto Marco.

105 **Title of the work:** CARACTERIZACIÓN EVOLUTIVA DE LOS GENES DE LA TROPONINA C EN EL GÉNERO DROSOPHILA
Name of the conference: VIII Congreso de la Sociedad Española de Biología Celular
Type of event: Conference
Geographical area: National
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Granada (Facultad de Ciencias), Spain
Date of event: 17/12/1999
End date: 20/12/1999
Organising entity: Sociedad Española de Biología Celular (SEBC)
Raúl Herranz; Carlos Díaz; Jesús Mateos; Margarita Cervera; Roberto Marco.

106 **Title of the work:** MODIFICACIONES POST-TRADUCCIONALES EN LA TROPONINA H DE DROSOPHILA,Y SU PAPEL EN LA FUNCIONALIDAD DEL MÚSCULO INDIRECTO DE VUELO
Name of the conference: VIII Congreso de la Sociedad Española de Biología Celular
Type of event: Conference
Geographical area: National
Type of participation: Participatory - oral communication
Reasons for participation: Review before acceptance
City of event: Granada (Facultad de Ciencias), Spain
Date of event: 17/12/1999
End date: 20/12/1999
Organising entity: Sociedad Española de Biología Celular (SEBC)
Jesús Mateos; Alberto Domingo; A. Marina; R. Rogado; Carlos Díaz; Raúl Herranz; Jesús Vazquez; Margarita Cervera; Roberto Marco. "This presentation received the Hucoa-Erloss-Eppendorf award to the best young researcher communication".

Works submitted to national or international seminars, workshops and/or courses

1 **Title of the work:** Spanish perspective on Space Omics in Europe
Name of the event: 2022/2023 Master of Space Studies (MSS) program
Type of event: Workshop
Corresponding author: Yes
Reasons for participation: Upon invitation
Geographical area: European Union
City of event: Strasbourg (online), France
Date of event: 26/04/2023
End date: 05/05/2023
Organising entity: International Space University
With external admission assessment committee: No
Type: Review
Raul Herranz.

2 **Title of the work:** Stress-related mutants may show an improved molecular response to spaceflight and Mars gravity level: An European contribution to ESA/NASA Seedling Growth Experiment
Name of the event: GeneLab Analysis Working Group Workshop 2021
Type of event: Workshop
Corresponding author: Yes
Reasons for participation: Upon invitation
Geographical area: Non EU International
City of event: Virtual, United States of America
Date of event: 10/11/2021
End date: 12/11/2021
Organising entity: GeneLab (NASA)
Type of entity: State agency

With external admission assessment committee: Yes
Type: Scientific paper
Aranzazu Manzano; F. Javier Medina; Raul Herranz.

3 **Title of the work:** IMPORTANCE OF PLANT BIOLOGY RESEARCH IN ALTERED GRAVITY SIMULATION AND RADIATION
Name of the event: ESA-ELGRA Gravity-Related Research Summer School
Type of event: Course
Reasons for participation: Upon invitation
Geographical area: European Union
City of event: Redu, Belgium
Date of event: 25/06/2019
Organising entity: European Space Agency (ESA ESEC-Galaxia) **Type of entity:** State agency
Raul Herranz.

4 **Title of the work:** RESPUESTA TRANSCRIPTOMICA Y PROTEOMICA A LA MICROGRAVEDAD EN CONDICIONES DE ESTRÉS AMBIENTAL EN ANIMALES Y PLANTAS
Name of the event: Seminario extraordinario
Type of event: Seminar
Reasons for participation: Upon invitation
Geographical area: National
City of event: A Coruña, Spain
Date of event: 02/07/2012
Organising entity: INIBIC (Instituto de Investigación Biomédica) **Type of entity:** R&D Centre
Raul Herranz.

5 **Title of the work:** LA REDUNDANCIA GÉNICA EN LA RESPUESTA TRANSCRIPTOMICA Y PROTEOMICA A LA GRAVEDAD ALTERADA EN AMBIENTES SUBOPTIMOS
Name of the event: Ciclo de seminarios de Proteómica
Type of event: Seminar
Reasons for participation: Upon invitation
Geographical area: National
City of event: Santiago de Compostela, Spain
Date of event: 29/06/2012
Organising entity: Hospital clínico de Santiago de Compostela **Type of entity:** Healthcare Institutions
Raul Herranz.

6 **Title of the work:** LIGHT AND GRAVITY INTERACTIONS ON CELL GROWTH AND PROLIFERATION UNDER SPACEFLIGHT CONDITIONS IN ARABIDOPSIS THALIANA
Name of the event: Space Biology Seminars
Type of event: Seminar
Reasons for participation: Upon invitation
Geographical area: European Union
City of event: Trondheim, Norway
Date of event: 25/05/2012
Organising entity: CIRIS (Center for Interdisciplinary Research in Space,NTNU University) **Type of entity:** University
Raul Herranz.

7 **Title of the work:** SINERGIA ENTRE ESTRESES ABIÓTICOS: EFECTO DE LA MICROGRAVEDAD EN CONDICIONES AMBIENTALES SUBÓPTIMAS SOBRE EL TRANSCRIPTOMA DE INSECTOS Y DE PLANTAS
Name of the event: Jornadas de Navidad del Centro de Investigaciones Biológicas
Type of event: Seminar
Reasons for participation: Upon invitation
Geographical area: National
City of event: Madrid, Spain
Date of event: 15/12/2010
Organising entity: Centro de Investigaciones Biológicas
Type of entity: State agency
Raul Herranz.

Science Outreach activities

1 **Title of the work:** Del Espacio a la Tierra: Biología Espacial y microgravedad simulada en España
Name of the event: Semana de la Ciencia 2024
Type of event: Fairs and exhibitions
Corresponding author: Yes
City of event: Madrid, Spain
Date of event: 06/11/2024
Organising entity: CIB Margarita Salas (CSIC)
Raúl Herranz.

2 **Title of the work:** Monographic TV interview - Efectos de un viaje espacial de larga duración
Name of the event: Episodio "Atómico" del programa semanal Órbita Laika
Type of event: Media interviews
Geographical area: National
Reasons for participation: Upon invitation
City of event: Madrid, Spain
Date of event: 19/12/2023
Organising entity: RTVE
Raúl Herranz. Available on-line at: <https://www.rtve.es/play/videos/orbita-laika/efectos-fisicos-psicologicos-viaje-espacial-larga-duracion/7024309/>.

3 **Title of the work:** Del Espacio a la Tierra: Biología Espacial y microgravedad simulada en España
Name of the event: Semana de la Ciencia 2022
Type of event: Fairs and exhibitions
Corresponding author: Yes
City of event: Madrid, Spain
Date of event: 15/11/2022
Organising entity: CIB Margarita Salas (CSIC)
Raúl Herranz.

4 **Title of the work:** Monographic radio interview - Space Omics Research at Cell Press NASA issue
Name of the event: A hombros de gigantes
Type of event: Media interviews
Geographical area: National
Reasons for participation: Upon invitation
City of event: Madrid, Spain
Date of event: 25/11/2020
Organising entity: RNE

Raúl Herranz.

5 **Title of the work:** Monographic radio interview performed by phone about Partial gravity simulation on Plants
Name of the event: La cafetera
Type of event: Media interviews **Geographical area:** National
Reasons for participation: Upon invitation
City of event: Madrid, Spain
Date of event: 07/05/2018
Organising entity: Radiocable
Raúl Herranz.

6 **Title of the work:** Monographic radio interview performed by phone about Partial gravity simulation on Plants
Name of the event: 24 horas
Type of event: Media interviews **Geographical area:** National
Reasons for participation: Upon invitation
City of event: Madrid, Spain
Date of event: 02/05/2018
Organising entity: RNE
Raúl Herranz.

7 **Title of the work:** Monographic Radio program about microgravity simulation on Earth using Magnetic levitation with biological samples
Name of the event: Sin límites - Radio 3
Type of event: Media interviews **Geographical area:** National
Reasons for participation: Upon invitation
City of event: Madrid, Spain
Date of event: 21/02/2012
Organising entity: Universidad Nacional de Educación a Distancia (UNED)
Raúl Herranz.

8 **Title of the work:** What Levitating Fruit Flies Say About the Science of Weightlessness
Name of the event: International Press
Type of event: Media interviews **Geographical area:** Non EU International
Reasons for participation: Upon invitation
City of event: New York, United States of America
Date of event: 31/01/2012
Organising entity: Popular Mechanism
Raúl Herranz.

9 **Title of the work:** Monographic radio interview performed by phone about Magnetic levitation use as a microgravity simulator
Name of the event: Adelantos
Type of event: Media interviews **Geographical area:** National
Reasons for participation: Upon invitation
City of event: Madrid, Spain
Date of event: 21/01/2012
Organising entity: Onda Regional Murcia
Raúl Herranz.

10 **Title of the work:** ¿Que le ocurre a un insecto cuando va al Espacio?
Name of the event: Daily Press
Type of event: Media interviews
City of event: Madrid, Spain
Date of event: 16/01/2012
Organising entity: Muy Interesante (Mass-market trade journal)

11 **Title of the work:** Monographic radio interview devoted to Magnetic levitation use as a microgravity simulator
Name of the event: Principio de Incertidumbre
Type of event: Media interviews **Geographical area:** National
Reasons for participation: Upon invitation
City of event: Madrid, Spain
Date of event: 11/01/2012
Organising entity: Canal Extremadura Radio
Raúl Herranz.

12 **Title of the work:** On the air radio interview performed in our laboratory about Magnetic levitation use as a microgravity simulator
Name of the event: España Directo
Type of event: Media interviews **Geographical area:** National
Reasons for participation: Upon invitation
City of event: Madrid, Spain
Date of event: 10/01/2012
Organising entity: RTVE (Spanish public radioTV)
Raúl Herranz.

13 **Title of the work:** La microgravedad espacial altera el comportamiento de los insectos
Name of the event: Daily Press
Type of event: Media interviews **Geographical area:** National
Reasons for participation: Upon invitation
City of event: Madrid, Spain
Date of event: 04/01/2012
Organising entity: El Mundo Digital (online national Journal)
Raúl Herranz.

14 **Title of the work:** Recrean en laboratorio las condiciones de ausencia de gravedad del espacio
Name of the event: Daily Press
Type of event: Media interviews **Geographical area:** National
Reasons for participation: Upon invitation
City of event: Madrid, Spain
Date of event: 04/01/2012
Organising entity: RTVE online (online national Journal)
Raúl Herranz.

15 **Title of the work:** Scientists make flies levitate
Name of the event: International Press
Type of event: Media interviews **Geographical area:** Non EU International
Reasons for participation: Upon invitation
City of event: Washington DC, United States of America
Date of event: 04/01/2012

Organising entity: Science Now
Raúl Herranz.

16 **Title of the work:** Interview for a report in the 9pm News about our Drosophila and Arabidopsis experiments to done by the Spanish astronaut Pedro Duque in the ISS
Name of the event: TV News (Telediario)
Type of event: Media interviews **Geographical area:** National
Reasons for participation: Upon invitation
City of event: Madrid, Spain
Date of event: 18/10/2003
Organising entity: Telecinco
Raúl Herranz.

R&D management and participation in scientific committees

Scientific, technical and/or assessment committees

1 **Committee title:** Full member of the Life Science Working Group (ESA)
Geographical area: Non EU International
Primary (UNESCO code): 241500 - Molecular biology
Secondary (UNESCO code): 251201 - Exobiology
Affiliation entity: European Space Agency
Start-End date: 2024 - 2027

2 **Committee title:** LIBRO BLANCO: DESAFIOS CIENTIFICOS EN TEMÁTICAS ESTRATÉGICAS CSIC 2030
Affiliation entity: CSIC
Start date: 2019

3 **Committee title:** European coordinator for the International Standards for Space Omics Processing (ISSOP)
Geographical area: Non EU International
Primary (UNESCO code): 241500 - Molecular biology
Secondary (UNESCO code): 251201 - Exobiology
Affiliation entity: European Space Agency
Start date: 2017

4 **Committee title:** Full member of the Plant and Animal Analysis Working Groups (AWG GeneLab, NASA)
Geographical area: Non EU International
Primary (UNESCO code): 241500 - Molecular biology
Secondary (UNESCO code): 251201 - Exobiology
Affiliation entity: European Space Agency
Start date: 2017

5 **Committee title:** Member of ESA Roadmaps and Facility Definition Teams for Plants for 2019-2024 and 2024-2029
Geographical area: European Union
Primary (UNESCO code): 241700 - Plant Biology (Botany)
Secondary (UNESCO code): 251201 - Exobiology
Affiliation entity: European Space Agency **Type of entity:** State agency

City affiliation entity: Noordwijk, Zuid-Holland, Holland
Start date: 2016

6 **Committee title:** Plant Biology in Space Topical Team
Geographical area: European Union
Primary (UNESCO code): 241700 - Plant Biology (Botany)
Secondary (UNESCO code): 251201 - Exobiology
Affiliation entity: European Space Agency **Type of entity:** State agency
City affiliation entity: Noordwijk, Zuid-Holland, Holland
Start date: 2011

Organization of R&D activities

1 **Title of the activity:** First Space Omics Topical Team meeting
Type of activity: Workshop **Geographical area:** European Union
City of event: Lisbon, Portugal
Convening entity: Centro de Investigaciones Biológicas (CSIC) funded by ESA
City convening entity: Madrid, Spain
Type of participation: Organiser
Nº assistants: 12
Start-End date: 07/09/2022 - 08/09/2022 **Duration:** 2 days

2 **Title of the activity:** Bimonthly Virtual Meetings Space Omics Topical Team
Type of activity: International Scientific Meeting **Geographical area:** European Union
City of event: Virtual,
Convening entity: CIB (CSIC)
City convening entity: Madrid, Spain
Type of participation: Organiser
Nº assistants: 20
Start-End date: 2020 - 2022 **Duration:** 3 years

3 **Title of the activity:** First Intermediate Meeting Access to ground based facilities project GIA”
Type of activity: International Scientific Meeting **Geographical area:** European Union
City of event: Madrid, Spain
Convening entity: Centro de Investigaciones Biológicas **Type of entity:** State agency
City convening entity: Madrid, Spain
Type of participation: Organiser
Nº assistants: 12
Start-End date: 17/10/2012 - 18/10/2012 **Duration:** 2 days

4 **Title of the activity:** Second Intermediate Meeting Access to ground based facilities project SEGMGSPE_Ph1”
Type of activity: International Scientific Meeting **Geographical area:** European Union
City of event: Madrid, Spain
Convening entity: Centro de Investigaciones Biológicas **Type of entity:** State agency
City convening entity: Madrid, Spain
Type of participation: Organiser
Nº assistants: 12

Start-End date: 08/05/2011 - 10/05/2011 **Duration:** 3 days

5 **Title of the activity:** Kick Off Meeting Access to ground based facilities project SEGMGSPE_Ph1"
Type of activity: International Scientific Meeting **Geographical area:** European Union
City of event: Cologne, Germany
Convening entity: DLR (European Space Agency) **Type of entity:** State agency
City convening entity: Cologne, Germany
Type of participation: Organiser
Nº assistants: 12
Start-End date: 08/06/2009 - 10/06/2009 **Duration:** 3 days

R&D management

1 **Name of the activity:** Elected Member of the CSIC Comite de Empresa de Madrid (Hired Staff Works Committee)
Type of management: Management of body
Performed tasks: Delegate of USO (Union Sindical Obrera)
Entity: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
Start date: 20/06/2023 **Duration:** 4 years
Access system: By vote among several candidates
Specific tasks: Report Staff demands to the Center Director

2 **Name of the activity:** Elected Member of the CIB Margarita Salas Research Center Council
Type of management: Management of body
Performed tasks: Delegate of Hired Staff Researchers
Entity: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
Start date: 13/05/2019 **Duration:** 4 years
Access system: By vote among several candidates
Specific tasks: Report Staff demands to the Center Director

3 **Name of the activity:** Biochemistry Department Council member
Type of management: Programme management
Performed tasks: Delegate of the PhD students and Research assistants
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Start date: 2001 **Duration:** 2 years
Access system: By vote among several candidates

Other achievements

Stays in public or private R&D centres

1 **Entity:** Universidad Autónoma de Madrid (UAM)
Faculty, institute or centre: Facultad de Medicina
Start-End date: 20/01/2004 - 15/05/2009 **Duration:** 2 years - 6 months
Goals of the stay: Post-doctoral
Provable tasks: Postflight analyses of the Cervantes MIssion experiments (GENE & AGING)
Narrative explanation: Multiple publications reflects the research activities performed during this stay (the 32 months of this posdoctoral stay at UAM are divided in 3 periods interrupted by other stays at HW and ESTEC)

2 **Entity:** European Space Research & Technology Centre ESTEC-ESA
Faculty, institute or centre: TEC-MMG Department
City of entity: Noordwijk, Holland
Start-End date: 04/2008 - 08/2008 **Duration:** 5 months
Funding entity: MINISTERIO DE EDUCACION Y CIENCIA
Name of programme: Estancia de Especialización en organismos Internacionales.
Goals of the stay: Post-doctoral
Provable tasks: Optimization of new GBF (LDC and RPM) to be used by the biologist research community.
Narrative explanation: 2-years Spanish trainee position at the European Space Agency awarded within the Specialization in Singular Research Facilities and International Organisms" action of the Spanish government that allows both Pre-Doc and Post-Doc candidates to work in European Singular Research Facilities including the European Space Agency, EMBL, CERN, etc...The stay was suddenly interrupted due to the award of a higher responsibility 3-year research position in Spain to supervise and extend the same research line from Spain).

3 **Entity:** Free University of Amsterdam
Faculty, institute or centre: DESC
City of entity: Ámsterdam, Holland
Start-End date: 12/2007 - 12/2007 **Duration:** 14 days
Goals of the stay: Guest
Provable tasks: Additional GBF control experiments for the GENE experiment from the cervantes mission.
Narrative explanation: This stay was performed previously and independently of the GBF projects indicated elsewhere.

4 **Entity:** Nottingham University
Faculty, institute or centre: Biosciences department
City of entity: Nottingham, United Kingdom
Start-End date: 10/2007 - 11/2007 **Duration:** 1 month - 7 days
Goals of the stay: Guest
Provable tasks: GBF experiments using the magnetic levitation facility
Narrative explanation: This stay was performed previously and independently of the GBF projects indicated elsewhere.

5 **Entity:** Healthworld Spain (An ogilvy group international company)
Faculty, institute or centre: Scientific/Medical department
City of entity: Las Rozas, Spain

Start-End date: 16/05/2005 - 26/07/2007 **Duration:** 2 years - 2 months - 11 days
Goals of the stay: Contracted
Provable tasks: Contracted researcher to perform bibliographical research, consultant activity and writting of scientific/educational materials for pharmaceutical companies (targetting doctors, pharmaceutics, marketing, patients...)
Narrative explanation: My job in this company included a strong research component finding bibliographical benefits of the products and generating scientific didactical materials of top-quality. It was already considered to fullfill the movility criteria (equivalent to a Stay in a I+D center) to obtain my JAE-Doc contract.

6 **Entity:** Free University of Amsterdam
Faculty, institute or centre: DESC
City of entity: Ámsterdam, Holland
Start-End date: 05/2004 - 06/2004 **Duration:** 1 month - 15 days
Goals of the stay: Guest
Provable tasks: GBF control experiments of the GENE experiment
Narrative explanation: This stay was performed previously and independently of the GBF projects indicated elsewhere. Realización de experimentos control de la misión Cervantes. Utilización de sistemas de simulación de microgravedad e hipergravedad (Random Position Machine y centrifugas de hipergravedad) bajo la supervisión del Ing. Dr. Van Loon, Director del User Support Operation Center (USOC) holandés

7 **Entity:** Universidad Autónoma de Madrid **Type of entity:** University
Faculty, institute or centre: Biochemistry Dep. (Medicine Fac.)
City of entity: Madrid, Spain
Start-End date: 01/11/1999 - 19/01/2004 **Duration:** 4 years - 3 months - 19 days
Goals of the stay: Doctorate
Provable tasks: PhD Thesis research activities

8 **Entity:** Centro de Investigaciones Biológicas (CSIC)
Start date: 16/05/2009 **Duration:** 10 years - 2 months
Funding entity: Consejo Superior de Investigaciones Científicas (CSIC)
Name of programme: JAE Posdoctoral contracts
Goals of the stay: Post-doctoral
Narrative explanation: Publication of Drosophila pending results and transfer of my expertise as Drosophila space biologist to Arabidopsis model organism

9 **Entity:** European, Rusian and USA space related institutions
Funding entity: ESA GBF & Spanish Plan Nacional Project
Goals of the stay: Short Trips
Provable tasks: Ground Based or Spaceflight experiments meetings
Narrative explanation: More than 15 short stays (<1 week) starting with my participation in the Cervantes" mission to the International Space Station (October 2003 in Star City (Moscow)), to Ground Based Facilities in UK (Nottingham), Netherlands (ESTEC, Noordwijk), Germany (DLR, Bonn) & France (GSBMS, Toulouse), as well as the ESA facilities in Trondheim (simulation of ISS EMCS N-USOC, Norway) and our collaborator Dr. Kiss lab at Miami University (Oxford,OH y Oxford, MS, USA)

Obtained grants and scholarships

1 **Name of the grant:** Contrato JAE-DOC para la reincorporación de doctores al tejido investigador español / to recover Spanish researchers and integrate them into the Spanish Research Public System.
Aims: Post-doctoral
Awarding entity: Consejo Superior de Investigaciones Científicas (CSIC)
Conferral date: 01/09/2008 **Duration:** 3 years
Entity where activity was carried out: Centro de Investigaciones Biológicas

2 **Name of the grant:** Beca de Especializacion en Organismos Internacionales / Spanish Trainee positions at ESA
Aims: Post-doctoral
Awarding entity: Ministerio de Ciencia e Innovación. Investigación
Conferral date: 01/04/2008 **Duration:** 2 years
Entity where activity was carried out: European Space Agency
Faculty, institute or centre: Dpto. TEC-MMG (Life and Physical Science Instrumentation Section)

3 **Name of the grant:** Beca de Formación de Personal Investigador
Aims: Pre-doctoral
Awarding entity: Ministerio de Ciencia e Innovación. Investigación
Conferral date: 01/06/2000 **Duration:** 4 years
Entity where activity was carried out: Universidad Autónoma de Madrid
Faculty, institute or centre: Departamento de Bioquimica Fac. Medicina

4 **Name of the grant:** Beca de especializacion de lineas de interes industrial CSIC-NTE Puesta a punto de una Unidad de cultivo de Drosophila para la ISS”
Aims: Pre-doctoral
Awarding entity: Consejo Superior de Investigaciones Científicas - NTE SL
Conferral date: 01/11/1999 **Duration:** 1 year
Entity where activity was carried out: Universidad Autónoma de Madrid
Faculty, institute or centre: Instituto de Investigaciones Biomédicas Alberto Sols

Other types of collaboration with researchers or technologists

1 **Type of relationship:** Joint project networks
Name principal investigator (PI, Co-PI....): Ann-Iren Kittang; Tor-Henning Iversen; Raul Herranz; Javier Medina; Christian Mazars; Veronica Pereda; Elodie Boucheron; Eugenie Carnero; Knut Fossum
Description of the collaboration: European Space Angency Topical Team "Arabidopsis Space Biology"
Participating entity/entities:
Universite Pierre et Marie Curie **Type of entity:** University Department
City participating entity: Paris, France

Universite Paul Sabatier **Type of entity:** University Department
City participating entity: Toulouse, France

Centro de Investigaciones Biológicas **Type of entity:** State agency
City participating entity: Madrid, Community of Madrid, Spain

CIRiS, NTNU Samfunnsforskning a.s **Type of entity:** Technological Centre
City participating entity: Trondheim, Norway

Start date: 01/01/2012 **Duration:** 2 years

2 **Type of relationship:** Participation in long term collaboration agreements between bodies
Name principal investigator (PI, Co-PI....): John Z. Kiss (University of Mississippi,MS USA); Richard Edelmann (Miami University, OH USA); Eugenie Carnero-Diaz (University Paris VI, FRANCE)); Christian Mazars (University Toulouse, FRANCE); Ann-Iren Kittang (CiRIS-NTNU Trondheim University, NORWAY); Julio Saez-Vasquez (University Perpignan, FRANCE)
Description of the collaboration: Share of materials and joint SPACE proposals
Start date: 2008

3 **Type of relationship:** Confirmed publications
Name principal investigator (PI, Co-PI....): Alberto Benguría (CNIC, Spain); Irene Lopez-Vidriero (CNB, Spain); Juana Mª Gonzalez-Rubio (IQFR-CSIC, Spain); Emilio de Juan (Alicante University, Spain)
Description of the collaboration: Collaboration in flight experiment post-analises
Start date: 2003

4 **Type of relationship:** Co-ordinated projects
Name principal investigator (PI, Co-PI....): Richard Hill (Magnet Nottingham University, UK); Peter Christianen (Magnet HFML, Netherlands); Veronica Pereda (GSBMS GBFs, FRANCE); Ruth Hemmersbach (DLR GBFs, Germany); Jack van Loon (DESC GBFs, Netherland)
Description of the collaboration: European Ground Based Facilities management
Start date: 2003

Scientific societies and professional associations

1 **Name of the society:** Member
Affiliation entity: Sociedad Española de Biologia Celular (SEBC)
Start-End date: 2011 - 2013

2 **Name of the society:** Member
Affiliation entity: Genetic Society of America (GSA)
Start-End date: 2004 - 2005

3 **Name of the society:** Elected Member of the Executive Committee
Affiliation entity: European Low-Gravity Research Association (ELGRA)
Start date: 04/07/2023

4 **Name of the society:** Member
Affiliation entity: Sociedad Española de Fisiología Vegetal (SEFV)
Start date: 2019

5 **Name of the society:** Member
Affiliation entity: European Low-Gravity Research Association (ELGRA)
Start date: 2009

6 **Name of the society:** Member
Affiliation entity: International Society of Gravitational Physiology (ISGP)
Start date: 2002

Editorial councils

1 **Name of the editorial council:** International Journal reviewer
Affiliation entity: Frontiers in Plant Science
Start date: 2019

2 **Name of the editorial council:** International Journal reviewer
Affiliation entity: American Journal of Botany
Start date: 2018

3 **Name of the editorial council:** International Journal reviewer
Affiliation entity: Plant Science
Start date: 2018

4 **Name of the editorial council:** International Journal reviewer
Affiliation entity: Frontiers in Astronomy and Space Sciences
Start date: 2016

5 **Name of the editorial council:** International Journal reviewer
Affiliation entity: Biomed Research International (Hindawi Publishing Corporation)
Geographical area: Non EU International
Start date: 2014

6 **Name of the editorial council:** International Journal reviewer
Affiliation entity: The Plant Genome
Geographical area: Non EU International
Start date: 2014

7 **Name of the editorial council:** International Journal reviewer
Affiliation entity: Advances in Space Research
Start date: 2013

8 **Name of the editorial council:** International Journal reviewer
Affiliation entity: Plant Biology
Start date: 2013

9 **Name of the editorial council:** Genomics Editorial Board member
Affiliation entity: The Scientific World Journal (Hindawi Publishing Corporation)
Geographical area: Non EU International
Start date: 2012

10 **Name of the editorial council:** International Journal reviewer
Affiliation entity: Molecular Ecology
Start date: 2010

11 **Name of the editorial council:** Editorial Board member
Affiliation entity: Boletin VIH (Healthworld Spain)
Geographical area: National
Start date: 2006 **Duration:** 2 years

Prizes, mentions and distinctions

1 **Description:** First ELGRA Gravity Spotlight Team Award: SEEDLING GROWTH
Awarding entity: European Low Gravity Research Association **Type of entity:** Associations and Groups
Conferral date: 2019
Recognition linked: To ELGRA members of SG Research team: Dr. Medina, Dr. Kiss, Dr. Carnero and Dr. Herranz

2 **Description:** NASA Honor Awards: Group Achievement Award to SEEDLING GROWTH
Awarding entity: National Aeronautics and Space Administration **Type of entity:** State agency
Conferral date: 2019
Recognition linked: Nominative to each of the SG Research members

Obtained accreditations/recognitions

1 **Description:** Chair for Space Omics Session (27th ELGRA Biennial symposium and General assembly 2022)
Accrediting entity: European Low Gravity Research Association)
City accrediting entity: Lisbon, Portugal
Date of recognition: 09/09/2022

2 **Description:** Chair for F4.2: Influence of Spaceflight Environments on Biological Systems Pannel (4 sessions at 44th COSPAR Scientific Assembly 2022))
Accrediting entity: COSPAR
City accrediting entity: Athens, Greece
Date of recognition: 20/08/2022

3 **Description:** Superación de Ejercicios Investigador Distinguido CSIC 2019 (Sistemas evolutivos y complejidad en Astrobiología)
Accrediting entity: Centro de Astrobiología (CSIC)
Date of recognition: 11/11/2019

4 **Description:** Acreeditacion I3 como Investigador Distinguido / Habilitation I3 as Tenure-track Researcher
Accrediting entity: Ministerio de Innovación y Ciencia. Agencia Estatal de Investigación
Date of recognition: 29/07/2019

5 **Description:** Superación de Ejercicios proceso selectivo para Científico Titular OPIs 2014 y 2015 (Ciencia y Tecnología en Sistemas Aeroespaciales)
Accrediting entity: INTA/CSIC
Date of recognition: 30/05/2016

6 **Description:** Acreeditacion como Profesor Univ. Privada y Contratado Doctor / Habilitation as Private University and Associated Doctor Professor
Accrediting entity: Agencia Nacional de Evaluación de la Calidad y Acreditación
Date of recognition: 07/2010

Summary of other achievements

1 **Description of the achievement:** Database Submission. GLDS 313 (18 samples) & GLDS 314 (17 samples). RNAseq analysis of Arabidopsis thaliana root response to red light in microgravity and partial gravity (SEEDLING GROWTH).
Accrediting entity: GENELAB (NASA microarray/RNAseq repository)
Conferral date: 2019

2 **Description of the achievement:** Database Submission. GLDS-251 (20 samples) & GLDS 346 (24 samples). RNAseq analysis of Arabidopsis thaliana root response to blue light in microgravity and partial gravity (SEEDLING GROWTH).
Accrediting entity: GENELAB (NASA microarray/RNAseq repository)
Conferral date: 2019

3 **Description of the achievement:** Database Submission. GLDS-144 (24 samples). Gravitational signature of synchronized cell cultures in particular cell cycle stages
Accrediting entity: GENELAB (NASA microarray/RNAseq repository)
Conferral date: 23/08/2014

4 **Description of the achievement:** Database Submission. GLDS-34 (50 samples). Environmental and simulation facility conditions can modulate a behavioral-driven altered gravity response of Drosophila imagoes transcriptome
Accrediting entity: GENELAB (NASA microarray/RNAseq repository)
Conferral date: 26/06/2013

5 **Description of the achievement:** Database Submission. GLDS-70 (90 samples). Environmental and facility conditions promote singular gravity responses of transcriptome during Drosophila metamorphosis
Accrediting entity: GENELAB (NASA microarray/RNAseq repository)
Conferral date: 26/01/2013

6 **Description of the achievement:** Database Submission. GLDS-8 (40 samples). An environment with strong gravitational and magnetic field alterations synergizes to promote variations in Arabidopsis thaliana callus global transcriptional state
Accrediting entity: GENELAB (NASA microarray/RNAseq repository)
Conferral date: 01/01/2012

7 **Description of the achievement:** Database Submission. GLDS-27 (54 samples). Transcription profiling of Drosophila exposed to a levitation magnet for different lengths of time
Accrediting entity: GENELAB (NASA microarray/RNAseq repository)
Conferral date: 01/07/2010

8 **Description of the achievement:** Database Submission. GLDS-36 (21 samples). Transcription profiling of Drosophila after exposure to microgravity in the International Space Station and in a microgravity simulator
Accrediting entity: GENELAB (NASA microarray/RNAseq repository)
Conferral date: 01/07/2010

9 **Description of the achievement:** Database Submission. 126 new sequences or annotations (46 Troponin nucleotides & 80 Troponin proteins)
Accrediting entity: NCBI (National Center for Biotechnology Information)
Conferral date: 2010