



Francisco Javier Medina Díaz

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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.

F. Javier Medina (Toledo, 1952) began his scientific career in the Department of Genetics of the Complutense University of Madrid and then joined the Spanish National Scientific Council (CSIC). After getting the PhD in 1979, he has worked for 40 years in Plant Cell Biology, focusing his interests on the in situ localization of molecular components and functional processes within the cell nucleus, and the characterization of nucleolar proteins related to cell cycle and proliferation.

By 1995, he began to work in space biology research with Professor Roberto Marco, a pioneer in Europe in the field, investigating the cell proliferation and growth in relation to plant development in microgravity. First, he coordinated a Topical Team of the European Space Agency (ESA) on the preservation of biological samples in space. Then, he has led three projects conducted at the International Space Station (ISS), namely “Root” (2003), in the Cervantes Mission, with the Spanish ESA astronaut Pedro Duque, the first European experiment on Plant Biology carried out in the ISS, “Genara” (2010), co-leading a Spanish-French team, and “Seedling Growth” (2011-2018). This was a joint NASA-ESA project comprising three experiments in different ISS increments, which has received the NASA Group Achievement Award. He has also participated and/or directed other international projects in terrestrial installations of altered gravity, included in the ESA Ground-based Facilities Program, with results considered as a reference in the area.

These works have demonstrated, in the plant model species *Arabidopsis thaliana*, that the function of the root meristem, which plays a fundamental role in plant development, is damaged in microgravity. Coordination between cell growth and proliferation, which is the basis of meristematic competence, is altered, due to the dysregulation of cell cycle and ribosome biogenesis. It was proposed the mediator role of auxin between gravity signal sensing and response in the meristem. The global pattern of gene expression is reprogrammed under microgravity conditions. Furthermore, a role of light, especially red light, in the mitigation of the gravitational stress has been characterized, and a positive root gravitropism at the Mars gravity has been shown. These contributions will enable plant culture in long-duration spaceflights, as well as on the lunar or Martian surface, a requisite for any future enterprise of human space exploration.

All these results were published in more than 130 research papers in international peer-reviewed journals and books, 12 PhD Theses and 6 Master Theses, and communicated in international conferences, University courses, including three courses in the ESA Academy, and outreach talks, including two TEDx talks. He founded in 1984 the Spanish Society for Cell Biology, of which he is Honor Member, and organized the International Congress of Cell Biology in 1992. In 2006, he brought together European, American, Russian and Japanese scientists, astronauts and managers in a conference to discuss on the early research outcomes of ISS. He has been member of the Executive Committees of the European Cell Biology Organization (ECBO) and the European Low Gravity Research Association (ELGRA), and acted as adviser to different international research organizations. He was awarded with the ELGRA Medal 2019 for his contributions to Gravitational and Space Science and with the COSPAR Medal 2020 for International Cooperation.

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.

1. Evaluation of the Scientific Career by Official Institutions of the Spanish Administration:

a) Evaluation by the **National Committee for Evaluation of of Research Activity/Comisión Nacional Evaluadora de la Actividad Investigadora** in 6-year terms/*sexenios*:

Number of terms favorably evaluated: **7 (1977 - 2018)**

b) Evaluation by the **Committee for Evaluation of Scientific and Technological Performances in Public Research Organisms/Comisión Evaluadora del Desempeño de la Actividad Científico-Tecnológica en Organismos Públicos de Investigación** in 5-year terms/*quinquenios*:

Number of terms favorably evaluated: **8 (1976 - 2015)**

2. Google Scholar Records:

Publications: 153; Citations: 2763

h-index: 32

Last Updated: November 11th, 2020

<https://scholar.google.com/citations?user=eR8rSvcAAAAJ&hl=en>

3. Web of Science (ResearcherID) Records:

Total Articles in Publication List: 139

Sum of the Times Cited: 2040

h-index: 23

Last Updated: November 11th, 2020

4. Journal Citation Reports Records:

Total publications in the first quartile (Q1): 76

5. Research Gate Records:

Research items: 152 (119 articles, 1 book, 7 chapters, 12 conference papers, 13 other)

Reads: 14.93k; Citations: 2362; Recommendations: 34

RG score: 36.27 (99.87% publications)



h-index: 29

Total Research Interest: 1,401

Last updated: November 11th, 2020

https://www.researchgate.net/profile/F_Javier_Medina

6. Number of Doctoral Theses and Master Theses supervised: 18 [12 Doctoral Theses (1989-2019) and 6 Master Theses (1983-2020)]



Francisco Javier Medina Díaz

Surname(s): **Medina Díaz**
Name: **Francisco Javier**
ORCID: **0000-0002-0866-7710**
ScopusID: **55318125100**
ResearcherID: **M-2278-2014**
Google Scholar: **<https://scholar.google.com/citations?user=eR8rSvcAAAAJ&hl=en>**
Research Gate: **https://www.researchgate.net/profile/F_Javier_Medina**
Date of birth: **29/07/1952**
Gender: **Male**
Country of birth: **Spain**
City of birth: **Toledo**
Contact address: **Centro de Investigaciones Biológicas Margarita Salas - CSIC**
Rest of contact address: **Ramiro de Maeztu 9**
Postcode: **28040**
Contact country: **Spain**
Contact city: **Madrid**
Land line phone: **(+34) 918373112 - 4261**
Email: **fjmedina@cib.csic.es**
Mobile phone: **(+34) 660170533**
Personal web page: **<https://www.cib.csic.es/research/microbial-plant-biotechnology/plant-cell-nucleolus-proliferation-microgravity/>**

Current professional situation

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

Department: Centro de Investigaciones Biológicas Margarita Salas

Professional category: Investigador Científico

Start date: 2003

Dedication regime: Full time

Primary (UNESCO code): 240700 - Cell biology; 241502 - Molecular biology of plants; 241715 - Plant growth; 241719 - Plant physiology; 251200 - Space Sciences

Performed tasks: Space Biology; Microgravity; Plant Biology; Root; Meristems; Auxin; Plant Development; Cell Biology; Cell Proliferation; Cell Cycle; Nucleus; Ribosomal Genes; Nucleolus; rDNA; rRNA; Nucleolar Proteins; Cyclins & CDKs; In vitro Cell Cultures; Arabidopsis; Confocal Microscopy; Electron Microscopy; In situ Localization of Functional Processes; Cytochemistry; Immunocytochemistry; In situ Hybridization; Purification of Nuclei; Flow Cytometry; Proteomics; Bidimensional Electrophoresis; Genomics; Transcriptomics; Microarrays; RNA-seq; PCR (RT-PCR & qPCR).

Identify key words: Space science; Cell culture; Structural biology; Genomics; Plant genetics; Proteomics; Plant development; Environmental science

Previous positions and activities



	Employing entity	Professional category	Start date
1	Centro de Investigaciones Biológicas - CSIC	Colaborador Científico/Científico Titular del CSIC	1981
2	Instituto de Biología Celular - CSIC	Becario Postdoctoral del CSIC/Postdoc Fellow	1979
3	Instituto de Biología Celular - CSIC)	Becario Predoctoral del PFPI/Predoc Fellow	1976
4	Universidad Complutense de Madrid	Profesor Ayudante/Assistant Professor	1974

- 1** **Employing entity:** Centro de Investigaciones Biológicas - CSIC
Professional category: Colaborador Científico/Científico Titular del CSIC
Start-End date: 1981 - 2003
- 2** **Employing entity:** Instituto de Biología Celular - CSIC
Professional category: Becario Postdoctoral del CSIC/Postdoc Fellow
Start-End date: 1979 - 1980
- 3** **Employing entity:** Instituto de Biología Celular - CSIC)
Professional category: Becario Predoctoral del PFPI/Predoc Fellow
Start-End date: 1976 - 1979
- 4** **Employing entity:** Universidad Complutense de Madrid
Professional category: Profesor Ayudante/Assistant Professor
Start-End date: 1974 - 1976



Education

University education

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

- 1 Name of qualification:** Grado de Licenciatura/Graduate
Degree awarding entity: Universidad Complutense de Madrid **Type of entity:** University
Date of qualification: 1975
- 2 Name of qualification:** Licenciatura en Ciencias (Sección Biológicas)
Degree awarding entity: Universidad Complutense de Madrid
Date of qualification: 1974

Doctorates

Doctorate programme: PhD Ciencias Biológicas/Biological Sciences
Degree awarding entity: Universidad Complutense de Madrid **Type of entity:** University
Date of degree: 1979

Language skills

Language	Listening skills	Reading skills	Spoken interaction	Speaking skills	Writing skills
French		C1	C1	C1	C1
English		C1	C1	C1	C1

Teaching experience

Experience supervising doctoral thesis and/or final year projects

- 1 Project title:** The influence of the absence or presence of light on the plant response to simulated microgravity conditions / La influencia de la presencia y ausencia de luz en la respuesta de la planta a condiciones de microgravedad simulada
Type of project: Master de Biotecnología Agroforestal / Master in Agro-forest Biotechnology
Co-director of thesis: Malgorzata Ciska
Entity: Universidad Politécnica de Madrid **Type of entity:** University
Student: Iris Fañanás
Obtained qualification: 9
Date of reading: 09/2020



- 2** **Project title:** Effect of the volatile compounds produced by the phytopathogenic fungus *Alternaria alternata* on the growth and development of *Arabidopsis thaliana* seedlings subjected to simulated microgravity conditions /Efecto de los compuestos volátiles producidos por el hongo fitopatógeno *Alternaria alternata* sobre el crecimiento y desarrollo de plántulas de *Arabidopsis thaliana* sometidas a condiciones de microgravedad simulada
Type of project: Master Thesis
Co-director of thesis: Raúl Herranz
Entity: Universidad Complutense de Madrid **Type of entity:** University
Student: Adela Villasante Fernández
Obtained qualification: 10
Date of reading: 10/2019
- 3** **Project title:** Synergistic effect of light and gravity on cell growth and proliferation in *Arabidopsis thaliana* /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: Raúl Herranz
Entity: Universidad Complutense de Madrid **Type of entity:** University
Student: Aránzazu Manzano Pérez
Obtained qualification: Sobresaliente cum laude
Date of reading: 03/2019
Quality recognition: Yes
- 4** **Project title:** A model for clinostat-induced functional microgravity on *Arabidopsis thaliana* seedlings
Type of project: Master Work
Co-director of thesis: Malgorzata Ciska
Entity: Politecnico Milano, School of Industrial and Information Engineering **Type of entity:** University
City of entity: Milan, Italy
Student: Ludovico Sora
Date of reading: 07/2018
- 5** **Project title:** Effect of simulated microgravity on the cell cycle in cultured cells of *Arabidopsis thaliana*
Type of project: Master Work
Co-director of thesis: Malgorzata Ciska
Entity: Universidade do Minho **Type of entity:** University
City of entity: Braga, Portugal
Student: Ana Isabel O.S. Dias
Date of reading: 01/2018
- 6** **Project title:** Interaction of light and gravity perception on cell growth and proliferation in *Arabidopsis thaliana* / Interacción entre la percepción 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: Raúl Herranz; Eugénie Carnero-Díaz
Entity: Universidad Complutense de Madrid **Type of entity:** University
Student: Miguel Ángel Valbuena Crespo
Obtained qualification: Sobresaliente cum laude
Date of reading: 2016
Quality recognition: Yes
- 7** **Project title:** Alterations induced by gravitational changes in cultured proliferating cells of *Arabidopsis thaliana* / Alteraciones inducidas por cambios gravitatorios en células proliferantes en cultivo de *Arabidopsis thaliana*
Type of project: Doctoral thesis



Co-director of thesis: Raúl Herranz

Entity: Universidad Complutense de Madrid

Type of entity: University

Student: Khaled Y. Kamal

Obtained qualification: Sobresaliente cum laude

Date of reading: 2014

Quality recognition: Yes

- 8** **Project title:** Effects of simulated microgravity on cell growth and proliferation and on gene expression in the Brassicaceae family / Efectos de la microgravedad simulada sobre el crecimiento y la proliferación celular y sobre la expresión génica en la familia Brassicaceae
Type of project: Master Work
Entity: Universidad Complutense de Madrid **Type of entity:** University
Student: Aránzazu Manzano Pérez
Date of reading: 09/2013
- 9** **Project title:** Functional changes in proliferating cells of Arabidopsis thaliana grown in altered gravity environments / Cambios funcionales en células proliferantes de Arabidopsis thaliana crecidas en ambientes de gravedad alterada
Type of project: Doctoral thesis
Entity: Universidad Complutense de Madrid **Type of entity:** University
Student: Ana Isabel Manzano Pérez
Obtained qualification: Sobresaliente cum laude
Date of reading: 2012
- 10** **Project title:** The functional organization of the nucleolus, cell cycle and proliferation in Arabidopsis thaliana. Alterations induced by gravitational changes / La organización funcional del nucleolo, la proliferación y el ciclo celular en Arabidopsis thaliana. Alteraciones inducidas por cambios gravitatorios.
Type of project: Doctoral thesis
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Isabel Matía Jurado
Obtained qualification: Sobresaliente cum laude
Date of reading: 2008
- 11** **Project title:** Tutoría de trabajos de investigación incluidos en la Tesis Doctoral
Entity: Université de Montpellier **Type of entity:** University
City of entity: Montpellier, France
Student: Frederic Pontvianne
Date of reading: 2006
- 12** **Project title:** Caracterización de dominios funcionales en el nucleolo de células politenizadas de Chironomus.
Entity: Universidad Complutense de Madrid **Type of entity:** University
Student: Victoria Rodríguez Vilariño
Date of reading: 2005
- 13** **Project title:** Análisis de las Proteínas Nucleolares NopA100 y NopA64 en relación con la Proliferación Celular en Allium cepa L..
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Fernando González Camacho
Date of reading: 2004



- 14** **Project title:** Mentoring of research works included in Doctoral Thesis / Tutoría de trabajos de investigación incluidos en la Tesis Doctoral
Entity: University of Kiev **Type of entity:** University
City of entity: Kiev, Ukraine
Student: Margaryta Sobol
Date of reading: 2003
- 15** **Project title:** New methods of fixation and preservation of biological material for space research / Nuevos Métodos de Fijación y Preservación de Material Biológico para la Investigación Espacial
Entity: Universidad de Cádiz **Type of entity:** University
Student: Francisca Lería Mosquera
Date of reading: 2000
- 16** **Project title:** Proteínas Nucleolares y Proliferación Celular en Allium cepa
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Guillermo de Cárcer Díez
Date of reading: 1997
- 17** **Project title:** Arquitectura Molecular de la Transcripción en el Nucleolo de Allium cepa L.
Entity: Universidad Complutense de Madrid **Type of entity:** University
Student: Marta Martín Basanta
Date of reading: 1989
- 18** **Project title:** Avances en la investigación del Organizador Nucleolar en plantas, mediante tinción con plata
Type of project: Minor thesis
Entity: Universidad Complutense de Madrid **Type of entity:** University
Student: María Esperanza López Solanilla
Date of reading: 1983

Teaching experience in courses and seminars for university teacher training

- 1** **Type of event:** Seminar
Name of the event: Master in Molecular and Cellular Integrative Biology (MCIB)
Organising entity: Universidad Menéndez Pelayo
Teaching date: 02/2020
- 2** **Type of event:** Seminar
Name of the event: Master in Molecular and Cellular Integrative Biology (MCIB)
Organising entity: Universidad Menéndez Pelayo
Teaching date: 02/2019
- 3** **Type of event:** Seminar
Name of the event: ESA/ELGRA Gravity-related Research Summer School
City organizing entity: Transinne, Belgium
Organising entity: European Space Agency (ESA) Academy
Teaching date: 06/2018
- 4** **Type of event:** Seminar
Name of the event: Master in Molecular and Cellular Integrative Biology (MCIB)
Organising entity: Universidad Menéndez Pelayo



Teaching date: 02/2018

5 Type of event: Seminar

Name of the event: Seminar in Centro de Astrobiología (INTA-CSIC)

Teaching date: 12/2017

6 Type of event: Seminar

Name of the event: ESA/ELGRA Gravity-related Research Summer School

Organising entity: European Space Agency (ESA) Academy - Redu (Belgium)

Teaching date: 2017

7 Type of event: Seminar

Name of the event: ESA/ELGRA Gravity-related Research Summer School

Organising entity: European Space Agency (ESA) Academy - Redu (Belgium)

Teaching date: 2016

8 Type of event: Seminar

Name of the event: Master in Biotechnology

Organising entity: Universidad Miguel Hernández de Elche

Type of entity: University

Teaching date: 2016

9 Type of event: Seminar

Name of the event: Master in Biotechnology

Organising entity: Universidad Autónoma de Madrid

Type of entity: University

Teaching date: 2015

10 Type of event: Seminar

Name of the event: Seminar

Organising entity: Centro de Biotecnología y Genómica de Plantas - UPM/INIA - Madrid

Teaching date: 2015

11 Type of event: Seminar

Name of the event: Seminar

Organising entity: Museo de la Ciencia de Valencia

Teaching date: 2015



Scientific and technological experience

Scientific or technological activities

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

- 1** **Name of the project:** Space Omics: Towards an integrated ESA/NASA -omics database for spaceflight and ground facilities experiments (ESA Topical Team #4000131202/20/NL/PG/pt)
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Raúl Herranz
Nº of researchers: 21
Funding entity or bodies:
European Space Agency
Start-End date: 2020 - 2022
Participating entity/entities: Univ. Belfast, UK; Univ. Cambridge, UK; Univ. Halle, DE; Univ. Nottingham, UK; Univ. Sorbonne, FR; Univ. Tübingen, DE
Total amount: 40.000 €
- 2** **Name of the project:** Plants for space exploration. Results of ISS experiments and new European experiments / Plantas para la exploración espacial. Resultados de experimentos en la ISS y nuevos experimentos europeos
Type of project: Research and development, including transfer
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): F. Javier Medina
Funding entity or bodies:
Ministerio de Ciencia, Innovación y Universidades - Agencia Estatal de Investigación **Type of entity:** State agency
Start-End date: 01/2019 - 12/2021
Total amount: 170.000 €
- 3** **Name of the project:** ROOTROPS: tackling the roots of bending
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Giovanna Aronne; F. Javier Medina; Raul Herranz; Jack van Loon; John Z. Kiss
Nº of researchers: 11
Funding entity or bodies:
European Space Agency (ESA) - Ground Based Facilities Utilisation Programme
Start-End date: 2019 - 2021
Participating entity/entities: ESA-ESTEC, Free Univ. Amsterdam, NL; Univ. Napoli, IT; Univ. North Carolina Greensboro, USA
Total amount: 47.125 €

- 4** **Name of the project:** GIA2: 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
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): F. Javier Medina; Raul Herranz; Veronica Pereda-Loth; Jack van Loon; Eduardo González-Pastor; Eugénie Carnero-Díaz
Nº of researchers: 7
Funding entity or bodies: European Space Agency (ESA) - Ground based Facilities Utilisation Programme
Start-End date: 2019 - 2020
Participating entity/entities: Centro de Astrobiología CSIC-INTA, ES; ESA-ESTEC, Free Univ. Amsterdam, NL; Univ. Sorbonne, Paris, FR; Univ. Toulouse, FR
Total amount: 48.825 €
- 5** **Name of the project:** Plant Adaptation to the Space Environment. Lessons learned from a major ESA/NASA joint experiment in Plant Biology on the ISS
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): F. Javier Medina
Nº of researchers: 3
Funding entity or bodies: European Low Gravity Research Association (ELGRA) **Type of entity:** Associations and Groups
Start-End date: 2019 - 2019
Participating entity/entities: Miami Univ, OH, USA; Univ. North Carolina Greensboro, USA; Univ. Perpignan-CNRS, FR; Univ. Sorbonne, Paris, FR
Total amount: 5.000 €
- 6** **Name of the project:** Growing plants in space. Experiments in the International Space Station with Spanish leadership / Crecer plantas en el espacio. Experimentos en la Estación Espacial Internacional con liderazgo español (Ref. ESP2015-64323-R)
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Francisco Javier Medina Díaz
Funding entity or bodies: MINECO-Programa Estatal de I+D+i Orientada a los Retos de la Sociedad
Start-End date: 01/01/2016 - 31/12/2018
Total amount: 150.000 €
- 7** **Name of the project:** Seedling Growth
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): F. Javier Medina (ESA - Europe); John Z. Kiss (NASA - USA); Edelmann, R.E. (Miami Univ., Ohio, USA); Carnero-Díaz, E. (Univ. Paris VI, France); Saez-Vasquez, J. (Univ. Perpignan, France)
Funding entity or bodies: European Space Agency (ESA)
National Aeronautics and Space Administration (NASA)
Start-End date: 2010 - 2018



Participating entity/entities: ESA-ESTEC, Noordwijk, NL; Miami Univ., OH, USA; N-USOC, Trondheim, NO; NASA-ARC, Mountain View, CA, USA; Univ. North Carolina Greensboro, USA; Univ. Perpignan-CNRS, FR; Univ. Sorbonne, Paris, FR

- 8** **Name of the project:** Zero-Gravity Instrument Project (ZGIP)-United Nations Human Space Technology Initiative (UN-HSTI)
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Herranz, Raúl (PI); Medina, F. Javier (Co-PI)
Funding entity or bodies: United Nations Office for Outer Space Affairs (UNOOSA)
City funding entity: Viena, Austria
Start-End date: 2014 - 2016
- 9** **Name of the project:** Plants in the International Space Station. Space and ground research works included in ESA and NASA programs / Plantas en la Estación Espacial Internacional. Investigaciones en el espacio y en Tierra incluidas en programas de la ESA y de la NASA (Ref. AYA2012-33982)
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
City of entity: Madrid, Spain
Name principal investigator (PI, Co-PI....): Medina, F. Javier (PI)
Funding entity or bodies: Ministerio de Ciencia e Innovación. Investigación **Type of entity:** Plan Nacional de I+D+i
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 2013 - 2015
Total amount: 84.000 €
- 10** **Name of the project:** GIA: From GBF to ISS with A. thaliana” (Ref. CORA-GBF-2011-009)
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
City of entity: Madrid,
Name principal investigator (PI, Co-PI....): Herranz, R. (IP); Medina, F. Javier; Carnero-Diaz, E. (Univ. Paris VI, France); Hemmersbasch, R. (DLR, Cologne, Germany); Pereda-Loth, V. (Univ. Toulouse, France); Mazars, C. (Univ. Toulouse, France); van Loon, J.J. W.A. (DESC-ESTEC, Noordwijk, The Netherlands)
Funding entity or bodies: European Space Agency
Start-End date: 2012 - 2014
Total amount: 46.900 €
- 11** **Name of the project:** Spanish participation in a new ESA-NASA project on Plant Biology in the International Space Station / Participación española en un nuevo proyecto ESA-NASA sobre Biología de Plantas en la Estación Espacial Internacional (Acción Complementaria). (Ref. AYA2010-11834-E)
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
City of entity: Madrid,
Name principal investigator (PI, Co-PI....): Medina, F. Javier (PI)
Funding entity or bodies: Ministerio de Ciencia e Innovación. Investigación **Type of entity:** Plan Nacional de I+D+i
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 2011 - 2013



Total amount: 70.000 €

- 12 Name of the project:** Functional alterations in plants caused by microgravity. Research works in space and ground in the frame of multilateral European projects / Alteraciones funcionales en plantas causadas por la microgravedad. Investigaciones en el espacio y en tierra en el marco de proyectos multilaterales europeos (Ref. AYA2009-07952)

Entity where project took place: Centro de Investigaciones Biológicas

Type of entity: State agency

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

Funding entity or bodies:

Ministerio de Ciencia e Innovación. Investigación

Type of entity: Plan Nacional de I+D+i

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 2009 - 2012

Total amount: 99.000 €

- 13 Name of the project:** Gravity regulated genes in Arabidopsis thaliana (GENARA-A) (Ref. ISLRA-2001-001)

Entity where project took place: Centro de Investigaciones Biológicas

Type of entity: State agency

Name principal investigator (PI, Co-PI....): Medina, F. Javier (Co-PI); Carnero-Diaz, E. (Univ. Paris VI, France) (Co-PI); Mazars, C. (Univ. Toulouse, France); Graziana, A. (Univ. Toulouse, France)

Funding entity or bodies:

European Space Agency

Start-End date: 2009 - 2011

- 14 Name of the project:** Systematic Evaluation of the ground-based (micro-)gravity simulation paradigms available in Europe (Ref.ESA-RA-GBF/DT/PF-2004)

Entity where project took place: Centro de Investigaciones Biológicas

Type of entity: State agency

Name principal investigator (PI, Co-PI....): Herranz, R. (PI); Medina, F. Javier; Hemmersbasch, R. (DLR, Cologne, Germany); Hill, R.J.A. (Univ. Nottingham, United Kingdom); Ullrich, O. (Univ. Zürich, Switzerland); van Loon, J.J. W.A. (DESC-ESTEC, Noordwijk, The Netherlands); Lebert, M. (Univ. Erlangen, Germany); Boonstra, J. (Univ. Utrecht, The Netherlands); Braun, M. (Univ. Bonn, Germany)

Funding entity or bodies:

European Space Agency

Start-End date: 2009 - 2011

Total amount: 49.800 €

- 15 Name of the project:** Experimentos biológicos en microgravedad real y simulada en el marco del Programa ELIPS-2 de la Agencia Espacial Europea. Estudios en la especie modelo Arabidopsis thaliana. (Ref. ESP2006-13600-C02-02)

Entity where project took place: Centro de Investigaciones Biológicas

Type of entity: State agency

Name principal investigator (PI, Co-PI....): Medina, F. Javier (PI); Marco, R. (UAM-CSIC)

Funding entity or bodies:

Ministerio de Ciencia e Innovación. Investigación

Type of entity: Plan Nacional de I+D+i

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 2007 - 2009

Total amount: 47.000 €

- 16** **Name of the project:** Biogénesis de Ribosomas en Plantas. Caracterización de mutantes de la nucleolina en Arabidopsis thaliana (Ref. HF 2005-0209).
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Medina, F. Javier (Co-PI); Sáez-Vásquez, J. (Univ. Perpignan, France) (Co-PI)
Funding entity or bodies: MINISTERIO DE EDUCACION Y CIENCIA
City funding entity: Spain
Start-End date: 2006 - 2007
Total amount: 10.830 €
- 17** **Name of the project:** Experimentos Preparatorios para la Utilización Científica de la Estación Espacial Internacional: Arabidopsis. (Ref. ESP2003-09475-C02-02). Incluye una Acción Especial para Dotación de Personal (Ref. ESP2002-12686-E).
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Medina, F. Javier (PI); Marco, R. (UAM-CSIC)
Funding entity or bodies: Ministerio de Ciencia e Innovación. Investigación **Type of entity:** Plan Nacional de I+D+i
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 2003 - 2006
Total amount: 119.870 €
- 18** **Name of the project:** Preservation of Fixed and Non-fixed Biological Samples during Space Experimentation. Topical Team. (Ref. ESTEC 15122/01/NL/JS)
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Medina, F. Javier (PI); Marco, R. (UAM-CSIC); Cogoli, A. (ETH, Zürich, Switzerland); Marthy, H.J. (CNRS, Banyuls, France); Franks, F. (BioUpdate Fund, Cambridge, United Kingdom)
Funding entity or bodies: European Space Agency
Start-End date: 2001 - 2005
Total amount: 20.100 €
- 19** **Name of the project:** Experimentos de germinación de semillas de Arabidopsis thaliana en ambiente espacial, realizados en la Misión Soyuz Española (Spanish Soyuz Mission) (Ref. ESP2002-12062-E)
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Medina, F. Javier (PI); Marco, R. (UAM-CSIC)
Funding entity or bodies: Ministerio de Ciencia e Innovación. Investigación **Type of entity:** Plan Nacional de I+D+i
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 2003 - 2004
Total amount: 42.000 €
- 20** **Name of the project:** La adaptación a largo plazo de los seres vivos al ambiente espacial: diseño y puesta a punto de experimentos y de prototipos instrumentales para la Estación Espacial Internacional. Estudios en Células Vegetales (Ref. ESP2001-4522-PE)
Type of entity: State agency



Entity where project took place: Centro de Investigaciones Biológicas

Name principal investigator (PI, Co-PI....): Medina, F. Javier (PI); Marco, R. (UAM-CSIC)

Funding entity or bodies:

Ministerio de Ciencia e Innovación. Investigación **Type of entity:** Plan Nacional de I+D+i

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 2002 - 2004

Total amount: 66.014 €

- 21 Name of the project:** Effects of the Space Environment on the Nuclear Structure and Function of Arabidopsis thaliana root meristematic cells developed in Microgravity (ROOT) EXPERIMENTO REALIZADO EN LA MISIÓN ESPACIAL “CERVANTES”

Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency

Name principal investigator (PI, Co-PI....): Medina, F. Javier (PI); Marco, R. (UAM-CSIC); Gasset, G. (Univ. Toulouse, France)

Funding entity or bodies:

European Space Agency

Start-End date: 2003 - 2003

- 22 Name of the project:** Organización Funcional del Nucleolo en Células Politenizadas (Ref. BMC2000-1141)

Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency

Name principal investigator (PI, Co-PI....): Medina, F. Javier (PI); Díez, J.L.

Funding entity or bodies:

MINISTERIO DE EDUCACION Y CIENCIA

City funding entity: Spain

Start-End date: 2000 - 2003

- 23 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). Subproyecto 2: Plantas. (Ref. ESP99-0379-C02-02).

Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency

Name principal investigator (PI, Co-PI....): Medina, F. Javier (PI); Marco, R. (UAM-CSIC)

Funding entity or bodies:

Comisión Interministerial de Ciencia y Tecnología **Type of entity:** Plan Nacional de I+D+i

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 2000 - 2002

- 24 Name of the project:** Expresión diferencial de genes ribosómicos de plantas dependiente de su longitud de espaciador: función de las proteínas nucleolares.

Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency

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

Funding entity or bodies:

MINISTERIO DE EDUCACION Y CIENCIA

City funding entity: Spain

Start-End date: 2000 - 2000



- 25** **Name of the project:** Isolation and characterization of RNA polymerase I in plant cells. Preliminary works.
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Medina, F.Javier (Co-PI); Vorobyev, V. (Russian Acad. Sci., St. Petersburg, Russia)
Funding entity or bodies: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 2000 - 2000
- 26** **Name of the project:** Preservación de muestras biológicas fijadas y no fijadas durante la experimentación espacial. Fijación, almacenamiento y recuperación de muestras de sistemas modelo (artrópodos y plantas)
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Marco, R. (UAM-CSIC) (PI); Medina, F. Javier
Funding entity or bodies: Comisión Interministerial de Ciencia y Tecnología **Type of entity:** Plan Nacional de I+D+i
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 1997 - 1999
- 27** **Name of the project:** Control de la expresión de los genes ribosómicos en células proliferantes de plantas
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Medina, F. Javier (PI)
Funding entity or bodies: Comisión Interministerial de Ciencia y Tecnología **Type of entity:** Plan Nacional de I+D+i
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 1996 - 1999
- 28** **Name of the project:** Biosample preservation and fixation. Phase 2: Biological verification programme
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Häger, R. (ESA-ESTEC, Noordwijk, The Netherlands) (PI); Medina, F. Javier; Marco, R. (UAM-CSIC); Cogoli, A. (ETH, Zürich, Switzerland); Marthy, H.J. (CNRS, Banyuls, France); Iversen, T.H. (Univ. Trondheim, Norway)
Funding entity or bodies: European Space Agency
Start-End date: 1997 - 1998
Total amount: 20.100 €
- 29** **Name of the project:** Análisis de la organización topológica de las funciones del Núcleo Celular de Plantas y de su integración en la estrategia funcional global de la célula proliferante
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Fernández-Gómez, M.E. (PI); Medina, F. Javier; Moreno Díaz de la Espina, S.
Funding entity or bodies: Comisión Interministerial de Ciencia y Tecnología **Type of entity:** Plan Nacional de I+D+i
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 1995 - 1996



- 30** **Name of the project:** Aplicaciones de las microondas en Biología Espacial y su extensión potencial a los laboratorios terrestres
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Marco, R. (UAM-CSIC) (PI); Medina, F. Javier; Martín-Pascual, C. (DetyCom, A.I.E., Madrid)
Funding entity or bodies: Comunidad de Madrid **Type of entity:** Proyectos de Interés Industrial
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 1995 - 1996
- 31** **Name of the project:** Identificación de componentes moleculares y estructurales implicados en la expresión génica en el núcleo de plantas
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Fernández-Gómez, M.E. (PI); Medina, F. Javier; Moreno Díaz de la Espina, S.
Funding entity or bodies: Comisión Interministerial de Ciencia y Tecnología **Type of entity:** Plan Nacional de I+D+i
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 1992 - 1995
- 32** **Name of the project:** In situ localization of cdc2, cyclins and nucleolin in plant cells.
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Medina, F.Javier (Co-PI); Hirt, H. (Biocentrum, Univ. Vienna, Austria) (Co-PI)
Funding entity or bodies: MINISTERIO DE EDUCACION Y CIENCIA
City funding entity: Spain
Start-End date: 1994 - 1994
- 33** **Name of the project:** Biochemical and cytological study of nucleolin, a major nucleolar protein, in a plant cellular system
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Medina, F.Javier (Co-PI); Amalric, F. (CNRS, Toulouse, France) (Co-PI)
Funding entity or bodies: MINISTERIO DE EDUCACION Y CIENCIA
City funding entity: Spain
Start-End date: 1993 - 1993
- 34** **Name of the project:** Microwaves in Space Biology.
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Marco, R. (UAM-CSIC) (PI); Medina, F. Javier
Funding entity or bodies: European Space Agency



Start-End date: 1991 - 1993

Total amount: 20.100 €

- 35 Name of the project:** Estudio del metabolismo del RNA nuclear en plantas mediante anticuerpos monoclonales y auto anticuerpos humanos
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Fernández-Gómez, M.E. (PI); Medina, F. Javier; Moreno Díaz de la Espina, S.
Funding entity or bodies: Comisión Interministerial de Ciencia y Tecnología **Type of entity:** Plan Nacional de I+D+i
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 1989 - 1992
- 36 Name of the project:** Nucleolar and nuclear antigens evolutively conserved in relation to cell proliferation.
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Medina, F.Javier (Co-PI); Hadjiolov, A.A. (Bulgarian Acad. Sci., Sofia, Bulgaria)
Funding entity or bodies: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 1989 - 1990
- 37 Name of the project:** Análisis del núcleo celular de plantas orientado al estudio de la flora mexicana
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Moreno Díaz de la Espina, S. (Co-PI); Vazquez-Nin, G.H. (UNAM, Mexico) (Co-PI); Medina, F.Javier (Co-PI)
Funding entity or bodies: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 1987 - 1990
- 38 Name of the project:** Study of the functional organization of the cell nucleus
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Risueño, M.C. (Co-PI); Puvion, E. (CNRS, Villejuif, France) (Co-PI); Medina, F.Javier (Co-PI)
Funding entity or bodies: MINISTERIO DE EDUCACION Y CIENCIA
City funding entity: Spain
Start-End date: 1987 - 1988
- 39 Name of the project:** Estudio citológico y bioquímico de la fase haploide en plantas superiores
Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Risueño, M.C. (PI); Fernández-Gómez, M.E.; Medina, F. Javier
Funding entity or bodies: Comisión Interministerial de Ciencia y Tecnología **Type of entity:** Plan Nacional de I+D+i



City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 1985 - 1987

40 Name of the project: Organización y función de estructuras subnucleares implicadas en el metabolismo del RNA

Entity where project took place: Centro de Investigaciones Biológicas

Type of entity: State agency

Name principal investigator (PI, Co-PI....): Fernández-Gómez, M.E. (PI); Medina, F. Javier; Moreno Díaz de la Espina, S.; Risueño, M.C.

Funding entity or bodies:

Comisión Interministerial de Ciencia y Tecnología

Type of entity: Plan Nacional de I+D+i

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 1985 - 1987

41 Name of the project: Acción de herbicidas sobre la germinación, crecimiento y metabolismo de cereales y su repercusión en el suelo

Entity where project took place: Centro de Investigaciones Biológicas

Type of entity: State agency

Name principal investigator (PI, Co-PI....): De Felipe, M.R. (Inst. Edafología y Biol. Vegetal-CSIC) (PI); Fernández-Gómez, M.E.; Moreno Díaz de la Espina, S.; Risueño, M.C.; Medina, F. Javier

Funding entity or bodies:

Comisión Interministerial de Ciencia y Tecnología

Type of entity: Plan Nacional de I+D+i

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 1982 - 1984

42 Name of the project: Análisis genético y molecular del desarrollo embrionario

Entity where project took place: Centro de Investigaciones Biológicas

Type of entity: State agency

Name principal investigator (PI, Co-PI....): Marco, R. (IIB-CSIC) (PI); Medina, F.Javier; Otros investigadores de diversos institutos del CSIC

Funding entity or bodies:

Consejo Superior de Investigaciones Científicas

Type of entity: State agency

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 1981 - 1984

43 Name of the project: Biología Molecular: control de la expresión de la información genética

Entity where project took place: Centro de Investigaciones Biológicas

Type of entity: State agency

Name principal investigator (PI, Co-PI....): García-Ballesta, J.P. (CBM-CSIC) (PI); Medina, F.Javier; Otros investigadores de diversos institutos del CSIC

Funding entity or bodies:

Consejo Superior de Investigaciones Científicas

Type of entity: State agency

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 1981 - 1984

44 Name of the project: Estudio de la correlación entre la estructura y función celular durante el proceso reproductor de las Angiospermas

Entity where project took place: Centro de Investigaciones Biológicas

Type of entity: State agency



Name principal investigator (PI, Co-PI....): Risueño, M.C. (CIB-CSIC) (PI); Medina, F.Javier; Otros investigadores del CIB-CSIC

Funding entity or bodies:

Comisión Interministerial de Ciencia y Tecnología **Type of entity:** CAICYT

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 1980 - 1982

45 Name of the project: Investigaciones básicas a diferentes niveles de organización biológica, orientadas a la Biomedicina

Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency

Name principal investigator (PI, Co-PI....): Portolés, A. (CIB-CSIC) (PI); Medina, F.Javier; Otros investigadores del CIB-CSIC

Funding entity or bodies:

Comisión Interministerial de Ciencia y Tecnología **Type of entity:** CAICYT

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 1980 - 1982

46 Name of the project: Estudio al microscopio electrónico de los diferentes componentes nucleares de células tratadas con hipoxia en interfase y mitosis

Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency

Name principal investigator (PI, Co-PI....): Risueño, M.C. (CIB-CSIC) (PI); Medina, F.Javier; Otros investigadores del CIB-CSIC

Funding entity or bodies:

Comisión Interministerial de Ciencia y Tecnología **Type of entity:** CAICYT

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 1978 - 1979

47 Name of the project: Estudio ultraestructural del proceso de gametogénesis

Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency

Name principal investigator (PI, Co-PI....): Giménez-Martín, G. (CIB-CSIC) (PI); Medina, F.Javier; Otros investigadores del CIB-CSIC

Funding entity or bodies:

Comisión Interministerial de Ciencia y Tecnología **Type of entity:** CAICYT

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 1978 - 1979

48 Name of the project: Citología de la Gametogénesis masculina en animales (ortópteros) y en plantas (fanerógamas)

Entity where project took place: Centro de Investigaciones Biológicas **Type of entity:** State agency

Name principal investigator (PI, Co-PI....): Giménez-Martín, G. (CIB-CSIC) (PI); Medina, F.Javier; Otros investigadores del CIB-CSIC

Funding entity or bodies:

Comisión Interministerial de Ciencia y Tecnología **Type of entity:** CAICYT

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 1976 - 1979



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

- 1 Name of the project:** Estudios microscópicos sobre fármacos antitumorales
Name principal investigator (PI, Co-PI....): Medina, F. Javier (PI)
Funding entity or bodies:
Pharma Mar, S.A. **Type of entity:** Business
City funding entity: Colmenar Viejo, Community of Madrid, Spain
Start date: 2002 **Duration:** 2 years
Total amount: 14.000 €
- 2 Name of the project:** Estudios morfológicos y detección in situ de macromoléculas en Ascidas
Name principal investigator (PI, Co-PI....): Medina, F. Javier (PI)
Funding entity or bodies:
Pharma Mar, S.A. **Type of entity:** Business
City funding entity: Colmenar Viejo, Community of Madrid, Spain
Start date: 2001 **Duration:** 1 year
- 3 Name of the project:** Estudios de anatomía microscópica e hibridación in situ con sondas de DNA en ascidias
Name principal investigator (PI, Co-PI....): Medina, F. Javier (PI)
Funding entity or bodies:
Pharma Mar, S.A. **Type of entity:** Business
City funding entity: Colmenar Viejo, Community of Madrid, Spain
Start date: 2000 **Duration:** 1 year

Results

Technological results derived from specialized and transfer activities, not included in previous sections

- 1 Description:** Design and construction of the "FixBox" facility for chemical fixation of biological samples on ISS / Diseño y construcción del dispositivo denominado "FixBox" para la fijación química de muestras biológicas en la ISS
Name of the principal Investigator (PI): Medina, F. Javier
Name of the Co-principal investigator (Co-PI): Casalta, J.M. (NTE-Sener)
Collaborating entity or bodies:
SENER Aeroespacial
Start date: 2012 **Duration:** 6 years
- 2 Description:** Design and construction of specific equipment for experimentation on board ISS / Diseño y construcción de equipamiento específico para la realización de experimentos a bordo de la Estación Espacial Internacional
Name of the principal Investigator (PI): Medina, F. Javier
Name of the Co-principal investigator (Co-PI): Pastor, M. (NTE, S.A.)
Collaborating entity or bodies:
NUEVAS TECNOLOGIAS ESPACIALES, S.A.



City collaborating entity: Spain

Start date: 2002

Duration: 2 years

3 Description: Desarrollo de nueva instrumentación, basada en la irradiación con microondas, para la investigación biológica espacial y su posible aplicación en los laboratorios terrestres

Name of the principal Investigator (PI): Marco, R. (UAM-CSIC)

Name of the Co-principal investigator (Co-PI): Martín-Pascual, C. (Distcom Antenas)

Degree of contribution: Researcher

Collaborating entity or bodies:

Distcom Atenas, S.L.

Type of entity: Business

City collaborating entity: Torrelotones, Community of Madrid, Spain

Start date: 1991

Duration: 10 years

Scientific and technological activities

Scientific production

Publications, scientific and technical documents

- 1** Aránzazu Manzano; Eva Creus; Albert Tomás; Miguel A. Valbuena; Alicia Villacampa; Malgorzata Ciska; Richard E. Edelmann; John Z. 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. 06/10/2020.
DOI: 10.1007/s12217-020-09837-5
Type of production: Scientific paper **Format:** Journal
- 2** Aránzazu Manzano; Alicia Villacampa; Julio Sáez-Vásquez; John Z. Kiss; F. Javier Medina; Herranz Raúl. The importance of Earth reference controls in spaceflight –omics research: Characterization of nucleolin mutants from the Seedling Growth experiments. *iScience*. 23 - 11, pp. 101686. 10/2020.
DOI: 10.1016/j.isci.2020.101686
Type of production: Scientific paper **Format:** Journal
- 3** F. Javier Medina. Space explorers need to be space farmers: What we know and what we need to know about plant growth in space. *Mètode Science Studies Journal*. 11, 2020.
DOI: 10.7203/metode.11.14606
Type of production: Scientific paper **Format:** Journal
- 4** F. Javier Medina. The need of using plants in human space exploration enterprises. *Acta Futura*. 12, pp. 151 - 163. 2020.
DOI: 10.5281/zenodo.3747367
Type of production: Scientific paper **Format:** Journal
- 5** Khaled Y. Kamal; Raúl Herranz; Jack J.W.A. van Loon; F. Javier Medina. Cell cycle acceleration and changes in essential nuclear functions induced by simulated microgravity in a synchronized Arabidopsis cell culture. *Plant, Cell & Environment*. 42 - 2, pp. 480 - 494. 2019.
DOI: 10.1111/pce.13422
Type of production: Scientific paper
Impact source: ISI **Category:** Plant Science
Impact index in year of publication: 5.415 **Journal in the top 25%:** Yes



- 6** Khaled Y. Kamal; Jack J.W.A. Van Loon; F. Javier Medina; Raúl Herranz. Differential transcriptional profile through cell cycle progression in Arabidopsis cultures under simulated microgravity. *Genomics*. 111 - 6, pp. 1956 - 1965. 2019.
DOI: 10.1016/j.ygeno.2019.01.007
Type of production: Scientific paper **Format:** Journal
Impact source: ISI **Category:** Biotechnology
Impact index in year of publication: 2.910 **Journal in the top 25%:** Yes
- 7** Joshua P. Vandenbrinck; Raul Herranz; William Poehlman; Alex Feltus; Alicia Villacampa; Malgorzata Ciska; F. Javier Medina; John Z. Kiss. RNAseq analyses of the growth and development of Arabidopsis thaliana in microgravity. *American Journal of Botany*. 106 - 11, pp. 1466 - 1476. 2019.
DOI: 10.1002/ajb2.1384
Type of production: Scientific paper **Format:** Journal
Impact source: ISI **Category:** Plant Science
Impact index in year of publication: 2.841 **Journal in the top 25%:** Yes
- 8** Raul Herranz; Joshua P. Vandenbrinck; Alicia Villacampa; Aranzazu Manzano; William Poehlman; Alex Feltus; John Z. Kiss; F. Javier Medina. RNAseq analysis of Arabidopsis thaliana gradual response to fractional gravity under positive blue-light stimulation during spaceflight. *Frontiers in Plant Biology*. 10 - 1529, 2019.
DOI: doi: 10.3389/fpls.2019.01529
Type of production: Scientific paper **Format:** Journal
Impact source: ISI **Category:** Plant Science
Impact index in year of publication: 4.106 **Journal in the top 25%:** Yes
- 9** Aránzazu Manzano; Raúl Herranz; Leonardus A. den Toom; Sjoerd te Slaa; Guus Borst; Martijn Visser; F. Javier Medina; Jack J.W.A. 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, pp. 9. 2018.
DOI: 10.1038/s41526-018-0041-4
PMID: 29644337
Type of production: Scientific paper **Format:** Journal
Impact source: ISI **Category:** Aerospace Engineering
Impact index in year of publication: 2.000 **Journal in the top 25%:** Yes
- 10** Khaled Y. Kamal; Raúl Herranz; Jack J.W.A. van Loon; F. Javier Medina. Simulated microgravity, Mars gravity, and 2g hypergravity affect cell cycle regulation, ribosome biogenesis, and epigenetics in Arabidopsis cell cultures. *Scientific Reports*. 8 - 1, pp. 6424. 2018.
DOI: 10.1038/s41598-018-24942-7
Type of production: Scientific paper **Format:** Journal
Impact source: ISI **Category:** Multidisciplinary
Impact index in year of publication: 4.122 **Journal in the top 25%:** Yes
- 11** Miguel A. Valbuena; Aranzazu Manzano; Joshua P. Vandenbrink; Veronica Pereda-Loth; Eugénie Carnero-Diaz; Richard E. Edelman; John Z. Kiss; Raúl Herranz; F. Javier Medina. The combined effects of real or simulated microgravity and red-light photoactivation on plant root meristematic cells. *Planta*. 248, pp. 691 - 704. 2018.
DOI: 10.1007/s00425-018-2930-x
Type of production: Scientific paper **Format:** Journal
Impact source: ISI **Category:** Plant Science

Impact index in year of publication: 3.249

Journal in the top 25%: Yes

- 12** Khaled Y. Kamal; Jack J.W.A. van Loon; F. Javier Medina; Raúl Herranz. Embedding Arabidopsis plant cell suspensions in low-melting agarose facilitates altered gravity studies. *Microgravity Science and Technology*. 29, pp. 115 - 119. 2017.

DOI: 10.1007/s12217-016-9531-8

Type of production: Scientific paper

Format: Journal

Impact source: ISI

Category: Aerospace Engineering

Impact index in year of publication: 1.357

Journal in the top 25%: No

- 13** Joshua P. Vandenbrink; Raúl Herranz; F. Javier Medina; Richard E. Edelman; John Z. Kiss. A novel blue-light phototropic response is revealed in roots of *Arabidopsis thaliana* in microgravity. *Planta*. 244, pp. 1201 - 1215. 2016. ISSN 0032-0935

DOI: 10.1007/s00425-016-2581-8

Type of production: Scientific paper

Category: Plant Science

Impact source: ISI

Journal in the top 25%: Yes

Impact index in year of publication: 3.361

- 14** Ana I. Manzano; Raúl Herranz; Aranzazu Manzano; Jack J.W.A. 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, pp. 1 - 13. 2016.

DOI: 10.3389/fspas.2016.00002

Type of production: Scientific paper

Format: Journal

Impact source: WOS (ESCI)

- 15** Khaled Y. Kamal; Raúl Herranz; Jack J.W.A. van Loon; Peter C. Christianen; F. Javier Medina. Evaluation of simulated microgravity environments induced by diamagnetic levitation of plant cell suspension cultures. *Microgravity Science and Technology*. 28, pp. 309 - 317. 2016.

DOI: 10.1007/s12217-015-9472-7.

Type of production: Scientific paper

Format: Journal

Impact source: ISI

Category: Aerospace Engineering

Impact index in year of publication: 1.357

Journal in the top 25%: No

- 16** Elodie Boucheron-Dubuisson; Ana I. Manzano; Isabel Le Disquet; Isabel Matía; Julio Sáez-Vásquez; Jack J.W.A. van Loon; Raúl Herranz; Eugénie Carnero-Díaz; F. Javier Medina. Functional alterations of root meristematic cells of *Arabidopsis thaliana* induced by a simulated microgravity environment. *Journal of Plant Physiology*. 207, pp. 30 - 41. 2016.

DOI: 10.1016/j.jplph.2016.09.011

Type of production: Scientific paper

Format: Journal

Impact source: ISI

Category: Plant Science

Impact index in year of publication: 3.121

Journal in the top 25%: Yes

- 17** Khaled Y. Kamal; Ruth Hemmersbach; F. Javier Medina; Raúl Herranz. Proper selection of 1 g controls in simulated microgravity research as illustrated with clinorotated plant cell suspension cultures. *Life Sciences in Space Research*. 5, pp. 47 - 52. 2015.

DOI: 10.1016/j.lssr.2015.04.004

Type of production: Scientific paper

Format: Journal

Impact source: SCOPUS

Category: Astronomy and Astrophysics



Impact index in year of publication: 0.671

Journal in the top 25%: No

- 18** Raul Herranz; F. Javier Medina. Cell proliferation and plant development under novel altered gravity environments. *Plant Biology*. 16, pp. 23 - 30. 2014.
DOI: 10.1111/plb.12103
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 2.633
Format: Journal
Category: Plant Science
Journal in the top 25%: Yes
- 19** Ann-Iren Kittang; Tor Henning Iversen; Knut R. Fossum; Christian Mazars; Eugénie Carnero-Diaz; Élodie Boucheron-Dubuisson; Isabel Le Disquet; Valérie Legué; Raúl Herranz; Veronica Pereda-Loth; F. Javier Medina. Exploration of plant growth and development using the European Modular Cultivation System facility on the International Space Station. *Plant Biology*. 16 - 3, pp. 528 - 538. 2014.
DOI: 10.1111/plb.12132
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 2.633
Format: Journal
Category: Plant Science
Journal in the top 25%: Yes
- 20** Vandenbrink Joshua P.; Kiss John Z.; Herranz Raúl; Medina F. Javier. Light and gravity signals synergize in modulating plant development. *Frontiers in Plant Science*. 5, pp. 563 - 563. 2014.
DOI: 10.3389/fpls.2014.00563
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 3.95
Format: Journal
Category: Plant Science
Journal in the top 25%: Yes
- 21** Herranz Raúl; Valbuena Miguel A.; Kamal Khaled Y.; Medina F. Javier. Mechanisms of disruption of meristematic competence by microgravity in Arabidopsis seedlings. *Plant signaling & behavior*. 9, pp. e28289 - e28289. 2014.
DOI: 10.4161/psb.28289
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 1.395
Format: Journal
Category: Plant Science
Journal in the top 25%: No
- 22** Christian Mazars; Christian Briere; Sabine Grat; Carole Pichereaux; Michel Rossignol; Veronica Pereda-Loth; Brigitte Eche; Elodie Boucheron-Dubuisson; Isabel Le Disquet; F. Javier Medina; Annick Graziana; Eugenie Carnero-Diaz. Microgravity Induces Changes in Microsome-Associated Proteins of Arabidopsis Seedlings Grown on Board the International Space Station. *PLOS One*. 9 - 3, 2014.
DOI: 10.1371/journal.pone.0091814
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 3.234
Format: Journal
Category: Multidisciplinary
Journal in the top 25%: Yes
- 23** C. Mazars; C. Brière; S. Grat; C. Pichereaux; M. Rossignol; V. Pereda-Loth; B. Eche; E. Boucheron-Dubuisson; I. Le Disquet; F. Javier Medina; A. Graziana; E. Carnero-Diaz. Microsome-associated proteome modifications of Arabidopsis seedlings grown on board the International Space Station reveal the possible effect on plants of space stresses other than microgravity. *Plant Signaling and Behavior*. 9 - JUL, pp. e29637 - e29637. 2014.
DOI: 10.4161/psb.29637
Type of production: Scientific paper
Impact source: ISI
Format: Journal
Category: Plant Science

**Impact index in year of publication:** 1.395**Journal in the top 25%:** No

- 24** Raul Herranz; Ralf Anken; Johannes Boonstra; Markus Braun; Peter C. M. Christianen; Maarten de Geest; Jens Hauslage; Reinhard Hilbig; Richard J. A. Hill; Michael Lebert; F. Javier Medina; Nicole Vagt; Oliver Ullrich; Jack J. W. A. van Loon; Ruth Hemmersbach. Ground-Based Facilities for Simulation of Microgravity: Organism-Specific Recommendations for Their Use, and Recommended Terminology. *Astrobiology*. 13 - 1, pp. 1 - 17. 2013.

DOI: 10.1089/ast.2012.0876**Type of production:** Scientific paper**Format:** Journal**Impact source:** ISI**Category:** Science Edition - BIOLOGY**Impact index in year of publication:** 2.512**Journal in the top 25%:** Yes

- 25** Ana Isabel Manzano; Oliver J. Larkin; Camelia E. Dijkstra; Paul Anthony; Michael R. Davey; Laurence Eaves; Richard J. A. Hill; Raul Herranz; F. Javier Medina. Meristematic cell proliferation and ribosome biogenesis are decoupled in diamagnetically levitated *Arabidopsis* seedlings. *BMC Plant Biology*. 13, 2013.

DOI: 10.1186/1471-2229-13-124**Type of production:** Scientific paper**Format:** Journal**Impact source:** ISI**Category:** Plant Science**Impact index in year of publication:** 3.94**Journal in the top 25%:** Yes

- 26** Raul Herranz; Ana I. Manzano; Jack J. W. A. van Loon; Peter C. M. Christianen; F. Javier Medina. Proteomic Signature of *Arabidopsis* Cell Cultures Exposed to Magnetically Induced Hyper- and Microgravity Environments. *Astrobiology*. 13 - 3, pp. 217 - 224. 2013.

DOI: 10.1089/ast.2012.0883**Type of production:** Scientific paper**Format:** Journal**Impact source:** ISI**Category:** Science Edition - BIOLOGY**Impact index in year of publication:** 2.512**Journal in the top 25%:** Yes

- 27** Paloma Serrano; Jack J. W. A. van Loon; F. Javier Medina; Raul Herranz. Relation Between Motility, Accelerated Aging and Gene Expression in Selected *Drosophila* Strains under Hypergravity Conditions. *Microgravity Science and Technology*. 25 - 1, pp. 67 - 72. 2013.

DOI: 10.1111/j.1768-322X.1984.tb00267.x**Type of production:** Scientific paper**Format:** Journal**Impact source:** ISI**Category:** Aerospace Engineering**Impact index in year of publication:** 1.357**Journal in the top 25%:** No

- 28** Raul Herranz; Oliver J. Larkin; Richard J. A. Hill; Irene Lopez-Vidriero; Jack J. W. A. van Loon; F. Javier Medina. Suboptimal evolutionary novel environments promote singular altered gravity responses of transcriptome during *Drosophila* metamorphosis. *BMC Evolutionary Biology*. 13, 2013. ISSN 1471-2148

DOI: 10.1186/1471-2148-13-133**Type of production:** Scientific paper**Format:** Journal**Impact source:** ISI**Category:** Science Edition - EVOLUTIONARY BIOLOGY**Impact index in year of publication:** 3.407**Journal in the top 25%:** No

- 29** R. Herranz; R.J. Hill; C.E. Dijkstra; L. Eaves; J.J.W.A. van Loon; F. Javier Medina. The behavioural-driven response of the *Drosophila* imago transcriptome to different types of modified gravity. *Genomics Discovery*. 1, pp. 1 - 1. 2013.

DOI: 10.7243/2052-7993-1-1**Type of production:** Scientific paper**Format:** Journal



Impact source: Citefactor

Impact index in year of publication: 4464 views (2019)

- 30** Ana I. Manzano; Raul Herranz; Jack J. W. A. van Loon; F. Javier 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. 2012. ISSN 0938-0108
DOI: 10.1007/s12217-012-9301-1
Type of production: Scientific paper **Format:** Journal
Impact source: ISI **Category:** Aerospace Engineering
Impact index in year of publication: 1.357 **Journal in the top 25%:** No
- 31** Richard J. A. Hill; Oliver J. Larkin; Camelia E. Dijkstra; Ana I. Manzano; Emilio de Juan; Michael R. Davey; Paul Anthony; Laurence Eaves; F. Javier Medina; Roberto Marco; Raul Herranz. Effect of magnetically simulated zero-gravity and enhanced gravity on the walk of the common fruitfly. *Journal of the Royal Society Interface*. 9 - 72, pp. 1438 - 1449. 2012.
DOI: 10.1098/rsif.2011.0715
Type of production: Scientific paper **Format:** Journal
Impact source: ISI **Category:** Multidisciplinary
Impact index in year of publication: 4.907 **Journal in the top 25%:** Yes
- 32** Ana I. Manzano; Jack J. W. A. van Loon; Peter C. M. Christianen; Juana M. Gonzalez-Rubio; F. Javier Medina; Raul 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, 2012.
DOI: 10.1186/1471-2164-13-105
Type of production: Scientific paper **Format:** Journal
Impact source: ISI **Category:** Science Edition - GENETICS & HEREDITY
Impact index in year of publication: 4.073 **Journal in the top 25%:** Yes
- 33** Raul Herranz; Oliver J. Larkin; Camelia E. Dijkstra; Richard J. A. Hill; Paul Anthony; Michael R. Davey; Laurence Eaves; Jack J. W. A. van Loon; F. Javier Medina; Roberto Marco. Microgravity simulation by diamagnetic levitation: effects of a strong gradient magnetic field on the transcriptional profile of *Drosophila melanogaster*. *BMC Genomics*. 13, 2012.
DOI: 10.1186/1471-2164-13-52
Type of production: Scientific paper **Format:** Journal
Impact source: ISI **Category:** Science Edition - GENETICS & HEREDITY
Impact index in year of publication: 4.073
- 34** Francisco Javier Medina; Raul Herranz. Microgravity environment uncouples cell growth and cell proliferation in root meristematic cells: the mediator role of auxin. *Plant signaling & behavior*. 5 - 2, pp. 176 - 9. 2010.
DOI: 10.4161/psb.5.2.10966
Type of production: Scientific paper **Format:** Journal
Impact source: ISI **Category:** Plant Science
Impact index in year of publication: 1.395 **Journal in the top 25%:** No
- 35** Frederic Pontvianne; Mohamed Abou-Ellail; Julien Douet; Pascale Comella; Isabel Matia; Chinmayi Chandrasekhara; Anne DeBures; Todd Blevins; Richard Cooke; Francisco Javier Medina; Sylvette Tourmente; Craig S. Pikaard; Julio Saez-Vasquez. Nucleolin is Required for DNA Methylation State and the Expression of rRNA Gene Variants in *Arabidopsis thaliana*. *PLOS Genetics*. 6 - 11, 2010. ISSN 1553-7404
DOI: 10.1371/journal.pgen.1001225



Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 9.543

Format: Journal
Category: Science Edition - GENETICS & HEREDITY
Journal in the top 25%: Yes

- 36** Francisco Javier Medina; Fernando Gonzalez-Camacho; Ana Isabel Manzano; Antonio Manrique; Raul Herranz. Nucleolin, a major conserved multifunctional nucleolar phosphoprotein of proliferating cells. *Journal of Applied Biomedicine*. 8 - 3, pp. 141 - 150. 2010. ISSN 1214-021X

DOI: 10.2478/v10136-009-0017-5

Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 1.775

Format: Journal
Category: Pharmacology
Journal in the top 25%: No

- 37** Isabel Matía; Fernando González-Camacho; Raul Herranz; John Z. Kiss; Gilbert Gasset; Jack J. W. A. van Loon; Roberto Marco; Francisco Javier Medina. Plant cell proliferation and growth are altered by microgravity conditions in spaceflight. *Journal of Plant Physiology*. 167 - 3, pp. 184 - 193. 2010.

DOI: 10.1016/j.jplph.2009.08.012

Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 2.791

Format: Journal
Category: Plant Science
Journal in the top 25%: Yes

- 38** Raul Herranz; Alberto Benguria; David A. Lavan; Irene Lopez-Vidriero; Gilbert Gasset; F. Javier Medina; Jack J. W. A. van Loon; Roberto Marco. Spaceflight-related suboptimal conditions can accentuate the altered gravity response of *Drosophila* transcriptome. *Molecular Ecology*. 19 - 19, pp. 4255 - 4264. 2010. ISSN 0962-1083

DOI: 10.1111/j.1365-294X.2010.04795.x

Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 5.522

Format: Journal
Category: Science Edition - BIOCHEMISTRY & MOLECULAR BIOLOGY
Journal in the top 25%: Yes

- 39** Francisco Javier Medina. The Centro de Investigaciones Biológicas (Center for Biological Research) in Madrid, Spain: 50 years of excellent fundamental multidisciplinary biological research. *Journal of Applied Biomedicine*. 8 - 4, pp. 227 - 227. 2010.

DOI: 10.1016/S1214-021X(14)60096-X

Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 1.775

Format: Journal
Category: Pharmacology
Journal in the top 25%: No

- 40** Raul Herranz; David A. Lavan; F. Javier Medina; Jack J. W. A. van Loon; Roberto Marco. *Drosophila* GENE Experiment in the Spanish Soyuz Mission to the ISS: II. Effects of the Containment Constraints. *Microgravity Science and Technology*. 21 - 4, pp. 299 - 304. 2009. ISSN 0938-0108

DOI: 10.1007/s12217-008-9097-1

Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 1.357

Format: Journal
Category: Aerospace Engineering
Journal in the top 25%: No

- 41** Ana I. Manzano; Isabel Matía; Fernando González-Camacho; Eugenie Carnero-Díaz; Jack J. W. A. van Loon; Camelia Dijkstra; Oliver Larkin; Paul Anthony; Michael R. Davey; Roberto Marco; F. Javier Medina. Germination of *Arabidopsis* Seed in Space and in Simulated Microgravity: Alterations in Root Cell Growth and Proliferation. *Microgravity Science and Technology*. 21 - 4, pp. 293 - 297. 2009.

DOI: 10.1007/s12217-008-9099-z

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 1.357

Format: Journal

Category: Aerospace Engineering

Journal in the top 25%: No

- 42** Isabel Matía; Jack W. A. van Loon; Eugenie Carnero-Díaz; Roberto Marco; Francisco Javier Medina. Seed Germination and Seedling Growth under Simulated Microgravity Causes Alterations in Plant Cell Proliferation and Ribosome Biogenesis. *Microgravity Science and Technology*. 21 - 1-2, pp. 169 - 174. 2009.

DOI: 10.1007/s12217-008-9069-5

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 1.357

Format: Journal

Category: Aerospace Engineering

Journal in the top 25%: No

- 43** M.A. Sobol; F. González-Camacho; E.L. Kordyum; F. Javier Medina. Changes in the two-dimensional proteome of the soluble fraction of nuclear proteins from *Lepidium sativum* root meristematic cells grown under clinorotation. *Journal of Gravitational Physiology*. 14 - 1, pp. P109 - P110. 2007. Available on-line at: <<http://www.scopus.com/inward/record.url?eid=2-s2.0-42449138267&partnerID=MN8TOARS>>.

PMID: 18372723

Type of production: Scientific paper

Impact source: SciVal Topic Prominence (SCOPUS)

Impact index in year of publication: 85.523 prominence percentile

Format: Journal

Category: Gravitropism, Gravity sensing

- 44** Frederic Pontvianne; Isabel Matia; Julien Douet; Sylvette Tourmente; Francisco Javier Medina; Manuel Echeverria; Julio Saez-Vasquez. Characterization of AtNUC-L1 reveals a central role of nucleolin in nucleolus organization and silencing of AtNUC-L2 gene in Arabidopsis. *Molecular Biology of the Cell*. 18 - 2, pp. 369 - 379. 2007.

DOI: 10.1091/mbc.E06-08-0751

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 6.028

Format: Journal

Category: Cell Biology

Journal in the top 25%: Yes

- 45** F. Pontvianne; I. Matia; J. Douet; S. Tourmente; F. Javier Medina; M. Echeverria; J. Saez-Vasquez. Characterization of AtNUC-L1 reveals a central role of nucleolin in plant development and nucleolus organization. *FEBS Journal*. 274 (Supplement S1), pp. 74 - 74. 2007.

DOI: 10.1111/j.0014-2956.2007.05861_1.x

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 3.777

Format: Journal

Category: Science Edition - BIOCHEMISTRY & MOLECULAR BIOLOGY

Journal in the top 25%: No

- 46** L. J. Leandro; N. J. Szewczyk; A. Benguria; R. Herranz; D. Lavan; F. Javier Medina; G. Gasset; J. van Loon; C. 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. 2007.

DOI: 10.1016/j.asr.2007.05.070

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 1.529

Format: Journal

Category: Astronomy and Astrophysics

Journal in the top 25%: No



- 47** R. Marco; D. A. Lavan; J. J. W. A. van Loon; L. J. Leandro; O. J. Larkin; C. Dijkstra; P. Anthony; A. Villa; M. R. Davey; K. C. Lowe; J. B. Power; F. Javier Medina. *Drosophila melanogaster*, a model system for comparative studies on the responses to real and simulated microgravity. *Journal of Gravitational Physiology*. 14 - 1, pp. P125 - P126. 2007.
PMID: 18372731
Type of production: Scientific paper
Impact source: Scimago
Impact index in year of publication: 21 (H-index)
Format: Journal
Category: Medicine (miscellaneous)
- 48** M.A. Sobol; F. González-Camacho; E.L. Kordyum; F. Javier Medina. Nucleolar proteins change in altered gravity. *Journal of Applied Biomedicine*. 5 - 1, pp. 49 - 56. 2007. Available on-line at: <<https://jab.zsf.jcu.cz/pdfs/jab/2007/01/07.pdf>>.
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 1.775
Format: Journal
Category: Pharmacology
Journal in the top 25%: No
- 49** E. de Juan; A. Benguria; A. Villa; L. J. Leandro; R. Herranz; P. Duque; E. Horn; F. Javier 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. 2007.
DOI: 10.1007/BF02919475
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 1.357
Format: Journal
Category: Aerospace Engineering
Journal in the top 25%: No
- 50** R. Herranz; D. A. Lavan; A. Benguria; P. Duque; L. J. Leandro; G. Gasset; F. Javier Medina; J. van Loon; R. Marco. The "Gene" Experiment in the Spanish Soyuz Mission to the ISS. Effects of the cold transportation step. *Microgravity Science and Technology*. 19 - 5-6, pp. 196 - 200. 2007.
DOI: 10.1007/BF02919481
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 1.357
Format: Journal
Category: Aerospace Engineering
- 51** Isabel Matía; Fernando González-Camacho; Roberto Marco; John Z. Kiss; Gilbert Gasset; Jack van Loon; Francisco Javier Medina. The "Root" experiment of the "Cervantes" Spanish Soyuz Mission: Cell proliferation and nucleolar activity alterations in *Arabidopsis* roots germinated in real or simulated microgravity. *Microgravity Science and Technology*. 19 - 5-6, pp. 128 - 132. 2007.
DOI: 10.1007/BF02919467
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 1.357
Format: Journal
Category: Aerospace Engineering
Journal in the top 25%: No
- 52** Jack J. W. A. van Loon; F. Javier Medina; Hilde Stenuit; Eric Istasse; Marc Heppener; Roberto Marco. The national - ESA Soyuz missions Andromede, Marco Polo, Odissea, Cervantes, DELTA and Eneide. *Microgravity Science and Technology*. 19 - 5-6, pp. 9 - 32. 2007.
DOI: 10.1007/BF02919448
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 1.357
Format: Journal
Category: Aerospace Engineering

- 53** Jose Luis Diez; Victoria Rodríguez-Vilariño; Francisco Javier Medina; Gloria Morcillo. Nucleolar localization of a reverse transcriptase related to telomere maintenance in *Chironomus* (Diptera). *Histochemistry and Cell Biology*. 126 - 4, pp. 445 - 452. 2006.
DOI: 10.1007/s00418-006-0179-0
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 2.561
Format: Journal
Category: Cell Biology, Microscopy
Journal in the top 25%: Yes
- 54** M. Sobol; F. Gonzalez-Camacho; V. Rodriguez-Vilariño; E. Kordyum; F. Javier Medina. Subnucleolar location of fibrillarin and NopA64 in *Lepidium sativum* root meristematic cells is changed in altered gravity. *Protoplasma*. 228 - 4, pp. 209 - 219. 2006. Available on-line at: <<http://doi.org/>>.
DOI: 10.1007/s00709-006-0157-3
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 1.333
Format: Journal
Category: Plant Science
Journal in the top 25%: No
- 55** Fernando González-Camacho; F. Javier Medina. The nucleolar structure and the activity of NopA100, a nucleolin-like protein, during the cell cycle in proliferating plant cells. *Histochemistry and Cell Biology*. 125 - 1-2, pp. 139 - 153. 2006.
DOI: 10.1007/s00418-005-0081-1
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 2.561
Format: Journal
Category: Cell Biology, Microscopy
Journal in the top 25%: Yes
- 56** M.A. Sobol; E.L. Kordyum; F. Javier Medina. [Alterations of nucleolar DNA localization caused by simulated microgravity]. *Tsitologija i Genetika*. 40 - 1, pp. 43 - 48. 2006. Available on-line at: <<http://www.scopus.com/inward/record.url?eid=2-s2.0-33845748593&partnerID=MN8TOARS>>.
PMID: 16792020
Type of production: Scientific paper
Impact source: SciVal Topic Prominence (Scopus)
Impact index in year of publication: 7.658 (prominence percentile)
Format: Journal
Category: Cell Nucleolus
Journal in the top 25%: Yes
- 57** M.A. Sobol; F. Gonzalez-Camacho; V. Rodriguez-Vilariño; E.L. Kordyum; F. Javier Medina. Clinorotation influences rDNA and NopA100 localization in nucleoli. *Advances in Space Research*. 36 - 7, pp. 1254 - 1262. 2005.
DOI: 10.1016/j.asr.2005.05.072
Type of production: Scientific paper
Impact source: ISI
Impact index in year of publication: 1.529
Format: Journal
Category: Astronomy and Astrophysics
Journal in the top 25%: No
- 58** M. A. Sobol; F. Gonzalez-Camacho; V. Rodriguez-Vilariño; E. L. Kordyum; F. Javier Medina. Effects of altered gravity on localization of NopA100 and NopA64 in nucleolus. *Comparative Biochemistry and Physiology a-Molecular & Integrative Physiology*. 141 - 3, pp. S286 - S286. 2005.
DOI: 10.1016/j.cbpb.2005.05.023
Type of production: Scientific paper
Format: Journal
- 59** I. Matía; F. González-Camacho; R. Marco; J.Z. Kiss; G. Gasset; F. Javier Medina. Nucleolar structure and proliferation activity of *Arabidopsis* root cells from seedlings germinated on the International Space Station. *Advances in Space Research*. 36, pp. 1244 - 1253. 2005.



DOI: 10.1016/j.asr.2005.01.068

Type of production: Scientific paper

Impact source: ISI

Impact index in year of publication: 1.529

Format: Journal

Category: Astronomy and Astrophysics

Journal in the top 25%: No

- 60** Fernando González-Camacho; Francisco Javier Medina. The nucleolar structure and nucleolar proteins as indicators of cell proliferation events in plants. *Journal of Applied Biomedicine*. 3, pp. 167 - 174. 2005. Available on-line at: <http://jab.zsf.jcu.cz/3_4/medina.pdf>.

Type of production: Scientific paper

Format: Journal

- 61** M. A. Sobol'; E. L. Kordium; F. Gonzalez-Camacho; V. Rodriguez-Vilariño; F. Javier Medina. [Altered gravity affects subnucleolus localization of fibrillarin and NopA64, the most important proteins of rRNA processing]. *Tsitologiya i Genetika*. 39 - 1, pp. 52 - 62. 2005.

PMID: 16018178

Type of production: Scientific paper

Format: Journal

- 62** M.A. Sobol; E.L. Kordyum; F. Gonzalez-Camacho; V. Rodríguez-Vilariño; F. Javier Medina. Alterations of the intranucleolar DNA localization caused by simulated microgravity. *Journal of Gravitational Physiology*. 11 - 2, pp. P189 - P190. 2004. Available on-line at: <<http://www.scopus.com/inward/record.url?eid=2-s2.0-27744481357&partnerID=MN8TOARS>>.

PMID: 16237832

Type of production: Scientific paper

Format: Journal

Impact source: SciVal Topic Prominence

Category: Cell Nucleolus

Impact index in year of publication: 7.658 (prominence percentile)

- 63** D. Husson; R. Herranz; A. Villa; C. Diaz; J. Mateos; J. Leshner; M. Pastor; F. Javier 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. 2004. Available on-line at: <<http://www.ou.edu/journals/dis/DIS87/Other.pdf#Design>>. ISSN 0070-7333

Type of production: Scientific paper

Format: Journal

- 64** Fernando González-Camacho; F. Javier Medina. Identification of specific plant nucleolar phosphoproteins in a functional proteomic analysis. *Proteomics*. 4 - 2, pp. 407 - 417. 2004.

DOI: 10.1002/pmic.200300645

Type of production: Scientific paper

Format: Journal

Impact source: ISI

Category: Science Edition - BIOCHEMISTRY & MOLECULAR BIOLOGY

Impact index in year of publication: 5.483

Journal in the top 25%: Yes

- 65** F. Lería; R. Marco; F. Javier Medina. Structural and antigenic preservation of plant samples by microwave-enhanced fixation, using dedicated hardware, minimizing heat-related effects. *Microscopy Research and Technique*. 65 - 1-2, pp. 86 - 100. 2004.

DOI: 10.1002/jemt.20109

Type of production: Scientific paper

Format: Journal

Impact source: ISI

Category: Science Edition - MICROSCOPY

Impact index in year of publication: 2.609

Journal in the top 25%: Yes

- 66** R. Marco; D. Husson; R. Herranz; J. Mateos; F. Javier 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*. 9, pp. 41 - 81. 2003. ISSN 1569-2574



DOI: 10.1016/S1569-2574(03)09003-8

Type of production: Scientific paper

Format: Journal

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Type of production: Scientific paper

Format: Journal

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Type of production: Scientific paper

Format: Journal

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Impact index in year of publication: 1,829

Journal in the top 25%: No

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Type of production: Scientific paper

Format: Journal

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- 93** F. Javier Medina; M.C. Risueño; S. Moreno Díaz de la Espina. The nucleolar organizer regions. Collective review. Part 5: Interphase NORs in plant cells. *Biology of the Cell*. 48, pp. 31 - 38. 1983. Available on-line at: <<http://www.ncbi.nlm.nih.gov/pubmed/6201220>>.
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Type of production: Scientific paper **Format:** Journal
- 102** M.C. Risueño; F. Javier Medina; S. Moreno Díaz de la Espina; M.I. Rodríguez-García; M.E. Fernández-Gómez. Correlation of nucleolar activity and the nucleolar organizing region (NOR) ultrastructure in plants. *Biologie Cellulaire*. 39 - 2, pp. 167 - 170. 1980. ISSN 0399-0311
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- 104** F. Javier Medina; M.C. Risueño; J.R. Lacadena. Ultrastructural aspects of tetrads with micronuclei in a wheat monosomic. *Cell Biology International Reports*. 4 - 6, pp. 569 - 577. 1980.
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- 105** M.E. Fernández-Gómez; F. Javier Medina; M.C. Risueño; S. Moreno Díaz de la Espina; M.A. Sánchez-Pina. Use of the silver staining technique for nucleolar organizing regions (NORs) during plant mitosis. *European Journal of Cell Biology*. 22 - 1, pp. 117 - 117. 1980. ISSN 0171-9335
Type of production: Scientific paper **Format:** Journal
- 106** S. Moreno Díaz de la Espina; M.C. Risueño; A. García; F. Javier Medina. Study on annular nucleole in different tissues of plants. *Journal de Microscopie et de Biologie Cellulaire*. 26 - 2-3, pp. A33 - A33. 1976.
Type of production: Scientific paper **Format:** Journal
- 107** Medina F. Javier. Investigar la vida en el espacio desafía las capacidades humanas y resuelve problemas terrestres. Tercer Seminario sobre Actividades Espaciales y Derecho. pp. 47 - 68. Instituto Iberoamericano de Derecho Aeronáutico y del Espacio y de la Aviación Comercial, 2013.
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Type of production: Popular science article **Format:** Journal
- 110** Medina, F. Javier. Roberto Marco, in memoriam. *Encuentros Multidisciplinares*. 10, pp. 75 - 79. 2008. Available on-line at: <<http://www.encuentros-multidisciplinares.org/Revistan%C2%BA30/Roberto%20Marco%20-In%20Memoriam-.pdf>>.
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- 111** Medina, F. Javier. Entender la Ciencia. *ABC*. 24/10/2003.
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- 112** Marco, R.; Medina, F. Javier. Panorama científico de la Biología Celular actual. *Política Científica*. 34, pp. 50 - 54. 1992.
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- 115** Medina F. Javier; Herranz Raul; Arena Carmen; Aronne Giovanna; De Micco Veronica. Growing Plants under Generated Extra-Terrestrial Environments: Effects of Altered Gravity and Radiation. Generation and Applications of Extra-Terrestrial Environments on Earth. 6, pp. 239 - 254. River Publishers, 2015. Available on-line at: <http://www.riverpublishers.com/view_details.php?book_id=288>. ISBN 978-87-93237-53-7
Type of production: Book chapter **Format:** Book
- 116** Herranz Raul; Valbuena Miguel A.; Manzano Aranzazu; Kamal Khaled Y.; Medina F. Javier. Use of microgravity simulators for plant biological studies. Plant Gravitropism: Methods and Protocols. 1309, pp. 239 - 254. Springer, 2015. ISBN 978-1-4939-2696-1
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Type of production: Book chapter **Format:** Book
- 117** A.I. Manzano; F. Javier Medina; F.J. Pérez-Zúñiga; M.A. Günther-Sillero; A. Sillero. Effect of biphosphonates on root growth and on chlorophyll formation in Arabidopsis thaliana seedlings. Osteoporosis (Y. Dionyssiotis, ed.). pp. 853 - 864. Intech-Open Access Publisher, 2012. ISBN 978-953-307-810-6
DOI: 10.5772/30245
Type of production: Book chapter **Format:** Book
- 118** F. Javier Medina; S. Mancuso; R. Hampp. Plant Sciences (chapter 3.2.4). Laboratory Science with Space Data. Accessing and using Space-Experiment Data (Beysens, D. Carotenuto, L. van Loon, J.J.W.A., Zell, M., eds.). pp. 117 - 122. Springer, 2011. Available on-line at: <https://link.springer.com/chapter/10.1007/978-3-642-21144-7_3#Sec62>. ISBN 978-3-642-21143-0
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Type of production: Book chapter **Format:** Book
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Type of production: Book chapter **Format:** Book
- 120** Julio Saez-Vasquez; Francisco Javier Medina; JC Kader; M Delseny. The plant nucleolus. Advances in Botanical Research vol. 47 (Kader, J.C., Delseny, M., eds.). 47, pp. 1 - 46. Amsterdam(Holland): Academic Press, 2008. ISBN 978-0-12-374327-5
DOI: 10.1016/S0065-2296(08)00001-3
Collection: Botanical Research: Incorporating Advances in Plant Pathology
Type of production: Book chapter **Format:** Book
Impact source: ISI **Category:** Plant Science
Impact index in year of publication: 2,855 **Journal in the top 25%:** Yes
- 121** Fernando González-Camacho; Francisco Javier Medina. Extraction of nuclear proteins from root meristematic cells. Plant Proteomics: Methods and Protocols (H. Thiellement, M. Zivy, C. Damerval, V. Méchin, eds.). 355, pp. 63 - 72. Totowa NJ(United States of America): Humana Press, 2007. ISBN 978-1-58829-635-1
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- 124** F. Javier Medina; F. Gonzalez-Camacho. Nucleolar proteins and cell proliferation in plant cells. Recent Research Development in Plant Biology vol. 3 (S. Pandalai, ed.). 3, pp. 55 - 68. Kerala(India): Research Signpost, 2003. ISBN 81-271-0042-0

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Format: Book

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Type of production: Book chapter

Format: Book

- 129** F. JAVIER MEDINA; M. MARTIN; S. MORENO DIAZ DE LA ESPINA. Implications for the function-structure relationship in the nucleolus after immunolocalization of DNA in onion cells. Nuclear Structure and Function (Harris, J.R. Zbarski, I.B., eds.). pp. 231 - 235. London(United Kingdom): Plenum, 1990. Available on-line at: <http://link.springer.com/chapter/10.1007/978-1-4613-0667-2_50>. ISBN 0-306-43731-7

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- 130** Sánchez Pina M.A.; Risueño, M.C.; Medina, F. Javier; Fernández Gómez, M.E.. Behaviour of the nucleolar organizer region (NOR) studied by silver staining during meiotic prophase. Electron Microscopy 1984 (A. Csanady, P. Röhlich, D. Szabo, eds.). 3, pp. 1895 - 1896. Budapest(Hungary): Hungarian Academy of Sciences, 1984. ISBN 963-01-5621-0

Type of production: Book chapter

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- 133** Moreno Díaz de la Espina, S.; Sánchez Pina, M.A; Risueño, M.C.; Medina, F. Javier; Fernández-Gómez, M.E.. The role of plant coiled bodies in the nuclear RNA metabolism. *Electron Microscopy 1980* (P. Brederoo, W. de Priester, eds.). 2, pp. 240 - 241. Leiden(Holland): 1980.
Type of production: Book chapter **Format:** Book
- 134** Medina, F. Javier; Rodríguez-García, M.I.; Risueño M.C.. Behaviour of the nucleolar fibrillar centres in reproducing plant cells. *Electron Microscopy 1978* (J.M. Sturgess, ed.). 2, pp. 210 - 211. Toronto(Canada): Microscopical Society of Canada, 1978. ISBN 0-920622-07-0
Type of production: Book chapter **Format:** Book
- 135** M.C. Risueño; F. Javier Medina. The nucleolar structure in plant cells. *Revisión sobre Biología Celular/Cell Biology Reviews : RBC* (E. Barberá-Guillem, ed.). 7, pp. 1 - 154. Leioa(Spain): UPV-EHU/Springer International, 1986. ISSN 02137119
PMID: 2447615
Type of production: Scientific book or monograph **Format:** Book
- 136** van Loon, Jack J. W. A.; Marco, Roberto; Medina, F. Javier. Forewords. *Microgravity Science and Technology*. 19, 2007.
Type of production: Conference paper

Works submitted to national or international conferences

- 1** **Title of the work:** Invited Plenary lecture
Name of the conference: 35th Annual Meeting of the American Society for Gravitational and Space Research (ASGSR)
City of event: Denver CO, United States of America
Date of event: 11/2019
Organising entity: American Society for Gravitational and Space Research (ASGSR)
- 2** **Title of the work:** Invited Plenary Lecture
Name of the conference: 26th ELGRA Symposium
City of event: Granada, Spain
Date of event: 09/2019
Organising entity: European Low Gravity Research Association (ELGRA)
- 3** **Title of the work:** Invited lecture
Name of the conference: Workshop on Interstellar Exploration
City of event: Noordwijk, Holland
Date of event: 06/2019
Organising entity: European Space Agency (ESA)
- 4** **Title of the work:** Oral presentation
Name of the conference: 69th International Astronautical Congress
City of event: Bremen, Germany
Date of event: 10/2018



Organising entity: International Astronautical Federation (IAF)

- 5** **Title of the work:** Oral presentation
Name of the conference: Workshop on the Large Diameter Centrifuge
City of event: ESTEC-Noordwijk, Holland
Date of event: 01/2018
- 6** **Title of the work:** Oral presentation
Name of the conference: ELGRA Symposium and General Assembly
City of event: Antibes, France
Date of event: 10/2017
- 7** **Title of the work:** Oral presentation
Name of the conference: ESA/NASA/JAXA/CSA ISS Science Symposium
City of event: Web-based,
Date of event: 2016
- 8** **Title of the work:** Oral Presentation
Name of the conference: 22nd Symposium of the European Low Gravity Research Association (ELGRA)
City of event: Corfu, Greece
Date of event: 2015
- 9** **Title of the work:** Oral presentation
Name of the conference: International Society of Gravitational Physiology (ISGP)
City of event: Ljubljana, Slovenia
Date of event: 2015
- 10** **Title of the work:** Oral presentation
Name of the conference: 40th Cospar (Committee on Space Research) Scientific Assembly
City of event: Moscow, Russia
Date of event: 2014
"Invited oral presentation".
- 11** **Title of the work:** Auxin transport and ribosome biogenesis mutant / reporter lines to study plant cell growth and proliferation under altered gravity
Name of the conference: Life in Space for Life on Earth
Type of event: Conference
City of event: Aberdeen, United Kingdom
Date of event: 2012
Organising entity: European Space Agency
Type of contribution: Scientific book or monograph
M.A. Valbuena; A.I. Manzano; J.J.W.A. Van Loon; J. Sáez-Vásquez; E. Carnero-Díaz; R. Herranz; F. Javier Medina. "Life in Space for Life on Earth". 706 SP, European Space Agency, Available on-line at: <<http://www.scopus.com/inward/record.url?eid=2-s2.0-84892647176&partnerID=MN8TOARS>>.
- 12** **Title of the work:** The European altered gravity student network
Name of the conference: 62nd International Astronautical Congress
Type of event: Conference
City of event: Cape Town, South African Republic
Date of event: 2011
Organising entity: International Astronautical Federation



Type of contribution: Scientific book or monograph

T. Al-Marahleh Montes; A. Monzon; H. Salvador; F. Javier Medina. "62nd International Astronautical Congress". 11, pp. 8816 - 8821. Available on-line at: <<http://www.scopus.com/inward/record.url?eid=2-s2.0-84864102073&partnerID=MN8TOARS>>.

- 13 Title of the work:** Drosophila behaviour & gene expression in altered gravity conditions: Comparison between space and ground facilities

Name of the conference: Life in Space for Life on Earth

Type of event: Conference

City of event: Angers, France

Date of event: 2008

Type of contribution: Scientific book or monograph

R. Herranz; D.A. Lavàn; C. Dijkstra; O. Larkin; M.R. Davey; J.J.W.A.V. Loon; F. Javier Medina; R. Marco; P. Schiller. "Life in Space for Life on Earth". 663 SP, European Space Agency, (Special Publication) ESA SP, Available on-line at: <<http://www.scopus.com/inward/record.url?eid=2-s2.0-66949144339&partnerID=MN8TOARS>>.

- 14 Title of the work:** The "AGEING" experiment in the Spanish Soyuz Mission to the International Space Station

Name of the conference: Meeting of Science on European Soyuz Missions to the ISS

City of event: Toledo, Spain

Date of event: 2006

de Juan, E.; Benguria, A.; Villa, A.; Leandro, L. J.; Herranz, R.; Duque, P.; Horn, E.; Medina, F. J.; van Loon, J.; Marco, R.

- 15 Title of the work:** The "Gene" Experiment in the Spanish Soyuz Mission to the ISS. Effects of the cold transportation step

Name of the conference: Meeting of Science on European Soyuz Missions to the ISS

City of event: Toledo, Spain

Date of event: 2006

Herranz, R.; Lavan, D. A.; Benguria, A.; Duque, P.; Leandro, L. J.; Gasset, G.; Medina, F. J.; van Loon, J.; Marco, R.

- 16 Title of the work:** The "Root" experiment of the "Cervantes" Spanish Soyuz Mission: Cell proliferation and nucleolar activity alterations in Arabidopsis roots germinated in real or simulated microgravity

Name of the conference: Meeting of Science on European Soyuz Missions to the ISS

City of event: Toledo, Spain

Date of event: 2006

Matia, Isabel; Gonzalez-Camacho, Fernando; Marco, Roberto; Kiss, John Z.; Gasset, Gilbert; van Loon, Jack; Medina, Francisco Javier.

- 17 Title of the work:** Clinorotation influences rDNA and NopA100 localization in nucleoli

Name of the conference: 35th COSPAR Scientific Assembly

City of event: Paris, France

Date of event: 2004

Organising entity: Comm Space Res

Sobol, MA; Gonzalez-Camacho, F; Rodriguez-Vilarino, V; Kordyum, EL; Medina, FJ. 36 - 7,

- 18 Title of the work:** Nucleolar structure and proliferation activity of Arabidopsis root cells from seedlings germinated on the International Space Station

Name of the conference: 35th COSPAR Scientific Assembly

City of event: Paris, France



Date of event: 2004

Organising entity: Comm Space Res

Matia, I; Gonzalez-Camacho, F; Marco, R; Kiss, JZ; Gasset, G; Medina, FJ.

- 19** **Title of the work:** Identification of specific plant nucleolar phosphoproteins in a functional proteomic analysis
Name of the conference: Seminar in Proteomics UCO-2003
City of event: Córdoba, Spain
Date of event: 2003
Gonzalez-Camacho, F; Medina, FJ.
- 20** **Title of the work:** Towards the establishment of a permanent colony of *Drosophila* in the International Space Station: Hardware tests and adaptation of techniques
Name of the conference: 8th European Symposium on Life Science Research in Space/23rd Annual International Gravitational Physiology Meeting
City of event: Stockholm, Sweden
Date of event: 2002
Herranz, R; Husson, D; Pastor, M; Diaz, C; Mateos, J; Villa, A; Medina, FJ; Marco, R.
- 21** **Title of the work:** In situ localization of the onion nucleolar protein NopA64 is dependent on cell proliferation mechanisms and cell cycle phases
Name of the conference: 5th Multinational Congress on Electron Microscopy
City of event: Lecce, Italy
Date of event: 2001
Medina, FJ; Gonzalez-Camacho, F; Cerdido, A; De Carcer, G.
- 22** **Title of the work:** The "subcooling technology" as a potentially useful preservation method for biological samples in space station scenarios
Name of the conference: 2nd European Symposium on Utilisation of the International Space Station
City of event: Noordwijk, Holland
Date of event: 1999
Organising entity: European Space Agency
Medina, FJ; Leria, F; Diaz, C; Mateos, J; Mas, J; Marco, R.
- 23** **Title of the work:** Effects of DRB on the ultrastructural organization and RNA metabolism of plant nucleus
Name of the conference: 11th Wilhelm Bernhard Workshop on the Cell Nucleus
City of event: Suzdal, Russia
Date of event: 1989
M. E. Fernandez-Gomez; F. Javier Medina; S. Moreno Diaz de la Espina.
- 24** **Title of the work:** Implications for the function-structure relationship in the nucleolus after immunolocalization of DNA in onion cells
Name of the conference: 11th Wilhelm Bernhard Workshop on the Cell Nucleus
City of event: Suzdal, Russia
Date of event: 1989
Francisco Javier Medina; Marta Martin; Susana Moreno Diaz de la Espina.
- 25** **Title of the work:** AG-NOR STAINING AND ACTIVITY - ANALYSIS UNDER INHIBITORS OF NUCLEOLAR TRANSCRIPTION
Name of the conference: First European Congress on Cell Biology
City of event: Paris, France



Date of event: 1982

FERNANDEZGOMEZ, ME; SANCHEZPINA, MA; MEDINA, FJ; RISUENO, MC.

26 Title of the work: USE OF THE SILVER STAINING TECHNIQUE FOR NUCLEOLAR ORGANIZING REGIONS (NORS) DURING PLANT MITOSIS

Name of the conference: Second International Congress on Cell Biology

City of event: Berlin (West), Germany

Date of event: 1980

FERNANDEZGOMEZ, ME; MEDINA, FJ; RISUENO, MC; MORENODIAZDELAESPINA, S; SANCHEZPINA, MA.

Other dissemination activities

1 Title of the work: Lecture at the Spanish National Museum of Science and Technology (MUNCYT)

Name of the event: Ciencia en Primera Persona (Science in First Person)

City of event: Madrid, Spain

Date of event: 11/2019

Organising entity: MUNCYT-CSIC

2 Title of the work: TV-program

Name of the event: Huellas de nuestro tiempo

Type of event: Media interviews

City of event: Toledo, Spain

Date of event: 04/2018

Organising entity: RTVD

3 Title of the work: TEDx-EAE Talk

Type of event: Conferences given

City of event: Madrid,

Date of event: 11/2017

Organising entity: EAE Business School

4 Title of the work: Six presences in TV programs, 11 presences in broadcasting programs and more than 50 reports in newspapers, webpages and social networks in relation to the project "Seedling Growth" / Seis intervenciones en TV, 11 intervenciones en radio y más de 50 reseñas en prensa, páginas web y redes sociales en relación con el proyecto espacial "Seedling Growth"

Type of event: Media interviews

Date of event: 2017

5 Title of the work: TEDx-Gran Via Talk

City of event: Madrid,

Date of event: 06/2014

Organising entity: TEDx Madrid-Spain

R&D management and participation in scientific committees

Scientific, technical and/or assessment committees

- 1** **Committee title:** GeneLab Analysis Working Group
Primary (UNESCO code): 241500 - Molecular biology
Secondary (UNESCO code): 251200 - Space Sciences
Affiliation entity: NASA
City affiliation entity: United States of America
Start-End date: 2018 - 2019
- 2** **Committee title:** ESF College of Expert Reviewers
Affiliation entity: European Science Foundation
Start-End date: 2017 - 2019
- 3** **Committee title:** SciSpace Roadmap Definition for Future Research-User Consultation-Coordinator of Plant Biology
Affiliation entity: European Space Agency
Start-End date: 2016 - 2016
- 4** **Committee title:** Management Committee of European Low Gravity Research Association (ELGRA).
Education Activities Coordinator
Primary (UNESCO code): 251200 - Space Sciences
Affiliation entity: European Low Gravity Research Association
Start-End date: 2007 - 2013
- 5** **Committee title:** Evaluation of the ESA-ELIPS Programme
Primary (UNESCO code): 251200 - Space Sciences
Affiliation entity: European Space Agency/European Science Foundation
Start-End date: 2012 - 2012
- 6** **Committee title:** Assessment of the ESA-ELIPS Programme
Primary (UNESCO code): 251200 - Space Sciences
Affiliation entity: European Space Agency/European Science Foundation
Start-End date: 2004 - 2004
- 7** **Committee title:** Nomination Committee of the “Maffo Vialli International Award for Histochemistry”
Primary (UNESCO code): 240700 - Cell biology
Affiliation entity: Società Italiana di Istochimica
City affiliation entity: Italy
Start-End date: 2002 - 2003
- 8** **Committee title:** Executive Committee of the European Cell Biology Organisation (ECBO)
Primary (UNESCO code): 240700 - Cell biology
Affiliation entity: European Cell Biology Organisation
Start-End date: 1999 - 2001

Organization of R&D activities

- 1** **Title of the activity:** Workshop on "Plant Adaptation to the Space Environment. Lessons learned from a major ESA/NASA joint experiment in Plant Biology on the ISS"
Type of activity: Workshop
City of event: Granada, Spain
Convening entity: European Low Gravity Research Association (ELGRA)
Type of participation: Organiser
Start date: 09/2019
- 2** **Title of the activity:** Science in European Soyuz Missions to the International Space Station
Type of activity: International Congress
City of event: Toledo, Spain
Convening entity: European Space Agency (ESA)
Type of participation: Organiser
Start date: 2006
- 3** **Title of the activity:** 5th International Congress on Cell Biology
Type of activity: Congreso Internacional
City of event: Madrid, Spain
Convening entity: International Federation for Cell Biology (IFCB)
Type of participation: Secretary
Start date: 1992
- 4** **Title of the activity:** Réunion sur le Nucléole/Colloquium on the Nucleolus
Type of activity: Congreso Europeo
City of event: Toledo,
Convening entity: European Cell Biology Organization (ECBO)
Type of participation: Organiser
Start date: 1988
- 5** **Title of the activity:** Primer Congreso de la Sociedad Española de Biología Celular
Type of activity: Congreso Nacional
City of event: Madrid, Spain
Convening entity: SOCIEDAD ESPAÑOLA DE BIOLOGIA CELULAR
Type of participation: Organiser
Start date: 1985

Evaluation and revision of R&D projects and articles

- 1** **Performed tasks:** Evaluation of scientific works - 6 papers evaluated in 2019 (Scientific Reports, Int. J. Molecular Sciences, Plant Physiol Biochem, Frontiers in Plant Biology)
Type of activity: Review of articles in scientific or technological journals
Start-End date: 2019 - 2019
- 2** **Performed tasks:** Evaluation of scientific works and projects - 12 works and projects evaluated in 2018 (Scientific Reports, Frontiers, Plant Science, Journal of Plant Physiology, European Space Agency, Chinese Space Agency..)



Type of activity: Review of articles in scientific or technological journals

Start-End date: 2018 - 2018

- 3 Performed tasks:** Evaluation of scientific works - 8 papers evaluated in 2017 (Frontiers, BioEssays, Microgravity Science and Technology, ..)

Type of activity: Review of articles in scientific or technological journals

Start date: 2017

Other achievements

Stays in public or private R&D centres

- 1 Entity:** Departamento de Citología e Histología, C.U. **Type of entity:** University Department
"Arcos de Jalón", Universidad Complutense
City of entity: Madrid,
Start-End date: 1974 - 1976 **Duration:** 2 years
Goals of the stay: Contracted
Provable tasks: Aprendizaje y realización de técnicas histológicas e histoquímicas
- 2 Entity:** Departamento de Genética, Universidad Complutense **Type of entity:** University Department
City of entity: Madrid,
Start-End date: 1972 - 1974 **Duration:** 2 years
Provable tasks: Aprendizaje y realización de técnicas citogenéticas en gramíneas, aplicadas al estudio de trigos monosómicos
- 3 Entity:** Groupement Scientifique de Biologie et Médecine Spatiales-Université Paul Sabatier **Type of entity:** University Department
City of entity: Toulouse, France
Start date: 2003 **Duration:** 10 days
Provable tasks: Preparación del experimento "Root" de la Misión Espacial "Cervantes"
- 4 Entity:** Institute of Plant Physiology of the Russian Academy of Sciences **Type of entity:** Public Research Body
City of entity: Moscow, Russia
Start date: 2000 **Duration:** 10 days
Provable tasks: Intercambio de información para la preparación de Proyectos de Investigación conjuntos
- 5 Entity:** Institute of Cytology of the Russian Academy of Sciences
City of entity: St. Petersburg, Russia
Start date: 2000 **Duration:** 10 days
Provable tasks: Preparación de muestras de células vegetales para la purificación de proteínas nucleolares
- 6 Entity:** Dipartimento di Scienze Botaniche, Università degli Studi di Pisa **Type of entity:** University Department
City of entity: Pisa, Italy
Start date: 1999 **Duration:** 10 days
Provable tasks: Estudios sobre variantes de longitud de espaciador en genes ribosómicos de células vegetales



- 7** **Entity:** Institut für Mikrobiologie und Genetik, Biozentrum der Universität Wien
City of entity: Vienna, Austria
Start date: 1994 **Duration:** 10 days
Provable tasks: Preparación de muestras de cultivos vegetales sincrónicos para estudios ultraestructurales y bioquímicos sobre proteínas nucleolares
- 8** **Entity:** Laboratoire de Biologie Moléculaire Eucaryote **Type of entity:** Public Research Body (CNRS)
City of entity: Toulouse, France
Start date: 1993 **Duration:** 15 days
Provable tasks: Estudios bioquímicos sobre proteínas nucleolares
- 9** **Entity:** Departamento de Biología, Facultad de Ciencias UNAM
City of entity: Mexico DF, Mexico
Start date: 1989 **Duration:** 1 month
Provable tasks: Estudios citoquímicos e inmunocitoquímicos sobre el núcleo celular.
- 10** **Entity:** Departamento de Biología, Facultad de Ciencias UNAM
City of entity: Mexico DF, Mexico
Start date: 1987 **Duration:** 15 days
Provable tasks: Estudios citoquímicos e inmunocitoquímicos sobre el núcleo celular.
- 11** **Entity:** Gulbenkian Institute of Science **Type of entity:** R&D Centre
City of entity: Oeiras, Portugal
Start date: 1985 **Duration:** 15 days
Provable tasks: Aprendizaje de técnicas inmunoquímicas e inmunocitoquímicas

Editorial councils

- 1** **Name of the editorial council:** Editorial Board of "Frontiers in Plant Cell Biology"
Start date: 2018
- 2** **Name of the editorial council:** Editorial Board of "Frontiers in Plant Proteomics"
Start date: 2011
- 3** **Name of the editorial council:** Editorial Board of "European Journal of Histochemistry"
Start date: 2008
- 4** **Name of the editorial council:** Editorial Board of "Journal of Applied Biomedicine"
Start date: 2002



Prizes, mentions and distinctions

- 1** **Description:** COSPAR International Cooperation Medal
Awarding entity: COSPAR (Committee on Space Research)
Conferral date: 02/04/2020
- 2** **Description:** ELGRA Medal
Awarding entity: European Low Gravity Research Association (ELGRA) **Type of entity:** Associations and Groups
Conferral date: 2019
- 3** **Description:** Gravity Spotlight Team Award
Awarding entity: European Low Gravity Research Association
Conferral date: 2019
- 4** **Description:** NASA Group Achievements Award
Awarding entity: NASA **Type of entity:** State agency
Conferral date: 2019
- 5** **Description:** Honor Member of the Spanish Society for Cell Biology (SEBC)
Awarding entity: Spanish Society for Cell Biology
Conferral date: 1993
- 6** **Description:** Prize for outstanding Doctoral Thesis
Awarding entity: University of Madrid-Cajamadrid
Conferral date: 1980