



Maria A. Blasco

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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.

Maria A. Blasco obtained her PhD in 1993 for her research on viral DNA polymerases at the Centro de Biología Molecular "Severo Ochoa" (CSIC-UAM, Madrid, Spain) under the supervision of M. Salas. That same year, Blasco joined the Cold Spring Harbor Laboratory (New York, USA) as a Postdoctoral Fellow under the leadership of C. W. Greider. In 1997 she returned to Spain to start her own research Group at the Centro Nacional de Biotecnología (CNB, CSIC) in Madrid. She joined the Spanish National Cancer Research Centre CNIO in 2003 as Head of the Telomeres and Telomerase group and Director of the Molecular Oncology Programme. She has served as CNIO Vice Director (2005-2011) and is CNIO Director since July 2011.

Maria A. Blasco has made key contributions to demonstrate the importance of telomerase in disease and longevity. When Blasco started working on telomeres in the mid 90's it was known that telomeres shortened with ageing in humans but whether this was causal of ageing and of age-associated diseases like cancer, or a determinant of organismal longevity was completely unknown. Her work has been central to demonstrating telomere shortening as one of the principal molecular pathways leading to ageing and ageing-associated diseases (including cancer), as well as to demonstrate the importance of telomerase and telomere length in longevity.

Blasco has produced an array of scientific contributions over the last 20 years. Of these, five are undoubtedly the most salient ones:

- Demonstration that telomere shortening is causal of ageing and ageing associated diseases (she made seminal contributions using the telomerase deficient mouse model generated by her).

- Discovery that short telomeres act as potent tumour suppressors in the absence of telomerase.

- Pioneering finding that telomerase activation in the context of cancer-free mice delays ageing, reduces the incidence of age-associated pathologies, and increases longevity .

- Development of telomerase-based gene therapies effective in delaying ageing and age-related diseases and in the prevention and treatment of heart failure after myocardial infarction without increasing cancer incidence. Blasco attained for the first time a therapeutic strategy that without producing cancer reactivates telomerase to delay ageing and to prevent age-associated diseases.

- Discovery of the existence of a novel RNA component at the telomeres. Blasco's group discovered that telomeric repeats are transcribed, that telomeric RNAs (TERRA) are potent telomerase-inhibitors and that their expression is altered in cancer. She later provided further support to the notion that TERRA are relevant to both cancer and ageing, identified the genomic origin of human and mice TERRA and generated the first human knock-out cells for the TERRA locus.

Blasco has provided proof of principle that telomere shortening with ageing owing to telomerase deficiency in the adult organism is one of the principal causes of ageing and disease, and that telomerase re-activation is sufficient to delay ageing and age-related



diseases and to increase longevity. Her work has established telomere length and telomerase activity as one of the Hallmarks of Ageing.



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.

Total number of publications: 258

Number of research articles: 200

Number of review articles: 50

Number of book chapters: 8

Total Citations: 29,956

Average citations per item: 125,41

Number of reviews on Blasco's work: 43

h-Index: 83

Top journals: **Cell** (8 papers), **Nature** (4 papers), **Science** (3 papers), **Cancer Cell** (2 papers), **Nature Genetics** (6 papers), **Nature Cell Biology** (5 papers), **Nature Medicine** (1 paper), **Nature Reviews Genetics** (2 papers), **Nature Reviews Cancer** (2 papers), **Nature Reviews Molecular Cell Biology** (1 paper), **Nature Structural Molecular Biology** (3 papers), **Nature Biotechnology** (1 paper), **Nature Communications** (12 papers), **Nature Chemical Biology** (1 paper), **Cell Stem Cell** (2 papers), **Genes & Development** (3 papers), **Blood** (5 papers), **EMBO Journal** (17 papers), **Journal of the American College of Cardiology** (1 paper).

Maria A. Blasco

Surname(s): **Blasco**
Name: **Maria A.**
ORCID: **0000-0002-4211-233X**
ResearcherID: **M-1694-2014**

Current professional situation

Employing entity: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

Department: Molecular Oncology Programme, Spanish National Cancer Research Centre-CNIO

Professional category: Director, CNIO / Head, Telomeres and Telomerase Group

Start date: 2011

Type of contract: Permanent employment contract

Primary (UNESCO code): 241500 - Molecular biology

Performed tasks: RESEARCH FOCUS - Generating of mouse models to validate telomeres and telomerase as therapeutic targets for cancer and age-related diseases. - The interplay between telomeres and DNA repair pathways. - The role and regulation of non-coding telomeric RNAs or TERRA. - Testing telomerase gene therapy in "telomere syndromes" and age-related diseases. - The role of telomerase and telomeres in adult stem cell biology and in nuclear reprogramming of differentiated cells to iPS cells. KEY WORDS Telomeres, Telomerase, Cancer, Ageing, Shelterins, Epigenetics, Stem Cells, iPS cells, DNA repair, Nuclear Reprogramming, Mouse Models

Previous positions and activities

| | Employing entity | Professional category | Start date |
|---|---|--------------------------------------|------------|
| 1 | Centro Nacional de Investigaciones Oncológicas | Vice-Director of Basic Research | 2005 |
| 2 | Centro Nacional de Investigaciones Oncológicas | Director, Molecular Oncology Program | 2003 |
| 3 | National Center of Biotechnology, Madrid, Spain | Staff Investigator | 1997 |
| 4 | Cold Spring Harbor Laboratory, New York, USA | Postdoctoral Fellow | 1993 |
| 5 | Center of Molecular Biology, Madrid, Spain | Postdoctoral Fellow | 1992 |
| 6 | Center of Molecular Biology, Madrid, Spain | Graduate Fellow | 1989 |
| 7 | Centro Nacional de Investigaciones Oncológicas | Head, Telomeres and Telomerase Group | 2003 |

1 **Employing entity:** Centro Nacional de Investigaciones Oncológicas

Type of entity: Healthcare Institutions

Professional category: Vice-Director of Basic Research



- Start-End date:** 2005 - 2011 **Duration:** 6 years
- 2** **Employing entity:** Centro Nacional de Investigaciones Oncológicas **Type of entity:** Healthcare Institutions
Professional category: Director, Molecular Oncology Program
Start-End date: 2003 - 2011 **Duration:** 8 years
- 3** **Employing entity:** National Center of Biotechnology, Madrid, Spain **Type of entity:** Public Research Body
Professional category: Staff Investigator
Start-End date: 1997 - 2003 **Duration:** 6 years
- 4** **Employing entity:** Cold Spring Harbor Laboratory, New York, USA **Type of entity:** Public Research Body
Professional category: Postdoctoral Fellow
Start-End date: 1993 - 1996 **Duration:** 3 years
- 5** **Employing entity:** Center of Molecular Biology, Madrid, Spain **Type of entity:** Public Research Body
Professional category: Postdoctoral Fellow
Start-End date: 1992 - 1993 **Duration:** 2 years
- 6** **Employing entity:** Center of Molecular Biology, Madrid, Spain **Type of entity:** Public Research Body
Professional category: Graduate Fellow
Start-End date: 1989 - 1992 **Duration:** 3 years
- 7** **Employing entity:** Centro Nacional de Investigaciones Oncológicas **Type of entity:** Healthcare Institutions
Professional category: Head, Telomeres and Telomerase Group
Start date: 2003 **Duration:** 10 years



Education

University education

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

University degree: Higher degree

Name of qualification: B.Sc.

Degree awarding entity: Universidad Autónoma de Madrid **Type of entity:** University

Date of qualification: 1989

Doctorates

Doctorate programme: Ph.D.

Degree awarding entity: Universidad Autónoma de Madrid **Type of entity:** University

Date of degree: 1993

Language skills

| Language | Listening skills | Reading skills | Spoken interaction | Speaking skills | Writing skills |
|----------|------------------|----------------|--------------------|-----------------|----------------|
| English | | C1 | C1 | C1 | C1 |

Teaching experience

Experience supervising doctoral thesis and/or final year projects

- Project title:** Study of the TRF1 telomeric protein as therapeutic target in Glioblastoma
Entity: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
Student: Leire Bejarano Bosque
Date of reading: 14/09/2018
- Project title:** AAV9 gene therapy with TRF1 telomere protective protein in adult and old mice prolongs mouse health span
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Aksinya Derevyanko
Date of reading: 24/05/2018
- Project title:** Telomere dysfunction drives pulmonary fibrosis and offers new therapeutic Strategies
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Juan Manuel Povedano Selfa



Date of reading: 2016

- 4 Project title:** Study of the shelterin component TRF1 as an anti-cancer target
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Maria Garcia-Beccaria
Date of reading: 2015
- 5 Project title:** Study of the functions of shelterins and telomerase in aging and nuclear reprogramming
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Ianire Garrobo
Date of reading: 2014
- 6 Project title:** Study of the impact of reduced Sox4 expression in homeostasis, cancer and ageing
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Miguel Foronda
Date of reading: 2014
- 7 Project title:** TRF1 telomere protein is essential for the generation and maintenance of iPS cells and marks both pluripotent and adult stem cells
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Ralph Philipp Schneider
Date of reading: 2012
- 8 Project title:** Aplicación del método de medida de la longitud telomérica a gran escala HT Q-FISH a estudios de poblaciones humanas, cáncer y envejecimiento
Entity: Universidad Autónoma de Madrid **Type of entity:** University
Student: Elsa Vera Amores
Date of reading: 2010
- 9 Project title:** Tert y envejecimiento: generación de ratones longevos
Entity: Universidad Autónoma de Madrid
Student: Antonia Tomás Loba
Date of reading: 2009
- 10 Project title:** Extending the life-span of mice with dysfunctional telomeres
Entity: Universidad Autónoma de Madrid
Student: Irene Siegl-Cachedenier
Date of reading: 2008
- 11 Project title:** Papel de las proteínas teloméricas TRF1 y TRF2 en cáncer y envejecimiento
Entity: Universidad Autónoma de Madrid
Student: Raquel Blanco Agudo
Date of reading: 2008
- 12 Project title:** Estudio de las nuevas funciones de la telomerasa en tumorigenesis. Desarrollo de nuevas metodologías para la cuantificación de la longitud telomérica: HT-QFISH y Telomapping
Entity: Universidad Autónoma de Madrid
Student: Andrés Canela Rodríguez
Date of reading: 2007



- 13** **Project title:** Estudio del papel de la telomerasa en la transformacion celular y caracterizacion de la heterocromatina telomerica en mamiferos
Entity: Universidad Autónoma de Madrid
Student: Marta García Cao
Date of reading: 2004
- 14** **Project title:** Telomere dysfunction in mammalian aging and cancer
Entity: Universidad Autónoma de Madrid
Student: Sonia Franco Nuñez
Date of reading: 2004
- 15** **Project title:** Telomeros y proteínas de reparacion de DNA: implicaciones en el envejecimiento y el cancer
Entity: Universidad Autónoma de Madrid
Student: Silvia Espejel Carbajal
Date of reading: 2004
- 16** **Project title:** Modelos animals para el estudio del papel de la telomerasa en cáncer
Entity: Universidad Autónoma de Madrid
Student: Eva González Suárez
Date of reading: 2003
- 17** **Project title:** Papel de la telomerasa y proteínas de reparación en la función telomerica: uso de modelos animales
Entity: Universidad Autónoma de Madrid
Student: Enrique Samper Rodríguez
Date of reading: 2002
- 18** **Project title:** Aislamiento de la subunidad catalitica de la telomerasa de ratón y estudio estructural de su componente RNA
Entity: Universidad Autónoma de Madrid
Student: Luis Martín Rivera
Date of reading: 2001
- 19** **Project title:** Caracterización fenotípica de ratones deficientes en telomerasa
Entity: Universidad Autónoma de Madrid
Student: Eloísa Herrera González de Molina
Date of reading: 2000



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:** Telomeres and Disease
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain
Nº of researchers: 12
Start-End date: 01/01/2018 - 31/12/2021
Total amount: 532.400 €
- 2** **Name of the project:** AECC Cancer Infantil
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain
Nº of researchers: 2
Start-End date: 01/11/2018 - 01/12/2021
Total amount: 180.000 €
- 3** **Name of the project:** Convenio de colaboración en materia de apoyo a la transferencia tecnológica en el campo de la biotecnología
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Spain
Name principal investigator (PI, Co-PI....): MA Blasco
Funding entity or bodies:
Fundacion Botin-Banco de Santander **Type of entity:** Foundation
City funding entity: Madrid, Spain
Start-End date: 2015 - 2020
- 4** **Name of the project:** Estudios Translacionales para el Desarrollo de Terapias Génicas con Telomerasa para el Tratamiento del Infarto de Miocardio y de la Fibrosis Pulmonar
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain
Nº of researchers: 9
Start-End date: 01/01/2018 - 31/12/2019
Total amount: 80.410 €
- 5** **Name of the project:** Tratamiento no canonico para enfermedades neurodegenerativas: terapia genica con telomerasa
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain



Nº of researchers: 6

Start-End date: 01/07/2017 - 31/05/2019

Total amount: 90.750 €

- 6** **Name of the project:** Telomerase gene therapy via AA9V-empty and AA9V-tert vectors
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): MA Blasco
Funding entity or bodies:
Telocyte LLC **Type of entity:** Innovation and Technology Centres
City funding entity: Michigan, United States of America
Start-End date: 2017 - 2019
- 7** **Name of the project:** Targeting telomeres in cancer
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain
Name principal investigator (PI, Co-PI....): MA Blasco
Funding entity or bodies:
Worldwide Cancer Research (WCR) **Type of entity:** Public Research Body
Start-End date: 2016 - 2019
- 8** **Name of the project:** Envejecimiento celular en primeros episodios psicóticos de inicio temprano
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain
Nº of researchers: 8
Start-End date: 01/01/2015 - 31/12/2017
Total amount: 49.990 €
- 9** **Name of the project:** Seguridad y eficacia de una terapia génica con telomerasa en el infarto agudo de miocardio. Impacto en el remodelado ventricular en un modelo experimental porcino
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Spain
Name principal investigator (PI, Co-PI....): F. Fernandez-Aviles; MA Blasco
Funding entity or bodies:
Ministerio de Sanidad, Servicios Sociales e Igualdad **Type of entity:** State agency
City funding entity: Madrid, Spain
Start-End date: 2016 - 2017
- 10** **Name of the project:** Telomeres, Telomerase and Disease - MINECO
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Spain
Name principal investigator (PI, Co-PI....): M. Blasco
Nº of researchers: 4
Start-End date: 2014 - 2017
Total amount: 847.000 €



- 11 Name of the project:** Patrocinio Fundacion Santander
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Spain
N° of researchers: 1
Start-End date: 2012 - 2017
Total amount: 191.300 €
- 12 Name of the project:** Reprogramming in Cancer and Regeneration (ReCaRe)
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain
N° of researchers: 1
Funding entity or bodies:
Comunidad autonoma de Madrid **Type of entity:** State agency
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 2012 - 2017
Total amount: 191.300 €
- 13 Name of the project:** Identification and Manipulation of Molecular Pathways Relevant for Age dependent tissue regeneration
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain
N° of researchers: 1
Funding entity or bodies:
AXA Research Fund **Type of entity:** Foundation
City funding entity: NF, France
Start-End date: 2012 - 2014
Total amount: 175 €
- 14 Name of the project:** TEL STEM CELL
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain
N° of researchers: 1
Funding entity or bodies:
Union Europea **Type of entity:** State agency
City funding entity: Bruselas, Belgium
Start-End date: 2009 - 2014
Total amount: 2.000.000 €
- 15 Name of the project:** EuroBATS
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain
N° of researchers: 1
Funding entity or bodies:
Union Europea **Type of entity:** Foundation



City funding entity: Bruselas, Belgium

Start-End date: 2010 - 2013

Total amount: 487,24 €

16 Name of the project: Telómeros y Telomerasa: de la estructura de la cromatina a la biología de las células madre

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: MADRID, Community of Madrid, Spain

Nº of researchers: 1

Funding entity or bodies:

Ministerio de Ciencia e Innovación. Investigación **Type of entity:** Ministerio

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 2009 - 2013

Total amount: 1.089.000 €

17 Name of the project: Cancer Biology (OncoBIO).

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Community of Madrid, Spain

Nº of researchers: 1

Funding entity or bodies:

Ministerio de Ciencia e Innovación. Investigación **Type of entity:** Ministerio

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 2008 - 2013

Total amount: 502.500 €

18 Name of the project: MARKAGE

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Community of Madrid, Spain

Nº of researchers: 1

Funding entity or bodies:

Union Europea

Type of entity: State agency

City funding entity: Bruselas, Belgium

Start-End date: 2008 - 2013

Total amount: 498 €

19 Name of the project: Premio de Investigación Biomédica Preclínica Fundación Lilly 2010

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Community of Madrid, Spain

Nº of researchers: 1

Funding entity or bodies:

Fundacion Lilly

Type of entity: Foundation

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 2010 - 2012

Total amount: 155.000 €



- 20 Name of the project:** Contrato de colaboración para el estudio de la implicación de los telómeros y la telomerasa en los procesos de cáncer, envejecimiento, reprogramación nuclear de células diferenciadas y en la biología de las células madre
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain
Nº of researchers: 1
Funding entity or bodies: Fundacion Marcelino Botin
Type of entity: Foundation
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 2009 - 2012
Total amount: 1.000.000 €
- 21 Name of the project:** Korber European Science Award
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain
Nº of researchers: 1
Funding entity or bodies: Korber Foundation
Type of entity: Foundation
City funding entity: NF, Germany
Start-End date: 2009 - 2011
- 22 Name of the project:** Mantenimiento de la estabilidad genómica en células madre. Implicación en la mejora de la bioseguridad en Medicina Regenerativa (GSSTEM)
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain
Nº of researchers: 1
Funding entity or bodies: Comunidad de Madrid
Type of entity: Public Research Body
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 2008 - 2011
Total amount: 100 €
- 23 Name of the project:** TELOMARKER
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain
Nº of researchers: 1
Funding entity or bodies: Union Europea
Type of entity: State agency
City funding entity: Bruselas, Belgium
Start-End date: 2008 - 2011
Total amount: 313.400 €
- 24 Name of the project:** genomic Instability in cancer and precancer GENICA
Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
City of entity: Madrid, Community of Madrid, Spain



Nº of researchers: 1

Funding entity or bodies:

Union Europea

Type of entity: State agency

City funding entity: Bruselas, Belgium

Start-End date: 2008 - 2010

Total amount: 243 €

25 Name of the project: Estudio del comportamiento de las células madre epitaliales y sus implicaciones para cáncer.

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Community of Madrid, Spain

Nº of researchers: 1

Funding entity or bodies:

FUNDACION CIENTIFICA ASOCIACION ESPAÑOLA CONTRA EL CANCER

City funding entity: Spain

Start-End date: 2006 - 2009

Total amount: 300 €

26 Name of the project: LINKAGE . European College of Biotechnology

Entity where project took place: Fundacion Nacional de Investigaciones Oncológicas

Type of entity: Foundation

City of entity: Madrid, Community of Madrid, Spain

Nº of researchers: 1

Funding entity or bodies:

Union Europea

Type of entity: State agency

City funding entity: Bruselas, Belgium

Start-End date: 2005 - 2009

Total amount: 26.160 €

27 Name of the project: The role of recombination proteins in telomere maintenance

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Community of Madrid, Spain

Nº of researchers: 1

Funding entity or bodies:

British Royal Society

Type of entity: Sociedad

City funding entity: Londres, Inner London, United Kingdom

Start-End date: 2006 - 2008

Total amount: 12 €

28 Name of the project: Identificación de nuevos reguladores de la longitud y función telomérica y generación de ratones modificados genéticamente para proteínas teloméricas.

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Community of Madrid, Spain

Nº of researchers: 1

Funding entity or bodies:

Ministerio de Ciencia e Innovación. Investigación

Type of entity: Ministerio

City funding entity: Madrid, Community of Madrid, Spain



Start-End date: 2005 - 2008

Total amount: 499.800 €

29 Name of the project: Developing Molecular Medicines for cancer in Post-Genome Era - MOL CANCER MED

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Community of Madrid, Spain

N° of researchers: 1

Funding entity or bodies:

Union Europea

Type of entity: State agency

City funding entity: Bruselas, Belgium

Start-End date: 2004 - 2008

Total amount: 239.250 €

30 Name of the project: Ayuda complementaria al proyecto europeo: "DNA damage responses, genomic instability and radiation-induced cancer: the problem of risk at low and protracted doses

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Community of Madrid, Spain

N° of researchers: 1

Funding entity or bodies:

Spanish Ministry of Science and Education

Type of entity: State agency

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 2004 - 2007

Total amount: 25 €

31 Name of the project: Ayuda complementaria al proyecto europeo: "Nutritional zinc, oxidative stress and immunosenescence: biochemical, genetic and lifestyle implications for healthy ageing"

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Community of Madrid, Spain

N° of researchers: 1

Funding entity or bodies:

Ministerio de Ciencia e Innovación

Type of entity: Ministerio Ciencia e Innovacion

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 2004 - 2007

Total amount: 16.500 €

32 Name of the project: Ayuda complementaria al proyecto europeo: "Identification of novel target genes for cancer therapy"

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Community of Madrid, Spain

N° of researchers: 1

Funding entity or bodies:

Ministerio de Ciencia e Innovación. Investigación

Type of entity: Ministerio de Ciencia e Innovacion

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 2004 - 2007



Total amount: 41 €

33 Name of the project: INTACT

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Community of Madrid, Spain

N° of researchers: 1

Funding entity or bodies:

Union Europea

Type of entity: State agency

City funding entity: Bruselas, Belgium

Start-End date: 2004 - 2007

Total amount: 412 €

34 Name of the project: RISC-RAD

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Community of Madrid, Spain

N° of researchers: 1

Funding entity or bodies:

Union Europea

Type of entity: State agency

City funding entity: Bruselas, Belgium

Start-End date: 2004 - 2007

Total amount: 305 €

35 Name of the project: ZINCAGE

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Community of Madrid, Spain

N° of researchers: 1

Funding entity or bodies:

Union Europea

Type of entity: State agency

City funding entity: Bruselas, Belgium

Start-End date: 2004 - 2007

Total amount: 199 €

36 Name of the project: Ayuda complementaria al proyecto europeo: "Telomeres and radiosensitivity of individuals"

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Community of Madrid, Spain

N° of researchers: 1

Start-End date: 2003 - 2005

Total amount: 17 €

37 Name of the project: Acción Especial de Genómica

Entity where project took place: Centro Nacional de Investigaciones Oncológicas

Type of entity: Healthcare Institutions

City of entity: Madrid, Community of Madrid, Spain

N° of researchers: 2

Funding entity or bodies:



Spanish Ministry of Science and Technology **Type of entity:** Public Research Body
City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 2002 - 2005
Total amount: 213 €

38 Name of the project: TELOSENS

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: madrid, Community of Madrid, Spain

Nº of researchers: 1

Funding entity or bodies:

Union Europea

Type of entity: State agency

City funding entity: Bruseñas, Belgium

Start-End date: 2002 - 2005
Total amount: 150.000 €

39 Name of the project: SAF2001-1869

Entity where project took place: Centro Nacional de Biotecnología **Type of entity:** State agency

City of entity: Madrid, Community of Madrid, Spain

Nº of researchers: 1

Funding entity or bodies:

Spanish Ministry of Science and Education

Type of entity: State agency

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 2001 - 2004
Total amount: 234.394,72 €

40 Name of the project: Mouse models to study the role of telomerase in cancer

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Community of Madrid, Spain

Nº of researchers: 1

Funding entity or bodies:

Josef Steiner Award

Type of entity: Fundacion

City funding entity: Berna, Switzerland

Start-End date: 2002 - 2003
Total amount: 500 €

41 Name of the project: Telomerase and Cancer

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: madrid, Community of Madrid, Spain

Nº of researchers: 1

Funding entity or bodies:

Swiss Bridge Award

Type of entity: Fundacion

City funding entity: Ginebra, Switzerland

Start-End date: 2002 - 2003
Total amount: 225.000 €



- 42** **Name of the project:** Identification and isolation of susceptibility genes involved in radiation-induced cancer in humans (SUS GENES IN RAD CAR)
Entity where project took place: Centro Nacional de Biotecnología **Type of entity:** State agency
City of entity: Madrid, Community of Madrid, Spain
N° of researchers: 1
Funding entity or bodies: Union Europea **Type of entity:** State agency
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 1999 - 2002
Total amount: 100 €
- 43** **Name of the project:** TACIT
Entity where project took place: Centro Nacional de Biotecnología **Type of entity:** State agency
City of entity: Madrid, Community of Madrid, Spain
N° of researchers: 1
Funding entity or bodies: Union Europea **Type of entity:** State agency
City funding entity: Madrid, Community of Madrid, Spain
Start-End date: 1999 - 2002
Total amount: 165 €
- 44** **Name of the project:** Papel de la actividad telomerasa en la estabilidad genómica, tumorigénesis y envejecimiento. Estudio de un ratón knock out para la telomerasa
Entity where project took place: National Center of Biotechnology **Type of entity:** Public Research Body
City of entity: Madrid, Community of Madrid, Spain
N° of researchers: 4
Funding entity or bodies: Regional Government of Madrid
City funding entity: Madrid
Start-End date: 1998 - 2001
Total amount: 106.000 €
- 45** **Name of the project:** Estudio de la implicación de genes de reparación de DNA en el mantenimiento de telómeros
Entity where project took place: National Center of Biotechnology **Type of entity:** Public Research Body
City of entity: Madrid, Community of Madrid, Spain
N° of researchers: 3
Funding entity or bodies: Spanish Ministry of Science and Education
City funding entity: Spain
Start-End date: 1999 - 2000
Total amount: 73.000 €



46 Name of the project: Telomere instability and the formation and transmission of radiation induced DNA damage

Entity where project took place: Centro Nacional de Biotecnología **Type of entity:** State agency

City of entity: Madrid, Community of Madrid, Spain

N° of researchers: 1

Funding entity or bodies:

Union Europea

Type of entity: State agency

City funding entity: Madrid, Community of Madrid, Spain

Start-End date: 1999 - 2000

Total amount: 122 €

47 Name of the project: MouseAge-COST Action - European Commission

Entity where project took place: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

City of entity: Madrid, Spain

N° of researchers: 2

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

1 Name of the project: MEDIMMUNE

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

N° of researchers: 2

Participating entity/entities: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

Start date: 04/05/2018

Duration: 2 years

Total amount: 312.000 €

2 Name of the project: BIOVELOCITA

Degree of contribution: Researcher

N° of researchers: 2

Participating entity/entities: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

Start date: 02/02/2018

Duration: 2 years

Total amount: 63.259 €

3 Name of the project: LIPOTRUE

Degree of contribution: Researcher

N° of researchers: 3

Participating entity/entities: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III

Start date: 02/02/2018

Duration: 2 years

Total amount: 65.978,2 €

Results

Industrial and intellectual property

- 1 Title registered industrial property:** Modulation of TRF1 for Brain Cancer Treatment
Inventors/authors/obtainers: Maria A. Blasco; Joaquin A. Pastor; Leire Bejarano; Marinela Mendez-Pertuz; Paula Martinez; Carmen Blanco-Aparicio; Elena Gómez-Casero; Maria García-Beccaria
Entity holder of rights: Centro Nacional de Investigaciones Oncológicas
Nº of application: PCT/EP2018/074832
Country of inscription: Spain
Date of register: 13/09/2018
Conferral date: 13/09/2018

- 2 Title registered industrial property:** Novel TRF1 modulators and analogues thereof
Inventors/authors/obtainers: Joaquin A. Pastor; Maria A. Blasco; Sonia Martinez; Carmen Blanco-Aparicio; A.B. García; C. Varela; Elena Gómez-Casero; Leire Bejarano; Marinela Méndez-Pertuz; Paula Martinez; Maria García-Beccaria
Entity holder of rights: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
Nº of application: EP18382659.3
Country of inscription: Spain
Date of register: 13/09/2018
Conferral date: 13/09/2018

- 3 Title registered industrial property:** Methods for the determination of telomere length in a semi-automatic manner of every single cell in an immobilized cell population
Inventors/authors/obtainers: Ignacio Flores; Andrés Canela; Maria A. Blasco
Entity holder of rights: Centro Nacional de Investigaciones Oncológicas
Nº of application: CA2723950
Country of inscription: Canada
Date of register: 12/05/2008
Conferral date: 12/07/2016

- 4 Title registered industrial property:** Telomerase reverse transcriptase-based therapies
Inventors/authors/obtainers: MA Blasco; B Bernardes de Jesus; C Bär; RM Serrano; F Bosch; E Ayuso; M Bobadilla
Entity holder of rights: CNIO (Spain) & Hoffmann-La Roche Ltd (Switzerland)
Nº of application: PCT/ EP14382312
Date of register: 2014

- 5 Title registered industrial property:** Telomerase reverse transcriptase-based therapies
Entity holder of rights: FUNDACION CENTRO NACIONAL DE INVESTIGACIONES ONCOLOGICAS CARLOS III
Nº of application: EP14382312.8
Country of inscription: Spain, Community of Madrid
Date of register: 2014
Conferral date: 2014



- 6 Title registered industrial property:** Telomerase reverse transcriptase-based therapies for treatment of conditions associated with myocardial infarction
Inventors/authors/obtainers: MA Blasco; B Bernardes Jesus; C Bär; RM Serrano; F Bosch; E Ayuso; M Bobadilla; I Formentini
Entity holder of rights: CNIO (Spain) & Hoffmann-La Roche Ltd (Switzerland)
N° of application: PCT/ EP14382311
Country of inscription: Spain
Date of register: 2014
- 7 Title registered industrial property:** Determination of biological age in human beings with a chronological age of 35-74 years.
Inventors/authors/obtainers: MA Blasco; Mark-Age EU Consortium; M Gallardo
Entity holder of rights: FCNIO y MARK-AGE EU Consortium
N° of application: EP13001450.9
Country of inscription: Spain
Date of register: 2013
- 8 Title registered industrial property:** Telomerase reverse transcriptase for protection against aging-associated degenerative and inflammatory processes
Inventors/authors/obtainers: Maria A. Blasco; Manuel Serrano; Antonia Tomás-Loba; Ignacio Flores
Entity holder of rights: Centro Nacional de Investigaciones Oncológicas
N° of application: EP08169079 / European Union
Date of register: 2008
- 9 Title registered industrial property:** Telomere RNA (TERRA)
Inventors/authors/obtainers: Stefan Schoeftner; Maria A. Blasco
Entity holder of rights: Centro Nacional de Investigaciones Oncológicas
N° of application: P40524US
Country of inscription: United States of America
Date of register: 2008
- 10 Title registered industrial property:** Olfactory ensheathing glia produced by introducing telomerase
Inventors/authors/obtainers: MP Rubio; MA Ramon; MA Blasco
Entity holder of rights: CSIC
N° of application: ES2190336 (B1)
Country of inscription: Spain
Conferral date: 01/02/2005
- 11 Title registered industrial property:** RNA component of mouse, rat, Chinese hamster and bovine telomerase
Inventors/authors/obtainers: William H. Andrews; Ariel Athena Avilion; Junli Feng; Walter Funk; Carol Greider; Maria A. Blasco; Bryant Villaponteau
Entity holder of rights: Geron / Cold spring Harbor Laboratory
N° of application: 5876979
Country of inscription: United States of America
Date of register: 02/03/1999
Conferral date: 02/03/1999
- 12 Title registered industrial property:** RNA component of telomerase
Inventors/authors/obtainers: William H. Andrews; Ariel Athena Avilion; Junli Feng; Walter Funk; Carol Greider; Maria A. Blasco; Bryant Villaponteau



Entity holder of rights: Geron Corporation / Cold Spring Harbor Laboratory
Nº of application: 6013468
Country of inscription: United States of America
Date of register: 29/08/1995
Conferral date: 29/08/1995

Scientific and technological activities

Scientific production

Publications, scientific and technical documents

- 1** Maternal telomere length is shorter in intrauterine growth restriction versus uncomplicated pregnancies, but not in the offspring or in IVF-conceived newborns.12/2018.
- 2** Walnut Consumption for Two Years and Leukocyte Telomere Attrition in Mediterranean Elders: Results of a Randomized Controlled Trial.12/2018.
- 3** Blood Markers in Healthy-Aged Nonagenarians: A Combination of High Telomere Length and Low Amyloid β Are Strongly Associated With Healthy Aging in the Oldest Old.11/2018.
- 4** Mice lacking RAP1 show early onset and higher rates of DEN-induced hepatocellular carcinomas in female mice. 11/10/2018.
- 5** AAV9-mediated telomerase activation does not accelerate tumorigenesis in the context of oncogenic K-Ras-induced lung cancer. 16/08/2018.
- 6** F19. TELOMERE SHORTENING IN YOUNG PEOPLE WITH FIRST EPISODE PSYCHOSIS: A 12-MONTH FOLLOW-UP STUDY.04/2018.
- 7** TERRA recruitment of polycomb to telomeres is essential for histone trymethylation marks at telomeric heterochromatin.04/2018.
- 8** The red blood cell proportion of arachidonic acid relates to shorter leukocyte telomeres in Mediterranean elders: A secondary analysis of a randomized controlled trial.02/2018.
- 9** Therapeutic effects of telomerase in mice with pulmonary fibrosis induced by damage to the lungs and short telomeres. 30/01/2018.
- 10** Gene therapy with the TRF1 telomere gene rescues decreased TRF1 levels with aging and prolongs mouse health span.12/2017.



- 11** Inhibition of TRF1 Telomere Protein Impairs Tumor Initiation and Progression in Glioblastoma Mouse Models and Patient-Derived Xenografts.11/2017.
- 12** Modulation of telomere protection by the PI3K/AKT pathway.11/2017.
- 13** Long Live Partial Reprogramming.04/2017.
- 14** Telomere-driven diseases and telomere-targeting therapies.04/2017.
- 15** Critically short telomeres and toxicity of chemotherapy in early breast cancer.03/2017.
- 16** Common Telomere Changes during In Vivo Reprogramming and Early Stages of Tumorigenesis.02/2017.
- 17** p53 Modulates the Fate of Cardiac Progenitor Cells Ex Vivo and in the Diabetic Heart In Vivo.02/2017.
- 18** Tissue damage and senescence provide critical signals for cellular reprogramming in vivo.11/2016.
- 19** A genetic interaction between RAP1 and telomerase reveals an unanticipated role for RAP1 in telomere maintenance.09/2016.
- 20** Telomere length defines the cardiomyocyte differentiation potency of mouse induced pluripotent stem cells.09/2016.
- 21** Molecular Architecture of Full Length TRF1 Favors its Interaction with DNA.08/2016.
- 22** Short Telomere Load, Telomere Length, and Subclinical Atherosclerosis: The PESA Study.05/2016.
- 23** ATRX driver mutation in a composite malignant pheochromocytoma.04/2016.
- 24** Molecular insights into the OGG1 gene, a cancer risk modifier in BRCA1 and BRCA2 mutations carriers.03/2016.



- 25** Telomerase gene therapy rescues telomere length, bone marrow aplasia and survival in mice with aplastic anemia.02/2016.
- 26** Generation of mice with longer and better preserved telomeres in the absence of genetic manipulations.2016.
- 27** Telomeres and telomerase as therapeutic targets to prevent and treat age-related diseases.2016.
- 28** Telomeric RNAs are essential to maintain telomeres.2016.
- 29** Profiling of Sox4-dependent transcriptome in skin links tumour suppression and adult stem cell activation.12/2015.
- 30** NSMCE2 suppresses cancer and aging in mice independently of its SUMO ligase activity.11/2015.
- 31** Telomere shortening in enterocytes of patients with uncontrolled acute intestinal graft-versus-host disease.11/2015.
- 32** Therapeutic effect of androgen therapy in a mouse model of aplastic anemia produced by short telomeres.10/2015.
- 33** Replicating through telomeres: a means to an end.09/2015.
- 34** Telomere dynamics in patients with del (5q) MDS before and under treatment with lenalidomide.09/2015.
- 35** Mice with Pulmonary Fibrosis Driven by Telomere Dysfunction.07/2015.
- 36** Altered telomere homeostasis and resistance to skin carcinogenesis in Suv39h1 transgenic mice.05/2015.
- 37** Single-cell telomere-length quantification couples telomere length to meristem activity and stem cell development in Arabidopsis.05/2015.
- 38** Therapeutic inhibition of TRF1 impairs the growth of p53-deficient K-RasG12V-induced lung cancer by induction of telomeric DNA damage.05/2015.



- 39** Chronic replicative stress induced by CCL4 in TRF1 knockout mice recapitulates the origin of large liver cell changes.03/2015.
- 40** MARK-AGE Biomarkers of Ageing.03/2015.
- 41** Role for telomerase in pulmonary hypertension.02/2015.
- 42** Impact of chemotherapy on telomere length in sporadic and familial breast cancer patients.01/2015.
- 43** A mutation in the POT1 gene is responsible for cardiac angiosarcoma in TP53-negative Li-Fraumeni-like families.2015.
- 44** Epigenetic silencing of Oct4 by a complex containing SUV39H1 and Oct4 pseudogene lncRNA.2015.
- 45** Haploinsufficiency for BRCA1 leads to cell-type-specific genomic instability and premature senescence.2015.
- 46** Limiting replication stress during somatic cell reprogramming reduces genomic instability in induced pluripotent stem cells.2015.
- 47** Stem and progenitor cell division kinetics during postnatal mouse mammary gland development.2015.
- 48** In vivo role of checkpoint kinase 2 in signaling telomere dysfunction.10/2014.
- 49** Essential role for the TRF2 telomere protein in adult skin homeostasis.08/2014.
- 50** Sox4 links tumor suppression to accelerated aging in mice by modulating stem cell activation.07/2014.
- 51** SIRT1 is necessary for proficient telomere elongation and genomic stability of induced pluripotent stem cells.05/2014.
- 52** Genome-wide analysis of in vivo TRF1 binding to chromatin restricts its location exclusively to telomeric repeats.2014.



- 53 Identification of TERRA locus unveils a telomere protection role through association to nearly all chromosomes.2014.
- 54 Telomerase expression confers cardioprotection in the adult mouse heart after acute myocardial infarction.2014.
- 55 TopoII α prevents telomere fragility and formation of ultra thin DNA bridges during mitosis through TRF1-dependent binding to telomeres.2014.
- 56 p53 isoforms regulate aging- and tumor-associated replicative senescence in T lymphocytes.12/2013.
- 57 Fighting disease from the chromosome end.10/2013.
- 58 Localization-dependent and -independent roles of SLX4 in regulating telomeres.09/2013.
- 59 Short telomeres are frequent in hereditary breast tumors and are associated with high tumor grade.09/2013.
- 60 Telomerase at the intersection of cancer and aging.09/2013.
- 61 RAP1 protects from obesity through its extratelomeric role regulating gene expression.06/2013.
- 62 The hallmarks of aging.06/2013.
- 63 POT1 mutations cause telomere dysfunction in chronic lymphocytic leukemia.05/2013.
- 64 Telomere length and telomerase activity impact the UV sensitivity syndrome xeroderma pigmentosum C.03/2013.
- 65 A metabolic signature predicts biological age in mice.02/2013.
- 66 TRF1 is a stem cell marker and is essential for the generation of induced pluripotent stem cells.2013.



- 67** Telomerase reverse transcriptase synergizes with calorie restriction to increase health span and extend mouse longevity.2013.
- 68** Potential of telomerase activation in extending health span and longevity.12/2012.
- 69** Conditional TRF1 knockout in the hematopoietic compartment leads to bone marrow failure and recapitulates clinical features of dyskeratosis congenita.10/2012.
- 70** The rate of increase of short telomeres predicts longevity in mammals.10/2012.
- 71** Telomerase gene therapy in adult and old mice delays aging and increases longevity without increasing cancer.08/2012.
- 72** Assessing cell and organ senescence biomarkers.06/2012.
- 73** Beyond average: potential for measurement of short telomeres.06/2012.
- 74** Cohesin-SA1 deficiency drives aneuploidy and tumourigenesis in mice due to impaired replication of telomeres.05/2012.
- 75** Genetic inactivation of Cdk7 leads to cell cycle arrest and induces premature aging due to adult stem cell exhaustion.05/2012.
- 76** Shorter telomere length is associated with increased ovarian cancer risk in both familial and sporadic cases.05/2012.
- 77** 53BP1 deficiency combined with telomere dysfunction activates ATR-dependent DNA damage response.04/2012.
- 78** Personal omics profiling reveals dynamic molecular and medical phenotypes.03/2012.
- 79** A subpopulation of adult skeletal muscle stem cells retains all template DNA strands after cell division.01/2012.
- 80** The load of short telomeres is increased and associated with lifetime number of depressive episodes in bipolar II disorder.12/2011.



- 81 Isolation and in vitro expansion of human colonic stem cells.10/2011.
- 82 Different telomere-length dynamics at the inner cell mass versus established embryonic stem (ES) cells.09/2011.
- 83 The telomerase activator TA-65 elongates short telomeres and increases health span of adult/old mice without increasing cancer incidence.08/2011.
- 84 Genome-wide CTCF distribution in vertebrates defines equivalent sites that aid the identification of disease-associated genes.06/2011.
- 85 Genomic instability in iPS: time for a break.03/2011.
- 86 Telomeric and extra-telomeric roles for telomerase and the telomere-binding proteins.03/2011.
- 87 A natural product telomerase activator as part of a health maintenance program.02/2011.
- 88 Aging by telomere loss can be reversed.01/2011.
- 89 Telomeres in cancer and ageing.01/2011.
- 90 Suv4-20h abrogation enhances telomere elongation during reprogramming and confers a higher tumorigenic potential to iPS cells.2011.
- 91 BRCA2 acts as a RAD51 loader to facilitate telomere replication and capping.12/2010.
- 92 SIRT1 contributes to telomere maintenance and augments global homologous recombination.12/2010.
- 93 Role of shelterin in cancer and aging.10/2010.
- 94 The role of telomeres and telomerase in stem cell aging.09/2010.



- 95** Mammalian Rap1 controls telomere function and gene expression through binding to telomeric and extratelomeric sites.08/2010.
- 96** TPP1 is required for TERT recruitment, telomere elongation during nuclear reprogramming, and normal skin development in mice.05/2010.
- 97** Chromatin regulation and non-coding RNAs at mammalian telomeres.04/2010.
- 98** Telomere rejuvenation during nuclear reprogramming.04/2010.
- 99** ATR suppresses telomere fragility and recombination but is dispensable for elongation of short telomeres by telomerase.03/2010.
- 100** p53 prevents entry into mitosis with uncapped telomeres.03/2010.
- 101** TERRA transcripts are bound by a complex array of RNA-binding proteins.2010.
- 102** Telomeres and telomerase in adult stem cells and pluripotent embryonic stem cells.2010.
- 103** Telomere shortening in neural stem cells disrupts neuronal differentiation and neuritogenesis.11/2009.
- 104** Telomere shortening relaxes X chromosome inactivation and forces global transcriptome alterations.11/2009.
- 105** Increased telomere fragility and fusions resulting from TRF1 deficiency lead to degenerative pathologies and increased cancer in mice.09/2009.
- 106** A 'higher order' of telomere regulation: telomere heterochromatin and telomeric RNAs.08/2009.
- 107** A p53-mediated DNA damage response limits reprogramming to ensure iPS cell genomic integrity.08/2009.
- 108** Telomere shortening and oxidative stress in aged macrophages results in impaired STAT5a phosphorylation.08/2009.



- 109** The Ink4/Arf locus is a barrier for iPS cell reprogramming.08/2009.
- 110** Accumulation of cells with short telomeres is associated with impaired zinc homeostasis and inflammation in old hypertensive participants.07/2009.
- 111** TRF1 controls telomere length and mitotic fidelity in epithelial homeostasis.03/2009.
- 112** MSH2 deficiency abolishes the anticancer and pro-aging activity of short telomeres.02/2009.
- 113** Telomeres acquire embryonic stem cell characteristics in induced pluripotent stem cells.02/2009.
- 114** A GRFa2/Prop1/stem (GPS) cell niche in the pituitary.2009.
- 115** A p53-dependent response limits epidermal stem cell functionality and organismal size in mice with short telomeres.2009.
- 116** Genetic dissection of the mechanisms underlying telomere-associated diseases: impact of the TRF2 telomeric protein on mouse epidermal stem cells.2009.
- 117** Epigenetic regulation of telomeres in human cancer.11/2008.
- 118** Role of TRF2 in the assembly of telomeric chromatin.11/2008.
- 119** Telomerase deficiency promotes oxidative stress by reducing catalase activity.11/2008.
- 120** Telomerase reverse transcriptase delays aging in cancer-resistant mice.11/2008.
- 121** A mammalian microRNA cluster controls DNA methylation and telomere recombination via Rbl2-dependent regulation of DNA methyltransferases.09/2008.
- 122** Centromere mitotic recombination in mammalian cells.06/2008.



- 123** Nuclear envelope defects cause stem cell dysfunction in premature-aging mice.04/2008.
- 124** A mammalian microRNA cluster controls DNA methylation and telomere recombination via Rbl2-dependent regulation of DNA methyltransferases.03/2008.
- 125** The longest telomeres: a general signature of adult stem cell compartments.03/2008.
- 126** Developmentally regulated transcription of mammalian telomeres by DNA-dependent RNA polymerase II.02/2008.
- 127** A possible role for telomerase RNA and telomere length in global mitotic recombination.2008.
- 128** Telomere lengthening early in development.12/2007.
- 129** Telomere damage induced by the G-quadruplex ligand RHPS4 has an antitumor effect.11/2007.
- 130** Telomerase reverses epidermal hair follicle stem cell defects and loss of long-term survival associated with critically short telomeres.10/2007.
- 131** Telomere length, stem cells and aging.10/2007.
- 132** Cancer and ageing: convergent and divergent mechanisms.09/2007.
- 133** Deficient mismatch repair improves organismal fitness and survival of mice with dysfunctional telomeres.09/2007.
- 134** Global chromatin compaction limits the strength of the DNA damage response.09/2007.
- 135** Suv4-20h deficiency results in telomere elongation and derepression of telomere recombination.09/2007.
- 136** The common biology of cancer and ageing.08/2007.



- 137** Cellular senescence in cancer and aging.07/2007.
- 138** Delayed ageing through damage protection by the Arf/p53 pathway.07/2007.
- 139** Spreading of mammalian DNA-damage response factors studied by CHIP-chip at damaged telomeres.06/2007.
- 140** The epigenetic regulation of mammalian telomeres.04/2007.
- 141** High-throughput telomere length quantification by FISH and its application to human population studies.03/2007.
- 142** Inhibition of gene amplification in telomerase deficient immortalized mouse embryonic fibroblasts.03/2007.
- 143** A G-quadruplex ligand with 10000-fold selectivity over duplex DNA.02/2007.
- 144** Telomere length regulates the epigenetic status of mammalian telomeres and subtelomeres.02/2007.
- 145** Telomerase abrogation dramatically accelerates TRF2-induced epithelial carcinogenesis.01/2007.
- 146** Telomere length analysis.2007.
- 147** Genetic analysis of myc and telomerase interactions in vivo.08/2006.
- 148** Expression of mTert in primary murine cells links the growth-promoting effects of telomerase to transforming growth factor-beta signaling.07/2006.
- 149** Mice deficient in telomerase activity develop hypertension because of an excess of endothelin production.07/2006.
- 150** Telomeres and telomerase in Alzheimer's disease: epiphenomena or a new focus for therapeutic strategy?. 07/2006.



- 151** Novel roles for telomerase in aging.06/2006.

- 152** Telomerase regulation and stem cell behaviour.06/2006.

- 153** Increased p53 activity does not accelerate telomere-driven ageing.05/2006.

- 154** DNA methyltransferases control telomere length and telomere recombination in mammalian cells.04/2006.

- 155** Role of the TRF2 telomeric protein in cancer and ageing.04/2006.

- 156** Zinc and ageing (ZINCAGE Project).2006.

- 157** Postreplicative joining of DNA double-strand breaks causes genomic instability in DNA-PKcs-deficient mouse embryonic fibroblasts.11/2005.

- 158** Critically short telomeres are associated with sperm DNA fragmentation.10/2005.

- 159** XPF nuclease-dependent telomere loss and increased DNA damage in mice overexpressing TRF2 result in premature aging and cancer.10/2005.

- 160** Effectors of mammalian telomere dysfunction: a comparative transcriptome analysis using mouse models.09/2005.

- 161** Effects of telomerase and telomere length on epidermal stem cell behavior.08/2005.

- 162** Telomeres and human disease: ageing, cancer and beyond.08/2005.

- 163** Role of Rb family in the epigenetic definition of chromatin.06/2005.

- 164** Role of the RB1 family in stabilizing histone methylation at constitutive heterochromatin.04/2005.



- 165** Telomere length predicts embryo fragmentation after in vitro fertilization in women--toward a telomere theory of reproductive aging in women.04/2005.
- 166** Antagonistic effects of telomerase on cancer and aging in K5-mTert transgenic mice.03/2005.
- 167** Mice with bad ends: mouse models for the study of telomeres and telomerase in cancer and aging.03/2005.
- 168** The telomerase RNA component Terc is required for the tumour-promoting effects of Tert overexpression.03/2005.
- 169** Porphyrin derivatives for telomere binding and telomerase inhibition.01/2005.
- 170** Telomere dynamics in Fancg-deficient mouse and human cells.12/2004.
- 171** Impact of telomerase ablation on organismal viability, aging, and tumorigenesis in mice lacking the DNA repair proteins PARP-1, Ku86, or DNA-PKcs.11/2004.
- 172** Role of human Ku86 in telomere length maintenance and telomere capping.10/2004.
- 173** Repair of DNA broken ends is similar in embryonic fibroblasts with and without telomerase.08/2004.
- 174** Telomere shortening and chromosomal instability abrogates proliferation of adult but not embryonic neural stem cells.08/2004.
- 175** Constitutive expression of tert in thymocytes leads to increased incidence and dissemination of T-cell lymphoma in Lck-Tert mice.05/2004.
- 176** Shorter telomeres, accelerated ageing and increased lymphoma in DNA-PKcs-deficient mice.05/2004.
- 177** Irregular telomeres impair meiotic synapsis and recombination in mice.04/2004.
- 178** Long-term molecular and cellular stability of human neural stem cell lines.04/2004.



- 179** Telomere maintenance requires the RAD51D recombination/repair protein.04/2004.
- 180** Telomerase deficiency impairs differentiation of mesenchymal stem cells.03/2004.
- 181** Functional interaction between poly(ADP-Ribose) polymerase 2 (PARP-2) and TRF2: PARP activity negatively regulates TRF2.02/2004.
- 182** Short telomeres protect from diet-induced atherosclerosis in apolipoprotein E-null mice.02/2004.
- 183** Epigenetic regulation of telomere length in mammalian cells by the Suv39h1 and Suv39h2 histone methyltransferases.01/2004.
- 184** Telomere dysfunction results in enhanced organismal sensitivity to the alkylating agent N-methyl-N-nitrosourea.11/2003.
- 185** Mammalian telomeres and telomerase: why they matter for cancer and aging.09/2003.
- 186** Oxidative stress contributes to arsenic-induced telomere attrition, chromosome instability, and apoptosis.08/2003.
- 187** Role of mammalian Rad54 in telomere length maintenance.08/2003.
- 188** Telomere shortening impairs organ regeneration by inhibiting cell cycle re-entry of a subpopulation of cells.08/2003.
- 189** Shortened telomeres join to DNA breaks interfering with their correct repair.07/2003.
- 190** Evolving views of telomerase and cancer.06/2003.
- 191** Telomeres in cancer and aging: lessons from the mouse.05/2003.
- 192** The RNA subunit of telomerase is encoded by Marek's disease virus.05/2003.



- 193** Porphyrin-aminoquinoline conjugates as telomerase inhibitors.03/2003.
- 194** Telomeres and cancer: a tale with many endings.02/2003.
- 195** Ablation of telomerase and telomere loss leads to cardiac dilatation and heart failure associated with p53 upregulation.01/2003.
- 196** Massive telomere loss is an early event of DNA damage-induced apoptosis.01/2003.
- 197** "Super p53" mice exhibit enhanced DNA damage response, are tumor resistant and age normally.11/2002.
- 198** A role for the Rb family of proteins in controlling telomere length.11/2002.
- 199** Functional interaction between DNA-PKcs and telomerase in telomere length maintenance.11/2002.
- 200** Mouse models to study the role of telomeres in cancer, aging and DNA repair.11/2002.
- 201** Transformation of normal human cells in the absence of telomerase activation.11/2002.
- 202** Cooperation between p53 mutation and high telomerase transgenic expression in spontaneous cancer development.10/2002.
- 203** An essential role for functional telomeres in mouse germ cells during fertilization and early development.09/2002.
- 204** Telomerase beyond telomeres.08/2002.
- 205** Hepatocyte telomere shortening and senescence are general markers of human liver cirrhosis.07/2002.
- 206** Identification of telomere-dependent "senescence-like" arrest in mouse embryonic fibroblasts.06/2002.



- 207** Mammalian meiotic telomeres: composition and ultrastructure in telomerase-deficient mice.06/2002.
- 208** Mammalian Ku86 mediates chromosomal fusions and apoptosis caused by critically short telomeres.05/2002.
- 209** Long-term repopulating ability of telomerase-deficient murine hematopoietic stem cells.04/2002.
- 210** Requirement of functional telomeres for metaphase chromosome alignments and integrity of meiotic spindles.03/2002.
- 211** Breaks at telomeres and TRF2-independent end fusions in Fanconi anemia.02/2002.
- 212** Decreased B16F10 melanoma growth and impaired vascularization in telomerase-deficient mice with critically short telomeres.01/2002.
- 213** Many ways to telomere dysfunction: in vivo studies using mouse models.01/2002.
- 214** Immunosenescence phenotypes in the telomerase knockout mouse.2002.
- 215** Putting the stress on senescence.12/2001.
- 216** High frequency of constitutive alkali-labile sites in mouse major satellite DNA, detected by DNA breakage detection-fluorescence in situ hybridization.11/2001.
- 217** Telomeric sequences, radiation sensitivity and genomic instability.10/2001.
- 218** Restoration of telomerase activity rescues chromosomal instability and premature aging in *Terc*^{-/-} mice with short telomeres.09/2001.
- 219** Normal telomere length and chromosomal end capping in poly(ADP-ribose) polymerase-deficient mice and primary cells despite increased chromosomal instability.07/2001.
- 220** Telomerase inhibition in RenCa, a murine tumor cell line with short telomeres, by overexpression of a dominant negative mTERT mutant, reveals fundamental differences in telomerase regulation between human and murine cells.07/2001.



- 221** Increased epidermal tumors and increased skin wound healing in transgenic mice overexpressing the catalytic subunit of telomerase, mTERT, in basal keratinocytes.06/2001.
- 222** The absence of the dna-dependent protein kinase catalytic subunit in mice results in anaphase bridges and in increased telomeric fusions with normal telomere length and G-strand overhang.06/2001.
- 223** Identification of functional domains and dominant negative mutations in vertebrate telomerase RNA using an in vivo reconstitution system.02/2001.
- 224** Telomere length abnormalities in mammalian radiosensitive cells.02/2001.
- 225** Telomeres in Cancer Therapy.2001.
- 226** Short telomeres result in organismal hypersensitivity to ionizing radiation in mammals.12/2000.
- 227** Mammalian Ku86 protein prevents telomeric fusions independently of the length of TTAGGG repeats and the G-strand overhang.09/2000.
- 228** Telomerase-deficient mice with short telomeres are resistant to skin tumorigenesis.09/2000.
- 229** Secondary structure of vertebrate telomerase RNA.03/2000.
- 230** Impaired germinal center reaction in mice with short telomeres.02/2000.
- 231** Telomeres and telomerase.09/1999.
- 232** Disease states associated with telomerase deficiency appear earlier in mice with short telomeres.06/1999.
- 233** Telomere-dependent senescence.04/1999.
- 234** Longevity, stress response, and cancer in aging telomerase-deficient mice.03/1999.



- 235** Telomere shortening in mTR^{-/-} embryos is associated with failure to close the neural tube.03/1999.
- 236** Telomere length dynamics and chromosomal instability in cells derived from telomerase null mice.02/1999.
- 237** Expression of mouse telomerase catalytic subunit in embryos and adult tissues.09/1998.
- 238** Essential role of mouse telomerase in highly proliferative organs.04/1998.
- 239** The mouse telomerase RNA 5'-end lies just upstream of the telomerase template sequence.01/1998.
- 240** Telomere shortening and tumor formation by mouse cells lacking telomerase RNA.10/1997.
- 241** Mouse models for the study of telomerase.1997.
- 242** Differential regulation of telomerase activity and telomerase RNA during multi-stage tumorigenesis.02/1996.
- 243** Functional characterization and developmental regulation of mouse telomerase RNA.09/1995.
- 244** Protein-nucleic acid interactions in bacteriophage phi 29 DNA replication.08/1995.
- 245** Primer terminus stabilization at the phi 29 DNA polymerase active site. Mutational analysis of conserved motif KXY.02/1995.
- 246** Phi 29 DNA polymerase active site. Residue ASP249 of conserved amino acid motif "Dx2SLYP" is critical for synthetic activities.11/1993.
- 247** Phi 29 DNA polymerase active site. The conserved amino acid motif "Kx3NSxYG" is involved in template-primer binding and dNTP selection.08/1993.
- 248** Site-directed mutagenesis at the Exo III motif of phi 29 DNA polymerase; overlapping structural domains for the 3'-5' exonuclease and strand-displacement activities.11/1992.



- 249** Phi 29 DNA polymerase active site. Mutants in conserved residues Tyr254 and Tyr390 are affected in dNTP binding.09/1992.
- 250** Structural and functional studies on phi 29 DNA polymerase.1992.
- 251** A general structure for DNA-dependent DNA polymerases.04/1991.
- 252** Characterization and mapping of the pyrophosphorolytic activity of the phage phi 29 DNA polymerase. Involvement of amino acid motifs highly conserved in alpha-like DNA polymerases.04/1991.
- 253** Structural and functional analysis of temperature-sensitive mutants of the phage phi 29 DNA polymerase.08/1990.

R&D management and participation in scientific committees

Scientific, technical and/or assessment committees

- 1** **Committee title:** Advisory Board
Affiliation entity: Spanish Ministry of Health and Social Services
City affiliation entity: Madrid, Community of Madrid, Spain
Start date: 2019
- 2** **Committee title:** Vice-Chair of SOMMa
Affiliation entity: 'Severo Ochoa' Centres and 'María de Maeztu' Units of Excellence Alliance
City affiliation entity: Madrid, Community of Madrid, Spain
Start date: 2019
- 3** **Committee title:** Advisory Board
Affiliation entity: Research Centres of the Regional Government of Galicia
City affiliation entity: Santiago de Compostela, Galicia, Spain
Start date: 2018
- 4** **Committee title:** Board of Trustees
Affiliation entity: Víctor Grífols i Lucas Foundation
City affiliation entity: Barcelona, Catalonia, Spain
Start date: 2018
- 5** **Committee title:** Board of Trustees
Affiliation entity: Principe Felipe Research Centre
City affiliation entity: Valencia, Valencian Community, Spain
Start date: 2018
- 6** **Committee title:** Editorial Board
Affiliation entity: Mechanisms of Ageing and Development
Type of entity: Journal



Start date: 2018

- 7** **Committee title:** Scientific Committee of “Telos” magazine
Affiliation entity: Fundación Telefónica **Type of entity:** Foundation
City affiliation entity: Madrid, Community of Madrid, Spain
Start date: 2018
- 8** **Committee title:** Alimni Advisory Board
Affiliation entity: Universidad Autónoma de Madrid **Type of entity:** University
City affiliation entity: Madrid, Community of Madrid, Spain
Start date: 2016
- 9** **Committee title:** Editorial Board
Affiliation entity: Nutrition & Healthy Aging **Type of entity:** Journal
Start date: 2016
- 10** **Committee title:** External Scientific Board
Affiliation entity: Instituto de Investigación Sanitaria y Biomédica de Alicante (ISABIAL) **Type of entity:** R&D Centre
City affiliation entity: Alicante, Valencian Community, Spain
Start date: 2016
- 11** **Committee title:** Founding Editor
Affiliation entity: CELL STRESS (Shared Science, Graz, Austria) **Type of entity:** Journal
Start date: 2016
- 12** **Committee title:** Member Scientific Committee Innovative Medicines Initiative 2 (IMI2) Joint Undertaking
Affiliation entity: European Union **Type of entity:** State agency
City affiliation entity: Brussels, Belgium
Start date: 2016
- 13** **Committee title:** Advisory Board
Affiliation entity: Spanish-French Friendship Association “Mujeres Avenir” **Type of entity:** Associations and Groups
City affiliation entity: Madrid, Community of Madrid, Spain
Start date: 2015
- 14** **Committee title:** Advisory Editorial Board
Affiliation entity: Trends in Cancer, Cell Press **Type of entity:** Journal
Start date: 2015
- 15** **Committee title:** Editorial Board
Affiliation entity: Oncoscience **Type of entity:** Journal
Start date: 2015
- 16** **Committee title:** Scientific Advisory Board
Affiliation entity: Instituto de Neurociencias (IN) **Type of entity:** R&D Centre
City affiliation entity: Alicante, Valencian Community, Spain
Start date: 2015



- 17** **Committee title:** Scientific Advisory Board
Affiliation entity: Institut Universitaire du Cancer de Toulouse (IUCT) **Type of entity:** R&D Centre
City affiliation entity: Tolouse, France
Start date: 2015
- 18** **Committee title:** Scientific Board
Affiliation entity: Max Plank Institute for Biology of Ageing **Type of entity:** R&D Centre
City affiliation entity: Cologne, Germany
Start date: 2013
- 19** **Committee title:** Life Extension Board Member
Affiliation entity: lifeboat foundation
Start date: 2012
- 20** **Committee title:** Member
Affiliation entity: Faculty F1000 (Ageing Section) **Type of entity:** Journal
Start date: 2012
- 21** **Committee title:** Member of the Board of Trustees and President of the External Adviosry
Affiliation entity: Spanish National Centre for Research on Ageing (CNIE)
City affiliation entity: Spain
Start date: 2012
- 22** **Committee title:** Scientific Advisory Board
Affiliation entity: Vall d'Hebron Institut de Reserca (VHIR) **Type of entity:** Healthcare Institutions
City affiliation entity: Barcelona, Catalonia, Spain
Start date: 2012
- 23** **Committee title:** Scientific Board
Affiliation entity: AXA Research Fund **Type of entity:** Foundation
City affiliation entity: Paris, France
Start date: 2012
- 24** **Committee title:** Chief Scientific Advisor
Affiliation entity: Life Length, SL **Type of entity:** Business
(www.lifelength.com)
City affiliation entity: Madrid, Community of Madrid, Spain
Start date: 2010
- 25** **Committee title:** Editorial Board
Affiliation entity: Aging & Disease **Type of entity:** Journal
Start date: 2010
- 26** **Committee title:** Experts Board
Affiliation entity: Agenda Ciudadana Ciencia e Innovación **Type of entity:** Administrative Body of the National Health System
City affiliation entity: Madrid, Community of Madrid, Spain
Start date: 2010



- 27** **Committee title:** Governing Body
Affiliation entity: European Academy of Cancer Sciences
City affiliation entity: Virtual,
Start date: 2010
Type of entity: Associations and Groups
- 28** **Committee title:** Scientific Advisory Board
Affiliation entity: Fundación Príncipes de Girona
City affiliation entity: Girona, Cantabria, Spain
Start date: 2010
Type of entity: Foundation
- 29** **Committee title:** Editorial Advisory Panel
Affiliation entity: Epigenomics
Start date: 2009
Type of entity: Journal
- 30** **Committee title:** Editorial Board
Affiliation entity: Stem Cell Reviews and Reports
Start date: 2009
Type of entity: Journal
- 31** **Committee title:** Scientific Advisory Board
Affiliation entity: Spanish Research Council (CSIC)
City affiliation entity: Madrid, Community of Madrid, Spain
Start date: 2009
Type of entity: State agency
- 32** **Committee title:** Senior Editor
Affiliation entity: Cancer Research
Start date: 2009
Type of entity: Journal
- 33** **Committee title:** EMBO Council
Affiliation entity: EMBO
City affiliation entity: Heidelberg, Germany
Start date: 2008
Type of entity: Associations and Groups
- 34** **Committee title:** Editorial Board
Affiliation entity: Aging Cell
Start date: 2008
Type of entity: Journal
- 35** **Committee title:** Founding Editor
Affiliation entity: Aging
Start date: 2008
Type of entity: Journal
- 36** **Committee title:** Research Advisory Board
Affiliation entity: Methuselah Foundation
City affiliation entity: London, United Kingdom
Start date: 2008
Type of entity: Foundation
- 37** **Committee title:** Scientific Committee
Affiliation entity: Champalimaud Foundation
City affiliation entity: Lisbon, Portugal
Start date: 2008
Type of entity: Foundation



- 38** **Committee title:** Scientific CommitteeMadrid
Affiliation entity: Fundación Vencer al Cáncer **Type of entity:** Foundation
City affiliation entity: Community of Madrid, Spain
Start date: 2008
- 39** **Committee title:** The Editorial Academy
Affiliation entity: International Journal of Oncology **Type of entity:** Journal
Start date: 2008
- 40** **Committee title:** Scientific Advisory Board
Affiliation entity: Fundació Institut Recerca de l'Hospital Universitari Vall d'Hebron (FIR-HUVH) **Type of entity:** R&D Centre
City affiliation entity: Barcelona, Catalonia, Spain
Start date: 2007
- 41** **Committee title:** Member
Affiliation entity: Academia Europaea **Type of entity:** Associations and Groups
City affiliation entity: London, Inner London, United Kingdom
Start date: 2006
- 42** **Committee title:** Member
Affiliation entity: Faculty 1000 (section: Stem Cells & Regeneration) **Type of entity:** Journal
Start date: 2006
- 43** **Committee title:** Member of Forum of Global Young Leaders
Affiliation entity: World Economic Forum (WEF) **Type of entity:** WEF
City affiliation entity: Cologny-Geneva, Switzerland
Start date: 2006
- 44** **Committee title:** Monitoring Editor
Affiliation entity: Journal of Cell Biology **Type of entity:** Journal
Start date: 2006
- 45** **Committee title:** Scientific Advisory Board
Affiliation entity: Fundación Genoma España **Type of entity:** Foundation
City affiliation entity: Madrid, Community of Madrid, Spain
Start date: 2006
- 46** **Committee title:** Editorial Board
Affiliation entity: BMC Cancer **Type of entity:** Journal
Start date: 2005
- 47** **Committee title:** Editorial Board
Affiliation entity: European Journal of Cell Biology **Type of entity:** Journal
Start date: 2004
- 48** **Committee title:** Edotorial Board
Affiliation entity: Carcinogenesis **Type of entity:** Journal
Start date: 2004



- 49** **Committee title:** Highlights Advisory Panel
Affiliation entity: Nature Reviews Cancer
Start date: 2004
Type of entity: Journal
- 50** **Committee title:** Editor
Affiliation entity: European Life Scientist's Organization Gazette (ELSO)
Start date: 2000
Type of entity: Journal
- 51** **Committee title:** Elected EMBO Member
Affiliation entity: EMBO
Start date: 2000
Type of entity: Associations and Groups

Organization of R&D activities

- 1** **Title of the activity:** Telomeres and Telomerase
Type of activity: conference organized
Convening entity: Centro Nacional de Investigaciones Oncológicas
City convening entity: Madrid, Spain
Start-End date: 13/11/2006 - 15/11/2006
Type of entity: Healthcare Institutions
Duration: 3 days
- 2** **Title of the activity:** Cancer and Aging
Type of activity: conference organized
Convening entity: Centro Nacional de Investigaciones Oncológicas
City convening entity: Madrid, Spain
Start-End date: 07/11/2005 - 09/11/2005
Type of entity: Healthcare Institutions
Duration: 3 days
- 3** **Title of the activity:** Telomeres and telomerase: Therapeutical Targets for Cancer and Aging
Type of activity: workshop organized
City convening entity: Madrid, Spain
Start-End date: 17/11/2003 - 19/11/2003
Duration: 3 days
- 4** **Title of the activity:** VI Avances en Biología Molecular por jóvenes investigadores en el extranjero
Type of activity: SCIENTIFIC MEETINGS ORGANIZED
City convening entity: Madrid, Spain
Start-End date: 28/12/1999 - 28/12/1999
Duration: 1 day
- 5** **Title of the activity:** Telomeres and telomerase: cancer, aging and genetic instability
Type of activity: Scientific meeting organized
City convening entity: Madrid, Spain
Start-End date: 07/06/1999 - 09/06/1999
Duration: 3 days
- 6** **Title of the activity:** V Avances en Biología Molecular por jóvenes investigadores en el extranjero
Type of activity: SCIENTIFIC MEETINGS ORGANIZED
City convening entity: Madrid, Spain
Start-End date: 28/12/1998 - 28/12/1998
Duration: 1 day



- 7** **Title of the activity:** Meeting on Telomeres and Telomerase
Type of activity: meeting organized
Convening entity: Fundación Ramón Areces **Type of entity:** Foundation
City convening entity: Madrid, Spain
Start date: 2011
- 8** **Title of the activity:** Recapturing Pluripotency: links between cellular reprogramming and cancer
Convening entity: Centro Nacional de Investigaciones Oncológicas **Type of entity:** Healthcare Institutions
City convening entity: Madrid, Spain
Start date: 2011 **Duration:** 3 days
- 9** **Title of the activity:** Stem Cells and Cancer
Type of activity: conference organized
Convening entity: Centro Nacional de Investigaciones Oncológicas **Type of entity:** Healthcare Institutions
City convening entity: Madrid, Spain
Start date: 2009 **Duration:** 3 days
- 10** **Title of the activity:** AACR Special Conference on “Telomerase and Cancer”.
Type of activity: conference organized
Convening entity: AACR
City convening entity: San Francisco, United States of America
Start date: 2004

Other achievements

Prizes, mentions and distinctions

- 1** **Description:** Doctorate Honoris Causa
Awarding entity: Universidad de Murcia
City awarding entity: Murcia, Region of Murcia, Spain
Conferral date: 2018
- 2** **Description:** Doctorate Honoris Causa
Awarding entity: Universidad de Alicante **Type of entity:** University
City awarding entity: Alicante, Valencian Community, Spain
Conferral date: 2017
- 3** **Description:** Scientific Merit Award
Awarding entity: Generalitat Valenciana
City awarding entity: Valencia, Valencian Community, Spain
Conferral date: 2017
- 4** **Description:** XIII Health Science Award
Awarding entity: Fundación Caja Rural de Granada
City awarding entity: Granada, Andalusia, Spain
Conferral date: 2017

- 5** **Description:** XXXVI Lección Memorial Fernández-Cruz Award
Awarding entity: Fernández-Cruz Foundation
City awarding entity: Madrid, Community of Madrid, Spain
Conferral date: 2017
- 6** **Description:** Miguel Catalan Career Achievement Award
Awarding entity: Regional Government of Madrid **Type of entity:** State agency
City awarding entity: Madrid, Community of Madrid, Spain
Conferral date: 2016
- 7** **Description:** Doctorate Honoris Causa
Awarding entity: Universidad Carlos III de Madrid
City awarding entity: Madrid, Community of Madrid, Spain
Conferral date: 2014
- 8** **Description:** Runner-up EU Women Innovators Prize 2014
Awarding entity: European Community EU
City awarding entity: Belgium
Conferral date: 2014
- 9** **Description:** Fellow of the Royal Academy of Pharmacy of Spain
Awarding entity: Real Academia de Farmacia
City awarding entity: Madrid, Community of Madrid, Spain
Conferral date: 2013
- 10** **Description:** Member of the Scientific Board of the Max Planck Institute for Biology of Aging
Awarding entity: Max Planck Institute for Biology **Type of entity:** University Research Institute
City awarding entity: Germany
Conferral date: 2013
- 11** **Description:** "Embajadora Honoraria de la Marca España"
Awarding entity: Spanish Ministry of Foreign Affairs **Type of entity:** State agency and International Cooperation
City awarding entity: Spain
Conferral date: 2012
- 12** **Description:** 2013 Pezcoller Foundation-AACR International Award for Cancer
Awarding entity: Research Slection Committee
Conferral date: 2012
- 13** **Description:** Member of the Board of Trustees of the Spanish National Centre for Research on Ageing (CNIE)
Awarding entity: Fundacion CNIE **Type of entity:** Foundation
City awarding entity: Spain
Conferral date: 2012
- 14** **Description:** Member of the Scientific Advisory Board
Awarding entity: Vall d'Hebron Institut de Reserca (VHIR)
City awarding entity: Barcelona, Spain
Conferral date: 2012



- 15** **Description:** Member of the Scientific Board of the AXA Research Fund
Awarding entity: AXA Research Fund **Type of entity:** Foundation
City awarding entity: Paris, France
Conferral date: 2012
- 16** **Description:** Official Nominator for the "2014 Japan Prize"
Awarding entity: The Japan Prize Foundation, Japan
City awarding entity: Japan
Conferral date: 2012
- 17** **Description:** Santiago Grisolia Chair 2012 in Biomedicine and Neurosciences
Awarding entity: Santiago Grisolia **Type of entity:** Foundation
City awarding entity: Spain
Conferral date: 2012
- 18** **Description:** "Health & Wellbeing" Award
Awarding entity: Fundación Pilates VIIth Edition
City awarding entity: Spain
Conferral date: 2011
- 19** **Description:** Alumni Association Award
Awarding entity: Universidad Autónoma de Madrid **Type of entity:** University
City awarding entity: Madrid, Community of Madrid, Spain
Conferral date: 2011
- 20** **Description:** IDEAS 2011 Award in Innovation and Social Transformation
Awarding entity: Fundación IDEAS
City awarding entity: Spain
Conferral date: 2011
- 21** **Description:** International Award in Professional Achievements
Awarding entity: VIth Yo Donna
Conferral date: 2011
- 22** **Description:** Lilly Foundation Preclinical Research Award
Awarding entity: Lilly Foundation
Conferral date: 2010
- 23** **Description:** National Research Award "Santiago Ramón y Cajal"
Awarding entity: National Research Award **Type of entity:** State agency
City awarding entity: Spain
Conferral date: 2010
- 24** **Description:** "Alberto Sols" prize for Excellence in Research
Conferral date: 2009
- 25** **Description:** Körber European Science Award
Awarding entity: Körber Foundation **Type of entity:** Foundation
City awarding entity: Germany
Conferral date: 2008



- 26** **Description:** Rey Jaime I Prize for Basic Research
Awarding entity: Fundación Rey Jaime I Prize **Type of entity:** Foundation
City awarding entity: Spain
Conferral date: 2007
- 27** **Description:** “Carmen and Severo Ochoa” Award in Molecular Biology
Awarding entity: Carmen and Severo Ochoa Foundation **Type of entity:** Foundation
City awarding entity: Spain
Conferral date: 2005
- 28** **Description:** EMBO Gold Medal
Awarding entity: EMBO **Type of entity:** Associations and Groups
Conferral date: 2004
- 29** **Description:** The Carcinogenesis Young Investigator Award
Conferral date: 2004
- 30** **Description:** Josef Steiner Cancer Research Award
Awarding entity: Dr. Josef Steiner Cancer Foundation **Type of entity:** Foundation
City awarding entity: Switzerland
Conferral date: 2003
- 31** **Description:** “Universalía” Research Award
Conferral date: 2003
- 32** **Description:** European Association Cancer Research Young Cancer Researcher Award
Awarding entity: EACR
Conferral date: 2002
- 33** **Description:** European Life Sciences Organization (ELSO) Early Career Award 2002
Awarding entity: ELSO
Conferral date: 2002
- 34** **Description:** “EMBO Lecture” Award at ELSO Meeting
Awarding entity: EMBO
Conferral date: 2002
- 35** **Description:** Award of the Spanish Health Science Foundation for excellence in Biomedical Research
Awarding entity: Spanish Health Science Foundation **Type of entity:** Foundation
City awarding entity: Spain
Conferral date: 2001
- 36** **Description:** SEBBM Beckman/Coulter Award
Conferral date: 2001



- 37** **Description:** FEBS Anniversary Prize
Awarding entity: The Federation of European Biochemical Societies (FEBS) **Type of entity:** Associations and Groups
Conferral date: 2000
- 38** **Description:** Swiss Bridge Award 2000 for Research in Cancer
Awarding entity: Swiss Bridge Award Foundation **Type of entity:** Foundation
City awarding entity: Switzerland
Conferral date: 2000
- 39** **Description:** Spanish National Oncology Award
Awarding entity: Echevarne Foundation **Type of entity:** Foundation
City awarding entity: Spain