

CV Profile (max. 2 pages length)

Name: Nuria Coll-Bonfill

Brief introduction about yourself (including your research interests)

I am a dedicated Postdoctoral Researcher with more than 10 years' experience in academic research resulting in 14 manuscripts published in **international high-impact peer-reviewed journals**. My predoctoral studies have addressed several **outstanding** questions regarding molecular mechanisms of chronic obstructive pulmonary disease (COPD). I have discovered **new pathways**, that are of extreme relevance, to provide fundamental insights on the molecular mechanisms driving vascular disease in this pathology. Since my next goal was to apply my cardiovascular **knowledge to answer new questions**, I moved to US for postdoctoral training looking for an environment that fosters a **multidisciplinary approach**. Here, I obtained a prestigious and competitive American Heart Association postdoctoral fellowship which allowed me to **lead** a project independently and **mentor** graduate and undergraduate students. My **ambitious** postdoctoral research has uncovered specific mechanisms underlying the mechanisms behind a premature aging disease known as Hutchinson-Gilford Progeria Syndrome (HGPS), focusing on defining the crosstalk between the genomic instability and the development of progeria-induced vascular disease. In addition, I **developed pre-clinical studies** combining *in vitro* and *in vivo* drug testing, together with handling and generating several animal models. All these studies set the foundation for **new treatments** for HGPS and COPD that could also be applied to normal aging.

As a firm supporter of making science easy and available to everybody, I have been involved in different projects of **science communication**. I started my own scientific blog, that has allowed me to publish some opinion articles in the most-read Catalan newspaper, ARA. I am also chair of communication in ECUSA (Spanish Scientist Association in the US), where I am leading communication strategies such as social media presence or developing activities to increase our member and science visibility. My latest science communication project brings me to be one of the promoters and the science advisor of a Scientific Illustrated story: *A girl in 20 million*, a book that explains HGPS disease to a lay audience.

Vascular disorders are pathologies broadly spread worldwide, and they are becoming predominant due to an increase in the lifespan in our society. The development of new treatments and compounds to improve our healthspan is crucial. For this reason, I am seeking to bring together my knowledge of vascular disease and aging into the development of new drugs or treatments including but not limited to these fields. As an experienced **Molecular Cell Biologist** and a fostered **Basic Research Scientist** I have developed the expertise and motivation necessary to design, improve or fulfill new therapeutic tools. I am willing to further develop drug discovery approaches and therapeutics from basic science to industry and ultimately to patient treatment.

Education

Please list the **name** of each imparted programme with its corresponding **dates**.

PhD: **Name of PhD programme (dd/mm/yyyy- dd/mm/yyyy)**

Medicine, University of Barcelona (09/2012- 12/2016)

Master's degree: **Name of master's degree (dd/mm/yyyy- dd/mm/yyyy)**

Molecular Biotechnology, University of Barcelona (09/2009-06/2010)

Undergraduate degree: **Name of Undergraduate Degree (dd/mm/yyyy- dd/mm/yyyy)**

Biological Science, University of Barcelona (09/2003-06/2009)

Experience in research

Please list in **reverse order**. Indicate **responsibility** and the performed **activities**. Indicate also the **dates and number of months** of each activity.

IMPORTANT: Management and teaching activities are not considered as research experience.

Feb 2017- Present- Postdoctoral Fellow. Department of Biochemistry and Molecular Biology, Saint Louis University, Saint Louis, US

- **Fellowship from American Heart Association (AHA): Role of STAT1 in the loss of Progeria Vascular Smooth Muscle Cells (VSMC)**
 - Generated and characterized stable progerin-expressing cell lines using Lentiviral and Retroviral vectors analyzing expression of different markers (IF, WB, RT-qPCR)
 - Described for the first-time different sources of genomic instability in VSMC
 - Participated in an RNA-seq analysis to determine key pathways activated by progerin
 - Demonstrated dramatic vascular defects in a progeria mouse model using histology
- **Replication stress in laminopathies**
 - Investigated the role of Lamin A protein and a mutated form of Lamin A, Progerin, (two nuclear envelope proteins) in replication using IF, DNA fiber assays, Chromatin fractionation and methapases spreads
 - Demonstrated using multiples loss and gain of function experiments, dramatic defects in recruitment of different DNA repair factors in Lamin A depleted cells and progerin-expressing cells
 - Pharmacologically inhibited progerin-induced replication defects

Sept 2012-Dec 2016- Graduate Student- Department of Pulmonary Medicine, Institut d'Investigacions Biomèdiques August Pi i Sunyer. Hospital Clínic de Barcelona. Universitat de Barcelona. Barcelona, Spain

- Thesis Project: Molecular mechanism underlying vascular smooth muscle cell differentiation in vascular remodeling associated to COPD.
 - Described a new microRNA and gene expression profile of pulmonary arteries from COPD patients using arrays
 - Generated VSMC differentiation cellular models that were well-characterized by different functional assays: migration, proliferation and expression of specific markers (IF, WB, wound healing assay, cell cycle analysis)
 - Used loss and gain of function experiment to describe new mechanism involved in VSMC differentiation
 - Characterized vascular phenotype in a COPD animal model using molecular biology, cell biology, tissue culture and histology, extensively
- **-Mobility award -RNA biology Department.** University of Regensburg, Regensburg, Germany
 - Utilized Northern Blot and miRNA silencing with siRNA Pools to fully characterize the impact of specific miRNA expression in VSMC differentiation
- **-Collaboration- Brigham and Women's Hospital,** Harvard, Boston, MA (US)
 - Collaborated to describe a new miRNA Network interaction model from pulmonary arteries of COPD patients

Feb 2010-Sept 2012- Graduate Research Assistant- Department of Pulmonary Medicine, Institut d'Investigacions Biomèdiques August Pi i Sunyer. Hospital Clínic de Barcelona. Universitat de Barcelona. Barcelona, Spain.

- Investigated new potential COPD markers such as Endothelial Progenitor Cells (EPC) and Endothelial Microparticles.
- Utilized Flow cytometry and gradient base protocols to isolate EPC and Microparticles from blood of COPD patients
- Participated in animal handling and drug administration

Sept 2007-Sept 2009- Undergraduate Research Assistant- Molecular Virology Laboratory, Institut de Recerca i Tecnologia Alimentàries. Cabrils, Spain

- Project: In vitro evidence for RNA-binding properties of the 3a protein of *Parietaria mottle virus*.
 - Investigated the role of the 3a PMoV-protein and characterized *in vitro* their function
 - Participated in the design and obtention of expression constructs

Sector of activity

Please write the sector name in which your research/knowledge can be useful (food, mobility, health...):
health-pharma-biotech

Select the option/s about your profile

To be admissible for the call, you must fulfil **at least one** of the two requirements.

PhD and a minimum of 2 additional years of full-time research experience (*the 2 minimum additional years of full-time research must be done after the PhD*): **Yes or No** Yes

Master's degree and a minimum of 6 additional years of full-time research experience (*PhD studies are considered research experience*): **Yes or No** Yes

Contact information

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