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ACADEMIC DEGREES

- 2007-2011 Ph.D - Neurosciences.** Departament de Bioquímica i Biologia Molecular. Universitat Autònoma de Barcelona, Spain
- 2005-2007 MSc - Neurosciences.** Departament de Bioquímica i Biologia Molecular. Universitat Autònoma de Barcelona, Spain and Università degli Studi di Firenze, Italy
- 2000-2005 Bsc - Biochemistry.** Facultat de Ciències, Universitat Autònoma de Barcelona, Spain

RESEARCH EXPERIENCE

Since 2015 Postdoctoral fellow

Institut de Neurociències. Universitat Autònoma de Barcelona, Spain.

Project: *Study of mitochondrial dynamics and function in neurons susceptible to mitochondrial disease*

Funding Agency: European Research Council Starting Grant (ERC-2014-StG-638106)

Supervisor and PI: Dr. Albert Quintana

2014-2015 Senior Fellow

Center for Developmental Therapeutics and Center for Integrative Brain Research. Seattle Children's Research Institute. University of Washington. Seattle (WA)

Project: *Molecular determinants of neuronal death in mitochondrial disease*

Funding Agency: Seattle Children's Research Institute

Supervisor and PI: Dr. Albert Quintana

2013-2014 Postdoctoral fellow

Brain and Mind Research Institute. Weill Cornell Medical College, New York (NY)

Project: *Analysis of mitochondrial dynamics in cultured neurons and in in vivo mouse models of Friedreich's ataxia*

Funding Agency: Friedreich's ataxia Research Alliance (FARA)

Supervisor and PI: Dr. Jordi Magrané

2007-2011 Graduate student

Departament de Bioquímica i Biologia Molecular. Universitat Autònoma de Barcelona, Spain.

Project 1: *Characterisation and biological evaluation of new multitarget molecules to be used in the treatment of Alzheimer's disease*

Funding Agency 1: Spanish Ministry of Education and Science (SAF2009-07279 and SAF2006-08764-C02-02)

Project 2: *Methodologies for the design, evaluation and validation of functional foods in the prevention of cardiovascular diseases and Alzheimer's disease*

Funding Agency 2: Spanish Ministry of Industry, Tourism and Trade. Program CENIT-INGENIO 2010

Supervisor and PI: Dr. Mercedes Unzeta

2005-2007 Visiting research student

Department of Pharmacology. Università degli Studi di Firenze, Italy.

Project: *Study of the neuroprotective effects of a Monoamine Oxidase inhibitor against excitotoxicity in vivo*

Funding Agency: European Cooperation in Science and Technology (COST, D34/0003/05)

Supervisor and PI: Dr. Laura Della Corte and Dr. Mercedes Unzeta

FELLOWSHIPS

- 2017-2019 Postdoctoral Fellowship. Juan de la Cierva program**
Awarding entity: MINECO (Ref: IJCI-2015-24576)
Host institution: Institut de Neurociències. Universitat Autònoma de Barcelona
6.000€ for research
- 2006-2010 Short term Scientific Mission (STSM).**
Awarding entity: European Cooperation in Science and Technology (COST Program).
Host Institution: Dipartimento di Farmacologia. Università degli Studi di Firenze, Italy.
Periods: **2010** (1 month), **2007** (3 months), **2006** (4 months)
- 2005 Undergraduate European Exchange Fellowship. ERASMUS program.**
Awarding entity: Universitat Autònoma de Barcelona
Host Institution: Dipartimento di Farmacologia. Università degli Studi di Firenze, Italy.
Period: 6 months

SELECTED PUBLICATIONS**A) Manuscripts**

- 2017** Chen B, Hui J, Montgomery K, Gella A, **Bolea I**, Sanz E, Palmiter R, Quintana A. Loss of mitochondrial *Ndufs4* in striatal *Medium Spiny Neurons* mediates progressive motor impairment in a mouse model of Leigh syndrome. **Front. Molec Neurosci** 10, 265
- 2016** Marco-Contelles J, Unzeta M, **Bolea I**, Esteban G, Ramsay RR, Romero A, Martínez-Murillo R, Carreiras MC, Ismaili L. *ASS234*, as a new multi-target directed propargylamine for Alzheimer's disease therapy. **Front Neurosci** 10:294
- Unzeta M, Esteban G, **Bolea I**, Fogel WA, Ramsay RR, Youdim MB, Tipton KF, Marco-Contelles J. *Multi-target directed donepezil-like ligands for Alzheimer's disease*. **Front Neurosci** 10:205
- 2014** **Irene Bolea**, Wenbiao Gan, Giovanni Manfredi, Jordi Magrané. *Imaging of Mitochondrial Dynamics in Motor and Sensory Axons of Living Mice*. **Methods Enzymol** 547:97-110
- Bolea I**, Colivicchi MA, Ballini C, Marco-Contelles J, Tipton KF, Unzeta M and Della Corte L. *Neuroprotective effects of the MAO-B inhibitor, PF9601N, in an in vivo model of excitotoxicity*. **CNS Neurosci Ther** 20:641-50
- 2013** **Bolea I**, Gella A, Monjas L, Pérez C, Rodriguez-Franco MA, Marco-Contelles J, Samadi A and Unzeta M. *Multipotent, permeable drug ASS234 inhibits A β aggregation, possesses antioxidant properties and protects from A β -induced apoptosis in vitro*. **Current Alzheimer Res** 10:797-808
- Bolea I**, Gella A, Unzeta M. *Propargylamine-derived multitarget-directed ligands: fighting Alzheimer's disease with monoamine oxidase inhibitors*. **J Neural Transm** 120: 893-902
- 2012** Samadi A, De los Ríos C, **Bolea I**, Chioua M, Iriepa I, Moraleda I, Bartolini M, Andrisano V, Gálvez E, Valderas C, Unzeta M and Marco-Contelles J. *Multipotent MAO and Cholinesterase Inhibitors for the Treatment of Alzheimer's Disease: Synthesis, Pharmacological Analysis and Molecular Modeling of Heterocyclic Substituted Alkyl and Cycloalkyl Propargyl Amine*. **Eur J Med Chem** 52:251-262
- 2011** **Bolea I**, Juárez-Jiménez J, de los Ríos C, Chioua M, Pouplana R, Luque FJ, Unzeta M, Marco-Contelles J and Samadi A. *Synthesis, Biological Evaluation and Molecular Modelling of Donepezil and N-[5-(Benzyloxy)-1-methyl-1H-indol-2-yl)methyl]-N-methylprop-2-yn-1-amine Hybrids, as New Multipotent ChE/MAO Inhibitors for the Treatment of Alzheimer's Disease*. **J Med Chem** 54(24):8251-8270
- 2009** Valente T, Hidalgo J, **Bolea I**, Ramirez B, Anglés N, Reguant J, Morelló JR, Gutiérrez C, Boada M and Unzeta M. *A diet enriched in polyphenols and polyunsaturated fatty acids, LMN diet, induces neurogenesis in the subventricular zone and hippocampus of adult mouse brain*. **J Alzheimer's Dis** 18(4):849-865.

B) Book Chapters

- 2014** Laura Fernandez-Fernandez, Montse Solé, **Irene Bolea**, Tony Valente, Jose C.E. Serrano, Mariona Jove, Bartolome Ramirez, Neus angles, Jordi Reguant, Jose Ramon Morello, Reinald Pamplona, Manuel Portero-Otin, Mercedes Unzeta. *The antioxidant effect of LMN diet, rich in polyphenols and polyunsaturated fatty acids, in Alzheimer's disease*. In Colin R. Martin and Victor R. Preedy, editors: Diet and Nutrition in Dementia and Cognitive Decline, Academic Press, 2014, pp.847-857
- 2011** Alejandro Gella & **Irene Bolea**. *Oxidative Stress in Alzheimer's disease: Pathogenesis, Biomarkers & Therapy*. Alzheimer's disease Pathogenesis-Core Concepts, Shifting Paradigms and Therapeutic Targets, Suzanne De La Monte (Ed.), ISBN: 978-953-307-690-4, InTech

SELECTED CONFERENCES AND MEETINGS

A) Poster presentation

- 2017** **EMBO-FEBS Lecture Course**. Mitochondria in life, death and disease. October 9-13, Selva di Fasano (Brindisi), Italy.
- 2016** **United Mitochondrial disease Foundation (UMDF) Symposium**. July 15-18, Seattle, USA
- 2012** **8th FENS Forum for Neurosciences**. July 14-18, Barcelona, Spain.
- 2011** **The 10th International Conference on Alzheimer's & Parkinson's diseases (AD/PD)**. March 9-13, Barcelona, Spain
- 2009** **International Conference on Alzheimer's Disease (ICAD)**. July 11-16, Vienna, Austria.

B) Oral presentation

- 2015** **EMBO workshop**. Mitochondrial DNA and neurodegeneration. September 23-25, Spain
- 2008** **13th Amine Oxidase and Related Diseases Workshop**. October 11-15, Beijing, China.

AWARDS AND MERITS

- 2015** **International Grant Award. Meeting Attendance**
EMBO workshop. Mitochondrial DNA and Neurodegeneration. Sitges, Spain.
- 2009** **International Grant Award. Meeting Attendance**
International Conference on Alzheimer's Disease (ICAD), Vienna, Austria

TEACHING EXPERIENCE

All practical classes were given at the Universitat Autònoma de Barcelona, Spain.

- 2007-2010** **Clinical Biochemistry** to 4th year BsC in Biology, **100h**
- 2007-2008** **Clinical Biochemistry & Molecular Biology** to 4th year Bsc in Biochemistry, **10 h**
- 2006-2007** **Biochemistry of the Nervous System** to 3rd year Bsc in Biochemistry, **15h**

PATENTS

Authors: Abdelouahid Samadi, José Luis Marco Contelles, **Irene Bolea**, Mercedes Unzeta, Francisco Javier Luque. *New propargylamine derivatives with neuroprotective capacity for the treatment of Parkinson's and Alzheimer's diseases*. International publication number: WO2011113988A1. US publication number: US2013012522. Spanish publication number: ES2365316. Conferral date: March 2011