



## Profolio of Researchers and Research Teams

# GROUP OF MOLECULAR AND CELLULAR BIOLOGY OF PARKINSON'S DISEASE

(Last update 03/04/2013)

**Code:** GI-1337

**Department:** Ciencias Morfológicas;

**Web:** [www.usc.es/neurolab](http://www.usc.es/neurolab)

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### Research field

- Stem/progenitor cells as cell therapy in Parkinson's disease.
- Neuroprotective therapies in Parkinson's disease
- Study on the molecular mechanisms involved in the death and neuroprotection of dopaminergic neurons

### Technology services

- Immunohistochemistry
- In situ hybridization
- Cell cultures
- Animal behavior tests
- Stereotaxic procedures

- neural grafts
- Western blot
- Real time PCR
- Tissue/cell laser microdissection

### Key words

Parkinson; Stem/progenitor cells; Neural grafts; Neuroprotection; Basal ganglia; Oxidative stress; Antioxidant systems.

### Researchers

<u>Name</u>	<u>Position</u>
Labandeira García, J.L.	Coordinator
Díaz Ruiz, C.	Member
Guerra Seijas, M.J.	Member
Muñoz Patiño, A.M.	Member
Parga Martín, J.A.	Member
Rodríguez Pallares, J.	Member
Rodríguez Pérez, A.I.	Member
Villar Cheda, M.B.	Member
Borrajo López, A.	IFP
Domínguez Meijide, A.	IFP
Valenzuela Limiñana, R.	IFP
Aldrey García, P.	PA
Trillo Franco, J.A.	PA

#### External collaborators

Iria Novoa Pérez

Ciberned (Instituto Carlos III)

### RTD PROJECTS ( period: 2009 - 2013 )

#### **Title:**

Sistema renina-angiotensina en la sustancia negra. Demostración y caracterización funcional de un sistema intracrino. Implicaciones en envejecimiento y neurodegeneración.

**Tipology:** (PN) Plan Nacional

**Duration:** 01/01/2013 - 31/12/2015

**Main investigator:** Labandeira García, José Luis

#### **Title:**

Efecto de las células madre mesenquimales sobre la supervivencia y funcionalidad de implantes de células dopaminérgicas como terapia para la enfermedad de Parkinson

**Tipology:** (PN) Plan Nacional

**Duration:** 01/01/2013 - 31/12/2015

**Main investigator:** Rodríguez Pallares, Jannette

#### **Title:**

Terapia celular

**Tipology:** (PN) Plan Nacional

**Duration:** 01/01/2013 - 31/05/2014

**Main investigator:** Labandeira García, José Luis

**Title:**

Sistema renina-angiotensina cerebral como diana terapéutica para desarrollo de terapia neuroprotectora en enfermedad de Parkinson.

**Tipology:** Proxectos Xunta

**Duration:** 08/08/2010 - 30/09/2013

**Main investigator:** Labandeira García, José Luis

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**Title:**

Interacción entre el sistema dopaminérgico nigroestriatal y el sistema renina angiotensina local

**Tipology:** Plan Nacional

**Duration:** 01/01/2010 - 31/12/2012

**Main investigator:** Labandeira García, José Luis

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**Title:**

Papel de la neuroinflamación en la enfermedad de parkinson y en el desarrollo de discinesias inducidas por la administración de l-dopa

**Tipology:** Proxectos FISs

**Duration:** 01/01/2010 - 31/12/2013

**Main investigator:** Muñoz Patiño, Ana María

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**Title:**

Estratexias terapéuticas para a redución de discinesias inducidas polo tratamento con L-DOPA na enfermidade de parkinson

**Tipology:** Proxectos Xunta

**Duration:** 06/08/2009 - 03/12/2012

**Main investigator:** Muñoz Patiño, Ana María

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**Title:**

Estudo da mutua regulación entre angiotensina e dopamina nos ganglios baseles. Potencial implicación na xeneración de estrés oxidativo e neuroinflamación

**Tipology:** Proxectos Xunta

**Duration:** 13/07/2009 - 01/12/2012

**Main investigator:** Guerra Seijas, María José

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**SCIENTIFIC PRODUCTION ( period: 2007 - 2011 )**

**Articles in scientific journals**

**Article:**

Mechanism of 6-hydroxydopamine neurotoxicity: the role of NADPH oxidase and microglial activation in 6-OHDA-induced degeneration of dopaminergic neurons

**Journal:** JOURNAL OF NEUROCHEMISTRY, ISSN: 0022-3042  
2007

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**Article:**

Angiotensin type-1-receptor antagonists reduce 6-hydroxydopamine toxicity for dopaminergic neurons

**Journal:** NEUROBIOLOGY OF AGING, ISSN: 0197-4580  
2007

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**Article:**

Effects of GABA and GABA Receptor Inhibition on Differentiation of Mesencephalic Precursors into Dopaminergic Neurons in Vitro

**Journal:** JOURNAL OF NEUROBIOLOGY, ISSN: 0022-3034

2007

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**Article:**

Serotonin decreases generation of dopaminergic neurons from mesencephalic precursors via serotonin type 7 and type 4 receptors

**Journal:** JOURNAL OF NEUROBIOLOGY, ISSN: 0022-3034  
2007

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**Article:**

Estradiol sustained release from high affinity cyclodextrin hydrogels.

**Journal:** EUROPEAN JOURNAL OF PHARMACEUTICS AND BIOPHARMACEUTICS, ISSN: 0939-6411  
2007

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**Article:**

Time-Course of Brain Oxidative Damage Caused by Intrastratial Administration of 6-Hydroxydopamine in a Rat Model of Parkinson's Disease.

**Journal:** NEUROCHEMICAL RESEARCH, ISSN: 0364-3190  
2007

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**Article:**

Development of the serotonergic system in the central nervous system of the sea lamprey

**Journal:** JOURNAL OF CHEMICAL NEUROANATOMY, ISSN: 0891-0618  
2007

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**Article:**

Brain angiotensin enhances dopaminergic cell death via microglial activation and NADPH-derived ROS.

**Journal:** NEUROBIOLOGY OF DISEASE, ISSN: 0969-9961  
2008

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**Article:**

Different effects of anti-sonic hedgehog antibodies and the hedgehog pathway inhibitor cyclopamine on generation of dopaminergic neurons from neurospheres of mesencephalic precursors

**Journal:** DEVELOPMENTAL DYNAMICS, ISSN: 1058-8388  
2008

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**Article:**

Hypothyroidism is associated with increased myostatin expression in rats.

**Journal:** JOURNAL OF ENDOCRINOLOGICAL INVESTIGATION, ISSN: 0391-4097  
2008

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**Article:**

Involvement of the serotonin system in L-dopa-induced dyskinesias.

**Journal:** PARKINSONISM & RELATED DISORDERS, ISSN: 1353-8020  
2008

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**Article:**

Serotonin-dopamine interaction in the induction and maintenance of L-DOPA-induced dyskinesias.

**Journal:** Progress in Brain Research, ISSN: 0079-6123  
2008

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**Article:**

Combined 5-HT1A and 5-HT1B receptor agonists for the treatment of L-DOPA-induced dyskinesia

**Journal:** BRAIN, ISSN: 0006-8950  
2008

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**Article:**

The early scaffold of axon tracts in the brain of a primitive vertebrate, the sea lamprey.

**Journal:** BRAIN RESEARCH, ISSN: 0006-8993  
2008

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**Article:**

Neurochemical differentiation of horizontal and amacrine cells during transformation of the sea lamprey retina.

**Journal:** JOURNAL OF CHEMICAL NEUROANATOMY, ISSN: 0891-0618  
2008

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**Article:**

Late proliferation and photoreceptor differentiation in the transforming lamprey retina.

**Journal:** BRAIN RESEARCH, ISSN: 0006-8993  
2008

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**Article:**

The segmental organization of the developing shark brain based on neurochemical markers, with special attention to the prosencephalon

**Journal:** BRAIN RESEARCH BULLETIN, ISSN: 0361-9230  
2008

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**Article:**

Neurochemical characterization of sea lamprey taste buds and afferent gustatory fibers: presence of serotonin, calcitonin, and CGRP immunoreactivity in taste bud bi-ciliated cells of the earliest vertebrates

**Journal:** JOURNAL OF COMPARATIVE NEUROLOGY, ISSN: 0021-9967  
2008

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**Article:**

Inhibition of 6-hydroxydopamine-induced oxidative damage by 4,5-dihydro-3H-2-benzazepine N-oxides

**Journal:** BIOCHEMICAL PHARMACOLOGY, ISSN: 0006-2952  
2008

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**Article:**

Discovery of a novel class of potent coumarin monoamine oxidase B inhibitors: development and biopharmacological profiling of 7-[(3-chlorobenzyl)oxy]-4-[(methylamino)methyl]-2H-chromen-2-one methanesulfonate (NW-1772) as a highly potent, selective, reversible, and orally active monoamine oxidase B inhibitor.

**Journal:** JOURNAL OF MEDICINAL CHEMISTRY, ISSN: 0022-2623  
2009

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**Article:**

The inflammatory response in the MPTP model of parkinson's disease is mediated by brain angiotensin: Relevance to progression of the disease

**Journal:** JOURNAL OF NEUROCHEMISTRY, ISSN: 0022-3042  
2009

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**Article:**

The Mitochondrial ATP-Sensitive Potassium Channel Blocker 5-hydroxydecanoate inhibits toxicity of 6-Hydroxydopamine on Dopaminergic Neurons

**Journal:** NEUROTOXICITY RESEARCH, ISSN: 1029-8428  
2009

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**Article:**

Aging and sedentarism decrease vascularization and VEGF levels in the rat substantia nigra. Implications for Parkinson's disease.

**Journal:** JOURNAL OF CEREBRAL BLOOD FLOW AND METABOLISM, ISSN: 0271-678X  
2009

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**Article:**

Brain oxidative stress and selective behaviour of aluminium in specific areas of rat brain: potential effects in 6-OHDA-induced model of Parkinson's disease.

**Journal:** JOURNAL OF NEUROCHEMISTRY, ISSN: 0022-3042  
2009

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**Article:**

Impact of grafted serotonin and dopamine neurons on development of L-DOPA-induced dyskinesias in parkinsonian rats is determined by the extent of dopamine neuron degeneration

**Journal:** BRAIN, ISSN: 0006-8950  
2009

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**Article:**

Serotonin neuron-dependent and -independent reduction of dyskinesia by 5-HT1A and 5-HT1B receptor agonists in the rat Parkinson model.

**Journal:** EXPERIMENTAL NEUROLOGY, ISSN: 0014-4886  
2009

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**Article:**

Role of serotonin neurons in the induction of levodopa- and graft-induced dyskinesias in Parkinson's disease

**Journal:** MOVEMENT DISORDERS, ISSN: 0885-3185  
2010

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**Article:**

Estrogen and angiotensin interaction in the substantia nigra. Relevance to postmenopausal Parkinson's disease

**Journal:** EXPERIMENTAL NEUROLOGY, ISSN: 0014-4886  
2010

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**Article:**

Location of prorenin receptors in primate substantia nigra: effects on dopaminergic cell death

**Journal:** JOURNAL OF NEUROPATHOLOGY AND EXPERIMENTAL NEUROLOGY, ISSN: 0022-3069  
2010

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**Article:**

Nigral and striatal regulation of angiotensin receptor expression by dopamine and angiotensin in rodents: implications for progression of Parkinson's disease

**Journal:** EUROPEAN JOURNAL OF NEUROSCIENCE, ISSN: 0953-816X  
2010

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**Article:**

Effect of inhibitors of NADPH oxidase complex and mitochondrial ATP-sensitive potassium channels on generation of dopaminergic neurons from neurospheres of mesencephalic precursors.

**Journal:** DEVELOPMENTAL DYNAMICS, ISSN: 1058-8388  
2010

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**Article:**

Aging-related changes in the nigral angiotensin system enhances proinflammatory and pro-oxidative markers and 6-OHDA-induced dopaminergic degeneration.

**Journal:** NEUROBIOLOGY OF AGING, ISSN: 0197-4580  
2010

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**Article:**

Ultrastructural alterations of Alzheimer's disease paired helical filaments by grape seed-derived polyphenols

**Journal:** NEUROBIOLOGY OF AGING, ISSN: 0197-4580  
2010

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**Article:**

2-DE-based proteomic analysis of common bean (*Phaseolus vulgaris* L.) seeds

**Journal:** Journal of Proteomics, ISSN: 1874-3919  
2011

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**Article:**

Mitochondrial ATP-sensitive potassium channels enhance angiotensin-induced oxidative damage and dopaminergic neuron degeneration. Relevance for aging-associated susceptibility to Parkinson's disease.

**Journal:** AGE, ISSN: 0161-9152  
2011

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**Article:**

Dopaminergic neuroprotection of hormonal replacement therapy in young and aged menopausal rats: role of the brain angiotensin system.

**Journal:** BRAIN, ISSN: 0006-8950  
2011

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**Article:**

Renin angiotensin system and gender differences in dopaminergic degeneration

**Journal:** Molecular Neurodegeneration, ISSN: 1750-1326  
2011

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**Article:**

Expression of the mRNA coding the cannabinoid receptor 2 in the pallidal complex of *Macaca fascicularis*

**Journal:** JOURNAL OF PSYCHOPHARMACOLOGY, ISSN: 0269-8811  
2011

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**Chapter:**

**Title:**

The glial inflammatory response in the MPTP model of Parkinson's disease is mediated by brain angiotensin: relevante to proression of the disease

**Book:**

Glial Cells in Health and Disease.

(978-88-7587-521-3)Publicación: 2009

**Editorial:**Anne Baron and Hervé Chneiweiss

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**Title:**

Involvement of mitochondrial ATP-sensitive potassium channels in the mechanism of toxicity of 6-hydroxydopamine on dopaminergic neurons.

**Book:**

Glial Cells in Health and Disease.

(978-88-7587-521-3)Publicación: 2009

**Editorial:**Anne Baron and Hervé Chneiweiss

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**Title:**

NADPH oxidase and microglial activation in 6-OHDA-induced degeneration of dopaminergic cells.

**Book:**

Glial Cells in Health and Disease.

(978-88-7587-521-3)Publicación: 2009

**Editorial:**Anne Baron and Hervé Chneiweiss

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**Title:**

Dopamine-derived neurotoxicity and Parkinson's disease

**Book:**

Endogenous Toxins: Diet, Genetics, Disease and Treatment

(978-3-527-32363-0)Publicación: 2010

**Editorial:**Wiley

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**Doctoral theses:**

**Title:**

Xeración de neuronas dopaminérxicas a partir de células nai neurais mesencefálicas. Novas contribucións ó desenvolvemento de terapia celular para a enfermidade de Parkinson.

**Date of dissertation:** 12/02/2009

**Director:** José Luis Labandeira García, Jannette Rodríguez Pallares

**Author:** Juan Andrés Parga Martín

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