

# **Curriculum Vitae**

Standardized form

Total number of pages: 10

Name: Lin Gao Chen

Date: February 18, 2022

## PERSONAL DATA

Family name: Gao Chen

Forename: Lin

Researcher numbers	Researcher ID	C-8318-2015
	Orcid code	0000-0002-1781-4671
	Scopus ID	56937463300

## PRESENT PROFESIONAL POSITION

*Institution:* Universidad de Sevilla  
*Faculty, School or Institute:* Facultad de Medicina/Instituto de Biomedicina de Sevilla (IBiS)  
*Department:* Fisiología Médica y Biofísica  
*Address:* Hospital Virgen del Rocío  
Instituto de Biomedicina de Sevilla, Lab 101  
Avda. Manuel Siurot, s/n  
41013 Seville  
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*Professional status:* Profesora Titular de Universidad/Associate Professor  
*Start date:* 20/07/2021

*Administrative status* X Funcionario  
X Full-time

## PRESENT RESEARCH AREA

### *Key words*

Neurodegeneration, Parkinson's disease, genetic animal model, hypoxia, oxidative stress, genetic risk factors, human studies, hypoxia, pulmonary diseases, O<sub>2</sub> sensing, aging, antioxidant defense, mitochondria, neuroscience, pathogenesis, transcriptomics/gene expression profiling, proteomics, carotid body, biochemistry, cell biology

## ACADEMIC BACKGROUND

<i>Bachelor</i>	<i>Centre</i>	<i>Date</i>
Biochemistry	Nankai University, China	01/07/1992
Nutrition (Master)	University of Hawaii, USA	04/08/1996

<i>Ph.D.</i>	<i>Centre</i>	<i>Thesis Supervisor</i>	<i>Date</i>
Molecular Pharmacology & Toxicology	University of Southern California, USA	Dr. Henry Jay Forman	18/12/2000

## PAST SCIENTIFIC EXPERIENCE

<i>Position</i>	<i>R&amp;D Centre</i>	<i>Institution</i>	<i>Start date</i>	<i>End date</i>
Lecturer/Research assistant	Dept. of Biochemistry	Tianjin Medical University, China	07/1992	07/1994
Graduate student (Master)	Dept. of Nutrition	University of Hawaii, USA	01/08/1994	08/1996
PhD graduate student	Dept. of Molecular Pharmacology & Toxicology	University of Southern California, USA	08/1996	31/07/1999
Research assistant	Dept. of Environmental Health Sciences	University of Alabama at Birmingham, USA	01/08/1999	20/10/2000
Postdoctoral fellow	Dept. of Microbiology	University of Alabama at Birmingham, USA	30/10/2000	30/11/2001
Postdoctoral fellow (NATO)	Dept. of Medical Physiology & Biophysics	Universidad de Sevilla	01/01/2002	31/12/2002
Postdoctoral fellow	Dept. of Medical Physiology & Biophysics	Universidad de Sevilla	01/08/2002	31/01/2004
Research associate, Investigadora del Sistema Nacional de Salud (ahora contrato "Miguel Servet")	Laboratorio de Investigaciones Biomédicas	Hospital Virgen del Rocío	10/02/2004	09/02/2010
Researcher (I3SNS)	Instituto de Biomedicina de Sevilla	FISEVI	10/02/2010	31/12/2015
Researcher	Instituto de Biomedicina de Sevilla	Fundación de Investigación de la Universidad de Sevilla (FIUS)	01/01/2016	17/01/2018
Assistant Professor (Profesor Ayudante Doctor)	Dept. of Medical Physiology & Biophysics	Universidad de Sevilla	18/01/2018	17/11/2019
Assistant Professor (Profesor Contratado Doctor)	Dept. of Medical Physiology & Biophysics	Universidad de Sevilla	18/11/2019	19/07/2021

## STAYS IN INTERNATIONALLY RECOGNIZED CENTRES

Project: Biochemical analysis of patients with diabetes.  
Professional status: Lecturer/Research Assistant  
Centre: Tianjin Medical University, Tianjin, China

Length: 1992-1994

Project: (MS thesis project) Effects of zinc deficiency and aluminium ingestion on apoptosis, DNA damage, chromatin structure and Alzheimer's disease's amyloid precursor protein in rats.

Professional status: Graduate student

Centre: University of Hawaii, Honolulu, Hawaii, USA

Length: 1994-1996

Project: (PhD dissertation project): Glutathione transport and metabolism in cystic fibrosis airway epithelia.

Professional status: PhD graduate student

Centre: University of Southern California, Los Angeles, California, USA

Length: 1996-1999

Project: (Continuation of PhD dissertation project) Glutathione transport and metabolism in cystic fibrosis airway epithelia.

Professional status: PhD graduate student/Research Assistant

Centre: University of Alabama at Birmingham, Birmingham, Alabama, USA

Length: 1999-2000

Project: Regulation of nonsense and sense mRNA metabolism by yeast New1 protein.

Professional status: Postdoctoral fellow

Centre: University of Alabama at Birmingham, Birmingham, Alabama, USA

Length: 2000-2001

## PARTICIPATION IN RESEARCH PROJECTS

### As principal investigator (PI):

PROJECT TITLE: "Modificación genética de enzimas antioxidantes en neuronas nigroestriatales y enfermedad de Parkinson."

CENTER: Hospital Universitario Virgen del Rocío, Servicio Andaluz de Salud

FINANCIAL ENTITY: Fondo de Investigación Sanitaria, Instituto de Salud Carlos III, Ministerio de Sanidad y Consumo (Spanish Ministry of Health) (CP03/00047)

LENGTH: 10/02/2004-09/02/2007

AMOUNT: 42000€

PI: **Lin Gao**

PROJECT TITLE: Relación entre la disfunción mitocondrial y la hipertensión pulmonar (HP). Estudio in vitro y en pacientes con diversos fenotipos de HP

CENTER: Instituto de Biomedicina de Sevilla, Hospital Virgen del Rocío

FINANCIAL ENTITY: Asociación de Neumología y Cirugía Torácica de SUR (Neumosur, 1/2013)

LENGTH: 2014/05/29-2017/05/28

AMOUNT: 9000€

PI: **Lin Gao Chen**

PROJECT TITLE: "Búsqueda de biomarcadores en pacientes con enfermedad tromboembólica venosa y cáncer mediante análisis proteómico"  
CENTER: Instituto de Biomedicina de Sevilla (IBIS)/Hospital Universitario Virgen del Rocío (HUVR)  
FINANCIAL ENTITY: Sociedad Española de Neumología y Cirugía Torácica (SEPAR, 2015/018)  
LENGTH: 19/04/2016-18/04/2019  
AMOUNT: 16000€  
PI: **Lin Gao Chen**

PROJECT TITLE: "Sensibilidad al oxígeno y Neurodegeneración" (SAF2016-74990-R)  
CENTER: Instituto de Biomedicina de Sevilla (IBIS)/Universidad de Sevilla  
FINANCIAL ENTITY: Ministerio de Economía y Competitividad (Retos Investigación: Proyectos I+D+i 2016)  
LENGTH: 30/12/2016-29/12/2019  
AMOUNT: 484000€  
PI: **José López Barneo & Lin Gao Chen**

PROJECT TITLE: "Eje cuerpo carotídeo-médula adrenal y complicaciones cardiovasculares y metabólicas asociadas al síndrome de apnea hipopnea del sueño" (US-1255654)  
CENTER: Instituto de Biomedicina de Sevilla (IBIS)/Universidad de Sevilla  
FINANCIAL ENTITY: Consejería de Economía y Conocimiento, Junta de Andalucía (Proyectos I+D+i FEDER Andalucía 2014-2020, Convocatoria 2018)  
LENGTH: 01/02/2020-30/04/2022  
AMOUNT: 89700€  
PI: **Gracia Patricia Ortega Saenz & Lin Gao Chen**

#### **As collaborator (active projects):**

PROJECT TITLE: "Sensibilidad al oxígeno y Neurodegeneración"  
CENTER: Instituto de Biomedicina de Sevilla (IBIS)/Universidad de Sevilla  
FINANCIAL ENTITY: Ministerio de Ciencia e Innovación (Plan Estatal 2017-2020 Retos - Proyectos I+D+i 2019, PID2019-106410RB-I00)  
LENGTH: 01/06/2020-31/05/2023  
AMOUNT: 464640€  
PI: José López Barneo & Garcia Patricia Ortega Sáenz

PROJECT TITLE: "Estimulación del GDNF cerebral como terapia neuroprotectora en la enfermedad de Parkinson"  
CENTER: Instituto de Biomedicina de Sevilla (IBIS)/FISEVI  
FINANCIAL ENTITY: Consejería de Economía, Conocimiento, Empresas y Universidad, Junta de Andalucía (Convocatoria 2018, PAIDI2020, P18-RT-3100)  
LENGTH: 2020-2023  
AMOUNT: 140352€  
PI: José López Barneo

## PUBLICATIONS (PEER-REVIEWED ARTICLES)

1. Zhou H, Duncan RF, Robison TW, **Gao L**, Forman HJ.  
Ca(2+)-dependent p47phox translocation in hydroperoxide modulation of the alveolar macrophage respiratory burst.  
*Am J Physiol.* 1997, 273:L1042- L1047.
2. Liu RM, **Gao L**, Choi J, Forman HJ.  
Gamma-glutamylcysteine synthetase: mRNA stabilization and independent subunit transcription by 4-hydroxy-2-nonenal.  
*Am J Physiol.* 1998, 275:L861-L869.
3. **Gao L**, Kim KJ, Yankaskas JR, Forman HJ.  
Abnormal glutathione transport in cystic fibrosis airway epithelia.  
*Am J Physiol.* 1999, 277:L113-L118.
4. **Gao L**, Broughman JR, Iwamoto T, Tomich JM, Venglarik CJ, Forman HJ.  
Synthetic chloride channel restores glutathione secretion in cystic fibrosis airway epithelia.  
*Am J Physiol Lung Cell Mol Physiol.* 2001, 281:L24-L30.
5. **Gao L**, Yankaskas JR, Fuller CM, Sorscher EJ, Matalon S, Forman HJ, Venglarik CJ.  
Chlorzoxazone or 1-EBIO increases Na(+) absorption across cystic fibrosis airway epithelial cells.  
*Am J Physiol Lung Cell Mol Physiol.* 2001, 281:L1123- L1129.
6. Keeling KM, Lanier J, Du M, Salas-Marco J, **Gao L**, Kaenjak-Angeletti A, Bedwell DM.  
Leaky termination at premature stop codons antagonizes nonsense-mediated mRNA decay in *S. cerevisiae*.  
*RNA.* 2004, 10:691-703.
7. **Gao L**, Mejías R, Echevarría M, López-Barneo J.  
Induction of glucose-6-phosphate dehydrogenase gene expression by chronic hypoxia in PC12 cells.  
*FEBS Letters.* 2004, 569:256-260.
8. Mejías R, Villadiego j, Pintado CO, Vime PJ, **Gao L**, Toledo-Aral JJ, Echevarría M, López-Barneo.  
Neuroprotection by transgenic expression of glucosa-6-phosphate dehydrogenase in dopaminergic nigrostriatal neurons of mice.  
*Journal of Neuroscience.* 2006, 26:4500-4508.
9. **Gao L\***, Mir P, Díaz-Corrales FJ, Mejías R, Carrillo F, Vime PJ, Díaz-Martín J, Palomino A, Carballo M, Pintado E, Lucas M, López-Barneo J (**\*Corresponding author**)  
Glucose-6-phosphate dehydrogenase activity in Parkinson's disease.  
*Journal of Neurology.* 2008, 255:1850-1851.
10. **Gao L\***, Gómez-Garre P\*, Díaz-Corrales FJ, Carrillo F, Carballo M, Palomino A, Díaz-Martín J, Mejías R, Vime PJ, López-Barneo J, Mir P (**\*Equal contribution**)

Prevalence and clinical features of *LRRK2* mutations in patients with Parkinson's disease in southern Spain.

*European Journal of Neurology*. 2009, 16:957-960.

11. **Gao L**, Díaz-Corrales FJ, Carrillo F, Díaz-Martín J, Caceres-Redondo MT, Carballo M, Palomino A, López-Barneo J, Pablo Mir  
Brain-derived neurotrophic factor G196A polymorphism and clinical features in Parkinson's disease  
*Acta Neurologica Scandinavica*. 2010, 122:41-45.
12. Romero-Ruiz A, Mejías R, Díaz-Martín J, López-Barneo J, **Gao L\***  
(\***Corresponding author**)  
Mesencephalic and striatal protein profiles in mice over-expressing glucose-6-phosphate dehydrogenase in dopaminergic neurons.  
*Journal of Proteomics*. 2010, 73:1747-1757.
13. Costa A\*, **Gao L\***, Carrillo F, Cáceres-Redondo MT, Carballo M, Díaz-Martín J, Gómez-Garre P, Sobrino F, Lucas M, López-Barneo J, Mir P, Pintado E (\***Equal contribution**)  
Intermediate alleles at the *FRAXA* and *FRAXE* loci in Parkinson's disease.  
*Parkinsonism & Related Disorders*. 2011, 17(4):281-284.
14. **Gao L\***, Díaz-Martín J, Dillmann WH, and López-Barneo J\* (\***Corresponding author**)  
Heat shock protein 70 kDa over-expression and 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine-induced nigrostriatal degeneration in mice.  
*Neuroscience*. 2011, 193:323-329.
15. Gómez-Garre P, Jesús S, Carrillo F, Cáceres MT, Bernal-Bernal I, Carballo M, **Gao L**, Mir P  
PSMC1 gene in Parkinson's disease.  
*European Neurology*. 2012, 68(4):193-198.
16. **Gao L\***, Hidalgo-Figueroa M, Escudero LM, Díaz-Martín J, López-Barneo J, Pascual A\* (\***Corresponding author**)  
Age-mediated transcriptomic changes in adult mouse substantia nigra.  
*PLoS One*. 2013 Apr 30;8(4):e62456
17. **Gao L\***, Ortega-Sáenz P, García-Fernández M, González-Rodríguez P, Caballero-Eraso C, Lopez-Barneo J\* (\***Corresponding author**)  
Glucose sensing by carotid body glomus cells: potential implications in disease  
*Frontiers in Physiology*. 2014, 5:398.
18. Fernández-Agüera MC\*, **Gao L\***, González-Rodríguez P\*, Pintado CO, Arias-Mayenco I, García-Flores P, García-Pergañeda A, Pascual A, Ortega-Sáenz P, López-Barneo J (\***Equal contribution**)  
Oxygen sensing by arterial chemoreceptors depends on mitochondrial complex I signaling  
*Cell Metabolism*. 2015, 22:825–837  
**Previews:**
19. Sánchez-López V, Vila-Liante V, Arellano-Orden E, Elías-Hernández T, Ramón-Nuñez LA, Jara-Palomares L, Martínez-Sales V, **Gao L**, Otero-Candelera R

High correlation between 2 flow cytometry platforms in the microparticles analysis using a new calibrated beads strategy  
*Translational Research*. 2015, 166(6):733-739.

20. López-Barneo J\*, Ortega-Sáenz P, González-Rodríguez P, Fernández-Agüera MC, Macías D, Pardal R, **Gao L\***. (**\*Corresponding author**)  
Oxygen-sensing by arterial chemoreceptors: Mechanisms and medical translation.  
*Molecular Aspects of Medicine*. 2016, 47-48:90-108
21. López-Barneo J, González-Rodríguez P, **Gao L**, Fernández-Agüera MC, Pardal R, Ortega-Sáenz P  
Oxygen sensing by the carotid body: Mechanisms and role in adaptation to hypoxia  
*American Journal of Physiology-Cell Physiology*. 2016, 310(8):C629-642
22. Vila-Liante V, Sánchez-López V, Martínez-Sales V, Ramón-Nuñez LA, Arellano-Orden E, Cano-Ruiz A, Rodríguez-Martorell FJ, **Gao L**, Otero-Candelera R  
Impact of sample processing on the measurement of circulating microparticles: storage and centrifugation parameters  
*Clinical Chemistry and Laboratory Medicine*. 2016, 54(11):1759-1767
23. **Gao L\***, González-Rodríguez P, Ortega-Sáenz P, López-Barneo J\*  
(**\*Corresponding author**)  
Redox signaling in acute oxygen sensing  
*Redox Biology*. 2017, 12: 908-915
24. **Gao L\***, Bonilla-Henao V, García-Flores P, Arias-Mayenco I, Ortega-Sáenz P, López-Barneo J\* (**\*Corresponding author**)  
Gene expression analyses reveal metabolic specifications in acute O<sub>2</sub>-sensing chemoreceptor cells  
*The Journal of Physiology*, 2017, 595 (18): 6091-6120 (Journal of Physiology London)
25. Arias-Mayenco I, González-Rodríguez P, Torres-Torrelo H, **Gao L**, Fernández-Agüera MC, Bonilla-Henao V, Ortega-Sáenz P, López-Barneo J  
Acute O<sub>2</sub>-Sensing: Role of Coenzyme QH<sub>2</sub>/Q Ratio and Mitochondrial ROS Compartmentalization  
*Cell Metabolism*, 2018, 28: 145-158.
26. **Gao L\***, Ortega-Sáenz P, López-Barneo J\* (**\*Corresponding author**)  
Acute oxygen sensing - Role of metabolic specifications in peripheral chemoreceptor cells  
*Respiratory Physiology & Neurobiology*, 2019, 265: 100-111.
27. Moreno-Domínguez A\*, Ortega-Sáenz P\*, **Gao L\***, Colinas O, García-Flores P, Bonilla-Henao V, Aragonés J, Hüttemann M, Grossman LI, Weissmann N, Sommer N, López-Barneo J (**\*Equal contribution**)  
Acute O<sub>2</sub> sensing through HIF2 $\alpha$ -dependent expression of atypical cytochrome oxidase subunits in arterial chemoreceptors  
*Science Signaling*, 2020, 13: eaay9452
28. Sánchez-López V, **Gao L**, Arellano-Orden E, Ferrer-Galván M, Elías-Hernández T, Jara-Palomares J, Castro MJ, Rodríguez-Martorell FJ, Lobo Beristain JL, Ballaz-Quincoces A, Vila-Liante V, Otero-Candelera R

Differential biomarker profiles between unprovoked venous thromboembolism and cancer

Annals of Medicine, 2020, 52(6): 310-320

29. Ortega-Sáenz P, Moreno-Domínguez A, **Gao L**, López-Barneo J  
Molecular Mechanisms of Acute Oxygen Sensing by Arterial Chemoreceptor Cells. Role of Hif2 $\alpha$ .  
Frontiers in Physiology, 2020, 11: 614893.
30. **Gao L**, Arias-Mayenco I, Ortega-Sáenz P, López-Barneo J.  
Using redox-sensitive fluorescent probes to record real-time reactive oxygen species production in cells from mouse carotid body slices.  
Star Protocols, 2021, 2, 100535.
31. Torres-Torrelo H, Ortega-Sáenz P, **Gao L**, López-Barneo J  
Lactate sensing mechanisms in arterial chemoreceptor cells.  
Nature Communications, 2021, 12: 4166.
32. González-Rodríguez P, Zampese E, Stout KA, Guzman JN, Ilijic E, Yang B, Tkatch T, Stavarache MA, Wokosin DL, **Gao L**, Kaplitt MG, López-Barneo J, Schumacker PT, Surmeier DJ  
Disruption of mitochondrial complex I induces progressive parkinsonism.  
Nature, 2021, 599: 650-656.
33. **Gao L**, Ortega-Saenz P, Moreno-Dominguez A, López Barneo J.  
Mitochondrial redox signaling in O<sub>2</sub>-sensing chemoreceptor cells.  
Antioxidants & Redox Signaling. 2022. doi: 10.1089/ars.2021.0255.

## BOOK CHAPTERS

1. Ortega-Sáenz P, Caballero C, **Gao L**, López-Barneo J  
Testing Acute Oxygen Sensing in Genetically Modified Mice: Plethysmography and Amperometry  
*Methods Mol Biol.* 2018;1742:139-153.  
(*Hypoxia: Methods and Protocols* Editor L. Eric Huang, Springer)

## REVIEWER OF GRANTS

- Agencia Nacional de Evaluación y Prospectiva (ANEP)
- Sociedad Española de Neumología y Cirugía Torácica (SEPAR)
- Fundación Pública Andaluza Progreso y Salud/Consejería de Salud

## MEMBERSHIP OF SCIENTIFIC SOCIETY

- The American Physiological Society: 1999-2000
- The Oxygen Society: 1999-2000
- Sociedad Española de Neumología y Cirugía Torácica (SEPAR): 2013-present
- Asociación de Neumología y Cirugía Torácica de SUR (Neumosur): 2013-2021
- European Respiratory Society: 2015-2017

## **PATENT**

Título: Compuestos para el tratamiento de la sobre-activación simpática

Número de solicitud: P202030314

Fecha de recepción: 17 abril 2020

Su referencia: ES1650.127

Solicitante: UNIVERSIDAD DE SEVILLA

Coinventores: José López Barneo, Gracia patricia Ortega Sáenz, Olalla Colina  
Miranda, Lin Gao Chen, Alejandro Moreno Domínguez