

CURRICULUM VITAE

Part A. PERSONAL INFORMATION

First name	Lin			
Family name	Gao Chen			
e-mail	lgao@us.es & lgao-ibis@us.es		URL Web	
Open Researcher and Contributor ID (ORCID)				0000-0002-1781-4671
Scopus author ID				56937463300
Researcher ID				C-8318-2015

A.1. Current position

Position	Associate Professor (Profesora Titular de Universidad)		
Initial date	20/07/2021		
Institution	Universidad de Sevilla		
Department/Center	Departamento de Fisiología Médica y Biofísica/Instituto de Biomedicina de Sevilla (IBiS)		
Country	Spain	Telephone number	+34 955923033
Key words	Hypoxia, intermittent hypoxia, O ₂ and glucose sensing, oxidative stress, neurodegeneration, pulmonary diseases, carotid body, mitochondria, genetic animal models, biochemistry, cell biology, transcriptomics, proteomics.		

Part B. Summary of scientific production:

Total No. of publications: 41 (18 as first author, 9 as corresponding author)

Total No. of publications in 1st decile: 9

Total No. of publications in the remaining 1st quartile: 22

Total No. of citations: 1867

h-Index: 20

No. of "Sexenios" granted: 4

Part C. RELEVANT MERITS

C.1. 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. DOI: 10.1152/ajplung.1997.273.5.L1042. IF: 3.116 (Q1).
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. DOI: 10.1152/ajplung.1998.275.5.L861. IF: 3.077 (Q1).
3. **Gao L**, Kim KJ, Yankaskas JR, Forman HJ. Abnormal glutathione transport in cystic fibrosis airway epithelia. *Am J Physiol.* 1999, 277:L113-L118. DOI: 10.1152/ajplung.1999.277.1.L113. IF: 3.147 (Q1).
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. DOI: 10.1152/ajplung.2001.281.1.L24. IF: 3.658 (Q1).
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. DOI: 10.1152/ajplung.2001.281.5.L1123. IF: 3.658 (Q1).
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. DOI: 10.1261/rna.5147804. IF: 5.842 (Q1).
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 Lett.* 2004, 569:256-260. DOI: 10.1016/j.febslet.2004.06.004. IF: 3.843 (Q1).
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. *J Neurosci.* 2006, 26:4500-4508. DOI: 10.1523/JNEUROSCI.0122-06.2006. IF: 7.453 (D1).

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. *J Neurol*. 2008, 255:1850-1851. DOI: 10.1007/s00415-008-0937-0. IF: 2.536 (Q2).
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. *Eur J Neurol*. 2009, 16:957-960. DOI: 10.1111/j.1468-1331.2009.02620.x. IF: 2.510 (Q2).
11. **Gao L**, Díaz-Corrales FJ, Carrillo F, Díaz-Martín J, Cáceres-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 Neurol Scand*. 2010, 122:41-45. DOI: 10.1111/j.1600-0404.2009.01253.x. IF: 2.153 (Q2).
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. *J Proteomics*. 2010, 73:1747-1757. DOI: 10.1016/j.jprot.2010.05.014. IF: 5.074 (Q1).
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 Relat Disord*. 2011, 17:281-284. DOI: 10.1016/j.parkreldis.2010.12.013. IF: 3.795 (Q1).
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. DOI: 10.1016/j.neuroscience.2011.07.028. IF: 3.380 (Q2).
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. *Eur Neurol*. 2012, 68:193-198. DOI: 10.1159/000339003. IF: 1.500 (Q3).
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, 8:e62456. DOI: 10.1371/journal.pone.0062456. IF: 3.534 (Q1).
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. *Front Physiol*. 2014, 5:398. DOI: 10.3389/fphys.2014.00398. IF: 3.534 (Q1).
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 Metab*. 2015, 22:825-837. DOI: 10.1016/j.cmet.2015.09.004. IF: 17.303 (**D1**).
19. Sánchez-López V, Vila-Liante V, Arellano-Orden E, Elías-Hernández T, Ramón-Núñez 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. *Transl Res*. 2015, 166:733-739. DOI: 10.1016/j.trsl.2015.08.006. IF: 4.557 (**D1**).
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. *Mol Aspects Med*. 2016, 47-48:90-108. DOI: 10.1016/j.mam.2015.12.002. IF: 5.686 (**D1**).
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. *Am J Physiol Cell Physiol*. 2016, 310:C629-642. DOI: 10.1152/ajpcell.00265.2015. IF: 3.602 (Q1).
22. Vila-Liante V, Sánchez-López V, Martínez-Sales V, Ramón-Núñez 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. *Clin Chem Lab Med*. 2016, 54:1759-1767. DOI: 10.1515/cclm-2016-0036. IF: 3.432 (Q1).
23. **Gao L***, González-Rodríguez P, Ortega-Sáenz P, López-Barneo J* (***Corresponding author**). Redox signaling in acute oxygen sensing. *Redox Biol*. 2017, 12:908-915. DOI: 10.1016/j.redox.2017.04.033. IF: 7.126 (Q1).
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 O₂-sensing chemoreceptor cells. *J Physiol*. 2017, 595:6091-6120. DOI: 10.1113/JP274684. IF: 4.54 (Q1).
25. Arias-Mayenco I, González-Rodríguez P, Torres-Torrel H, **Gao L**, Fernández-Agüera MC, Bonilla-Henao V, Ortega-Sáenz P, López-Barneo J. Acute O₂-Sensing: Role of Coenzyme QH₂/Q Ratio and Mitochondrial ROS Compartmentalization. *Cell Metab*. 2018, 28:145-158. DOI: 10.1016/j.cmet.2018.05.009. IF: 22.454 (**D1**).
26. **Gao L***, Ortega-Sáenz P, López-Barneo J* (***Corresponding author**). Acute oxygen sensing - Role of metabolic specifications in peripheral chemoreceptor cells. *Respir Physiol Neurobiol*. 2019, 265:100-111. DOI: 10.1016/j.resp.2018.08.007. IF: 1.591 (Q4).

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 O₂ sensing through HIF2 α -dependent expression of atypical cytochrome oxidase subunits in arterial chemoreceptors. *Sci Signal*, 2020, 13:eaay9452. DOI: 10.1126/scisignal.aay9452. IF: 8.192 (Q1).
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. *Ann Med*. 2020, 52:310-320. DOI: 10.1080/07853890.2020.1779956. IF: 4.709 (Q1).
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 α . *Front Physiol*, 2020, 11:614893. DOI: 10.3389/fphys.2020.614893. IF: 4.566 (Q1).
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 Protoc*. 2021, 2:100535. DOI: 10.1016/j.xpro.2021.100535. IF: 1.3 (Q4).
31. Torres-Torrelo H, Ortega-Sáenz P, **Gao L**, López-Barneo J. Lactate sensing mechanisms in arterial chemoreceptor cells. *Nat Commun*. 2021, 12:4166. DOI: 10.1038/s41467-021-24444-7. IF: 17.694 (**D1**).
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. DOI: 10.1038/s41586-021-04059-0. IF: 69.504 (**D1**).
33. McElroy GS, Chakrabarty RP, D'Alessandro KB, Hu YS, Vasan K, Tan J, Stoolman JS, Weinberg SE, Steinert EM, Reyfman PA, Singer BD, Ladiges WC, **Gao L**, López-Barneo J, Ridge K, Budinger GRS, Chandel NS. Reduced expression of mitochondrial complex I subunit Ndufs2 does not impact healthspan in mice. *Sci Rep*. 2022, 12:5196. DOI: 10.1038/s41598-022-09074-3. IF: 4.6 (Q2).
34. **Gao L**, Ortega-Saenz P, Moreno-Dominguez A, López Barneo J. Mitochondrial redox signaling in O₂-sensing chemoreceptor cells. *Antioxid Redox Signal*. 2022, 376:274-289. DOI: 10.1089/ars.2021.0255. IF: 6.6 (Q1).
35. Cabello-Rivera D, Ortega-Sáenz P, **Gao L**, Muñoz-Cabello AM, Bonilla-Henao V, Schumacker PT, López-Barneo J. Oxygen regulation of breathing is abolished in mitochondrial complex III-deficient arterial chemoreceptors. *Proc Natl Acad Sci USA*, 2022, 119: e2202178119. DOI: 10.1073/pnas.2202178119. IF: 11.1 (Q1).
36. Caballero-Eraso C, Colinas O, Sobrino V, González-Montelongo R, Cabeza JM, **Gao L**, Pardal R, López-Barneo J, Ortega-Sáenz P. Rearrangement of cell types in the rat carotid body neurogenic niche induced by chronic intermittent hypoxia. *J Physiol*, 2023, 601: 1017-1036. DOI: 10.1113/JP283897. IF: 4.7 (Q1)
37. Jiménez-Gómez B, Ortega-Sáenz P, **Gao L**, González-Rodríguez P, Paula García-Flores P, Chandel N, López-Barneo J. Transgenic NADH dehydrogenase restores oxygen regulation of breathing in mitochondrial complex I-deficient mice. *Nature Communications* 2023 14(1):1172. DOI: 10.1038/s41467-023-36894-2. IF: 14.7 (**D1**).
38. Han S, Lee M, Shin Y, Giovanni R, Chakrabarty RP, Herrerias MM, Dada LA, Flozak AS, Reyfman PA, Khuder B, Reczek CR, **Gao L**, López-Barneo J, Gottardi CJ, Budinger GRS, Chandel NS. Mitochondrial integrated stress response controls lung epithelial cell fate. *Nature* 2023, 620(7975): 890-897. DOI: 10.1038/s41586-023-06423-8. IF: 50.5 (**D1**)
39. Torres-López M, González-Rodríguez P, Colinas O, Rho H-S, Torres-Torrelo H, Castellano A, **Gao L**, Ortega-Sáenz P, López-Barneo J. Intracellular signaling in arterial chemoreceptors during acute hypoxia and glucose deprivation: Role of ATP. *J Physiol*, 2025, 603:1091-1107. DOI: 10.1113/JP287130 IF: 4.7 (Q1)
40. Torres-López M, Spiller PF, **Gao L**, García-Flores P, Murphy, MP, Ortega-Sáenz P, López-Barneo J. Acute oxygen sensing by arterial chemoreceptors with a mutant mitochondrial complex I ND6 subunit lacking reverse electron transport. *FEBS Lett* 2025.. doi: 10.1002/1873-3468.70017. IF: 3.0 (Q2)

Book chapter:

41. 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. DOI: 10.1007/978-1-4939-7665-2_13.

C.2. Research projects

As principal investigator: (> 30 national and international projects as collaborator)

PROJECT TITLE: "Quimiorrecepción en el cuerpo carotideo: Modulación y plasticidad en la salud y la enfermedad"

CENTER: Instituto de Biomedicina de Sevilla (IBIS)/Universidad de Sevilla

FINANCIAL ENTITY: Ministerio de Ciencia, Innovación y Universidades (PID2023-146862OB-I00)

LENGTH: 01/09/2024-31/08/2027

AMOUNT: 250000€

PI: Gracia Patricia Ortega Saenz & Lin Gao Chen

PROJECT TITLE: "Eje cuerpo carotídeo-médula adrenal y complicaciones cardiovasculares y metabólicas asociadas al síndrome de apnea hipopnea del sueño"

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, US-1255654)

LENGTH: 01/02/2020-30/04/2022

AMOUNT: 89700 €

PI: Gracia Patricia Ortega Saenz & Lin Gao Chen

PROJECT TITLE: "Sensibilidad al oxígeno y Neurodegeneración"

FINANCIAL ENTITY: Ministerio de Economía y Competitividad (Retos Investigación: Proyectos I+D+i 2016, SAF2016-74990-R)

LENGTH: 30/12/2016-29/12/2019

AMOUNT: 484000€

PI: José López Barneo & Lin Gao Chen

PROJECT TITLE: "Búsqueda de biomarcadores en pacientes con enfermedad tromboembólica venosa y cáncer mediante análisis proteómico"

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

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

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

AMOUNT: 9000€

PI: Lin Gao Chen

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

FINANCIAL ENTITY: Instituto de Salud Carlos III, Ministerio de Sanidad y Consumo ((CP03/00047)

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

AMOUNT: 42000€

PI: Lin Gao Chen

C.3. Patent

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

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

Priority country: Spain

Application number: P202030314

Date of reception: 2020-04-17

Reference: ES1650.127

Applicant: Universidad de Sevilla

C.4. External expert for grant evaluation

- Agencia Nacional de Evaluación y Prospectiva (ANEP): 2017-present

-Consejería de Salud, Junta de Andalucía: 2017-present

-Sociedad Española de Neumología y Cirugía Torácica (SEPAR): 2016-present

-UK Research and Innovation: 2024

C.5. Supervision of student's research project:

PhD dissertation: 3

Master thesis (TFM): 3

BS research project (TFG): 7 + 1 ongoing

Participation in PhD program: "Programa de Doctorado en Biología Molecular, Biomedicina e Investigación Clínica", University of Seville: 2023-present