

CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

First name	David		
Family name	Brea López		
Gender (*)	Male	Birth date (dd/mm/yyyy)	21/07/1982
Social Security, Passport, ID number	44821368A		
e-mail	davidbrealopez@outlook.com	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0003-2365-7374		

(*) *Mandatory*

A.1. Current position

Position	Ramon y Cajal Fellow		
Initial date	01/01/2023		
Institution	Consejo Superior de Investigaciones Científicas		
Department/Center	Instituto de Investigaciones Biomédicas de Barcelona		
Country	Spain	Teleph. number	
Key words	Stroke, Immunology, Neuroinflammation, T cells, microbiota		

A.2. Previous positions (research activity interruptions, indicate total months)

Period	Position/Institution/Country/Interruption cause
2019-2022	Assistant Researcher-Champalimaud Foundation/Portugal
2017-2018	Instructor in Neurosciences/Cornell University/USA
2014-2017	Postdoctoral Associate/Cornell University/USA
2013-2014	Visiting researcher/Cornell University/USA
2012-2014	Postdoctoral Researcher (Sara Borrell fellow)/Fundación Instituto Germans Trias I Pujol, Badalona/Spain
2011-2011	Postdoctoral Researcher/ Fundación IDICHUS, Santiago de Compostela, Spain
2005-2011	PhD student/Fundación IDICHUS, Santiago de Compostela/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD, Molecular Biology and Biotechnology	Universidad de Santiago de Compostela	2010
BsC, Biology	Univesidad de Santiago de Compostela	2005

(Include all the necessary rows)

Part B. CV SUMMARY (max. 5000 characters, including spaces)

I started my research on 2005 as PhD Student at the University of Santiago de Compostela. During this stage I was able to obtain competitive grants from Xunta de Galicia (Ayudas para tercer ciclo) and from the Spanish Ministry of Health (Ayudas predoctorales de Formación en Investigación-Instituto de Salud Carlos III). After a short period as postdoctoral researcher in the same research group, I obtained a highly competitive Sara Borrell fellowship from the Instituto de Salud Carlos III of the Spanish Ministry of Health (and I moved to Research Institute Germans Trias I Pujol of the Germans Trias i Pujol University Hospital (Badalona, Spain) under the supervision of Prof. Antonio Dávalos. In 2013 I started a new postdoc at the University of



Cornell (New York, USA, under the supervision of Prof. C. Iadecola, a very reputed scientist in the field of inflammation and immunology in Neuroscience, that culminate in 2017, after publishing a paper in Nature medicine, being promoted to Instructor in Neurosciences. In 2019 I joined the Champalimaud Foundation (Lisbon, Portugal) after winning a competitive FCT "Investigador Auxiliar" position, that allowed me to work independently on my research line focused on understanding how stroke-induced brain signals affect peripheral immune system, obtaining in 2021 my first project as a PI. In 2022 I applied to the Ramón y Cajal program being successfully financed and starting at the Instituto de Investigaciones Biomédicas de Barcelona (IIBB-CSIC) on January, 2023. Finally in 2024 I am expecting to start as "Científico Titular" at the same institute after winning this position at the "Concurso-Oposición" that took place in December 2022. From the beginning of my career, I have been able to obtain financial support in the form of competitive grants in every different stage (pre and postdoctoral fellowships) and I have been collaborating in the obtaining of financial support for my research projects, having participated in 14 competitive national and international projects. Notably, I have participated in two NIH grants that guarantee the financial stability of our laboratory (>1 million \$/year x 5 years), and recently (2021) I got my first grant as a Principal Investigator, awarded by the Portuguese Ministry of Science with 250.000 €. As a result of my participation in these projects, I achieved an extensive record of publications and conference communications (44), in addition to one international patent. I have accumulated a total of 50 published papers in peer-reviewed journals (including Nature, Nature medicine, Nature neurosciences), 18 as first author, and the last 2 as corresponding author. I accumulate a total impact factor of more than 200 points and my H-index is 30. My papers have been cited a total of 4082 times. Other highlights of my career are: - PhD extraordinary award from the European PhD thesis from the University of Santiago de Compostela (in 2013). - Appointed as Associated Editor of BMC Neurology (2013-Currently). - Reviewer for the Spanish ANEP (Agencia Nacional de Evaluación y Prospectiva) since 2016. Besides to my development as researcher, I have been involved in teaching activities as collaborating teacher ("colaborador docente") at the Department of Medicine of the University of Santiago de Compostela from 2008 to 2014. I was also co-director of an Academic Tutored Grade Work, presented in July 2009 in the University of Santiago de Compostela, I was invited in 2011 to be a member of a PhD thesis committee at the University of Santiago de Compostela and I have supervised a PhD student on his rotation period at Champalimaud Foundation. In addition, I actively participate in events of science divulgation with radio and newspaper articles.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (10 most relevant: complete list at:

https://scholar.google.com/citations?hl=es&user=PPXQ58IAAAAJ&view_op=list_works&sort_by=pubdate)

1. **Brea D** (AC)*, Veiga-Fernandes H*. 2022. Inflammation in the gut is encoded by neurons in the brain. **Nature**. 2022 Jan 10. doi: 10.1038/d41586-021-03802-x. *Corresponding author. IF: 49.962.
2. **Brea D** (AC)*, Poon C, Benakis C, Lubitz G, Murphy M, Iadecola C, Anrather J*. 2021. Stroke affects intestinal immune cell trafficking to the central nervous system. *Brain Behav Immun*. 96:295-302. *Corresponding author. IF: 7.217.
3. Benakis C, Poon C, Lane D, **Brea D**, Sita G, Moore J, Murphy M, Racchumi G, Iadecola C, Anrather J. 2020. Distinct Commensal Bacterial Signature in the Gut Is Associated With Acute and Long-Term Protection From Ischemic Stroke. *Stroke*; 51(6): 1844-1854. IF: 7.914.
4. Faraco G, **Brea D**, Garcia-Bonilla L, Wang G, Racchumi G, Chang H, Buendia I, Santisteban MM, Segarra SG, Koizumi K, Sugiyama Y, Murphy M, Voss H, Anrather J, Iadecola C. 2018. Dietary salt promotes neurovascular and cognitive dysfunction through a gut-initiated TH17 response. **Nat Neurosci**; 21(2): 240-249. IF: 24.884.
5. Garcia-Bonilla L, **Brea D**, Benakis C, Lane DA, Murphy M, Moore J, Racchumi G, Jiang X, Iadecola C, Anrather J. 2018. Endogenous Protection from Ischemic Brain Injury by Preconditioned Monocytes. *J Neurosci*; 38(30): 6722-6736. IF: 6.167.
6. Benakis C*, **Brea D***, Caballero S, Faraco G, Moore J, Murphy M, Sita G, Racchumi G, Ling L, Pamer EG, Iadecola C, Anrather J. 2016. Commensal microbiota affects ischemic

stroke outcome by regulating intestinal $\gamma\delta$ T cells. **Nat Med**; 22(5): 516-23. * Two first are co-authors. IF: 53.44.

7. Garcia-Bonilla L, Faraco G, Moore J, Murphy M, Racchumi G, Srinivasan J, **Brea D**, Iadecola C, Anrather J. 2016. Spatio-temporal profile, phenotypic diversity, and fate of recruited monocytes into the post-ischemic brain. *J Neuroinflammation*; 13(1): 285. IF: 7.53.
8. **Brea D**, Agulla J, Rodríguez-Yáñez M, Barral D, Ramos-Cabrer P, Campos F, Almeida A, Dávalos A, Castillo J. 2014. Regulatory T cells modulate inflammation and reduce infarct volume in experimental brain ischaemia. *J Cell Mol Med*; 18(8): 1571-9. IF: 5.31.
9. Agulla J*, **Brea D***, Campos F, Sobrino T, Argibay B, Al-Soufi W, Blanco M, Castillo J, Ramos-Cabrer P. 2013. In vivo theranostics at the peri-infarct region in cerebral ischemia. *Theranostics*; 4(1): 90-105. * Two first are co-authors. IF: 11.556
10. **Brea D**, Blanco M, Ramos-Cabrer P, Moldes O, Arias S, Pérez-Mato M, Leira R, Sobrino T, Castillo J. 2010. Toll-like receptors 2 and 4 in ischemic stroke: outcome and therapeutic values. *J Cereb Blood Flow Metab*; 31(6): 1424-31. IF: 5.07.

C.2. Congresses (10 most relevant)

1. **Brea D**, Poon C, Murphy M, Iadecola C, Anrather J. Nasal associated lymphoid tissue ablation does not affect infarct volume or immune cell infiltration after stroke. Society for Neuroscience 2017. Washington DC (USA). Type of communication: Poster.
2. **Brea D**, Benakis C, Murphy M, Iadecola C, Anrather J. Stroke affects intestinal immune cell trafficking to the CNS. Society for Neurosciences 2016. San Diego (USA). Type of communication: Poster.
3. **Brea D**, Poon C, Murphy M, Iadecola C, Anrather J. Nasal associated lymphoid tissue ablation does not affect infarct volume or immune cell infiltration after stroke. Society for Neuroscience 2017. Washington DC (USA). Type of communication: Poster.
4. **Brea D**, Agulla J, Campos F, Dávalos A, Castillo J, Ramos-Cabrer P. Regulatory T cells modulate inflammation and reduce infarct volume in experimental ischemia. 22nd European Stroke conference. London (UK). 2013. Type of communication: Oral
5. **Brea D**, Agulla J, Pérez-Mato M, Arias-Rivas S, Rodríguez-Yáñez M, Castillo J, Ramos-Cabrer P. Molecular profiling of the peri-infarct region dynamics in cerebral ischemia. 21 European Stroke Conference. Lisbon (Portugal), 2012. Type of communication: Oral.
6. **Brea D**, Ferro J, Agulla J, Pérez-Mato M, Campos F, Ramos-Cabrer P, Sobrino T, Blanco M, Castillo J. Toll like receptors 2 and 4 in ischemic stroke: outcome and therapeutic values. 20th European Stroke Conference. Hamburg, Germany, 2011. Type of communication: Poster.
7. **Brea D**, Sobrino T, Rodríguez-González R, Moldes O, Agulla J, Argibay B, Leira R, Campos F, Castillo J. Proteomic analysis shows differential protein expression in endothelial progenitor cells between healthy subjects and patients with ischemic stroke. European Stroke Conference 2010. Barcelona (Spain), 2010. Type of communication: Oral.
8. **Brea D**, Sobrino T, Blanco M, Agulla J, Rodríguez-Yáñez M, Millán M, Pérez de la Ossa N, Leira R, Dávalos A, Castillo J. Usefulness of haptoglobin and serum amyloid-a proteins as biomarkers for ischemic stroke subtype classification. European Stroke Conference 2009. Stocholm (Sweden), 2009. Type of communication: Poster.
9. **Brea D**, Sobrino T, Rodríguez-Yáñez M, Cristobo I, Rodríguez-González R, Moldes O, Leira R, Castillo J. Proteomic identification of potential biomarkers for ischemic stroke subtype. International Stroke Conference. New Orleans (USA), 2008. Type of communication: Poster.
10. **Brea D**, Rodríguez-González R, Cristobo I, Agulla J, Castillo J, Sobrino T. Differential protein expression in endothelial progenitor cells between healthy subjects and patients with ischemic stroke determined by proteomic analysis. Neuroscience 2007. SfN 37th Annual Meeting. San Diego (USA), 2007. Type of communication: Oral.

C.3. Research projects (10 most relevant)

As principal investigator.

1. Title: Regulamento da imunidade intestinal por sinais derivados do cérebro.
Principal Investigator: **David Brea López**
Participants: Henrique Veiga-Fernandes, Bruno Raposo, Hélder Ribeiro, Inês Godinho, Marko Sestan. Awarded by: FCT Projectos de investigação científica e desenvolvimento tecnológico
Time for the project: 2021-2024. Amount: 248338.75 €. Project: PTDC/MED-IMU/0870/2020.

As collaborator/key personnel.

1. Title: Immunomodulation by commensal microbiota: role in ischemic brain injury. Investigator: Josef Anrather. Key Personal: **David Brea**. Awarded by: National Institute of Neurological Disorders & Stroke (R01 NS094507-01A1). Time for the project: 2016 – 2021. Amount: 1.853.905 \$.
2. Title: APOE4 and mechanisms of diffuse white matter injury. Principal Investigator: Costantino Iadecola. Key Personal: Josef Anrather, **David Brea**, Wang Gang. Awarded by: National Institute of Neurological Disorders & Stroke (R01 NS100447-01). Time for the project: 2016-2021. Amount: 3.536.550 \$.
3. Title: Troyanos teranósticos para diagnóstico y tratamiento en la isquemia cerebral. Estudio preclínico. In vivo. Principal Investigator: Pedro Ramos. Colaborators: **David Brea**, Fran Campos, Octavio Moldes, Jesús Agulla, María Santamaría. Awarded by: Ministerio de Innovación y Ciencia. (Spanish Ministry of Science) PI11/02161. Time for the project: 3 Years (2012-2014). Amount of funding: 100.566,73 €.
4. Title: Las células T reguladoras como nexo de unión entre neuroprotección y neuroreparación tras la isquemia cerebral. Principal Investigator: Manuel Rodríguez-Yañez. Colaborators: Miguel Blanco, Susana Arias, José C. Fernández Ferro, **David Brea**, Bárbara Argibay, Jesús Agulla. Awarded by: Ministerio de Innovación y Ciencia (Spanish Ministry of Science). PI11/02636. Time for the project: 3 Years (2012-2014). Amount of funding: 93.829,45 €.
5. Title: Neuroreparación en la isquemia cerebral mediada por vectorización magnética de células madre neuronales activadas. Principal Investigator: José Castillo. Colaborators: Rogelio Leira, Miguel Blanco, Manuel Rodríguez-Yañez, **David Brea**, Bárbara Argibay, Juan Manuel Pías. Awarded by: Consellería de Industria. Xunta de Galicia. 09CS4057918PR. Time for the project: 3 Years (2009-2012). Amount of funding: 87.170,00 €.
6. Title: Liposomas vectorizados hacia la zona peri-infarto como nueva estrategia terapéutica en la isquemia cerebral. Principal Investigator: Tomás Sobrino. Colaborators: José Castillo, Miguel Blanco, **David Brea**, Jesús Agulla, Bárbara Argibay. Awarded by: Consellería de Sanidade. Xunta de Galicia. PS09/32. Time for the project: 3 Years (2009-2011). Amount of funding: 85.365,00 €.
7. Title: Aplicación de factores de crecimiento estimulantes del desarrollo y diferenciación de células progenitoras endoteliales en la isquemia cerebral: estudio clínico - experimental. Principal Investigator: José Castillo. Colaborators: Rogelio Leira, Tomás Sobrino, Miguel Blanco, Manuel Rodríguez Yañez, **David Brea**, Iván Cristobo, Isabel Jiménez, Susana Arias, María Pouso, Xiana Rodríguez-Osorio, María Sabucedo. Awarded by: Ministerio de Innovación y Ciencia (Spanish Ministry of Science). SAF2008-00737. Time for the project: 3 Years (2009-2011). Amount of funding: 70.000,00 €.
8. Title: Neuroreparación en la isquemia cerebral: aplicabilidad en la clínica de marcadores moleculares y celulares de plasticidad cerebral. Principal Investigator: Rogelio Leira Muíño. Colaborators: José Castillo, Miguel Blanco, Manuel Rodríguez-Yañez, Tomás Sobrino, Olivia Hurtado, Isabel Jiménez, **David Brea**, Susana Arias. Awarded by: Consellería de Innovación, Industria e Comercio y Consellería de Sanidade. Xunta de Galicia. PGIDIT06BTF91801PR. Time for the project: 3 Years (2006-2009). Amount of funding: 108.986,00 €.
9. Title: Proteómica de expresión de las células progenitoras endoteliales en pacientes con ictus isquémico y en sujetos control. Principal Investigator: José Castillo Sánchez. Colaborators: Rogelio Leira, Miguel Blanco, Tomás Sobrino, Manuel Rodríguez-Yañez, Jorge García, Esther Mosquera, Iván Cristobo, Raquel Rodríguez, **David Brea**. Awarded by: Fundación MMA (Investigación Médica). Time for the project: 3 Years (2006-2009). Amount of funding: 70.000,00 €.

C.4. Technology/Knowledge transfer (Patent).

1. Authors: José Castillo Sánchez, Pedro Ramos Cabrer, Tomás Sobrino Moreiras, Jesús Agulla Freire, David Brea López. Title: LIPOSOMAS CON ANTICUERPOS CONTRA MARCADORES DE LA ZONA PERI-INFARTO CEREBRAL. Register number: WO2012062949. Priority date: November 2010. Entities: Servicio galego de Saúde-Fundación IDICHUS-Universidade de Santiago de Compostela. Countries: International (including EU and USA).