



Curriculum Vitae

Personal information **Jennifer David**

Work experience

April 2025- Present
Clinical assessor, Health Products Regulatory Authority, Ireland.
Assessment of human medicines products to evaluate their safety and efficacy in the centralized procedure.

March 2023 – March 2025
Senior research associate, Anesthesiology, Duke University, USA
October 2020 – March 2023
Post-doctoral researcher, Anesthesiology, Duke University, USA
Conducted collaborative research on post-operative delirium biomarkers (humans & mice)
Integrated results into grant applications and authored publications
Submitted animal procedures regulatory documents and worked with IACUC and OESO to make sure animal procedures and lab spaces were following the regulations.

March 2018 – October 2020
Post-doctoral researcher, Cell biology, Duke University, USA
Investigated biomarkers in brain injury and repair mechanisms following stroke, producing innovative insights shared in conferences and publications.
Authored a comprehensive literature review on brain repair, highlighting translational implications.
Partnered with engineering labs to explore novel therapeutic solutions for stroke recovery.
Submitted animal procedures regulatory documents and worked with IACUC and OESO to make sure animal procedures and lab spaces were following the regulations

September 2014 – September 2017
Skłodowska-Curie Early-stage Researcher, Brain Imagine Return to Health (R'BIRTH) Consortium, European Commission, Trinity College Dublin, Ireland
Tested a clinically relevant drug derived from Ketamine both in an in vitro model and on a depressive-like animal model and identified its impact in the brain, leading scientific publications
Presented original research at national and international conferences and yearly project presentations and reports for R'BIRTH.
Established collaborations with a laboratory in Finland as part of a Ph.D. secondment at Turku University and with another laboratory in Ireland.
Submitted animal procedures regulatory documents and worked with HPRA to make sure animal procedures were following the regulations

Education and training

September 2014 – February 2018, Ph.D. in Pharmaceutical Sciences, Trinity College Dublin, Ireland

September 2012 – June 2014, M.S. in Neuropsychopharmacology, University of Bordeaux, France

September 2009 – June 2012, B.S. in Molecular and Cellular Biology, University of Bordeaux, France

Additional information

Publications

Wilson KL, Joseph NI, Onweller LA, Anderson AR, Darling NJ, David-Bercholz J, Segura T. SDF-1 Bound Heparin Nanoparticles Recruit Progenitor Cells for Their Differentiation and Promotion of Angiogenesis after Stroke. *Adv Healthc Mater.* 2024 Oct;13(25):e2302081. doi: 10.1002/adhm.202302081. Epub 2023 Dec 20. PubMed PMID: 38009291; PubMed Central PMCID: PMC11128481.

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Li H, Le L, Marrero M, David-Bercholz J, Caceres AI, Lim C, Chiang W, Majewska AK, Terrando N, Gelbard HA. Neutrophilia with damage to the blood-brain barrier and neurovascular unit following acute lung injury. *bioRxiv.* 2023 Oct 17;. doi: 10.1101/2023.10.16.562508. PubMed PMID: 37905036; PubMed Central PMCID: PMC10614777.

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David-Bercholz J, Acker L, Caceres AI, Wu PY, Goenka S, Franklin NO, Rodriguez RM, Wetsel WC, Devinney M, Wright MC, Zetterberg H, Yang T, Berger M, Terrando N. Conserved YKL-40 changes in mice and humans after postoperative delirium. *Brain Behav Immun Health.* 2022 Dec;26:100555. doi: 10.1016/j.bbih.2022.100555. eCollection 2022 Dec. PubMed PMID: 36457825; PubMed Central PMCID: PMC9706140.

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David-Bercholz J, Kuo CT, Deneen B. Astrocyte and Oligodendrocyte Responses From the Subventricular Zone After Injury. *Front Cell Neurosci.* 2021;15:797553. doi: 10.3389/fncel.2021.797553. eCollection 2021. Review. PubMed PMID: 35002630; PubMed Central PMCID: PMC8740317.

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O'Reilly K, O'Farrell K, Midttun O, Rakovets Y, David-Bercholz J, Harkin A. Kynurenic Acid Protects Against Reactive Glial-associated Reductions in the Complexity of Primary Cortical Neurons. *J Neuroimmune Pharmacol.* 2021 Sep;16(3):679-692. doi: 10.1007/s11481-020-09976-x. Epub 2021 Jan 3. PubMed PMID: 33389453.

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David J, Gormley S, McIntosh AL, Kebede V, Thuery G, Varidaki A, Coffey ET, Harkin A. L-alpha-amino adipic acid provokes depression-like behaviour and a stress related increase in dendritic spine density in the pre-limbic cortex and hippocampus in rodents. *Behav Brain Res.* 2019 Apr 19;362:90-102. doi: 10.1016/j.bbr.2019.01.015. Epub 2019 Jan 9. PubMed PMID: 30639510.

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David J, O'Toole E, O'Reilly K, Thuery G, Assmann N, Finlay D, Harkin A. Inhibitors of the NMDA-Nitric Oxide Signaling Pathway Protect Against Neuronal Atrophy and Synapse Loss Provoked by L-alpha Amino adipic Acid-treated Astrocytes. *Neuroscience*. 2018 Nov 10;392:38-56. doi: 10.1016/j.neuroscience.2018.09.023. Epub 2018 Sep 27. PubMed PMID: 30267830.

Projects

I have expertise in neurobiology, inflammation and injury translational research (biomarkers in pre-clinical and clinical research).
I have experience in in vitro and in vivo animal disease modelling (memory, major depressive disorder and anxiety, stroke and post-operative delirium) with a strong background in molecular biology, mouse genetics, immunohistochemistry, and microscopy techniques and drug testing.
During my postdoctoral trainings, I further developed a genuine interest in neuroimmunology and its implications for perioperative care and complications such as postoperative delirium. I started to characterize how glial cells, especially astrocytes and the vasculature (endothelial cells) change following orthopedic surgery in the context of injury or in the aging or Alzheimer's brain. I closely collaborated with clinicians to test and validate key biomarkers of relevance to neuroinflammation and neurodegeneration, including patients with delirium. This work led to a better characterization of the blood-brain barrier after surgery, a key component for drug treatments.
As part of a COVID-19 supplement award from the NIA during the pandemic, I have been able to collaborate with the University of Rochester Medical Center and evaluate microglial/neutrophil interactions following lung injury with a model of intranasal lipopolysaccharide exposure.

Memberships

Other Relevant Information