

Aleksandra Deczkowska

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Expertise: choroid plexus, neuroimmunology, microglia, Alzheimer's disease

Research interests: neuro-immune interactions and the role of the gut-brain axis in the development, physiology, and aging of the brain, physiological function of the immune system.

Current position:

2021- Head of the Brain Immune Communication Lab, Institut Pasteur, Paris

Education / Training

2023 Habilitation (Université Paris-Saclay).

2021 Post-doc in Immunogenomics (Immunology, Weizmann Institut of Science).

2017 Ph.D. in Neuroimmunology (Neurobiology, Weizmann Institut of Science).

2013 Master in Neuroimmunology (Neurobiology, Weizmann Institut of Science).

2009 Engineer of Biotechnology (Warsaw University of Life Sciences and Gent University).

Achievements and Awards

2023 Joël Ménard Prize for research on Alzheimer's disease

2022 European Research Council Starting Grant (BRAINGATE)

2020 Azrieli Award for Systems Biology, Weizmann Institut of Science

2018 Dmitri Chorafas prize for outstanding PhD

2018/2015 Merck Innovation Cup participant and team coach.

Early Achievement Track record

During her PhD in the lab of Prof. Michal Schwartz, Aleksandra conducted pioneering studies showing the unique properties of the choroid plexus as an active brain border and demonstrating that its activity shapes brain function in aging (Science 2014, Nature Communications 2017). She then pursued her post-doctoral studies in the field of immunogenomics, at the lab of Prof. Ido Amit, where she developed high-throughput single-cell genomic tools to identify the key immune regulators of chronic disease (Nature Medicine 2021). During her studies, she contributed reviews and opinion articles in leading journals (Nature Neuroscience 2018, Cell 2018; Cell 2020) discussing the importance of immune cells and signals in tissue maintenance and function. Overall she authored over 20 peer-reviewed articles cited 7300+ times (H-index=20). She has given invited talks at international meetings in the fields of immunology, neuroimmunology and genomics, and obtained excellence prizes and fellowships, including the Joël Ménard Prize for research on Alzheimer's disease in 2023 and ERC starting grant in 2022.

Aleksandra opened her lab for Brain-Immune Communication at Institut Pasteur in Paris in the departments of Immunology and Neuroscience in April 2021. By integrating tools of single-cell genomics, immunology, and neuroscience, mouse models as well as analysis of human samples, the BIC lab aims to identify key mechanisms of physiological body-brain communication via the choroid plexus and the skull marrow niche in health and disease. The BIC lab vision is that in the future modulation of the choroid plexus, immune cells or peripheral signals may be deployed as a strategy to cure neurological disease.

Selected publications:

1. **Microbial and immune factors regulate brain maintenance and aging.** Travier L, Singh R, Sáenz Fernández D, **Deczkowska A.** *Curr Opin Neurobiol.* 2022 Oct;76:102607. doi: 10.1016/j.conb.2022.102607. Epub 2022 Jul 29. PMID: 35914431

2. **XCR1+ type 1 conventional dendritic cells drive liver pathology in non-alcoholic steatohepatitis.** Deczkowska A, David E, Ramadori P, Pfister D, Safran M, Li B, Giladi A, Jaitin DA, Barboy O, Cohen M, Yofe I, Gur C, Shlomi-Loubaton S, Henri S, Suhail Y, Qiu M, Kam S, Hermon H, Lahat E, Ben Yakov G, Cohen-Ezra O, Davidov Y, Likhter M, Goitein D, Roth S, Weber A, Malissen B, Weiner A, Ben-Ari Z, Heikenwalder M, Elinav E, Amit I. *Nat Med*. 2021 Jun;27(6):1043-1054. doi: 10.1038/s41591-021-01344-3. Epub 2021 May 20. PMID: 34017133
3. **The Physiology, Pathology, and Potential Therapeutic Applications of the TREM2 Signaling Pathway.** Deczkowska, Weiner A, Amit I. *Cell*. 2020 Jun 11;181(6):1207-1217. doi: 10.1016/j.cell.2020.05.003. PMID: 32531244
4. **Microglial immune checkpoint mechanisms.** Deczkowska A, Amit I, Schwartz M. *Nat Neurosci*. 2018 Aug;21(8):1137. doi: 10.1038/s41593-018-0186-1. PMID: 29942040
5. **Disease-Associated Microglia: A Universal Immune Sensor of Neurodegeneration.** Deczkowska A, Keren-Shaul H, Weiner A, Colonna M, Schwartz M, Amit I. *Cell*. 2018 May 17;173(5):1073-1081. doi: 10.1016/j.cell.2018.05.003. PMID: 29775591
6. **Mef2C restrains microglial inflammatory response and is lost in brain ageing in an IFN-I-dependent manner.** Deczkowska A, Matcovitch-Natan O, Tsitsou-Kampeli A, Ben-Hamo S, Dvir-Szternfeld R, Spinrad A, Singer O, David E, Winter DR, Smith LK, Kertser A, Baruch K, Rosenzweig N, Terem A, Prinz M, Villeda S, Citri A, Amit I, Schwartz M. *Nat Commun*. 2017 Sep 28;8(1):717. doi: 10.1038/s41467-017-00769-0. PMID: 28959042
7. **Ageing-induced type I interferon response at the choroid plexus negatively affects brain function.** Baruch K, Deczkowska A, David E, Castellano JM, Miller O, Kertser A, Berkutzki T, Barnett-Itzhaki Z, Bezalel D, Wyss-Coray T, Amit I, Schwartz M. *Science*. 2014 Oct 3;346(6205):89-93. doi: 10.1126/science.1252945. Epub 2014 Aug 21. PMID: 25147279