1-year Post-doctoral position with possibility of extension at Oniris, Nantes

Working place: Oniris, Chantrerie, Route de Gachet, Nantes

Title: Evaluation of tolerogenic EV for type 1 diabetes therapy

Keywords: extracellular vesicles, immune therapy, type 1 diabetes, tolerance assays, lymph node

Start date: Spring 2022

Type 1 diabetes is a chronic disease resulting from the autoimmune destruction of the insulin-secreting pancreatic beta cells. Extracellular vesicles endowed with immune-regulatory properties have gained attention for immune therapy of autoimmune conditions, but standardized procedures to evaluate their tolerogenic potential remain to be developed prior to clinical translation. To address this issue, the Post-doc candidate will develop *ex vivo* and *in vivo* functional assays in lymph nodes, which concentrate initiators and effectors of innate and adaptive (auto-) immune responses.

This work will be performed at the IECM (Cellular and Molecular Immunoendocrinology) laboratory at Oniris, in close collaboration with a PhD student optimizing a bioprocess for large-scale EV production from mouse and human beta cell lines.

Techniques to be employed by the Post-doc include characterization and immuno-phenotyping of the beta extracellular vesicles (NTA, FC and multi-omic) as well as mode of action assays *in vitro* and *in vivo* in mouse models of tolerance and humanized mice.

The IECM lab has a >30 year-experience in basic and translational research in type 1 diabetes and a 10 year-expertise in the production and characterisation of beta EV. Material dedicated to EV research, immuno-monitoring, animal facilities and imaging are available in the lab or on site platforms.

To apply, please send your CV, motivation letter, publication list and contact information of referees to *steffi.bosch@oniris-nantes.fr*.

Publications in the field of Extracellular Vesicles - IECM

Bosch, S., and Mignot, G. (2021). Les vésicules extracellulaires: Un maillon essentiel du système immunitaire. Med Sci (Paris) *37*, 1139–1145.

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Bosch, S., Young, N.A., Mignot, G., and Bach, J.-M. (2020). Epigenetic Mechanisms in Immune Disease: The Significance of Toll-Like Receptor-Binding Extracellular Vesicle-Encapsulated microRNA. Front Genet *11*, 578335.

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Bosch, S., de Beaurepaire, L., Allard, M., Mosser, M., Heichette, C., Chrétien, D., Jegou, D., and Bach, J.-M. (2016). Trehalose prevents aggregation of exosomes and cryodamage. Sci Rep *6*, 36162.

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