



Advancing helminth glycomics: structural specificity and immunogenicity of schistosomal and filarial glycans

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Curriculum Vitae

Laudine Maëlle Célestine Petralia was born on July 4th, 1993, in Échirolles (near Grenoble), France and grew up in Ardèche. After a two-year program in Saint-Étienne, preparing for the competitive national exam to enter sciences & engineering higher education schools, she joined the Biotechnology graduate school of Bordeaux (ENSTBB). During her studies, she conducted her first research internship in the group of Prof. Dr. Alberto Boffi part of the Pasteur Institute at the Sapienza University of Rome, Italy. There, she worked on enzymatic biosynthesis of tetrahydroisoquinoline derivatives, compounds of therapeutic interest. In July 2015, she joined the research group of Dr. Jeremy Foster at New England Biolabs (NEB), Ipswich, MA, USA, for an 8-month internship during which she first got acquainted with parasite glycobiology. In collaboration with the Taron lab at NEB, she studied changes in dog serum *N*-glycosylation during canine filariasis. She received her Master of Science (M.Sc.) in Biotechnology from the ENSTBB in 2016, and shortly after, in January 2017, she started a collaborative PhD program between the Foster lab at NEB and the Department of Parasitology of the Leiden University Medical Center (LUMC), in the Netherlands. During her PhD, she spent her time equally between both places. Under the supervision of Prof. Dr. Cornelis Hokke, Dr. Jeremy Foster and Dr. Angela van Diepen, she investigated various aspects of glycosylation in two major parasitic diseases of humans, schistosomiasis and filariasis. Her research resulted in the present thesis. Laudine is now a post-doctoral researcher in the Foster lab at NEB where she keeps exploring parasite glycobiology.

List of publications

1. Fossa, S. L., Anton, B. P., Kneller, D. W., **Petralia, L. M. C.**, Ganatra, M. B., Boisvert, M. L., Vainauskas, S., Chan, S. H., Hokke, C. H., Foster, J. M., & Taron, C. H. A novel family of sugar-specific phosphodiesterases that remove zwitterionic modifications of GlcNAc. *Journal of Biological Chemistry*, 2023 Dec;299(12), 1–14.
2. **Petralia, L. M. C.**, van Diepen, A., Nguyen, D.-L., Lokker, L. A., Sartono, E., Bennuru, S., Nutman, T. B., Pfarr, K., Hoerauf, A., Wanji, S., Foster, J. M., & Hokke, C. H. Unraveling cross-reactivity of anti-glycan IgG responses in filarial nematode infections. *Frontiers in Immunology*, 2023 Mar;14, 1–16.
3. **Petralia, L. M. C.**, Santha, E., Behrens, A. J., Nguyen, D. L., Ganatra, M. B., Taron, C. H., Khatri, V., Kalyanasundaram, R., van Diepen, A., Hokke, C. H., & Foster, J. M. Alteration of rhesus macaque serum N-glycome during infection with the human parasitic filarial nematode *Brugia malayi*. *Scientific Reports*, 2022 Sep;12(1), 1–16.
4. **Petralia, L. M. C.**, van Diepen, A., Lokker, L. A., Nguyen, D. L., Sartono, E., Khatri, V., Kalyanasundaram, R., Taron, C. H., Foster, J. M., & Hokke, C. H. Mass spectrometric and glycan microarray-based characterization of the filarial nematode *Brugia malayi* glycome reveals anionic and zwitterionic glycan antigens. *Molecular & Cellular Proteomics*, 2022 May;21(5), 1–22.
5. Behrens, A., Duke, R. M., **Petralia, L. M. C.**, Lehoux, S., Carlow, C. K. S., Taron, C. H., & Foster, J. M. Changes in canine serum N-glycosylation as a result of infection with the heartworm parasite *Dirofilaria immitis*. *Scientific Reports*, 2018 Nov;8(1), 1–9.
6. Behrens, A., Duke, R. M., **Petralia, L. M. C.**, Harvey, D. J., Lehoux, S., Magnelli, P. E., Taron, C. H., & Foster, J. M. Glycosylation profiling of dog serum reveals differences compared to human serum. *Analytical Glycobiology*, 2018 Nov;28(11), 825–831.
7. Vainauskas, S., Kirk, C. H., **Petralia, L.M.C.**, Ellen, P. G., Mcleod, E., Bielik, A., Luebbers, A., Foster, J. M., Hokke, C. H., Rudd, P. M., Shi, X., & Taron, C. H. A novel broad specificity fucosidase capable of core α1-6 fucose release from N-glycans labeled with urea-linked fluorescent dyes. *Scientific Reports*, 2018 Jun;8(1), 1–8.

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*non-exhaustive list

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