Alexis Simon

PhD, population genomics and molecular evolution

Education

Sept. 2016 – Dec. 2019 **PhD in evolution and biodiversity sciences**, *Institut des sciences de l'évolution - Unviersity of Montpellier*, Doctoral School GAIA.

Sept. 2015 – June 2016 **Second year of *Master* (equivalent to a Master's degree) in Ecology, Biodiversity and Evolution**, *École Normale Supérieure*, Paris.
The *École Normale Supérieure* is a prestigious institution of higher education providing specialized training to students who will become researchers and professors in their field.

Sept. 2014 – July 2015 **Academic gap year**.
During which I realised two internships of 5 months.

Sept. 2013 – June 2014 **First year of *Master* (equivalent to a Master's degree) in Ecology, Biodiversity and Evolution**, *École Normale Supérieure*, Paris.

2012 – 2013 ***Licence* (equivalent to a Bachelor's degree) in Biology**, *École Normale Supérieure*, Paris.

2010 – 2012 ***Classe préparatoire***, subjects: Biology, Chemistry, Physics, Geology, Mathematics.
A two-year intensive course preparing for highly competitive, national entrance examinations to French *Grandes Écoles* (including the ENS, veterinary schools and engineering schools).
Admitted to the ENS.

2010 ***Baccalauréat scientifique (equivalent to a high school graduation diploma)***, Major: sciences.
Obtained with distinction

Work Experience

Sept. 2016 – Dec. 2019 **PhD student**, *Institut des sciences de l'évolution - Unviersity of Montpellier*, with Dr N. Bierne.
Topic: Genomics of anthropogenic hybridisation in *Mytilus spp.* mussels and hybrid fitness.

Feb. 2016 – July. 2016 **Internship**, *Institut des sciences de l'évolution - Unviersity of Montpellier*, with Dr N. Bierne.
Topic: Biological invasion with hybridization in the *Mytilus edulis* species complex.

Feb. 2015 – July. 2015 **Internship**, *CERES, ENS*, Paris, with Dr D. Claessen and Dr B. Sauterey.
Topic: Implementation of a trait diffusion based phytoplankton-zooplankton co-evolution model in a 1D version of the MIT general circulation model.

Sept. 2014 – Jan. 2015 **Internship**, *Marine ecology lab, Adelaide University*, Australia, with Dr C. Junge and Pr B. Gillanders.
Topic: Population genetics of two shark species, *Carcharhinus obscurus* and *Carcharhinus brachyurus*.

Feb. – June 2014 **Internship**, *Cawthron Institute*, Nelson, New-Zealand, with I. Richter and Dr A. Fidler.
Topic: Detecting environmental petroleum pollutants and associated chemicals using tunicate xenobiotic receptors as sensor elements in modified yeast strains.

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June – July 2013 **Internship**, *French National Museum of Natural History (MNHN)*, Paris, with P. Barbier and Pr T. Meziane.
Topic: Recruitment variability of Bivalvia in the habitat of Glycymeris glycymeris in the archipelago of Chausey (France)

Languages

English: **good command**

Computer skills

R, Python, Unix, C++, Snakemake

Other skills

Scubadiving: N3 FFESSM / CMAS*** level (autonomous to 60 m)

Licenses: driver's license, motor boat license

Publications

[1] E. Burioli, S. Trancart, **A. Simon**, I. Bernard, M. Charles, E. Oden, N. Bierne, and M. Houssin. "Implementation of Various Approaches to Study the Prevalence, Incidence and Progression of Disseminated Neoplasia in Mussel Stocks". In: *Journal of Invertebrate Pathology* 168 (2019), p. 107271. DOI: 10.1016/j.jip.2019.107271.

[2] C. Junge, S. C. Donnellan, C. Huveneers, C. J. A. Bradshaw, **A. Simon**, M. Drew, C. Duffy, G. Johnson, G. Cliff, M. Braccini, S. C. Cutmore, P. Butcher, R. McAuley, V. Peddemors, P. Rogers, and B. M. Gillanders. "Comparative Population Genomics Confirms Little Population Structure in Two Commercially Targeted Carcharhinid Sharks". In: *Marine Biology* 166.2 (2019). DOI: 10.1007/s00227-018-3454-4.

[3] **A. Simon**, C. Arbiol, E. E. Nielsen, J. Couteau, R. Sussarellu, T. Burgeot, I. Bernard, J. W. P. Coolen, J.-B. Lamy, S. Robert, M. Skazina, P. Strelkov, H. Queiroga, I. Cancio, J. J. Welch, F. Viard, and N. Bierne. "Replicated Anthropogenic Hybridisations Reveal Parallel Patterns of Admixture in Marine Mussels". In: *Evolutionary Applications* (2019). DOI: 10.1111/eva.12879. Pre-published.

[4] **A. Simon**, C. Fraïsse, T. El Ayari, C. Liautard-Haag, P. Strelkov, J. J. Welch, and N. Bierne. "Local Introgression at Two Spatial Scales in Mosaic Hybrid Zones of Mussels". In: *bioRxiv* (2019). DOI: 10.1101/818559. Submitted.

[5] M. A. Yonemitsu, R. M. Giersch, M. Polo-Prieto, M. Hammel, **A. Simon**, F. Cremonte, F. T. Avilés, N. Merino-Véliz, E. A. V. Burioli, A. F. Muttray, J. Sherry, C. Reinisch, S. A. Baldwin, S. P. Goff, M. Houssin, G. Arriagada, N. Vásquez, N. Bierne, and M. J. Metzger. "A Single Clonal Lineage of Transmissible Cancer Identified in Two Marine Mussel Species in South America and Europe". In: *eLife* 8 (2019), e47788. DOI: 10.7554/eLife.47788.

[6] **A. Simon**, N. Bierne, and J. J. Welch. "Coadapted Genomes and Selection on Hybrids: Fisher's Geometric Model Explains a Variety of Empirical Patterns". In: *Evolution Letters* 2.5 (2018), pp. 472–498. DOI: 10.1002/evl3.66.

[7] **A. Simon** and M. Duranton. "Digest: Demographic Inferences Accounting for Selection at Linked Sites". In: *Evolution* (2018). DOI: 10.1111/evo.13504.

[8] F. Riquet, **A. Simon**, and N. Bierne. "Weird Genotypes? Don't Discard Them, Transmissible Cancer Could Be an Explanation". In: *Evolutionary Applications* 10 (2017), pp. 140–145. DOI: 10.1111/eva.12439.

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