

Evolution and genomics of mortality

Lead Supervisor: Dr Araxi Urrutia, Department of Biology & Biochemistry

Project description:

Mortality is common to all animals. Even when protected from predation and infectious disease animals, from all species, eventually die. However, the patterns and timing of senescence and mortality are highly diverse between species. The underlying mechanisms of the diversity of these patterns are poorly understood. Comparative genomic analyses can significantly help us to advance our understanding on the ageing and mortality. In this project, we plan to compare genomes and gene activity patterns of 360 species of birds and over 80 species of mammals to explore to identify differences and parallelisms in molecular functions underlying mortality.

Candidate:

Applicants should hold, or expect to receive, a First Class or high Upper Second Class UK Honours degree (or the equivalent qualification gained outside the UK) in a relevant subject. A master's level qualification would also be advantageous.

Applications:

Informal enquiries should be directed to Dr Araxi Urrutia, au207@bath.ac.uk.

Formal applications should be made via the University of Bath's [online application form](#).

On the application form, please ensure that you quote 'Evolution Education Trust' in the Finance section and the supervisor's name and project title in the 'Your research interests' section. Should you wish to be considered for more than project, quote the projects in order of preference and upload a separate personal statement relevant to each one.

Please see our Doctoral College website for [more information on how to apply](#) for a PhD at Bath.

Application deadline: 30 April 2019.

Interviews will take place in Bath on 14 June 2019.

Anticipated start date: 30 September 2019.

References:

- Young RL, Ferkin MH, Ockendon NF, Orr VN, Phelps SM, Pogány A, Richards-Zawacki CL, Summers K, Székely T, Trainor BC, [Urrutia AO](#), Zachar G, O'Connell LA, Hofmann HA[^]. 2019. Conserved transcriptomic profiles underpin monogamy across vertebrates. **Proceedings of the National Academy of Science** 116: 1331-1336.
- Castillo-Morales A, Monzón-Sandoval J, Urrutia AO[^], Gutiérrez H[^]. 2019. Postmitotic cell longevity-associated genes: a transcriptional signature of postmitotic maintenance in neural tissues. **Neurobiology of aging** 74: 147-160.
- Bush SJ, Chen L, Tovar-Corona JM and [Urrutia AO](#)[^]. 2017. Alternative splicing and the evolution of phenotypic novelty. **The Philosophical Transactions of the Royal Society B** 372: 20150474.
- Chen L, Bush SJ, Tovar-Corona JM, Castillo-Morales A, [Urrutia AO](#)[^]. 2014. Correcting for differential transcript coverage reveals a strong relationship between alternative splicing and organism complexity. **Molecular Biology and Evolution** 31: 1402-1413.