

Thomas M. Houslay

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Nationality: British

Education

Ph.D. Evolutionary Biology, 2010-present.

Expected submission date: December 2013.

University of Stirling.

Advisor: Dr Luc F. Bussière.

M.Sc. Bioinformatics, 2004.

Awarded with distinction.

University of Manchester.

B.Sc. (hons) Computer Science, 2002.

Upper second class.

University of Lancaster.

Employment history

Computational biologist, 2006–2010.

Advanced Science & Technology Laboratory.

AstraZeneca UK.

As a member of a high-throughput screening laboratory, my focus was on writing custom algorithms for the phenotypic profiling and analysis of cellular, tissue section, and angiogenesis images. I also developed algorithms for analysing time-series and 3D image data.

Research assistant, 2005–2006.

Bioinformatics Research Centre.

University of Glasgow.

In addition to providing general bioinformatics support to the Gardiner Laboratory in the Institute of Biomedical and Life Sciences, I pursued a short research project on computational protein-protein docking, and designed and implemented a secure electronic lab-book system for stem cell researchers.

Analyst programmer, 2004.

Bioinformatics Group.

Novartis CH.

As a research project contributing to my M.Sc. degree, I developed an online interface for a major bioinformatics resource. After completion of my degree, I was retained for a short additional period at the Novartis headquarters in Basel to work on several smaller projects.

Publications

Isherwood, B. J., R. E. Walls, M. Roberts, T. M. Houslay, S. R. Brave, S. T. Barry, N. O. Carragher. High-content analysis to leverage a robust phenotypic profiling approach to vascular modulation. *Submitted April 2013.*

Houslay, T. M. and L. F. Bussière. (2012). Sexual Selection and Life History Allocation. *eLS 2012, John Wiley & Sons, Ltd: Chichester.*

Caie, P. D., R. E. Walls, A. Ingleston-Orme, S. Daya, T. M. Houslay, R. Eagle, M. E. Roberts, N. O. Caragher. (2010). High-content phenotypic profiling of drug response signatures across distinct cancer cells. *Molecular Cancer Therapeutics* 9(6), 1913–1926.

Xu T. R., G. S. Baillie, N. Bhari, T. M. Houslay, A. M. Pitt, D. R. Adams, W. Kolch, M. D. Houslay, G. Milligan. (2008). Mutations of beta-arrestin 2 that limit self-association also interfere with interactions with the beta(2)-adrenoceptor and the ERK1/2 MAPKs: implications for beta(2)-adrenoceptor signalling via the ERK1/2 MAPKs. *Biochemical Journal* 413, 51–60.

Smith, K. J., G. S. Baillie, E. I. Hyde, X. Li, T. M. Houslay, A. McCahill, A. J. Dunlop, G. B. Bolger, E. Klussmann, D. R. Adams, M. D. Houslay. (2007). H-1 NMR structural and functional characterisation of a cAMP-specific phosphodiesterase-4D5 (PDE4D5) N-terminal region peptide that disrupts PDE4D5 interaction with the signalling scaffold proteins, arrestin and RACK1. *Cellular Signalling* 19(12), 2612–2624.

Baillie, G. S., D. R. Adams, N. Bhari, T. M. Houslay, S. Vadrevu, D. Meng, X. Li, A. Dunlop, G. Milligan, G. B. Bolger, E. Klussmann, M. D. Houslay. (2007). Mapping binding sites for the PDE4D5 cAMP-specific phosphodiesterase to the N- and C-domains of beta-arrestin using spot-immobilized peptide arrays. *Biochemical Journal* 404, 71–80.

Huston, E., I. Gall, T. M. Houslay, M. D. Houslay. (2006). Helix-1 of the cAMP-specific phosphodiesterase PDE4A1 regulates its phospholipase-D-dependent redistribution in response to release of Ca²⁺. *Journal of Cell Science* 119(18), 3799–3810.

Huston, E., T. M. Houslay, G. S. Baillie, M. D. Houslay. (2006). cAMP phosphodiesterase-4A1 (PDE4A1) has provided the paradigm for the intracellular targeting of phosphodiesterases, a process that underpins compartmentalized cAMP signalling. *Biochemical Society Transactions* 34, 504–509.

Wallace, D. A., L. A. Johnston, E. Huston, D. MacMaster, T. M. Houslay, Y. F. Cheung, L. Campbell, J. E. Millen, R. A. Smith, I. Gall, R. G. Knowles, M. Sullivan, M. D. Houslay. (2005). Identification and characterization of PDE4A11, a novel, widely expressed long isoform encoded by the human PDE4A cAMP phosphodiesterase gene. *Molecular Pharmacology* 67(6), 1920–1934.

Talks & presentations

Houslay, T. M. and L. F. Bussière. (2012). The effect of juvenile and adult diet on age-dependent reproductive effort and mortality. Talk presented at the 1st Joint Congress on Evolutionary Biology, Ottawa, Canada; the Scottish Ecological Ageing Research Group Meeting, Durham, UK; and the Scottish Animal Behaviour Conference, Stirling, UK.

Houslay, T. M. and L. F. Bussière. (2012). The effect of diet on ageing and reproductive effort in the decorated cricket *Gryllobates sigillatus*. Invited talk given as part of the Behavioural Ecology seminar series, University of St Andrews, UK.

Houslay, T. M., J. Hunt, M. C. Tinsley, L. F. Bussière. (2011). The condition-dependence of calling effort in decorated crickets (*Gryllobates sigillatus*). Poster presented at the 13th Congress of the European Society for Evolutionary Biology in Tuebingen, Germany.

Workshops & courses attended

Mathematical modeling in evolutionary ecology. (2012).
Workshop at the 1st Joint Congress on Evolutionary Biology, Ottawa, Canada.

Communicating science to society. (2012).
Workshop at the 1st Joint Congress on Evolutionary Biology, Ottawa, Canada.

Evolutionary quantitative genetics. (2012).
Two-week residential course at Uppsala University, Sweden.

Standing up for science in the media. (2011).
Workshop organised by Sense about Science at the Royal Society of Edinburgh, UK.

R for biologists. (2011).
One-week course at the University of Stirling, UK.

Evolutionary biology in the Alps. (2011).
One-week residential course in Arolla, Switzerland.

Teaching

Teaching assistant, University of Stirling.
Animal physiology, Biodiversity, Field and lab techniques, Phylogenetics, Proteomics.

Overseas field course instructor, University of Stirling.
Ecology and animal biology in the Swiss Alps.

Skills

Quantitative genetics.
Experience of using the animal model with both maximum likelihood and Bayesian approaches.

Statistical programming in R.
Including mixed-effects models, analysis of longitudinal datasets, and Bayesian inference.

Image analysis.
Trained to 'expert' level with the Definiens Developer XD system.

Computer programming.
Working knowledge of multiple programming languages, including Java and Python.

Organisational skills.
Experience of running large-scale animal behaviour experiments, including quantitative genetic designs.

Public outreach

I am active amongst the scientific community on Twitter, and also maintain a blog where I write about behavioural ecology, with a particular emphasis on sexual selection and mating systems. I have previously written as a guest blogger for the Nothing in Biology Makes Sense website.

Along with several other biologists, I co-host the Breaking Bio podcast, in which we discuss newly-published research as well as current topics affecting the scientific community, and interview academics about their work. I am a firm believer in the importance of public engagement with science, and have volunteered at events such as the BBC's 'Bang Goes the Theory' exhibition at the Edinburgh Science Festival.