

Curriculum vitae – David Hazlerigg

PERSONAL INFORMATION

Family name, First name: Hazlerigg, David

orcid.org/0000-0003-4884-8409

Nationality: British

Date of birth: 13.01.1967

Sex: Male

URL for web site:

<https://arcticchronobiologyandphysiology.blogspot.com/>

EDUCATION

1990 - 1993 University of Cambridge, Department of Anatomy, PhD “Cellular Actions of Melatonin”

1985 - 1989 University of Bath, Department of Applied Biology, BSc Animal Physiology

CURRENT & PREVIOUS POSITIONS

2021 – Director, Arctic Seasonal Timekeeping Initiative, UiT, Tromsø

2013 – Professor, Department of Arctic and Marine Biology, UiT, Tromsø

2009 – 2013 Professor

Institute of Biological and Environmental Sciences (IBES), University of Aberdeen, UK

2004 – 2008 Senior Lecturer / Reader

IBES, University of Aberdeen, UK

1996 – 2003 Lecturer, Department of Agriculture, University of Aberdeen, UK

1993 – 1996 Research Associate, University of Cambridge, UK

PROJECT MANAGEMENT EXPERIENCE (funded research over the last 5 years)

2020-23 ‘Synchrosmolt - Smolt production protocols and breeding strategies for synchronized smoltification’. Role: Co-PI, project owner: Simen Sandve, NMBU, Fiskeri- og havbruksnæringens forskningsfinansiering (FHF), total value 16M NOK – 7M NOK to UiT (Hazlerigg/Jørgensen).

2019-22 “The role of circadian clocks in seasonal synchrony in the Arctic”, Sentinel North Transdisciplinary Research Program Université Laval and UiT:, \$67,5000 (CAD), Role: Project leader

2018-20 “Salt stimulated and aging smolts: Do we compromise post-smolt welfare in Norwegian salmon farming?”, Role: Co-PI, project owner: Even Jørgensen, UiT, 7M NOK.

2016-20 Tromsø Forskningsstiftelse (TFS): “Evolution of circannual clockwork”, Role: Project leader, 17MNOK

2015-19 NFR FriPro - Light & Salt - Thyroid hormone deiodinase paralogues & the evolution of complex life-history strategy in salmonids. Role: Project leader, 10M NOK

2015-19 “Evolution of circannual clocks”, Role: Co-PI, project owner: Andrew Loudon, University of Manchester, Human Frontiers Science Program grant 1M USD.

2013-16 USIAS (France) advanced fellowship, awarded 2013 – “Epigenetic light” – collaboration with Univ. of Strasbourg / INRA (France) - Thyroid hormone mechanisms and seasonal timekeeping in mammals. Role: Project leader.

SUPERVISION OF STUDENTS AND POST DOCTORAL FELLOWS

- 1999 – 2015 11 Postdocs, 13 PhDs completed at the University of Aberdeen, UK, and two at the University of Strasbourg France
- 2015 - 5 PhDs and 1 Masters on-going at UiT, The Arctic University of Norway

TEACHING

I have taught, coordinated and designed many undergraduate and masters levels courses with topics including statistics, comparative physiology, endocrinology and chronobiology.

I have also been an invited teacher on Erasmus summer school courses in chronobiology run as part of the EUCLOCK, INSECTIME and SYNCHRON European programmes, and the 2019 EBRs Trainee Day

ORGANISATION OF SCIENTIFIC MEETINGS

- 2016 Co-organiser NIBB “Evolution of Seasonal Timers” conference, Okazaki, Japan
- 2015 Symposium Organiser, “Early life experience” International Conference for Comparative Physiology and Biochemistry. Krakow, Poland
- 2011 Symposium Organiser, “Circannual rhythms” European Biological Rhythms Society meeting, Oxford, UK
- 2010 Symposium Organiser, “Seasonal and reproductive rhythms” Society for Research on Biological Rhythms meeting, Florida, USA
- 2003 Co-organiser, European Biological Rhythms Society 8th Meeting Aberdeen, UK

INSTITUTIONAL RESPONSIBILITIES

- 2013 – Faculty member, Faculty of Biosciences, Fisheries and Economics, UiT
- 2012 – 2013 Deputy Director for Research, IBES, University of Aberdeen
- 2009 – 2013 Member of the Institute Research Committee, IBES, University of Aberdeen
- 2009 – 2013 Member, Senate committee for Post-graduate student progress, University of Aberdeen
- 2009 – 2013 Radiation safety advisor, and Radiological Protection Committee member, IBES, University of Aberdeen

COMMISSIONS OF TRUST

- 2000 – Peer reviewer for many leading biological sciences journals (e.g. PNAS, Current Biology, PLoS Biology)
- 2003 – 2008 Panel Member, Biotechnology and Biological Sciences research Council (BBSRC), Animal Sciences committee
- 2000– External Examiner for 15 PhD submissions internationally (UK, Norway, France, Australia)

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

- 2008 – Member, European Biological Rhythms Society
- 2003 – Member, Society for the Study of Biological Rhythms
- 2000 – Member, British Society for Neuroendocrinology

TRACK RECORD

My research career has focused on defining the physiological mechanisms involved in seasonal timekeeping in vertebrates. I have played a leading role in the major advance in this field over the past decade. This has led to a remarkably well-defined “standard model”, built around local control of thyroid hormone metabolism in the hypothalamus (the brain’s homeostatic and endocrine control centre). My group’s seminal contributions to this subject have led to 8 papers in *Current Biology*, 4 in *PNAS* and 1 in *Science*. Recognition of this work has led to many invited lectures including the Gwinner Lecture at the 2015 European Biological Rhythms Society meeting, the most prestigious lecture on this subject. In 2013 I was invited to write the chapter on Seasonal regulation of Reproduction for the new edition of Knobil and Neill’s *Reproduction*, which is the leading standard reference work in the field. I have recently filed a patent application on seawater readiness markers in salmonid fish (EP20162777.5, 12th March 2020).

I have published over 100 peer reviewed publications, cited over 6000 times, **h-index = 46**, i10 index = 84. This includes 1 paper in **Science**, 4 in **PNAS**, 1 in **PLoS Biology** and 9 in **Current Biology**, four of which have been Faculty1000 recommended. Ten selected papers are given below. A full list can be found on google scholar

https://scholar.google.com/citations?view_op=list_works&hl=en&hl=en&user=chu00UIAAAAJ&sortby=pubdate. Underline indicates corresponding/senior author.

1. van Rosmalen, L., J van Dalum, J., Appenroth, D., Roodenrijs, RTM., de Wit, L., **Hazlerigg, DG**, Hut RA (2021) Mechanisms of temperature modulation in mammalian seasonal timing. *FASEBJ* 35 e21605
2. D Appenroth, GC Wagner, **DG Hazlerigg**, AC West (2021) Evidence for circadian-based photoperiodic timekeeping in Svalbard ptarmigan, the northernmost resident bird. *Current Biology* doi.org/10.1016/j.cub.2021.04.009
3. West, A.C., M. Iversen, E.H. Jørgensen, S.R. Sandve, **D.G. Hazlerigg**, S.H. Wood. (2020). Diversified Regulation of Circadian Clock Gene Expression Following Whole Genome Duplication. *PLoS Genetics* 16 (10). <https://doi.org/10.1371/journal.pgen.1009097>
4. **Hazlerigg DG** and Tyler NJC (2019) Activity patterns in mammals: Circadian dominance challenged. *PloS Biology* 17(7) E3000360.
5. **Hazlerigg, D.**, Lomet, D., Lincoln, G., & Dardente, H. (2018). Neuroendocrine correlates of the critical day length response in the Soay sheep. *Journal of Neuroendocrinology* 30(9), e12631.
6. Saenz de Miera C, Bothorel B, Jaeger C, Simonneaux V. and **Hazlerigg D** (2017). Maternal photoperiod programs hypothalamic thyroid status via the fetal pituitary gland. *Proceedings of the National Academy of Sciences* p.201702943.
7. Lorgen M, Jorgensen EH, Jordan WC, Martin SA and **Hazlerigg DG** (2017). NFAT5 genes are part of the osmotic regulatory system in Atlantic salmon (*Salmo salar*). *Marine genomics* 31:25-31.
8. Lorgen M, Casadei E, Król E, Douglas A, Birnie MJ, Ebbesson LOE, Nilsen TO, Jordan WC, Jørgensen EH, Dardente H, **Hazlerigg DG**, Martin SAM (2015) Functional Divergence of Type 2 Deiodinase Paralogs in the Atlantic Salmon. *Current Biology* 25:936-941.
9. Saenz de Miera C, Monecke S, Bartzen-Sprauer J, Laran-Chich MP, Pévet P, **Hazlerigg DG**, Simonneaux V (2014) A circannual clock drives expression of genes central for seasonal reproduction *Current Biology* 24: 1500-1506.
10. Dardente H, Wyse CA, Dupre SM, Birnie MJ, Loudon ASIL, Lincoln GA, **Hazlerigg DG** (2010) A molecular switch for photoperiod responsiveness in mammals. *Current Biology* 20:2193-2198. <http://f1000.com/prime/7720957>

Selected invited lectures:

- 2018- Molecular control of migration timing in salmon, Society for research in biological rhythms, Amelia Island, USA
- 2017 - TSH receptor signaling at the heart of seasonal time measurement, British society for Neuroendocrinology prize lecture, Nottingham, UK
- 2016 - Circannual timekeeping mechanisms, Société de Chronobiologie Francophonique, Strasbourg, France
- 2015 - Evolution of vertebrate seasonal timekeeping (The Gwinner Lecture), Plenary - European Biological Rhythms Society, Manchester, UK
- 2013 - Seasonal Synchrony - Biodynamics 2013, Bristol, UK
- 2013 - Circannual Rhythms - British Festival of Neuroscience, London, UK
- 2012 - Cyclical histogenesis and circannual pacemaking - International Society for Chronobiology, Delhi, India.
- 2011 - Evolution of the vertebrate photoperiodic switch – European Biological Rhythms Society, Oxford, UK.
- 2009 - Vertebrate Photoperiodism – European Biological Rhythms Society, Plenary – Strasbourg.
- 2008 - Circadian clocks and melatonin dependent seasonal timing in mammals - Society for Experimental Biology, annual meeting - Marseille, 2008
- 2008 - Wrestling with melatonin-dependent transcriptional control - Gordon Conference on Pineal Cell Biology, Il Ciocco, Italy, 2008

Invited Reviews / Book Chapters / Editorials

1. Hazlerigg DG & Simonneaux V (2014) Seasonal Regulation of Reproduction in Mammals. In Knobil and Neill's Physiology of Reproduction 4th edition. Plant T, Goodman R (eds), Elsevier pp1575-1604.
2. Lincoln GA & Hazlerigg DG (2014) Stem cell regulation of circannual clocks. In Annual, Lunar and Tidal Clocks. Numata H, Helm B (eds) Springer pp 227-245.
3. Hazlerigg DG (2012) The evolutionary physiology of photoperiodism in vertebrates. Progress in Brain Research 199:413-422.
4. Hazlerigg DG & Lincoln GA (2011) Hypothesis: Cyclical histogenesis is the basis of circannual timing. *Journal of Biological Rhythms* 26:471-485.
5. Lincoln GA, Hazlerigg DG (2010) Mammalian Circannual Pacemakers. Reproduction in Domestic Ruminants 7:171-186
6. Wyse C & Hazlerigg DG (2009) Seasonal Biology: Avian photoreception goes deep. *Current Biology* 19:R685-R687.
7. Hazlerigg DG (2009) Genetic and Molecular Mechanisms of Mammalian Photoperiodism. in: Photoperiodism Nelson RJ, Denlinger D, Somers D (eds) Oxford University Press, Oxford
8. Hazlerigg DG, Loudon ASI (2008) Seasonal life timers in mammals: new insights into ancient mechanisms. *Current Biology* 18:R795-R804

Major contributions to the early careers of excellent researchers:

The following spent 3 or more years training in my lab as talented ESRs, and have gone on to lead successful independent scientific careers:

Dr Hugues Dardente	Directeur de Recherche	INRA, Nouzilly, France
Dr Jean-Michel Fustin	Lecturer	University of Kyoto, Japan
Dr E. Scott Graham	Senior research Fellow	University of Auckland, New Zealand
Dr Ross Houston	Senior Research Fellow	Roslin Institute
Dr Jonathan Johnston	Associate Professor	University of Surrey, UK
Dr Georgios Karamanlidis	Principal Scientist	Pfizer, Cambridge MA, USA
Dr Sophie Messenger	Group Leader	Wellcome Sanger Institute, Cambridge UK
Dr Nick Wheelhouse	Group Leader	Moredun Institute, UK
Dr Cathy Wyse	Senior Research Fellow	University of Glasgow, UK