CURRICULUM VITAE

Professor William Holt

Updated on 12 April 2020

PERSONAL DETAILS

SURNAME: **Holt**
FORENAMES: **William Vincent**

QUALIFICATIONS:

- PhD 1979
- Membership of the Institute of Biology (Biochemistry; by examination, 1974)
- Higher National Certificate (Medical Laboratory Sciences; 1971)
- Fellowship of the Institute of Medical Laboratory Technology (by examination; 1972)

MEMBERSHIP OF LEARNED SOCIETIES:

British Andrology Society
Secretary 1991-1996
Committee member 1996-1998
- Chairman 2004-2008

Society for Low Temperature Biology
Committee member 1999-2002.

International Embryo Transfer Society
Co-Chair of "CANDES Health and Safety subcommittee". 2001-2018

The Society for Reproduction and Fertility (Honorary membership awarded in 2018)

Royal Society of Biology (Fellowship awarded October 2018)

Royal Microscopical Society

Biographical sketch

I am currently a Visiting Professor at the University of Sheffield and an Honorary Research Associate of the Smithsonian Institution in Washington, DC. After obtaining my first degree in 1974 by passing the Institute of Biology membership exams, I obtained a PhD in 1979 through the Royal Veterinary College (London). I spent most of my professional life at the Zoological Society of London, where, after retiring in 2011, I became an Honorary Research Associate.

In my research I have tried to combine studies of basic reproductive biology in various species, including many wild species, with some practical developments of reproductive technologies and their applications to wildlife conservation. Research in semen cryopreservation and semen assessment in both wild and agricultural species led me into many international collaborations; notably with Dr Steve Johnston at the University of Queensland (Australia), where we attempted to solve the intractable problem of freezing wallaby, kangaroo and koala sperm. More recently I have collaborated with Dr Fran Otero-Ferrer and Dr Marisol Izquierdo at the University of Las Palmas, Gran Canaria, studying how the quality of paternal diet affects placental function and offspring survival in seahorses. (Seahorses are very unusual because the males not only produce sperm; they become pregnant as well!).

The seahorse work is an offshoot of research into the ways in which the peri-conception diet in mammals (both male and female) affects offspring development and their future wellbeing. This is an interest that developed through working with Professor Alireza Fazeli (formerly at the Zoological Society of London and now at the Universities of Sheffield, UK and Tartu (Estonia)). We realized, about 15 years ago, that sperm transport in mammals stimulates both *de novo* gene transcription and protein synthesis in the uterus and oviducts, thus indicating that spermatozoa are involved in establishing the appropriate milieu for future embryo development.

Positions and Honours

I obtained my first research grant in 1981 while working as a postdoc at The Zoological Society of London (ZSL), and eventually obtained promotions that resulted in my becoming Head of Reproductive Biology at ZSL. I retired from full-time work in 2011.

In 2012 I was awarded the **Setchell medal** by the British Andrology Society and in January 2018 the Society of Reproduction and Fertility awarded me their **Marshall medal** (The highest award given by the Society).

Contributions to Science

I have published over 200 papers about reproductive biology, including some in basic reproductive science and others on more specific aspects of reproduction and conservation biology (H Index currently 43). I have also co-edited a number of books, the most recent being “Reproductive Sciences in Animal Conservation” 2019. 2nd Edition, Springer (Adv in Exp Med and Biology 1200).

Here are a few recent references.

Otero-Ferrer F., Lattekivi F., Ord J., Reimann E., Koks S., Izquierdo M., Holt W.V., Fazeli A. 2020. Time-critical influences of gestational diet in a seahorse model of male pregnancy. J Exp Biol 223. jeb210302. doi:10.1242/jeb.210302

Comizzoli, P., and Holt, W.V. (2019) Breakthroughs and new horizons in reproductive biology of rare and endangered animal species. *Biol Reprod*

Holt, W.V., Cummins, J.M., and Soler, C. (2018) Computer-assisted sperm analysis and reproductive science; a gift for understanding gamete biology from multidisciplinary perspectives. *Reprod. Fertil. Dev.* **30**, iii-v

Holt, W.V., and Fazeli, A. (2018) Sperm Transport and Selection in Mammals. In 'Encyclopedia of Reproduction. vol. 2. Vol. 2.' (Ed. MK Skinner) pp. 269–275. (Academic Press: Elsevier)

Holt, W.V., and Johnston, S. (2018) Mammalian Reproduction Overview. In 'Encyclopedia of Reproduction. Vol. 1.' (Ed. MK Skinner) pp. 486–494. (Academic Press: Elsevier)

Johnston, S.D., López-Fernández, C., Arroyo, F., Roy, R., Holt, W.V., and Gosálvez, J. (2019) Protamine composition of koala and wombat spermatozoa provides new insights into DNA stability following cryopreservation. *Reprod. Fertil. Dev.* **31**, 1558-1566

Morrow, S., Gosalvez, J., Lopez-Fernandez, C., Arroyo, F., Holt, W.V., and Guille, M.J. (2017) Effects of freezing and activation on membrane quality and DNA damage in Xenopus tropicalis and Xenopus laevis spermatozoa. *Reprod. Fertil. Dev.* **29**, 1556-1566

Otero-Ferrer, F., González, J., Freitas, M., Araújo, R., Azevedo, J., Holt, W., Tuya, F., and Haroun, R. (2017) When natural history collections reveal secrets on data deficient threatened species: Atlantic seahorses as a case study. *Biodivers. Conserv.* **26**, 2791-2802