

1. Institution

Reader. Institute of Zoology, Zoological Society of London. Regent's Park, London NW1 4RY

Honorary Professor: University College London, Royal Veterinary College London and University of Bedfordshire.

E-mail: Bill.holt@ioz.ac.uk

<http://www.zoo.cam.ac.uk/ioz/>

2. Principal investigator and contact person

Bill Holt (Bill.holt@ioz.ac.uk)

3. Key personnel

Rhiannon Lloyd	Rhiannon.lloyd@ioz.ac.uk	Mitochondrial genetics; maternal interactions with gametes and embryos; nuclear transfer.
Daphne Green	Daphne.green@ioz.ac.uk	Non-invasive measurement of steroid hormones in wild species; cryobanking of cells from endangered species

4. Research profile

The main research interests in my laboratory have, for the last ten years, been concerned with understanding Maternal communication with gametes, especially spermatozoa, and in turn the way in which spermatozoa are controlled by the maternal environment. In addition to this we study semen preservation techniques in domestic and exotic species the role of reproductive technologies in the conservation of biodiversity. Recently we have also been studying parental influences (age and size) of the survival and growth of seahorse offspring; notably, seahorse embryos develop in a male brood pouch and the system bears many similarities to mammalian pregnancy.

5. Key technologies and tools

Sperm competition, selection and assessment techniques - Immunohistochemistry – Tissue culture and oviduct epithelial cell cultures.

6. Selected publications (max. 5)

Dzyuba B, Van Look KJ, Cliffe A, Koldewey HJ, Holt WV (2006) Effect of parental age and associated size on fecundity, growth and survival in the yellow seahorse *Hippocampus kuda*. *J Exp Biol* **209**, 3055-61.

Holt WV, Elliott RMA, Fazeli A, Sostaric E, Georgiou AS, Satake N, Prathalingam NS, Watson PF (2006) Harnessing the biology of the oviduct for the benefit of artificial insemination. In 'Control of pig reproduction VII'. (Eds CJ Ashworth and RR Kraeling) pp. 248-259. (Nottingham University Press: Nottingham)

Satake N, Elliott RMA, Watson PF, Holt W, V. (2006) Sperm selection and competition in pigs may be mediated by the differential motility activation and suppression of sperm subpopulations within the oviduct. *Journal of Experimental Biology* **209**, 1560-1572.

Van Look KJ, Dzyuba B, Cliffe A, Koldewey HJ, Holt WV (2007) Dimorphic sperm and the unlikely route to fertilisation in the yellow seahorse. *J Exp Biol* **210**, 432-7.

Zee YP, Holt WV, Allen CD, Nicolson V, Burridge M, Lisle A, Carrick FN, Johnston SD (2007) Effects of cryopreservation on mitochondrial function and heterogeneity, lipid raft stability and phosphatidylserine translocation in koala (*Phascolarctos cinereus*) spermatozoa. *Reprod Fertil Dev* **19**, 850-60.