

SPEAKER PROFILE

Professor Tom Fleming
Emeritus Professor of Developmental Biology, University of Southampton, UK



Tom Fleming is Emeritus Professor of Developmental Biology in Biological Sciences, University of Southampton. His current research focuses on environmental interactions around conception on egg / embryo developmental potential influencing long-term adult health within the context of Developmental Origins of Health and Disease (DOHaD). These studies include poor maternal diet / sickness (in vivo), or assisted conception culture / treatments (in vitro). Tom was Editor-in-Chief of Reproduction (2008-end 2012), current Treasurer of SRF, published ~180 original research publications, became Honorary Fellow of RCOG (2013) and awarded the Marshall Medal from SRF (2013). More importantly, he is an avid Saints supporter.

LECTURE ABSTRACT:

IVF children come of age. Little embryos and big implications

16:30 - 17:00

The success of IVF is recognised worldwide with several millions of children born over the last 40 years. One important aspect of early embryo development of current interest both in the field of ART as well as naturally conceived children is the concept of ‘developmental programming’, also known as DOHaD (Developmental Origins of Health and Disease). The pioneering epidemiological studies of Professor David Barker demonstrated cardiometabolic disease risk in adulthood may derive from adverse growth and development in utero, mediated mainly through poor maternal nutrition. More recently, the peri-conceptual period broadly covering gamete maturation and early embryo development, has been shown to be a sensitive window when adverse programming may occur in response to environmental conditions. These conditions include mainly nutritional quality in vivo but also ART-related treatments in vitro, exemplified in human and animal datasets. Our own work in mouse models show transient embryo culture conditions can modulate the developmental programme and associate with increased cardiometabolic disease risk in adults. One future direction for ART is the recognition and understanding of mechanisms contributing to developmental programming and from this to enhance the safety of assisted conception practice. Funding: BBSRC, MRC, NICHD, EU (especially EpiHealth network).



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