



RI Invited Speaker Form

Please complete as much as you can

Name & job title:	Susan Wray, Professor of physiology and University Director of Athena SWAN
Institution:	University of Liverpool
Talk title:	Science for women and women in science
Date:	September 11 th 2018
Seminar Abstract: (provide URL if easier)	<p>Science for women and women in science. Susan Wray. Department of Cellular and Molecular Physiology, University of Liverpool.</p> <p>Science for women My research is focussed on understanding the relationships between function and metabolism in smooth muscle; the signalling pathways, interactions and relation to pathophysiology and clinical conditions. A focus of this work is the myometrium.</p> <p>During labour contractions are of such intensity that blood vessels travelling through the uterus are compressed. The myometrium (and the fetus) experiences this intermittent hypoxia and we have shown <i>in vivo</i> that transient decreases of myometrial pH and ATP are associated with each contraction. These local changes (myometrial capillary blood) are significantly associated with dysfunctional labour, which is the major cause of unplanned Caesarean sections. Increases in amniotic fluid lactate are prognostic for such difficult labours. A recent small randomized trial suggests that oral bicarbonate can significantly reduce the number of C- sections.</p> <p>A conundrum arises associated with these metabolic changes: how, despite repeated, transient episodes of local ischaemia, hypoxia and acidity in labour, do contractions become progressively stronger? We have recently found a novel mechanism, similar to hypoxic preconditioning, is initiated in myometrium at the start of labour, and suggest it is a hitherto unknown part of the parturition process.</p>

	<p>Women in science. Few would argue that it makes sense for large numbers of skilled workers to be lost from science. This loss in academe is of women, particularly around the time of getting their first tenured jobs. Their career trajectory once in academe also departs significantly from that of men. In 2017, the University of Liverpool became only the second institution to hold a silver award under the expanded Athena SWAN charter. I will discuss initiatives we have undertaken, interspersed with some tales from my own life in science.</p> <p>5 Recent References:</p> <ol style="list-style-type: none"> 1: Koehbach, J et al (2014) Oxytocic plant cyclotides as templates for peptide g protein-coupled receptor ligand design PNAS 110: 21183-21188 2. Alotaibi M et al (2015) Hypoxia-induced force increase (HIFI) is a novel mechanism underlying the strengthening of labor contractions, produced by hypoxic stresses PNAS 112: 9763-9768. 3. Chiswick C et al (2015). Metformin and maternal and fetal outcomes in obese pregnant women (EMPOWaR): a randomised double blind placebo controlled trial. <i>The Lancet Diabetes & Endocrinology</i> 3: 778-786. 4. Wiberg-Itzel E et al .(2017). A randomized controlled trail of a new treatment for labor dystocia. J Matern Fetal Neonatal Med. 7: 1-16. 5. Di Giglio, M.G et al (2017). Development of a human vasopressin V1a-receptor antagonist from an evolutionary-related insect neuropeptide <i>Sci Rep</i> : 41002.
<p>Speaker Biography: (provide URL if easier)</p>	<p>See Wikipedia https://en.wikipedia.org/wiki/Susan_Wray</p>

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