Reviewer's report

Title: Myometrial contractility influences oxytocin receptor (OXTR) expression in term trophoblast cells obtained from the maternal surface of the human placenta

Version: 1 Date: 8 June 2015

Reviewer: Christian W. Gruber

Reviewer's report:

The study by Szukiewicz et al. describes the upregulation of OXTR expression in trophoblast cells triggered by myometrial contraction. The paper generally covers an interesting and relevant research area worth of being published with of BMC Pregnancy and Childbirth. However, a more detailed review of the manuscript revealed a few mistakes and ambiguities that need to be addressed prior acceptance. These are in particular unclear presentations of methods, irrelevant sections of the introduction, style of data presentation (Figures 2 and 4), correct use and proper referencing, as well as grammatical and typographical errors. In addition the abstract should be shortened, since in its current state, it does not provide an interesting and comprehensive summary of the work. Technically the data are sound, but it will be recommended to include an independent method to quantify receptor levels in trophoblast cells (e.g. by binding studies using commercially tritium labelled oxytocin with receptor containing membranes isolated from those cells) to back-up and confirm the exciting data from quantification with immunohistochemistry.

Specific comments:
- The data presented in Figures 2 and 4 should be normalized to 1 and relative changes should be specified as “fold-difference or fold-increase”; the term “percentage” is unclear and confusing. Please modify throughout the manuscript.
- Line 75: please use proper three-letter amino acid abbreviation; Cys-Tyr-…
- Line 76: provide original citation to this statement; i.e.
- Please correct spelling of “vasopressin” throughout the manuscript
- Line 92: “…and an another…”, please correct!
- Line 94-99: seems irrelevant, please delete or shorten.
- Line 110-117: please use proper pharmacological terminology and increase clarity regarding section about molecular signaling of OXTR
- Line 117: “The selectivity of OXTR is still an open debate.” What exactly do the authors mean? Cross-reactivity of OXT and AVP with all 4 receptors?? Please clarify/modify.
- Line 151: please provide ethics clearance number
- Line 171: Did i.v. administration of oxytocin prior to isolation of tissue and OXT quantification influence the results? Please discuss or provide additional data.
- Line 182 (and other sections of applicable): provide correct S.I. unit “x g”
- Line 195-197: please delete, sentence is obsolete (mesotocin is not expressed in humans)
- Line 203: correct “abundantly”
- Section 2.5: it has to be clarified how many samples have been tested; it is not enough to state that “126 visual fields” were analyzed! What is the biological reproducibility?
- Lines 270-275: totally unclear, needs major rewording and explanation
- The linear range of the ELISA quantification kit (OXT measurement) is apparently 15-1000pg/mL (line 186/87); however all data are presented as ng/g of wet tissue. Please provide evidence that the measured amounts are still within the linear range.
- Line 302: change to “shown”
- Line 346: change to “Ca2+”
- Line 352: change to “contraction”
- Discussion: the authors do not account for V1aR expression and stimulation as contributor to uterine contractility at term. Please provide a quick statement about the expression and contractile effects of V1aR stimulation in uterine tissue (see Koehbach et al, Proc Natl Acad Sci U S A. 2013 Dec 24;110(52):21183-8.).
- Check references: some report doi numbers others don’t.
- Figure captions: please specify biological repeats

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests