Reviewer's report

Title: Maternal undernutrition does not alter Sertoli cell numbers or the expression of key developmental markers in the mid-gestation ovine fetal testis

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In the manuscript “Maternal undernutrition does not alter Sertoli cell numbers or the expression of key developmental markers in the mid-gestation ovine fetal testis”, the authors propose to describe the effect of maternal undernutrition on the development of the fetal testis. In my opinion, there are numerous concerns that should be addressed before the manuscript could be considered for publication and that impede me from recommending this manuscript acceptance at its present state. I do believe that the scientific outcome could be significantly increased if the following points are addressed.

Major Compulsory Revisions

1. Abstract:
   a) In the abstract section and throughout the manuscript, the authors state that they performed “2 histology studies”. This type of division of the work should be avoided in this reviewer opinion. The authors should rephrase those statements as they performed one study on two different aspects of testis development.
   b) In line 36, the authors state that they will address the effect of nutritional state on “several indices of altered testis development and function”. The authors should avoid the word “altered”, as their prime purpose should be to evaluate several indices of testis development and not its alteration. The word “function” should also be avoided as the authors did not assess any indices of testis function.
   c) The word “immunoexpression” should be replaced by “expression” throughout the manuscript. The authors evaluated the expression using immunological-based techniques and not the expression of any immunological related protein.

2. Background
   a) The authors should address briefly in this section the significance and role of the proliferation and apoptosis markers chosen in the testis.
   b) The Background section needs a careful revision as the authors refer to a results of previous studies without mentioning the cellular systems or tissues they refer to, as happens in line 78 to 80. Also, some of the mentioned studies are performed in vitro (lines 100-101) and this should be clearly stated. This should be corrected throughout the manuscript.
   c) Some references are incorrectly cited. For instance, in line 104 the cited work
of Nef et al. 2000 does not refer to any of the mentioned statements about the role of cKit or SCF. Indeed, those authors do not mention cKit or SCF in the entire manuscript. This inaccuracy in citations can be seen throughout all this section and is a serious inaccuracy.

3. Results

a) This section is quite poor. The authors should evidence more their results. They do not refer in the text of any of the subsections of Results the numerical values obtained, except for the Maternal Body Condition Scores. They should also include the number of samples they used in the several studies, as for instance for the assessment of Fetal Testicular Mcl-1 and Bax (lines 130 to 136): how many samples did they analyze? How many tissue samples of each animal did they quantify?

b) The same information regarding the number of samples analyzed by animal should be inserted in the Figure legends.

4. Discussion

a) In the Discussion section, the authors should start by explaining that data on the effect of the protocol used for maternal undernutrition on fetal weight has already been described and published in a previous study and then describe briefly what those authors reported.

b) As referred above, the authors should also be avoided the word “function” as they did not assess any indices of testis function.

c) Globally, the Discussion section is disappointingly constructed. The authors describe the results obtained by other investigators without adding anything particularly substantial for the discussion of the work presented in this manuscript. This kind of approach should be avoided. They should integrate and discuss the results presented in the manuscript in regard with what has already been described in the literature.

5. Methods

a) The authors should avoid repeating sections of the Methods, as happens in lines 254-258.

b) The word micron should be replaced by #m.

c) The authors should indicate the supplier of the equipment and of the software they use. See for instance line 278.

d) As mentioned above, the use of a terminology “two studies” should be avoided. The statement on lines 298-299 is meaningless.

e) The reference to the name of the operator responsible for carrying out the quantification of the immunostaining (line 339) should be removed, due to the fact that this is already referred in the section authors’ contributions and that the author LA is not readily identifiable.

Level of interest: An article of importance in its field
Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.