Reviewer’s report

Title: Maternal Creatine Homeostasis is altered During Gestation in the Spiny Mouse: is this a Metabolic Adaptation to Pregnancy?

Version: Date: 5 February 2015

Reviewer: Olivier Braissant

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This article by Ellery et al provides new informations on how creatine synthesis and transport may be altered in mammals during pregnancy. As creatine is an essential metabolite during fetal development, these data, gained in the spiny mouse, propose a new understanding on how maternal metabolism and transport of creatine may be adjusted to fulfill the maternal and fetal needs in creatine.

In particular, the findings that creatine is decreased in plasma and urine of the pregnant spiny mouse, while is increased in heart and skeletal muscle, suggest that future important studies should be performed in human, to address the question of whether an appropriate support of creatine in diet during pregnancy (in particular for vegetarian or even vegetalian people) may protect the fetal life and avoid eventual complications (poor fetal growth, fetal or neonate oxidative stress, neonatal mortality, etc...).

The manuscript is well written and presented, and should become acceptable for publication provided that authors address the very minor revision below.

- Minor Essential Revisions

1: In legend of figure 2, please change as follows: "...however GAMT protein was decreased at term (D)." instead of increased.

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.

Declaration of competing interests:

I declare that I have no competing interests.