Reviewer's report

Title: ErbB3 mRNA leukocyte levels as a biomarker for Major Depressive Disorder

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Reviewer: Junichi Ichi Iga

Reviewer's report:

The authors measured ErbB3 and Fgfr1 mRNA levels in leukocytes of MDD patients and healthy subjects. The main results are followings.

1. ErbB3 but not Fgfr1 mRNA levels were decreased in MDD compared to healthy subjects. 2. There was no change in ErbB3 mRNA levels during antidepressant treatment in either human leukocytes or animal model. 3. The improvement of MDD symptoms assessed by MADRS was significantly and positively correlated with the increase of ErbB3 mRNA levels at T12.

Although these results are interesting, some major compulsory revisions are needed.

1. major compulsory revision

Although the authors corrected the age using logistic regression, a significant difference in age between patients and healthy subjects is problematic. Erbb3 expression level is known to show the age-related change in the brain (Colantuoni C et al. Brain Struct Funct. 2008 Sep;213(1-2):255-71). Thus, the authors should reconfirm these results using age-and-sex matched controls.

2. major compulsory revision

Although the improvement of MDD symptoms assessed by MADRS correlated significantly and positively with the increase of ErbB3 mRNA levels at T12, there was no change in ErbB3 mRNA levels during antidepressant treatment. The authors should discuss about this discrepancy. I suspect that the only two patients whose delta ErbB3 mRNA levels% were increased to 120% and 240% made a significant impact on this correlation.

3. major compulsory revision

The authors should show the data from experiments using rats.

Level of interest: An article whose findings are important to those with closely related research interests

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.