Reviewer's report

**Title:** Impairment of circulating endothelial progenitors in Down syndrome

**Version:** 1  
**Date:** 13 April 2010

**Reviewer:** Yonglan Zheng

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Down syndrome is a common human disease that affects individuals world-wide. The authors took the advantages of their previous built infection model, as well as other molecular biological methods, to investigate the morphological changes, gene expression alternations and enrichment of gene functions in Down syndrome subjects, compared to euploids. Hypothesis is straightforward and the study was well designed and performed. Their results are interesting and will be beneficial to patients' clinical characteristics. Couple comments here:

1) More clinical details of their study subjects are needed, such as the distributions of age, gender, and affected status of other diseases (if any), since the authors have mentioned in the article that mental retardation, congenital heart defects and Alzheimer disease are commonly related to DS. In addition, CASP8 showed 3.5 fold of down-regulation in Table 1. DS patients have lower incidence to develop solid tumors, whereas, CASP8 was found to be associated with breast cancer by gene-based association study, and down-regulation has also been reported in breast cancer (PMID: 20132554). Will the authors discuss it a little?

2) The authors found a significant decrease of SDF-1# plasma levels in young and adults DS. Thus, age could be the affect factor, and more details such as mean age and S.D. should be documented in the paragraph of "SDF-1# plasma levels" in "Methods".

3) In "Microarray analysis and quantitative RT-PCR" in "Methods", the authors mentioned a total 15 ng of cRNA was used for array hybridization. From their previous publication (PMID: 18595894, ref. 26), they used 15 ug cRNA. Furthermore, Affymetrix U133 2.0 array Manual indicates that >10 ug cRNA is required. The authors should clarify the amount of cRNA they used. Is 15 ng a typo?

4) For "Panther (Protein ANalysis THrough Evolutionary Relationships)", is better to upper-letter "Panther" to "PANTHER" and cite it (PMID: 12952881). Also cite "positional gene enrichment (PGE)" (PMID: 18346969).

5) Throughout the text, it's better to unify "P", "p" and "p-value" to single one. In the paragraph of "SDF-1# plasma levels" in "Methods", "SDF-1a" should be "SDF-1#". In "Methods" of "Abstract", “Moreover, qRT-PCR was used quantify expression levels…”, should be “Moreover, qRT-PCR was used to quantify
expression levels…”.

**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.