Reviewer's report

Title: Generation of a panel of antibodies against proteins encoded on human chromosome 21

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Reviewer number: 1

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In order to characterize mosaicism in the Tc1 mouse model of Down syndrome, a model which carries an extra chromosome 21, the authors have searched the databases to select brain expressed genes with regions of low homology and produced antibodies to seven human chromosome 21 encoded proteins.

Unfortunately, when analyzed on Northern blots, five of them identify the same bands in TC1 and in control samples; they also identify other bands from unknown origin.

Two of these antibodies directed to SOD1 recognizes the expected 16 kDa band; however they recognized also a 35 kDa protein both in control and in Tc1 samples.

Only one of them, the antibody to RRP1, clearly identifies a band with the expected size and this band presents the strongest intensity on the blot.

The authors assessed the possibility to use the antibodies to SOD1 and to RRP1 on brain sections and obtained an homogeneous signal with a similar intensity for the sections from control and those from TC1 indicating that these antibodies reacted also to the proteins corresponding to non specific bands seen on Western blots. These results forbid to use these antibodies for immunochemistry.

Therefore in conclusion the initial question about mosaicism is not solved. These negative results do not bring any evidence for another mechanism. These data characterize two antibodies which could be used on Western blots but not on tissue sections.

Some revisions are needed before publication:

Minor Essential Revisions

Authors should try to adjust the experimental conditions such as primary antibody dilution, use of other blocking conditions in order to minimize the non specific bands seen on figure 2 blot E (35kb ) or on blot F (25 and 35 kb).

P4 With the shown blots authors cannot claim that these antibodies recognized human but not mouse forms of the targeted proteins.

Conclusion: authors should mention the two commercial antibodies for SOD-1 that are claimed to be human specific and explain why it is not the case if so.

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.