Reviewer's report

Title: Modeling of chemical inhibition from amyloid protein aggregation kinetics.

Version: 1

Date: 21 October 2013

Reviewer: Bertrand MOREL

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Modeling of chemical inhibition from amyloid protein aggregation kinetics. Jose A. Vazquez
BMC Pharmacology and Toxicology Research article

1. Is the question posed by the authors well defined? Yes
2. Are the methods appropriate and well described? Yes
3. Are the data sound? Yes
4. Does the manuscript adhere to the relevant standards for reporting and data deposition? Yes
5. Are the discussion and conclusions well balanced and adequately supported by the data? Yes
6. Are limitations of the work clearly stated? Moderate
7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished? Yes
8. Do the title and abstract accurately convey what has been found? Yes
9. Is the writing acceptable? Yes

In this work, the author describes a mathematical model to predict chemical inhibition from amyloid protein aggregation kinetics. Protein aggregation has been commonly associated with numerous degenerative disorders and also biotechnological applications. For this reason the development of theoretical models for data interpretation becomes important in this investigation field. Here, the author presents an accurate and effective model to investigate the inhibition of chemicals on amyloid protein aggregation and applied this methodology to experimental results already published. This model is based on a general bivariate model that combines the logistic equation for the description of kinetics and the Weibull equation for the chemical concentration effect.

The manuscript is clearly written and the simulations robustly carried out. I strongly recommend this manuscript for publication in “BMC pharmacology and toxicology”.

However, there are some minor points to be changed.

Minor Essential Revisions:
1) In Background, Page 3 line 66: The author states “Human A# 42 amyloid protein is a peptide of 39-42 residues and the major isoform...”. I would rather say that Human amyloid peptides (A#) are peptides of rather 39-42 residues. A#42 is a 42 residues polypeptide chain and A#40 contains 40 amino acids.


4) In “Inhibitory effect of di-C7-PC and methylglyoxal on insulin aggregation” page 11 line 264; “…but a much longer time was required to obtain this parametric value (133 h)”. In Table 3, the actual value is 150.68 hours.

5) Some references are not in the correct format. Specially the abbreviated journal titles. This should be checked and corrected.

6) In figure captions, page 23 line 619, Figure 3. Write “Insulin fibrillation kinetics…” and not “Insuline Fibrillation kinetics....”

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.