Reviewer's report

Title: Monosodium Urate Crystal Induced Macrophage Inflammation Is Attenuated by Chondroitin Sulphate: Pre-Clinical Model for Gout Prophylaxis?

Version: 2 Date: 22 July 2014

Reviewer: Kyle Allen

Reviewer's report:

Overview: The manuscript has an interesting set of data, though it is relatively limited in size and scope. It's probably best situated as a short article or brief report, but there is value to the data set.

Major Compulsory Revision

Unfortunately, the conclusions and the statistical methods do not align, and the authors need to fix this prior to publication. The main mistake is the use of the Dunnett's post-hoc test, which only compares to a control value, then making the conclusion that the inhibition was in a dose-dependent manner. Dunnett's can not achieve this conclusion as it only compares to the control. Making a conclusion beyond this invalidates the assumptions of the Dunnett's test and invalidates the type-1 error compounding limits in the Dunnett's test. Another post-hoc will be needed that allows for comparisons between non-control groups in order to make this conclusion (Newman-Keuls, Tukey's), or the authors will need to produce some sort of regression fit showing the effect of dose is a significant regressor (this what I would recommend), or finally, the authors will need to rework their conclusions section to be consistent with the Dunnett's tests assumptions.

Did the authors use the MSD platform for TNF and IL8 independently, or where these measured in multiplex? And if measured in multiplex, were other targets included but not detected? This information should be provided even if the additional targets were not detectable. The reagents and markers for the other targets could effect the measured cytokines and this should be disclosed in the methods.

The description of the endotoxin assay is not sufficient. Even if following hte manufacturers directions, the assay should be described in brief.

There is no Figure 4, even though it is called for in the results.

Minor Essential Revisions

The language is understandable, but there are a number of grammatical flaws in the paper - comma splices and failure to follow MLA formatting are the most consistent issues. Please take better care in the revision. In MLA formatting, the reference is inside the punctuation. Missing superscripts and subscripts in various locations. Missing units on some values. Missing prepositions in some locations. It can be pieced together, but more care should be taken.
"All samples yielded measurable concentrations; 23 of 46 values for IL-8 were above the upper standard of this assay but readily extrapolated." Huh? This is contradictory, isn't it?

On what were the cells initially grown? Tissue culture plastic, I'm sure, but in a flask, well plate, etc? At that density, I'm not sure whether contact inhibition would be a concern or not, but can't tell since plates aren't reported.

In the background, the authors cite a review article multiple times (13) rather than the original data.

In the methods for CS inhibition, the author mean a purity of 98%, not concentration.

The manuscript also will need a type editor. The language is understandable, but there are a number of grammatical flaws in the paper - comma splices and failure to follow MLA formatting.

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

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

None