Reviewer's report

Title: Effects of concentration and structure on synergistic proteoglycan 4 + hyaluronan cartilage boundary lubrication

Version: 2 Date: 13 January 2015

Reviewer: Sameh Elmorsy

Reviewer's report:

I read with interest the manuscript by Ludwig et al. Manuscript describes the synergism between proteoglycan 4 & hyaluronan; and the effects of concentrations and structure alteration of proteoglycan 4 on cartilage boundary mode of lubrication. Authors used a cartilage-cartilage boundary mode friction test and a series of HA+PRG4 with different concentrations for both compounds and altered structure of PRG4, along with two controls PBS for negative and SF for positive the experiments were conducted and data assessed.

The paper is organized and clearly presented. The results have been interpreted carefully and the implications well-articulated. These factors are positive points for this paper. However, few points yet to be considered for this manuscript in order to be published in BMC Musculoskeletal Disorders:

A) Minor Essential Revisions:

1- In the discussion part P17, Line 344-346, this is a main limitation of this study and it should addressed adequately in the discussion.

2- Table 1. Please remove duplication of the numbering before th last group of test and lubricant materials

B) Discretionary Revisions:

Title better to be rephrased to in order give more clear information about the manuscript

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

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

No competing interests