Author’s response to reviews

Title: A biological extract of turmeric (Curcuma longa) modulates response of cartilage explants to lipopolysaccharide

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Reviewer reports:

Amr Amin (Reviewer 1): The manuscript entitled "A biological extract of turmeric (Curcuma longa) modulates response of cartilage explants to lipopolysaccharide" and authored by Pearson and Kott showed that biological extract of turmeric reduces the LPS-induced inflammatory responses of cartilage and provides evidence for the common use of the spice to reduce articular inflammation and catabolism. The revised version is much improved, however, a few more comments need to be sufficiently addressed before any further consideration.

On page 8 (results) quote "GAG release in explants conditioned with TURsim (15 μg/mL) was significantly lower than control explants, but there was no interaction of treatment with time (Figure 2A).", please review this phrase with data presented in the cited figure.

THIS STATEMENT HAS BEEN REMOVED. ALSO ADDED SUBHEADING ‘GAG’ THAT WAS MISSING.

Figure 4 should also show representations of the immunofluorescence images.


In figure legends, identify what are "C" and "C+".

THIS INFORMATION HAS BEEN ADDED TO EACH FIGURE LEGEND.
Somanshu Banerjee, PhD (Reviewer 2):

In vivo study may be necessary to re-confirm the simulated gastrointestinal digestion and biotransformation of turmeric through the oral gavage route with appropriate dosimetry and check the levels and distribution of its active components (using the HPLC and/or UPLC-MS instrumentations) in blood and the site of interest (e.g., intercarpal joint etc.) of the animal model (i.e., pre-clinical settings) to extrapolate these findings into clinical use.

WE HAVE ADDED A STATEMENT TO THE RESULTS SECTION TO REFLECT THIS. “The extent to which these limitations influence interpretation of data in the current study should be explored in future in vivo studies. These studies should also seek to validate the simulated digestion and biotransformation of oral turmeric by quantifying levels and distribution of its active components in blood and articulating joints of pre-clinical animal models”

Further, mini-pumps or nano/micro-tubes with the biological extract of turmeric can be implanted into the joints of arthritis model animal and the cartilage inflammatory response to be evaluated to strengthen the findings of this study.

THE PURPOSE OF THE SIMULATED BIOLOGICAL EXTRACT IN THE CURRENT STUDY WAS TO ACCOUNT, AT LEAST IN PART, FOR THE EFFECTS OF DIGESTION AND HEPATIC METABOLISM FOLLOWING ORAL CONSUMPTION. THUS, WHILE THE REVIEWER PROPOSES AN INTERESTING STUDY TO CONDUCT, WE DO NOT BELIEVE IT WOULD NOT NECESSARILY ADVANCE THE TESTING OF HYPOTHESES OF THE CURRENT STUDY.

Again the authors are requested to evaluate the response of arthritis-specific interleukin signaling in the joint tissues/fluids to establish a clear picture on the anti-inflammatory properties of turmeric.

WE HAVE ADDED A STATEMENT TO THE RESULTS SECTION TO ADDRESS THIS LIMITATION. “In addition, the results reported herein are in response to LPS, and not to the endogenous pro-arthritis stimulus of interleukin-1β (IL-1β) [49]. While IL-1 undoubtedly participates in the complex catabolic and pro-inflammatory signaling in OA, a recent review has concluded its contention as the prototypical catalyst for disease initiation and progression is in decline [50]. However, it may be of value to conduct further studies using IL-1 as the pro-inflammatory stimulus in order to compare cartilage responses to those reported in the current study.”