Associate Editor Decision

Comments to the Author:

The initial reviews were both generally good, with one reviewer suggesting minor revisions and the other seeking further major revisions. The more critical reviewer considers the work similar to previously reported work. Additionally, the manuscript is criticized for not clearly distinguishing between particle bound ROS and aerosol species that produce ROS in vivo. Both of these aspects have been improved. Regarding these criticisms, the work is novel because it has a different application than the prior work using a PILS / cyclone system. Here, the purpose of the aerosol collector is to react the PM with BPEAnit, which allows for detection of reactive oxygen species, while the past work using a similar collector was focused on detection of organics or nucleic acids. The prior work regarding PM collection was partially cited and is now fully cited. Therefore, I consider the point of similarity to prior aerosol collection resolved.

With regard to ROS / OP, the text is now more clear with regard to particle bound ROS versus producing ROS in vivo. The new title, which uses "particle-bound ROS" takes the reviwer's main point. Note also that this title and the text is now in agreement with the recent paper by Puthussery et al. (2018). The reviewer takes the DTT assay as an accurate measure of OP and cites papers indicating that there are health correlations to the DTT assay. However, it is also true that particle-bound ROS would contribute to oxidative potential and thus are of interest. The authors make a good argument that development of multiple probes are useful for moving forward this emerging field and discusses relative merits of various probes fairly extensively.

From these considerations, my recommendation is that the article be accepted subject to minor revisions. Although it was not published at the time of submission of this article, the manuscript should include in Table 1 reference to the recent Puthussery et al. (2018) publication. This publication should also be included in the text in appropriate places.

Author Response:

The authors of this manuscript thank the Associate Editor for his professionalism, consideration and time dedicated to the revision of this manuscript. As per suggestion, we have included the recent Puthussery et al. (2018) in Table 1 and its caption, along with in: Section 1.3 “Online Collection Techniques” at Pg 3 Lines 1 and 5; Section 1.3.2 “Particle Collectors” at Pg 5 Line 31; and Section 6. “References” Pg 23 Lines 22-24.