



Response to letter to the editor

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To cite this article: L. G. Rikkert, R. Nieuwland, L. W. M. M. Terstappen & F. A. W. Coumans (2019) Response to letter to the editor, Journal of Extracellular Vesicles, 8:1, 1648997, DOI: [10.1080/20013078.2019.1648997](https://doi.org/10.1080/20013078.2019.1648997)

To link to this article: <https://doi.org/10.1080/20013078.2019.1648997>



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Published online: 05 Aug 2019.



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Response to letter to the editor

Dear Editor,

We appreciate the letter by renowned electron microscopist Alain Brisson in response to our article. As stated in his letter, “*The aim of an EM study is to provide a faithful description of a sample*”. In the case of electron microscopy, the faithful description of a sample is based on the obtained images. Sources of variation contributing to the obtained images are (1) sample heterogeneity (“*the morphology and size distribution of EVs, the presence or absence of non-vesicular particles and aggregates*”), (2) the preparation protocol (“*complex and poorly controlled processes*”), and (3) the operator.

When influences of sample heterogeneity and preparation protocol were controlled, operator-selected images showed less variation than images taken at predefined locations. This finding is the result of “confirmation bias”, which is defined as “*evaluating evidence that supports one’s preconceptions differently from evidence that challenges these convictions*” [1,2]. In the case of EM, the operator looks for image locations that confirm the expectation. While it is common in EM to assume that the operator influence on the study outcome is negligible, this assumption is at odds with the results of our study and the knowledge of confirmation bias. Therefore, in our view the “*faithful description of a sample*” is best reflected by images taken at predefined locations.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Stichting voor de Technische Wetenschappen [VENI 13681]; Stichting

voor de Technische Wetenschappen [Perspectief CANCER-ID 14198].

References

- [1] Kaptchuk TJ. Effect of interpretive bias on research evidence. *BMJ*. 2003;326:1453.
- [2] Tversky A, Kahneman D. Judgment under uncertainty: heuristics and biases. *Science*. 1974;185:1124–1131.

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