**Reviewer’s report**

**Title:** Aerosol drug delivery to the lungs during nasal high flow therapy: an in vitro study

**Version:** 0  **Date:** 11 Nov 2018

**Reviewer:** Andrea Melani

**Reviewer's report:**

The paper is interesting and well-written. I do not see any particular problem.

The introduction section could be shortened including some not essential references. The first phrase (lines 52-55) should be re-written. The last phrase of the page (lines 66-71 might be taken off. Home long-term oxygen therapy in hypoxaemic COPD subjects improves survival more than symptoms according to the MRC and NOTT seminal studies. Moreover, nasal high flow therapy (NHFT) is mainly used in acute conditions such as in hospital or emergency units to manage refractory (to low oxygen flows) non-hypercapnic hypoxaemia

Into the abstract section authors write that "a higher inspiratory flow rate was generally associated with a higher lung deposition". Considering the in vitro (and pilot) nature of the study, I would change into "a higher inspiratory flow rate was generally associated with a higher FPF"

To page 7, last paragraph, please add some details of environmental conditions. The current definition is a bit generic

I understand that the mixing of sugar and leucine is very important. Please briefly explain the role of leucine including one or some references of previous studies that have employed it to improve APSD

There are minor grammatical errors into the text and a figure. Please correct them

To line 437, authors write that the finding is supported by CFD deposition studies in the nose. Please extend this phrase and briefly describe the results of the study (ref-34).
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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