Reviewer’s report

Title: Altered mucosal immune response after acute lung injury in a murine model of Ataxia Telangiectasia

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Reviewer: Claudio Pignata

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The Authors report on a higher effect of hydrochloric acid on bronchial epithelia damage in Atm-- mice as compared to control mice. This finding being associated with an increase of inflammatory cells and cytokines in BAL from Atm-- mice. Although the data are interesting and would deserve careful attention, the overall interpretation proposed by the Authors is misleading and several flaws limit the value of the paper.

1. There is no evidence that the ID is responsible for the lung disease in these patients. These patients do not suffer from infections in other districts.

2. In the Discussion paragraph, to our opinion, the claim that “neutrophils activation can cause a by-stander tissue damage” is an overstatement, not substantiated at all by any data, and easily it can be misinterpreted by the reader. No direct link between Atm mutation and leukocyte trafficking has been documented. Thus the sentence “ATM deficiency also increases production of pro-inflammatory mediators and regulates leukocyte trafficking to inflammatory sites. Here, ATM deficiency increased airway”

3. PMN infiltration and increased inflammatory responses by tissue resident cells and levels of several pro-inflammatory mediators in the injured lung” must be deleted.

4. The increased lung resistance and decreased tissue damage at T0 demonstrates that this is not due to inflammatory events, which are induced by the chemical insult.

5. Differently the importance of the study relies on the observation that the epithelial cells have a higher susceptibility to the chemical damage in Atm – mice. These cells are proliferating cells, and therefore require the integrity of the DNA repair pathways as lympho do. Thus, the finding is not surprising and may only reflect the inappropriateness of the Atm mediated DNA repair pathways. The increase of inflammatory biomarkers is only a consequence of the increased tissue damage, which, as correctly noted by the Author is pre-existing to the chemical insult (increased lung resistance and decreased tissue damage at T0). In other words, what the Author miss is that Atm per se seems indispensable for epithelia cell integrity.

6. The quality of Fig 6 is poor.
7. It is not clear how many mice have been studied in each exp.

**Level of interest:** An article of limited interest

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.