Reviewer's report

Title: Microarray Analysis of MicroRNA Expression in Peripheral Blood Mononuclear Cells of Critically ill Patients with Influenza A (H1N1)

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Reviewer: Renate Koenig

Reviewer's report:

The authors show a differential miRNA expression profile of PBMC derived from critically ill patients infected with swine-origin influenza H1N1 compared to healthy individuals. They performed target prediction and integrated the miRNAs and their targets in a network of host-viral protein-protein interactions. Interesting findings were discussed and the authors provide potential conclusions about Influenza host requirements and antiviral mechanisms.

Major revision:
It remains unclear whether just the fever, the induction of cytokines/interferons, inflammation or additional influenza replication in blood cells is causing the discussed miRNA changes. Since influenza virus primarily infects epithelial cells of the respiratory tract, it remains questionable if the miRNA changes result from infection of antigen presenting cells that are additional targets of influenza. The authors should provide in vitro experiments infecting PBMC versus A549 to show differential expression of the validated miRNAs. Does IFN treatment lead to up/downregulation of the validated miRNAs? The authors should also compare their list of miRNAs to similar studies, is there overlap to any of the cited publications (citation 15-21 e.g.)? In addition, they should compare their list to published data on IFN regulated miRNA patterns. The data need also to be discussed in comparison to similar studies on related (respiratory) diseases.

A proper control sample group to compare would be same individuals after recovery. Why did the authors not compare miRNAs in the same individuals?

The authors should discuss the following: Can the data be used to predict disease stage or progression or differentiate various respiratory diseases? Are the data helpful to understand pathogenicity? Can the data be used to identify novel drug targets to treat influenza?

Minor revision:
The patient characteristics need more information (other diseases, use of pharmaceutical drugs..). BMI indicates that all patients were overweight, do any of the patients had metabolic syndrome or diabetes?

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Needs some language corrections before being published

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

Declaration of competing interests:
I declare that I have no competing interests