Reviewer's report

Title: The Role of Syk Signaling in Antifungal Innate Immunity of Human Corneal Epithelial Cells

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Reviewer: Salomé LeibundGut

Reviewer's report:

The manuscript by Liu et al. investigates the role of Syk in the recognition of Aspergillus fumigatus by human corneal epithelial cells (THCEs). The authors have addressed this well-defined and relevant question in a concise manner. They find that Syk is constitutively expressed in THCEs and gets phosphorylated upon A. fumigatus stimulation. A. fumigatus stimulation results in the induction of cytokine and chemokine mRNA expression, which is dependent on Syk because inhibition of Syk with Piceatannol reduced the levels of mRNA. This conclusive work opens up a number of follow-up questions such as the following: Is the dependence on Syk also seen when cells are infected with live A. fumigatus? What is the nature of the Syk-coupled receptor mediating A. fumigatus recognition in THCEs? Does Syk also regulate the processing of IL-1β in response to A. fumigatus stimulation? Are all responses to A. fumigatus by THCEs Syk-dependent, or are there also alternative signaling pathways activated? What is the role of Syk in corneal epithelial cells in vivo during an A. fumigatus infection?

I do have a few minor essential revisions:

The labeling of certain figure panels are not ideal and need improvement: what are the units on the y-axis in Fig. 1B and 3B (pSyk relative to what?)? Phosphorylation of Syk is not 'protein production'. Please also adjust the figure legends accordingly. In Figure 3 there is a mix-up of time (45 min) and concentration of Piceatannol (5µM, 10µM). The untreated group should be indicated as 0µM or untreated or alike. And the time of stimulation (which presumably applies to all samples that were or were not treated with Piceatannol) should be indicated elsewhere. mRNA data seem to be normalized to the NC control, this should be indicated in the Methods and/or Legend. What was the solvent for Piceatannol? Ideally, a solvent-treated condition should be included as control. The English language needs some improvement.

Level of interest: An article of importance in its field

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.