Modelers Modelling Models

What would science be without models? Cell models have been established to mimic the *in vivo* situation, systems biology to mimic cellular processes, and animal models to mimic diseases in human beings. Within the last decades, these experimental models had an enormous impact on a better understanding of the molecular mechanisms behind many diseases. Also, in this issue of *Journal of Innate Immunity*, several models are described. For instance, Gomez-Lopez et al. [1] employed an intra-amniotic infection model to demonstrate that the transcriptomic changes in amniotic fluid monocytes/macrophages are associated with the severity of the fetal inflammatory response. These findings led the authors to conclude that in amniotic fluids innate immune cells play an important role in cellular trafficking throughout the umbilical cord [1]. Their observations are in line with results showing that many immune cells have organ-specific and distinct functional populations and innate immune functions [2–5].

Also, Nie et al. [6] in their contribution used a disease model, namely LPS-induced acute lung injury (ALI), to show that polyADP-ribosylation of NFATc3 and NF- κ B transcription factors can modulate macrophage inflammatory gene expression. Based on their findings, the authors draw the conclusion that PARP-1 inhibitors can be employed to therapeutically prevent LPS-induced ALI. Notably, several other pulmonary models have also demonstrated an important function of macrophages in pathogen recognition and elimination that is dependent on their priming [3, 7, 8]. An important role for NK cells in evoking an anti-tumor immune response is reported by Lee et al. [9]. Due to their cellular model the authors were able to show that resveratrol represents a promising anti-cancer drug candidate by boosting the activity of NK cells. In the last study in this issue, Dekmak et al. [10] are using an insect model to investigate whether and to what extent the contribution of systemic immune defenses to host microbial resistance varies if bacteria invade the hemolymph after crossing the midgut epithelium subsequent to an oral infection.

As always, we hope that the selection of articles will attract the attention of the readership of the *Journal of Innate Immunity* and emphasize the importance of experimental models.

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References

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