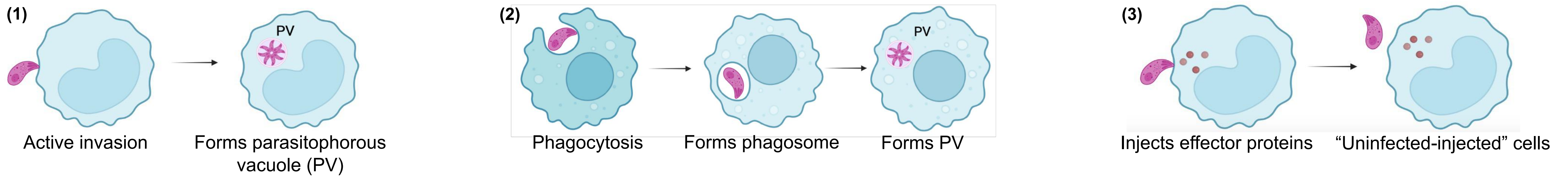


INTRODUCTION

- Pathogen interaction with host immune cells can simultaneously produce different outcomes.
- Hence, it is important to understand host-pathogen interaction at a single cell level.
- *Toxoplasma gondii* can simultaneously produce distinct infection outcomes in the same host¹⁻².

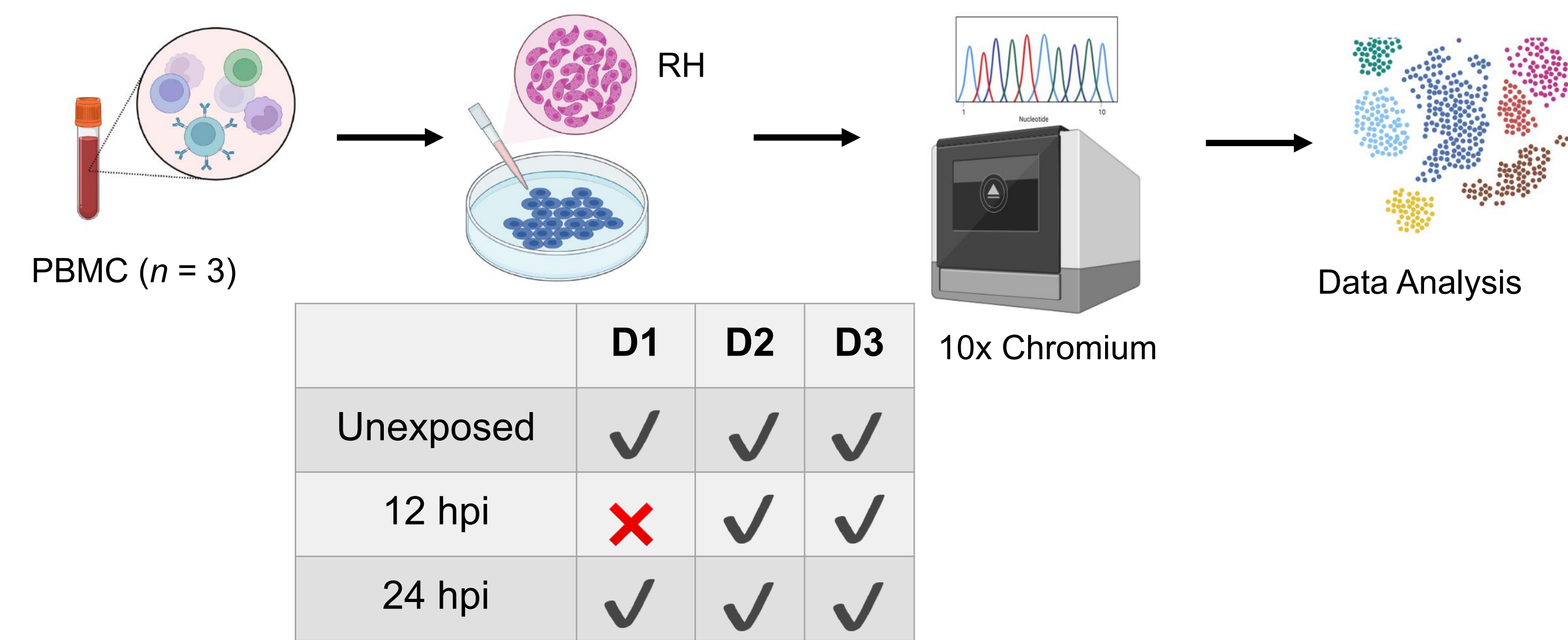


Aim: To investigate the transcriptional programs that underpin heterogenous *Toxoplasma*-human peripheral blood mononuclear cells (PBMCs) interactions using a combination of dual single cell and bulk RNA sequencing

METHODS

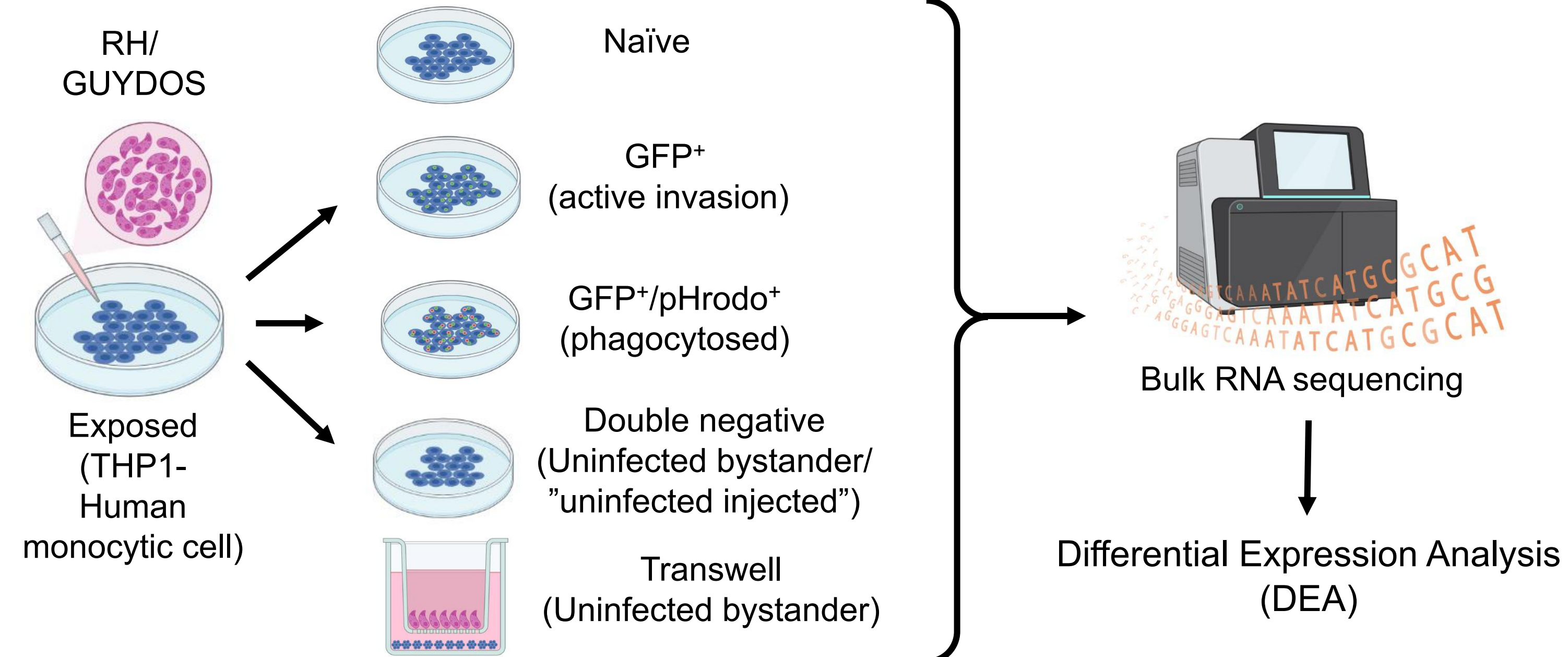
Single cell RNA sequencing:

To investigate transcriptional profile of PBMCs during infection

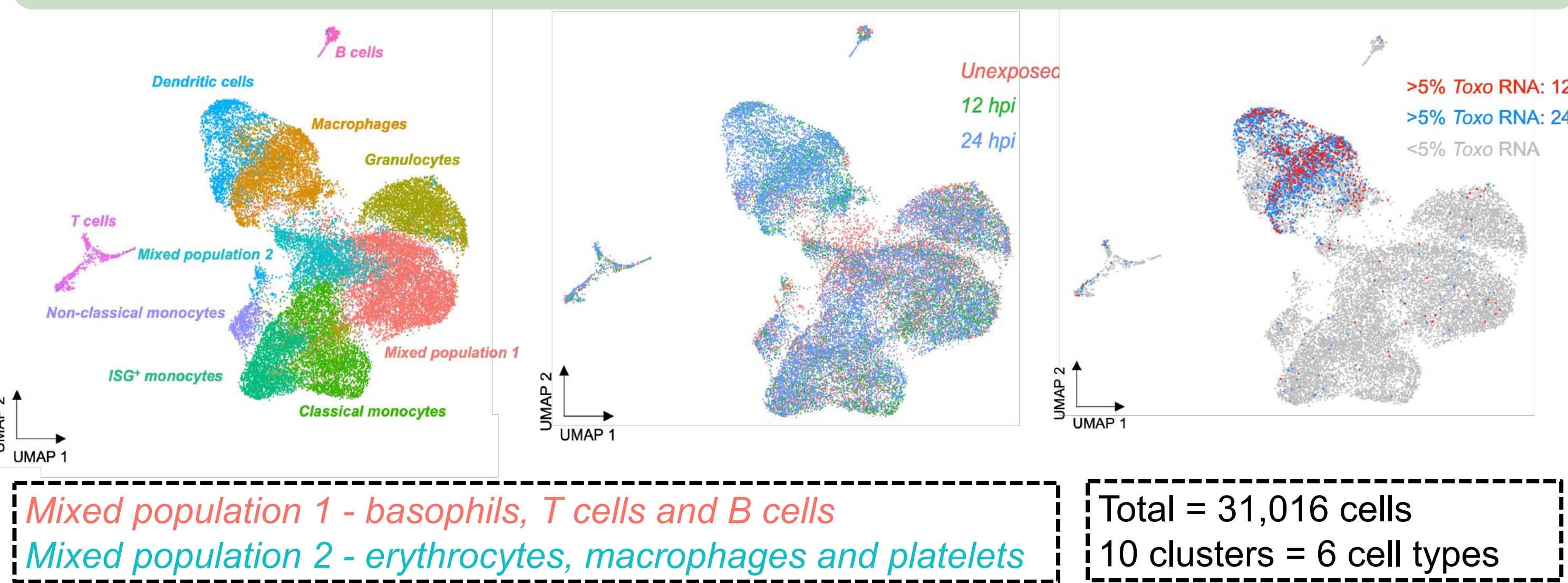


Bulk RNA sequencing:

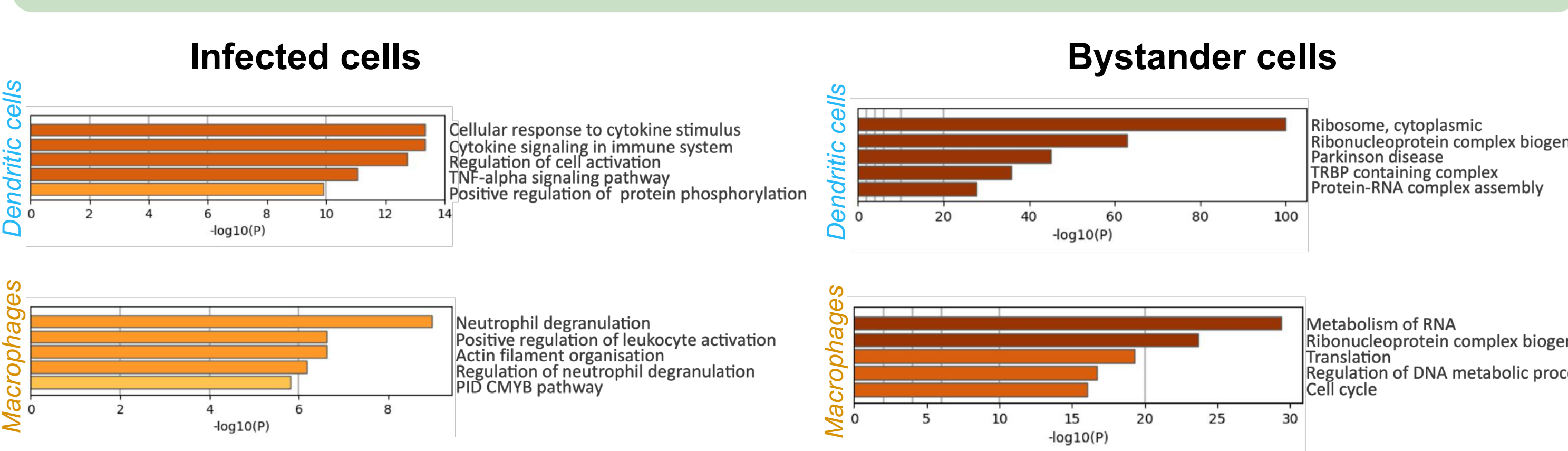
To determine the transcriptional profiles of different infection outcomes



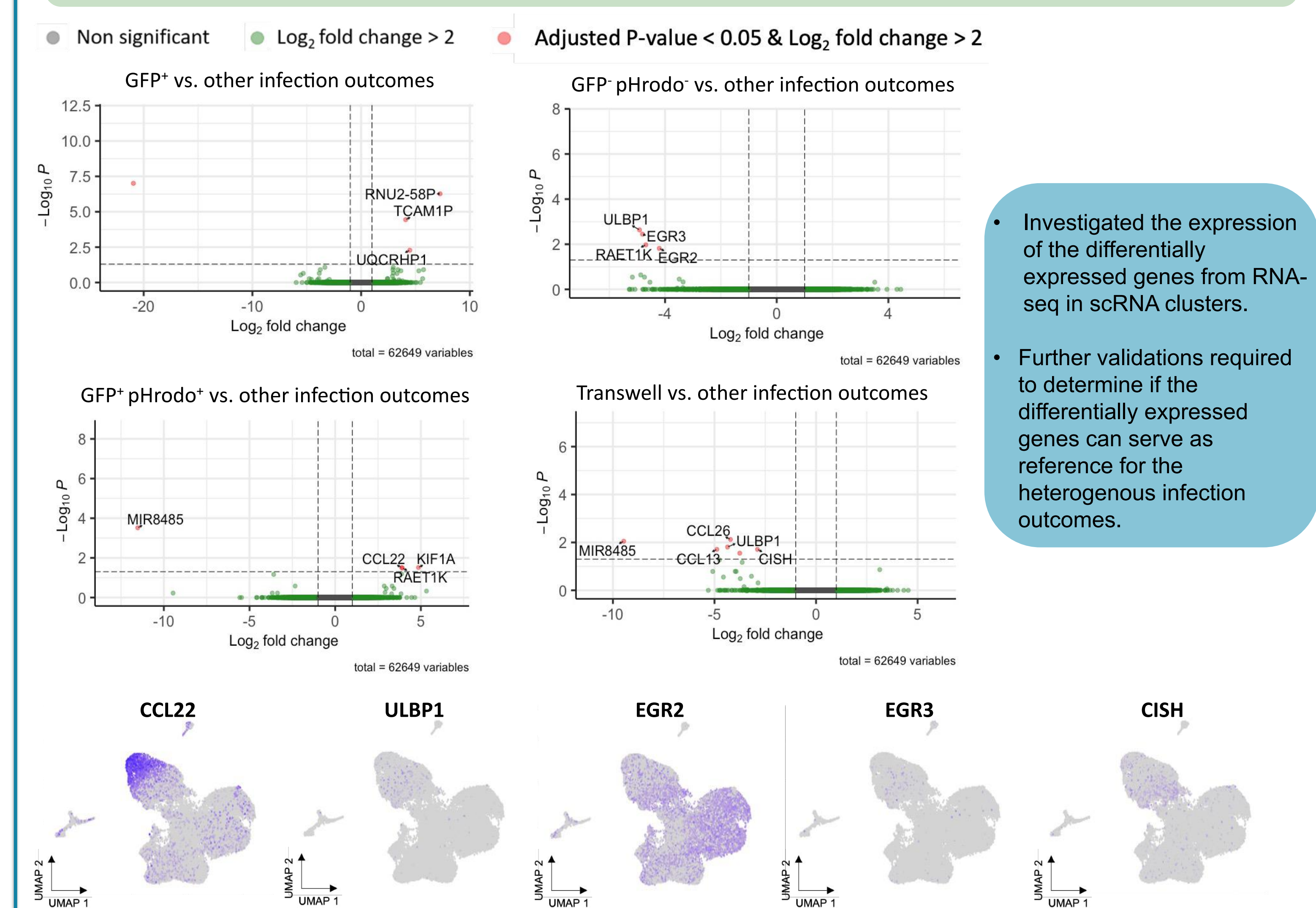
1) Differential cell distributions in unexposed and *Toxoplasma*-infected PBMCs



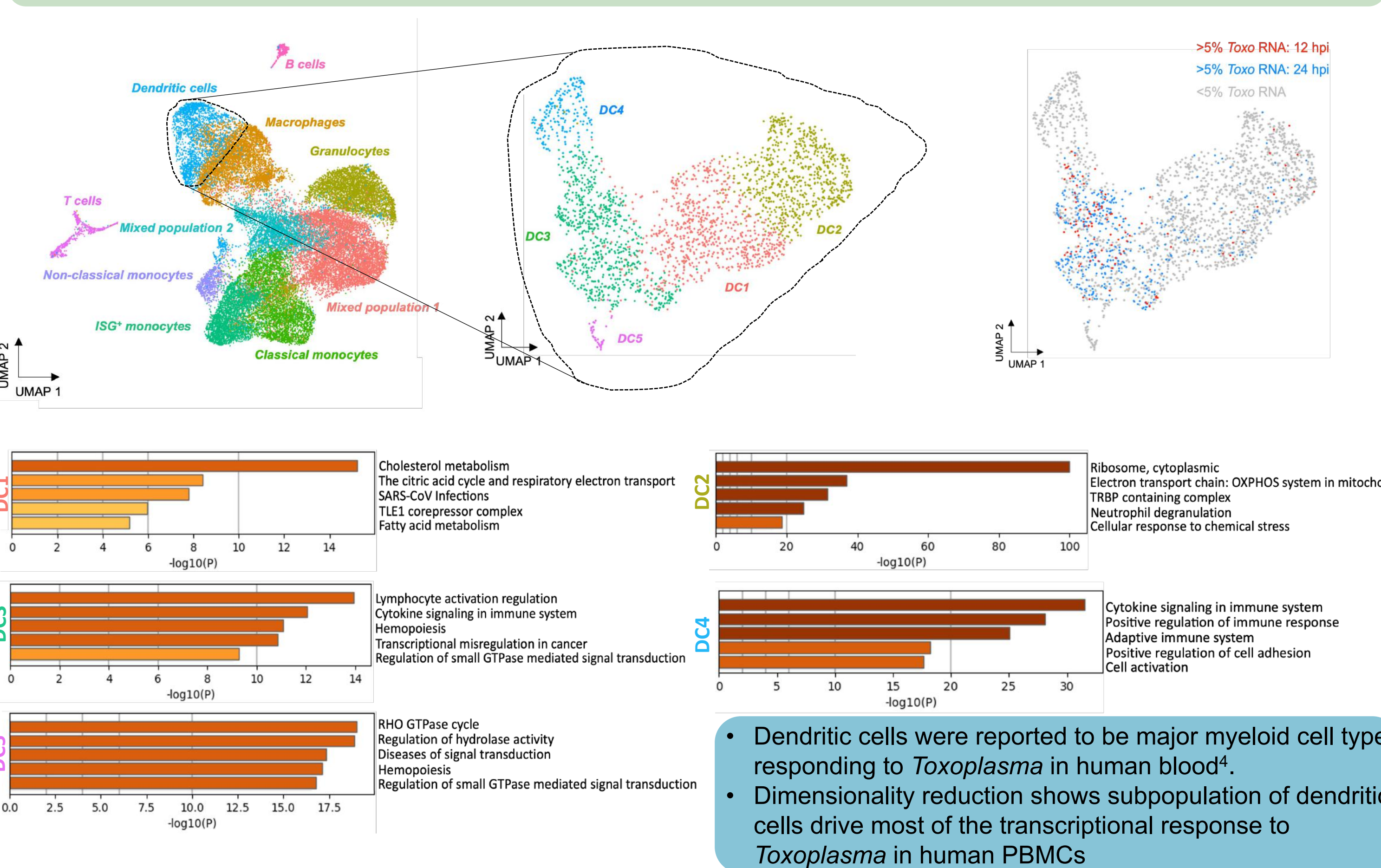
2) Differential transcriptional responses between infected and bystander cells



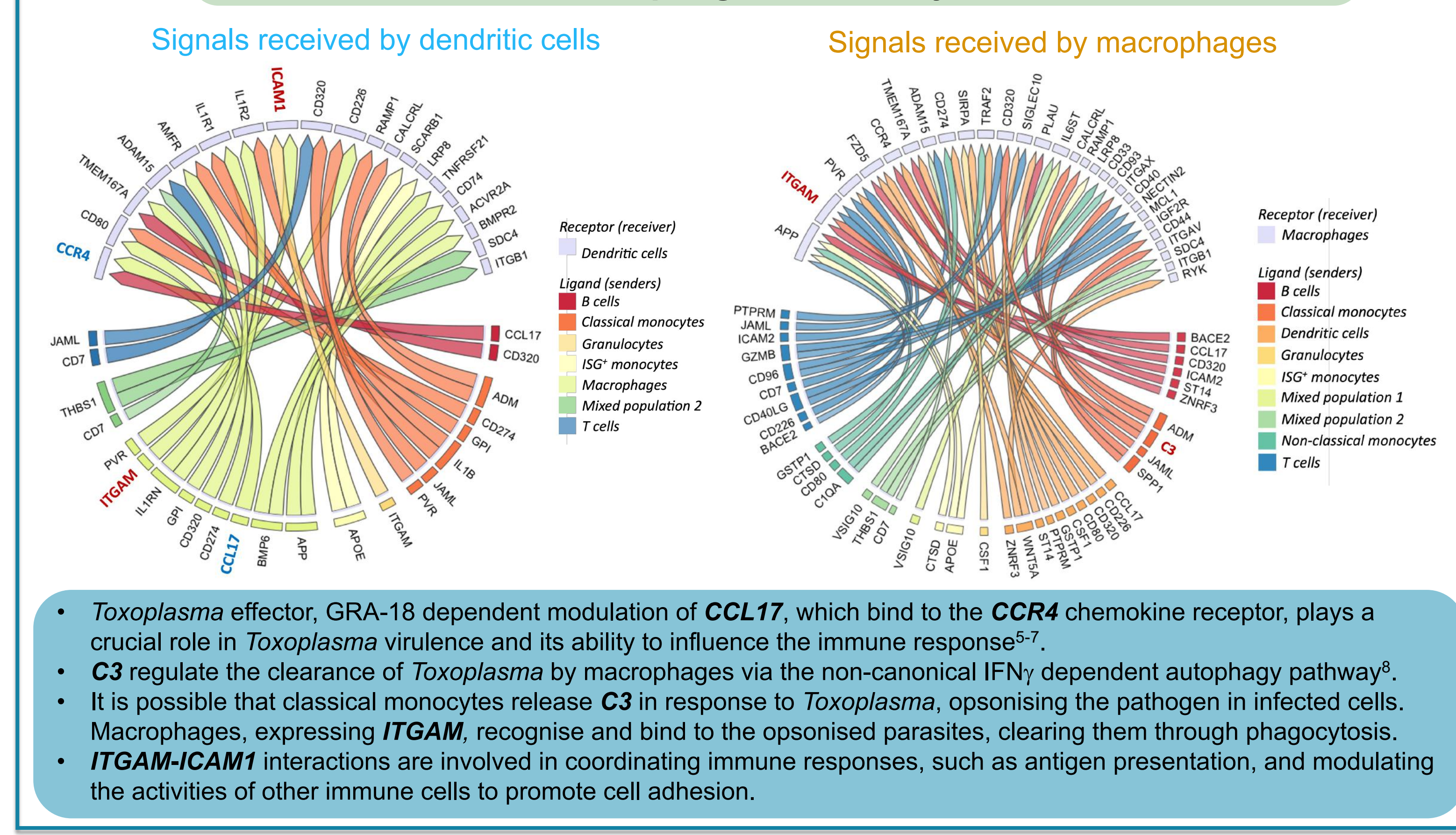
4) Transcriptional heterogeneity in *Toxoplasma*-exposed monocytes



3) Identification of infection-specific dendritic cell subpopulation



5) Crosstalk between *Toxoplasma*-exposed dendritic cells, macrophages & monocytes



CONCLUSION

- Dendritic cells and macrophages are the key players during acute infection, with distinct subpopulations within dendritic cells exhibiting different responses.
- Ligand-receptor interactions provided insights into complex cell-cell communication and host molecular responses.
- Our study emphasizes the importance of studying the host immune responses with diverse immune cells.

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