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| **Authors** | O. Paerewijck[1], L. Dreesen[1], F. Van Meulder[1], D. Ratman[2], K. De Bosscher[2], R.W. Li[3], P. Geldhof[1] |
| **Affiliations** | [1]Department of Virology, Parasitology and Immunology, Laboratory of Parasitology, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium<br>[2]VIB Department of Medical Protein Research, Ghent University, Ghent, Belgium<br>[3]Agriculture Research Service, Animal Genomics and Improvement Laboratory, Beltsville, Maryland, United States of America |
| **Title** | **Unraveling the role of IL-17A in the intestinal immune response against the protozoan parasite *Giardia muris* by an RNA sequencing approach** |
| | Background<br>The intestinal protozoan parasite *Giardia duodenalis* has a wide vertebrate host range. An infection with *Giardia* can lead to gastro-intestinal complaints. Although in most hosts these symptoms rapidly disappear, a chronic situation can develop. Recent data obtained in mice, cattle and humans indicates that development of immunity is dependent on IL-17A. The aim of this study was to further unravel the IL-17A induced effector mechanisms in a *Giardia*-mouse infection model.<br><br>Methods<br>C57Bl/6 wildtype (WT) and IL-17RA-KO mice were orally infected with $10^3$ *G. muris* cysts. Three weeks post-infection, intestinal tissue samples were collected for RNA purification and subsequent transcriptome analysis. Samples collected from non-infected WT and KO animals served as negative controls. Genes of interest were further subjected to transcription and expression analysis and immunolocalisation. Their functional role was investigated by performing infection experiments in KO mice, pending availability.<br><br>Results<br>Transcriptome analysis indicated that 844 genes were differentially expressed between WT infected and WT control mice, many of which have never been linked to *Giardia* infection before, including genes associated with circadian rhythm. Comparison of WT infected with IL-17RA-KO infected mice resulted in the identification of 287 differentially transcribed genes. One of these, mannose-binding lectin 2, is particularly interesting as it is involved in complement activation. Further work indicated that the expression and secretion of MBL2 following a *Giardia* infection is IL-17A dependent and infection studies in Mbl2-KO mice showed a higher load of *Giardia* trophozoites in comparison to WT mice.<br><br>Conclusions<br>The transcriptome approach that was followed resulted in the identification of a number of genes that seem to play a role in the IL-17A response following a *Giardia* infection. Additional research is now ongoing to further unravel the involvement of these genes in the development of intestinal immunity. |