

## NEW APPROACHES FOR OLD QUESTIONS. . . WELCOME GENOMICS AND TRANSCRIPTOMICS!

Understanding the evolution and host adaptations of parasites is a complex matter. However, this is not only important for the advancement of parasitology itself, but it can also have important consequences for parasite control. The recent study of Reid *et al.* (2012) is a perfect example of how the most recent molecular techniques have the potential of allowing us to study these aspects as never done before.

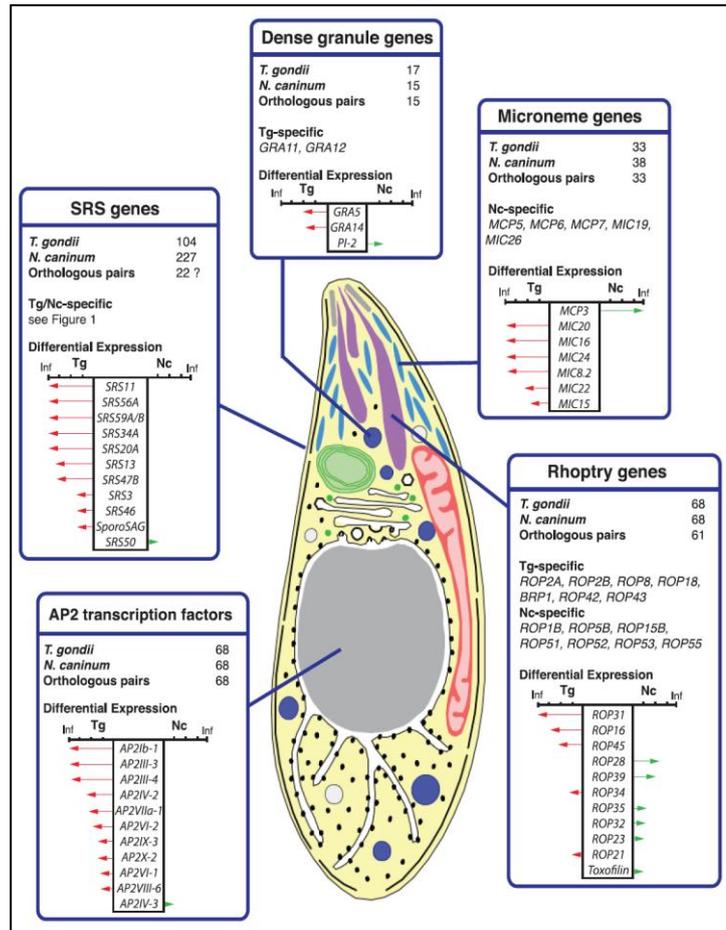
In the paper, both the genes repertoire and expression were compared between the infective stages of two closely related coccidian parasites, *Toxoplasma gondii* and *Neospora caninum*. *Neospora* causes great losses to livestock industry by inducing calves abortion, and *Toxoplasma* is an important and very common zoonosis in humans.

The paper clearly demonstrates how important is the information arising from in-deep molecular studies involving the analysis of both what is in the genome and when and how much is expressed during host-parasite interactions. The authors show, for example, that even little genetic differences may influence the evolution of host specificity and transmission strategy of closely-related parasites. These data are crucial for our understanding of parasite biological traits that have important consequences for both human and animal health, and it can lead to improved drug and vaccine development. Furthermore, the experimental approach and data analysis presented in the paper can be translated to other closely related species of parasites afflicting people and animals.

Reid, AJ et al. (2012). Comparative Genomics of the Apicomplexan Parasites *Toxoplasma gondii* and *Neospora caninum*: Coccidia Differing in Host Range and Transmission Strategy. *PLoS Pathogens* 8(3) (available online at: <http://www.plospathogens.org/article/info%3Adoi%2F10.1371%2Fjournal.ppat.1002567>)

Reid, AJ et al. (2012). Comparative Genomics of the Apicomplexan Parasites *Toxoplasma gondii* and *Neospora caninum*: Coccidia Differing in Host Range and Transmission Strategy. *PLoS Pathogens* 8(3) (available online at: <http://www.plospathogens.org/article/info%3Adoi%2F10.1371%2Fjournal.ppat.1002567>)

This review was written by Corrado Minetti, a PhD student of the Institute of Infection and Global Health at Liverpool University.



Above: The compared gene repertoire and expression between the two coccidia (copyright by Reid *et al.*). Right: aborted calf due to *Neospora* (copyright by Michael P. Reichel)

