



Termitomics: insights into termites' social evolution

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Termites are eusocial cockroaches that evolved eusociality independently from social Hymenoptera. Recent efforts lead to the generation of a range of caste-specific termite transcriptomes and the sequencing of three termite genomes. They cover the two major life types present in termites that differ in social complexity: (i) wood-dwelling, lower termites with totipotent workers and a low social complexity, represented by *Zootermopsis nevadensis* and *Cryptotermes secundus*, and (ii) a higher, foraging termite with sterile workers and socially complex colonies, represented by the fungus-growing termite *Macrotermes natalensis*. Together with the genome of the cockroach *Blattella germanica*, these data offer opportunities to gain insights into the molecular underpinning of convergent social evolution. In my talk, I will summarize these results. I will especially focus on differences in genome sizes, importance of transposable elements (TEs) during termite evolution, essential signalling pathways underlying life history traits, and aspects of chemical communication. Although the phenotypic social organisation of termites bears striking resemblances to that of ants, genetic/genomic signatures strongly reflect their cockroach heritage.