



## **Bats, brains and molecular studies (MSc student)**

In this study, we will test for convergence of gene expression of bat species. Next to their echolocation capabilities, many bat species have complex communication repertoires. They also have the rare capacity to learn vocalizations from their conspecifics. So far, the behavioural, neural and molecular mechanisms underlying vocal learning in non-human animals have mainly been examined for songbirds. Bats are phylogenetically closer to humans, making them an exciting group for comparative studies of vocal learning. Moreover, they are a large and diverse group, making it possible to compare species within the same order, but with diverse vocal communication and vocal learning phenotypes

Examining the bat's brain and its genetic and histological characteristics, in relation with the interspecific variation among bat species, can give novel insights into the mechanisms involved in vocal learning and vocal complexity and whether these are similar across different species, including humans. Practical work will involve histological methods on bat brain tissue to identify specific genes, such as FoxP2. You will learn about brain anatomy, histology techniques and analyses, microscopy and language-related genes.

The project will be done at the Max Planck Institute for Linguistics at Nijmegen, supervised by Ine Alvarez van Tussenbroek (MPI) and Sonja Vernes (MPI). Start: from January or February 2020 onwards with the possibility of starting sooner.

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