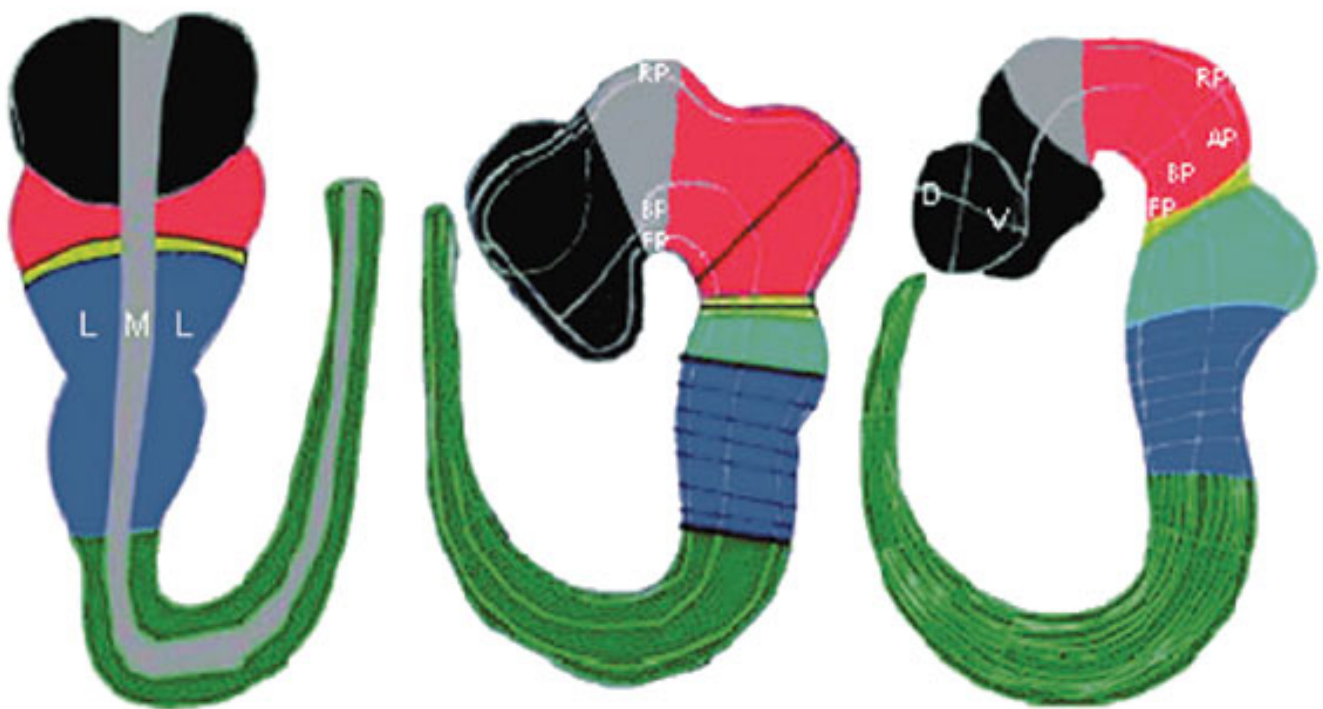


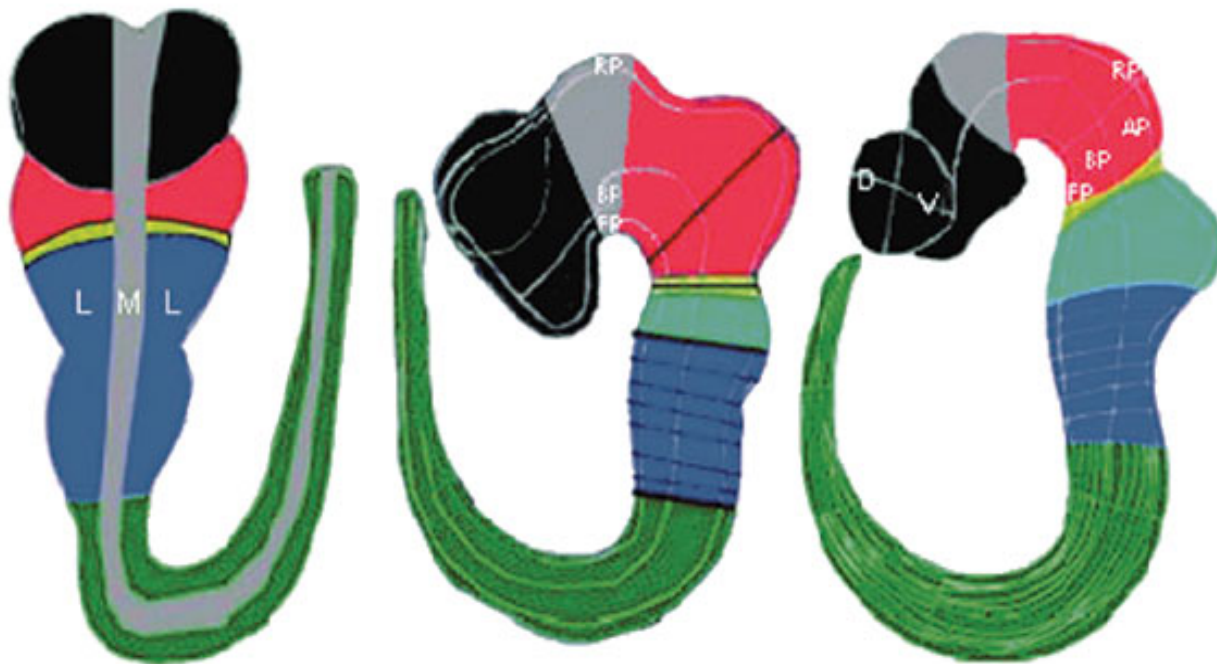
TOOLBOX

Database details neural gene interactions in developing mice

BY KATE YANDELL

8 OCTOBER 2014





Embryonic origins: Precise patterns of gene expression segment the mouse central nervous system into specialized regions as embryonic development progresses (from left to right).

A new online database called **MouseID Genes** details how genes interact in the developing mouse brain and spinal cord. The open-access resource, described 20 August in the journal *Database*, may help researchers studying developmental disorders such as autism¹.

The resource holds information on 145 gene interactions so far in the embryonic mouse brain and spinal cord. Each entry includes links to published work and information about the type of interaction. For instance, an interaction is 'direct' if a gene encodes a protein that activates or blocks another gene's transcription. It is 'indirect' if the gene activates a gene or a signaling cascade that affects the other gene.

Existing databases, such as the **Allen Brain Atlas** and the Mouse Genome Informatics **Gene Expression Database**, map patterns of gene expression in the developing mouse brain. But they offer little information about how the genes influence each other.

The new database provides snapshots of gene interactions when mouse embryos are 8.5, 10.5 and 12.5 days old. During that four-day period, a symphony of gene expression segments the brain into

specialized regions.

Most of the genes currently logged in the database are expressed at the boundary between the midbrain and hindbrain. This area in people gives rise to neurons that are involved in Parkinson's disease, drug addiction and various mental disorders, such as depression.

The researchers gleaned this information from published studies, and call on other teams to contribute their findings. Anyone can add to the database, provided they include citations to research papers. The information in the database is also freely available, provided the users cite the database in their studies.

References:

1. **Matthes M.** *et al. Database* **2014**, bau083, doi: 10.1093 (2014) **PubMed**