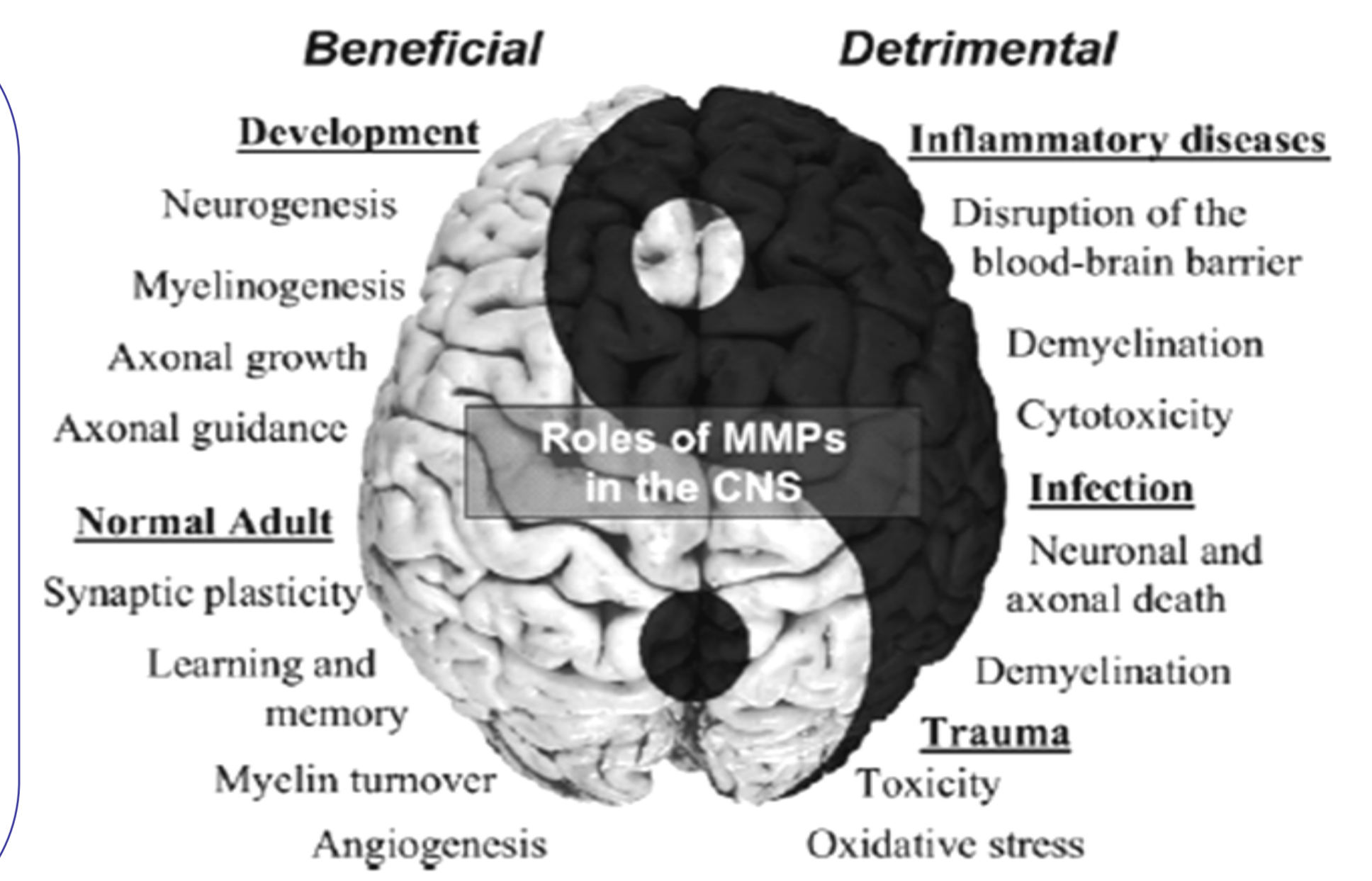


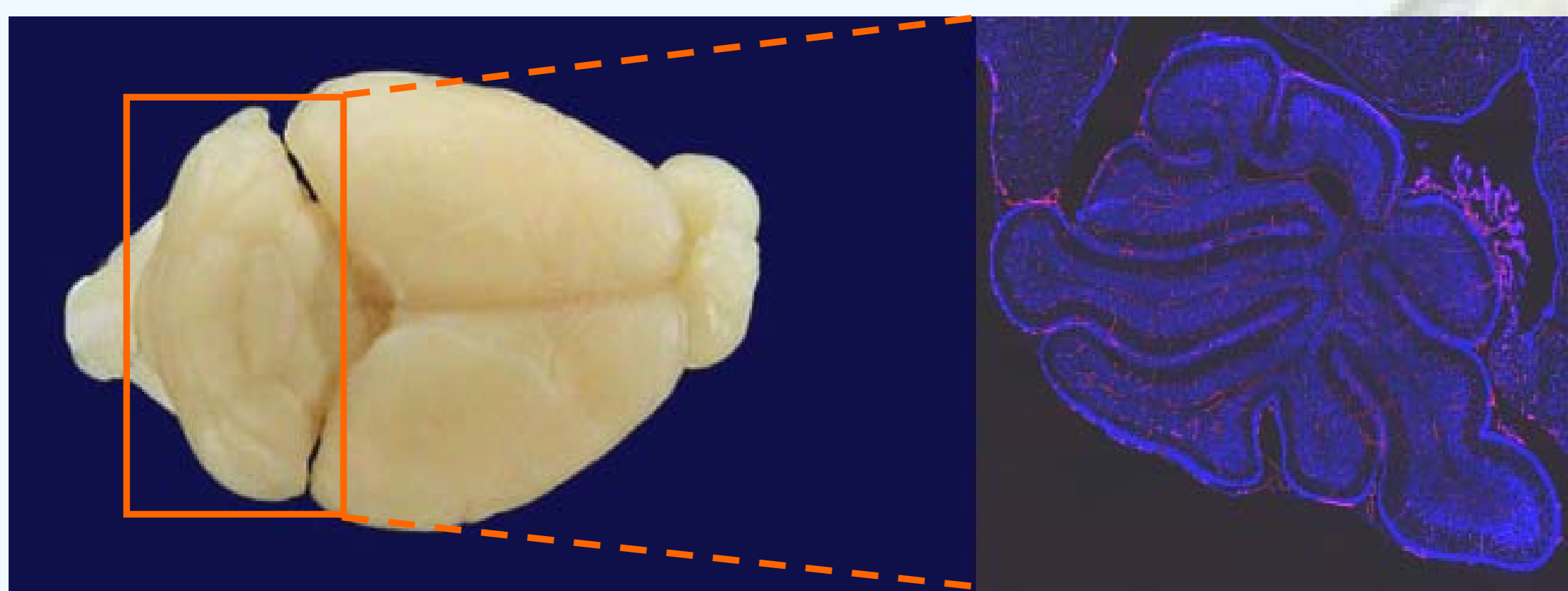
Matrix metalloproteinases (MMPs) in neural circuit development and regeneration

MMPs, proteolytic enzymes, have been implicated in several pathological nervous system conditions. However, these enzymes are also expressed in the developing nervous system and various members of the MMP family have been shown to regulate events such as the genesis, migration / survival of neurons, axon guidance, myelination and synaptogenesis in the developing embryo. Using various transgenic technologies (knockout mice, knock-down or over-expression using plasmid electroporation or morpholino technology) and *in vivo*, *ex vivo* and *in vitro* experiments we investigate the involvement of MMPs

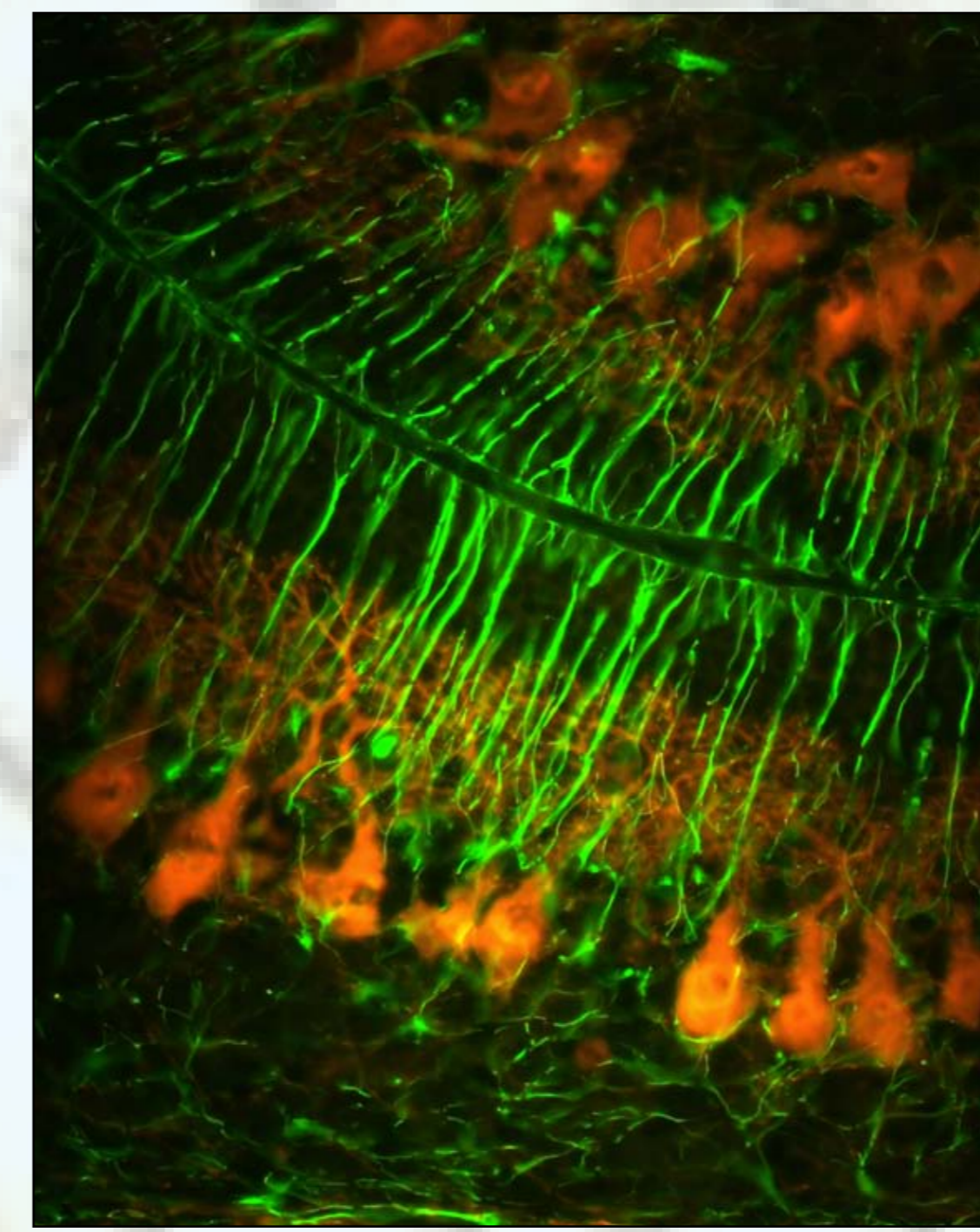


1) The morphogenesis and plasticity of the cerebellum

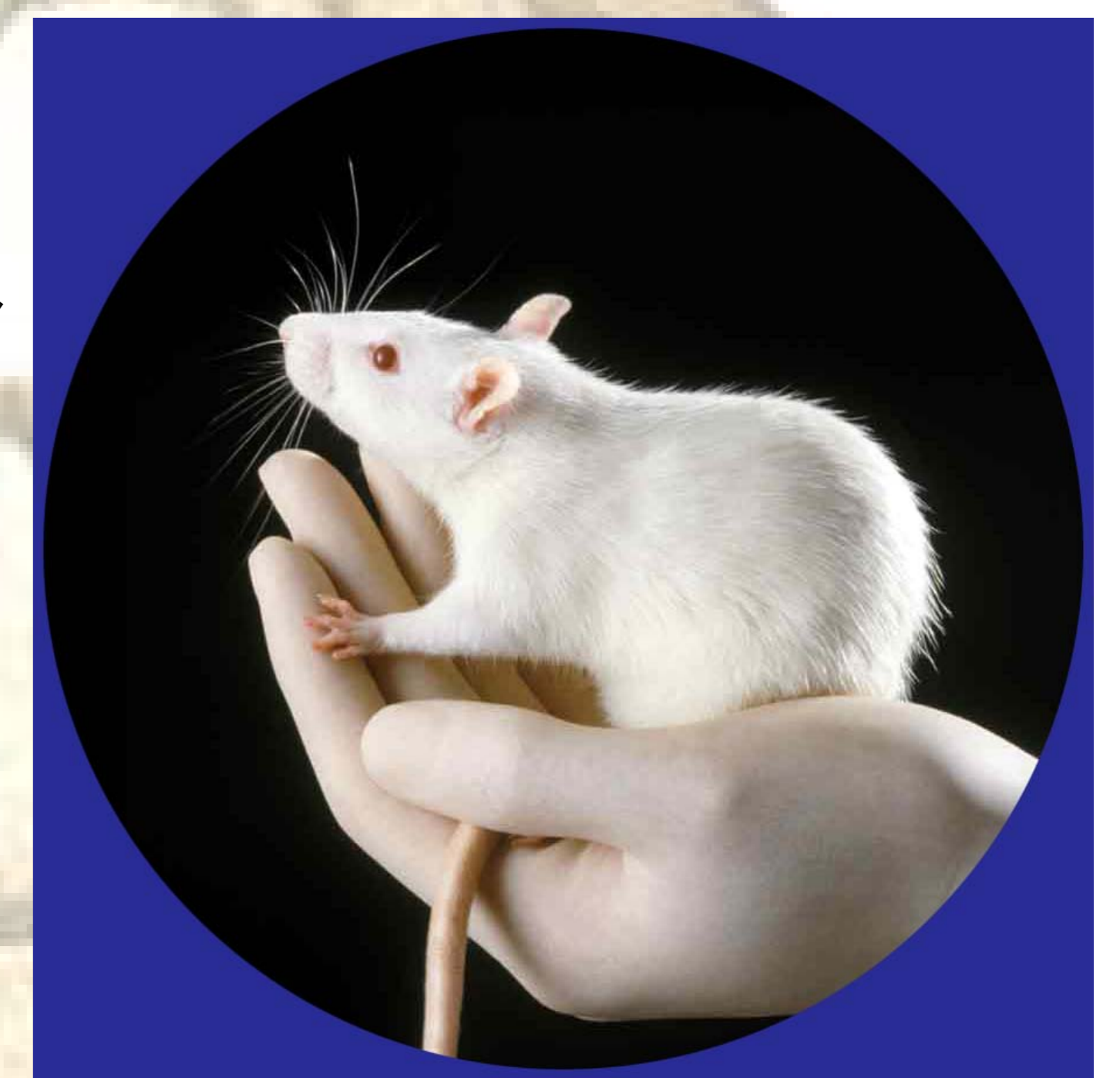
In vivo and ex vivo studies using cerebellar slices



Double immunofluorescent stainings

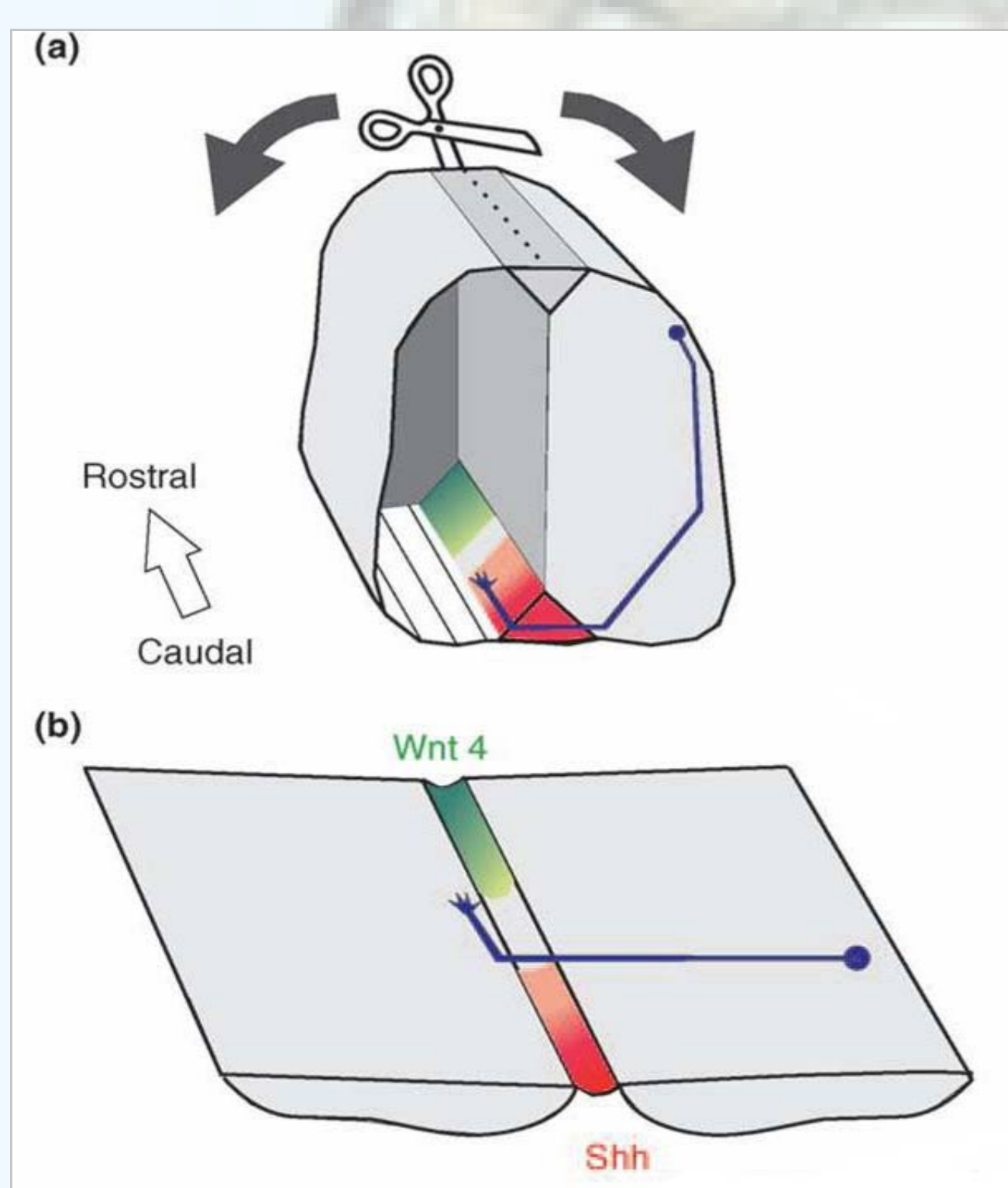


- developmental patterning in the cerebellum
- cerebellar remodelling and plasticity after toxic injury

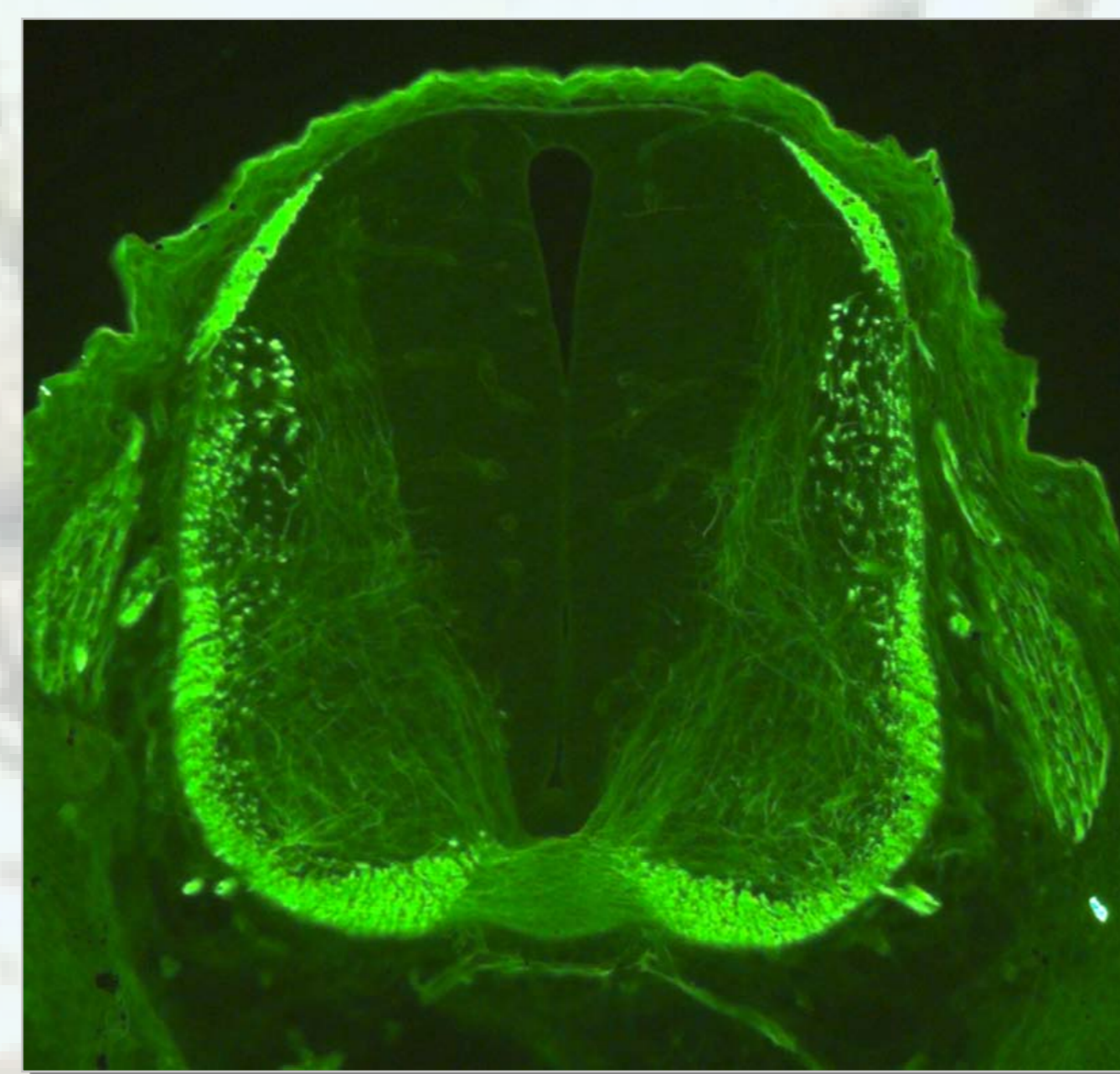


The mouse

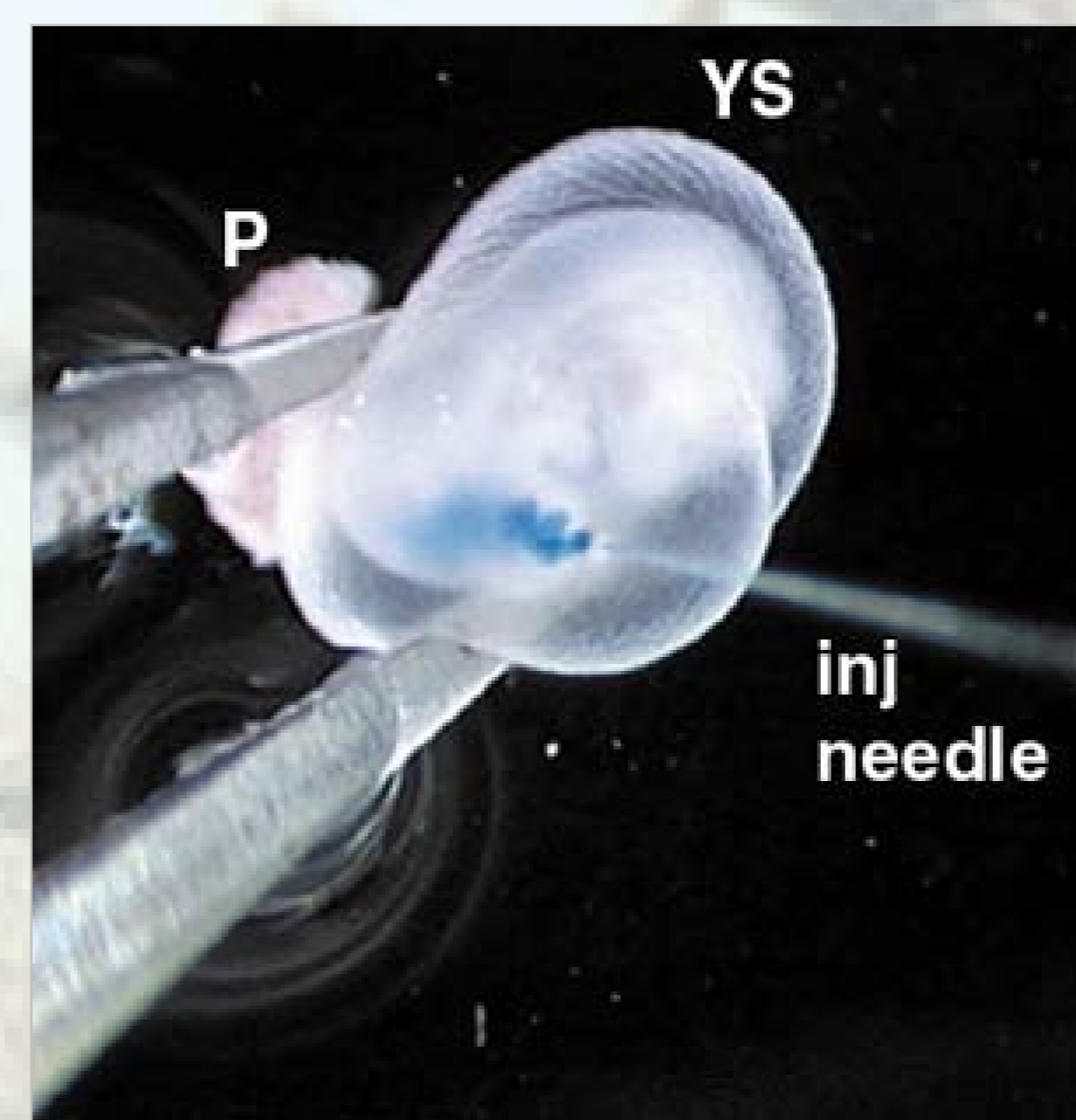
2) The commissural axon pathfinding during spinal cord development



Dissection of spinal cord



Visualization of axons



Injection of mouse embryos

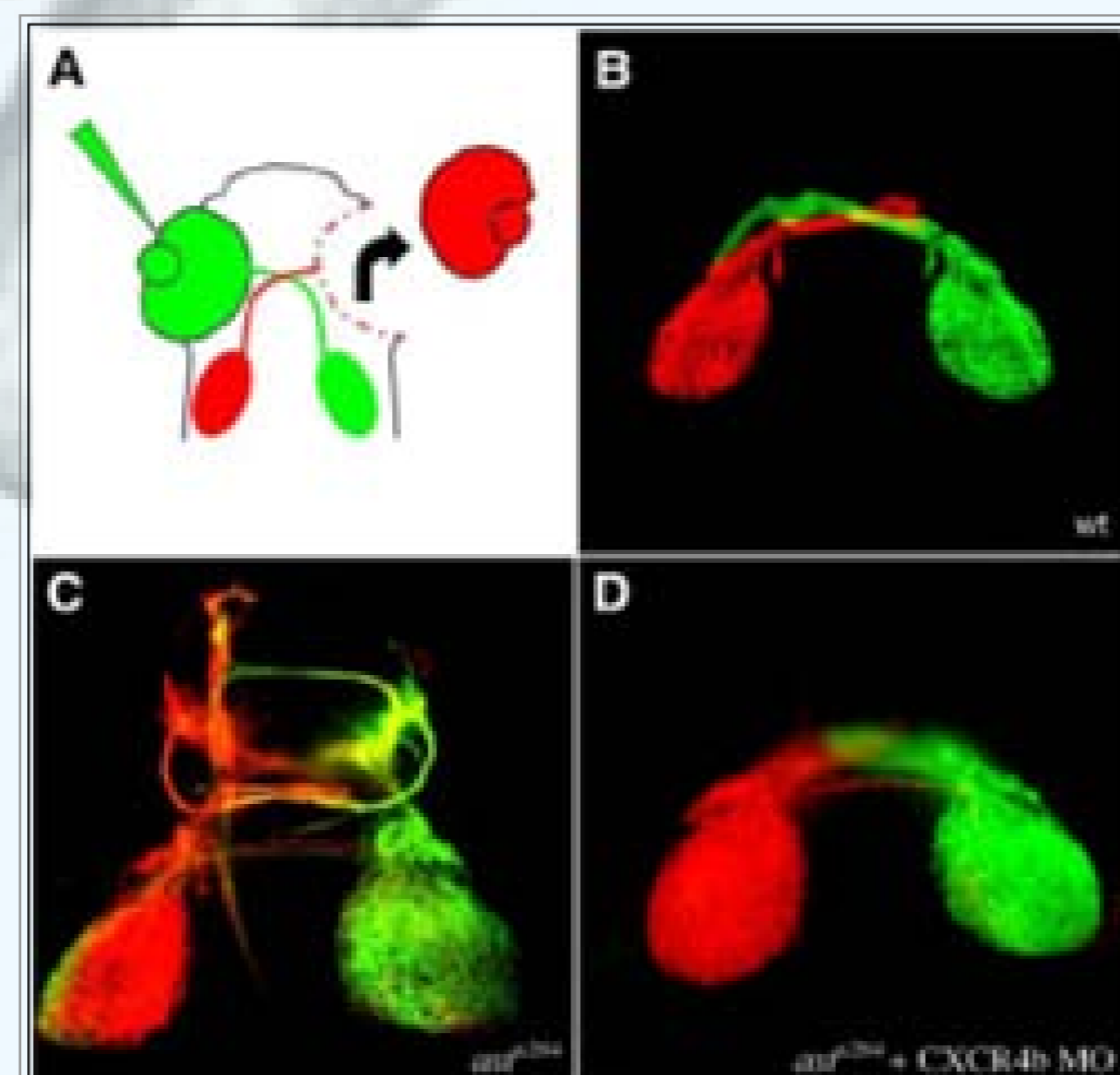
- midline crossing of commissural axons during development

3) The navigation and regeneration of axons in the visual system

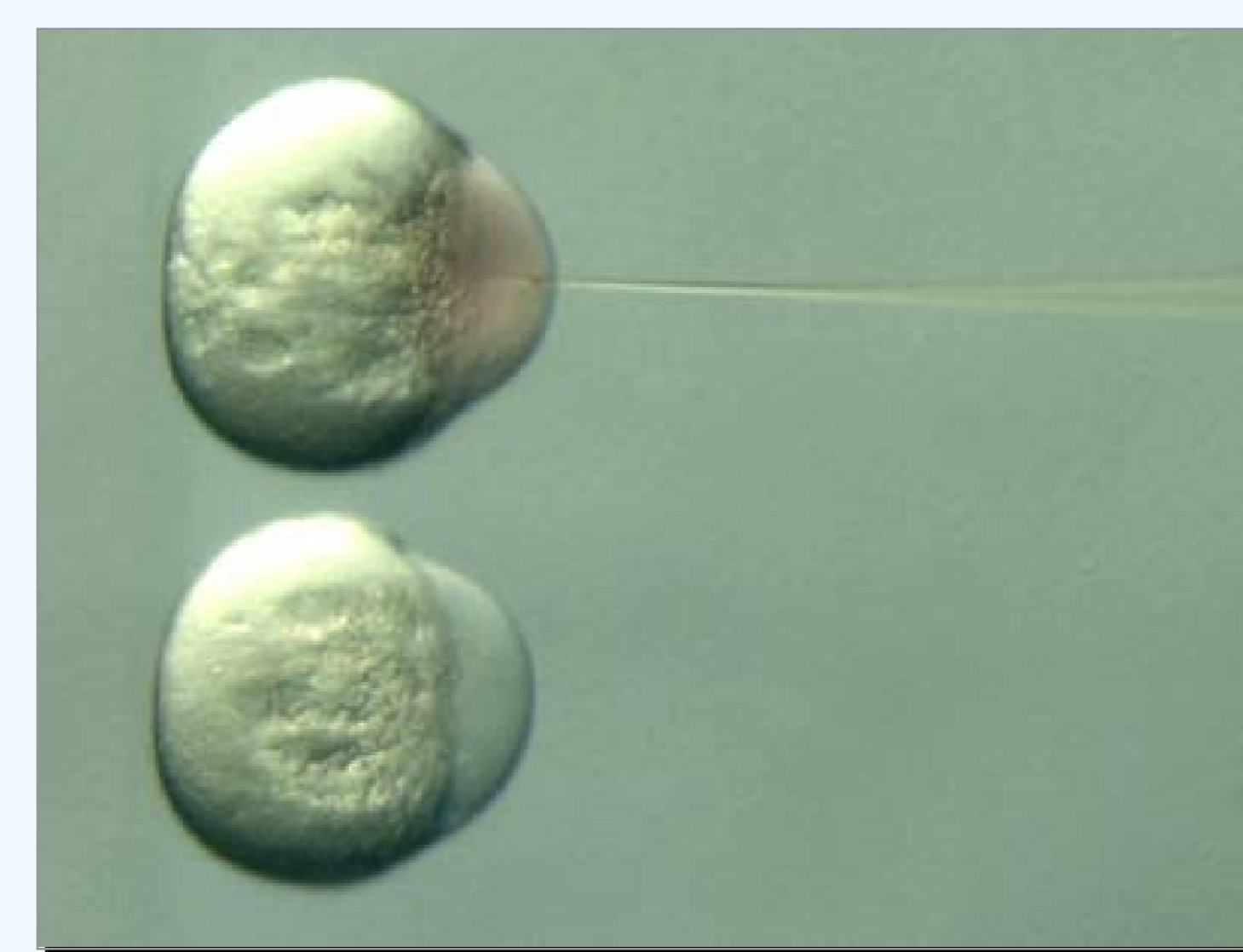
- retinotectal axon pathfinding during development & after optic nerve axotomy



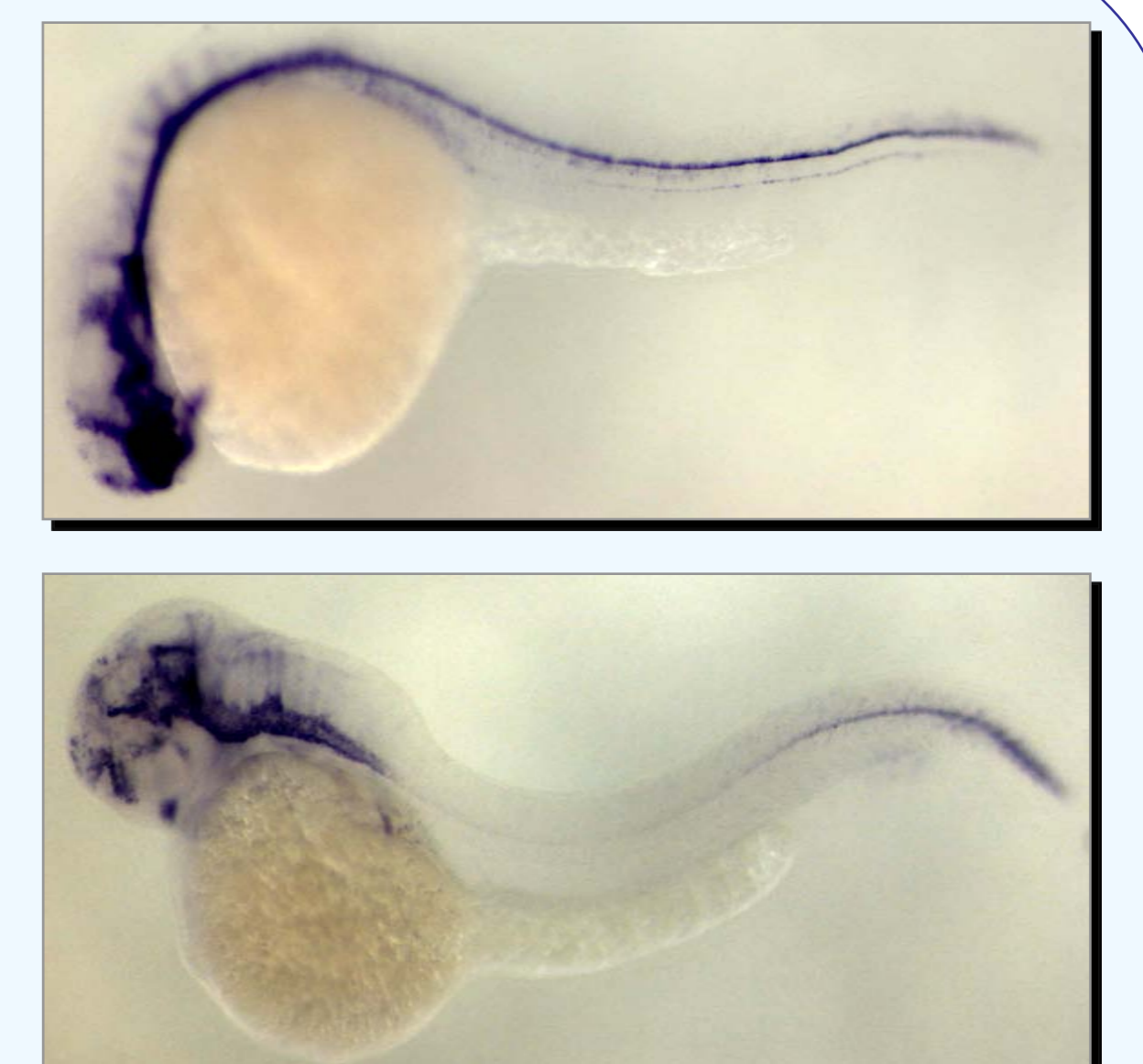
The zebrafish



Injection with fluorescent dyes in the eye



Knock-down of genes using morpholinos



Phenotypic analyses

