

Lay summary: Live imaging of microglial contributions to neurodevelopmental circuit refinement in health and disease

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Viral or bacterial infection of a mother during pregnancy is thought to be a major risk factor for the emergence of neurodevelopmental disorders like autism in the offspring later in life. A likely suspect for mediating the neurodevelopmental response to prenatal inflammation is a class of immune cells that reside in the brain, known as microglia. Zebrafish are a small transparent experimental model in which it is possible to directly observe the interactions in the developing brain between microglia and neurons in the intact animal using a custom microscope. We hypothesize that microglia are responsible for the miswiring of the developing brain that occurs in response to infection and inflammation, and will investigate this idea by performing live imaging of neuronal form and function in animals genetically manipulated to be deficient in microglia.