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**Research Activity:**

Intrinsic properties and extrinsic cues direct the choice of cell fate in the vertebrate retina, controlling the production of proper ratios of cells, migration to correct layers, differentiation and synaptic connection between cells. Müller cells, the main type of glia present in the retina, interact with most, if not all neurons in this tissue. Recently, Müller cells have been claimed as latent neural progenitors and upon tissue damage, these cells re-enter the cell cycle, de-differentiate, acquire progenitor-like phenotypes, and produce new neurons and glia. Most of the mediators and factors found in the brain are also detected in the retinal tissue regulating synaptogenesis, differentiation, neuroprotection and survival of photoreceptors, RGCs and other targets in the retina. Retinal transplant of Müller cells, neurospheres and stem cells are current under way in experimental models and represent a potential treatment strategy for neurodegenerative diseases such as glaucoma, diabetes and retinitis pigmentosa.