



Life Sciences Seminar

Igf signaling coordinates retina growth with body size by regulating retinal progenitor proliferation

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Balancing the relative growth of body and organs is of key importance for coordinating size and function. This is of particular relevance in postembryonically growing organisms, facing this challenge life-long. We addressed this question in the neuroretina of medaka fish (*Oryzias latipes*), where growth and size regulation are crucial for functional homeostasis of the visual system. We find that a central growth regulator, insulin-like growth factor 1 receptor (Igf1r), is necessary and sufficient for proliferation control in the postembryonic retinal stem cell niche, the ciliary marginal zone (CMZ). Targeted activation of Igf1r signaling in the CMZ uncouples neuroretina growth from body size control, increasing layer thickness while preserving the structural integrity of the retina. The retinal expansion is driven exclusively by enhanced proliferation of progenitor cells while stem cells do not respond to Igf1r modulation. Our findings position Igf signaling as key module controlling retinal size and structure with evolutionary implications.

Monday, August 17, 2020 10:30am - 01:00pm

Heinzel Seminar Room / Office Bldg West (I21.EG.101)



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