Repressing Neurogenic Competence in Glia of the Retina and Brain

October 18

Tuesday, 12:30pm

Hybrid: Rosedale Room and Zoom

For Researchers

Speaker:

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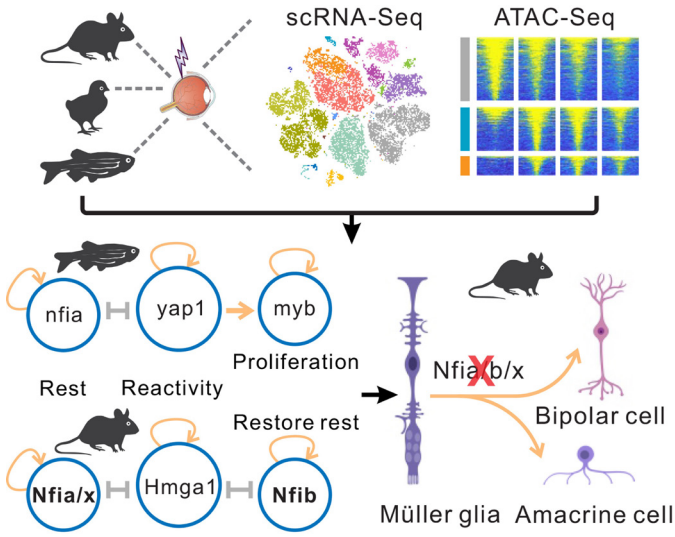
Abstract

My group uses comparative single-cell multiomic analysis to identify gene regulatory networks that control neurogenesis and cell fate specification in developing retina and hypothalamus, as well as those that control neurogenic competence in retinal and hypothalamic glial cells. By integrating these findings, we aim to develop methods of replacing photoreceptors lost due to hereditary retinal dystrophies and of therapeutically modifying hypothalamic neural circuits that control essential physiological processes. I will focus on our group's recent work on negative regulation of neurogenic competence in glial cells in the retina and brain.



1. Clark BS, Stein-O'Brien GL, Shiau F, Cannon GH, Davis E, Sherman T, Rajaii F, James-Esposito RE, Gronostajski RM, Fertig EJ, Goff LA, Blackshaw S. **Comprehensive analysis of retinal development at single cell resolution identifies NFI factors as essential for mitotic exit and specification of late-born cells.** Neuron 2019, 102:1111-1126.

2. Hoang T, Wang J, Boyd P, Wang F, Santiago C, Jiang L, Lahne M, Todd LJ, Saez C, Yoo S, Keuthan C, Palazzo I, Squires N, Campbell WA, Jia M, Rajaii F, Payail T, Wang G, Ash J, Fischer AJ, Hyde DR, Qian J, Blackshaw S. **Gene regulatory networks controlling vertebrate retinal regeneration.** Science 2020 370:eabb8598.

3. Lyu P, Hoang T, Santiago CP, Thomas ED, Timms AE, Appel H, Gimmen M, Le N, Jiang L, Kim DW, Chen S, Espinoza D, Telger AE, Weir K, Clark BS, Cherry TJ, Qian J, Blackshaw S. **Gene regulatory networks controlling temporal patterning, neurogenesis and cell fate specification in the mammalian retina.** Cell Reports 2021 37:109994.

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