MILRD Mini Virtual Training Projects

VTP OVERVIEW	**Interpreting Single-cell & Spatial Transcriptomics Figures with Cellular/Molec Neuroscience Data**
Source Data	Hasel, P., Rose, I.V.L., Sadick, J.S. *et al.* Neuroinflammatory astrocyte subtypes in the mouse brain. *Nat Neurosci* 24, 1475–1487 (2021). https://doi.org/10.1038/s41593-021-00905-6.
Aim	Review, interpret, and interrogate single-cell RNA-sequencing (scRNA-seq) and spatial transcriptomics data profiling neuroinflammatory astrocyte subtypes in the mouse brain.
Audience	***This workshop is designed for:*** ● High school students interested to pursue study in cellular/molecular biology or neurobiology ● Undergraduate biology majors interested in research internships or applying to graduate school ● Teachers/instructors who teach cellular/molecular biology or neurobiology at the high school or college level ● Non-biologist professionals with an active interest in learning more about molecular & cellular biology and neurobiology
Prerequisite Concepts	***Participants should have a rudimentary understanding of cellular and molecular biology concepts, including:*** ● mRNA, DNA, proteins ● Cell structure and organelles. ● The central dogma of molecular biology ● Neurons
Goals	***Each participant will:*** ● Learn how to interpret figures that showcase results from single-cell RNA sequencing (scRNA-seq) and spatial transcriptomics. ● Engage in discussions about the experimental design choices highlighted in the research paper. ● Analyze the expression levels of a specific gene within the scRNA-seq and spatial transcriptomics data, and then compare and contrast these findings with those of other participants. ● Explore the fundamental concepts and experimental design strategies of scRNA-seq and spatial transcriptomics—with an emphasis on control versus perturbation studies.
Additional Information	***Letter of Completion:*** Participants will receive a letter of completion that outlines the content covered and assignments completed during the workshop. ***Access to Materials:*** All tasks are designed to be completed within the workshop, but participants will have access to the instructional materials, platform, and a Zoom recording for 24 hours after the workshop to review and complete any unfinished work.
Date	March 16, 2024 | 11am-12:30pm PT (2-3:30pm ET)
Signup	Enroll using this form.

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