# Out of the Tank Approaches to Promote Spinal Cord Repair

## September 3

### Tuesday, 12:30 pm

### Billings Building—Rosedale Room

***SPEAKER:***


**Mayssa H. Mokalled, Ph.D.**

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**Host: Ana Vivinetto, Ph.D.**


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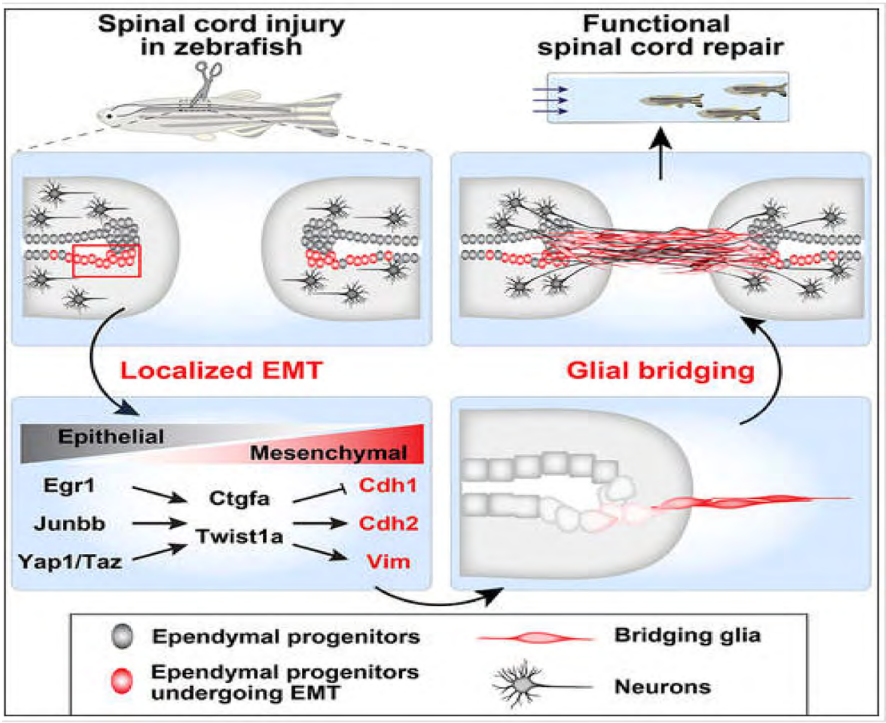
## Abstract


Adult zebrafish possess an elevated regenerative capacity and lack the anti-regenerative complications displayed after mammalian spinal cord injuries. My lab aims to leverage functional genomics in zebrafish to uncover pro-regenerative cell identities and mechanisms, and to reconstruct analogous cell signatures and functions in mammals. Our studies of zebrafish glia identified a new population of pro-regenerative astrocytes that enable spinal cord repair. We are using large-scale single-cell transcriptional comparisons between zebrafish and mammalian glia to determine pro-regenerative glial cell identities. In mammalian studies, we are deploying zebrafish-identified glial factors to reprogram pro-regenerative zebrafish-like human cells. Our combinatorial approaches address central questions related to the evolution of regenerative capacity, the emergence of specific glial cell identities and functions, and the regeneration of the nervous system.


### *Publications*


Saraswathy VM, Zhou L and Mokalled MH. *Single-cell atlas of innate spinal cord regeneration identifies intersecting modes of neuronal repair*. bioRxiv. 2023. doi:10.1101/2023.05.19.541505. PMID:37292638.

Klatt Shaw D#, Saraswathy VM#, Zhou L#, McAdow AR, Burris B, Butka E, Morris SA, Dietmann S and Mokalled MH. *Localized EMT reprograms glial progenitors to promote spinal cord repair.* Dev Cell. 2021;56(5):613-626.e7. PMID:33609461.

Mokalled MH, Patra C, Dickson AL, Endo T, Stainier DY, Poss KD. *Injury-induced ctgfa directs glial bridging and spinal cord regeneration in zebrafish*. Science. 2016;354(6312):630-634. PMID:27811277.



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