

# RODS, TRACKS AND TRAINS: MICROGLIA IN THE DIFFUSE- INJURED BRAIN ALIGN AND COUPLE TO INFLUENCE CIRCUIT REORGANIZATION.



PRESENTED BY  
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**Level 5 Lecture Theatre, 94 Mallett St, Camperdown**

Brain microglia morphology mirrors their function, with ramified microglia surveying the micro-environment and rapidly activating upon injury. Notably, microglia with a rod-like morphology were documented a century ago, but their function remains enigmatic. We now have evidence for the time course, location, and surrounding architecture associated with rod microglia after experimental diffuse brain injury. Using Iba-1 immunohistochemistry, we demonstrate rod microglia in sensory cortex weeks post-injury, peaking in the first week post-injury. Rod microglia appear to elongate with processes extending from the polar ends of the soma. These cells then abut one another to form trains that lay adjacent to cytoarchitecture of dendrites and axons. Rod microglia differentially express some classical markers of reactive microglia (Ox6, CD68). The preferential location of rod microglia to somatosensory cortex suggests a role in late onset, sensory sensitivity.

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