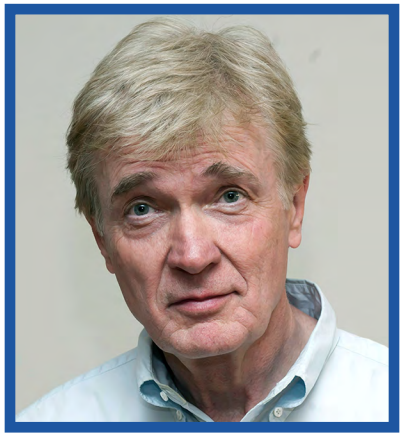
Brain Cleanup after ICH as Mechanism of Repair and Recovery

March 31

Tuesday, 12:30 pm

Billings Building—Rosedale Room

SPEAKER:



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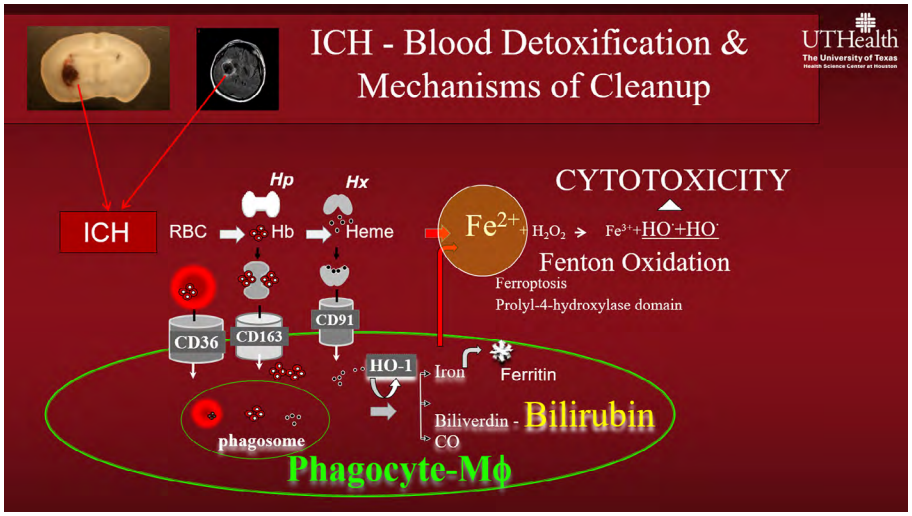
Abstract

No pharmacological approach aimed at improving post-stroke recovery has shown therapeutic efficacy in clinical trials. One of the most promising strategies is to improve the clearance of cytotoxic blood and cellular debris from the affected brain because RBC lysis products (hemoglobin/heme) and dead, lingering tissue acts as a "reservoir" for pro-inflammatory responses and poses physical barriers impeding neuronal re-connectivity. Cleanup of the of the brain from hematoma and removal of dead tissue is normally conducted by microglia/macrophage, cells that are equipped with specialized receptors recognizing molecules that are foreign and modified to ensure their removal and prevent their harmful effects. This lecture will focus on an understudied area of post-stroke (ischemic and hemorrhagic) recovery—the importance of clearing to facilitate the repair processes. Various clinically targetable mechanisms will be discussed.



Publications

1. Zhao X, Ting SM, Sun G, Aronowski J. *Neurological recovery after ICH is mediated by the aryl hydrocarbon receptor-bilirubin interplay through improved erythrophagocytosis.* J Cereb Blood Flow Metab. 2025 Sep 17:271678X251371375. doi: 10.1177/0271678X251371375. PMID: 40963261.

2. Ting SM, Zhao X, Sun G, Ricote M, Aronowski J. *Retinoid-X-Receptor as a Mediator of Post-Stroke Recovery by Reversing Age-Associated Phenotypes of Microglia/Hematogenous Macrophages.* J. Neuroscience. 2025, 45(37): PMID: 40803891.

3. Zhao X, Ting S-M, Sun G, Garrido JB, Obertas L, Aronowski J. *Clearance of neutrophils from ICH-affected brain by macrophages is beneficial and is assisted by lactoferrin and CD91.* Stroke, 2024, 55(1):166-176. PMID: 38063014.

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