Dana McTigue, PhD  
Professor & Vice Chair for Research  
Department of Neuroscience  
Belford Spinal Cord Injury Center  
Ohio State University Wexner Medical Center

The focus of Dr. McTigue's laboratory is two-fold. One area of interest is examining the role of adult progenitor cells after spinal cord injury (SCI). These cells are highly proliferative after SCI and are known to produce new oligodendrocytes acutely. In recent studies, the McTigue group determined that this reparative response is surprisingly long-lasting, and that these progenitors spontaneously form new oligodendrocytes and remyelinate axons for several months after SCI.

In ongoing studies, they are examining what intraspinal molecules promote this robust endogenous reparative response and what intercellular communications are involved in gliogenesis after SCI, including interactions between progenitors, astrocytes, oligodendrocytes, microglia and macrophages.

The 2nd theme of the McTigue group is on systemic pathology after SCI, with particular emphasis on liver inflammation and metabolic disease, which is exhibited by a substantial portion of SCI individuals. Ongoing work suggests that a negative feedback cycle forms after injury in that SCI causes liver inflammation which in turn exacerbates intraspinal and additional systemic pathology. Studies focused on determining mechanisms and consequences of post-SCI liver inflammation are in progress.

The long-term goal of these studies is to better understand mechanisms of cellular repair and damage after SCI so that repair mechanisms can be enhanced while deleterious processes are hampered with the long-term goal of improving the health and quality of life of SCI individuals.