

Characterization of Microglia in the Hypothalamus and Amygdala of Male MMTV-PyMT Carriers

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Several studies have investigated the innate immune response in the brains of female MMTV-PyMT mice, a model for breast cancer; however, characterization of this response in male carriers remains to be accomplished. Microglial activation in the hypothalamus and amygdala has been implicated in sickness behaviors observed in mice. Therefore, the brains of male carriers were investigated to determine and characterize the microglial response with and without an immune challenge. This was done through immunohistochemistry (IHC) and morphological analyses. Coronal sections were stained for Iba-1, a protein uniquely expressed in microglia. Microglia were visualized in the hypothalamus and amygdala of 2 control mice and 3 LPS-treated mice using confocal and widefield microscopy. The microglial response was analyzed by cell count, cell body area, process length, and proportional area. Our findings suggest there is no difference in the microglial response of LPS-injected animals compared to control animals; however, trends of greater activation in the LPS treatment can be observed. Furthermore, our results suggest there are no significant differences in microglial responses between brain regions. Characterization of microglial responses may provide further insight into possible neural mechanisms of sickness behaviors in male MMTV-PyMT mice.