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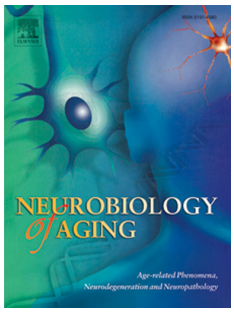

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Upregulation of HDAC2 in Laser Capture Nigral Microglia in Parkinson's Disease.

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Abstract

Histone deacetylase (HDAC) inhibitors have been widely reported to have considerable therapeutic potential in a host of neurodegenerative diseases. However, HDAC inhibitor selectivity and specificity in specific cell classes has been a source of much debate. In order to address the role of HDAC2 in specific cell classes, and in disease, we examined glial protein and mRNA levels in substantia nigra (SN) of Parkinson's disease (PD) and normal controls (NC) by immunohistochemistry, and laser captured microdissection followed by qRT-PCR. Differential expression analysis in immunohistochemically defined laser capture microglia revealed significant up-regulation of HDAC2 in PD SN compared to NC subjects. Complementary *in vivo* evidence reveals significant upregulation of HDAC2 protein levels in PD SN microglia compared to NC subjects. Correspondingly, human telencephalic/mesencephalic immortalized microglial cells reveal significant up-regulation of HDAC2 in the presence of the potent microglial activator lipopolysaccharide (LPS). These data provide evidence that selective