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

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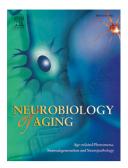
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20 Abstract

Histone deacetylase (HDAC) inhibitors have been widely reported to have considerable 21 therapeutic potential in a host of neurodegenerative diseases. However, HDAC inhibitor 22 selectivity and specificity in specific cell classes has been a source of much debate. In order to 23 address the role of HDAC2 in specific cell classes, and in disease, we examined glial protein and 24 mRNA levels in substantia nigra (SN) of Parkinson's disease (PD) and normal controls (NC) by 25 26 immunohistochemistry, and laser captured microdissection followed by qRT-PCR. Differential expression analysis in immunohistochemically defined laser capture microglia revealed 27 significant up-regulation of HDAC2 in PD SN compared to NC subjects. Complementary in 28 vivo evidence reveals significant upregulation of HDAC2 protein levels in PD SN microglia 29 compared to NC subjects. Correspondingly, human telencephalic/mesencephalic immortalized 30 microglial cells reveal significant up-regulation of HDAC2 in the presence of the potent 31 microglial activator lipopolysaccharide (LPS). These data provide evidence that selective 32

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