SNHG1

Small nucleolar RNA host gene 1 (SNHG1), a well-studied Long non-coding RNA, has been reported to be significantly increased in PD. The potential biological functions of SNHG1 in the regulation of neuronal autophagy and cell death in PD, however, have not yet been completely elucidated. In this study, we examined the existence of regulatory networks involving SNHG1, the miR-221/222 cluster and the cyclin-dependent kinase inhibitor 1B (CDKN1B/p27)/mammalian target of rapamycin (mTOR) signaling pathway in PD. We observed that SNHG1 expression was gradually upregulated in PD cellular and animal models. Furthermore, silencing SNHG1 promoted autophagy and prevented MPP+-induced cell death, similar to the overexpression of the miR-221/222 cluster. Mechanistically, SNHG1 competitively binds to the miR-221/222 cluster and indirectly regulates the expression of p27/mTOR. In conclusion, these results demonstrated that downregulation of SNHG1 attenuated MPP+-induced decreases in LC3-II (an autophagic marker) levels and cytotoxicity through the miR-221/222/p27/mTOR pathway, suggesting that SNHG1 may be a therapeutic target for neuroprotection and disease treatment in PD [1)].

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Qian C, Ye Y, Mao H, Yao L, Sun X, Wang B, Zhang H, Xie L, Zhang H, Zhang Y, Zhang S, He X. Downregulated lncRNA-SNHG1 enhances autophagy and prevents cell death through the miR-221/222/p27/mTOR pathway in Parkinson's disease. Exp Cell Res. 2019 Sep 6:111614. doi: 10.1016/j.yexcr.2019.111614. [Epub ahead of print] PubMed PMID: 31499060.