Author's response to reviews

Title: Epigallocatechin-3-gallate suppresses 1-methyl-4-phenyl-pyridine-induced oxidative stress in PC12 cells via the SIRT1/PGC-1alpha signaling pathway

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To Reviewer: Hirokazu Hara

Because EGCG significantly increased levels of SIRT1 and PGC-a in the presence of MPP+, the authors argue that induction of antioxidant genes is regulated through the SIRT1/PGC-a pathway. If so, treatment with EGCG and MPP+ would elevate levels of SIRT1 and PGC-a protein, followed by induction of GPX1 and SOD1 mRNAs. Therefore, at least, the authors should provide the results of time course study on induction of SIRT1/PGC-a protein and antioxidant genes. The reviewer thinks these are interesting preliminary findings, but the authors have yet to clarify involvement of the SIRT1/PGC-a pathway in induction of antioxidant genes.

To explore the time course of SIRT1/PGC-a protein and antioxidant genes, we studied the PGC-1#, SOD1 and GPX1 mRNA levels after EGCG pretreatment in MPP+–induced PC12 cells for 12h and 24h by Real-time PCR. It shows that PGC-1# mRNA expression was obviously upregulated by 21.51%(P<0.05), SOD1mRNA and GPX1 mRNA expression was slightly increased by treatment with EGCG and then MPP+ for 12h. While these were respectively increased by 25.17%(P<0.05), 40%(P<0.05) and 146%(P<0.05) by treatment with EGCG and then MPP+ for 24h. We are now exploring the effect of EGCG in induction of antioxidant genes using the specific SIRT1 inhibitor, sirtinol and specific SIRT1 activator, SRT1720.