The effects of neuroleptic drugs on apoptosis inducing factor protein

Sevil N-Marandi, Nancy Trimble, & Sori Lee
Honours Biology & Pharmacology Programme, McMaster University, Hamilton

1. The effect of typical and atypical neuroleptic treatments on the apoptosis inducing factor (AIF) -mediated pathway of apoptosis in human SH-SY5Y was examined.
2. Treatment of SH-SY5Y cells with 100 µM haloperidol for 8 hours increased AIF levels in the nucleus by 24.3%.
3. SH-SY5Y cells transfected with the dopamine D$_{2L}$ receptor displayed a 3.1% increase in nuclear AIF levels in comparison to control upon treatment with 100 µM haloperidol.
4. Nuclear AIF levels in SH-SY5Y-D$_{2L}$ cells were unaffected by 100 µM of the atypical neuroleptics olanzapine, clozapine, quetiapine, risperidone, and loxapine.
5. AIF protein was undetectable in all cytoplasmic extracts, and the mitochondrial fractions displayed little or no change in AIF levels in all treated cells.
6. These early findings indicate the likelihood that haloperidol induces apoptosis via the caspase-independent AIF pathway.