Neurotoxicity Profiles of Synthetic Cannabinoids in SH-SY5Y Cells: Comparative *In Vitro* Study

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Introduction

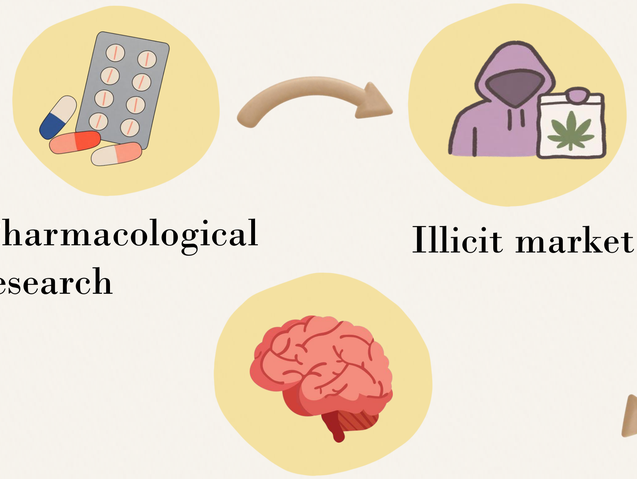
Main Challenges of New Psychoactive Substances (NPS)

Continuous Emergence: New NPS challenge monitoring and public health.

Structural Diversity: Chemical variability complicates identification and control.

Unknown Risks: Limited toxicological data hinder risk assessment.

Synthetic Cannabinoids



Act on the **endocannabinoid system** (CB1 & CB2) often producing more **intense** and **unpredictable effects**

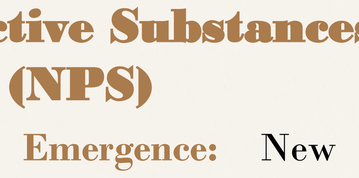
Objective



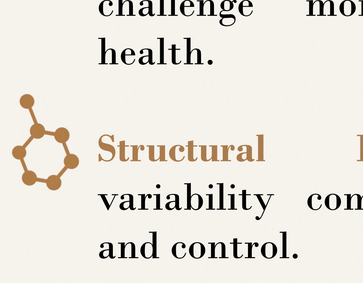
To evaluate and compare the **neurotoxic potential** of synthetic cannabinoids in **human neuroblastoma cells.**

Compounds Under Investigation

THJ-018



EG-018

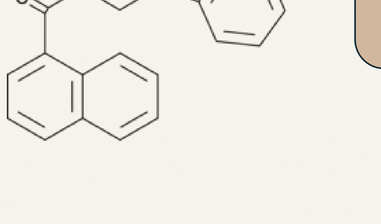


SGT-151

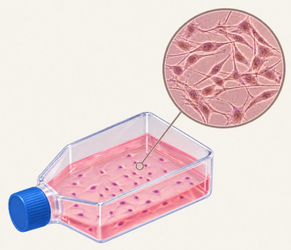


Reference Compound

Δ⁹-THC



Methodology

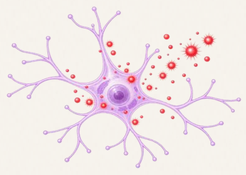


SH-SY5Y cells

24 h exposure to increasing compound concentrations

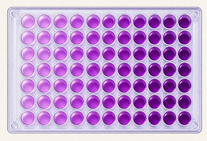
Assays to Be Performed

ROS



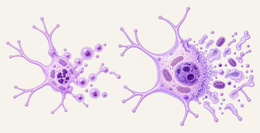
Oxidative stress

MTT



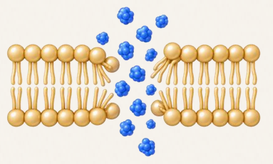
Metabolic activity

Annexin V-FITC/PI



Apoptosis and necrosis

LDH



Plasma membrane integrity

Comet assay



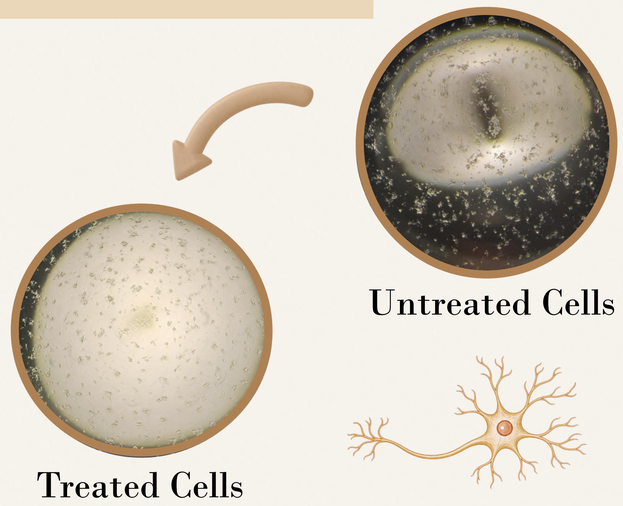
DNA damage

Research Hypotheses

Concentration-dependent neurotoxicity in SH-SY5Y cells.

Differences in cytotoxic potency among compounds.

Potential **influence of chemical structure** on toxicity.



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