

## **A Systematic Review of the Effects of Alpha-Synuclein Oligomers/Fibrils on Cell Death**

I had originally planned to undertake a project on evaluating potential pharmacological agents that modify alpha synuclein oligomerisation in a cell culture system.. The original project was replaced with a systematic review of the literature on the effects of alpha synuclein oligomerisation on cell death due to the Covid-19 pandemic, which led to closure of NUI Galway's research lab. Thus, this project was a remote one that focused on the different types of alpha-synuclein and its effects on cell death. I met weekly with Dr. McKernan to discuss progress and assign tasks to be completed for the following week.

This project was carried out using three databases: PubMed, Scopus and Web of Science. The same search criteria was entered into all three databases: Alpha-synuclein neuronal cell death. This generated 1046 hits in PubMed, 1378 hits in Web of Science and 915 hits in Scopus. All reviews, book chapters, comments, proceedings papers, meeting abstracts, correction papers and editorial material was extracted. This led to 795 papers remaining in PubMed, 892 papers remaining in Web of Science and 563 papers remaining in Scopus. The first five weeks of this project were spent filtering out these papers and then reading the abstracts of the remaining papers. A spreadsheet was created in Microsoft Excel to record the title, authors and years of the articles that were suitable for this project. After all three databases were completed, the duplicates were removed. This left 470 papers remaining to progress to the next stage of the project.

The remaining three weeks consisted of reading these papers and recording the relevant information. The table in Excel was expanded to consist columns recording the type of alpha-synuclein examined, the type of study carried out, concentrations of any drugs used, the concentration of alpha-synuclein used and the type of cell death that occurred.

This table will now be used by Dr. McKernan, in combination with other similar projects, to create a systematic review for publication. This data could then be used in the future as an aid to other researchers who are concerned with alpha-synuclein or the modes of cell death that it affects.