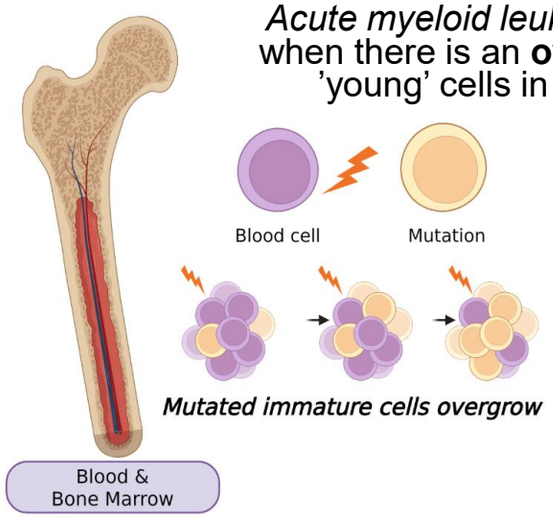
Testing treatments for acute myeloid leukemia

Mentors: Petria and Fiona. **Mentees:** Mark and Karsten

citizens of science

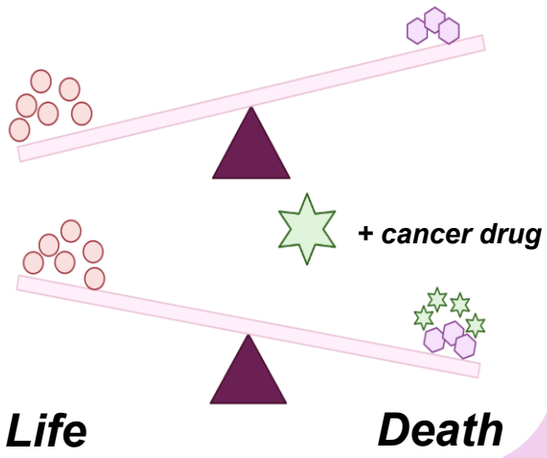
Background



Acute myeloid leukemia occurs when there is an **overgrowth** of 'young' cells in the blood

Cancer drugs like **S and V drug** can tip the scale back towards cell death in these cancer cells.

Would combining these drugs be more effective?

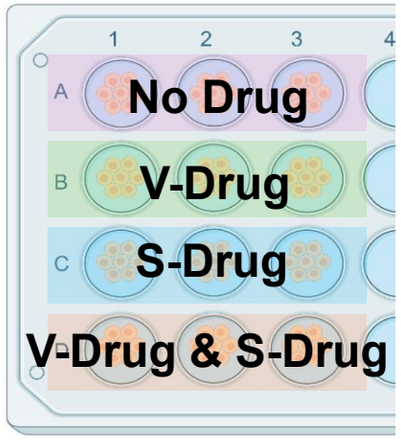


Aims & Hypothesis

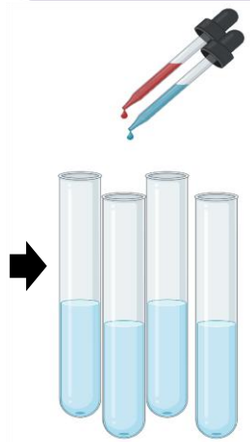
Hypothesis: The combination of S-drug and V-drug will be better at killing AML cells compared to each drug by themselves

Aim: To compare which drug treatment is the most effective at inducing death in AML cells

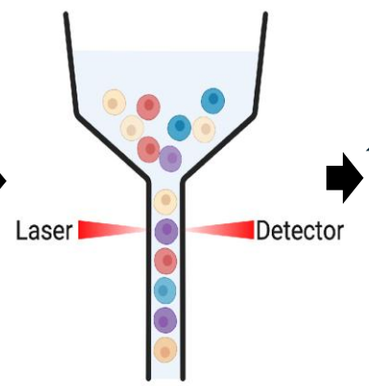
Method



1. Give cells different drug combinations

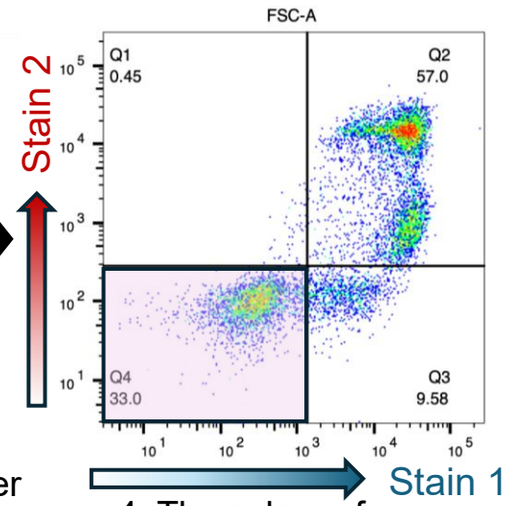


2. 'Colour' the cells with stains specific to dead and dying cells



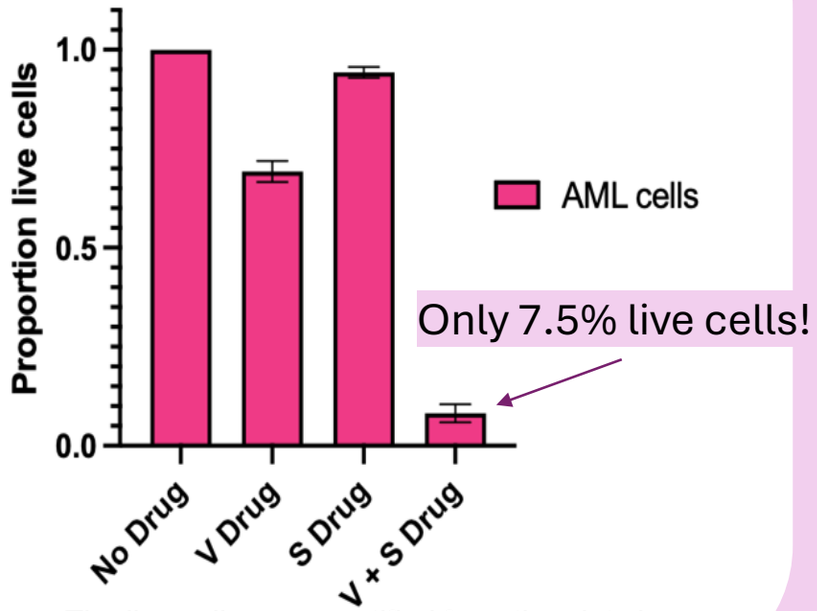
3. A flow cytometer shines lasers at the cells and reads out their colours.

Q2: Dead cells
Q3:Dying Cells
Q4: Live cells (measured)



4. The colour of each cell is plotted on a graph

Results



The live cells are quantified from the plots in method step 4

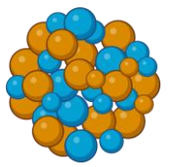
Implications & Applications

Preliminary evidence that combining these drugs is more effective to kill AML cells

Testing in mouse models to see if toxic, or effective



Combining S and V drug in a **nanoparticle therapeutic**, comparing their efficacy and toxicity with free-drug



Improve AML patient survival outcomes!