Glutathione as a Tool for Testing Gene Function Answer Key

Below you will find a survival assay results for two cell lines [normal and overexpressing glutathione] treated with increasing concentration of chemical. As the dose of the chemical increases, the survival rate of the cell decreases.

A. Which cell line overexpresses glutathione?
B. Why does the mortality rate decrease for both cell lines, as the dose of chemical increases?

Answers

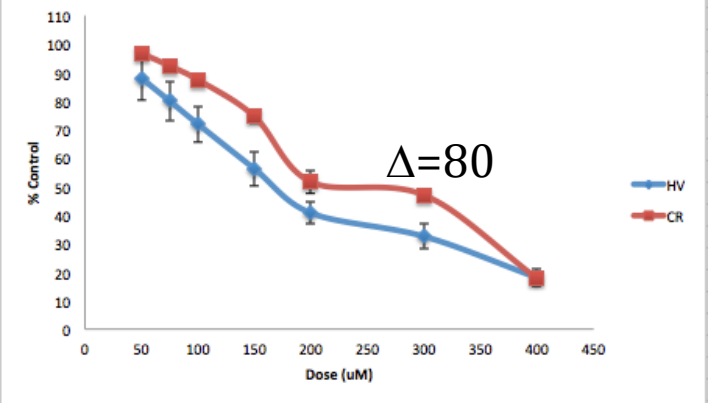
a. Red cell line is more resistant to chemical treatment. Therefore it overexpresses glutathione.
b. While glutathione provides some level of resistance, it doesn't *prevent* cells from dying if the higher concentration of chemical is applied.

Assignment II

Consider the chemical and physical properties of GSH discussed above. Briefly in 2 to 5 sentences, discuss some strategies you may consider utilizing when trying to design a safer chemical.

Answers

- Design chemicals that can be readily acted upon by GSH. The concept of electron flow and reduction/oxidation potentials is very relevant.
- Design chemicals that have a functional group that can be enzymatically conjugated with GSH very rapidly. The notion being that zero exposure to unwanted chemicals is the ideal scenario, however knowing that we are exposed to unwanted chemicals on a daily basis, engineering them to also be rapidly excreted from opur bodies could be a desired quality.



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