**What is neuroblastoma?**

- A rare childhood cancer
- It occurs when immature ‘neuroblasts’ grow uncontrollably
- Normally, these cells grow and mature into nerve cells.
- But in neuroblastoma, they become cancer cells which grow to form tumors
- They can ‘metastasize’ to other parts of the body, such as the lymph nodes, skin, liver, and bones.

**What’s the problem?**

- Very low survival rates
- Chemotherapy stops working
- The cancer cells become resistant to drugs

**How?**

- Neuroblastoma cells have pumps which efflux drugs out of cells.....
  ...so the drugs can’t kill the neuroblastoma cells.

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**A solution?**

- We have designed a group of novel drugs called the PBOXs
- They target cancer cells without being toxic to normal cells
- They kill neuroblastoma cells by apoptosis

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**What’s the advantage?**

- Unlike other chemotherapeutics, the cells don’t become resistant to the PBOXs
- They are not a substrate for these drug pumps
- So the PBOXs stay in the cell and induce apoptosis
- The can work with other chemotherapeutics to kill even more cells
- Can use lower doses.....less toxic side effects

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**What do we do?**

- Cells have been isolated from the bone marrow of patients with neuroblastoma
- We grow these cells in culture and perform a series of experiments to see if our drugs induce cell death
- We determine how the cancer cells are dying

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**Our results**

- The PBOXs induce cell death in neuroblastoma cells
- Cell death increases with increasing time and dose

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**What next?**

- Continue to test the PBOXs in combination with other drugs
- Isolate neuroblastoma cell from the bone marrow of patients and test the PBOXs on these primary cells
- Investigate the ‘in vivo’ effects of the PBOXs in a neuroblastoma murine model