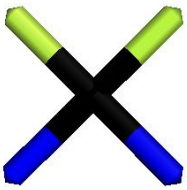
Name:
Date:

WC2 – Cisplatin

Download and then open the file **1a84_Cisplatin_2** in PyMOL. This is a structure of DNA which has been bound to the drug cisplatin. Use this structure, as well as your own knowledge to answer the following questions.

1. Give a use of the drug cisplatin.

2. Cisplatin is a square planar complex, shown below. What is the metal ion at the centre of the drug?



a) Pt
b) Pt^{+}
c) Pt^{2+}
d) Pt^{4+}

3. Describe how the overall structure of the DNA has been affected because cisplatin has bound. How is it different to usual DNA?

4. The cisplatin molecule shown above has two amine groups, and two chlorine groups. However, when the drug binds, it loses two of its ligands. Which ligands are lost, and why does this happen?

5. DNA is necessary for cell replication to occur. Cisplatin binds to, and distorts DNA. Explain how cisplatin works as a drug, and what makes it effective for its purpose.

6. Explain why drugs like cisplatin can have adverse effects.

7. Describe how the side effects of a chemotherapy drug like cisplatin can be reduced.

Produced by Adam Stubbs at Newcastle University as part of a summer outreach project.