Cisplatin is a complex ion consisting of a central platinum atom surrounded by four ligands; two ammonia molecules and two chlorine atoms giving a total Mr of 300g/mol. It is corrosive, Acutely toxic a skin irritant and carcinogenic, because of this is should be handled with care at all times and only administered when needed.

This chemical is often used in cancer treatment. For this application it is absorbed into the cell where it is hydrolysed by the cytoplasm, the chloride atoms are displaced by water forming a strong electrophile. This can then bind to the N7 reactive centre on purine (The top nitrogen on the imidazole) damaging the DNA and inhibiting DNA growth and replication, eventually resulting in apoptotic cell death removing the cancer. It is usually used in combination with other chemotherapy methods and drugs.

It is effective against a wide variety of cancers ranging from bladder to lung to lymphoma and is widely considered to be affective against drug resistant cancers, however this does not make it a miracle cure and cisplatin resistance has already been noted in certain cancers. Efforts to overcome this have resulted in the creation of the other platinum based compounds and drugs.