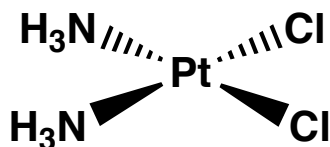


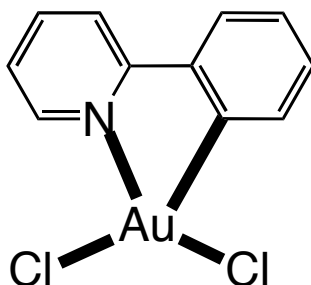
Novel Gold(III) Complexes as Anti-Cancer Agents

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One of the most effective anti-cancer agents known is the square planar platinum(II) complex cis-platin. Its structure is shown below. The neutral complex consists of two chloride ligands arranged in *cis* fashion around the platinum center.



In the Summer of 2012, we will proceed to prepare new and related compounds of gold(III) which offer promise as alternative cytotoxic agents. Like cis-platin, these also contain two *cis* chloride ligands, but have a gold(III) rather than a platinum(II) center. In order to maintain the electrical neutrality of the complex, the gold needs to be complexed to an anionic ligand. Cyclometallating ligands such as phenylpyridine (Phpy) are ideal candidates for these types of ligands, and the Au(III) complex, [Au(Phpy)Cl₂], is shown below. We plan to extend our prior experiences with phenylpyridine gold chemistry to other cyclometallating ligands such as benzoquinoline.



The final step in the synthetic work is to add a macrocyclic ligand such as 1,4,7-trithiacyclononane (9S3) to the gold cyclometallated complex. The macrocycle serves as a probe to examine the properties of the cyclometallating ligand and to better understand its electronic properties.