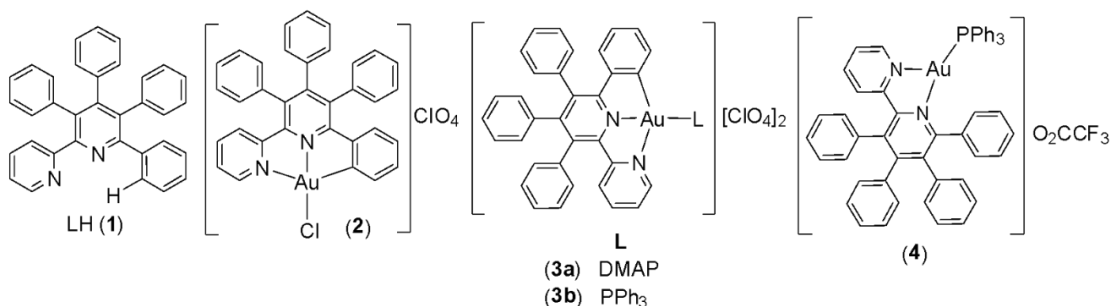


## Gold complexes of a bulky bipyridine ligand

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Since good old days, gold has been a precious metal possessed by rich people and now it is used in nanoscience and nanotechnology as nanoparticles and self-assembled monolayers. In addition to its attractive monetary value, highly active cationic gold(I) catalysts have found applications in organic synthesis as well. Recently, it has attracted growing attention due to luminescent properties of Au(I)/Au(III) complexes, *e.g.*, Au(I)-phosphine complex  $[\text{Au}(\text{dppm})_2](\text{BF}_4)_2$ , that exhibits strong and long-lived yellow phosphorescence. Cyclometallated Au(III)-pyridine complexes have shown interesting photophysical properties. Thus, it is of interest to devise synthetic routes to gold complexes of this bulky bipyridyl ligand (LH, **1**). Treatment of (**1**) with  $\text{HAuCl}_4 \cdot x\text{H}_2\text{O}$  in the presence of  $\text{AgClO}_4$  afforded the cyclometallated square-planar Au(III) complex  $[\text{LAuCl}]\text{ClO}_4$  (**2**) containing an anionic terdentate (NNC) ligand. All complexes were characterized by a combination of IR, Mass and NMR spectroscopy. Substitution of chloride ligand of (**2**) with neutral ligands, 4dimethylamino pyridine (DMAP) and  $\text{PPh}_3$  afforded  $[\text{LAu}(\text{DMAP})][\text{ClO}_4]_2$  (**3a**) and  $[\text{LAu}(\text{PPh}_3)][\text{ClO}_4]_2$  (**3b**), respectively. The X-ray crystal structures of (**2**) and (**3a**) were determined.  $[(\text{LH})\text{Au}(\text{PPh}_3)]\text{O}_2\text{CCF}_3$  (**4**) was prepared by treating  $[\text{AuCl}(\text{PPh}_3)]$  with (**1**) in the presence of  $\text{AgO}_2\text{CCF}_3$ .



**Keywords:** Au(I) and Au(III) complexes, Bipyridyl ligand, Cyclometallation, NNC complexes

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