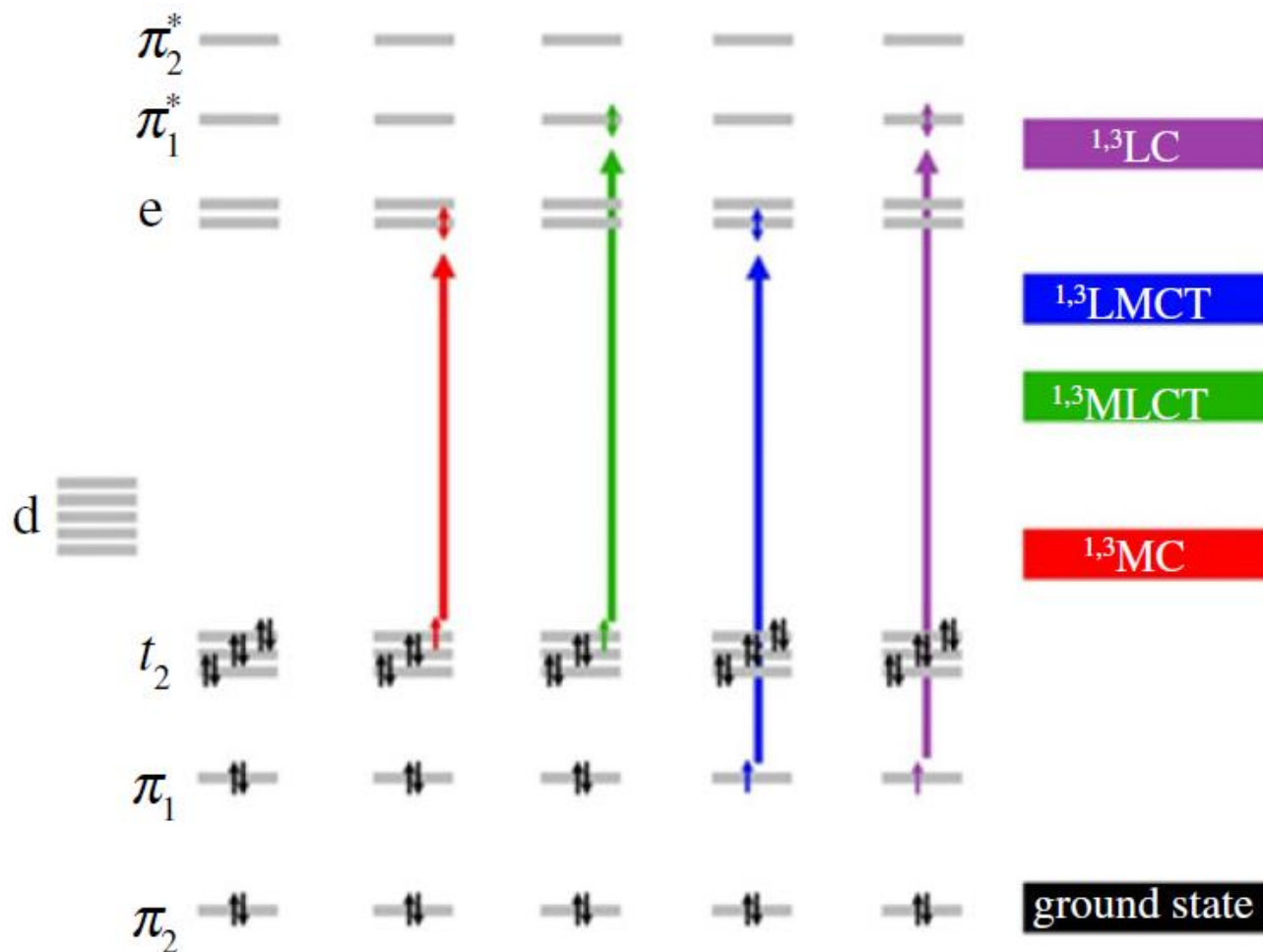


Photoactivatable metal compounds



Photoactivatable metal compounds

These complexes are inert and non-toxic to cells in the dark.

Upon irradiation at the tumor site, they undergo various **photochemical reactions**, including **isomerization**, **substitution**, and **reduction**.

The photoactivation pathway of metal complexes **does not rely on O_2** , which is a significant advantage over the photosensitizers used in current PDT.

However, photoactivation – contrary to PDT – is a stoichiometric process.

Photoinduced ligand
dissociation

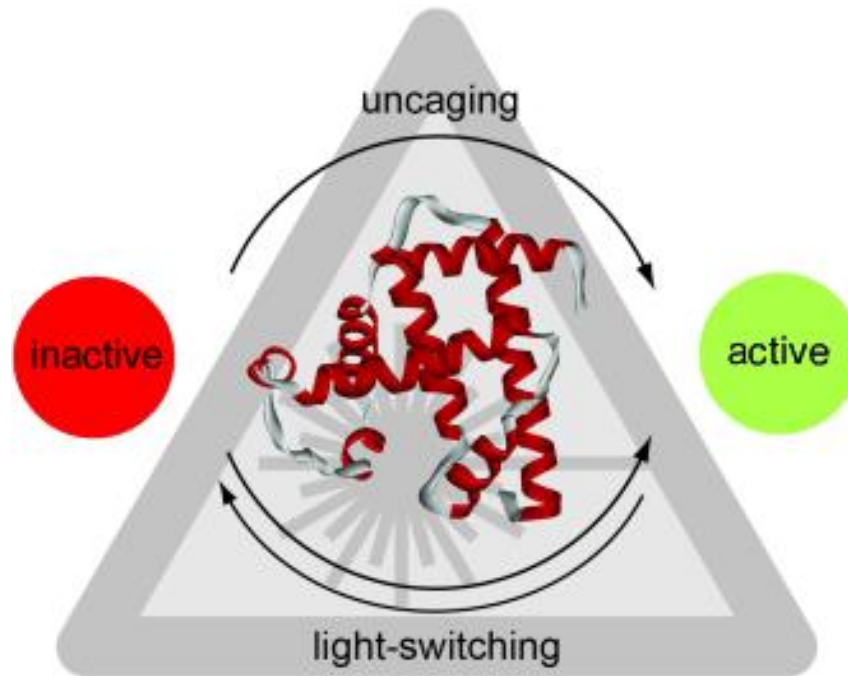
```
graph TD; A[Photoinduced ligand dissociation] --> B[Activation of the metal center]; A --> C[Selective release of active ligands (photo-uncaging)];
```

The diagram is a flowchart with a yellow rounded rectangle at the top containing the text 'Photoinduced ligand dissociation'. Two red arrows originate from the bottom of this rectangle. The left arrow points to a blue oval containing the text 'Activation of the metal center'. The right arrow points to a green oval containing the text 'Selective release of active ligands (photo-uncaging)'.

Activation of the
metal center

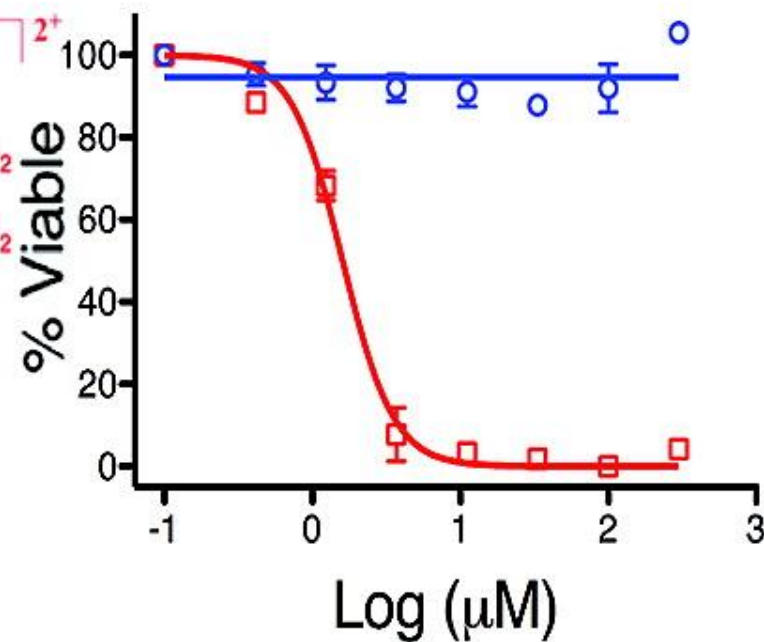
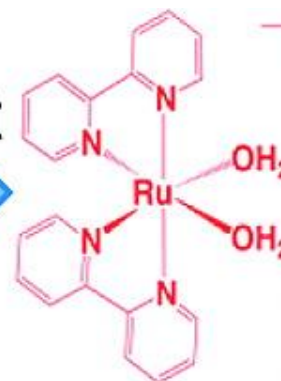
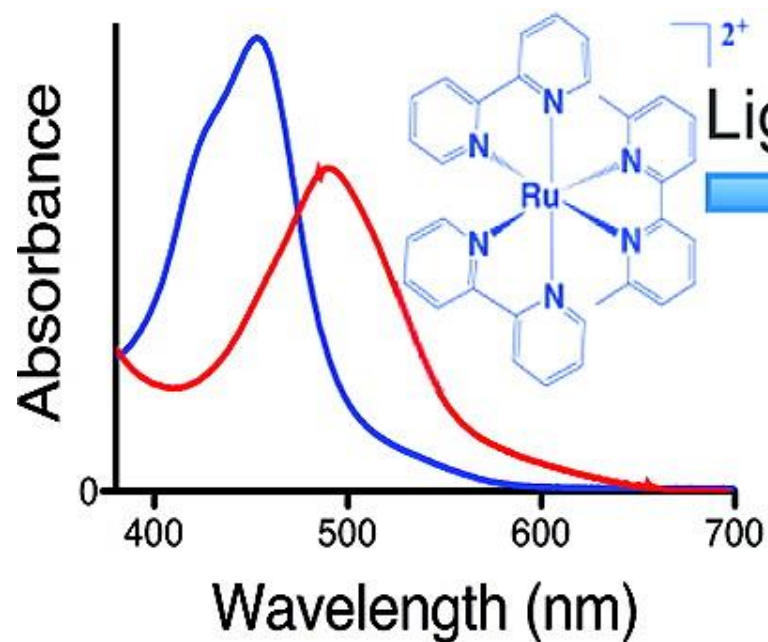
Selective release
of active ligands
(*photo-uncaging*)

Caged compounds and photo-uncaging



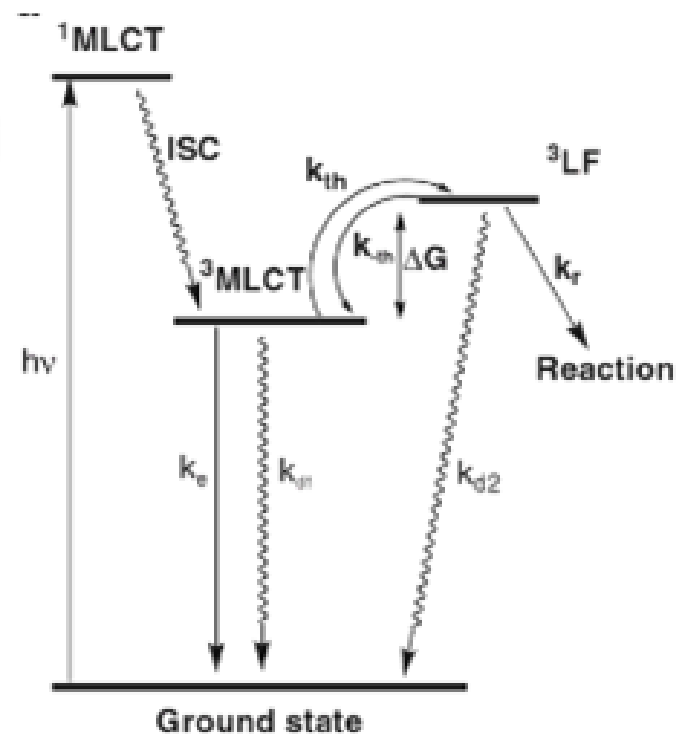
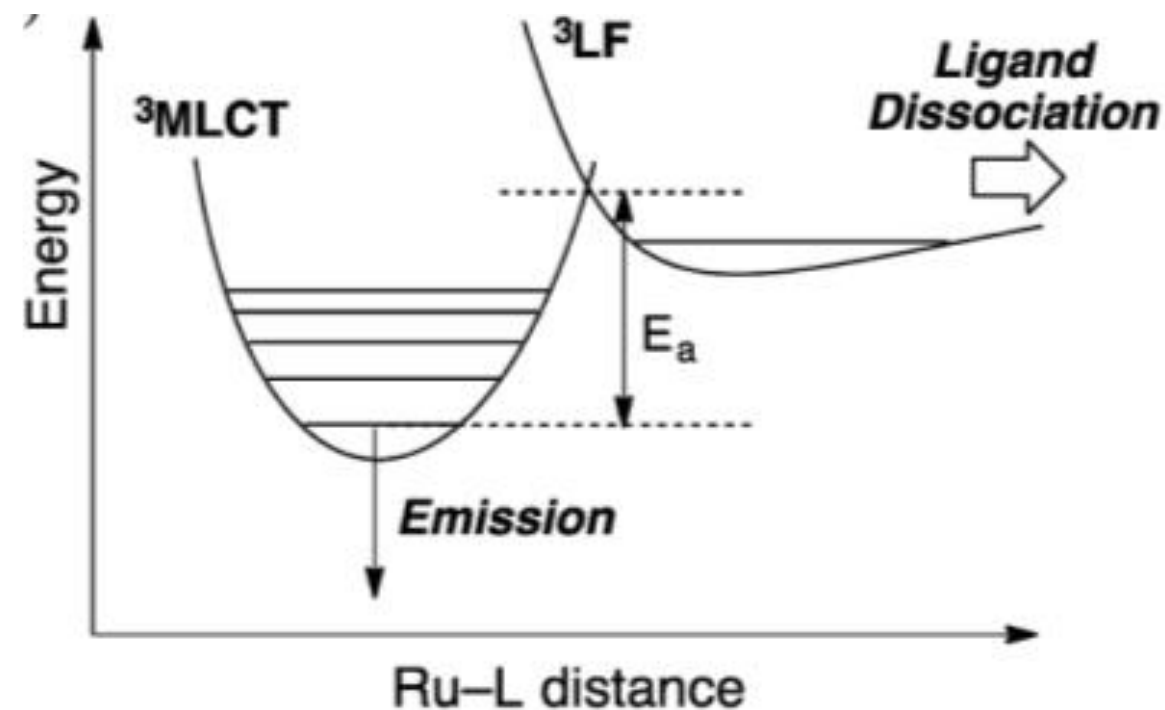
Photolabile protecting groups, attached to a defined position of a molecule, can be used to gain spatio-temporal control over the concentration of the active form of a molecule.

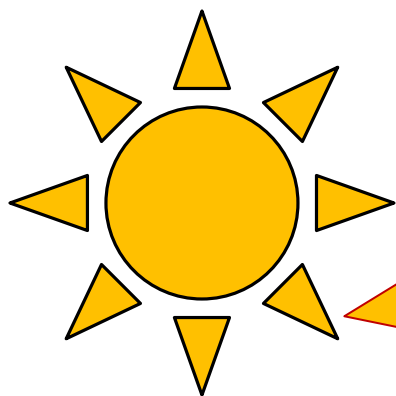
Photoactivatable Ru compounds



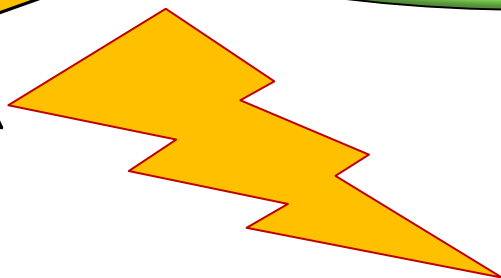
Phototoxicity Index, PI

Photoactivatable Ru compounds



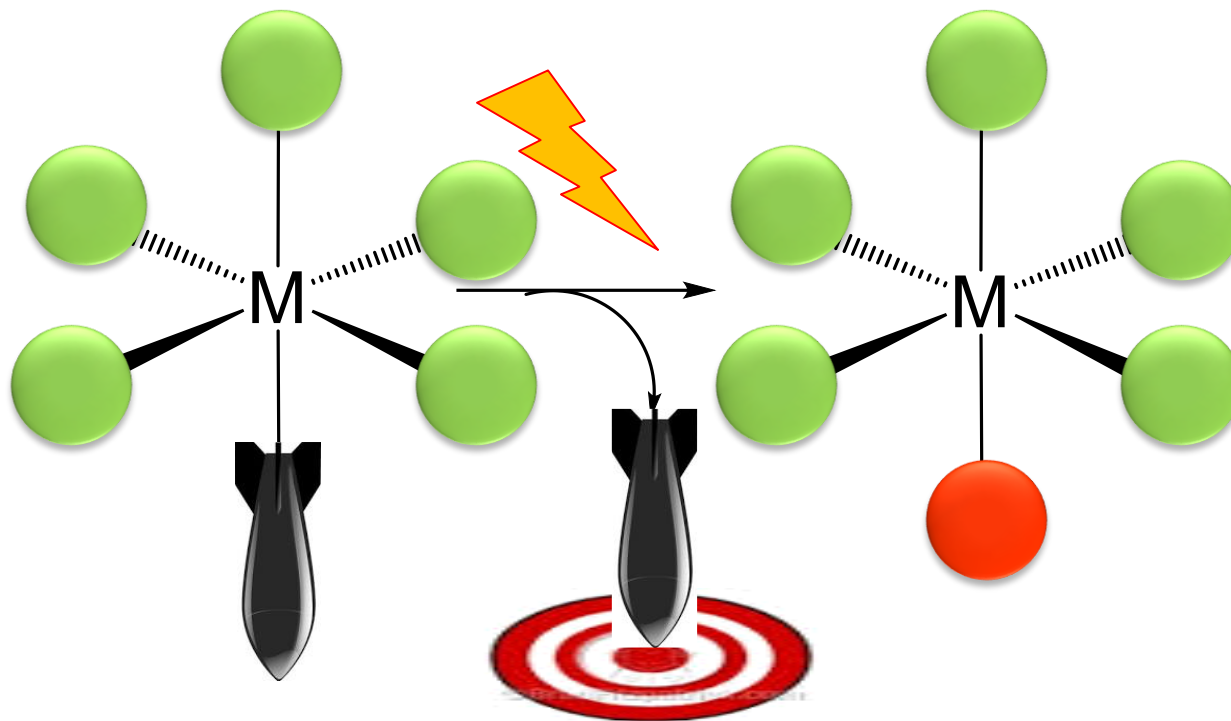


Structural compound



Functional compound

Metal compounds for the delivery of active molecules



 = NO, CO, 4-aminopyridine (4-AP, K⁺ channel blocker), γ -aminobutyric acid (GABA, a neurotransmitter),...

Caged compounds and photo-uncaging

NO Releasing Molecules = NORM

CO Releasing Molecules = CORM

Photo-NORM

Photo-CORM

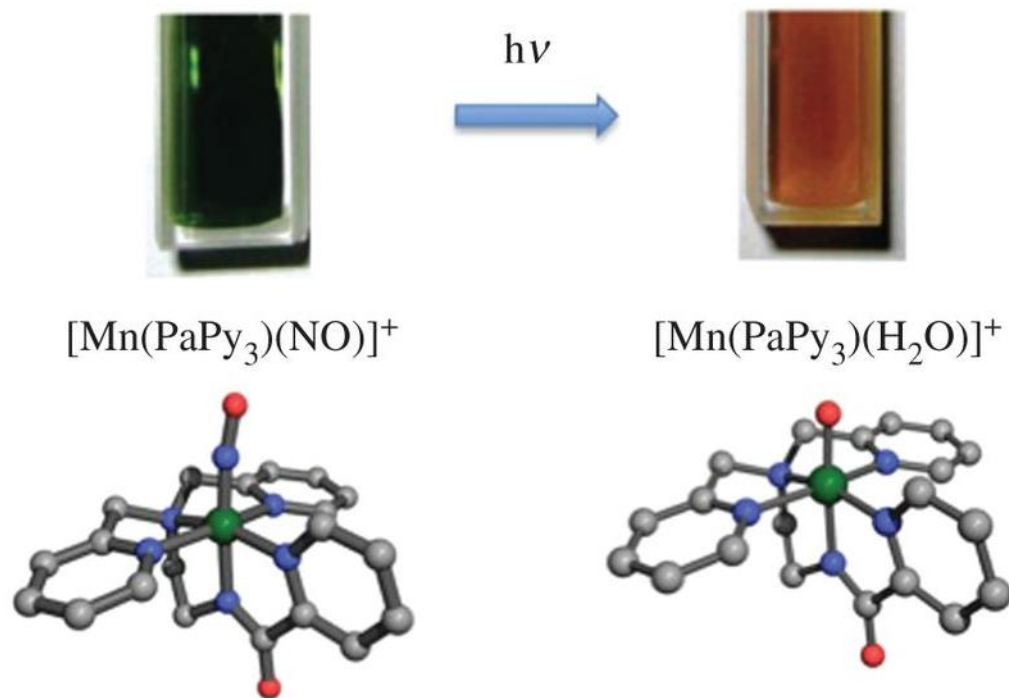
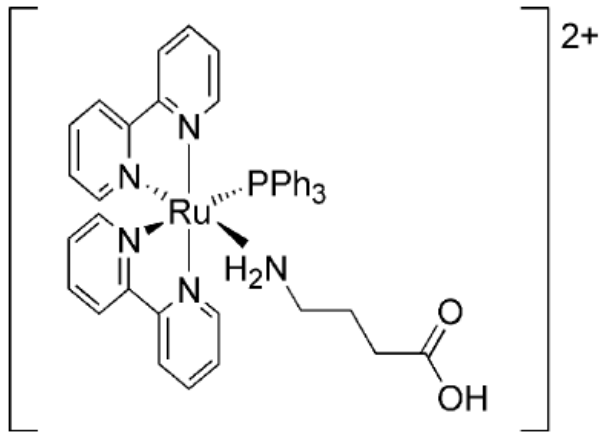
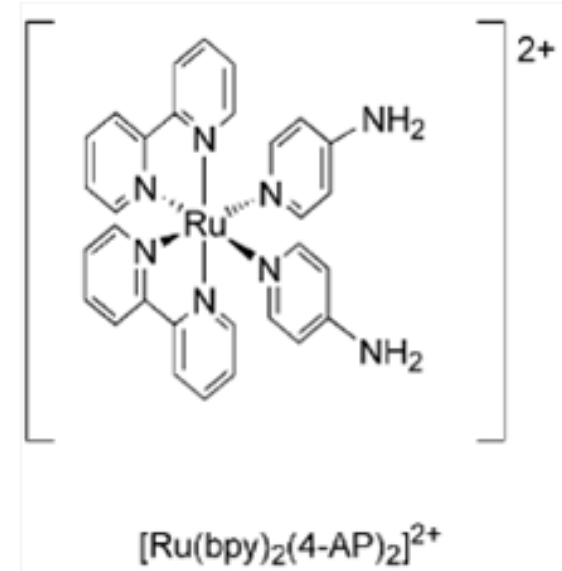
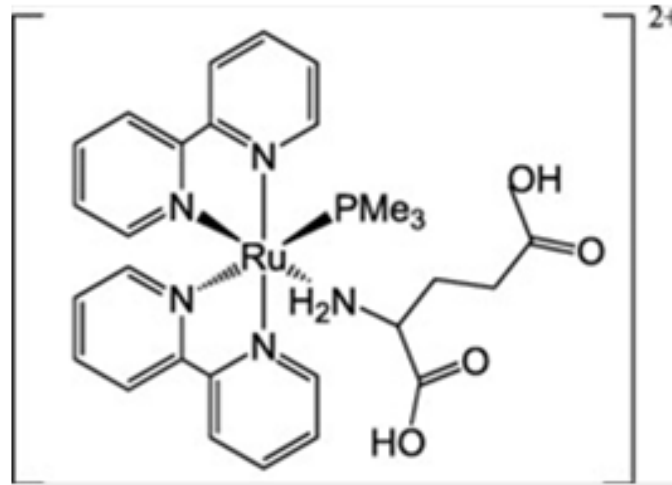


Photo-release of neurotransmitters



$[Ru(bpy)_2(PPh_3)(GABA)]^{2+}$



$[Ru(bpy)_2(4-AP)_2]^{2+}$

GABA = γ -aminobutyric acid: inhibitory neurotransmitter

Glutamic acid: excitatory neurotransmitter

4-AP = 4-aminopyridine: K^+ channel blocker

