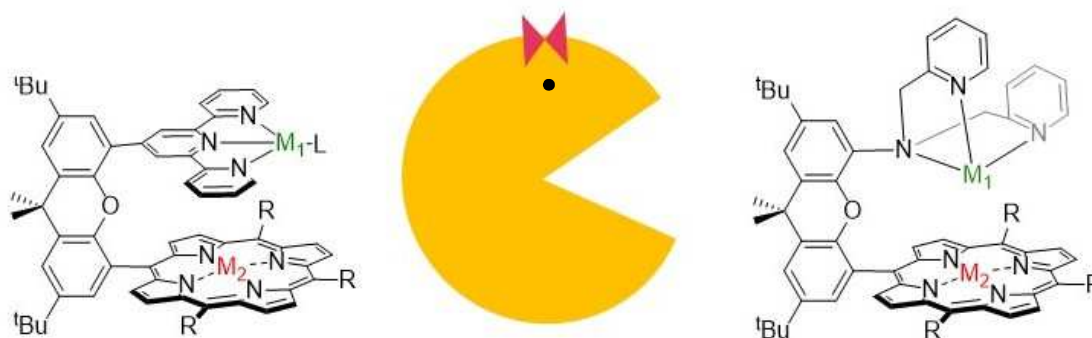


Synthesis and reactivity of heterobimetallic complexes

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Metalloenzymes are known to perform small molecule, like CO₂, O₂, H₂, *etc.*, activation. It is believed that these redox reactions often involve two or more metal centers. For example, the carbon monoxide dehydrogenase (CODH), having a dinuclear Ni-Fe reaction center, is able to catalyze the reversible transformation of CO to CO₂. To mimic these bimetallic systems, molecular compounds got attention and with some key modifications were able to activate small molecules.^{1,2} In recent years a special arrangement of two metal complex fragments separated via a rigid backbone, also known as Pacman complexes, have shown potential for small molecule activation.³ Naruta and coworkers demonstrated efficient carbon dioxide reduction using a bis(iron porphyrin) complex.⁴ Other studies have shown that two different metal centers in Pacman type complexes can increase substrate affinity and can facilitate multi-electron transfer as well. We are working on synthesizing new heterobimetallic complexes and study their reactivity towards small molecule activation, mainly O₂ and CO₂.^{5,6}



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