Introducing Cinchona Alkaloid Appended Thiol(s) in Gold Nanocluster Chemistry

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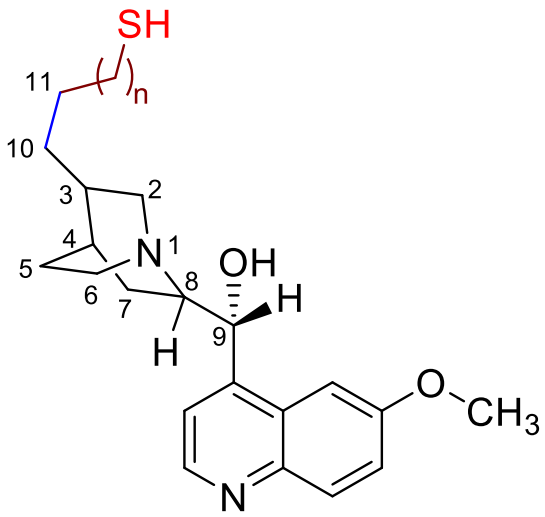
Cinchona alkaloids represent a diverse class of naturally occurring compounds that have been extensively studied and utilized in various fields of chemistry and biochemistry over the past two centuries.[1,2] These versatile molecules have demonstrated a wide range of applications, including their use as chiral organocatalysts, ligands, chromatographic selectors, antimalarial drugs, and NMR discriminating agents.

Our research aims to further explore the potential of cinchona alkaloid-appended thiols with varying chain lengths (n = 0, 2, 4, …) as chiral ligands in gold nanocluster chemistry, see figure. We plan to synthesize and incorporate these ligands into nanoclusters such as $Au_{25}(PET)_{18}$ through ligand exchange reactions (LER).[3] By introducing these chiral ligands, we aim to investigate their potential applications in enantioselective organocatalysis, NMR discrimination, and other related fields.[4]

In this poster presentation, we will showcase the synthesis of the alkaloid derivative and present its application as chiral ligand on atomically precise gold clusters.



L1 (n = 0, 2, 4, ...)

References

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