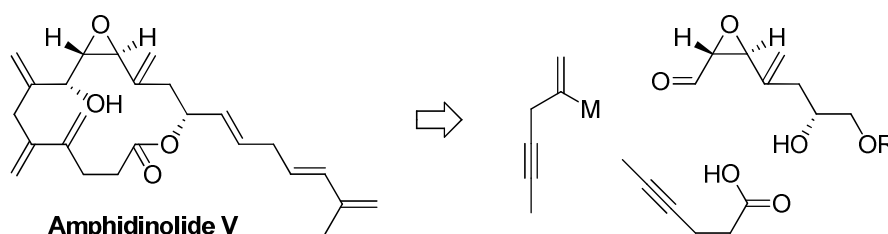


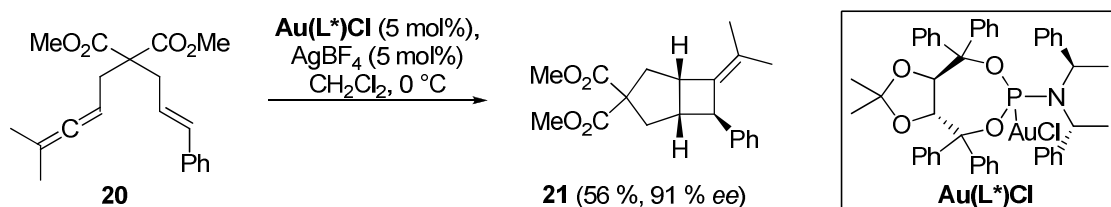
## Total Synthesis of Amphidinolide V and Analogues

## Studies on Homogeneous Gold(I) Catalysis

Marine dinoflagellates of the genus *Amphidinium* sp. living in symbiosis with the Okinawan flatworm *Amphiscolops* spp. constitute rich sources of chemically novel and biologically significant secondary metabolites. One of the rarest members of this series is Amphidinolide V which exhibits potent cytotoxic properties against various cancer cell lines in the standard assays. The rather unique structural features and promising activity profile prompted us to pursue a total synthesis of this marine natural product as well as of several non-natural analogues.



The second part of this thesis focuses on enantioselective gold(I) catalysis using monodentate chiral phosphorus ligands. Despite the recently intense development in this research field only a few asymmetric reactions have been reported. The main problem stems from the enforced linear coordination geometry of gold(I), thereby separating ligand chirality from the reacting substrate. The majority of reported methods rely on cationic bis(gold)-phosphine complexes. For the first time chiral mononuclear gold(I) complexes, in which monodentate phosphoramidites and diazaphospholidines bind tightly to the transition metal, have been successfully applied to enantioselective gold(I) catalysis.



Furthermore, several novel 14-electron alkyne gold coordination compounds have been synthesized and characterized which provide insights into the first elementary steps of gold catalysis.