

ON THE INTERACTION OF GOLD(I) AZIDES WITH GOLD(I) ACETYLIDES: THE DEVELOPMENT OF AN INORGANIC CLICK, OR iCLICK, METHODOLOGY. Andrew R. Powers, Trevor Del Castillo, Adam S. Veige. Center for Catalysis, Department of Chemistry, University of Florida, P.O. Box 117200, Gainesville FL, 32611.

The Huisgen 1,3-dipolar cycloaddition of organic azides to organic acetylides and the copper catalyzed variant thereof, are powerful carbon-nitrogen bond forming reactions. These reactions are widely utilized in synthetic chemistry, and represent a premier example of Click chemistry. The analogous cycloaddition reaction within the coordination sphere of a metal is much less prevalent, and prior to 2011, all literature examples involved an organoazide adding to a metal-bound acetylide, or an organoacetylide adding to a metal-bound azide. The synthesis of 1,5-bis-triphenylphosphinegold(I) 1,2,3-triazolate via an unprecedented inorganic click (iClick) reaction between $\text{PPh}_3\text{-Au-N}_3$ and $\text{PPh}_3\text{-Au-C}\equiv\text{CPh}$ marks the first example in the literature in which both the azide and acetylide participating in the cycloaddition reaction are within metal coordination spheres. The mechanism of this reaction, as well as the interaction between gold(I) azides and other gold(I) acetylides will be discussed, in hopes of extending this reaction methodology to other inorganic systems.