Gold(III)-Catalyzed Hydration of Alkynes

**Significance:** In 1991, Fukuda and Utimoto disclosed the gold(III)-catalyzed hydration of alkynes. In contrast to traditional Hg(II)-mediated hydrations that require strongly acidic conditions, the reported Au(III)-catalyzed protocol is much milder and does not require any acid, allowing for increased functional group tolerance.

**Comment:** The hydration reaction is operationally simple, requiring only 2 mol% of Au(III) catalyst in a refluxing mixture of methanol and water. When strictly anhydrous methanol is used, the corresponding dimethyl acetal product is obtained in place of the ketone.