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A 'Catch-and-Release' Protocol for Alkyne-Tagged Molecules Based on a Resin-Bound Cobalt Complex for Peptide Enrichment in Aqueous Media

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An Immobilized Cobalt Complex for Alkyne-Tagged Peptide Enrichment

Significance: A 'catch-and-release' protocol for the enrichment of alkyne-tagged biomolecules using a resin-supported phosphine cobalt carbonyl complex in aqueous media was developed. The reaction of a PS-PEG resin (TentaGel) supported cobalt complex **7** with a propargyloxycarbonyl-functionalized peptide **6** (prepared from a dipeptide **1** over four steps) proceeded in 30% EtOH/HEPES buffer solution to give the corresponding dicobalt alkyne complex **8**. The following Nicholas-type reaction–decarboxylation sequence of **8** afforded the free amine **4** in 77% yield.

Comment: The reaction of the alkyne-tagged dipeptide **6** with the solid-supported cobalt complex **7** was performed under high-dilution conditions (50 μM of **6**). After the complexation of **6** with **7**, the resulting polymeric peptide complex was treated with 5% TFA to release the free amine **4** as a single product, where an alkyne **6** was not detected in the solution by mass spectrometry.

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