A ‘catch-and-release’ protocol for alkyne-tagged molecules based on a resin-bound cobalt complex for peptide enrichment in aqueous media


**An Immobilized Cobalt Complex for Alkyne-Tagged Peptide Enrichment**

![Diagram of the protocol](image)

**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 with a propargyloxycarbonyl-functionalized peptide (prepared from a dipeptide over four steps) proceeded in 30% EtOH/HEPES buffer solution to give the corresponding dicobalt alkyne complex. The following Nicholas-type reaction–decarboxylation sequence of afforded the free amine as a single product, where an alkyne was not detected in the solution by mass spectrometry.

**Comment:** The reaction of the alkyne-tagged dipeptide with the solid-supported cobalt complex 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 as a single product, where an alkyne was not detected in the solution by mass spectrometry.

**Key words**

alkynes, peptides, Nicholas reaction, solid-phase synthesis, cobalt