A. MIYAZAKI, M. ASANUMA, K. DODO, H. EGAMI, M. SODEOKA* (ERATO, JAPAN SCIENCE AND TECHNOLOGY AGENCY, WAKO AND RIKEN CENTER FOR SUSTAINABLE RESOURCE SCIENCE, WAKO, JAPAN) 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 propargyloxycarbonylfunctionalized 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.

SYNFACTS Contributors: Yasuhiro Uozumi, Yoichi M. A. Yamada, Takuma Sato Synfacts 2014, 10(9), 0989 Published online: 18.08.2014 DOI: 10.1055/s-0034-1378995; Reg-No.: Y09314SF

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Comment: The reaction of the alkyne-tagged dipeptide **6** with the solid-supported cobalt complex **7** was performed under high-dilution conditions (50 μ M 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.

Category

Polymer-Supported Synthesis

Key words

alkynes

peptides

Nicholas reaction

solid-phase synthesis

cobalt

