REDOX-BASED REAGENTS FOR METHIONINE BIOCONJUGATION

Tech ID: 27148 / UC Case 2017-061-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,353,463	06/07/2022	2017-061

BRIEF DESCRIPTION

This invention relates to Redox-Based Reagents for Methionine Bioconjugation, which achieve chemoselective conjugation through redox reactivity. The process involves reacting an N-transfer oxidant with a thioether substrate in an aqueous environment to form a conjugation product. Specifically, Redox-Activated Chemical Tagging (ReACT) strategies are employed for methionine-based protein functionalization. Oxaziridine (Ox) compounds serve as oxidant-mediated reagents for direct functionalization by converting methionine to the corresponding sulfimide conjugation product.

SUGGESTED USES

- Protein Functionalization: Enhancing or modifying protein functions for research and therapeutic applications.
- Bioconjugation: Creating conjugates for drug delivery, imaging, or diagnostic purposes.
- Biomarker Detection: Developing sensitive assays for detecting methionine-containing proteins.
- Synthetic Biology: Engineering proteins with novel functionalities for various biotechnological applications.
- Chemical Biology: Studying protein interactions and functions through targeted modifications.

ADVANTAGES

- Chemoselectivity: Achieves specific conjugation at methionine residues without affecting other amino acids.
- Efficiency: Redox reactivity in aqueous environments ensures rapid and effective conjugation.
- Versatility: Applicable to a wide range of proteins and peptides.
- Precision: Oxaziridine compounds enable direct and controlled functionalization.
- Biocompatibility: Suitable for use in biological systems without adverse effects.

RELATED MATERIALS

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

▶ Asymetric Electrophilic Fluorination Using An Anionic Chiral Phasee-Transfer Catalyst

CONTACT

Laleh Shayesteh
lalehs@berkeley.edu
tel: 510-642-4537.

INVENTORS

» Toste, Francisco D.

OTHER INFORMATION

CATEGORIZED AS

» **Biotechnology**
» Other
» Proteomics
» **Medical**
» Delivery Systems
» Diagnostics
» Imaging
» **Research Tools**
» Other
» Protein Synthesis

RELATED CASES

2017-061-0

- Symmetric, Air-Tolerant And Membraneless All Organic Flow Batteries
- pH Signaling and Regulation in Pyridinium Redox Flow Batteries

University of California, Berkeley Office of Technology Licensing
2150 Shattuck Avenue, Suite 510, Berkeley,CA 94704
Tel: 510.643.7201 | Fax: 510.642.4566
https://ipira.berkeley.edu/ | otl-feedback@lists.berkeley.edu