

Site-Specific Ligation and Compound Conjugation to Existing Antibodies

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CONTACT

Raj Gururajan
rgururajan@ucdavis.edu
tel: [530-754-7637](tel:530-754-7637).



INVENTORS

- ▶ Bhardwaj, Gaurav
- ▶ Chandrasekaran, Siddarth
- ▶ Feng, Chun
- ▶ Lac, Diana
- ▶ Lam, Kit S.

OTHER INFORMATION

KEYWORDS

anti-body drug

conjugates, site specific

linker, fab crosslinker,

chemotherapy

CATEGORIZED AS

- ▶ **Medical**
- ▶ [Disease: Cancer](#)

RELATED CASES

2015-138-0

ABSTRACT

Researchers at the University of California, Davis have developed a unique method for site-specific ligation and conjugation of compounds to existing antibodies.

FULL DESCRIPTION

Traditionally, non-specific ligation methods have been used to chemically modify immunoglobulins. Through these methods, cytotoxic compounds are generally conjugated to antibodies via targeting of: (i) amines of lysine residues and (ii) free sulfhydryls of cysteine residues. These modifications, however, lead to heterogeneous products due to the multiple instances of identical functional groups. Therefore, there is a need for site-specific modification of immunoglobulins to establish homogenous immunoconjugates.

Researchers at the University of California, Davis have developed a unique method for site-specific ligation and conjugation of compounds to antibodies via direct binding of a ligand to the Fab arm. This method can be used to conjugate compounds to existing monoclonal and polyclonal antibodies, reducing production costs and shortening the preclinical-to-clinical translation times. The modification itself can be performed in very mild conditions, providing a viable method to create uniform antibody drug conjugates and bispecific antibodies. The method has been verified *in vitro* with human breast cancer cells and trastuzmab.

APPLICATIONS

- ▶ Therapeutics against cancer or infectious agents
- ▶ Bispecific antibodies

FEATURES/BENEFITS

- ▶ Reduced production costs
- ▶ Reduced preclinical-to-clinical translation times
- ▶ Mild reaction conditions
- ▶ Site-specific ligation and conjugation
- ▶ Can be used with existing antibodies

RELATED MATERIALS

- ▶ [Covalent Chemical Ligation Strategy for Mono- and Polyclonal Immunoglobulins at Their Nucleotide Binding Sites](#) Diana Lac, Chun Feng, Gaurav Bhardwaj, Huong Le, Jimmy Tran, Li Xing, Gabriel Fung, Ruiwu Liu, Holland Cheng, and Kit S. Lam *Bioconjugate Chemistry* 2016 27 (1), 159-169 DOI: 10.1021/acs.bioconjchem.5b00574 - 12/02/2015

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,588,982	03/17/2020	2015-138

Additional Patent Pending

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Novel Solid Tumor Chemodrug LLS2](#)

- ▶ Affinity Peptides for Diagnosis and Treatment of Severe Acute Respiratory Syndrome Coronavirus 2 and Zika Virus Infections
- ▶ Nanoparticles for Drug Delivery, Tissue Targeting and Imaging Analysis
- ▶ Conjugates That Combine HDAC Inhibitors and Retinoids into Disease Preventatives/Treatments
- ▶ Artificial Intelligence-Based Evaluation Of Drug Efficacy
- ▶ A Novel RGD-Containing Cyclic Peptide for use in Cancer Imaging and as a Targeted-Therapy Ligand
- ▶ Ligands for Alpha-4-Beta-1 Integrin
- ▶ Functional Illumination in Living Cells
- ▶ Multifunctional Porphyrin-Based Nanomedicine Platform
- ▶ Engineered Biomaterial to Prevent Endothelial Inflammation
- ▶ PVA Nanocarrier System for Controlled Drug Delivery
- ▶ Systems and Methods of Single-Cell Segmentation and Spatial Multiomics Analyses

University of California, Davis
Technology Transfer Office

1 Shields Avenue, Mrak Hall 4th Floor,
Davis,CA 95616

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530.754.8649 California
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Fax:
530.754.7620