

# MODIFIED FC POLYPEPTIDES AND METHODS OF USE

Tech ID: 24040 / UC Case 2012-110-0

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,834,597	12/05/2017	2012-110

## BRIEF DESCRIPTION

Chemically based protein modification methods could provide useful strategies for the generation of antibody mimics. However, the highly complex structures of antibody domains make it exceptionally difficult to modify these proteins in a single or small number of locations. This complexity includes the presence of multiple polypeptide chains, extensive disulfide networks, and critically important glycosylation patterns, all of which must remain intact to obtain biological function.

To address these problems, UC Berkeley investigators have developed novel antibody mimics by installing synthetic molecules at the N-termini of crystallizable fragment domains (Fc's) via chemical modification approaches. The synthesis leads to the production of Fc-synthetic molecule hybrids, where the Fc domains serve as building blocks to improve the pharmacokinetic properties of synthetic agents and provide them with immunological activating properties.

## SUGGESTED USES

- » Protein engineering (e.g., developing antibody mimics, fusion proteins)
- » Drug discovery
- » Drug delivery
- » Diagnostic and research uses

## ADVANTAGES

- » The bulk of the immunological activating properties of the Fc domains remained intact following the modification process
- » The chemical modification techniques are applicable to other complex biomolecules (e.g., IgG itself) and the attachment of other synthetic molecules (e.g., peptoids or small molecules)
- » The ability to produce large batches of Fc conjugates for subsequent attachment of various synthetic molecules
- » Fc-synthetic molecule hybrids much smaller in size compared to mAbs
- » Site specific modifications of antibody Fc domains

## PUBLICATION

[Synthetically modified Fc domains as building blocks for immunotherapy applications](#)

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## INVENTORS

- » Francis, Matthew B.

## OTHER INFORMATION

### KEYWORDS

Fusion protein, therapeutic, crystallizable fragment, drug delivery, drug discovery, antibody, polypeptide, diagnostic

### CATEGORIZED AS

- » **Biotechnology**
- » Proteomics
- » **Materials & Chemicals**
- » Biological
- » **Medical**
- » Delivery Systems
- » Diagnostics
- » Research Tools
- » Therapeutics
- » **Research Tools**
- » Antibodies

### RELATED CASES

2012-110-0

## ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Site-Specific Coupling Of Biomolecules Using Orthoquinones And Thiols](#)
- ▶ [Compositions and Methods for Modification of Cells](#)
- ▶ [High Throughput Surface Patterning of Small Molecules and Biomolecules \(Option-Agilent\)](#)



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