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InnoCyto Inc.

15375 Barranca Pkwy, Suite I-103
Irvine, CA 92618
Email: info@innocyto.com
Phone: 1-949-418-7543

Anti-Human CD33 (Gemtuzumab Biosimilar)

Catalog Number:	503101, 503102, 503103
Size:	1 mg, 5 mg, 20 mg
Target Name:	CD33, SIGLEC3, gp67
Regulatory Status:	RUO

PRODUCT DETAILS

Clone:	Gemtuzumab
Application:	Flow cytometry, animal model study
Reactivity:	Human
Format:	Liquid
Product Description:	Gemtuzumab Biosimilar, CD33 Monoclonal Antibody
Isotype:	Human IgG4
Clonality:	Recombinant
Immunogen:	Human CD33
Species specificity:	Human
Purity:	>95% by reducing SDS-PAGE
Grade:	In vivo
Storage Conditions:	4ºC
Maximal Shelf Life:	12 months
Synonyms:	Siglec-3
RRID:	AB_3739307
Antibody Type:	Recombinant
Reactivity:	Human

BACKGROUND INFORMATION

Gemtuzumab is a humanized monoclonal antibody that belongs to the immunoglobulin G4 kappa (IgG4κ) subclass and is engineered as part of an antibody-drug conjugate (ADC) targeting the CD33 transmembrane receptor. Structurally, the antibody portion of Gemtuzumab is composed of two identical heavy chains and two identical light chains linked by disulfide bonds, forming the classical Y-shaped IgG configuration with a molecular weight of approximately 150 kilodaltons (kDa). It is expressed in mammalian cell systems such as Chinese Hamster Ovary (CHO) cells, which ensure proper folding, glycosylation, and structural stability. The variable regions (VH and VL) of the antibody are derived from murine sequences that confer specific recognition of CD33, while the constant regions are of human IgG4 origin to enhance tolerance and reduce Fc-mediated immune activation.

The antigen-binding fragments (Fab) of Gemtuzumab contain complementarity-determining regions (CDRs) that recognize an extracellular epitope on human CD33, a sialic acid-binding immunoglobulin-like lectin (Siglec) expressed on myeloid lineage cells. The high-affinity interaction involves hydrogen bonding and van der Waals forces, allowing selective binding to CD33-positive cells. As a therapeutic, Gemtuzumab is conjugated via a cleavable hydrazone linker to a cytotoxic payload, N-acetyl gamma calicheamicin dimethyl hydrazide, a DNA-damaging antitumor antibiotic. The linker is engineered to be stable in circulation but cleaved within acidic intracellular compartments following receptor-mediated endocytosis.

The Fc portion, derived from IgG4, minimizes antibody-dependent cellular cytotoxicity (ADCC) and complement activation, emphasizing intracellular delivery rather than immune effector activity.

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