Product Data Sheet

Product Name:	IgG light chain variable region [Homo sapiens]/IgM/kappa antibody [Mus musculus]
Cat. No.:	GP10044

Chemical Properties

Cas. No.			
SMILES	C[C@@H](O)[C@H](N)C(NC(CC(O)=O)C(NC(CC1=CC=CC=C1)C(N[C@@H]([C@@H](O)C)C(NC(CC(C)C)C(N[C@H](C(N[C@H]([C@@H](C)CC)C(O)=O)=O)[C@@H](O)C)=O)=O)=O)=O)=O		
Formula	$C_{37}H_{59}N_7O_{13}$	M.Wt	809.9
Solubility	≥ 81mg/mL in DMSO	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure			

Background

IgG has four forms, provides the majority of antibody-based immunity against invading pathogens.[1] The only antibody capable of crossing the placenta to give passive immunity to the fetus. IgM is expressed on the surface of B cells (monomer) and in a secreted form (pentamer) with very high avidity. Eliminates pathogens in the early stages of B cell mediated (humoral) immunity before there is sufficient IgG.[2] The immunoglobulin light chain is the small polypeptide subunit of an antibody (immunoglobulin). Kappa (NJ) chain, one of the two types of light chain in mammals, is encoded by the immunoglobulin kappa locus (IGK@) on chromosome 2. Only V and J segments are found in Ig light chains.[3]

The approximate length of a light chain protein is from 211 to 217 amino acids.[4]

If the lymph node or similar tissue is reactive, or otherwise benign, it should possess a mixture of kappa positive and lambda positive cells. If, however, one type of light chain

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is significantly more common than the other, the cells are likely all derived from a small clonal population, which may indicate a malignant condition, such as B-cell lymphoma. [5]

Increased levels of free Ig light chains have also been detected in various inflammatory diseases. Very recent studies have shown that Ig light chains not only activate mast cells but also dorsal root ganglia (Rijnierse, 2009)) and neutrophils (Braber and Thio (2012)), expanding their possible role as mediators in inflammatory disease.

References:

1. Pier GB, Lyczak JB, Wetzler LM (2004). Immunology, Infection, and Immunity. ASM Press. ISBN 1-55581-246-5.
2. Geisberger R, Lamers M, Achatz G (2006). "The riddle of the dual expression of IgM and IgD". Immunology 118 (4): 060526021554006 -- . doi: 10.1111 / j. 1365-2567 . 2006.02386.x. PMC 1782314. PMID 16895553
3. Nemazee D (2006). "Receptor editing in lymphocyte development and central tolerance". Nat Rev Immunol 6 (10): 728-740. doi:10.1038/nri1939.PMID 16998507
4. Janeway CA, Jr. et al. (2001). Immunobiology. (5th ed.). Garland Publishing. (electronic full text via NCBI Bookshelf) ISBN 0-8153-3642-X.
5. Leong, Anthony S-Y; Cooper, Kumarason; Leong, F Joel W-M (2003). Manual of Diagnostic Cytology (2 ed.). Greenwich Medical Media, Ltd.. pp. 283-285.ISBN 1-84110-100-1.