UPPSALA UNIVERSITET

Molecular Biotechnology Programme

Uppsala University School of Engineering

UPTEC X 14 016	**Date of issue 2014-06**

Author

Karin Rudström

Title (English)

Relationship between the epitope specificity and neutralizing capacity of monoclonal antibodies to human interferon-gamma

Abstract

Interferon-gamma (IFN-γ) plays a vital role in the immune response to both bacterial and viral infections. The aim of this study was to investigate the relationship between the epitope specificity of antibodies to human IFN-γ (hIFN-γ) and their ability to inhibit the biological activity of hIFN-γ. 18 monoclonal antibodies (mAbs) against hIFN-γ were epitope mapped using seven human-bovine IFN-γ chimeras. The chimeras were based on the hIFN-γ sequence and in each chimera, one region had been substituted with the corresponding bovine IFN-γ (bIFN-γ) region. Abrogation of the antibodies' binding to different chimeras indicated to what region they bind. The mAbs were also analysed for their capacity to inhibit the biological activity of IFN-γ using a cellular *in vitro* neutralization assay. MAbs reactive with two different epitope regions displayed a neutralizing capacity. One epitope group of mAbs bind to an epitope with residues involved in the interaction between IFN-γ and the IFN-γ receptor. MAbs from the other epitope group bind to a region that is not involved in the receptor interaction and thus must inhibit IFN-γ from binding its receptor by another mechanism.

Keywords

IFN-γ, monoclonal antibodies, epitope mapping, neutralization.

Supervisors

Niklas Ahlborg, Cecilia Ehrfelt & Bartek Zuber

Mabtech AB

Scientific reviewer

Lars Hellman

Uppsala University

Project name	Sponsors
Language **English**	Security Secret until 2024-06
ISSN 1401-2138	Classification
Supplementary bibliographical information	Pages **37**

Biology Education Centre Biomedical Center Husargatan 3 Uppsala

Box 592 S-75124 Uppsala Tel +46 (0)18 4710000 Fax +46 (0)18 471 4687