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Molecular engineering of Fc fusion proteins to tailor effector function to clinical indication

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The potential therapeutic value of many proteins—including enzymes, receptors, cytokines and peptides—can be realized by fusing these proteins to the Fc region of human immunoglobulin G. Effector functions mediated by Fc can significantly alter the biological activity of Fc fusion proteins. These functions include antibody dependent cell-mediated cytotoxicity (ADCC), which occurs through binding of the Fc domain to Fc receptors (FcR) on immune cells, as well as complement-mediated cytotoxicity (CDC), induced by binding to C1q. Notably, Fc effector functions can be modulated through choice of Fc subclass, mutagenesis, and modification of oligosaccharides. The use of Fc engineering to tailor effector function to clinical indication in this drug class will be discussed.

Biography

Steven Chamow, PhD., has 28 years of experience in biopharmaceutical product development. He is currently principal consultant at Chamow & Associates, Inc., working with biotechnology companies to design and implement development strategies for new therapeutic products. During his career, he served in roles of increasing responsibility at Genentech, Scios, Abgenix, Genitope and Intradigm and has contributed to the development of three marketed products (Avastin, Natrecor, Vectibix). Chamow was educated at the University of California (UC Santa Cruz, B.A. in biology; UC Davis, PhD. in biochemistry), and completed postdoctoral training at the National Institutes of Health. He is author or co-author of more than 50 scientific publications and patents and serves on the editorial board of the journal *mAbs*. Chamow recently completed his second book (*Therapeutic Fc-Fusion Proteins*) published by Wiley-Blackwell and released in 2014.

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