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BioTethering: A novel approach to engineering therapeutics proteins

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Protein therapeutics is a dominant and fast growing sector of the $400 billion global pharmaceutical market. There are over 200 marketed protein pharmaceuticals. Major opportunities exist to bring to market the next generation of biopharmaceuticals. In the era of personalized medicine and targeted drugs (immuno-oncology), novel approaches to engineering proteins/peptides are highly desirable. BioTether Sciences develops enzyme, antibody and peptide therapeutics for cancer, infectious diseases, autoimmune diseases, rare diseases and other unmet medical needs. BioTether Sciences uses novel approaches to increase safety, efficacy and targeting of biopharmaceuticals. The technology involves the tethering of proteins with polymer linkers or using high affinity interactions between ligand-receptor and antibody-antigen. Innovator therapeutics can be greatly improved using this approach or novel tethered therapeutics may be developed. Examples and case studies of engineered proteins will be provided. Peglyation or other polymer linker is used to connect proteins and peptides together thereby increasing molecular weight and bulk. This reduces clearance by the kidney and greatly improves drug half-life. The increased vacancy improves receptor binding. Epitope masking improves specificity of targeting to enhance safety. These approaches have been applied to human growth hormone and therapeutic antibodies. For example, human growth hormone may only last for minutes in the circulation without protein engineering. In another application, an antibody is masked by a tethered antigen that improves targeting.

Biography

Erik D Foehr is a Biotechnology Expert with over 15 years of research and development experience, resulting in numerous publications, patents and innovations that propel the advancement of science, medical treatment and patient care. He has received his PhD in Physiology and Biophysics at the University of California, Irvine and Post-Doctoral Fellowship at the Gladstone Institute of Virology and Immunology. He has a strong scientific background, research capabilities and business acumen that drive effective laboratory operations and project management. His work includes contributions in the areas of regulated bioanalysis and medical device characterization. He has conducted numerous developments, validation and testing studies using a variety of analytical approaches. He has proven leadership of bioanalysis research and drug development projects focused on increasing corporate brand, value proposition and impact to the industry.

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