Chimeric Virus-Like Particles For The Induction Of Autoantibodies

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Technology description

Summary

This invention provides methods and constructs for inducing a B cell mediated antibody response against a self-antigen or tolerogen. Given that many disease states can be alleviated by decreasing the effect of a self-antigen, this invention has broad applicability. Autoantibody therapy might be preferable to monoclonal antibody therapy in some instances because the concentration of the therapeutic antibody would likely remain in an effective range for longer periods, an antibody response to the therapeutic antibody response would not be expected, and a polyclonal autoantibody response might be more effective than the monospecific response of a monoclonal antibody. The inventors have found that by presenting an epitope from the self-antigen as a highly organized array on the surface of virus-like particles (VLP), such as papillomavirus VLPs, that antibodies are raised against the self-antigen. Any therapeutic or prophylactic treatment which involves using monoclonal antibodies against a self-antigen can be replaced with the methods and VLPs of this invention. Examples of such diseases include autoimmune diseases such as rheumatoid arthritis and inflammatory bowel disease, or cancers such as breast cancer. The invention is also useful for producing mouse anti-self-antigen sera or monoclonal antibodies which should find myriad uses. The inventors have demonstrated a potential anti-HIV treatment by raising antibodies against the HIV co-receptor CCR5 in a mouse model system. Bovine papillomavirus L1 protein containing an epitope from an extracellular domain of CCR5 formed VLPs which raised anti-CCR5 antibodies. These antibodies blocked binding by the normal CCR5 ligand, RANTES, and, more importantly, blocked entry of HIV into the cells.

Institution

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