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(54) Title: TARGETING SINGLE EPITOPES

(57) Abstract: The invention relates to novel immunogenic agents that are capable of inducing specific B-cell immunity directed against one single epitope present in a self-antigen. The immunogenic agent is a chimeric binding protein that binds specifically to a first receptor, said first receptor being one that binds a second receptor present in an antigen of an animal, wherein said chimeric binding protein comprises: (a) a B-cell epitope in the form of a binding site that specifically binds the first receptor and which competes with the second receptor for binding to the first receptor, (b) a scaffold protein structure being autologous in said mammal, and (c) at least one tolerance breaking amino acid sequence, which is heterologous in said animal and which binds to an MHC Class II molecule in said animal. In preferred embodiments, the chimeric binding protein is in the form of an anti-idiotypic antibody having a tolerance-breaking aminoacid sequence introduced. The invention further relates to methods of preparing the immunogens and methods of using the immunogens in therapy. Also, the invention relates to proteins, nucleic acid fragments, recombinantly modified host cells and virus that are useful in the practice of the methods of the invention.