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(54) Title: MODIFIED Fc MOLECULES

(57) Abstract: The present invention concerns molecules and a process in which one or more biologically active peptides are incorporated into an Fc domain. In this invention, pharmacologically active compounds may be prepared by a process comprising (a) selecting at least one peptide that modulates the activity of a protein of interest; and (b) preparing a pharmacologic agent comprising an amino acid sequence of the selected peptide in a loop region of an Fc domain. This process may be employed to modify an Fc domain that is already linked through an N- or C-terminus or sidechain to a peptide or to a polypeptide (e.g., etanercept). This process may also be employed to modify an Fc domain that is part of an antibody (e.g., adalimumab, epratuzumab, infliximab, Herceptin®, and the like). In this way, different molecules can be produced that have additional functionalities, such as a binding domain to a different epitope or an additional binding domain to the precursor molecule's existing epitope. The peptide can be selected, for example, by phage display, *E. coli* display, ribosome display, RNA-peptide screening, yeast-based screening, chemical-peptide screening, rational design, or protein structural analysis.



WO 2006/036834 A2