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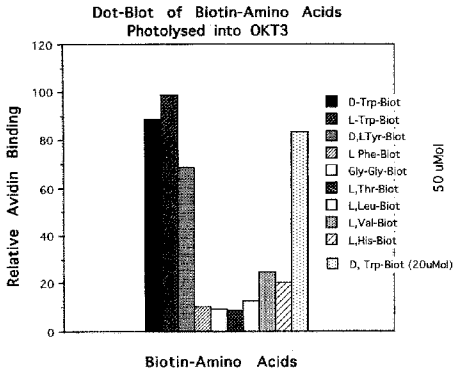
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(54) Title: SUPERANTIBODY SYNTHESIS AND USE IN DETECTION, PREVENTION AND TREATMENT OF DISEASE



(57) Abstract: Superantibodies having enhanced autophilic, catalytic, and/or membrane- penetrating properties are prepared by affinity-based conjugation of a photoactivatable organic molecule to a target immunoglobulin. The photoactivatable organic molecule bears a chromophoric aromatic hydrocarbon moiety, which has affinity for the immunoglobulin. Upon photolysis, the organic molecule is covalently linked to the immunoglobulin. A preferred organic molecule is a peptide and a preferred aromatic hydrocarbon moiety is a tryptophan residue. The photoactivatable organic molecule need not bear a purine, pyrimidine or azido group to effect binding to the immunoglobulin and/or photoactivation. The superantibodies can enhance the potency and expand the targeting range of target antibodies. Autophilic superantibodies can promote apoptosis of target cells and/or enhance therapeutic efficacies in the treatment of patients with diseases or disorders responsive to antibody therapy. Exemplary of such diseases are atherosclerosis and cardiovascular disease. Membrane-penetrating superantibodies can prevent apoptosis by binding to intracellular anti-caspase signal proteins. Compositions containing the superantibodies, as well as methods of making and using them, are disclosed.

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