

ABSTRACT

ANTIGENICITY OF SYNTHETIC POLYPEPTIDE ANTIGENS

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Investigations of the immune response against straight-chain homopolymers, random linear copolymers, and branched multichain polymers of amino acids have employed rabbits, guinea pigs, mice, and humans. These studies from several laboratories have inquired into the structural bases of antigenicity and into several of the parameters contributing to immunogenicity. The straight-chain polymers resemble the fibrous proteins, and the multichain polymers simulate the globular proteins. Linear homopolymers of L or D amino acids and copolymers consisting only of D amino acids are not antigenic. The presence of two L amino acids in a random copolymer is a necessary but not sufficient criterion for antigenicity. The ratio of amino acids in the copolymer is a much more important immunogenic determinant than is the net charge of the polymers. The helix content does not appear to influence antigenicity. Increasing the number of amino acids in a polymer increases the immunogenicity which is now known to vary among species. Research with multichain polymers had indicated (*a*) the importance of accessibility of an immunogenic configuration for antigenicity and (*b*) methods of converting antigenic polymers to nonantigenic polymers.

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