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The use of synthetic peptides provides a powerful new tool for the development of synthetic vaccines against protein antigen. Peptides are valuable pharmacological reagents and useful for immunoassays to measure antibody and cellular responses. Peptides have a number of applications in research aimed at developing new methods of controlling malaria. Vaccine trials were performed utilizing synthetic peptides and recombinant proteins from sporozoite and merozoite proteins with varying degrees of success. Merozoite surface antigen (MSA) is a potential candidate for designing an asexual blood stage vaccine since antibodies to MSA inhibit parasite growth *in vitro*. Synthetic peptides are small molecules so they are usually made immunogenic by coupling to larger protein molecules as carriers. The carrier molecule is necessary to stimulate

T helper cells that cooperate with the B lymphocytes which differentiate to produce antibodies to the peptide epitope. Hypersensitivity has proved to be a drawback with peptides conjugated to toxoid carriers as a malaria vaccine formation.

Two types of peptides, monomeric antigen peptides and multiple antigen peptide (MAP), were synthesized. The MAP system consists of oligomeric branching lysine core and dendritic arms of peptides. Instead of conjugating to carriers, the monomeric peptides will be polymerised through the disulphide linkages and MAPs will be used directly. Based on *Plasmodium falciparum* merozoite surface antigens, 20 to 27 residue peptides, were synthesized by solid phase procedure. The efficiency of coupling of the amino acid at each step was monitored by picric acid treatment and by ninhydrin reaction, and the latter test gave more positive results than the former. The amino acids which contained bulky groups such as glutamate, lysine, arginine gave a positive test with

ninhydrin reaction and required further coupling because of steric hindrance. The yields of the crude monomeric peptides and MAPs ranged from 41.5% to 63.7% and 20% to 57.8%, respectively.