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(54) Title: SUSHI PEPTIDE MULTIMER

(57) Abstract: Endotoxin, also known as lipopolysaccharides (LPS), is the major mediator of septic shock due to Gram-negative bacterial infection. Chemically synthesized S3 peptide, derived from Sushi3 domain of Factor C, which is the endotoxin-sensitive serine protease of the limulus coagulation cascade, binds and neutralizes LPS activity. Fluorescent tagged-S3 is shown to detect LPS-containing bacteria. For large-scale production of S3 and to mimick other pathogen-recognizing molecules, tandem multimers of the S3 gene were constructed and expressed in E. *coli*. Tetramer of S3 for example is shown to display an enhanced inhibitory effect on LPS-induced activities. An affinity matrix based on tetramer of S3 is also shown to be particularly efficient at removing LPS.