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(54) Title: PROTO-ANTIGEN-PRESENTING SYNTHETIC SURFACES, ACTIVATED T CELLS, AND USES THEREOF

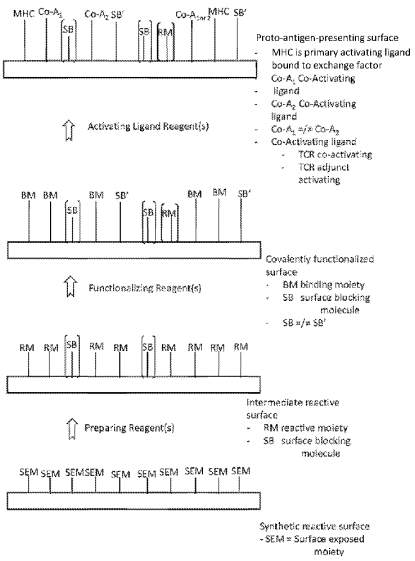

FIG. 5A

(57) **Abstract:** Proto-antigen-presenting surfaces and related kits, methods, and uses are provided. The proto-antigen-presenting surface can comprise a plurality of primary activating molecular ligands comprising a major histocompatibility complex (MHC) molecule configured to bind to a T cell receptor (TCR) of a T cell and a plurality of of co-activating molecular ligands each including a TCR co-activating molecule or an adjunct TCR activating molecule, wherein an exchange factor is bound to the MHC molecules. Exchange factors include, e.g., dipeptides such as GL, GF, GR, etc. Proto-antigen-presenting surfaces can be used to rapidly prepare antigen-presenting surfaces comprising one or more peptide antigens of interest by contacting the proto-antigen-presenting surface with one or more peptide antigens so as to displace the exchange factor. As such, the disclosure facilitates rapid evaluation of the immunogenicity of peptide antigens for activating T lymphocytes.

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