A COCKTAIL OF THERMALLY STABLE, CHEMICALLY SYNTHESIZED CAPTURE AGENTS FOR THE EFFICIENT DETECTION OF ANTI-GP41 ANTIBODIES FROM HUMAN SERA AND TECHNIQUES

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Jessica A. Pfeilsticker

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ABSTRACT

This thesis reports on a method to improve *in vitro* diagnostic assays that detect immune response, with specific application to HIV-1. The inherent polyclonal diversity of the humoral immune response was addressed by using sequential *in situ* click chemistry to develop a cocktail of peptide-based capture agents, the components of which were raised against different, representative anti-HIV antibodies that bind to a conserved epitope of the HIV-1 envelope protein gp41. The cocktail was used to detect anti-HIV-1 antibodies from a panel of sera collected from HIV-positive patients, with improved signal-to-noise ratio relative to the gold standard commercial recombinant protein antigen. The capture agents were stable when stored as a powder for two months at temperatures close to 60^{o}C.

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