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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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°C.
CHAPTER 1: Introduction

1.1 PCC Agent Cocktail for HIV-1 Diagnostics

1.2 References

CHAPTER 2: Developing a PCC Agent Cocktail for the Detection of Anti-HIV

Antibodies

2.1 Introduction

2.2 In Situ Click

2.3 Anchor Selection

2.4 Screening

2.5 Biligand Characterization

2.6 Materials and Methods

2.6.1 Anchor Synthesis

2.6.2 OBOC Screens
2.6.3 Biligand Synthesis....................................................................................24

2.6.4 Assays......................................................................................................27

2.7 Conclusion.....................................................................................................29

2.8 Acknowledgements.......................................................................................29

2.9 References.....................................................................................................31

CHAPTER 3: PCC Agent Based Assay for the Detection of Anti-HIV Antibodies from
Human Sera........................................................................................................33

3.1 Introduction....................................................................................................34

3.2 Patient Sample Assay...................................................................................34

3.3 PATH Sample Assay.....................................................................................37

3.4 Stability Assay..............................................................................................39

3.5 Materials and Methods................................................................................41

3.5.1 Patient Serum ELISA...............................................................................41

3.5.2 PATH Samples ELISA...............................................................................41

3.5.3 Stability Assay..........................................................................................42

3.6 Conclusion.....................................................................................................43
CHAPTER 4: A Selective $^{15}$N-to-$^1$H Polarization Transfer Sequence for More Sensitive Detection of $^{15}$N-Choline

4.1 Abstract

4.2 Introduction

4.3 Theory

4.4 Experimental

4.5 Results and Discussion

4.6 Conclusion

APPENDIX A: Understanding PCC Agent Binding to Single Point Mutation E17K of Akt1

A.1 Introduction
A.2 Peptide Capture Agent Against E17K Mutation of Akt1 PHD.....................73

A.3 Construction of E17K and WT Systems.....................................................73

A.3.1 yleaf-tosyl-biotin........................................................................73

A.3.2 Ligand/Protein Complexes.................................................................74

A.4 Molecular Dynamics..............................................................................78

A.5 Binding Energy.......................................................................................80

A.6 Conclusion.............................................................................................85

A.7 Acknowledgements.................................................................................85

A.8 References.............................................................................................86

APPENDIX B: Peptide-Based General Antibody Detection Agent..................87

B.1 Introduction............................................................................................88

B.2 Wells Peptide..........................................................................................88

B.3 Biligand Screen......................................................................................89

B.4 1,4 Triazole Linked Biligand Characterization.........................................92

B.5 1,5 Triazole Linked Biligand Characterization.........................................92

B.6 Click Cyclized Wells...............................................................................97
APPENDIX C: Algorithm for Peptide Clustering.................................................................108

C.1 Introduction........................................................................................................109

C.2 Persistence Clustering.........................................................................................109

C.3 Algorithm Description.........................................................................................111

C.4 Output................................................................................................................111

C.5 Function Code...................................................................................................117

C.6 Conclusion.........................................................................................................123
C.7 Acknowledgements..................................................................................................................123

C.8 References..................................................................................................................................124

APPENDIX D: A cocktail of thermally stable, chemically synthesized capture agents for the efficient detection of anti-gp41 antibodies from human sera (PloS one 2013, 8, e76224)...................................................................................................................................................125

APPENDIX E: A Selective $^{15}$N-to-$^1$H Polarization Transfer Sequence for More Sensitive Detection of $^{15}$N-Choline (Journal of Magnetic Resonance 2010, 205, 125-129)......131
LIST OF FIGURES, SCHEMES, AND TABLES

FIGURES, Chapter 2:

Figure 2.1. Differential detection of 3D6 and 4B3 by anchor ligands.................................12

Figure 2.2. Structures of peptide ligands in PCC Agent cocktail........................................17

Figure 2.3. Apparent affinity of A21 and biligands directed against 3D6 as
determined by SPR........................................................................................................18

Figure 2.4. Apparent affinity of A22 and biligand directed against 4B3 as
determined by SPR........................................................................................................19

Figure 2.5. Performance of PCC agent cocktail to detect 3D6 and 4B3 from
human serum....................................................................................................................20

FIGURES, Chapter 3:

Figure 3.1. Patient sample ELISA.......................................................................................36

Figure 3.2. PATH sample ELISA.......................................................................................38

Figure 3.3. Stability assay..................................................................................................40
FIGURES, Chapter 4:

Figure 4.1. A refocused INEPT pulse sequence for polarization transfer from $^{15}\text{N}$ to $^1\text{H}$ for detection..........................................................51

Figure 4.2. The structure of $^{15}\text{N}$-choline..........................................................52

Figure 4.3. Selective refocused INEPT pulse sequence for coherent polarization transfer from $^{15}\text{N}$ to methyl $^1\text{H}$ in $^{15}\text{N}$-choline..........................................................57

Figure 4.4. Numerical simulation of the selective $^{15}\text{N}$-to-$^1\text{H}$ INEPT pulse sequence acting on a simplified spin system.................................................60

Figure 4.5. Comparison of $^1\text{H}$ spectrum using selective $^{15}\text{N}$-to-$^1\text{H}$ INEPT sequence to $^{15}\text{N}$ spectrum..........................................................62

Figure 4.6. Measurement of the $^{15}\text{N}$ longitudinal relaxation time of $^{15}\text{N}$-choline in D$_2$O solution using a modified version of selective $^{15}\text{N}$-to-$^1\text{H}$ INEPT sequence........63

Figure 4.7. Amplitude of the methyl $^1\text{H}$ signal observed in $^{15}\text{N}$-to-$^1\text{H}$ INEPT spectra of $^{15}\text{N}$-choline using selective and non selective pulses.................................65

FIGURES, Appendix A:

Figure A.1. Structure of yleaf-tosyl-biotin..........................................................75
Figure A.2. Top three ZDOCK predicted conformations...........................................76

Figure A.3. Selected ligand conformation complexed with the mutant and
wild type PH domains..................................................................................................77

Figure A.4. Rmsd plots for the MD trajectories and restarted trajectories of the
E17K and WT complexes...............................................................................................79

Figure A.5. Energy landscapes obtained from Rosetta ab initio structure
prediction simulations on Rosetta@home......................................................................81

Figure A.6. Energy landscape for E17K complex................................................................82

Figure A.7. Energy landscape for WT complex................................................................83

Figure A.8. Structures of the E17K and WT reference states.........................................84

FIGURES, Appendix B:

Figure B.1. Structures of peptide biligands identified in screen against IgG Fc............93

Figure B.2. Apparent affinity of Wells and biligands directed against Fc as
determined by sandwich ELISA..................................................................................94

Figure B.3. Structure of 1,5 triazole linked biligand.....................................................95
Figure B.4. Apparent affinity of Wells and 1,5 triazole linked WA directed against Fc as determined by sandwich ELISA.................................................................96

Figure B.5. Structure of Cu(I) click cyclized Wells peptide..........................................................98

Figure B.6. Performance of click cyclized Wells peptide variants compared to Wells peptide tested by sandwich ELISA.................................................................99

FIGURES, Appendix C:

Figure C.1. Discs formed around points with growing radius ε..................................................110

Figure C.2. Illustrative example of how lifetimes of clusters are computed.........................112

Figure C.3. Projection of the peptides onto the top two eigenvectors taken from the diagonalization of the covariance matrix. .........................................................114

Figure C.4. Plot of eigenvectors vs. their associated eigenvalues.................................115

Figure C.5. Visual representation of the components of the top four eigenvectors.................................................................116
SCHEMES, Chapter 2:

Scheme 2.1. Screening strategy for selecting capture agents against anti-HIV antibodies 3D6 and 4B3.................................................................14

SCHEMES, Appendix B:

Scheme B.1. Screening strategy for selecting capture agents against human IgG Fc..........................................................................................90

TABLES, Chapter 2:

Table 2.1. Biligand screen results.........................................................................................15

TABLES, Appendix B:

Table B.1. Biligand screen results........................................................................................91

TABLES, Appendix C:

Table C.1. List of clusters and their associated lifetimes calculated for the hits resulting from the A22/4B3 screen.........................................................113