

Combinatorial Peptide Array Synthesis Based on Microfluidic Impact Printing

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Materials

Glass slides were purchased from Corning Inc. (3-Acryloxypropyl)trichlorosilane was obtained from Gelest, Inc (Morrisville, PA). IPA (Isopropyl Alcohol), ethanol and TFA (Trifluoroacetic acid) were purchased from EMD Serono Inc. PEGDA (Polyethylene Glycol)-diacrylate (Mw 700), 4-methyl piperidine, Trimethylolpropane ethoxylate triacrylate (crosslinker), 2-hydroxyl-2-methylpropiophenone (photo initiator), 2-aminoethylmethacrylate, DIPEA (N, N'-Diisopropylethylamine), dimethyl sulfoxide (DMSO), DIC (1, 3-Diisopropylcarbodiimide), Acetic anhydrous, Phenol, Thioanisole, TIS (Triisopropylsilane), Bromophenol blue sodium salt, and N, N' - Dimethylformamide (DMF) were purchased from Sigma-Aldrich. Anhydrous toluene and anhydrous DMF was purchased from Acros Organics. PDMS base and curing agent (Sylgard 184) were purchased from Dow Corning Inc. UPA (4-[(N'-2-methylphenyl)ureido]phenylacetic acid) was obtained from Kit Lam Lab, UC Davis, synthesized by Ruiwu Liu, according to the method described in previous publication ^[1]. Fmoc-protected L-amino acids were obtained from SynPep Corporation (Dublin, CA). Glycerol was obtained from Fisher Scientific. 6Cl-HoBt (1-Hydroxy-6-chloro-benzotriazole) was purchased from AAPPTec, LLC. Jurkat cells were obtained from American Type Culture Collection (ATCC). RPMI (Roswell Park Memorial Institute) 1640 medium, FBS (fetal bovine serum) and PS (Penicillin Streptomycin) were purchased from Life Technologies.

Protein sequencing standard

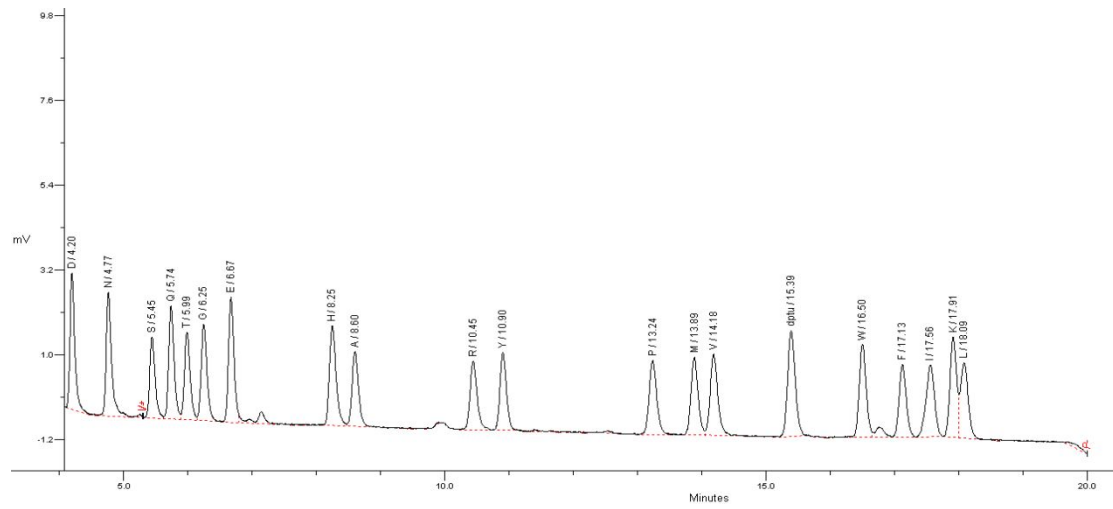


Figure S1. Standard amino acid absorption results for protein sequencer.

Sequencing results for 4 cycles

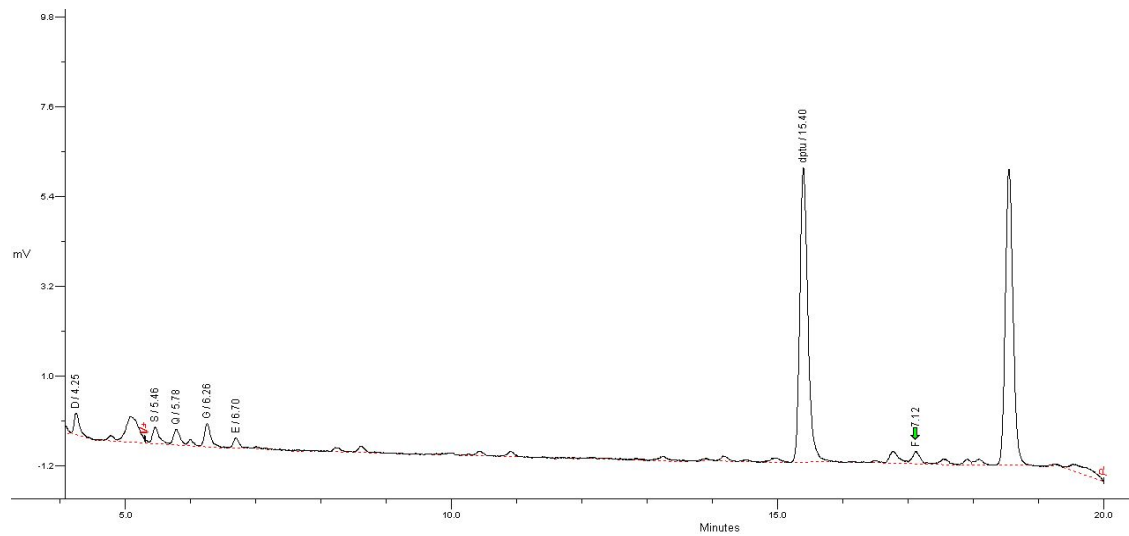


Figure S2. First sequencing cycle (Nle).

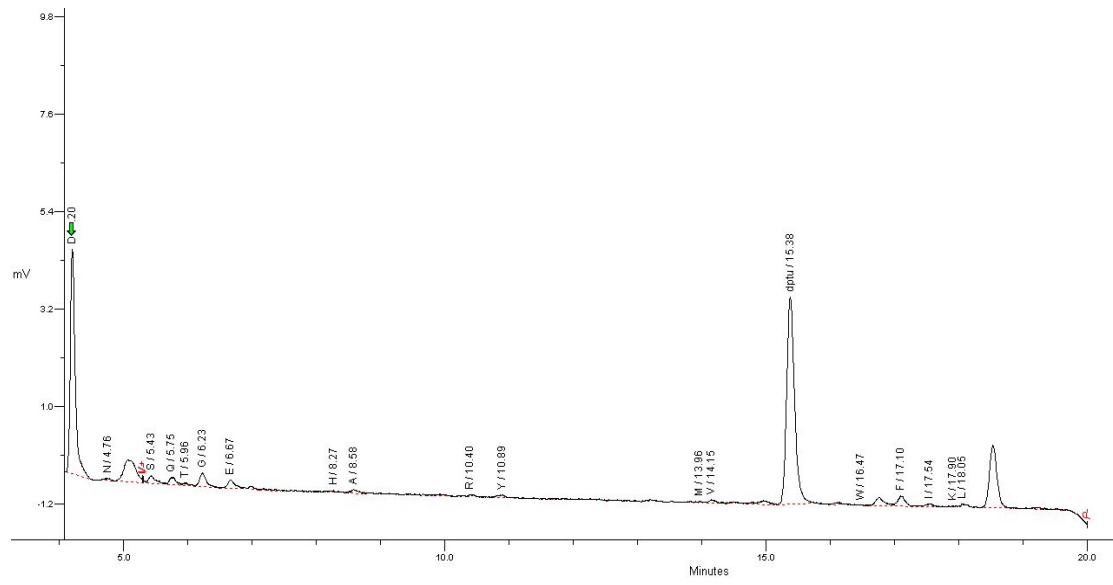


Figure S3. Second sequencing cycle (Asp).

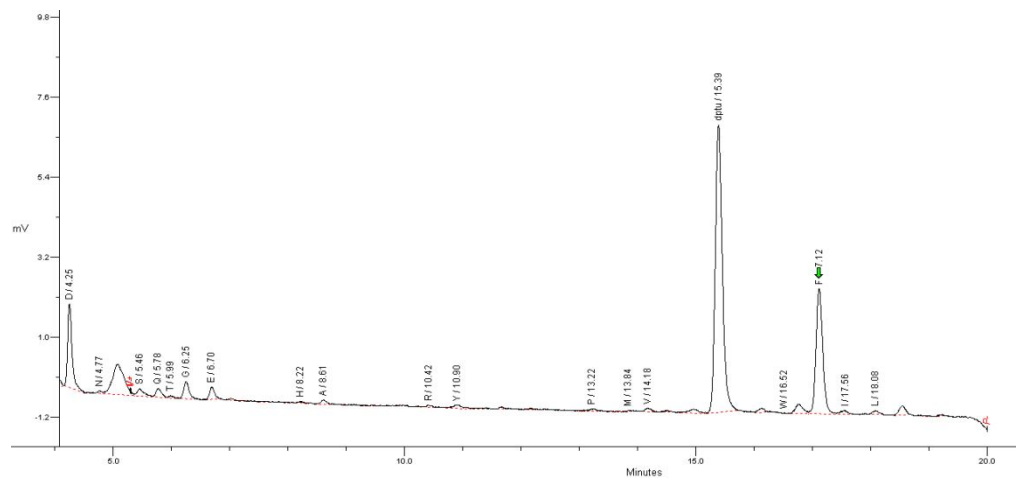


Figure S4. Third sequencing cycle (Phe).

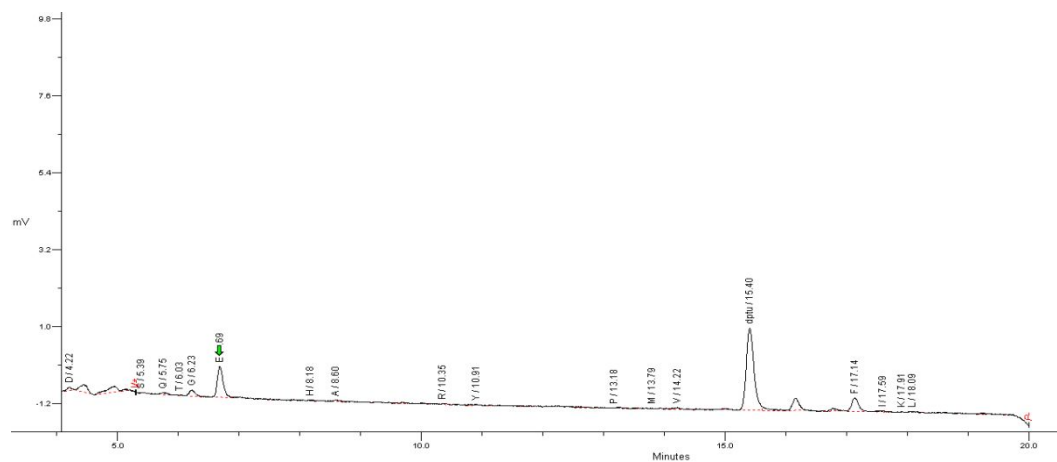


Figure S5. Forth sequencing cycle (Glu).

Whole cell binding map

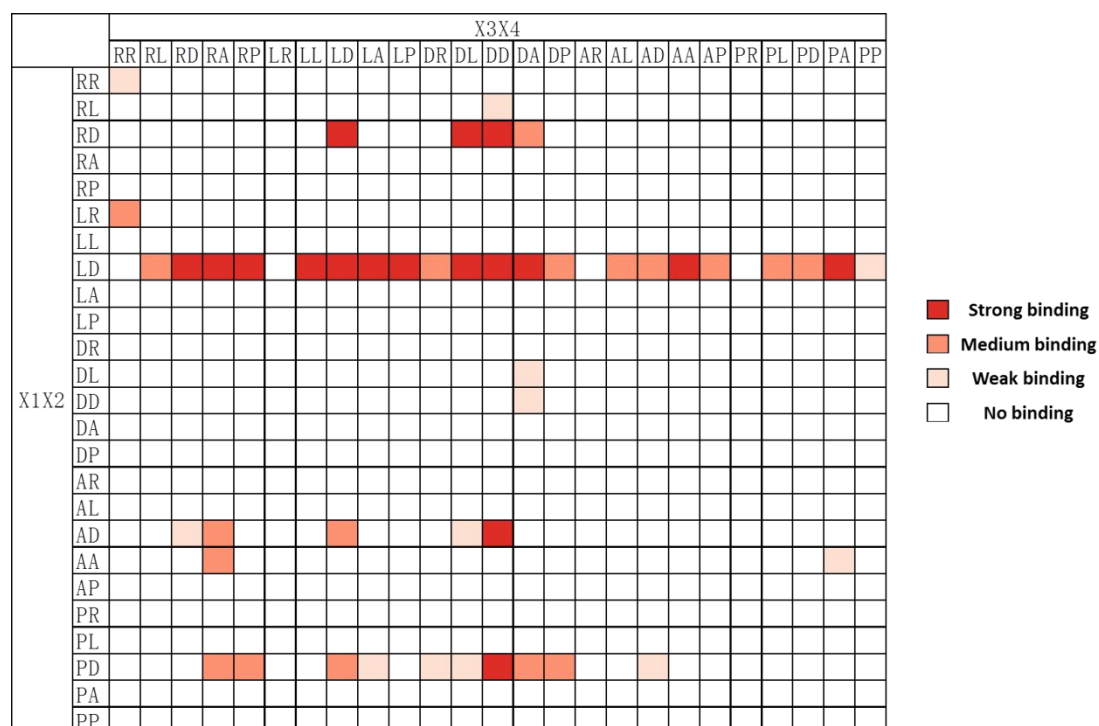


Figure S6. The cell binding map for the whole library.

Selective cell binding results

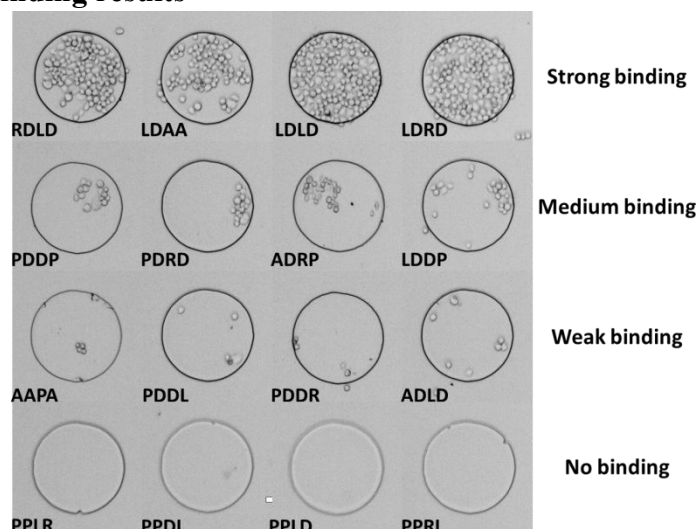


Figure S7. Cell binding result for different categories of binding affinity.

Reference

[1] L. Peng, R. Liu, J. Marik, X. Wang, Y. Takada and K. S. Lam, "Combinatorial Chemistry Identifies High-affinity Peptidomimetics Against $\alpha_4\beta_1$ Integrin for in vivo Tumor Imaging", *Nature Chemical Biology*, Vol. 2, Jul. 2006.