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Rapid Affinity Measurement of Peptide Ligands

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Inventors

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Invention Description

The search for novel lead peptides is of paramount interest in both academia and industry. However, rapidly identifying the best candidate peptides from an *in vitro* screen or selection remains problematic. Current approaches are both expensive and time-consuming, as they rely on characterization methods that require large quantities of peptides constructed by solid phase synthesis. Thus, there is an urgent need for rapid and cost-effective strategies for peptide characterization.

Researchers in the Biodesign Institute at Arizona State University have developed a cell-free peptide synthesis and characterization method for rapid and inexpensive ranking of peptides present in the output of a screen or selection. This method utilizes a novel technique to measure the relative and specific binding affinity of the peptides to their correct antigen of interest. This technology eliminates the need for large quantities of peptides constructed by solid phase synthesis, making this methodology very useful when screening and characterizing large numbers of binding peptides.

This unique method provides a cell-free approach for high throughput peptide characterization with solution binding affinities. It allows for peptide characterization in 2-3 days compared to 4-6 weeks, and will enable binding peptides to be validated on an unprecedented scale.

Potential Applications

- Basic research
- Accelerated discovery of new affinity reagents
  - Therapeutics
  - Diagnostics
  - Personalized medicine

Benefits and Advantages

- Rapid identification; peptide characterization in 2-3 days vs. 3-4 weeks per peptide with current methods
- Efficient; able to utilize very small amounts (as little as 5 nanomoles) of *in vitro*-synthesized peptides in order to analyze peptide binding kinetics
- Cost-effective; hundreds of peptides can be synthesized and purified within a matter of days at a cost that is 10-fold less than conventional strategies ($25 per peptide vs. $250 per peptide)
- Cell-free; doesn't waste patient samples
- Amenable to high throughput automation

Intellectual Property Status:

Patent Pending

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