

**Controlling the selection stringency of phage display using a microfluidic device.**

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**Public Summary:**

we report the utilization of microfluidic technology to phage selection - selecting bacteriophage with peptides displayed on their surface - and demonstrate that accurate control of washing stringency in our microfluidic magnetic separator directly impacts the diversity of isolated peptide sequences. These findings may provide a foundation for the development of automated microsystems for rapid in vitro directed evolution of affinity reagents.

**Scientific Abstract:**

We report the utilization of microfluidic technology to phage selection and demonstrate that accurate control of washing stringency in our microfluidic magnetic separator (MMS) directly impacts the diversity of isolated peptide sequences. Reproducible generation of magnetic and fluidic forces allows controlled washing conditions that enable rapid convergence of selected peptide sequences. These findings may provide a foundation for the development of automated microsystems for rapid in vitro directed evolution of affinity reagents.

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