

Two types of phage-displayed combinatorial peptide libraries were successfully constructed. The first library (R8) display 8-amino acid long linear peptide. The second library (X7C) promote the display of cyclic peptide of the same length. Both of the libraries display approximately 10^9 different peptides. These two libraries were constructed in a specially designed plasmid that will facilitate the screening process. This kind of library is not available commercially.

To demonstrate the efficacy of the two libraries, we have used them to screen for the phage that bind specifically to SH3 domain of Intersectin and ENTH domain. We were able to isolate phages that specifically interact with Intersectin's SH3 domain. Amino acid sequences of the isolated phage contain the core motif that corresponds with previous studies. However, using the standard panning method, we were not able to isolate phage that bind to ENTH domain, thus adjustment of the screening condition need to be done in future study.

These two libraries will be useful for future studies in a wide area of biotechnological researches that involve the studies of interactions between molecules.