

Screening of Pb₂₊ binding peptide by chromatographic biopanning protocol

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Recently, a considerable amount of attention has been paid to so-called endocrine disrupting chemicals (EDCs). EDCs are defined by biological effect not by chemical nature and thus a wide variety of pollutants or chemicals can be collectively referred to as EDCs. Pb²⁺ is also known as one of metal ions belonging to EDCs. For fast and reliable analysis of EDCs, biosensors seem to be the effective monitoring technology of choice. As an initial stage of biosensor development, searching for specific ligand to EDCs is needed. In this study, phage display technology using constrained peptide sequence of 7-mer amino acid was investigated to screen the peptide sequence with high affinity and specificity to lead ion. Four rounds of positive and negative biopanning protocol were applied to search for proper phage particle starting from whole constrained phage library, but the modified elution process named as chromatographic biopanning was used in order to effectively differentiate the relative affinity of each screened peptide to lead ion by one-step elution process. The sequence of screened peptide is presented and the effectiveness of modified elution process of chromatographic biopanning to judge the relative affinity will be discussed.