Selection of CEA(Carcinoembryonic antigen) specific single strand DNA through SELEX procedure

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Aptamers are nucleic acid species that have been engineered through repeated rounds, SELEX (systematic evolution of ligands by exponential enrichment) to bind to various molecular targets. They offer the utility for biotechnological and therapeutic applications as they have molecular recognition properties that rival that of the commonly used biomolecule, antibodies. Carcinoembyonic antigen(CEA) is a glycoprotein involved in cell adhesion. It was found that serum from individuals with colorectal, gastric, pancreatic, lung and breast carcinomas had higher levels of CEA than healthy individuals. CEA measurement is mainly used as a tumor marker to identify recurrences after surgical resection. CEA has bond on the magnetic bend through chemical bonding and it was confirmed by CEA specific antibody (ELISA). Through the repeated rounds of SELEX, specific single strand DNA was recovered and verified by its binding affinity.