Serum cholesterol profiling using DNA aptamer-based fluorescence polarization assay

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Rapid cholesterol measurement kits are in their infancy. The kits currently on the market can only measure the total cholesterol content. These kits cannot quantify cholesterol (LDL-C) and high-density lipoprotein (HDL-C) separately. The objective of our research is to develop simple, rapid and solution based method using single stranded DNA (ssDNA) aptamers in conjunction with fluorescence polarization technique for complete profiling of serum cholesterol particle.

Aptamers are emerging affinity receptors that provide significant advantages over antibodies that are presently used in affinity-based monitoring because they are easy to generate (unlike antibody, aptamer production does not require animal host or mammalian cell culture) and have affinity comparable to antibodies.

In this paper we will report the screening, characterization and application of ssDNA aptamers for apolipoprotein A (ApoAI) and Apolipoprotein B (ApoB), protein component of HDL-C and LDL-C particles selected as the target for the aptamers, selected using Systematic Evolution of Ligands by EXponential enrichment (SELEX) method.

References

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