

DNA aptamers combined with biosensors for biomarker measurement in human serum

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Vista Therapeutics, Inc. and Base Pair Biotechnologies, Inc. are collaborating to create a powerful collection of Nanowire-Aptamer probes whose sensitivity and ease of use is currently unmatched. Using Vista's proprietary 'Universal Linker' system, aptamers can be readily attached to Vista's nanowires without modification. Vista has demonstrated that Base Pair's aptamers can be used quite successfully with nanowires as probes for protein analyte seven in human blood serum. Because aptamers are small, have a single attachment site, and because they are linearized prior to covalently attaching them, they coat the nanowire surface much more thoroughly than antibodies. This increases signal strength and greatly improves the signal: noise ratio. In addition, aptamer-coated nanowires can be dried and rehydrated many times without loss of signal. And since aptamers are simply DNA strands, Vista and Base Pair can easily create Nanowire-Aptamer probes to DNA, mRNA, microRNA. Using Nanowire-Aptamer probes, the end user can measure combinations of transcripts, proteins, microRNA's and DNA sequences in the same reaction. We present specific detection of Heat Shock Protein 27 (HSP27) and fibronectinin PBS and blood serum by aptamers selected by Base Pair and immobilized on Vista nanowires.

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