

Affinity Biosensors for Detection Immunoglobulin E and Cellular Prions. Antibodies vs. DNA Aptamers

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Abstract

© 2016 WILEY-VCH Verlag GmbH & Co. KGaA, WeinheimImmuno sensors for detection of proteins are of high importance for medical diagnostics. There exists continuous effort in their development using new methods of antibody immobilizations at the various surfaces including novel nanomaterials, such as carbon nanotubes, graphene, dendrimers and combination of these materials with nanoparticles of various origin. At the same time as an alternative to antibodies DNA or RNA aptamers are considered as novel receptors during last 2 decades. In contrast with antibodies aptamers are more flexible and stable, allowing various chemical modification without lost of their sensitivity. This review compares the properties of existing immuno- and apta sensors for detection human immunoglobulin E (IgE) and cellular prions (PrPC). It has been shown, that both immuno- and apta sensors are of comparable sensitivity and selectivity that depends on the method of receptor immobilization and detection.

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Keywords

Antibody, Aptamer, Carbon nanotubes, Cellular prions, IgE