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Interactive model for DNA specificity and selectivity and biosensor validation

Abstract

Specific and selective detection of biomolecule has become major research quest of scientist community, most diseases are curable however, early specific detection and selective nature determine this capabilities, thus need rogue sensor specificity and selectivity testing. Sensor specificity/selectively largely depend on the robust validation approach adopted. This paper presents the interactive Model for DNA Specificity and Selectivity in Biosensor Validation. The partial charge induced due to hybridization of complementary ssDNAs caused a significant change in the conductance of sensor specific potential. The interactive model of inorganic and organic behaviour was calculated based on first principle. The partial charge due to ssDNA and dsDNA molecule was computed using molecular dynamics (MD) simulation. The results show that, the full and identification of compliment, mismatched with precise sequence of acid bonds with specific time response of 1016 and 1020 for 0.0095 ns, 0.008nS respectively. With this fast and accurate response, the model could be used for the biosensor validation.

Keywords

Bio sensor; DNA; Speciality; Specific; Validation