Title : Molecular imprinting polymers electrochemical sensor for highly sensitive detection of carcinoma embryonic antigen

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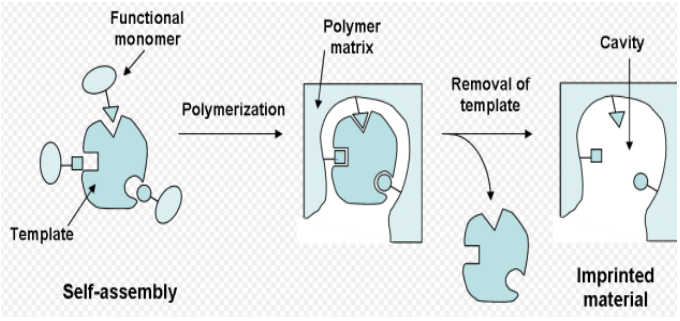
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Keywords : CEA, electrochemical, biosensor, MIPs, Molecularly-imprinted polymer.

I. Abstract :

Carcinoma embryonic antigen (CEA) is a vital cancer biomarker for colon cancer and some other carcinomas . It is a glycoprotein with a molecular weight about 180 kDa. CEA is normally expressed in serum less than 2.5 mg/L. whereas, this amount in smokers is below 5.0 mg/L. Therefore, practical approaches for the identification of the CEA concentration in human serum have a crucial role in the monitoring of the stage of cancer, prognosis and reactivation of disease . This work will describe an electrochemical CEA sensor based on molecularly imprinted polymer technique so it does not depend on the direct biological recognition motif between antibodies and antigens. The electroactive substance will be modified on the surface of GCE and the formed "Polymer-CEA" mixture by electropolymerization method will be fixed on the modification electrode surface. It is expected that the polymer layer will promote CEA binding by imprinting the cavity partially capped with the surface-restricted imprinting of the protein. After CEA removal, the CEA rebinding properties are expected to be superior to antibody binding by rebinding of the polymer binding sites. Differential pulse voltammetry (DPV) will be used to assess the binding properties of MIP sensors to CEA.

II. Image:



A schematic diagram for Molecular Imprinting Polymers

III. References:

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IV. Biography:

Mr. Fatah BENMOUSSA has completed his chemical engineering studies in the age of 24 years from the University Of Kasdi Merbah Ouargla (UKMO),Algeria. He is a PhD student at Kasdi Merbah University in Ouargla ,Algeria . He has published two papers about the asymmetric reduction of acetophenone.

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