

Convocatoria de ayudas para la realización de proyectos coordinados en el marco de IBEROS. Anualidad 2017

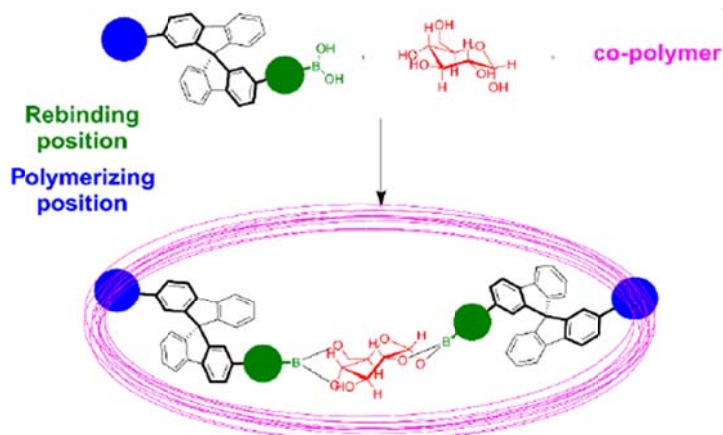
Proyecto concedido

DATOS GENERALES:

Título proyecto: <u>Chiroptical-Imprinted Glucose Sensors -CIGluSens-</u>
Entidades participantes (mínimo 2 entidades): Instituto Superior de Engenharia do Porto Universidade de Vigo
Grupos de investigación: BioMark – Sensor Research Nuevos Materiales
Investigadores principales: Manuela Frasco; Goreti Sales Lorenzo Alonso
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OBJETIVOS DEL PROYECTO (máximo 100 palabras):

Recently, the advantages of chiroptical responses to address sensing challenges have been demonstrated by different studies. For blood samples, for instance, the absorption of circularly polarized light with negligible transmittance is possible, unlike for the typically used unpolarized light. Additionally, a target molecule may be identified by the characteristic chiroptical responses when interacting with the detector, a task far from being trivial for non-chiral techniques.



In this project, glucose detection with good sensitivity and selectivity is aimed by means of chiroptical responses of imprinted polymers incorporating tailored chiral fragments.

PLAN DE TRABAJO:

Imprinted Polymers (IPs) is a low-cost and simple approach for designing selective binding sites in polymeric matrices using the target molecule as template. This technology offers great promise for the development of stable artificial bio-sensing elements. The combination of this versatile technique with axially chiral fragments opens a possibility for rapid development of chiroptical sensors.

In addition, the production of thin-film IPs is a simple and straightforward process with electropolymerization. The single requirement herein is a substrate with suitable conductivity properties. Several monomers may be used, mostly aromatic derivatives. The specific tasks are presented below:

- Preparation of conducting semitransparent substrates suitable for chiroptical properties measurements via transmittance. (S. Chiussi)
- Synthesis of chiral fragments (CF) incorporating glucose receptor and co-polymerizing group. (L. Alonso and for incorporation of transition metals S. Bolaño)
- Selection of conditions/materials for the production of transparent electropolymerized materials. (M. Frasco)
- Imprinted polymer formation. (M. Frasco)
- Chiroptical Glucose sensing. (L. Alonso and M. Frasco)

