Solid supports for Dendrimers. Preparation and Bio-Applications.

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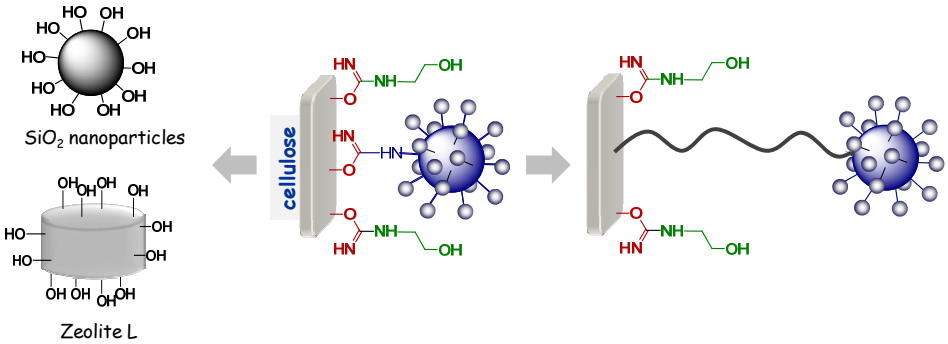
β-lactam antibiotics (BL) are the most frequently drugs involved in allergic reactions. IgE recognition is produced after the opening of the BL ring by different macromolecules, usually serum or cell bound proteins to form hapten-carrier conjugates. Conjugation of BL to a macromolecular carrier has been used as a tool for the *in vitro* test for diagnosing. RAST is a blood test used to determine what a person is allergic to, based on the amount of IgE reacting specifically with suspected or known allergens.[1] Classical conjugation of HSA (Human Serum Albumin) with penicillin has been proposed as hapten-carrier structure for the assays, despite of as a protein, HSA is chemically complicate to work. PLL (poly-L-Lysine) is a versatile homopolimer, however they use as carrier in the *in vitro* assays lacks of reproducibility due to differences in the degree of polymerization and subsequent functionalization. We use dendrimeric nanostructures in the formation of the hapten-carrier conjugate in order to solve these problems with successful approach. We use the PAMAM peniciloyllated derivatives as hapten-carrier for *in vitro* testing, using cellulose-disk as solid support.[2,3] The results of the RAST were really successful. Nevertheless, the internal side of the dendrimeric structure is not accessible to IgE, because of steric hindrance. We developed a new methodology to covalently bind the dendrimer to the solid support using spacers between both. We used desymmetrized polyethylene glycol chains of different length to control the distance between the dendrimer and the solid support.[4] On the other hand, the shift from cellulose (fibrous and rough surface, with holes that can host the dendrimer) to nano/microstructure transparent surfaces as zeolites or silica nanoparticles seems to be an important improvement in our system. The presence of a flat and highly functionalized substrate compared with cellulose will allow a high coverage with the peniciloyllated PAMAM dendrimers.



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