MANAGING WITH (FLUORESCENT)-BIOMIMETIC DENDRIMERS

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Dendrimers that are modified through their peripheral groups have been employed for many biomedical purposes. Diagnosis via specific interactions with target proteins is one of the objectives that has been given more attention. In this way, we have been developing different methodologies for the detection of immunoglobulins, as an *in vitro* method for the diagnosis of allergic reactions to drugs [1], [2].

Specific cell interactions of surfaces grafted dendrimers have been applied to the study of cell adhesion. We have studied also the application of dendrimer-based uneven nanopatterns to evaluate the local RGD surface density effects on cell adhesion, as bioactive substrates to evaluate the impact of the RGD local surface density on the chondrogenic induction of adult human mesenchymal stem cells [3], [4], [5].

Although the use of PAMAM dendrimer has allowed us to develop useful methods for this purpose, for certain objectives we have required the development of new dendrimeric models. We have developed a new approach for the production of all-aliphatic polyamide dendrimers (BAPAD) by iterative 3,3′-diaminopivalic acid connections as building blocks for dendrimer construction. These dendrimers were studied in explicit solvent by atomistic forcefield-based molecular dynamics to characterize structural properties such as shape, radius and monomer distribution [6].

Fluorescent labeling of these biomimetic dendrimers has been used as a tool to study their interaction with cells.

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