

SYNTHESIS AND USE OF DENDRIMERIC STRUCTURES AS A TOOL IN BIOMEDICINE

Ezequiel Perez-Inestrosa,^{1,2} Yolanda Vida,^{1,2} Noemi Molina,^{1,2} Anjara Morgado,^{1,2} Francisco Najera^{1,2}

¹ *Department of Organic Chemistry, University of Málaga, IBIMA, 29071-Málaga, Spain*

² *Andalusian Center for Nanomedicine and Biotechnology-BIONAND, Málaga, Spain*

E-mail: inestrosa@uma.es

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. Dendrimers that are modified through their peripheral groups have been employed for many biomedical purposes.

IgE detection via specific interactions with synthetic Dendrimeric Antigens (DeAn) is also one of the objectives that have given more attention in our group. 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.

We have required the development of new dendrimeric models for the study and application of these biomedical areas. We have developed a new approach for the production of all-aliphatic polyamide dendrimers 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.