

### DENDRALGENE - Design of new gene delivery vectors based on dendrimers, alginate and RGD for bone tissue engineering

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**Characterization:** To date, there is still no completely effective clinical solution to regenerate the damaged bone. The bone tissue engineering through the local delivery of genes is an emerging area that is attracting considerable excitement among researchers and clinical staff, building on the idea of promoting cellular proliferation and differentiation within a matrix, as well as the secretion by cells of mitogen and / or morphogens by transfection and expression of genes. To achieve this goal it is necessary to develop vectors for gene delivery that are efficient.

#### **Objectives:**

- Development of new vector-based PAMAM dendrimers and alginate coupled with RGD peptides for efficient delivery of genes into cells that produce bone;
- For the two families of vector preparations: 1) studying the internalization and cytotoxicity, 2) to study their interactions with the DNA plasmid, 3) evaluate the efficiency of transfection.