

DENTAL PULP REGENERATION

ALLOGENEIC DENTAL PULP REGENERATION THERAPY USING A MATRIX COMPOSED OF BIOMATERIAL AND MESENCHYMAL STEM CELLS.

DENTISTRY

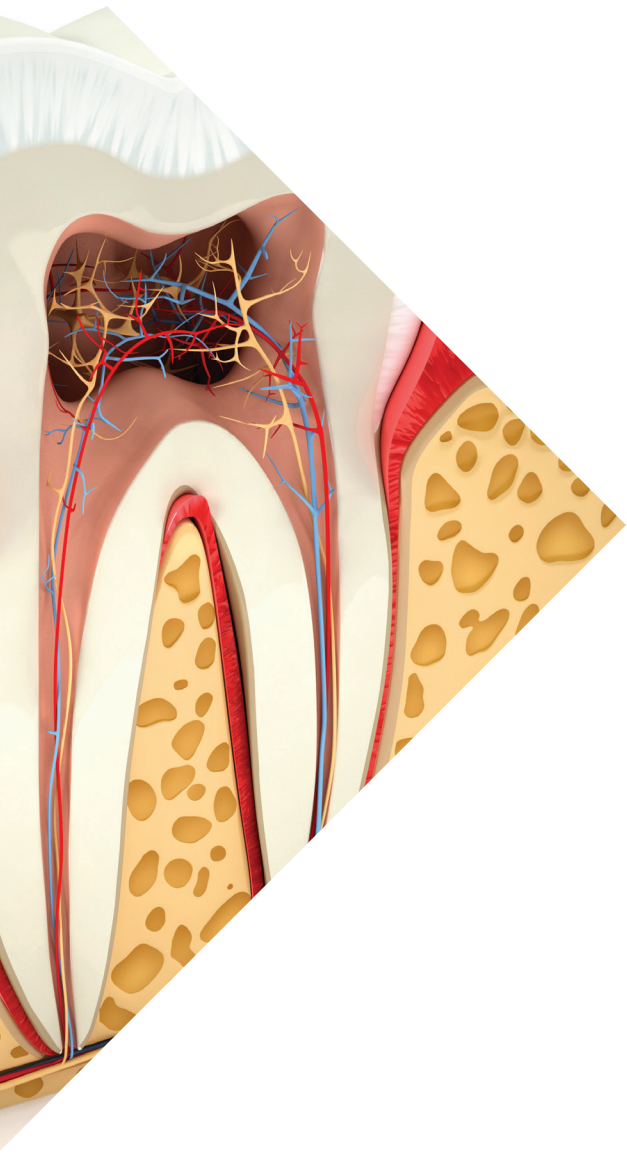
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MARKET

This technology is to be used as a regenerative therapy in endodontics. In the United States, 35 million root Canals (endodontics) and tooth extractions are performed annually. In Chile, approximately 350.000 of these treatments are done yearly, with an estimated cost of about 11 million dollars. The market size is estimated to be in the range of 20.3 to 29 billion dollars.

UNMET NEED

Caries is still a disease with a high prevalence in Chile and in the rest of the world. It affects between 60% to 90% of school children and 98% of adults worldwide. When it comes to uncontrolled cavities, it damages the dentine and cementum, which have a limited ability to regenerate and can lead to the infection of the dental pulp. Current solutions for uncontrolled caries include endodontic or root canal therapy. In this treatment the dental pulp is removed and replaced with an inert material inducing the loss of sensibility and sometimes a change of color and tooth removal. Therefore, there is a great need of a treatment that is able to regenerate the dental pulp to avoid all secondary effects of a root canal treatment.



SOLUTION

The AAE recognizes the tremendous future potential in regenerative endodontics and has made the cultivation of endodontic leadership in this field a strategic priority. In this line, researchers at Universidad de los Andes have developed a regenerative endodontic procedure supported by tissue engineering, which facilitates the growth and enhance the pulp repair. The developed product consists of an off-the-shelf formulation of mesenchymal stem cells and a natural matrix (rich in growth factors) that can be used in patients of all ages, without the need of extracting their own cells. It regenerates the dental pulp that was damaged or dead and restores vitality in the tooth allowing it to conserve its sensibility, structural integrity and esthetic color.

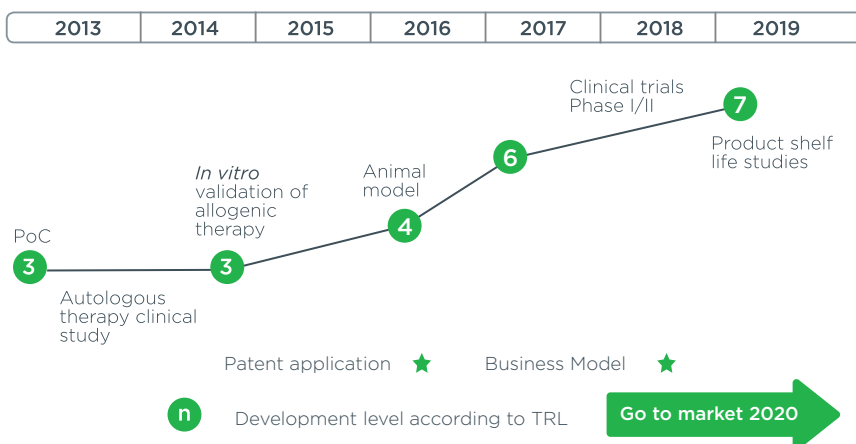
ADVANTAGES

- Provides nutrition to the tooth.
- Allows the continuous formation of dentin, important in the apical closure of the young permanent teeth.
- Maintains tooth sensitivity to perceive environmental changes.
- Conserves the natural color of the tooth enamel.
- Maintains the structural integrity of the piece to improve its biomechanical behavior.

INTELLECTUAL PROPERTY

Provisional patent filed.

STATE OF DEVELOPMENT



BUSINESS SUMMARY DEPARTMENT OF INNOVATION

The Dirección de Innovación of the Universidad de los Andes seeks to support, canalize and efficiently manage the results from research conducted at the University to the public and private sector, both national and international. This is done in order to promote the transfer and application of the knowledge generated in the University so as to benefit the society and contribute to the economic development.

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PROJECT DIRECTOR

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> Endodontics specialist and master's degree in education. In the last five years, in addition to teaching and clinical work, she has worked on dental regeneration research through public and private funding, with the support of Conicyt and Corfo.

RESEARCH TEAM

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