

Human Bone Regeneration in MAXillo-facial area using an innovative medical device for Tissue engineering (BRIMAX)

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Bone regeneration today is one of the most important challenges for medicine and the need for this is particularly evident in the maxillo-facial area: our clinical trial will be based on a model of bone defect as in alveolar socket preservation and sinus lift augmentation, well described surgical techniques. The RIGENERA® system permits extraction of stem cells from a small sample of connective tissue obtained from the patient's lingual mucosa or from a post-extraction surgical site (where an endosseous implant may be inserted), dental pulp or dental follicle. Our project is to demonstrate the efficacy in the maxillo-facial area of an innovative clinical protocol of bone tissue engineering based on a new medical device called Rigeneracons (CE certified Class I). Our clinical trial use already acquired technologies in comparison with new technologies (new selection methods, new Bio-compatible materials etc.) produced by us. Besides, we perform an in-vitro test to quantify the proliferative capacity of a cellular suspension obtained after disaggregation of connective tissue originating from the oral cavity using the RIGENERA® system, a biologic tissue disaggregator (Human Brain Wave-Torino, Italy) that recently came on the market. Evaluation of the histologic characteristics of neo-formed osseous tissue will be shown and discussed.

References

- [1] Graziano A, d'Aquino R, Cusella-De Angelis MG, et al. Scaffold's surface geometry significantly affects human stem cell bone tissue engineering. *Journal of cellular physiology* 2008 Jan;214(1):166-72.

Keywords

Maxillofacial tissue engineering, biocomplex, gingivitis, stem cell, bone graft, implant dentistry.