bonepaste

Bone paste in the leading Italian company in the production of heterologous grafts for neurosurgery, orthopaedics, oral and maxillo-facial surgery. It was founded by the end of the 90's and it is constantly growing thanks to its exclusive system of enzymatic deantigenation at 37°C. Completely safe grafts with advanced biological and biomechanical characteristics are obtained from this system.

Bioteck currently produces and distributes in more than 50 countries:

- Biocollagen - membranes and pastes based on type I and III collagen from equine Achilles tendon.
- Osteoplant - a wide range of both cancellous and cortical bone grafts.
- Osteoplant Flex - a line of exclusive grafts partially demineralized, making them mouldable and flexible.
- Osteoplant Activagen e Angiostad - injectable and mouldable bone pastes in syringes, with huge osteoconductive and osteopromotion properties.

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References

6 - Bellone G, Scirelli T, Emanuelli G. "Osteoinductive activity of Activagen in vitro." (Submitted for publication)

Type I collagen effects

Type I bone collagen interacts with the bone in a substrate of ameloblast cell surface integrin, thus promoting cell adhesion to graft material; works as a coactivator needed for the action of morphogenetic proteins (BMPs), thus fostering the stimulating action of endogenous growth factors; enables growth factors by turning them into inactive factors; regulates the access of extracellular factors to power-formed bone crystal, thus physiologically modulating bone remineralization; mediates the transduction of proliferation and differentiation signal in subperiosteal cells, thus regulating the remodelling process; interacts with the nuclear tyrosinase cleaving from bone matrix, by inhibiting the adhesion, the proliferation and the differentiation in subperiosteal; promotes bone regeneration whenever grafted in case of bone defects, favouring a direct action of regeneration promotion; eliminates the formation of scar tissue coding for BMP type II receptor, thus making cells more sensitive to endogenous signals.


de-antigenation concept covering the proximal part of a revision femoral stem which is excessively exposed because of the huge loss of bone substance. Cortesy of Dr. Renzo Bianchi, Ospedale Civile, Feltre (Belluno) - Italia.

Activagen mouldable paste combined with cancellous chips and autologous bone marrow concentrate. The graft is mixed and a cut-off syringe is filled with it. It is inserted into the bone gap under the metal plate. Cortesy of Dr. Ferdinando Da Rin, Istituti Codivilla-Putti, Cortina d’Ampezzo (Belluno) - Italia.
Biocollagen gel

It is an injectable paste of type I and III collagen extracted from equine Achilles tendon, combined with cancellous bone powder (≤4 mm) to increase its consistency. It may be used for covering grafts, thus promoting their stabilization and having an haemostatic action or it may be used as a carrier for granular grafts, platelet growth factors and autologous bone marrow concentrate.

Biocollagen crunch

It is an osteoconductive bone paste based on type I and III collagen extracted from equine Achilles tendon, combined with cancellous chips (≤4-2 mm), in ready-to-use syringe. It is recommended in case of filling bone defects, alone or with autologous bone grafts, platelet growth factors and autologous bone marrow concentrate. It is very mouldable and has good properties of site adhesion. Furthermore, the great quantity of collagen fosters the blood clot formation.

Osteoplast activigen injectable paste

It is an injectable bone paste based on demineralized bone matrix of equine cortical bone in a collagenous carrier. It contains the DBM-specific molecular signals that promote the cascade process of bone regeneration. It may be used alone in traumatology in comminuted fractures and slight cavity bone defects, or combined with other grafts, platelet growth factors and autologous bone marrow concentrate.

Osteoplast activigen mouldable paste

It is a mouldable bone paste based on demineralized bone matrix of equine cortical bone and cancellous bone chips (≤4-2 mm) in collagenous carrier, packed in cut-off syringes. It contains the DBM-specific molecular signals that promote the cascade process of bone regeneration. It may be used alone or combined with platelet growth factors and autologous bone marrow concentrate.

Enzymatic deantigenation

Biocollagen, Bioteck bone pastes are obtained from equine bone tissue through an exclusive physiological process of enzymatic deantigenation and subsequently of total demineralization of bone matrix. Using digestive enzymes, which work at physiological temperature (37°C), it makes it possible to completely remove the tissue antigenic component without changing the native conformation of collagenous molecules, which is therefore totally preserved. The deantigenated tissue is subjected to a total demineralization process: Calcium salts are completely hydrolysed in acid medium, by applying at the same time a difference of electrical potential to foster the ionic migration in solution. Therefore, the collagenous matrix, having on its surface specific molecular signals that foster regeneration, is completely exposed and is able to exert a positive effect of osteopromotion. In its native conformation, bone collagen exerts all its osteoconductive function and the function of scaffold for undifferentiated cell adhesion, thus creating an environment which is physiologically and biologically favourable for bone regeneration.

Total demineralization

Bioteck bone pastes are obtained from equine bone tissue through an exclusive physiological process of enzymatic deantigenation and subsequently of total demineralization of bone matrix.

Beta ray sterilization

Bioteck bone pastes are a class III Medical Device.

Safety & biocompatibility

Bioteck bone pastes are ready for use and can be preserved at room temperature during five years starting from the production date. Due to their biological characteristics and their special properties, they are recommended for the treatment of bone deficits. Furthermore, they are especially effective at adhering to the platelet specific factors and autologous bone marrow concentrate because of the great quantity of type I collagen.

Osteopromotion

Angiostad is an injectable gel specifically aimed at promoting neangiogenesis. It is composed of a demineralized matrix containing signals which support the formation of new capillaries thus fostering graft vascularization. It is recommended in those cases in which regeneration may be difficult (i.e. when the ratio between the volume to be regenerated and the vital bone surface is adverse).

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