

Together with leading dentists of the University of Zurich and experts in the field of biomaterials at ETH Zurich, we started in 1999 to develop a new therapy with the aim to prevent the atrophy of the alveolar crest after tooth extraction. It is our goal that within 10 years, all extraction sockets will receive a preventive treatment and thus, post extraction atrophy will be a thing of the past.

First, we developed a phase pure β -Tricalciumphosphate (β -TCP) granulate for bone defect filling: **calc-i-oss™**. Its high interconnected porosity, superior purity and histological prove of complete resorption is highly valued by the users.



Thereafter, we succeeded in coating the granules with a micrometer thick layer of polylactic acid. This allows the user to glue the granules together. Thus, our product **RootReplica™** was born. This exact copy of the extracted tooth root made from a re-

sorbable bone graft stops post extraction bleeding, prevents the loss of the coagulum and maintains the alveolar ridge in both height and width. This therapy creates the optimal condition for any subsequent prosthetic treatment.

Our newest achievement is the development of our «Biolinker» – an activator which transforms the coated granules into a sticky mass and thus allows the bone graft to be applied directly from its syringe to the defect. In contact with blood the biomaterial solidifies and forms a defect-analog, mechanically stable, but porous solid body, which will be replaced over time with bone tissue. We call our product **easy-graft™**: there is no «easier» way to fill bone defects.

easy-graft™ bases on our long term experience in developing bone graft materials. It allows the user to treat bone defects in periodontology, oral surgery, implantology and after tooth extraction in the most simple and fastest way imaginable. Just try it out!

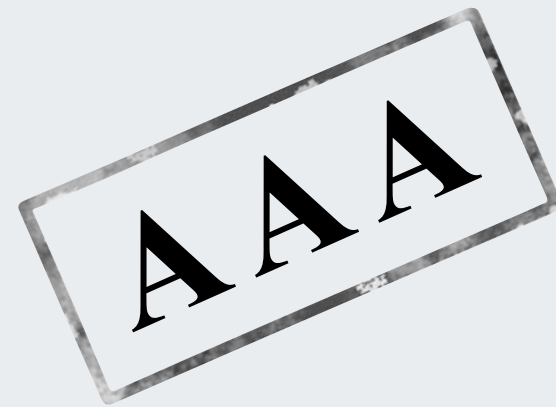
I hope I was able to spark your interest in our biomaterials. Thank you for your trust in our products.

Faithfully yours,



Dr. Kurt Ruffieux
CEO Degradable Solutions AG

easy-graft™



the triple A

bone graft solution

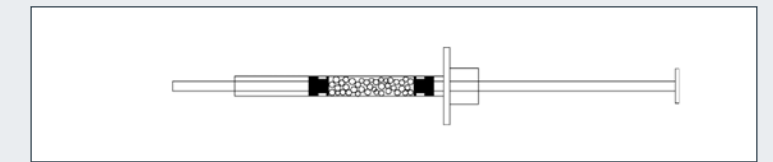


Easy to use: mix – apply

easy-graft™ consists of a new unique biomaterial: bioceramic granules with a sticky surface. Apply directly into the defect, the bone graft will harden in situ within minutes...

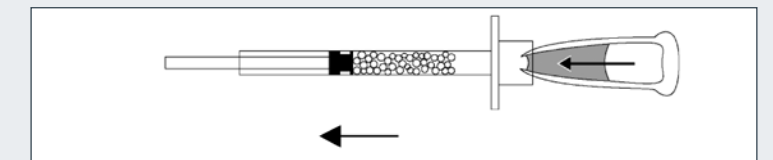
Step by step...

Open the pouch with the syringe containing **easy-graft™** granules, open the pouch with the Biolinker.

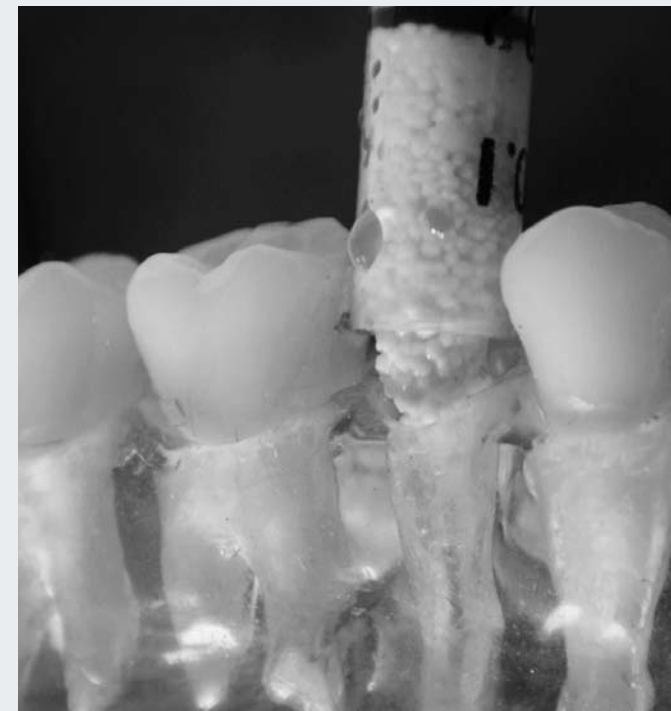
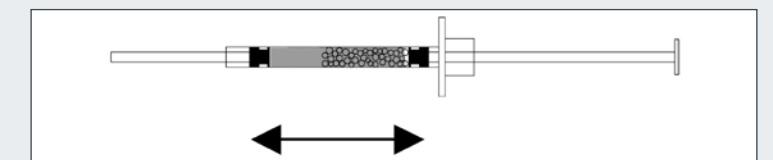


Fill the Biolinker into the syringe.

Mix both components and discard excess Biolinker.



The granules are now sticky and may be applied directly into the bone defect.

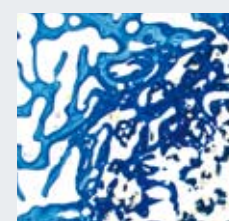
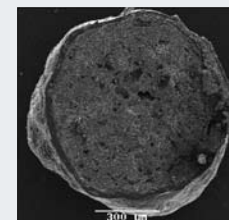
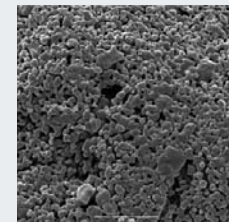


- Clean defect using indication specific standard procedure
- Inject **easy-graft™** from the syringe into the defect
- Mold the sticky granules to fill the defect with a condenser
- Excess granules may be removed easily with a scaler
- Suture the wound as well as the indication allows.



High clinical benefits due to an innovative biomaterial concept

- Osteo-regeneration and complete resorption of graft due to phase pure β -Tricalciumphosphate
- Ingrowth of cells due to interconnected open porosity
- High porosity due to bionic structure of granules
- Injectable putty due to fast resorbing polylactic acid coating
- Prevention of bacterial colonisation due to dense coating
- No loss of granules due to solid body formation in situ
- Blood uptake and tissue ingrowth due to porosity between granules
- Hemostyptic effect
- High biocompatibility demonstrated in histologic sections
- Direct bone contact promotes tissue ingrowth
- Bone formation in parallel to graft degradation



All indications

All patients

All clinics

Literatur about DS Biomaterials

Reichhardt, D. et al. 2006. Injectable and PLGA coated β -TCP granules hardening in situ: an in vitro study. Swiss Conference on Biomaterials, May 10th. - Thoma, K. et al. 2006. Bioabsorbable root analogue for closure of oroantral communications: A prospective case report. Oral Surg Oral Med Oral Pathol Oral Radiol Endod, in press. - Nair, R. et al. 2006. Biocompatibility of β -Tricalcium Phosphate Root Replicas in Porcine Tooth Extraction Sockets – A Correlative Histological, Ultrastructural, and X-ray Microanalytical Pilot Study. Biomaterials Applications, 0: 1-18, Jan 27. - Nair, R. et al. 2004. Observations on healing of human tooth extraction sockets implanted with bioabsorbable polylactide-polyglycolic acids (PLGA) copolymer root replicas: A clinical, radiographic and histological follow-up report of 8 cases. Oral Surg Oral Med Oral Pathol Oral Radiol Endod, 97: 559-69, May. - Nair, R. et al. 2004. β -TCP/PLGA open porous scaffolds for the prevention of alveolar bone loss after tooth extraction: Evaluation in a mini-pig model. World Biomaterials Congress, May 17-21. - Maspero, FA, Ruffieux, K. 2004. β -TCP/PLGA open porous scaffolds for the prevention of alveolar bone loss after tooth extraction: scaffold characterization and in vitro degradation behaviour. World Biomaterials Congress, May 17-21. - Reichhardt, D., Ruffieux, K. 2004. Supporting Literature and References for calc-i-oss and calc-i-oss Ortho. TM-056, Dec 14. - Schmidlin, P. et al. 2004. Alveolarkammprävention nach Zahnextraktion – eine Literaturübersicht. Schweiz Monatsschr Zahnmed, 114: 328-336, April. Schugg, J. et al. 2002. Prävention der Alveolarkammatrophy nach Zahnextraktion durch Wurzelreplicas. DZW, 47: 14-15, Feb. - Maspero, FA et al. 2002. Resorbable defect analog PLGA scaffolds using CO₂ as solvent: Structural characterization. J Biomed Mater Res, 62: 89-98. - Heidemann, W. et al. 2001. Degradation of poly(D,L)lactide implants with or without addition of calciumphosphates in vivo. Biomaterials, 22: 2371-2381. - Maspero, FA et al. 1999. Comparisons of the Degradation Behavior of two Open Porous PLGA-Scaffolds. Tissue Engineering Congress. - Suhonen, J., Meyer, B. 1996. Polylactide (PLA) root replica in ridge maintenance after loss of a vertically fractured incisor. Endod Dent Traumtol, 12: 155-160. - Suhonen, J. et al. 1995. Custom made Polyglycolic acid (PGA)-root replicas placed in extraction sockets of rabbits. Dt. Z Mund Kiefer Gesichts Chir, 19: 253-257.

Simplify your therapy

Straight from the syringe into the defect ...

easy-graft™ is the first biomaterial applied straight from the syringe into the defect where it subsequently hardens and creates a porous but stable bone graft. During the application the granules stick together and stay at the defect site.

easy-graft™ is 100% synthetic, completely resorbable and replaced by autologous bone tissue within months.

easy-graft™ is intended for use for all dental indications where bone grafts are needed.



benefits in periodontology

- easy modelling in the pocket
- the sticky granules stay in the defect
- no membrane needed
- insitu hardening
- reduction of pocket depth from 7up to 2 mm!

easy-graft™ 150

The application unit for small bone defects

Recommended indication:	Periodontal defects
Granule size	500–630 µm
easy-graft 150	6 application units, 0,15 ml
Reference number	C 11-013



easy-graft™ 400

The application unit for medium to large bone defects

Recommended indications:	General bone defects, oral surgery, implantology alveolar therapy, sinus floor elevations
Granule size	500–1000 µm
easy-graft 400	3 application units, 0,4 ml
Reference number	C 11-002



RootReplica™

The leading product against atrophy of the alveolar ridge after tooth extraction

Recommended indications:	Alveoles therapy after tooth extraction
RootReplica™ Implant Kit	Set of 3 Implants incl. Impression material 3 scalpels, biomaterial (granules + membrane)
Reference number	C 01-003
RootReplica™ Equipment Kit	Replicator, heated Condenser, Impression gun
Reference number	F 070-01005



calc-i-oss™

The bionic solution for new bone

100% synthetic β-TCP granules
stable shell, porous core
completely resorbable
high, interconnected porosity

Recommended indications:

General bone defects,
oral surgery, implantology

Granule size	315–500 µm	500–1000 µm	1000–1600 µm
Size of package unit	3 x 0,5 g	3 x 1,0 g	3 x 2,0 g
Reference number	A02 - 103B	A02 - 103C	A02 - 103D



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DS
DENTAL



easy-graft™

injectable

insitu hardening

100% synthetic bonegraft

sticky granules
bionic