creos™ mucogain

Scientific evidence
September 2018

GMT63776

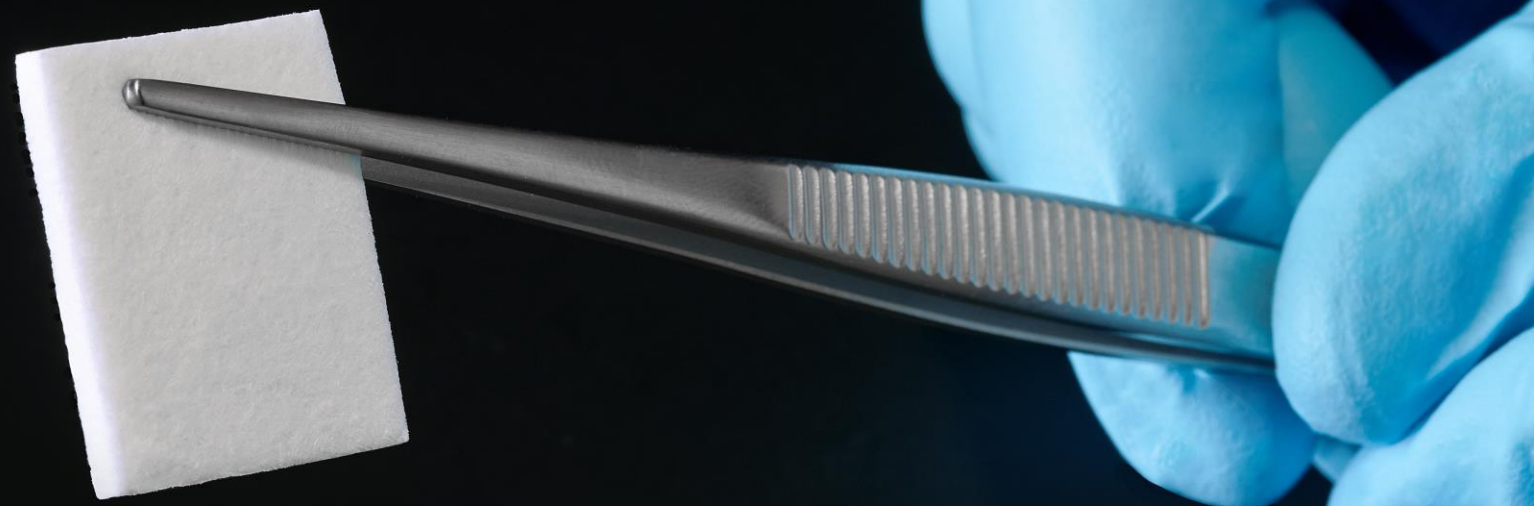
SEM image courtesy of Schupbach Ltd.

creos™ mucogain:

Overview

creos mucogain is a resorbable collagen matrix composed of highly purified porcine collagen and elastin fibers

- Open interconnecting porous structure[1,2,3]
- Mechanical strength[3,4]
- Memory effect[3]
- Soft tissue regeneration[4,5]
- No biological complications in initial clinical use[4,5]

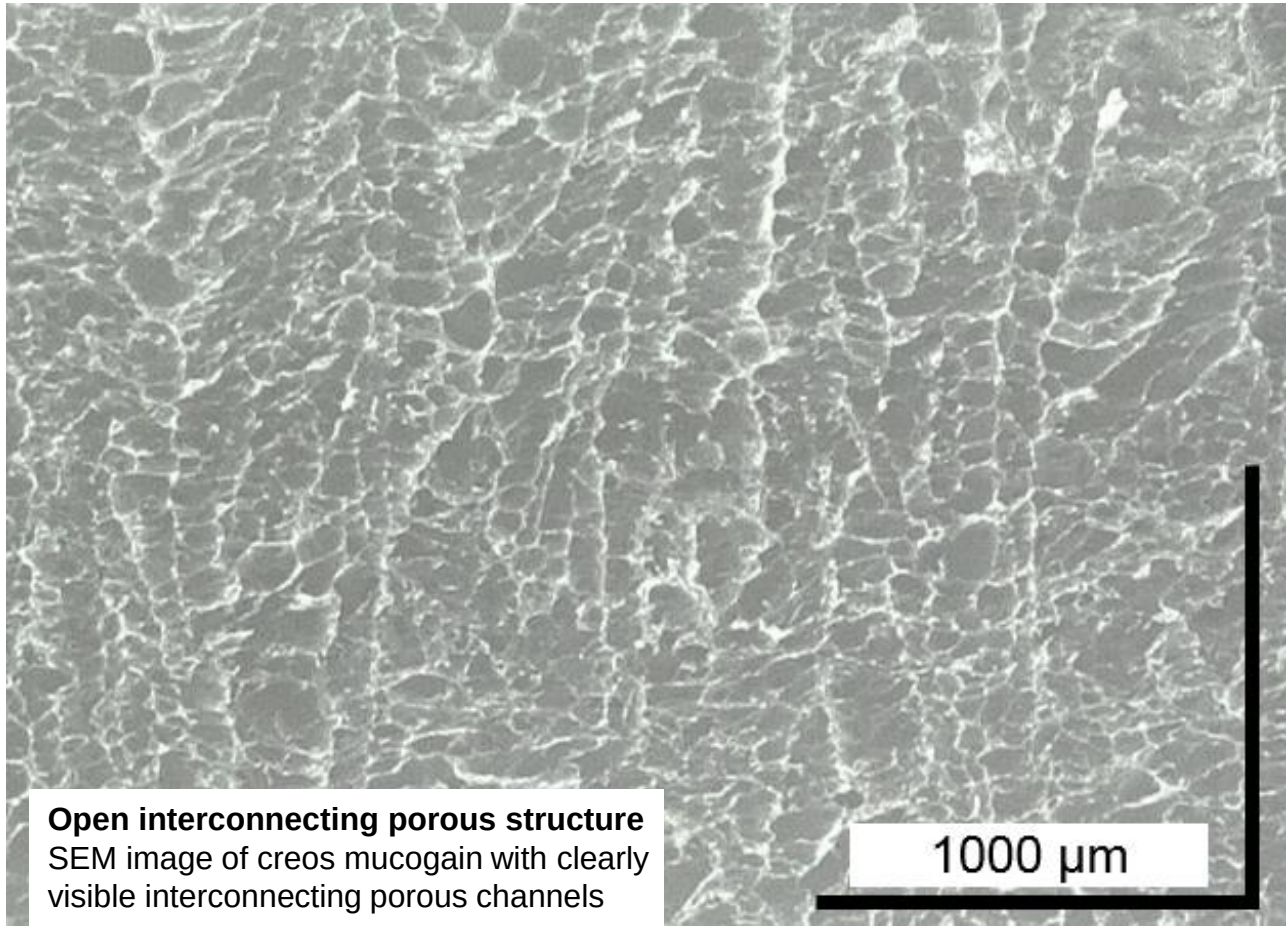


1. Heschel I, et al. 2002. US patent 6,447,701 B1.
2. Boekema B, et al. J Mater Sci Mater Med 2014;25(2):423–433.
3. Olde Damink L, et al. 52nd Annual Conference of the German Society for Biomedical Engineering; Sep 26-28, 2018; Aachen.
4. Wessing B, Vasilic N. Clin Oral Implants Res 2014;25(s10):342.
5. Montero E, et al. 27th Annual Scientific Meeting of the European Association for Osseointegration; Oct 11-13, 2018; Vienna.

Note: mucomaix® (Matricel GmbH) is distributed as creos mucogain since October 2018.

creos™ mucogain: open interconnecting porous structure

- Open interconnecting porous structure produced by a patented process[1]
- Designed to promote soft-tissue regeneration through the migration of cells and blood vessels into the matrix[2,3]



Open interconnecting porous structure
SEM image of creos mucogain with clearly visible interconnecting porous channels

Courtesy of Matricel GmbH, Herzogenrath, Germany

1. Heschel I, et al. 2002. US patent 6,447,701 B1.
2. Boekema B, et al. J Mater Sci Mater Med 2014;25(2):423–433.
3. Olde Damink L, et al. 52nd Annual Conference of the German Society for Biomedical Engineering; Sep 26-28, 2018; Aachen.
Note: mucomaix® (Matricel GmbH) is distributed as creos mucogain since October 2018.

creos™ mucogain: mechanical strength

- High suture retention when dry and hydrated to enable fixation with sutures[2]
- Suture pull-out strength is sufficient for tunneling technique[1]

Stress resistance for easy handling

Courtesy of Bastian Wessing

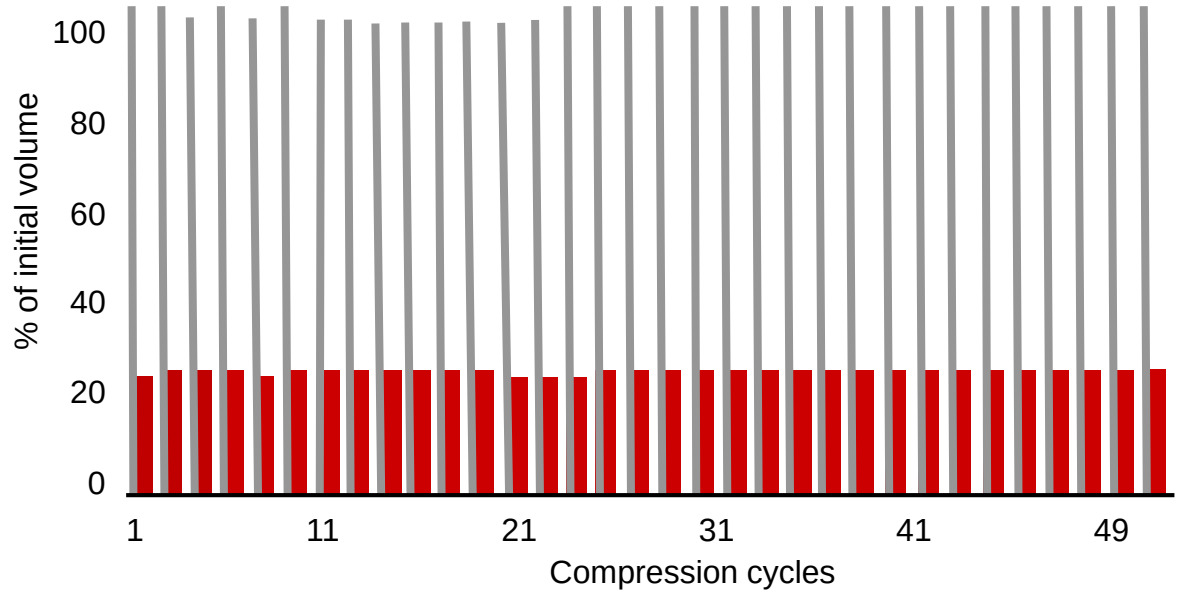
1. Wessing B, Vasilic N. Clin Oral Implants Res 2014;25(s10):342.
2. Olde Damink L, et al. 52nd Annual Conference of the German Society for Biomedical Engineering; Sep 26-28, 2018; Aachen.

Note: mucomaix® (Matricel GmbH) is distributed as creos mucogain since October 2018.

creos™ mucogain: memory effect

– When hydrated, the initial volume of the graft is maintained after repeated compression[1]

Volume maintenance upon repeated compression in vitro



In vitro compression test shows volume maintenance upon repeated compression of the hydrated matrix[1]. Gray bars represent the regained/ initial volume of the matrix; red bars show the compressed volume.

1. Olde Damink L, et al. 52nd Annual Conference of the German Society for Biomedical Engineering; Sep 26-28, 2018; Aachen.

Note: mucomaix® (Matricel GmbH) is distributed as creos mucogain since October 2018.

creos™ mucogain:

soft-tissue regeneration

creos mucogain is suitable for various soft-tissue indications, such as soft-tissue volume augmentation and guided tissue regeneration procedures in recession defects for root coverage*.

In submerged healing indications, creos mucogain substitutes the need for a second surgical site to harvest soft tissue. This avoids the post-operative pain, bleeding, swelling and infection associated with grafting procedures[1–3], as well as limits on the quantity of harvestable soft tissue for grafting.

*See Instructions For Use for full prescribing information, contraindications, warnings and precautions.

1. Harris RJ et al. Int J Periodontics Restorative Dent. 2005 Oct;25(5):449-59.
2. Griffin TJ et al. J Periodontol. 2006 Dec;77(12):2070-9.
3. Aguirre-Zorzano LA et al. J Clin Exp Dent. 2017 Dec 1;9(12):e1439-e1445.

creos™ mucogain: no clinical complications in initial clinical use

Prospective case series

12 patients, immediate implant placement with simultaneous soft tissue augmentation and immediate provisionalization, 1-year follow-up[1]

Study outcome

No significant adverse events related to creos mucogain were observed during the healing phase and up to the last visit.

Retrospective case series

7 patients, root coverage in 1 patient and biotype thickening in 6 patients (for immediate implant placement, before second-stage surgery, or during second-stage surgery); 4-week follow-up[2]

Study outcome

Uneventful healing reported for all cases.

Study expanded to retrospectively assess 45 patients treated with mucogain. Currently ongoing.[3]

1. Montero E, et al. 27th Annual Scientific Meeting of the European Association for Osseointegration; Oct 11-13, 2018; Vienna.
2. Wessing B, Vasilic N. Clin Oral Implants Res 2014;25(s10):342.
3. Wessing B, et al. German Clinical Trials Register DRKS00015213.

Note: mucomaix® (Matricel GmbH) is distibuted as creos mucogain since October 2018.

References

- Aguirre-Zorzano LA, García-De La Fuente AM, Estefanía-Fresco R, et al. Complications of harvesting a connective tissue graft from the palate. A retrospective study and description of a new technique. J Clin Exp Dent 2017;9(12):e1439-e1445.
- Boekema B, Vlig M, Olde Damink L, et al. Effect of pore size and cross-linking of a novel collagen-elastin dermal substitute on wound healing. J Mater Sci Mater Med 2014;25(2):423-433.
- Griffin TJ, Cheung WS, Zavras AI, et al. Postoperative complications following gingival augmentation procedures. J Periodontol 2006;77(12):2070-2079.
- Harris RJ, Miller R, Miller LH, et al. Complications with surgical procedures utilizing connective tissue grafts: a follow-up of 500 consecutively treated cases. Int J Periodontics Restorative Dent 2005;25(5):449-459.
- Heschel I, et al. 2002. Method for producing porous structures. US patent 6,447,701 B1.
- Olde Damink L, Heschel I, Leemhuis H, et al. Soft tissue volume augmentation in the oral cavity with a collagen-based 3D matrix with orientated open pore structure. Paper presented at: 52nd Annual Conference of the German Society for Biomedical Engineering; Sep 26-28, 2018; Aachen.
- Montero E, Sanz-Martin I, Sanz-Sanchez I, et al. Volumetric changes in the buccal contour after immediate implant placement and provisional restoration together with a soft tissue substitute. A prospective case series. Abstract presented at: 27th Annual Scientific Meeting of the European Association for Osseointegration; Oct 11-13, 2018; Vienna.
- Wessing B, Vasilic N. Soft tissue augmentation with a new regenerative collagen 3-d matrix with oriented open pores as a potential alternative to autologous connective tissue grafts. Clin Oral Implants Res 2014;25(s10):342.
- Wessing B, et al. Soft tissue volume augmentation at single implant sites with a collagen based 3D matrix with oriented open pore structure: A retrospective analysis of 45 consecutive cases. German Clinical Trials Register DRKS00015213.