

leading regeneration

Geistlich



Mastelli

The power of Bioregeneration

Enhancing tissue regeneration with Polynucleotides.

Geistlich and Bioregeneration

Leading Regeneration: This is our vision – to drive regeneration. And that is why we have dedicated the past 40 years of our company’s history to collaborating with experts and clinicians worldwide, studying new products that enhance patients’ quality of life, and delving deeper into the science behind tissue regeneration.

Bioregeneration

Starting in 2021, we have taken regeneration to a whole new level: Bioregeneration. But what exactly is it?

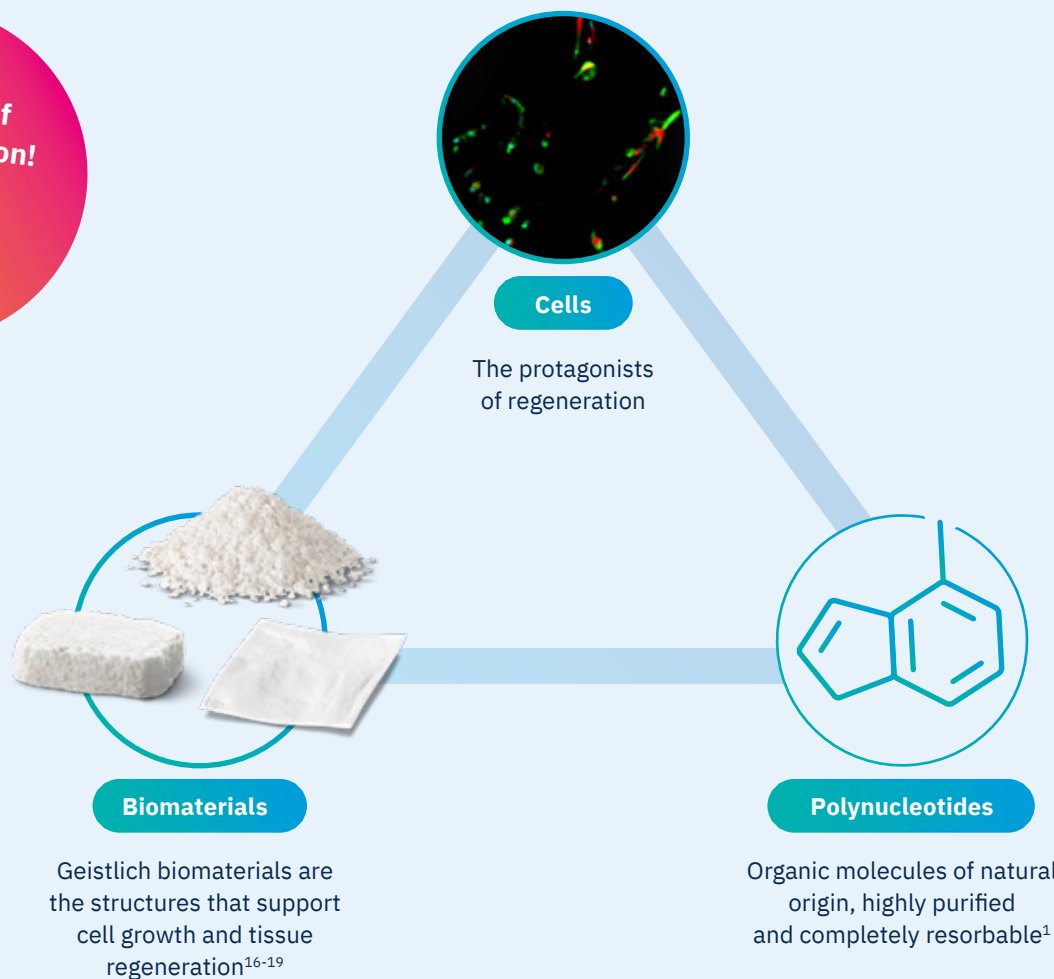
Bioregeneration means **the enhancement and optimization of the physiological activities of cells** involved in the natural regenerative processes of tissues in the human body.

How? Through the action of organic molecules known as **polynucleotides**.⁸

Here is what we have learned from biology: Cells can migrate within a structure or scaffold based on our body’s needs. They

continuously send and receive signals to enhance and adapt their behavior and activities. This phenomenon occurs not only in soft tissues like mucous membranes, but also in hard tissues like bone.

Our **biomaterials** offer **excellent support** for cell adhesion, growth and vitality.^{1,8,16-19} In this brochure, we introduce you to **REGENFAST®**, the **unique viscoelastic gel** containing polynucleotides. On the following pages, we will explain how polynucleotides enable Bioregeneration and what this means for the dental clinic.



The Science behind Polynucleotides and Bioregeneration

2024 is the year of Bioregeneration: two studies have been published showing the benefits of REGENFAST® in the dental clinic when used together with Geistlich biomaterials.

Cairo et al.: REGENFAST® combined with papillary preservation flaps, with or without Geistlich Bio-Oss®, effectively improved clinical parameters in the treatment of residual pockets associated with infrabony defects over a 1-year period.¹



1 Soft-tissue situation at baseline.



2 Bleeding on probing.



3 Flap surgery with simplified papilla preservation flap. A deep non-contained two-wall defect is visible.

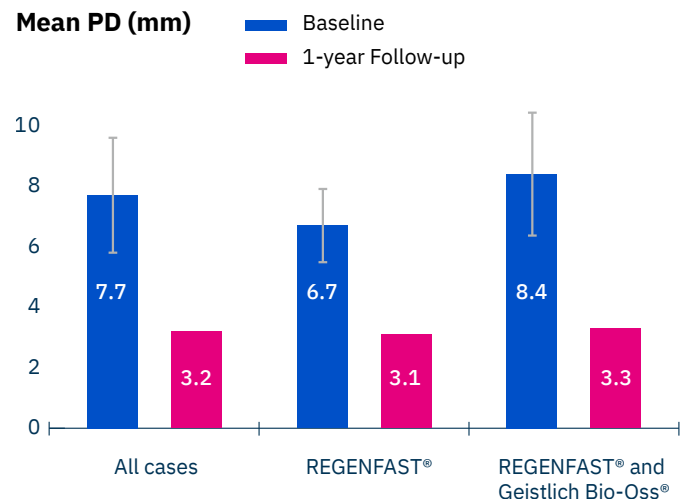


4 One year after surgery, the final probing depth is minimal, and the recession is reduced to 1 mm.

Pocket Depth (PD):

REGENFAST® treatment resulted in the reduction of the mean pocket depth by 4.4 ± 1.8 mm. Pocket closure ($PD \leq 4$ mm) was obtained in 96% of the treated cases.¹

Mean PD (mm)



Clinical Attachment Level:

3.5 ± 2.0 mm gain of clinical attachment with REGENFAST® and Geistlich Bio-Oss®.¹

Bleeding on Probing:

REGENFAST® treatment resulted in the reduction of bleeding on probing from 64% to 13% at 1-year follow up compared to the baseline values.¹



REGENFAST® used together with Geistlich Bio-Oss® improved the clinical outcomes of guided tissue regeneration.¹

The described outcomes seem to match those reported when using enamel matrix derivatives for periodontal regeneration.¹

Beretta et al.: REGENFAST® used concurrently with Geistlich Bio-Oss® and Geistlich Bio-Gide® allowed stable implant placement after 5 months in horizontal alveolar defects treated with a staged horizontal guided bone regeneration.⁸



1 The presence of severe horizontal atrophy in the edentulous site is clinically visible.

2 After flap elevation, Geistlich Bio-Oss® and REGENFAST® are applied. The graft is positioned at the level of the defect for the reconstruction of the alveolar crest.

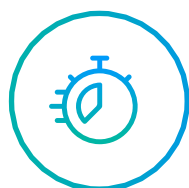
3 Reopening after 5 months and taking a trephine biopsy for histology.

4 Healing with the provisional.

The usual best practice waiting time before re-entry surgery in staged alveolar ridge augmentation procedures is 7 to 10 months.¹⁵ When adding REGENFAST® to the treatment protocol, the re-entry time may be reduced to just 5 months.⁸

At 5 months, the new bone that formed after treatment with REGENFAST® and Geistlich Bio-Oss® was:⁸

- exhibited in a high amount (41.2%)
- highly mineralized
- well-organized in lamellae (lamellar bone 14.3% of the entire tissue volume)
- completely embedding residual graft material



REGENFAST® shortened healing time in GBR treatments while supporting the formation of a high-quality regenerated bone.⁸

The polynucleotides in REGENFAST® enhance bioregeneration, promoting faster formation of new bone and early wound healing.⁸

REGENFAST® and Polynucleotides

Polynucleotides (PN) are organic molecules of natural origin, highly purified and totally resorbable.¹ They are composed of nucleotides, the building blocks of DNA and RNA.

Polynucleotides have several biological properties that make them the protagonists of bioregeneration:



Improve Hydration:

PN can attract and bind water molecules, which they slowly release when they are metabolized.^{2,3} The continuous hydration increases nutrient exchange between the cells and creates favorable conditions to stimulate regeneration.⁴



Accelerate Wound Healing:

PN enhance fibroblast growth and viability, which enables faster physiological healing.⁵



Promote Bioregeneration:

PN have a trophic effect, which means that they promote cell growth, migration, and vitality. Additionally, they increase collagen production and deposition.⁵

REGENFAST® is a patented formulation combining polynucleotides and hyaluronic acid, two molecules that synergistically enhance the regenerative potential of cells.^{1,2,6-9} Hyaluronic acid is a natural component of the extracellular matrix that provides hydration, viscosity, and elasticity to the tissues.^{10,11}

It also acts as a carrier for polynucleotides, increasing their bioavailability and stability.

In dentistry, REGENFAST® can be used to enhance the outcomes of guided bone regeneration (GBR) procedures⁸, periodontal defects treatments¹, and soft tissue augmentations.¹²

The advantages of using REGENFAST® with Geistlich biomaterials

Why your patients will love the results

REGENFAST® is designed for faster regenerative treatment solutions, promoting physiological healing and repair.^{8,12,13}

REGENFAST® shortened healing time and allowed for earlier implant placement in staged GBR procedures.⁸ This means your patients can expect a quicker healing process, which is a significant advantage post-treatment. Additionally, faster healing can reduce overall treatment time from extraction to final prosthetics.

Exceptional results you can rely on

The combination of polynucleotides (PN) and hyaluronic acid (HA) has been shown to be safe and effective in patients as documented in several studies both in dentistry (REGENFAST®) as well as outside the field of dentistry.^{1,7-9,14}

Effective with Geistlich biomaterials: REGENFAST® has been reported to improve clinical outcomes and promote faster formation of new bone when used concurrently with Geistlich Bio-Oss®.^{1,8}

Time-saving and user-friendly

REGENFAST® is a sterile, off-the-shelf viscoelastic gel, making it easy to handle and apply.^{8,12,13} This stands in contrast to PRF, which requires preparation as well as investment in special machines.

Versatile use: It can be used alone or concurrently with autologous bone and/or biomaterials, offering flexibility in treatment options.^{1,8,12,13}

Mastelli – at the origin of Bioregeneration



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One of Geistlich's core values in medical regeneration is our strong commitment to science. The same value is carried forward by Mastelli, the Italian manufacturer of REGENFAST®. **For more than 70 years**, their research has focused on the extraction and purification of polynucleotides, with applications ranging from wound care and orthopedics to dermatology and aesthetic medicine. Over the past 10 years, **more than 1.7 million polynucleotide-containing products** have been administered. We also share another of our founding values with Mastelli: like Geistlich, they are family-owned and are now in their third generation.

Mastelli has developed a proprietary technology (HPT™) to obtain highly purified polynucleotides from trouts raised in carefully controlled European fish farms. Mastelli follows strict quality standards and complies with the European regulations for medical devices.

Geistlich is proud to partner with Mastelli and to offer you REGENFAST®, a product that represents the state-of-the-art of Bioregeneration. Together, we aim to provide you with the best solutions for your clinical needs and to improve the quality of life of your patients.



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