



The only
off-the-shelf
growth factor approved
for bone & soft tissue
regeneration in
dental & orthopedic
applications.¹

GEM 21S[®]

Growth-Factor Enhanced Matrix

Promotes rapid healing and new
bone formation for oral surgery^{1,5}

leading regeneration



GEM 21S[®]

Growth-Factor Enhanced Matrix



PDGF significantly increases the proliferation and migration of osteoblasts and other cells of the periodontium^{2,3,4}

GEM 21S[®] is a synthetic bone graft composed of purified, sterile recombinant (bioengineered) platelet-derived growth factor (rhPDGF) and β -TCP. PDGF is naturally found in the body (present in the platelets in your blood) and is often referred to as nature's wound healing protein. **GEM 21S[®]** increases the amount of PDGF at the grafted site to aid in faster, more bone and better healing.¹

How do you

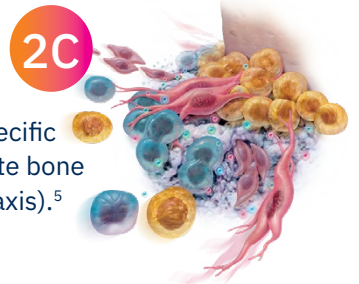
4C

predictability?



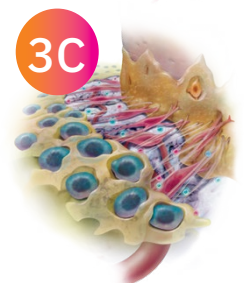
Consistency

The first and only off-the-shelf source of purified rhPDGF approved for bone and soft tissue regeneration.¹



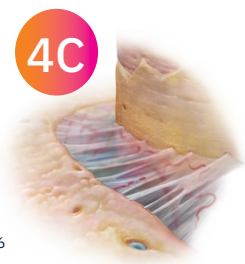
Cellular Attraction

GEM 21S[®] signals and recruits the specific cells that the body needs to regenerate bone and the surrounding tissues (chemotaxis).⁵



Cellular Proliferation

Once the cells migrate to the site, cell proliferation occurs (mitogenesis). This cellular activity stimulates angiogenesis, resulting in more rapid **healing** and new bone **formation**.⁵



Clinical Outcomes

GEM 21S[®] is one of the most researched growth factors in dentistry. It has been proven to be safe and **effective in regenerating bone and soft tissue** in more than 500 publications and 60+ clinical studies.⁶



Clinically Reliable

Intrabony and Furcation Defects

The largest prospective, randomized, triple-blinded, controlled pivotal clinical trial reported to date using **GEM 21S**[®] demonstrated the following:

- Stimulated a significant increase in the rate of CAL gain
- Reduced gingival recession at 3 months post-surgery
- Improved bone fill and linear bone gain as compared to a β -TCP bone substitute at 6 months⁸

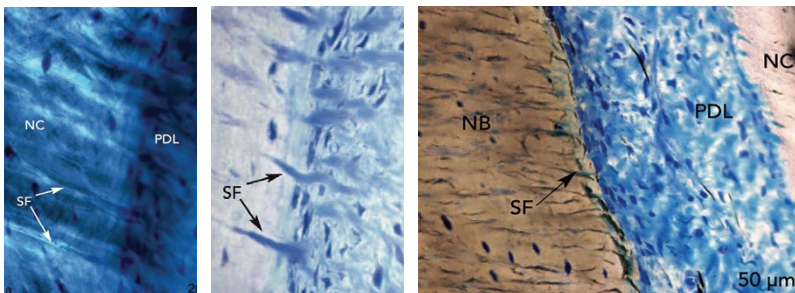
Recession Defects

A randomized, controlled clinical trial compared **GEM 21S**[®] to Subepithelial Connective Tissue Grafts (CTG).^{*} Investigators concluded that both the CTG and **GEM 21S**[®] treatments resulted in clinically significant improvements over the six month evaluation periods and were effective treatments for the correction of recession defects.⁹

^{*} Results obtained in this trial are based on a technique not included in the **GEM 21S**[®] Instructions for Use.

*Faster results,
more bone and
better healing^{1,5}*

Histologic Evidence



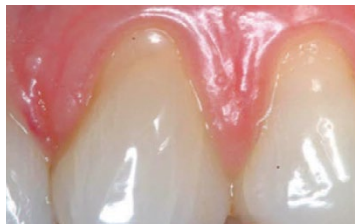
Under polarized light, Sharpey Fibers (SF) are seen inserting into newly regenerated bone (NB) and cementum (NC). In the ground section, well defined connective tissue fibers are also seen inserting into regenerated cementum. PDL = periodontal ligament.⁹

Overall, rhPDGF-BB exhibited the greatest effect size for most parameters, including clinical attachment level gain, pocket depth reduction, less gingival recession and radiographic linear bone gain.⁷

Cases by Master Clinicians



Dr. Michael McGuire
Houston, TX



Pre-Op



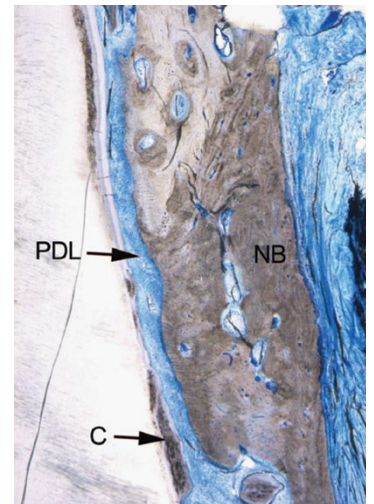
6 month post-op



Pre-Op



6 months post-op



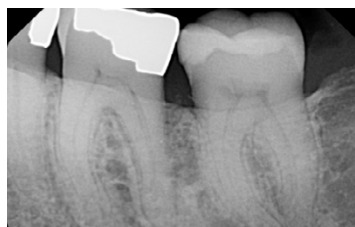
PDL

NB

C



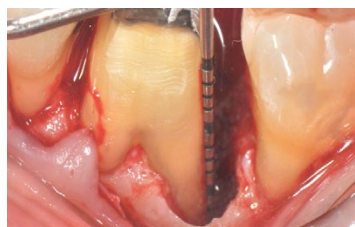
Dr. Robert Levine
Philadelphia, PA



Baseline radiograph



Baseline defect



Defect dimensions >10mm



10 year post-op



10 year follow up radiograph

Everything you need for bone regeneration in one partner

At Geistlich, we understand that today's clinical situations require a broad array of product options.

That's why we've expanded our offerings to include quality products which complement the use of the Geistlich regenerative portfolio.

Geistlich Fibro-Gide®



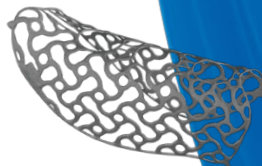
Geistlich Mucograft®



Geistlich Bio-Gide®



**3D Titanium Scaffold
Yxoss CBR®**

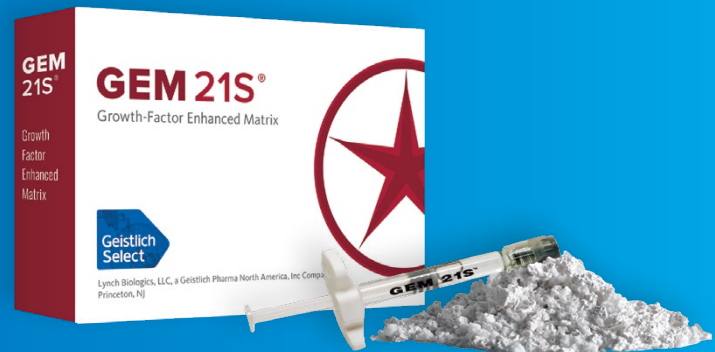


vallos® / vallos-f®



Geistlich Bio-Oss®





GEM 21S®

Not just for your most challenging cases – GEM 21S® brings its best to every case.

500+ Publications
60+ Clinical Studies
1,650 Defects Analyzed
~11 months Mean Follow-up
5 million Patients Treated

Lynch Biologics LLC, a Geistlich Pharma North America LLC company.

CAUTION: Federal law restricts these devices to sale by or on the order of a dentist or physician. For more information on contraindications, precautions, and directions for use, please refer to the Instructions for Use: <https://www.lynchbiologics.com/products/gem-21s/>

For more information, please visit:
www.lynchbiologics.com



References:

1. GEM 21S® Instructions for Use.
2. Wang HL, et al.: J Periodontol. 1994 May; 65 (5): 429-36.
3. Graves DT. Ann Periodontol. 1997; 2: 259-267.
4. Piche JE, et al.: Bone. 1989; 10(2): 131-189.
5. Based on in-vitro and in-vivo data; see device description in GEM 21S package insert for complete information
6. Data on file, Lynch Biologics, LLC
7. Lynch SE, Introduction: Tissue Engineering, Applications in Maxillofacial Surgery and Periodontics. Lynch SE, Genco RJ and Marx RE Eds. Quintessence Publishing Co. 1999.
8. Nevins M, et al.: J Periodontol. 2003 Sep; 74(9):1282-92.
9. McGuire M, et al.: Int J Periodontics Restorative Dent. 2009; 29:7-21.

GEM 21S®

Growth-Factor Enhanced Matrix
Product No. LBGEM05
21S KIT
Quantity/Volume
0.5cc β-TCP/0.5 ml rhPDGF