

Faster results,  
more bone and  
better healing<sup>1,2</sup>

# GEM 21S®

Growth-Factor Enhanced Matrix

Promotes rapid healing and new  
bone formation for dental surgery<sup>1,5</sup>

leading regeneration



# Clinically Reliable

## Intrabony and Furcation Defects

The largest prospective, randomised, triple-blinded, controlled pivotal clinical trial reported to date using **GEM 21S**<sup>®</sup> demonstrated the following:

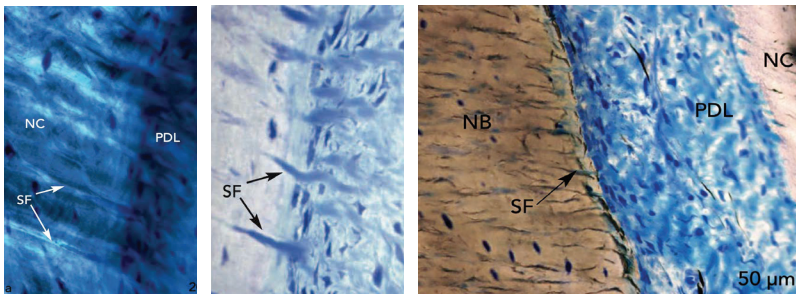
- Stimulated a significant increase in the rate of CAL gain
- Reduced gingival recession at 3 months post-surgery
- Improved bone fill and linear bone gain as compared to a  $\beta$ -TCP bone substitute at 6 months<sup>8</sup>

## Recession Defects

A randomised, controlled clinical trial compared **GEM 21S**<sup>®</sup> to Subepithelial Connective Tissue Grafts (CTG).<sup>\*</sup> Investigators concluded that both the CTG and **GEM 21S**<sup>®</sup> treatments resulted in clinically significant improvements over the six month evaluation periods and were effective treatments for the correction of recession defects.<sup>9</sup>

<sup>\*</sup> Results obtained in this trial are based on a technique not included in the **GEM 21S**<sup>®</sup> Instructions for Use.

## Histologic Evidence



Under polarised 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.<sup>9</sup>



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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.<sup>7</sup>

# GEM 21S<sup>®</sup>

Growth-Factor Enhanced Matrix

**GEM 21S<sup>®</sup>** is a synthetic bone graft composed of purified, sterile recombinant (bioengineered) platelet-derived growth factor (rhPDGF) and  $\beta$ -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<sup>®</sup>** increases the amount of PDGF at the grafted site to aid in faster, more bone and better healing.<sup>1</sup>

PDGF significantly increases the proliferation and migration of osteoblasts and other cells of the periodontium<sup>2,3,4</sup>

## How do you

# 4C

## predictability?

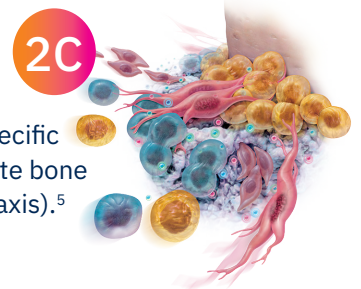
### Consistency

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



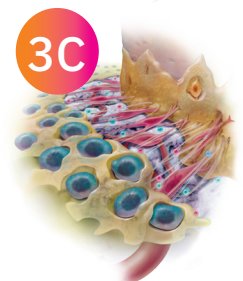
### Cellular Attraction

GEM 21S<sup>®</sup> signals and recruits the specific cells that the body needs to regenerate bone and the surrounding tissues (chemotaxis).<sup>5</sup>



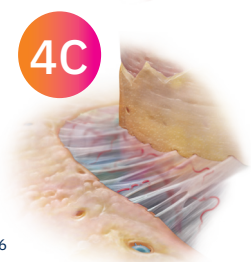
### Cellular Proliferation

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**.<sup>5</sup>



### Clinical Outcomes

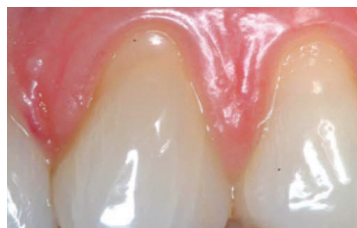
**GEM 21S<sup>®</sup>** is one of the most researched growth factors in dentistry. It has been proven to be safe and **effective in regenerating bone and soft tissue** in more than 500 publications and 60+ clinical studies.<sup>6</sup>



## Cases by Master Clinicians



**Dr. Michael McGuire**  
Houston, TX



Pre-Op



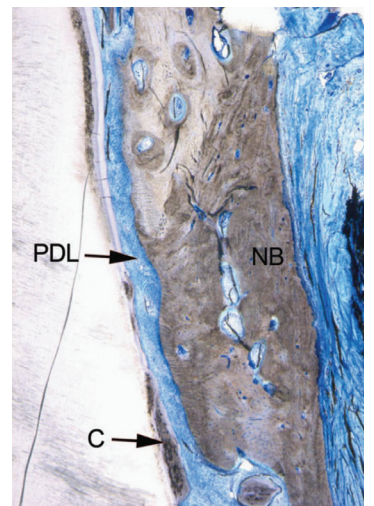
6 month post-op



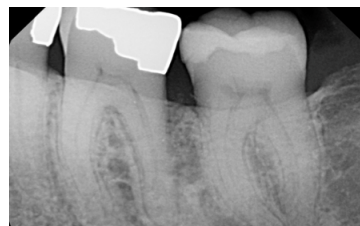
Pre-Op



6 months post-op



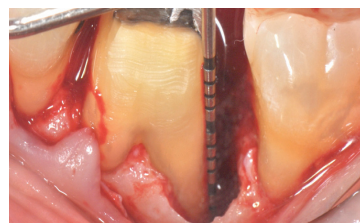
**Dr. Robert Levine**  
Philadelphia, PA



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  
Bio-Oss® Collagen**



**Geistlich Bio-Oss®**



**Geistlich Bio-Gide®**



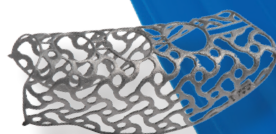
**Geistlich Mucograft®**



**Geistlich Fibro-Gide®**



**3D Titanium Scaffold  
Yxoss CBR®**





# 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 Analysed  
**~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.geistlich.com/en-au](http://www.geistlich.com/en-au)



#### 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.

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