



# VIAMEND™

## BIOACTIVE STRIP

➤ MOLDABLE BONE GRAFT SUBSTITUTE

**VIVEX**®  
BIOLOGICS



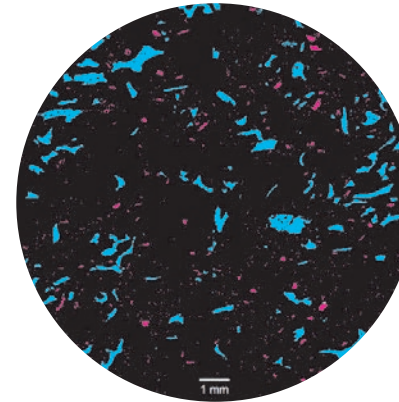
# VIAMEND™ BIOACTIVE STRIP

Our bioactive composite bone graft matrices are a combination of three components: carbonate apatite anorganic bovine bone mineral, 45S5 bioactive glass, and Type I Collagen. When combined, they provide an optimal scaffold to support the body's natural ability to regenerate new bone.

VIA Mend™ Bioactive Strip can be molded to fit the bone defect. It is an osteoconductive, bioactive, porous implant that allows for bony ingrowth across the graft site. The bone graft matrix is slowly resorbed and replaced by new bone tissue during the natural healing process.

## » WHY VIA MEND BIOACTIVE STRIP?

- A Perfect Trio of Components:
  - 50% Carbonate Apatite anorganic bone mineral
  - 30% 45S5 Bioactive Glass
  - 20% Type I Collagen
- Uniform distribution of bioactive glass and mineral particles throughout the matrix, achieved through a proprietary manufacturing process¹



### UNIFORM PARTICLE DISTRIBUTION

An SEM/EDX Analysis of VIA Mend Bioactive Strip polished cross sections showing mineral and bioactive glass

- 45S5 Bioactive Glass Particles
- Carbonate Apatite Anorganic Bone Mineral
- Porous Type I Collagen Matrix

50%



**Carbonate Apatite  
Anorganic Bone  
Mineral**

30%



**45S5 Bioactive  
Glass**

20%



**Highly purified  
bovine-derived Type I  
Collagen**

## » MOLDABLE ADVANTAGE

- 2 for 1 versatility—upon hydration, the strip conformation can be used in its original shape or optionally molded into alternative shapes to address the unique contours of each defect
- Can be combined with either autogenous bone marrow or autograft with saline
- Can also be used with autograft as a bone graft extender
- Moldable, flexible, absorbent, resists migration upon irrigation





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 **ALMOST 2X MORE ABSORBENT THAN VITOSS® BIOACTIVE FOAM¹**

PRODUCT	ABSORBENCY (mL/g)
VIA Mend™ Bioactive Strip	4.59 ± 0.76
Vitoss® Bioactive Foam	2.70 ± 0.35



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 **VIA MEND BIOACTIVE GLASS COMPONENT**

- **30% is Optimal:** Bioactive glass is incorporated into VIA Mend within a suggested critical range of 5-40% for optimal osteoblast growth and calcium phosphate formation in a composite.<sup>2</sup>
- **Ideal Particle Range:** A narrow particle size distribution limited to 100-300µm to provide a more controlled rate of ion dissolution and surface reactivity, and a more consistent rate of bone bonding and proliferation.<sup>3,4</sup>
- **Exemplary Particle Size (100-300µm):** Larger sized particles may not fully resorb. Smaller particles may resorb away quickly and impede the upregulation of osteoprogenitor cells.<sup>4,5</sup>

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 **WHY 45S5 BIOACTIVE GLASS?**

Over 30 Years of Presence in Tissue Engineering<sup>6,7</sup>

- Favorable Environment for bone regeneration and osteoblast attachment<sup>8</sup>
- Ion Exchange and Release—including soluble tetrahedral silica, which may promote rapid bone formation<sup>2</sup>
- Cell Proliferation and Differentiation—45S5 Bioactive glass has the ability to stimulate the growth & osteogenic differentiation of human primary osteoblasts<sup>9</sup>

COMPOSITION OF 45S5 BIOACTIVE GLASS		
45%	Silicon Dioxide	SiO <sub>2</sub>
24.5%	Calcium Oxide	Ca <sub>2</sub> O
24.5%	Sodium Oxide	Na <sub>2</sub> O
6%	Phosphorus Pentoxide	P <sub>2</sub> O <sub>5</sub>

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 **WHY TYPE I COLLAGEN?**

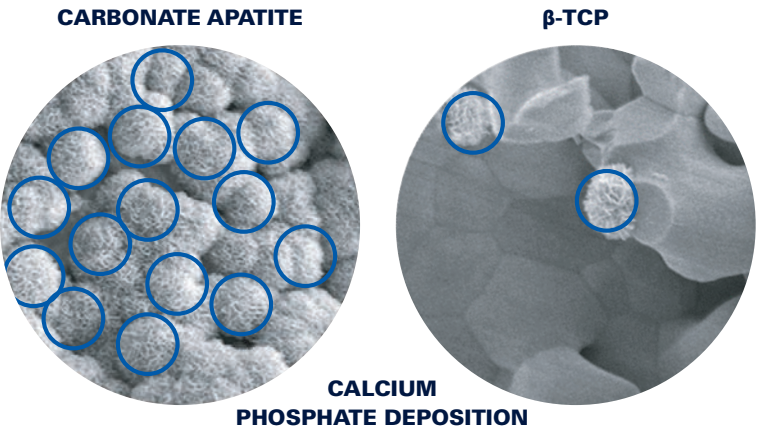
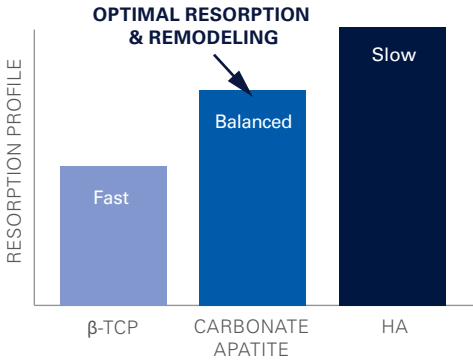
Homologous Molecular Structure to Human Collagen<sup>10</sup>

- Highly purified for biocompatibility
- 100% resorbable through normal metabolic pathways<sup>11</sup>
- Intrinsic hemostatic properties control minor bleeding<sup>11,12</sup>
- Well-established long clinical history<sup>11</sup>
- Binds proteins and cells and retains biological factors<sup>13</sup>
- Single most abundant protein in the human body<sup>14</sup>



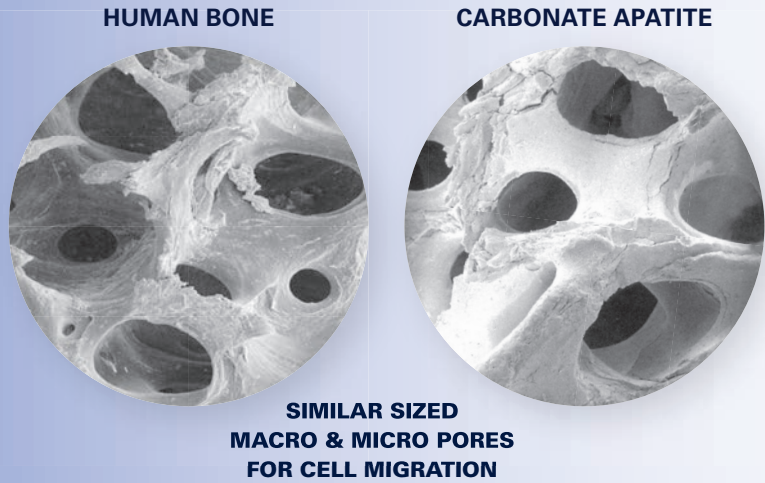
» **WHY CARBONATE APATITE BONE MINERAL?**  
**OPTIMAL RESORPTION & REMODELING<sup>15,16</sup>**

- Not fast like beta-tricalcium phosphate ( $\beta$ -TCP)
- Not slow like hydroxyapatite (HA)
- Ideally, the rate of the bone graft resorption is balanced to the rate of bone remodeling
- Carbonate apatite resorption and remodeling are similar to human bone<sup>15,16</sup>



**MORE CALCIUM PHOSPHATE DEPOSITION THAN  $\beta$ -TCP<sup>18</sup>**

- More calcium phosphate is deposited on the carbonate apatite surface as compared to  $\beta$ -TCP<sup>18</sup>



**NATURAL MINERAL STRUCTURE SIMILAR TO HUMAN BONE MINERAL**

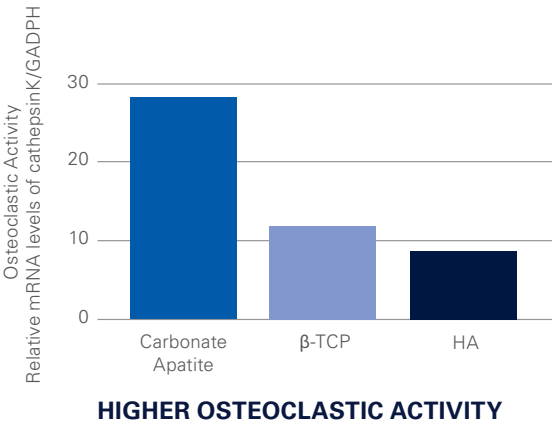
- Pores provide pathways for cell migration and attachment to lay down new bone
- Carbonate apatite is a better osteoconductive material than HA<sup>17</sup>

**HALF THE CRYSTALLINITY THAN HA, MORE SOLUBLE<sup>11</sup>**

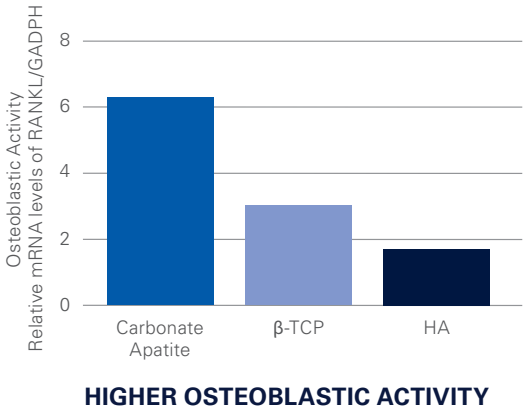
- Carbonate apatite has half the crystallinity than HA, which enables optimal resorption and remodeling because it more easily resorbs<sup>11</sup>



**INDEPENDENT STUDIES HAVE SHOWN HIGHER OSTEOCLASTIC & OSTEOBLASTIC ACTIVITY THAN  $\beta$ -TCP & HA<sup>19</sup>**



- Osteoclasts break down bone
- Carbonate apatite shows higher levels of osteoclastic activity than  $\beta$ -TCP & HA<sup>19</sup>



- Osteoblasts secrete new bone
- Osteoblast proteins are most upregulated with carbonate apatite than  $\beta$ -TCP & HA<sup>19</sup>

## ▶ ORDERING INFORMATION

CODE	DESCRIPTION	QUANTITY	SIZE
VMB0010	VIA Mend™ Bioactive Strip	10 cc (1 Strip)	6.25cm x 2cm x 0.8cm
VMB0020	VIA Mend™ Bioactive Strip	20 cc (1 Strip)	12.5cm x 2cm x 0.8cm



VIVEX Biologics will use reasonable efforts to provide accurate and complete information herein, but this information should not be construed as providing clinical advice, dictating reimbursement policy, or as a substitute for the judgment of a health care provider. It is the health care provider's responsibility to determine the appropriate treatment, codes, charges for services, and use of modifiers for services rendered and to submit coverage or reimbursement-related documentation.

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