

SPARCTM
INTEGRATIVE BONE MATRIX

THE POWER OF
GROWTH FACTORS.
FUEL YOUR FUSION.

Isto[®]
BIOLOGICS

INTRODUCING A NEW CATEGORY OF BONE GRAFT

SPARC is a first-of-its-kind Integrative Bone Matrix (IBM) designed to combine the osteoinductive potential of DBM **with naturally occurring growth factors derived from proprietary whole bone processing, viable cells, and an osteoconductive scaffold into a single graft**. In a category of its own, the multifactor allograft expands the biologic signaling environment and supports a more complete foundation for bone formation.

SPARC was developed to bridge the gap between traditional cell-focused grafts and growth factor-focused products by supporting multiple mechanisms of bone formation.

	Traditional CBMs	Integrative Bone Matrix	Traditional Growth Factor Product
DBM	✓	✓	
Multiple Growth Factors from Whole Bone		✓	
Single Supraphysiological Growth Factor			✓
Viable Cells	✓	✓	
Scaffold	✓	✓	varies
Cohesive Handling	varies	✓	

SIMPLICITY FROM PREP TO PLACEMENT



Ready-to-use

DMSO-free and ready to use in approximately 10 minutes with no rinsing or decanting required.



Cohesive Handling

Moldable, fully pliable fibers designed to remain where placed and pack efficiently within the graft site.



Integrated Biology

Combines pro-osteogenic signal, viable cells, and osteoconductive scaffold, within one cohesive solution.

YOU DON'T NEED MULTIPLE SOLUTIONS IF YOU HAVE THE RIGHT GRAFT

FUSION IS MULTIFACETED

Bone formation depends on the interaction of signal, cells, and scaffold.¹ Cells require signals to direct their activity. Signals require responsive cells to generate a biologic effect. Both rely on an appropriate scaffold to support new bone formation.

Historically, bone graft technologies have focused on either delivering viable cells or delivering biologic signaling, often requiring surgeons to combine multiple products to provide both mechanisms.

As a growth factor-focused Integrative Bone Matrix, **SPARC brings these biologic elements together in a single graft**. By combining captured and retained pro-osteogenic signal with viable cells and scaffold, SPARC supports a more complete biologic environment for fusion.

TWO TRADITIONAL APPROACHES. BOTH LEAVE GAPS.



Traditional Cellular Graft

Designed to provide viable cells with biologic signaling derived solely from DBM.

What's Missing?

A stronger biologic signaling component.



Traditional Growth Factor Product

Designed to provide biologic signaling to recruit and direct bone-forming cells.

What's Missing?

Viable cells to respond to that signal.

SPARC DELIVERS THE MISSING PIECES

More biologic signaling while delivering viable cells and highly conductive scaffold² in one complete solution.

IGNITE A COMPLETE BIOLOGIC ENVIRONMENT

BONE HEALING IS A MULTIFACTORIAL PROCESS

Pro-osteogenic growth factors play a critical role in the biologic processes involved in bone healing, supporting cell recruitment, proliferation, angiogenesis, osteogenic differentiation, and matrix development.¹

Many growth factor products are designed to deliver a single supraphysiological signaling molecule, while traditional cellular grafts rely on signaling contribution of DBM which can be limited and weak.^{3,4}

SPARC was designed differently. Through proprietary whole bone processing, SPARC provides a **broader range** and **higher levels** of naturally occurring growth factors in a single graft.

SPARC FUELS YOUR FUSION

More Signal

Broader signaling profile across multiple biologic pathways

More Potency

Greater availability of key pro-osteogenic growth factors

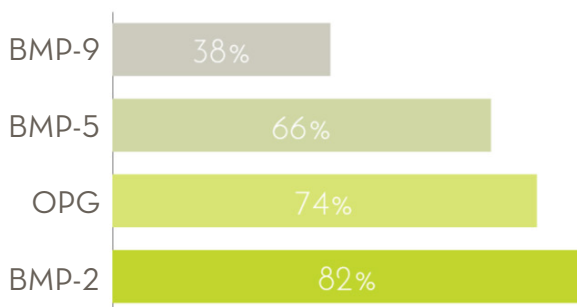
One Complete Graft

Growth factors, viable cells, and scaffold working together in a single graft

EXPANDED AND ENHANCED GROWTH FACTOR PROFILE⁵

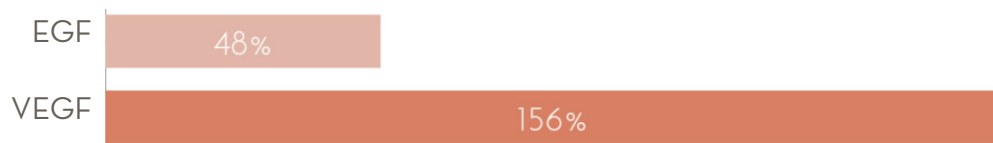
Osteoinductive

Recruit and direct bone-forming cells



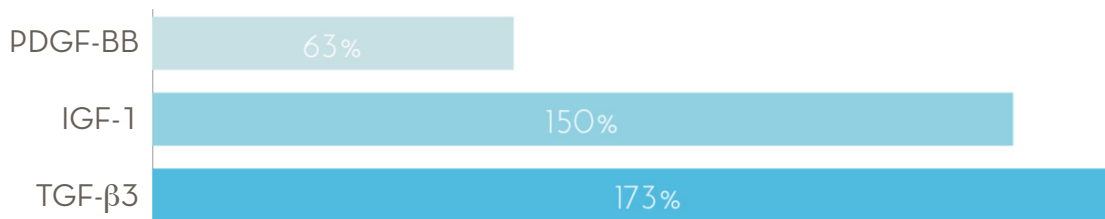
Angiogenic

Support blood vessel formation



Proliferative

Expand and sustain healing response



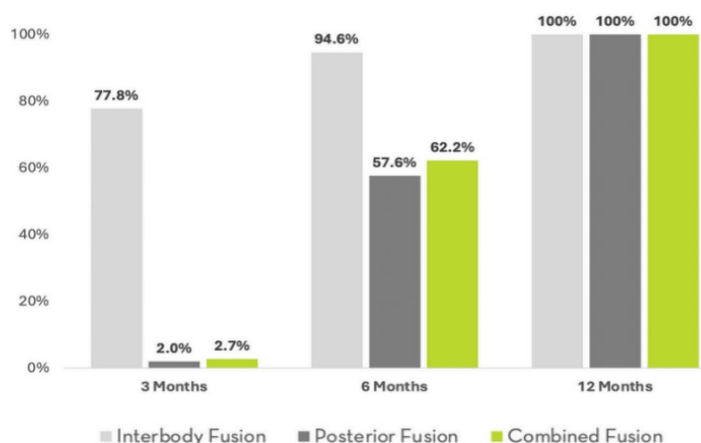
Values represent % increase in preserved growth factor levels relative to DBM.

HIGH-RISK PATIENTS, HIGH IMPACT RESULTS



Baseline

12-month postoperative



CT scans from a 61-year-old obese female (smoker with hypertension) who underwent a revision procedure.

INITIAL CLINICAL RESULTS UTILIZING SPARC IN A HIGH RISK SPINAL FUSION COHORT ⁶

Passias et al., *Frontiers in Musculoskeletal Disorders*, 2025

Retrospective review of a high-risk, 20-patient cohort undergoing 1- to 15-level spinal fusions.

100%

of levels fused
at 12 months

55%

improvement
in EQ-5D VAS

52%

improvement
in ODI

54%

improvement
in SRS-22r

TREATING A CHALLENGING PATIENT POPULATION

Comorbidities can negatively impact the biologic processes involved in fusion.⁷



45%
were obese



35%
former or
current smokers



35%
currently
taking steroids



30%
had
cardiovascular
disease



20%
had renal
disease



35%
undergoing
revision surgery

SPARC IS DESIGNED TO IGNITE FUSION.



Ignite Signal

Designed to capture and retain naturally occurring signaling components, including BMPs, VEGF, EGF, and TGF- β 3.



Ignite Integration

Combines pro-osteogenic signal, osteoconductive scaffold and viable cells within a single graft.



Ignite Simplicity

Cohesive handling, moldable fibers, and ready-to-use preparation designed for the realities of the OR.

PRODUCT SIZES AND CODES

Product Size	Product Code
1cc	IFLX-CM-01
2cc	IFLX-CM-02
5cc	IFLX-CM-05
10cc	IFLX-CM-10
15cc	IFLX-CM-15

For more information, call customer service at **888.705.4786**, or visit istobiologics.com

Reference: 1. Xiao W, Wang Y, Pacios S, Li S, Graves DT: Cellular and Molecular Aspects of Bone Remodeling. *Front Oral Biol.* 2015, 18:9. 10.1159/000351895 • 2. Martin, GJ Jr. et.al. (1999) New formulations of demineralized bone matrix as a more effective graft alternative in experimental posterolateral lumbar spine arthrodesis. *Spine.* 24(7):637-645 • 3. Roberts TT, Rosenbaum AJ: Bone grafts, bone substitutes and orthobiologics: The bridge between basic science and clinical advancements in fracture healing. *Organogenesis.* 2012, 8:114. 10.4161/ORG.23306 • 4. Khan SN, Cammisa Jr FP, Sandhu HS, Diwan AD, Girardi FP, Lane JM: The biology of bone grafting. *J Am Acad Orthop Surg.* 2005, 13:77-86. • 5. Data on file, Isto Biologics • 6. Passias, P. G., Onafowokan, O. O., Das, A., Mir, J. M., Yung, A., & Fisher, M. (2025). An innovative advance in bone grafting: Initial clinical results using A novel integrative bone graft in spinal fusion. *Frontiers in Musculoskeletal Disorders*, 2. <https://doi.org/10.3389/fmscd.2024.1459266> • 7. Yang S, Zhou B, Mo J, et al.: Risk factors affecting spinal fusion: A meta-analysis of 39 cohort studies. *PLoS One.* 2024, 19. 10.1371/JOURNAL.PONE.0304473

Disclaimer: SPARC™ is a line of human tissue products which meet FDA regulations governing tissue-based products under 21 CFR Part 1271. It is not combined with a drug, medical device, or carrier. The regulatory classification is analogous to that of allograft chips, blocks, or strips. SPARC does not involve culturing cells, capital equipment, purchase, or intraoperative processing.