Spine and Orthobiologics Fusion



# AlloSync<sup>™</sup> Demineralized Cancellous Sponges, Chips, and Cortical Fibers

Poststerilization, Every Lot Is Tested in Vivo to Ensure Osteoinductivity

### **Demineralized cortical fibers**

- Provide an optimal scaffold for cellular attachment and proliferation
- Contain exposed natural growth factors

### Cancellous strips

 After rehydration, the product is compressible and flexible like a sponge

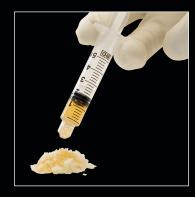
# Cancellous chips

 Naturally wick up bioactive fluids such as PRP and BMA







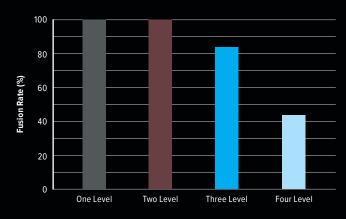


**BoneSync**<sup>™</sup> **Putty and Strips** 

Collagen-Engineered Matrix

- A blend of type I collagen and 80% highly purified beta-tricalcium phosphate
- Specifically engineered to provide a scaffold with porosity resembling natural bone
- Versatile with excellent moldability and handling
- Demonstrated fusion rates equivalent to autograft at 12 months<sup>1</sup>

### Fusion Rates in Multilevel Procedures<sup>1</sup>





#### Reference

 Integra Life Sciences Corp. Data on file (Radiographic analysis of fusion success with Integra collagen ceramic matrix, as compared to autograft use, in posterolateral lumbar spine arthrodesis). Princeton, NJ; 2010.

# **BoneSync**<sup>™</sup> **BioActive**

BoneSync™ BioActive is a second-generation bone void filler with bioactive glass that provides an osteoconductive and osteostimulative matrix.¹

# Unique composition of:

- Bioactive glass, which creates a favorable environment for bone regeneration and osteoblast attachment<sup>1,2</sup>
- Carbonate apatite anorganic bone mineral, which has an optimal resorption and remodeling profile<sup>3</sup>
- Type I collagen, which binds proteins and cells found in bone marrow aspirate (BMA) and platelet-rich plasma (PRP)<sup>4</sup>



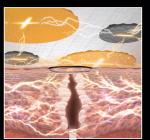
#### References

- Hench LL, Polak JM, Xynos ID, Buttery LDK. Bioactive materials to control cell cycle. Mater Res Innov. 2000;3(6)313-323. doi:10.1007/ s100190000055
- Cottrill E, Pennington Z, Lankipalle N, et al. The effect of bioactive glasses on spinal fusion: A cross-disciplinary systematic review and meta-analysis of the preclinical and clinical data. J Clin Neurosci. 2020;78:34-46. doi:10.1016/j.jocn.2020.04.035
- Spence G, Patel N, Brooks R, Rushton N. Carbonate substituted hydroxyapatite: resorption by osteoclasts modifies the osteoblastic response. *J Biomed Mater Res A*. 2009;90(1):217-224. doi:10.1002/ ibm a 32083
- Geiger M, Li RH, Friess W. Collagen sponges for bone regeneration with rhBMP-2. Adv Drug Deliv Rev. 2003;55(12):1613-1629. doi:10.1016/j. addr.2003.08.010



JumpStart® FlexEFit® and ClearFit™ Dressings

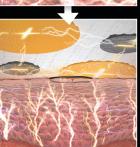
Advanced Microcurrent Technology



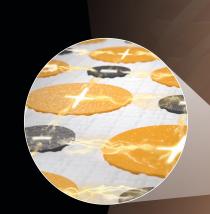
Powered by Electricity Kills and protects against a broad range of bacteria



Energized by Results Proven to reduce infection and promote wound healing<sup>1-6</sup>



Inspired by the Body JumpStart FlexEFit dressing's buildable design covers incisions of any length and angle





- Kim H, Makin I, Skiba J, Ho A, Housler G, Stojadinovic A, Izadjoo M. Antibacterial efficacy testing of a bioelectric wound dressing against clinical wound pathogens. Open Microbiol J. 2014;8:15-21. doi:10.2174/1874285801408010015
- Banerjee J, Das Ghatak P, Roy S, et al. Silver-zinc redox-coupled electroceutical wound dressing disrupts bacterial biofilm. PLoS One. 2015;10(3):e0119531. doi:10.1371/journal.pone.0119531
- Kim H, Izadjoo MJ. Antibiofilm efficacy evaluation of a bioelectric dressing in mono- and multi-species biofilms. J Wound Care. 2015;24(Suppl 2):S10-S14. doi:10.12968/jowc.2015.24.Sup2.S10
- Barki KG, Das A, Dixith S, et al. Electric field based dressing disrupts mixed-species bacterial biofilm infection and restores functional wound healing. Ann Surg. 2019;269(4):756-766. doi:10.1097/SLA.0000000000002504
- Vomaris Wound Care, Inc., Data on file (Report #SLM090512CMC01F). Fountain Hills, AZ.
- Blount AL, Foster S, Rapp DA, Wilcox R. The use of bioelectric dressings in skin graft harvest sites: a prospective case series. J Burn Care Res. 2012;33(3):354-357. doi:10.1097/BCR.0b013e31823356e4



Large-Volume Autologous Bone Collection as Simple as Resect and Collect™

- Efficiently filter and collect high-volume autologous bone graft for fusion site integration
- Suction-activated collection with universal adapters at inflow and outflow
- Clip and tubing included for streamlined workflow in sterile field





- Effective bone removal
- Attachments for open, MIS, and endoscopic spine procedures
- Various bur head configurations



# AlloSync<sup>™</sup> Expand

### 100% Demineralized Cortical Fibers

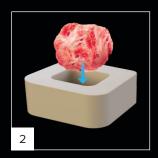
- Controlled expansion to fill gaps and maximize bone contact
- No added fillers for maximum demineralized bone content and osteoinductive potential
- Specific fiber geometry provides exceptional handling

# Cellular Highways

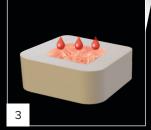
- Fibers have demonstrated superior bone-forming capacity compared to standard particulate demineralized bone matrices¹
- Entangled fibers create a 3D interconnected matrix that can promote cell migration and fusion



AlloSync Expand fibers can be hydrated using concentrated plateletrich plasma (cPRP) from bone marrow aspirate (BMA).



Pack AlloSync Expand fibers into the graft window of the cage.



AlloSync Expand fibers are ideal for intraoperative handling and controlled expansion at the fusion site.

#### Reference

 Martin GJ, Boden SD, Titus L, Scarborough NL. New formulations of demineralized bone matrix as a more effective graft alternative in experimental posterolateral lumbar spine arthrodesis. Spine. 1999;24(7):637-645. doi:10.1097/00007632-199904010-0000



# AlloSync<sup>™</sup> Pure Matrix and the Angel<sup>®</sup> System

A Versatile Graft for Fusion Support

### AlloSync Pure Demineralized Bone Matrix

- Derived from 100% human allograft bone with no extrinsic carriers and verified for osteoinductivity
- Physician-controlled viscosity for a more putty-like or viscous graft, based on hydration
- May be hydrated with choice of autologous fluid, such as concentrated bone marrow aspirate (cPRP from BMA) or PRP

## **Angel System**

- Customized, cPRP from BMA with proprietary 3-sensor technology (3ST) and one-button automation
- The unique design of the Vortex<sup>™</sup> threaded recovery needle maximizes osteoprogenitor cell harvest¹

#### Reference

 McLain RF, Boehm CA, Rufo-Smith C, Muschler GF. Transpedicular aspiration of osteoprogenitor cells from the vertebral body: progenitor cell concentrations affected by serial aspiration. Spine J. 2009;9(12):995-1002. doi:10.1016/j.spinee.2009.08.455













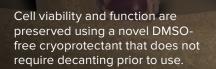
# **ArthroCell<sup>™</sup> Viable Bone Matrices**

# A Cellular Advantage

- Viable endogenous bone cells support the osteogenic healing processes¹
- A demineralized bone graft with osteoinductive potential, which provides exposure of signaling molecules and bone morphogenetic proteins (BMPs)<sup>2</sup>
- An osteoinductive, 3-dimensional scaffold with cortical and cancellous components<sup>3</sup>



ArthroCell Plus Viable Bone Matrix



#### Doforoncos

- Grabowski G, Robertson RN. Bone allograft with mesenchymal stem cells: A critical review of the literature Tissue. 2013;2(2):20.
- Gruskin E, Doll BA, Futrell FW, Schmitz JP, Hollinger JO. Demineralized bone matrix in bone rep Adv Drug Deliv Rev. 2012;64(12):1063-1077. doi:10.1016/j.addr.2012.06.008
- Malinin TI, Carpenter EM, Temple HT. Particulate bone allograft incorporation in regeneration of osseous defects; importance of particle sizes. Open Orthop J. 2007;1:19-24. doi:10.2174/1874325000701010019

# **Arthrex Graft Gun**

Validated to Deliver 100% Autograft Chips<sup>1</sup>

- Compatible with 100% autograft chips or any combination of autograft or allograft bone
- Designed to provide direct visibility for delivering bone graft through a decompression tube
- Can deliver graft into the disc space for fusion procedures







# A Campus Designed for Surgical Skills Education

The expanded Arthrex global headquarters, located in Naples, Florida, is an innovative, 80-acre, university-style campus designed to deliver an immersive and engaging medical education experience for visiting health care professionals. Our modern educational facilities represent our commitment to surgeon education and provide a vibrant atmosphere of rapid product innovation, medical research, and surgeon collaboration.

# arthrex.com

