LifeNet Health Products With PAD® for Optimal Osteoinductive Potential

Optium DBM®

I/C Graft Chamber®

Cortical Chips, Cancellous Chips, Corticocancellous Chips and Cortical Powders

For more information on these products offered with PAD®, please ask your local representative.

LIFENET HEALTH SUITE OF ALLOGRAFT BIO-IMPLANT TECHNOLOGIES

ALLOWASH XG® Tissue Sterilization
Renders allograft bio-implants sterile without compromising their biomechanical or biochemical properties.

PRESERVON® Allograft Bio-implant Preservation
Allows allograft bio-implants to be stored fully hydrated at ambient temperature.

MATRACELL® Allograft Decellularization
Safely removes donor cells and DNA without sacrificing the biomechanical strength of the allograft bio-implant.

PAD® Allograft Demineralization
Precisely manages demineralization to optimize osteoinductivity.

LifeNet Health helps to save lives and restore health for thousands of patients each year. We are the world's most trusted provider of transplant solutions, from organ procurement to new innovations in bio-implant technologies and cellular therapies–a leader in the field of regenerative medicine, while always honoring the donors and healthcare professionals that allow the healing process.

LifeNet Health®
Saving Lives, Restoring Health

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PAD®
The FUTURE Of Allograft Bio-Implant DEMINERALIZATION

A Proprietary Process for Achieving Optimal Osteoinductivity.

LIFENET HEALTH SUITE OF ALLOGRAFT BIO-IMPLANT TECHNOLOGIES

What is PAD®?

A demineralization technology which ensures optimal osteoinductivity for better clinical outcomes.

How Does PAD® Achieve Osteoinductivity?

This patented technology precisely manages the demineralization process to yield an optimal residual calcium level of 1-4%.[1-3]
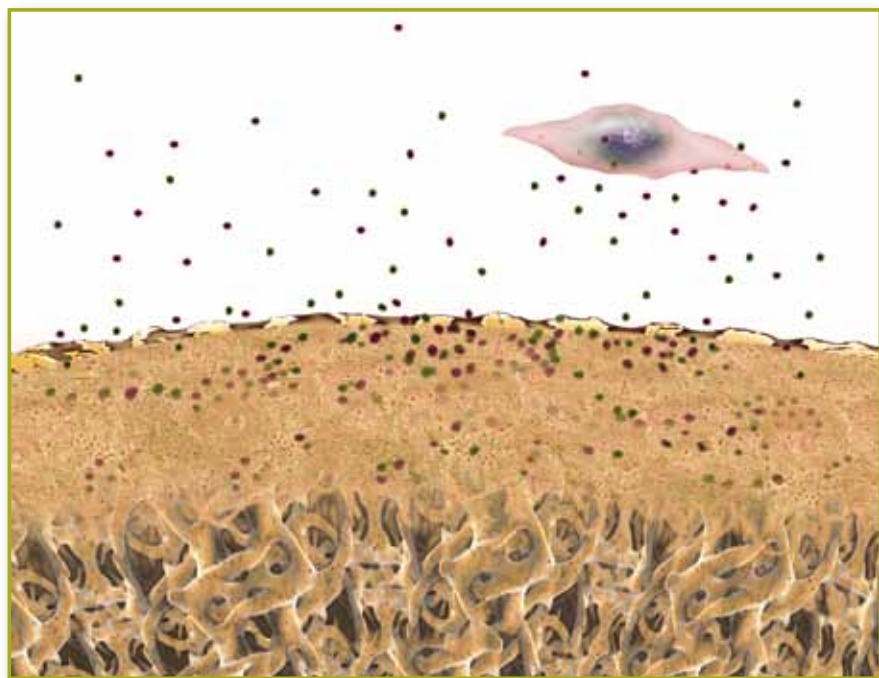
Over-Demineralized

- High residual calcium
- Proteins are unexposed and trapped beneath matrix
- Limited or no osteoinductivity

Under-Demineralized

- Low or no residual calcium
- Proteins removed or denatured
- Osteoinductivity delayed

Optimal Demineralization

PAD®
- **Optimal residual calcium of 1–4%**
- **Proteins exposed**
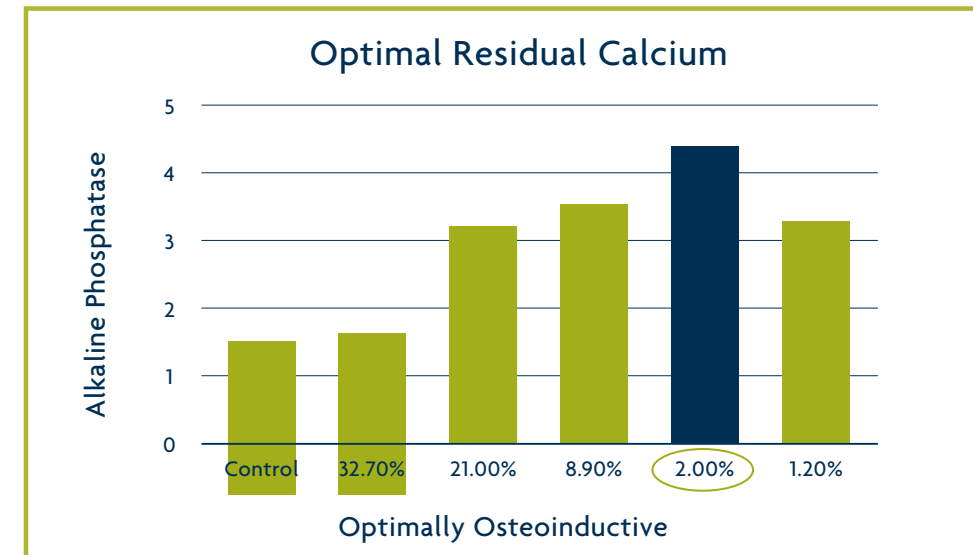- **Increased osteoinductivity**

Optimal Residual Calcium

Figure 1. Available data suggests that ground bone demineralized to an approximate level of 2% residual calcium is optimally osteoinductive resulting in new bone formation.[2] Patented and proprietary PAD® (Pulsatile Acid Demineralization) is shown to consistently achieve this target residual calcium level.

What is Osteoinductivity?

Within bone, there are cascades of growth factors that provide inductive and promoting signals. These signals must be exposed from the bone matrix in order to create the rapid osteoinductive potential necessary for bone healing. For a product to provide rapid osteoinduction, it must be demineralized to specific residual calcium levels.*

Growth Differentiation Factors (GDS)

Carry **osteoinductive** signals that induce stem cells at the site to become bone-forming cells.
GDS1, GDS2, GDS3, GDS5, GDS6, GDS7, GDS8, GDS9, GDS10, GDS11, GDS15

Bone Morphogenic Proteins (BMP)

Carry **osteopromotive** signals which enhance the number of cells at the site.
BMP2, BMP3, BMP4, BMP5, BMP6, BMP7, BMP8a, BMP8b, BMP10, BMP15

1. Herold RW, Pashley DH, Cuening MF: The effects of varying degrees of allograft decalcification on cultured porcine osteoclast cells. J Periodontol. 2002 Feb; 73:213-9
2. Zhang M, Powers RM, and Wolfinbarger L. Effect(s) of the demineralization process on the osteoinductivity of demineralized bone matrix. J Periodontol. 1997; 68:1085-1092
3. Turonis JW, McPherson JC 3rd, Cuening MF. The affects of residual calcium in decalcified freeze-dried bone allograft in a critical-size defect in the Rattus norvegicus calvarium. J Oral Implantol. 2006; 32:55-62

* Zhang M, Powers RM, and Wolfinbarger L. Effect(s) of the demineralization process on the osteoinductivity of demineralized bone matrix. J Periodontol. 1997; 68:1085-1092