Attrax Putty

The proof is in the putty.

The only unique surface-optimized ceramic powered by Level I data

NUVASIVE

Advanced biomaterial

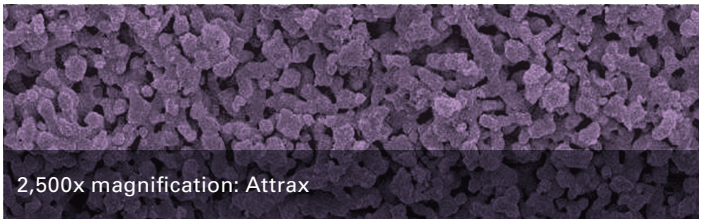
Microarchitecture drives bone formation.

Traditional calcium phosphate materials generally do not give rise to bone formation when implanted in an intramuscular pouch, unless osteoinductive or osteogenic factors are added. Due to its optimized microarchitecture, Attrax has a unique ability to consistently form bone in intramuscular defects without adding osteogenic cells or proteins.[1]

Graft	Attrax	Vitoss BA
Bone incidence	8/8	0/8
Bone area (%)	12.5 ± 9.2	0

Intramuscular bone formation images key

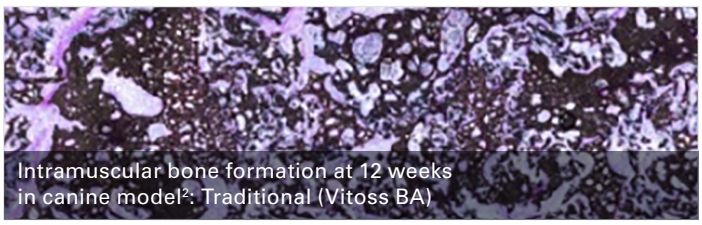
Synthetic graft · New bone · Muscle



2,500x magnification: Attrax

2,500x magnification: Traditional (Vitoss BA)

Intramuscular bone formation at 12 weeks in canine model[2]: Attrax



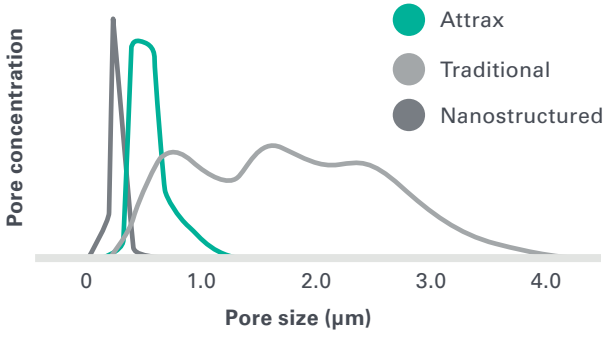
Intramuscular bone formation at 12 weeks in canine model[2]: Traditional (Vitoss BA)

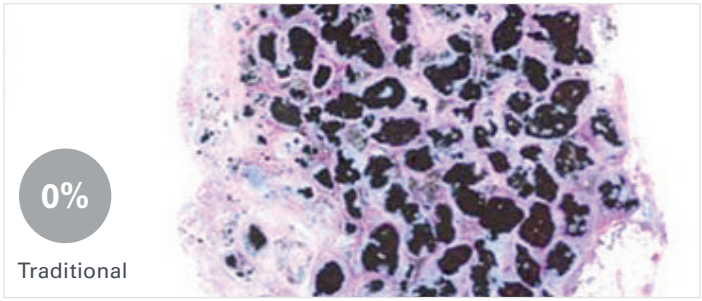
Optimized microarchitecture

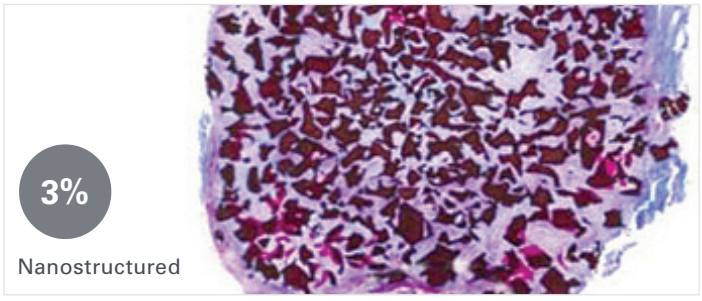
Deliberately engineered. Intelligently designed.

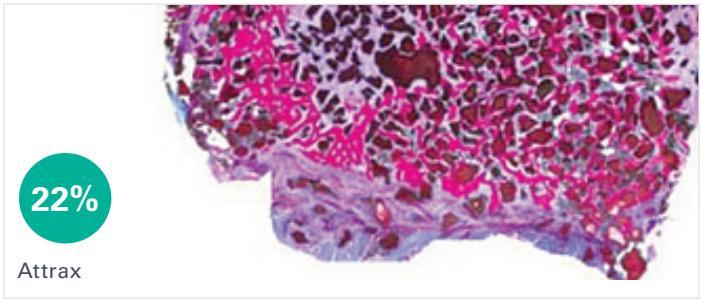
The Attrax ceramic surface has unique microstructure and microporosity that are optimized for bone formation. The unique microarchitecture of Attrax drives the differentiation of mesenchymal stem cells into bone-forming osteoblasts without added growth factors.[3]

The optimized microarchitecture of Attrax is engineered using tightly controlled parameters for a defined micropore size distribution within 0.3 to 1.1 microns. Traditional calcium phosphate materials falling outside of this specification typically do not possess the unique ability of Attrax to form bone consistently inintramuscular defects.[1,2]







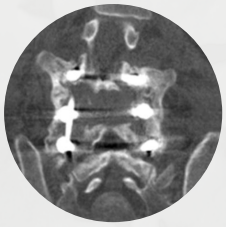


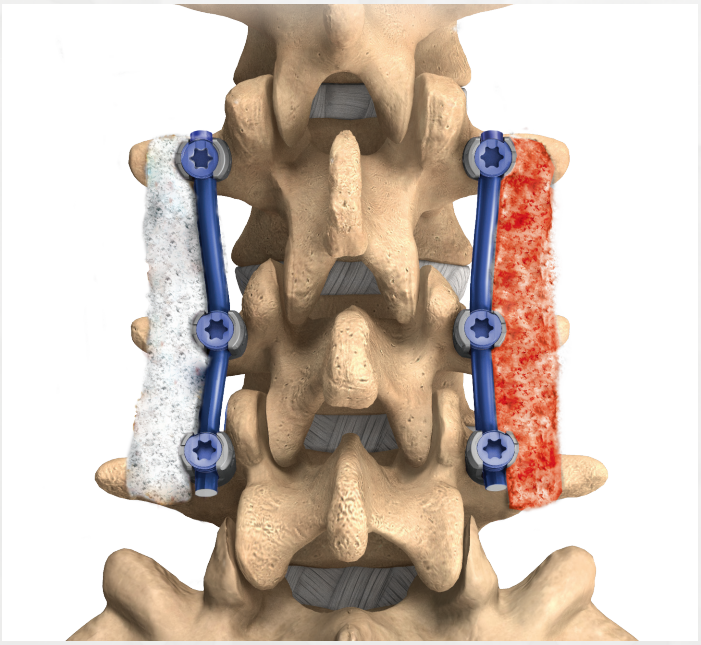
Level I clinical evidence

Attrax Putty is the first and only ceramic supported by a Level I randomized controlled trial as a bone graft substitute in posterolateral lumbar fusions (PLFs).[4]

A multicenter, randomized, intra-patient, controlled trial investigated the efficacy of Attrax Putty as a bone graft substitute for autograft in instrumented PLFs. For each patient, Attrax Putty was randomized to one side of the posterolateral spine and autograft (at least 50% iliac crest bone graft) was placed on the opposite side. The major advantage of this study design was the elimination of interpatient variability. Fusion was assessed at one year follow up on CT-scans, with each level and each side scored by blinded observers.

The study concluded Attrax Putty alone successfully demonstrated non-inferior fusion performance compared to autograft in instrumented PLF.[5]





High-performance handling

Alkylene oxide copolymer (AOC) is a unique polymer blend that allows Attrax Putty to be molded into a variety of shapes. AOC provides intraoperative flexibility and superior handling characteristics and is eliminated from the body within 48 hours.

Shape options

Cylinder

Strip

Block

Catalog

Product number	Description	Dimensions	Qty.	Total volume
5018001	Attrax Putty cylinder, 1 cc	8x20 mm	1	1 cc
5018002	Attrax Putty cylinders, 2 cc	8x20 mm	2	2 cc
5018005	Attrax Putty strips, 5 cc	50x12.5x4 mm	2	5 cc
5018006	Attrax Putty blocks, 6 cc	25x9x13.5 mm	2	6 cc
5018010	Attrax Putty strips, 10 cc	50x12.5x8 mm	2	10 cc

References

1. Barbieri D, Yuan H, Ismailoglu AS, et al. Comparison of two moldable calcium phosphate-based bone graft materials in a noninstrumented canine interspinous implantation model. *Tissue Eng Part A* 2017;23(23- 24):1310-20.
2. Yuan H, Luo X, Barbieri D, et al. Superiority of nanostructured calcium phosphate bone graft substitutes for bone regeneration. 9th World Biomaterials Congress 2012. Chengdu, China.
3. Yuan H, Fernandes H, Habibovic P, et al. Osteoinductive ceramics as a synthetic alternative to autologous bone grafting. *PNAS* 2010;107(31):13614-9.
4. Based on review of publicly available materials at the time of this release.
5. Lehr MA, Oner CF, Delawi D, et al. Efficacy of a Standalone Microporous Ceramic vs. Autograft in Instrumented Posterolateral Spinal Fusion; a Multicenter, Randomized, Intra-patient Controlled, Non-inferiority Trial. *Spine* 2020;published ahead of print.

For important product safety information on the Attrax family of products, including, but not limited to, indications for use, contraindications, warnings, precautions, and potential adverse effects, please visit **nuvasive.com/eifu** to see the product specific instructions for use.

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