

The future of all-suture.

# Iconix HA<sup>+</sup> The future of all-suture.

## **Dual-modality HA+ coating**

The Iconix HA<sup>+</sup> coating was designed with HA and bioglass as these materials have been shown to accelerate bone healing at early implantation time.<sup>1,2,3</sup>

## **Hydroxyapatite + Bioglass**

Hydroxyapatite is a stable compound shown to be osteoconductive and osteophyllic,<sup>4</sup> with a close structural and chemical resemblance to bone material.<sup>5</sup>

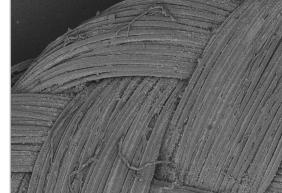
Bioglass is a rapidly dissolving compound with two modes of bioactivity: bone bonding and osteostimulation.<sup>6,7,8</sup>

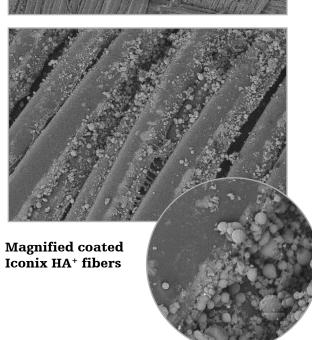
Hydroxyapatite and bioglass have been shown in published studies to promote biological fixation between bone and a coated implant.<sup>1,9</sup>

## Osteostimulatory effect

Upon implantation, the ionic constituents of bioglass may be released into the surrounding environment and may react with bodily fluids to facilitate the deposition of a thin layer of physiologic calcium phosphate at its surface, thus attracting osteoblasts to the layer to create a matrix that promotes an osteostimulatory effect.<sup>6,7,8,10</sup>

In conjunction, the HA surface may act as a nucleating site for bone minerals, 10,11 thus promoting the adhesion and proliferation of osteoblastic cells on the anchor surface. 1,12

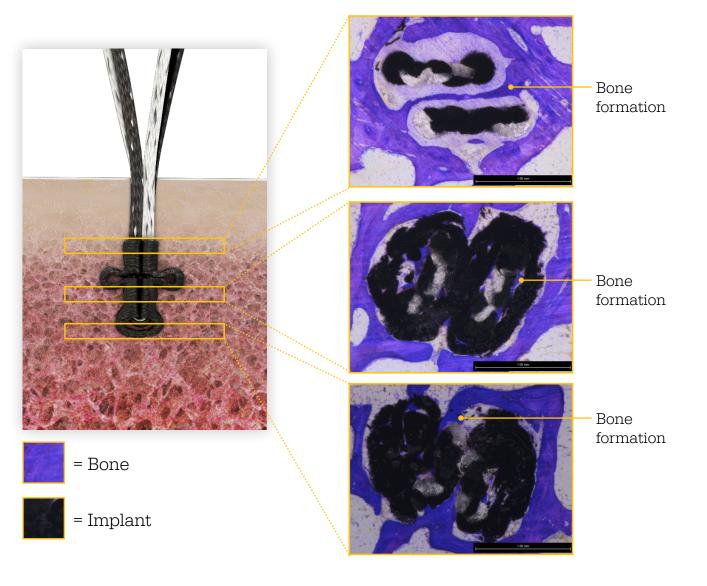




## Creating the potential for accelerated bony integration

An ovine animal study, comparing Iconix HA<sup>+</sup> to an uncoated all-suture implant, was designed to evaluate the implants with respect to bone ongrowth at 4, 8 and 12 weeks.

Images below show bone growing adjacent to the implant with some integration into the anchor and areas of direct bone-device contact.

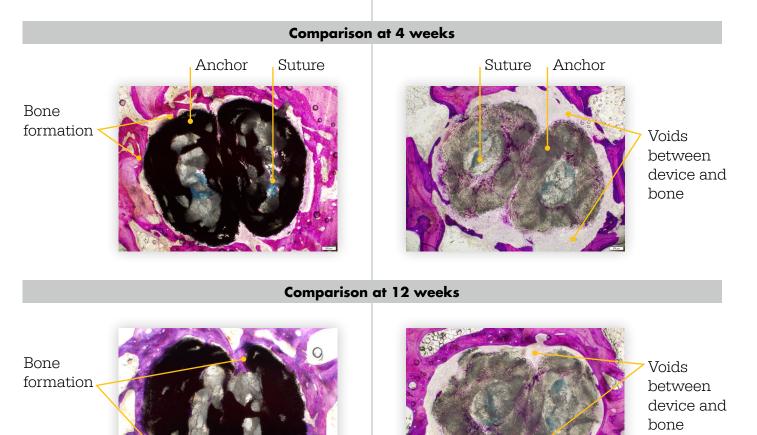


Histology images at three cross sections of an Iconix HA<sup>+</sup> anchor at 12 weeks post-implantation in large animal ovine study.<sup>13</sup>

In a blinded histomorphometry analysis at 8 weeks, the uncoated implant showed no integration (n=4), while Iconix HA<sup>+</sup> showed bone integration in all samples (n=4).<sup>13</sup>

## Iconix HA<sup>+</sup> Images show bone growing adjacent to the implant with some integration into the anchor.

**Leading competitor all-suture anchor** Images show voids adjacent to bone.



Histology images of an Iconix HA<sup>+</sup> anchor (size 2.3mm) and a leading competitor all-suture anchor (single-loaded) at 4 weeks and 12 weeks post-implantation in large animal ovine study.<sup>13</sup>

## **Backed by the Iconix family**

The proven fixation, strength<sup>14</sup> and versatility of the Iconix family now offered with HA<sup>+</sup> coating.





### IntelliBraid Technology

Targeted compression zones designed to create a bunching effect within the implant sheath for secure fixation with minimal bone removal.



### Self-centering technology

Iconix disposable drills have a unique self-centering technology to ensure accurate pilot hole placement.\*



#### Straight and curved guide options

The guide and obturator options allow for a variety of techniques.\*\*

Indicated for surgical procedures in shoulder, hip, knee, foot and ankle, elbow and hand and wrist.\*\*















Product number	Description
Iconix HA+ implants	
3911514630НА	Iconix HA+ 1 TT, 1.4mm anchor with 1 strand 1.2mm XBraid TT (black/white)
3911523730НА	Iconix HA+ 2 TT, 2.3mm anchor with 2 strands 1.8mm XBraid TT (black/white, white/black)
3911514620НА	Iconix HA+ 1, 1.4mm anchor with 1 strand #2 XBraid S (black/white)
3911523720НА	Iconix HA+ 2, 2.3mm anchor with 2 strands #2 XBraid S (black/white, white/black)
Iconix platform instrumentation	
3910500568	Iconix 1.4mm disposable drill
3910500571	Iconix 1.4mm reusable drill
3910500553	Iconix 12-degree guide for 1.4mm anchor
3910500556	Iconix 12-degree guide for 2.3mm anchor
3910500569	Iconix 2.3mm disposable drill
3910500574	Iconix 2.3mm reusable awl
3910500573	Iconix 2.3mm reusable drill
3910500554	Iconix 25-degree guide for 1.4mm anchor
3910500557	Iconix 25-degree guide for 2.3mm anchor
3910500562	Iconix pencil tip obturator for 1.4mm anchor
3910500563	Iconix pencil tip obturator for 2.3mm anchor
3910500564	Iconix trocar tip obturator for 1.4mm anchor
3910500565	Iconix trocar tip obturator for 2.3mm anchor
3910500558	Iconix slant 12-degree guide for 1.4mm anchor
3910500560	Iconix slant 12-degree guide for 2.3mm anchor
3910500559	Iconix slant 25-degree guide for 1.4mm anchor
3910500561	Iconix slant 25-degree guide for 2.3mm anchor
3910500552	Iconix straight guide for 1.4mm anchor
3910500555	Iconix straight guide for 2.3mm anchor
3910500550	Iconix straight guide short for 1.4mm anchor
3910500551	Iconix straight guide short for 2.3mm anchor
3910500575	Multi-system tray

\* Applicable to PNs 3910500568 and 3910500571 \*\* See PUB-462 for full indications for use

#### References

- Ielo I, Calabrese G, De Luca G, Conoci S. Recent Advances in Hydroxyapatite-Based Biocomposites for Bone Tissue Regeneration in Orthopedics. Int J Mol Sci. 2022 Aug 27;23(17):9721. doi: 10.3390/ijms23179721. PMID: 36077119; PMCID: PMC9456225.
- Mohseni, E.; Zalnezhad, E.; Bushroa, A.R. Comparative investigation on the adhesion of hydroxyapatite coating on Ti-6Al-4V implant: A review paper. Int. J. Adhes. Adhes. 2014, 48, 238-257.
- 3. Arcos D, Vallet-Regí M. Substituted hydroxyapatite coatings of bone implants. J Mater Chem B. 2020 Mar 4;8(9):1781-1800. doi: 10.1039/c9tb02710f. PMID: 32065184; PMCID: PMC7116284.
- Kurioka K, Umeda M, Teranobu O, Komori T. Effect of various properties of hydroxyapatite ceramics on osteoconduction and stability. Kobe J Med Sci. 1999 Aug;45(3-4):149-63. PMID: 10752309. Nanyang Technological University, Singapore
- 5. J.L. Xu, K.A. Khor, 5 Plasma spraying for thermal barrier coatings: processes and applications, Editor(s): Huibin Xu, Hongbo Guo, In Woodhead Publishing Series in Metals and Surface Engineering, Thermal Barrier Coatings, Woodhead Publishing, 2011, Pages 99-114
- J.R. Jones, D.S. Brauer, L.:G.D.C. Hupa Bioglass and Bioactive Glasses and Their Impact on Healthcare Int. J. Appl. Glass Sci., 7 (2016), pp. 423-434
- A. Hoppe, N. S. Gueldal, and A. R. Boccaccini, "A Review of the Biological Response to Ionic Dissolution Products From Bioactive Glasses and Glass-Ceramics," Biomaterials, 32 [11] 2757–2774 (2011).
- 8. Hench, L.L., Splinter, R.J., and Allen, W.C., Bonding Mechanisms at the Interface of Ceramic Prosthetic Materials. Journal of Biomedical Materials Research, 1971; 2(1): 117-141.
- Chen Q, et al.Cellulose Nanocrystals--Bioactive Glass Hybrid Coating as Bone Substitutes by Electrophoretic Co-deposition: In Situ Control of Mineralization of Bioactive Glass and Enhancement of Osteoblastic Performance. ACS Appl Mater Interfaces. 2015 Nov 11;7(44):24715 25.
- Amavedi S, Whittington AR, Goldstein AS. Calcium phosphate ceramics in bone tissue engineering: a review of properties and their influence on cell behavior. Acta Biomater. 2013;9:8037–45
- Bohner M, Lemaitre J. Can bioactivity be tested in vitro with SBF solution? Biomaterials. 2009;30:2175–9
- Mohseni, E.; Zalnezhad, E.; Bushroa, A.R. Comparative investigation on the adhesion of hydroxyapatite coating on Ti-6Al-4V implant: A review paper. Int. J. Adhes. Adhes. 2014, 48, 238-257.
- 13. Data on file at Riverpoint Medical DNX0012 Animal Study Iconix HA All-Suture Anchor.
- 14. DHFD15515

## **Sports Medicine**

Droduct

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