

Move the needle on fusion rates

MagnetOs is a bone graft like no other: thanks to its NeedleGrip™ surface technology, it grows bone even in soft tissues.* To help you understand how and why we can help you minimize non-unions, we created this at-a-glance overview.

Where we are today



the current % rate of non-unions.^{1,2}



the current % rate of revision surgeries needed.³



the % fusion rate that can be improved by choosing the most effective bone graft.^{2,4,5}

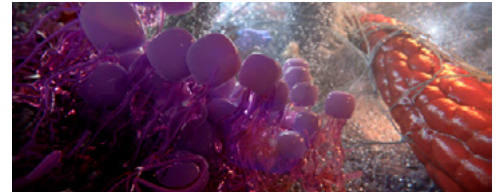
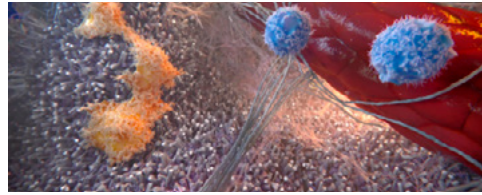
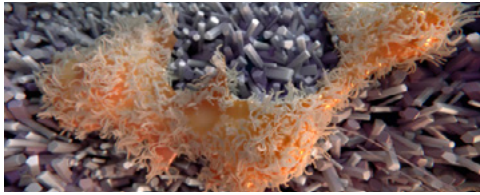
So, how does MagnetOs minimize non-unions?

MagnetOs grows bone even in soft tissue thanks to our NeedleGrip surface technology which provides traction for our body's vitally important 'pro-healing' immune cells (M2 macrophages).^{†6,7}

This in turn, unlocks previously untapped potential to stimulate stem cells - and form new bone throughout the graft.^{†8-10,12}

As a result, MagnetOs has shown favorable preliminary results versus autograft in a prospective, multi-center, randomized, intra-patient controlled trial.⁸⁻¹¹

Minimizing non-unions with NeedleGrip



Polarize

Circulating immune cells (monocytes) differentiate into macrophages that are subsequently polarized, by the submicron needle-shaped features of MagnetOs' NeedleGrip surface. As a result, they become the pro-healing, anti-inflammatory M2 macrophage phenotype.^{†6,12}

Regenerate

In natural bone homeostasis, it is well established that M2 macrophages play a critical role. M2 macrophages communicate with local stem- and progenitor cells via secretion of regenerative signaling factors, including osteoactivin and BMP-2.¹³⁻¹⁵ These signaling factors induce mesenchymal stem cells to migrate, proliferate and differentiate into osteoblasts that lay down osteoid.^{12,15-17} Endothelial cells are stimulated to form capillaries that deliver nutrients and yet more osteogenic cells to the site of repair.^{12,17}

Propagate

Non-unions tend to happen in the core of large-span defects, as seen in spinal fusions. NeedleGrip propagates bone in this core region - by interacting directly and indirectly with circulating osteogenic cells - rather than only from the outside-in via creeping edge repair.^{†‡6-8,10}

MagnetOs: by the numbers

>150 years of combined, relevant research experience.

>10 post-market clinical studies.

>5 randomized controlled trials.

MagnetOs Product Overview

MagnetOs Granules		
Granule size (mm)	Product code	Volume size (cc)
1-2	703-021-US	10
1-2	703-045-US	20
2-4	703-026-US	20

MagnetOs Putty		
Granule size (mm)	Product code	Volume size (cc)
1-2	703-029-US	1
1-2	703-043-US	2.5
1-2	703-035-US	5
1-2	703-038-US	10

MagnetOs Easypack Putty		
Granule size (mm)	Product code	Volume size (cc)
1-2	703-048-US	1.5
1-2	703-050-US	2.5
1-2	703-051-US	5
1-2	703-053-US	10
1-2	703-054-US	15

MagnetOs Flex Matrix		
Granule size (mm)	Product code	Volume
0.25-1	703-056-US	Small
0.25-1	703-057-US	Medium
0.25-1	703-058-US	Large
0.25-1	703-059-US	Extra Large

So, are you ready to move the needle?

The growing body of science behind our NeedleGrip surface technology is called *osteimmunology*. But for surgeons and their patients it means one thing: a more predictable fusion.^{††10,11}

If you want to know more about MagnetOs, contact us today at:
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References: 1. Medtech 360 report "Orthopedic Biomaterials Market Analysis 2017". 2. Hsu, et al. *GSp*. 2012;2:239-248. 3. Mabud, et al. *Clin Spine Surg*. 2017;30:E1376-E1381. 4. Chun, et al. *Neurosurgical Focus*. 2015;39(4):E10. 5. Morris, et al. *ESJ*. 2018;27:1856-1867. 6. Van Dijk, et al. *eCM*. 2021;41:756-73. 7. Duan, et al. *eCM*. 2019;37:60-73. 8. Van Dijk, et al. *JOR Spine*. 2018;e1039. 9. Van Dijk, et al. *J Biomed Mater Res. Part B: Appl Biomater*. 2019;107(6):2080-2090. 10. Van Dijk, et al. *Clin Spine Surg*. 2020;33(6):E276-E287. 11. Data on File. 12. Data on File. 13. Yu, et al. *J Cell Biochem*. 2016;117(7):1511-1521. 14. Liguori, et al. *Cell Mol Immunol*. 2021;18(3):711-722. 15. Zhang, et al. *Cell Tissue Res*. 2017. 16. Arosarena, et al. *J Cell Physiol*. 2011;226(11):2943-2952. 17. Hu, et al. *J Cell Biochem*. 2013;114(12):2729-2737.

*In large animal models. †Results from in vivo laboratory testing may not be predictive of clinical experience in humans. For important safety and intended use information please visit kurosbio.com. ††MagnetOs is not cleared by the FDA as an osteoinductive bone graft. ‡For a 510(k)-cleared synthetic bone graft. ††MagnetOs has been proven to generate more predictable fusions than two commercially available alternatives in an ovine model of posterolateral fusion.

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