

# Kuros Biosciences

The future of spinal fusions

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# Investment highlights

The future of spinal fusions

**Kuros is on a mission** to ease the burden of spine-related pain through superior biologics for better spinal fusions

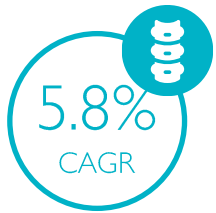
- Swiss-headquartered biotech company with operations in the Netherlands and the USA.
- Listed on the SIX Swiss Stock Exchange (Ticker: KURN).
- CHF 29.4 million cash & cash equivalents, trade and other receivables as of June 30, 2021.
- 57 employees.
- Delivering superior biologics, supported by the highest quality & quantity of scientific evidence. We believe that this is a key differentiator for Kuros, given the urgent need to reduce spinal fusion failure rates.

	Spinal Fusions 2021 <sup>1-3</sup>	Bone Graft Market Value 2021 <sup>1-3</sup>	Bone Graft Market Value 2030 <sup>1-3</sup>
<i>US</i>	1.6 m	\$1.5 bn	\$2.0 bn
<i>Global</i>	3.1 m	\$2.4 bn	\$3.0 bn

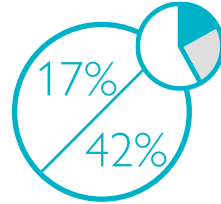
- Fibrin-PTH (KUR-113): Phase II in the US.
- **MagnetOs** commercially available in US, 10 EU countries and AU. New EU launches expected in 2022. CHF 8m sales expected in 2021.

# Spinal fusion surgery

## The challenge & opportunity



The number of spinal fusion surgeries conducted worldwide is growing.



However, the failure rate for current surgical treatment is 17% - which jumps to 42% for patients with poor health.<sup>1-3</sup>



In fact, the re-operation rate for spine fusions is 10%: so 1 in 10 patients need a second operation to resolve their spine-related pain.<sup>4</sup>



This is bad news for patients, insurers, and medical organizations – where revision surgery barely meets the threshold of cost-effectiveness at \$118k/QALY.<sup>5</sup>



Hence, surgeons, medical organizations and insurers are becoming more discerning about the products approved for these procedures.



Already, we are seeing a reimbursement storm as insurers refuse claims for unproven and off-label products.

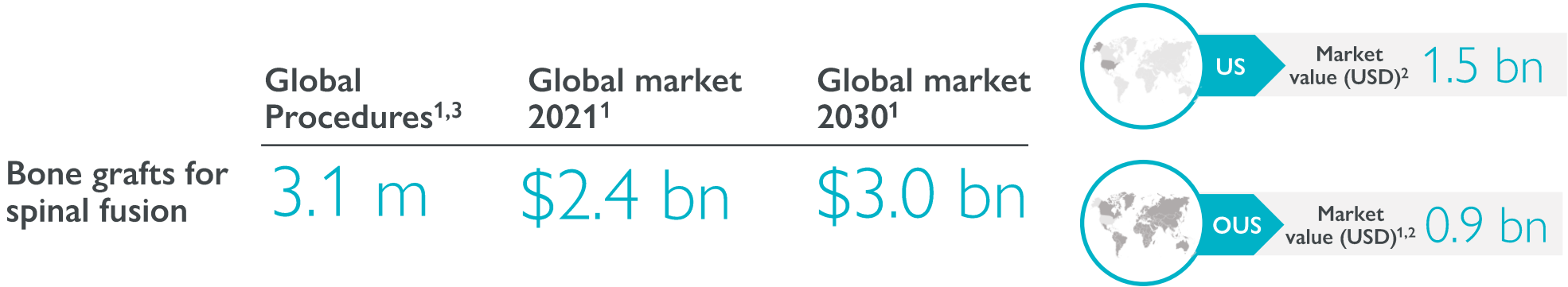


Bone grafts are essential to improving fusion rates: in fact, the most effective ones can improve the chance of success by up to 60%.<sup>2,6,7</sup>



Bone grafts supported by high-quality Level I clinical studies will ultimately become the solution of choice of surgeons, providers, and insurers.

# Spinal surgery: the total addressable biologics market



Insurers increasingly refuse claims for unproven and off-label products. Biologics supported by high-quality Level I clinical studies will ultimately become the solution of choice of surgeons, providers, and insurers.

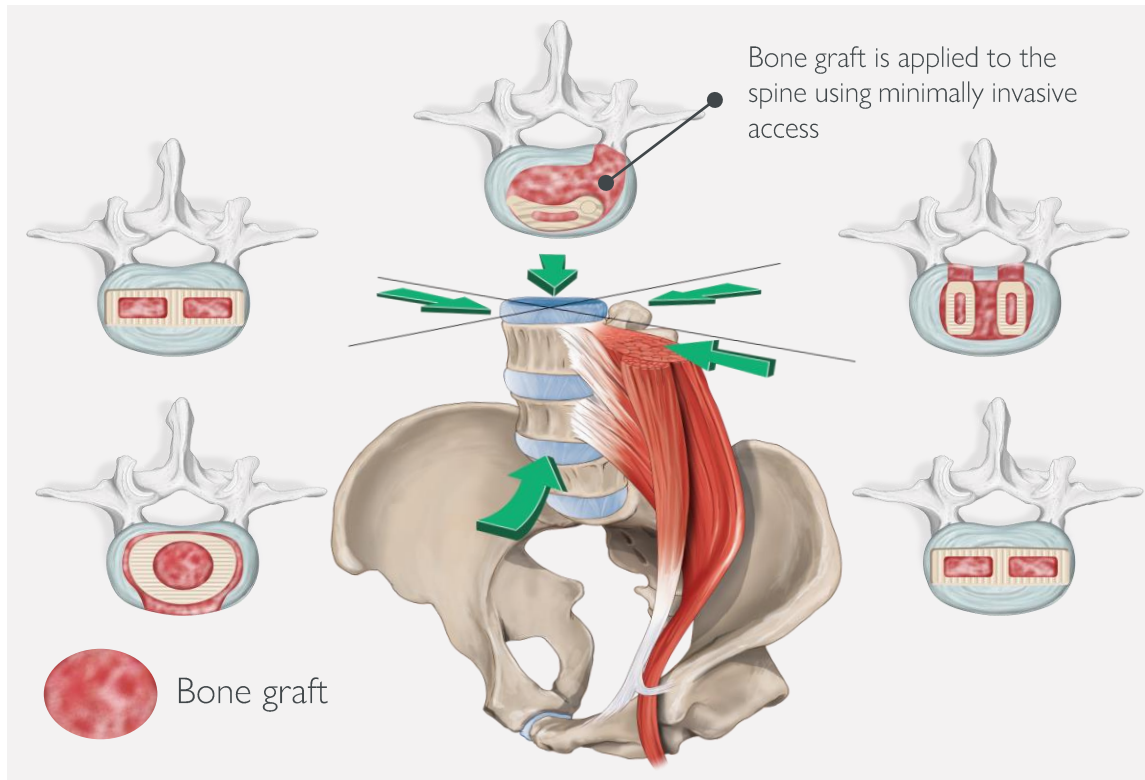
References: 1. US Report for Orthopedic Biomaterials, iDATA Research Inc., 2. Global Report for Orthopedic Biomaterials, iDATA Research Inc., 3. Procedure volumes from selected markets, GlobalData.

# Spinal fusion surgery

Two main types of surgery

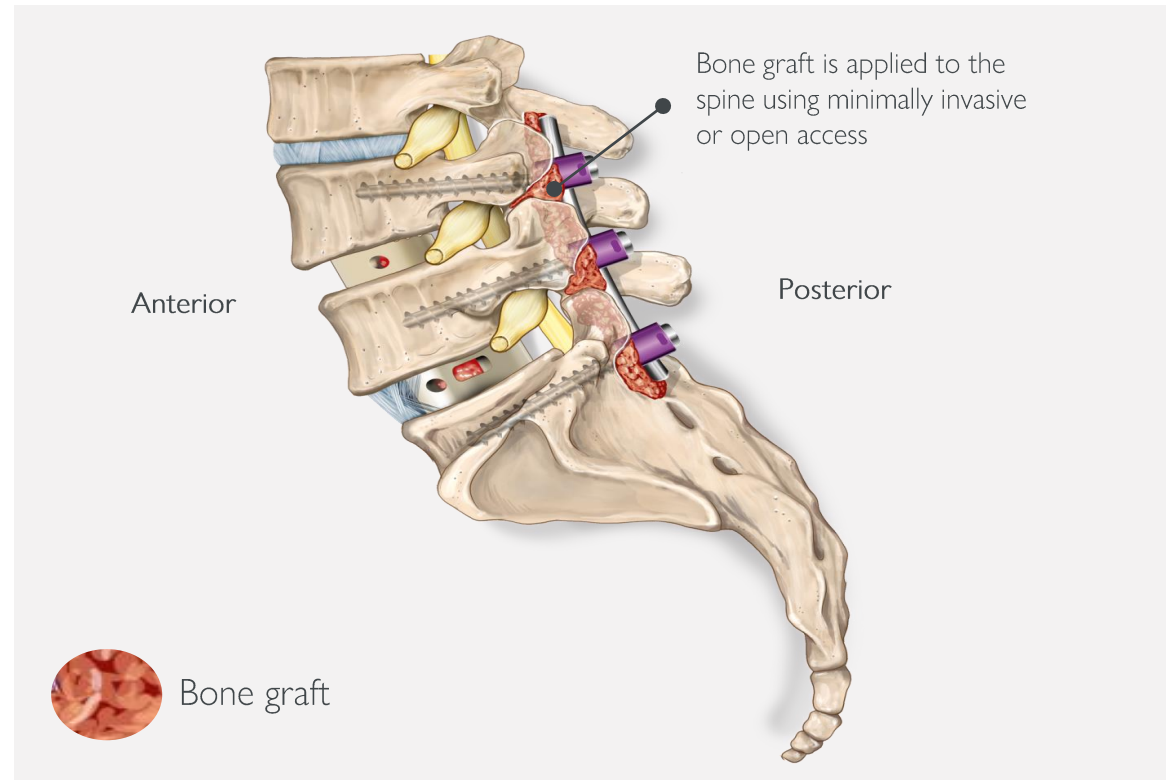
## Anterior column 770k lumbar bone grafts per annum in the US<sup>1</sup>

Today's competitive landscape shows solutions that deliver high safety or efficacy... but rarely both. And none that are suitable for truly non-invasive surgical approaches.



## Posterior column 640k lumbar bone grafts per annum in the US<sup>1</sup>

There is a clear market opportunity for a product that increases fusion rates, is backed by high quality clinical data, but provided at a lower price point.



Reference: 1. Company estimates based on proprietary quantitative market research study of 100 US spine surgeons

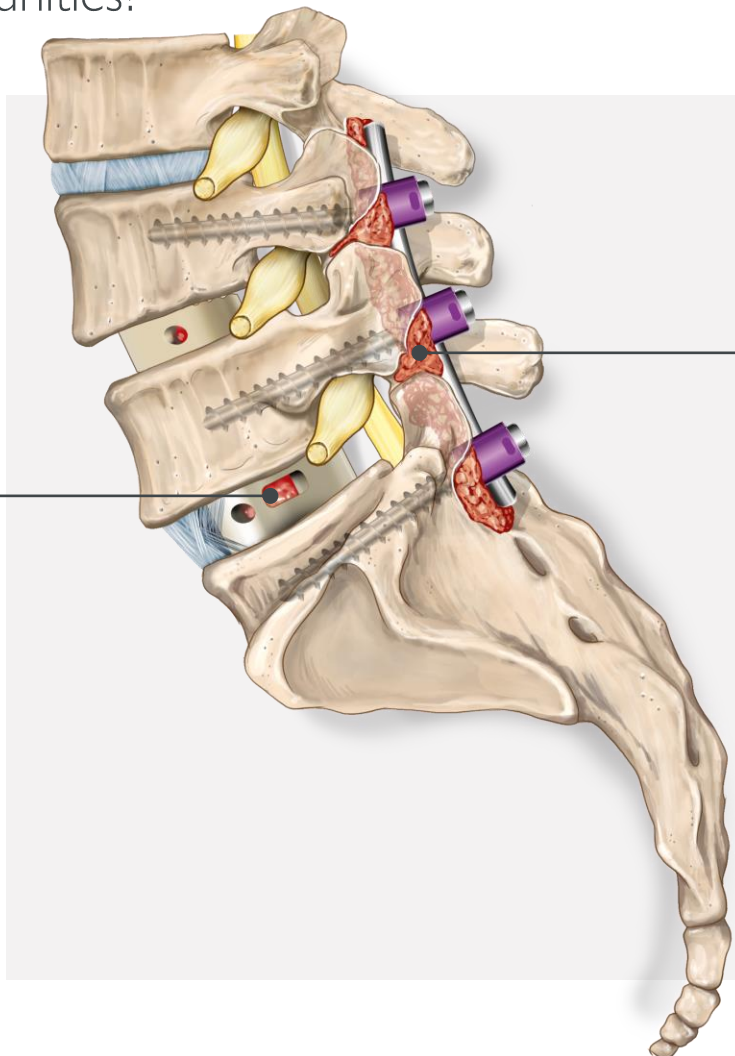
# Kuros solutions

How do we address these two opportunities?

## Anterior column reconstruction

### Fibrin-PTH (KUR-113): Phase II

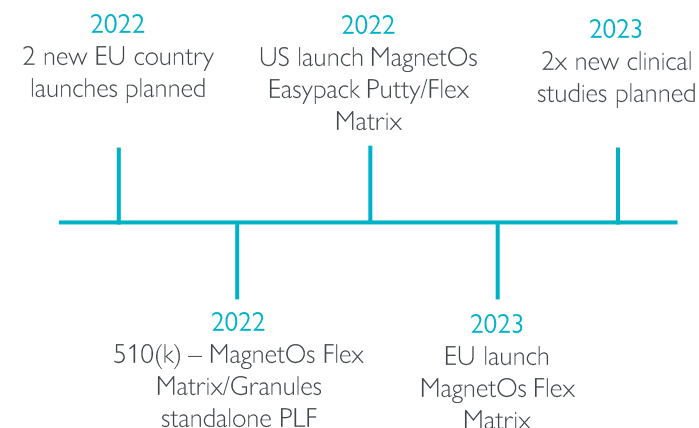
The first ever investigational drug-biologic candidate to be evaluated for spinal fusion; and the first to be compatible with truly non-invasive surgical procedures.



## Posterior column reconstruction

### MagnetOs: Launched

A bone graft that unlocks previously untapped potential to stimulate stem cells and form new bone, even in soft tissue, throughout the graft for an efficient and predictable fusion.\*<sup>†1-4</sup>



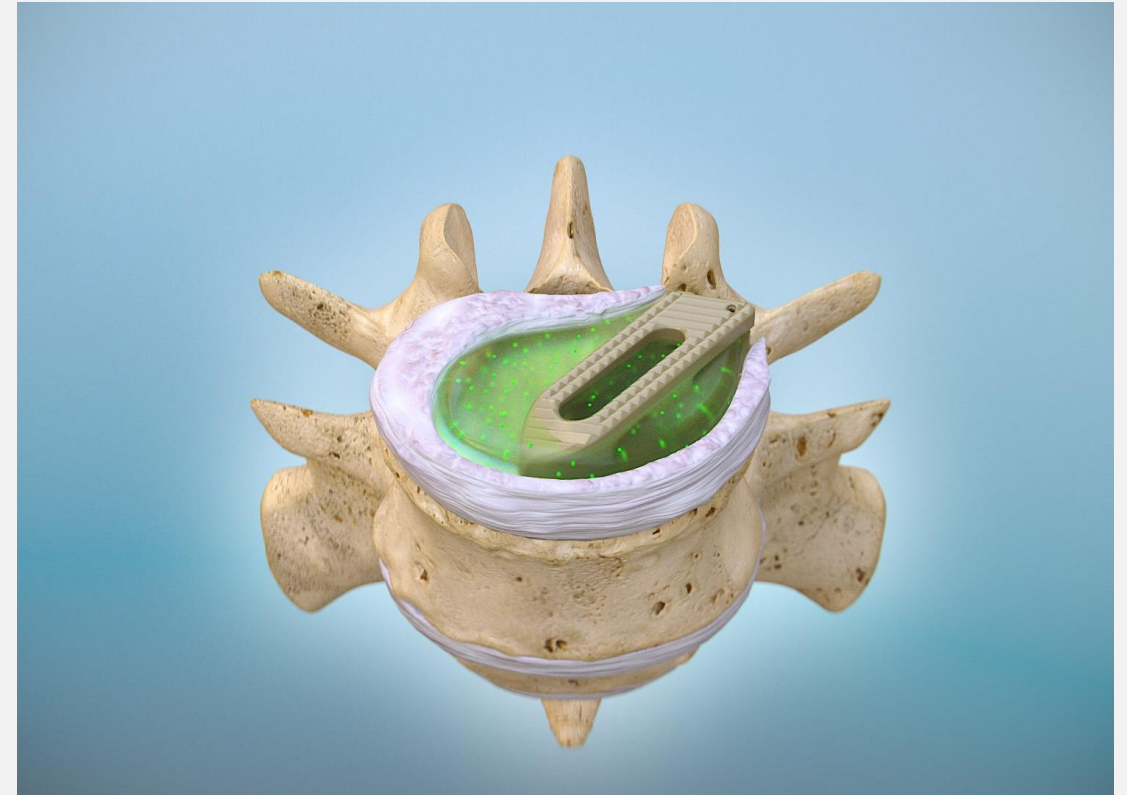
**References:** 1. Van Dijk, et al. *eCM*. 2021;41:756-73. 2. Duan, et al. *eCM*. 2019;37:60-73. 3. Van Dijk, et al. *JOR Spine*. 2018;e1039. 4. Van Dijk, et al. *J Biomed Mater Res. Part B: Appl Biomater*. 2019;107(6):2080-2090. \*Results from in vivo laboratory testing may not be predictive of clinical experience in humans. For important safety and intended use information please visit [kurosbio.com](http://kurosbio.com).<sup>†</sup>MagnetOs is not cleared by the FDA or TGA as an osteoinductive bone graft.

# Fibrin-PTH (KUR-113)

## In pursuit of the first drug-biologic combination for spinal fusion

- Fibrin-PTH combines the well-established mechanism of the bone growth factor parathyroid hormone (PTH) with the natural healing matrix known as fibrin.\*
- Once implanted, Fibrin-PTH promotes spinal fusion by increasing the number and lifespan of bone-forming cells in the fusion space inside the spine.
- This is also the first drug-biologic candidate to be compatible with narrow gauge cannulas for truly non-invasive surgical procedures.
- Now undergoing a Phase 2 clinical trial in the US as part of a de-risked pre-market clinical program.
- Ultimately, this product has the potential to be a genuine gamechanger once commercially available.

\*Fibrin-PTH (KUR-113) is an investigational drug-biologic combination product candidate. Fibrin-PTH (KUR-113) has been evaluated in animals for use in lumbar interbody fusion. The safety & efficacy of Fibrin-PTH (KUR-113) has not yet been evaluated for spinal fusion in humans.

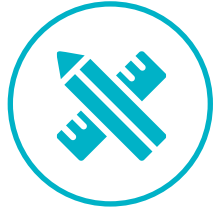


>> <https://kurosbio.com/fibrin-pth/>



# STRUCTURE Fibrin-PTH Phase II:

First drug-biologic candidate in trials for spinal fusion



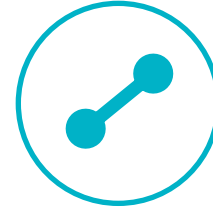
## Design

- Prospective, randomized controlled single blind multi-center study which intends to demonstrate safety and efficacy of Fibrin-PTH (KUR-113) versus local autograft.
- 50 patients in two stages (2 dose levels vs local autograft).



## Treatment

- Single-level TLIF with Fibrin-PTH or local autograft added in and around any static FDA cleared monoblock PEEK cage.
- PLF (fixation plus MagnetOs Putty).



## Primary endpoint

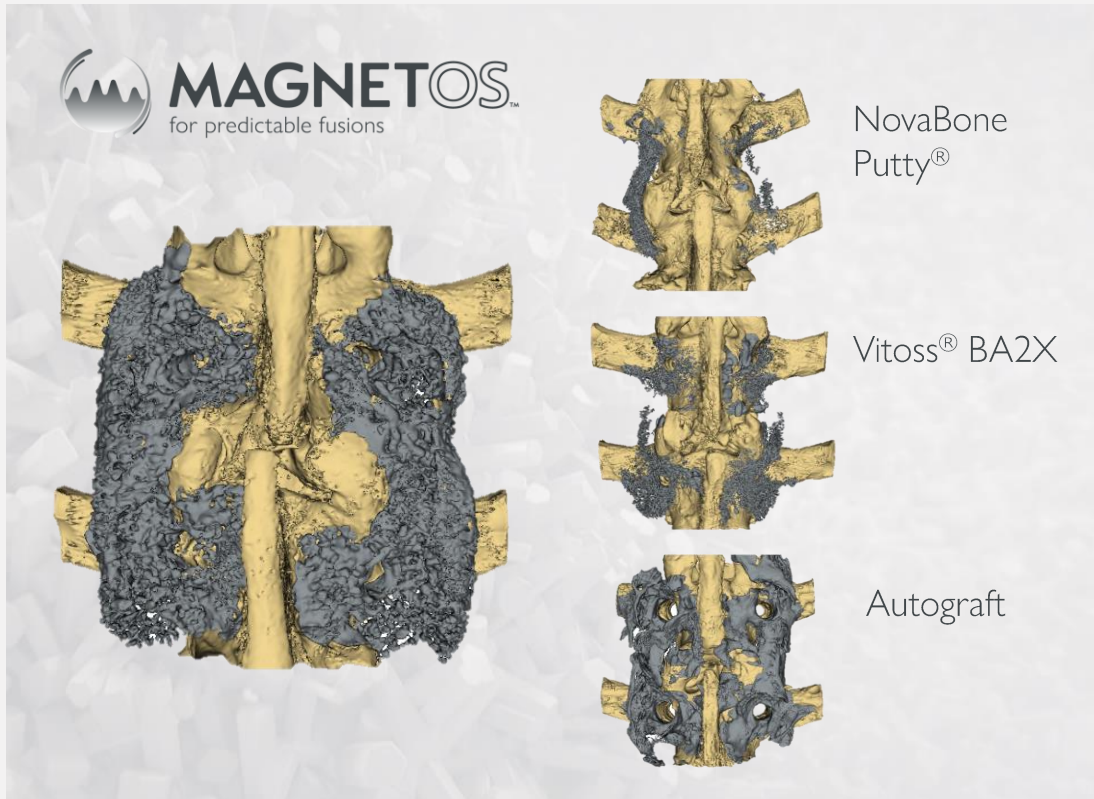
- Radiological fusion determined by CT-scans and assessed by IREP at 12 months.



## Study sites and PIs

- 14 study sites.
- Includes strategic research centers such as UCSD, BWH, HSS, UPenn, Cedars, Sinai, Northwestern, Medstar.

# MagnetOs



>> <https://kurosbio.com/magnetos/>

## NeedleGrip™: Getting a grip on non-unions

- MagnetOs isn't like other bone grafts. It grows bone even in soft tissue thanks to our unique NeedleGrip surface technology which provides traction for our body's vitally important 'pro-healing' immune cells (M2 macrophages).<sup>\*†1,2</sup>
- This in turn, unlocks previously untapped potential to stimulate stem cells - and form new bone throughout the graft.<sup>\*3-5</sup>
- The growing body of science behind NeedleGrip is called *osteimmunology*. But for surgeons and their patients it means one thing: a more efficient and predictable fusion.<sup>\*‡5</sup>
- MagnetOs has already been successfully used in over 5,000 surgeries worldwide.
- New product developments provide a more complete portfolio of peri-operative solutions to surgeons wanting to have access to the therapeutic benefits of MagnetOs bone graft and its NeedleGrip surface technology.

**References:** 1. Duan, et al. *eCM*. 2019;37:60-73. 2. Van Dijk, et al. *eCM*. 2021;41:756-73. 3. Van Dijk, et al. *JOR Spine*. 2018;e1039. 4. Van Dijk, et al. *J Biomed Mater Res. Part B: Appl Biomater*. 2019;107(6):2080-2090.

\*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](https://kurosbio.com). †MagnetOs is not cleared by the FDA or TGA as an osteoinductive bone graft. ‡MagnetOs has been proven to generate more predictable fusions than two commercially available alternatives in an ovine model of posterolateral fusion.

Vitoss is a registered trademark of Stryker Corp. Novabone Putty is a registered trademark of Novabone Products LLC.

# MagnetOs Case Report

Case courtesy of Dr. Alpesh A. Patel, Northwestern Memorial Hospital, Chicago, IL, USA.



60-year-old female

**Diagnosis:**  
Unstable fractures at C2 and C4 that failed conservative treatment.

**Procedure:**  
This patient underwent a 3-level posterior cervical fusion surgery with screws, rods, and MagnetOs bone graft.

**Post-Operative Outcomes:**  
Post-Operative XRs and CTs show healed cervical fusion from C1-C4 with restoration of bony alignment and complete bony fusion.

## Pre-Operative



CTs

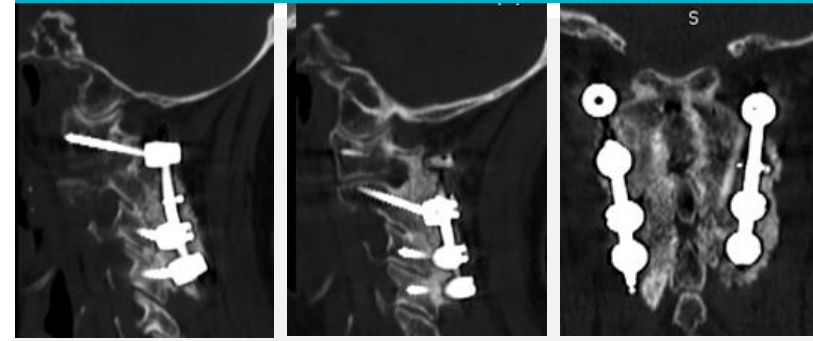
Upright X-ray with lateral tilt

## Post-Operative



X-rays

## 8-Month Post-Operative



CTs

# Expand the depth and breadth of our commercial footprint, by doubling our US sales team and expanding new territories

## United States

- Direct sales team that spans 50 states.
- Supported by growing network of independent agents & distributors.
- Sales in all major metropolitan areas.
- Accounts include prestigious names across the country such as: HSS (NY), Northwestern (Chicago), Medstar (DC), UCSD (CA).

## International

- Launched MagnetOs in 11 new EU countries and 1 APAC country within the space of 12 months.
- EU distributors in Switzerland, The Netherlands, UK, France, Italy, Spain, Austria, Denmark, Norway, Sweden, Finland, and Greece.
- Portugal expected to close in H1, 22.
- Augmented pricing granted and product launched in Australia.

# Management overview

## Executive Management



Joost de Bruijn  
*Chief Executive Officer*



Michael Grau  
*Chief Finance Officer*

## Extended Leadership Team



John Griffin  
*SVP & President US Sales*



Charlie Campion  
*SVP Marketing & International Sales*



James Ryaby  
*SVP Clinical & Medical Affairs*



Philippe Saudan  
*Chief Development Officer*



Alistair Irvine  
*Chief Business Officer*



Florence de Groot  
*Head of Development*



Marcel Borger  
*Head of Quality & Regulatory Affairs*

# Strategic plan for growth:

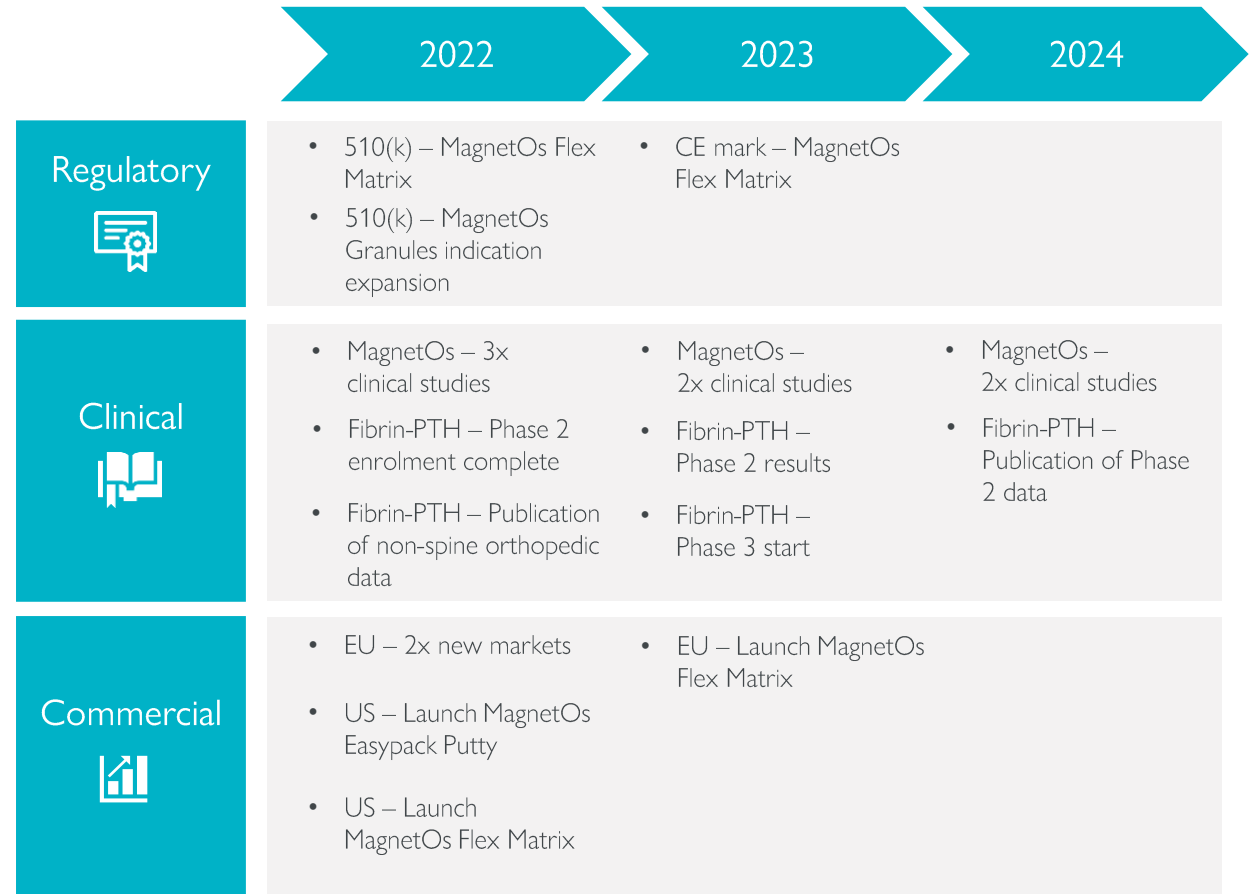
## 4 key value drivers

**01 Expand depth and breadth of our commercial footprint** by doubling our US sales team and expanding new territories.

**02 Phase II clinical trial for Fibrin-PTH** (STRUCTURE study): the first drug-biologic candidate to be approved for an open IND by FDA for spinal fusion.

**03 Make the unpredictable...predictable,** through an unprecedented quality and quantity of clinical research (*Project FUSION*).

**04 Maximize the efficiency of clinical programs** and feeding our NPD strategy (*Project ENGAGE*).



# In summary...



The biggest crisis facing the healthcare economy is spine-related pain, with the number of procedures growing every year.



Bone grafts are an essential part of the solution, but current fusion rates are unacceptable and unsustainable.



Kuros is primed to meet this clinical need in both the anterior and posterior columns of the spine.



We achieve this through superior biologics for spinal fusion, supported by the greatest quality and quantity of clinical data.



Kuros is strategically positioned to create significant value and returns for investors.

# Thank you