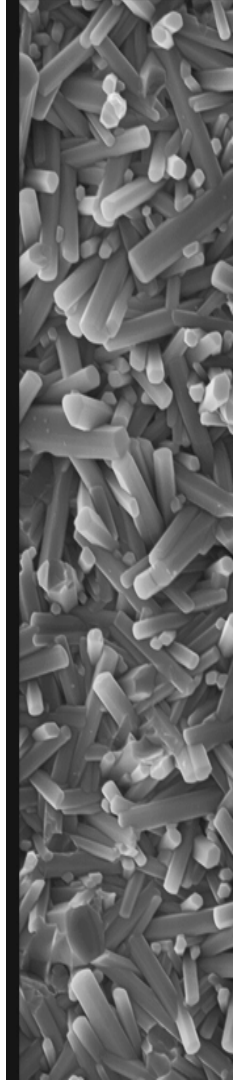
# SINTX Technologies

# Corporate Overview

February 2019

SINTX Technologies

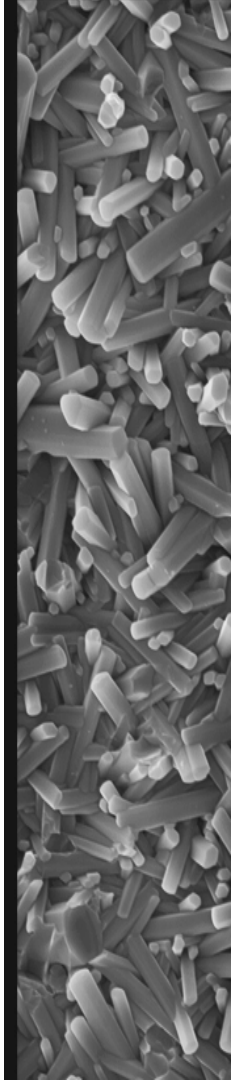


# Our Vision

**Leverage our expertise and knowledge in advanced ceramics, such as silicon nitride, to innovate healthcare solutions that improve lives**

# Our Products

**In 2008, the FDA cleared implantation of our spine fusion implants made of silicon nitride ceramic**



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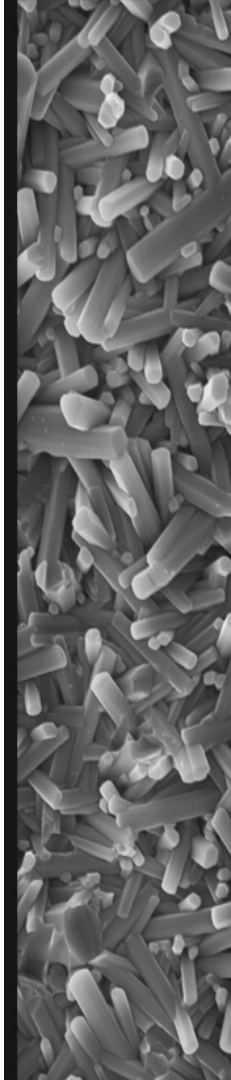
# SINTX Technologies Milestones

- 1996 – “Amedica Corporation” founded by MD-PhD team in Salt Lake City
- 2008 – FDA 510(k) clearance for a spine fusion implant
- 2009 – First silicon nitride interbody spacer implanted; >35,000 since
- 2009 – Manufacturing moved into current facility
- 2010 - Acquired US Spine to gain product breadth
- 2010 – Silicon nitride implants cleared in Europe
- 2013 – 2nd generation silicon nitride spinal implant design
- 2014 – Amedica went public; Nasdaq- AMDA (currently SINT)
- 2015 – Silicon nitride spine implants cleared in Brazil
- 2017 – Silicon nitride spinal implants cleared in Australia
- 2018 – FDA clears porous silicon nitride spinal implant
- 2018 – Divested retail spine to CTL-Medical; we are now SINTX Technologies
  - SINTX has a 10 year exclusive manufacturing role for silicon nitride spine products
  - CTL has a 10 year exclusive sales agreement for all silicon nitride spine products



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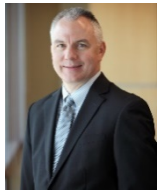
# Experienced Management Team

**B. Sonny Bal, MD, JD, MBA, Ph.D**
*Chairman of the Board*
*Chief Executive Officer*
*President*
*Principal Financial Officer*

- Orthopedic Surgeon, Attorney
- Silicon nitride ceramic research
- CEO role since 2014, on Board since 2012

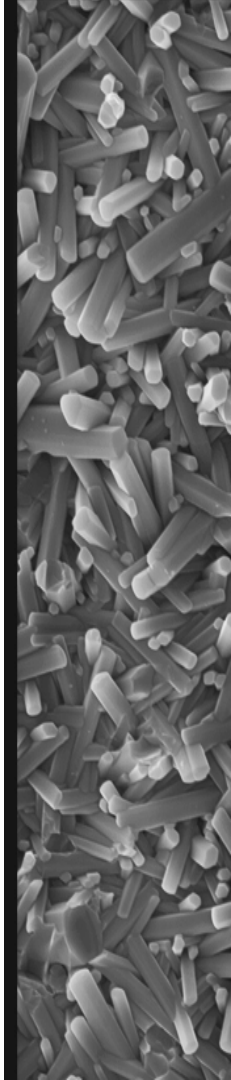
**Bryan J. McEntire, MBA, Ph.D**
*Chief Scientific Officer*

- 35 years research in advanced ceramics
- Senior roles in ceramics and materials companies



**David O'Brien**
*Vice President / General Manager*

- 30 years of operations, manufacturing, and engineering experience with medical devices and ceramics



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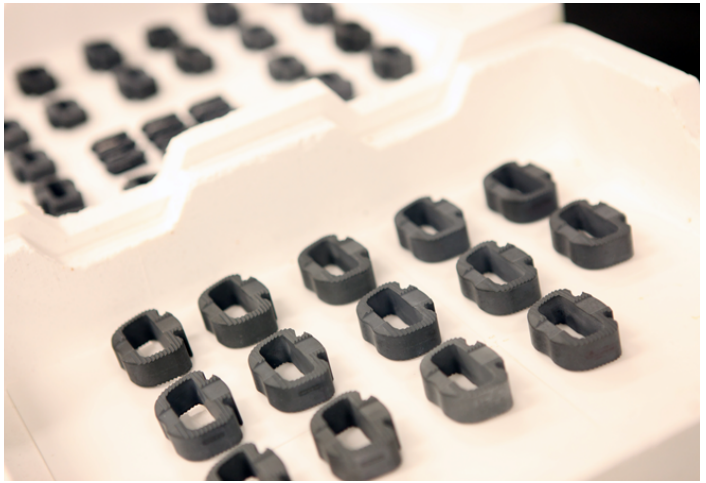
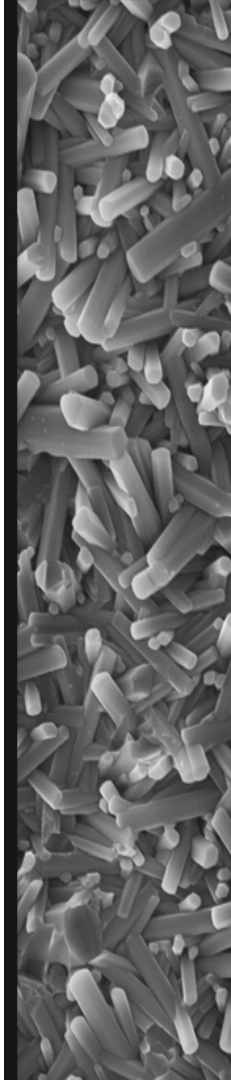
# Properties of Silicon Nitride

*Advanced industrial ceramic with clinical advantages:*

- Faster Bone Fusion
  - Favorable surface topography and chemistry
  - Enhances cell response for faster bone fusion
- Antibacterial Properties
  - Innate surface chemistry
  - A multi-factorial etiology
  - Replicated in multiple studies
- Superior Imaging
  - Easy to see on x-ray, CT, and MRI
  - No image distortion





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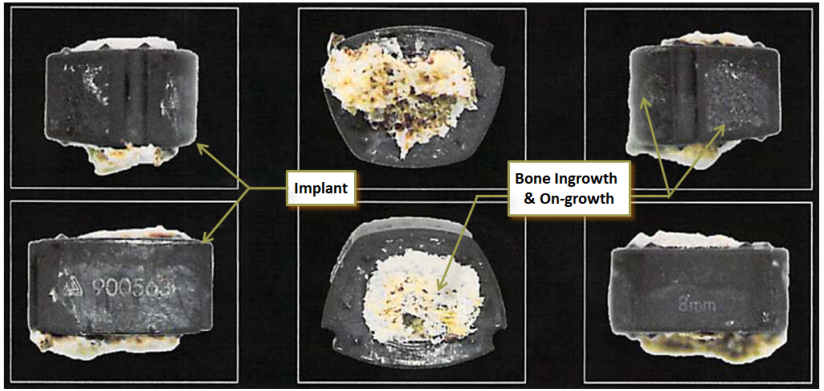
# Proof of Technology in 75+ peer-reviewed papers and presentations in the last 4 years




www.nature.com/scientificreports

SCIENTIFIC REPORTS

OPEN

## Silicon Nitride: A Synthetic Mineral for Vertebrate Biology

Giuseppe Pezzotti[1], Bryan J. McEntire[2], Ryan Bock[2], Marco Boffelli[1], Wenliang Zhu[3], Eleonora Vitale[1], Leonardo Puppulin[4], Tetsuya Adachi[3], Toshiro Yamamoto[5], Narisato Kanamura[5] & B. Sonny Bal[2,6]

Received: 02 November 2015
Accepted: 26 July 2016
Published: 19 August 2016

The remarkable stoichiometric flexibility of hydroxyapatite (HAp) enables the formation of a variety of charged structural sites at the material's surface which facilitates bone remodeling due to binding of biomolecule moieties in zwitterionic fashion. In this paper, we report for the first time that an optimized biomedical grade silicon nitride ($Si_3N_4$) demonstrated cell adhesion and improved osteoconductivity comparable to highly defective, non-stoichiometric natural hydroxyapatite. $Si_3N_4$'s zwitterionic-like behavior is a function of the dualism between positive and negative charged off-stoichiometric sites

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# Strong, active IP portfolio

**13 patents issued**

- 13 U.S

**6 patent applications**

- 5 U.S.
- 1 International

Note – SINTX sold 45 spine device-specific patents to CTL in 2018

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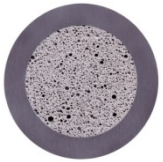
# Versatility: Shapes and Compositions

## Solid: As-Fired and Polished

**As-fired** promotes bone growth
**Polished** used for articulating applications

## Porous: Cancellous (*CsC*)

Biologic substitute for bone in-growth



## Composite: Cortico-Cancellous

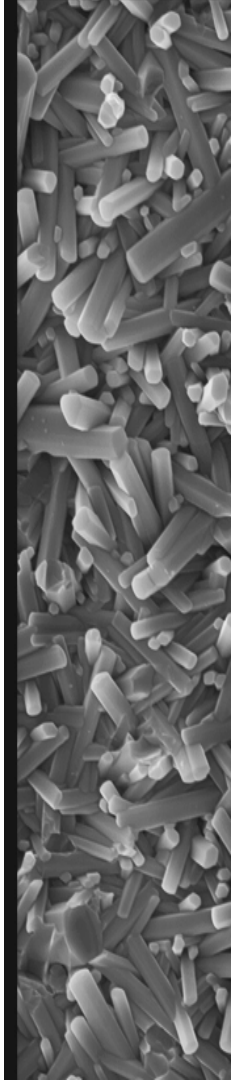
Synthetic bone for a variety of medical applications

## Composite: Articular-Bone Ingrowth

Joint arthroplasty/resurfacing applications

## Technologies Under Development

- **Coatings**
- **Composite PEEK / Silicon Nitride**
- **Brazed devices**
- **Modified Silicon Nitride compositions with improved bioactivity**



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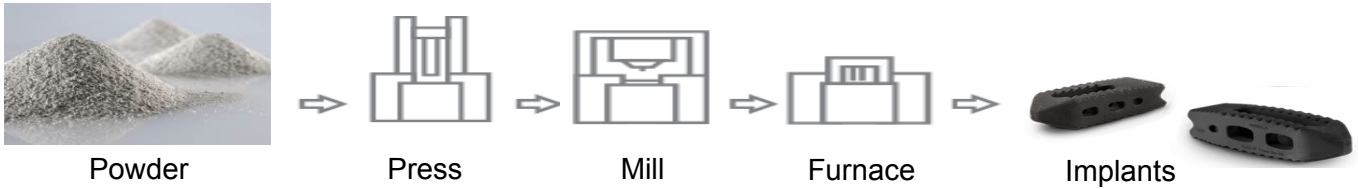
# Cost Efficient Manufacturing

- 30,000 sq. ft. manufacturing and distribution facility in Salt Lake City, UT
  - We believe we are the only FDA & CE cleared $Si_3N_4$ medical device manufacturing facility
  - Vertically integrated for rapid prototyping and development
  - Dedicated R&D and Product Development laboratories
- Production of powder and green compact preparation
- **Cost-competitive complex designs and shapes**
- Rigorous quality control process for each implant

**Silicon Nitride**

Manufacturing Process

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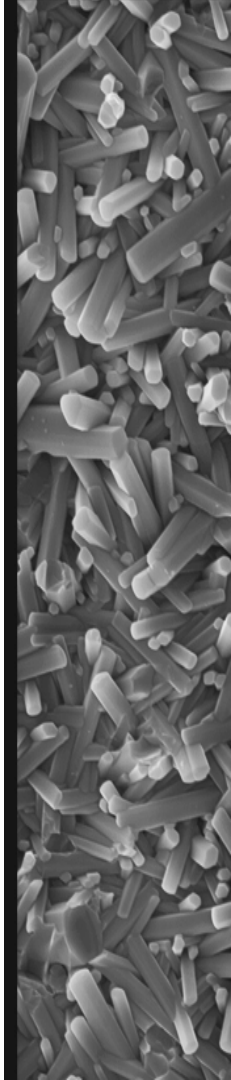
# Rigorous Quality Systems

- Over 33,000 silicon nitride implants, plus >150,000 metal implants since 2009
  - With < 100 FDA reportable incidents.
- SINTX's Quality Management System is certified by:
  - U.S. FDA
  - BSI (The British Standards Institution) – update to 2016 version of the ISO 13485 standard
  - ANVISA (Brazilian regulatory body)



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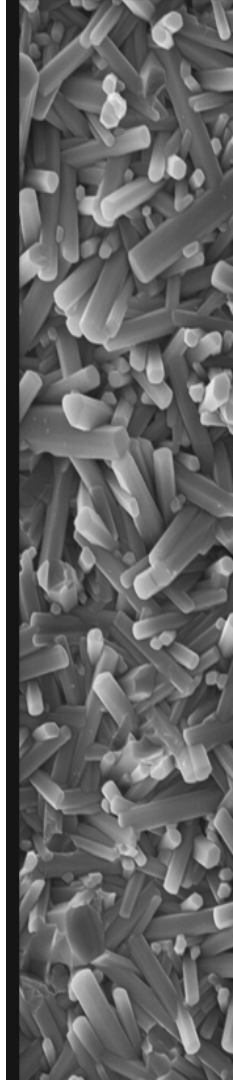
# Silicon Nitride Product Pipeline

- Next-generation spinal implant – porous, textured, coated
- Dental implant and/or abutment
- Maxillofacial implant
- Coatings for spine, non-spine, and non-medical
- Polymer / Silicon Nitride composite devices
- Advanced metal-ceramic brazing technology
- Arthroplasty – hips and knees
- Anti-fungal applications in agriculture & consumer products
- Potential Defense applications



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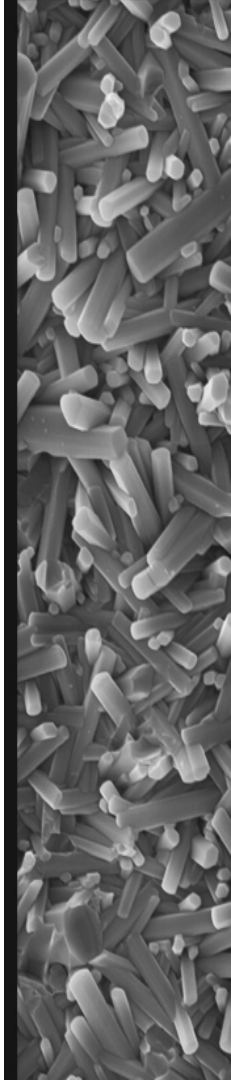
# 2019 Objectives

- Support CTL in transitioning and selling silicon nitride spine products
  - Smooth transition since 2018
  - Excellent compatibility between SINTX and CTL
- Publish SNAP prospective clinical trial, 4-Center clinical study, and others
- Manufacture and commercialize dental implants and abutments
  - Leverages skill and expertise in zirconia ceramics
- Develop new business in silicon nitride surface coatings, polymer composites, oral maxillofacial, arthroplasty, fungicides, glass surfaces
- Raise capital to fund SINTX through 2019-2020



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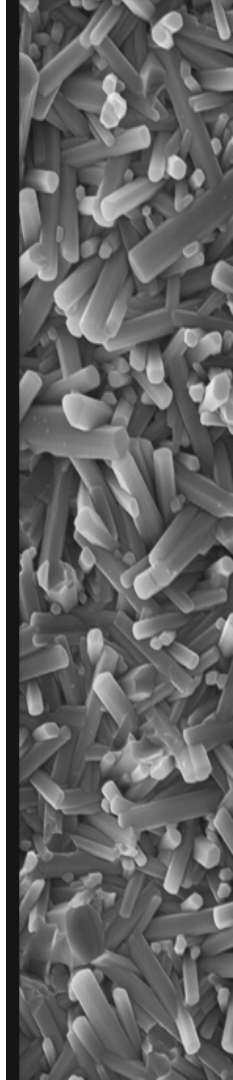
# Cap Table -January 8, 2019

| | |
|---|---|
| Warrants Outstanding | 12,824,657 |
| Options Outstanding (as of January 7, 2019) | 11,301 |
| Shares Available under 2017 Equity Incentive Plan | 75,600 |
| Total Potentially Dilutive Securities | 12,911,558 |
| | |
| Common Shares Outstanding (as of January 7, 2019) | 21,793,641 |
| Series B Outstanding (as converted)* | 9,336,264 |
| Total Shares & Potentially Dilutive Securities | 44,041,463 |
| | |
| Total Debt Outstanding | $ - |

*4,074 Series B outstanding. Assuming conversion rate of $2,291.67:1



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# SINTX At-A-Glance

**Unique FDA registered and ISO 13485 certified silicon nitride medical device manufacturing plant**

**Leadership in knowledge of silicon nitride biomaterials**

- **NU Spine**
- **30-year independent data**

Exclusive combination of scientific, technical, medical, and manufacturing expertise in silicon nitride

Keys- Bone healing, antimicrobial, and imaging-friendly behavior


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