



Lattice**Biologics**

Natural & Regenerative Tissue Solutions

Investor Presentation

GUY COOK | CEO



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This presentation contains certain disclosures that may be deemed forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 that are subject to significant risks and uncertainties. Forward-looking statements include statements that are predictive in nature, that depend upon or refer to future events or conditions, or that include words such as "continue," "efforts," "expects," "anticipates," "intends," "plans," "believes," "estimates," "projects," "forecasts," "strategy," "will," "goal," "target," "prospects," "potential," "optimistic," "confident," "likely," "probable" or similar expressions or the negative thereof.

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OUR FOCUS

TISSUE REPAIR

SRI

BONE

herniated disk

CARTILAGE

torn meniscus
"bone-on-bone"

SKIN

breast reconstruction

chronic sores

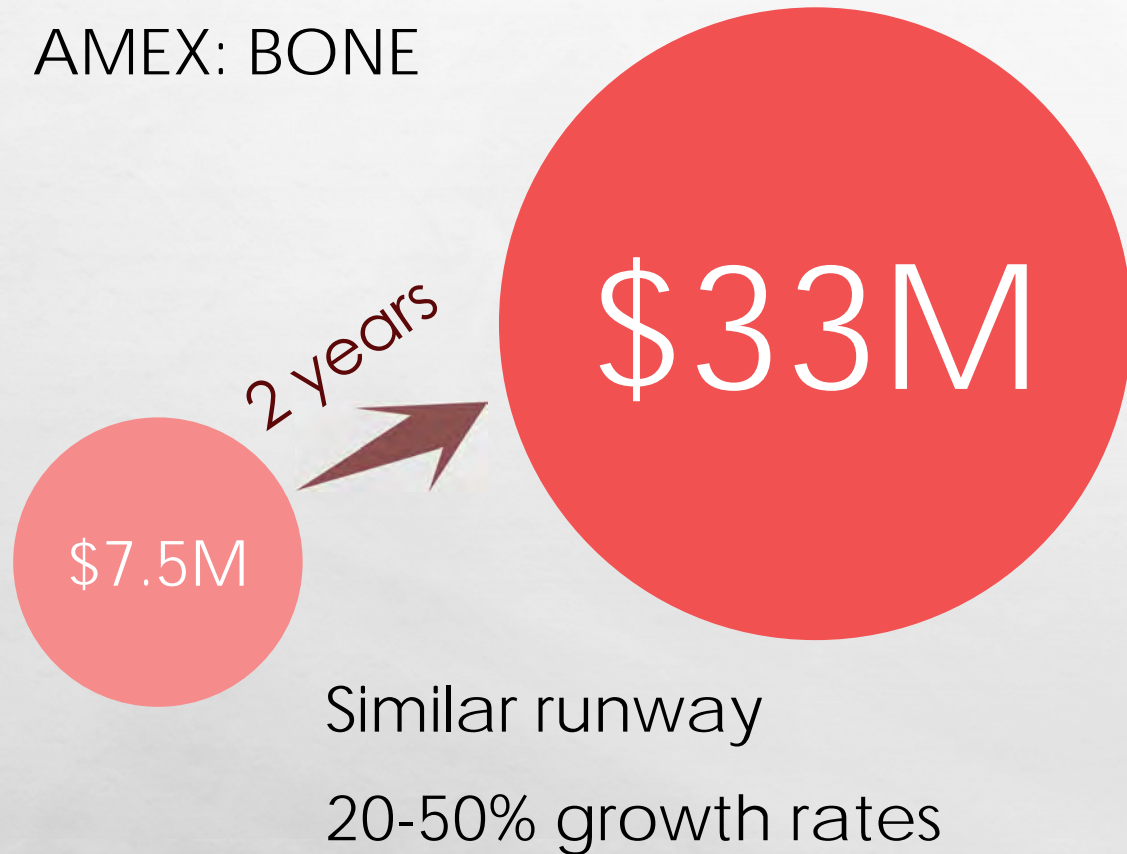
DIAGNOSTICS

breast tumors

brain tumors

NOT OUR FIRST RODEO...

AMEX: BONE



Guy Cook - CEO [Technical Expert & Entrepreneur]

Led Bacterin International Inc. (AMEX:BONE) from a start-up to a publicly traded company, \$400 million market cap.

Increased revenues from \$7.8MM (2009) to \$30.1MM (2012).

18+ years experience in tissue engineering field.

Gregory Davis - COO [Chief Operating Officer]

Expert experience leading organ procurement organizations and eye and tissue banks.

Results-focused leader for operations management, strategic planning, regulatory compliance, cost containment initiatives, effective work team development to maximize productivity, quality improvement

Christopher Bradley, Ph.D.

[Product Development Director]

Published researcher in biochemistry, molecular biology and medicine, cellular protein synthesis, and translation.

10 years experience in research academia, 3 years in industrial chemistry quality control.

\$2.4 MILLION INVESTED BY MANAGEMENT

4 THINGS TO KNOW ABOUT THE TISSUE REPAIR MARKET

1

\$3B

HUGE
MARKET

2

high barriers
to entry
"catch 22"

RIGHT CONDITIONS FOR
INNOVATION TO HAVE AN
ENORMOUS IMPACT

3

low standard
of care

4

rapid regulatory
approval process
"361" tissue
approval pathway

LOW RISK
LOW COST

OUR LEAD PRODUCTS

DBM PUTTY

Tissue grafting solution

Mixture of finely ground, demineralized cortical bone powder and gelatin

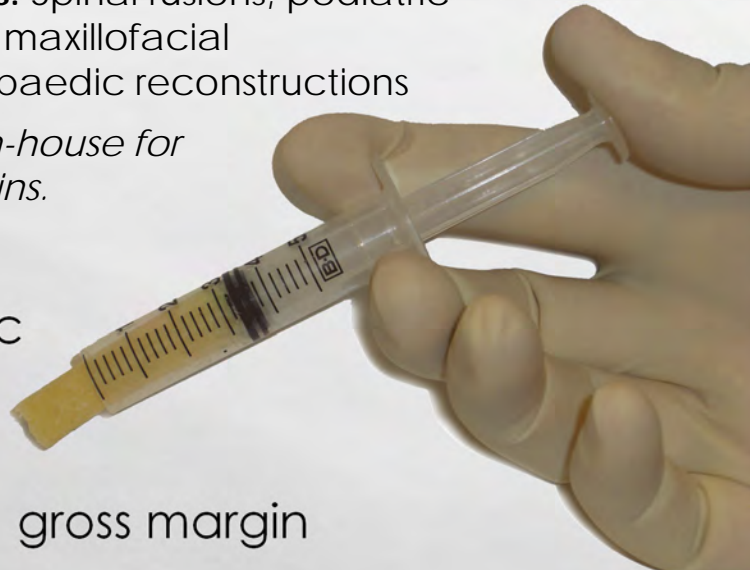
Common Applications: Spinal fusions, podiatric reconstructions, oral / maxillofacial reconstructions, orthopaedic reconstructions

Now manufactured in-house for increased profit margins.

\$100 per cc

80-85%: gross margin

\$450M
opportunity



DERMIS

For breast reconstruction

Acellular Collagen Scaffold created from human dermis

Common Applications: breast reconstruction post mastectomy, diabetic foot ulcers, chronic wounds, and burns

\$10,000 per treatment

85%: gross margin

\$550M
opportunity



5-YEAR SHELF LIFE

NEW PRODUCTS FOR 2016

100% Human Demineralized Cortical Bone [Q2 2016]

- Lattice's product line employs the company's proprietary Matrix-assisted Regeneration (MAR) process to maximize the allografts' osteoconductivity and osteoinductive potential.
 - 100% demineralized cortical bone with excellent malleable handling characteristics.
 - Distributed as a sterile allograft.
 - Easily hydrated with any biocompatible liquid, making it an ideal option for various bone grafting applications. Useful in a number of orthopedic and reconstructive applications, especially spinal.
 - Can be used as a stand-alone bone graft or in combination with autologous bone or other forms of allograft bone.
- ✓ Pliable and compressible handling characteristics
 - ✓ Osteoconductive / Osteoinductive potential
 - ✓ Rehydrates in minutes for easy "wicking"
 - ✓ Excellent carrier for BMA
 - ✓ Sterility assurance level (SAL) 10^{-6}
 - ✓ 5-year shelf life
 - ✓ Room temperature storage
 - ✓ Variable graft sizes for optimal surgical site contact

Lattice has optimized the handling characteristics of cortical bone, allowing the grafts to be used as a malleable bone void filler and bone graft substitute for voids or gaps that are not intrinsic to the stability of the bony structure.

NEW PRODUCTS FOR 2016

Amnion [Q3 2016]

Lattice is expanding our product portfolio into human placental tissue-derived allografts - a natural alternative to synthetic, cadaveric or animal-derived regenerative products.

- Placental tissues used as biologic dressings for over 100 years.

WIDE RANGE OF CLINICAL APPLICATIONS:

- Complex chronic wound treatment
 - Acute wounds (decubitus or pressure ulcers, etc.)
 - Localized areas of injury or inflammation
 - Soft tissue defect and void filling
 - Post-operative wound covering
 - Cover / wrap for the dura, nerves and tendons
- Cells are broadly multipotent, capable of differentiating into adipogenic, osteogenic, myogenic, endothelial, neurogenic and hepatic cell lineages.
 - Harness these unique biologic properties by developing innovative minimal processing techniques to improve clinical outcomes.

✓ Placental tissues found to be a rich source of proteins, carbohydrates, hyaluronic acids and growth factors essential for fetal growth and development and beneficial for healing.

✓ Amniotic tissue (the innermost layer of the placenta) is unique: it is "immune-privileged" and rarely evokes an immune response in the human body.

✓ Research shows amniotic tissue does not express the Class II antigens that typically evoke an immune response.

✓ Shown to have anti-inflammatory, anti-microbial and anti-adhesive properties.

✓ Collagens in amniotic tissue provide a structural tissue matrix for cellular attachment.

Placental tissue's extracellular matrix provides structural support to cells and assists in the migration and proliferation of the patient's own cells to the site of injury or defect.

NEW PRODUCTS FOR 2016

Marcell [Q4 2016]

Marcell, a next generation bone allograft with viable cells, provides a unique alternative to autografts, which have been long considered the standard for grafting.

- Marcell is processed in Lattice Biologics' fully accredited AATB and FDA tissue processing facility where we are dedicated to creating the highest quality allografts.
- Each processing step is designed to maximize the health and viability of mesenchymal stem cells (MSCs) and osteoprogenitor cells (OPCs).
- **Marcell ensures cell health with quality cells:**
 - Strict donor screening standards
 - Time-sensitive processing and controlled-rate of freezing for optimal cell viability
 - Cryopreservation / storage in vapor-phase liquid nitrogen at -185°C
 - Expiration dating that reflects real-time testing and must pass Lattice's stringent release criteria

- ✓ Processed using Lattice's matrix-assisted regeneration (MAR) technology, Marcell offers an enhanced handling experience and provides a viable grafting alternative.
- ✓ **Supplies the 3 physiologic components essential for robust bone formation:**
 - Osteoconductive scaffold
 - Verified osteoinductive potential
 - Reliable number of cells retained within the bone matrix

EXECUTING OUR STRATEGY

[2016 Q2 GOAL]

DBM PUTTY

Tissue grafting solution

Marketing and selling through
Key Opinion Leaders (KOL's)

20 KOLs

[2 KOLs contracted]

20 KOLs

[12 KOLs contracted]



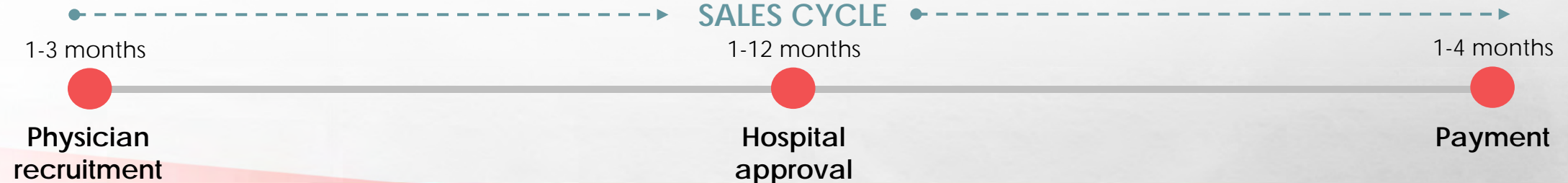
\$2-3M

/ KOL / year



DERMIS

For breast reconstruction



LATTICE BIOLOGICS

INNOVATION

LOOK FAMILIAR...?

As we age, our ability to heal decreases

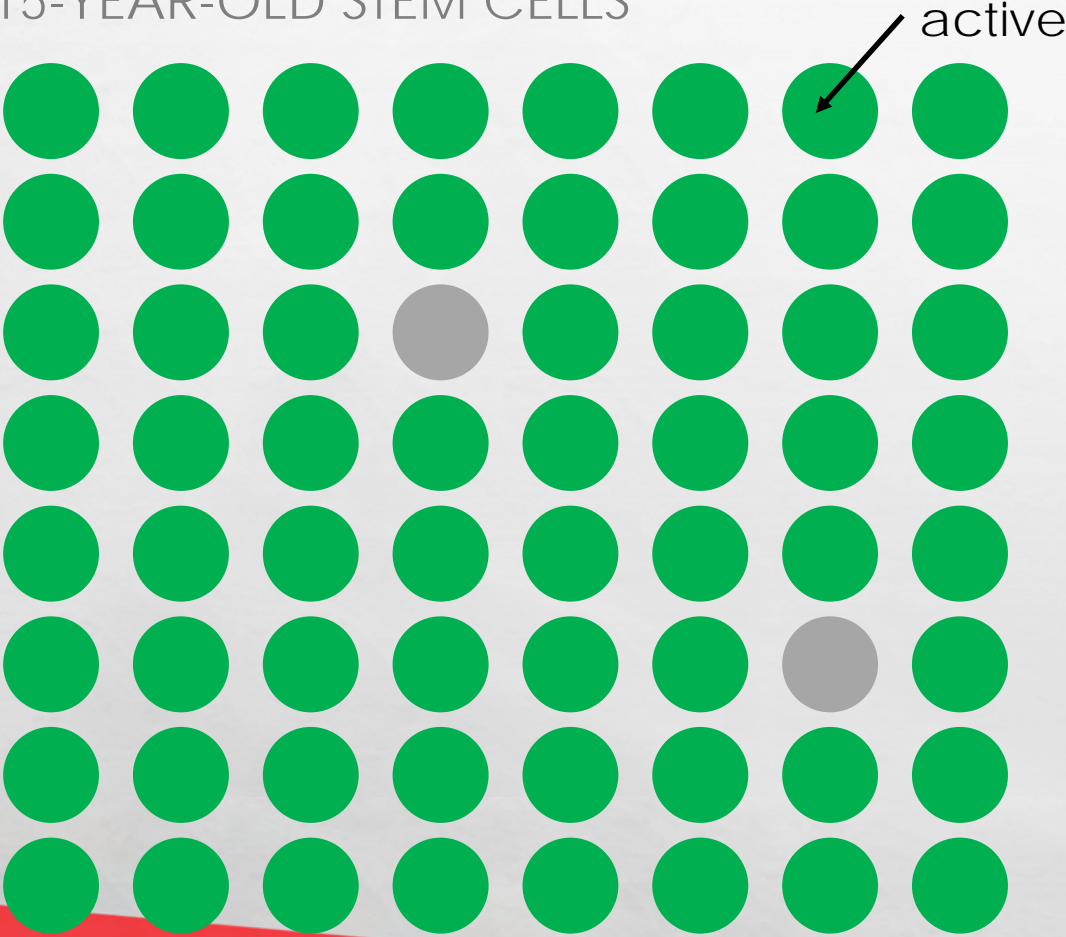
BONE

SKIN

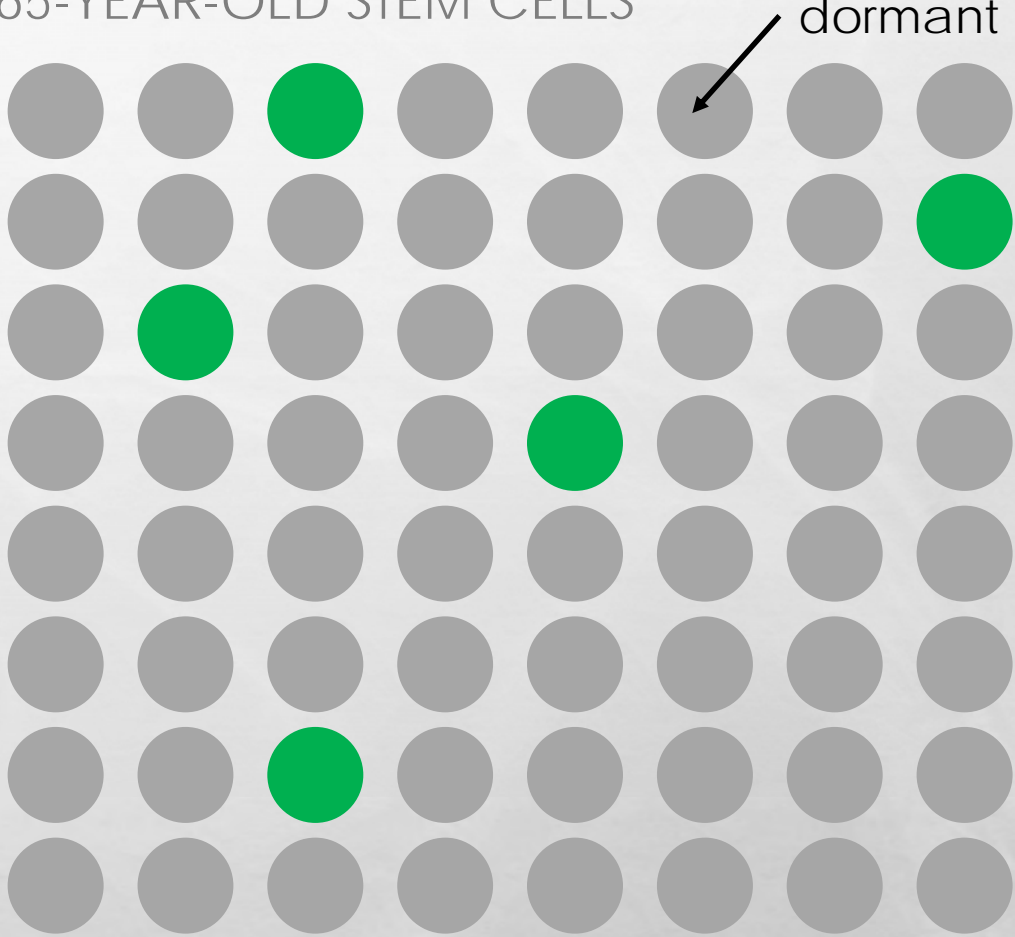
CARTILAGE

AGE-RELATED FUNCTIONAL DECLINE

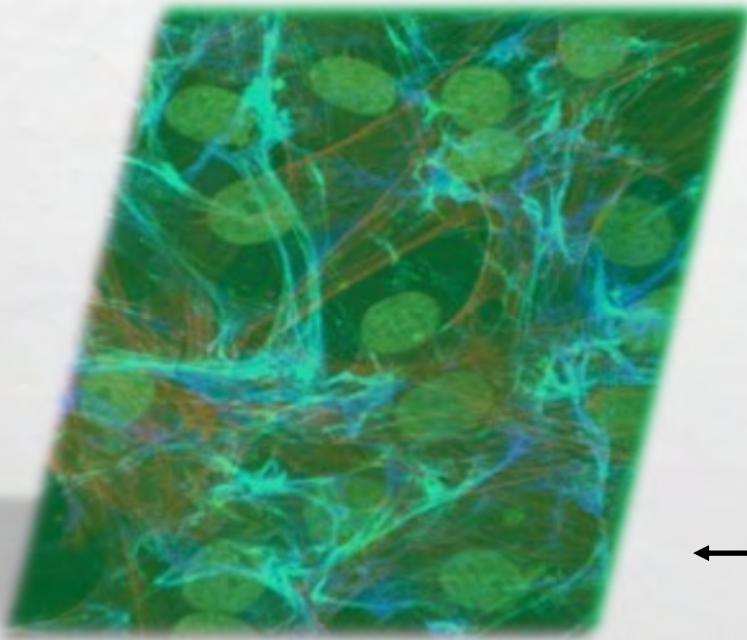
15-YEAR-OLD STEM CELLS



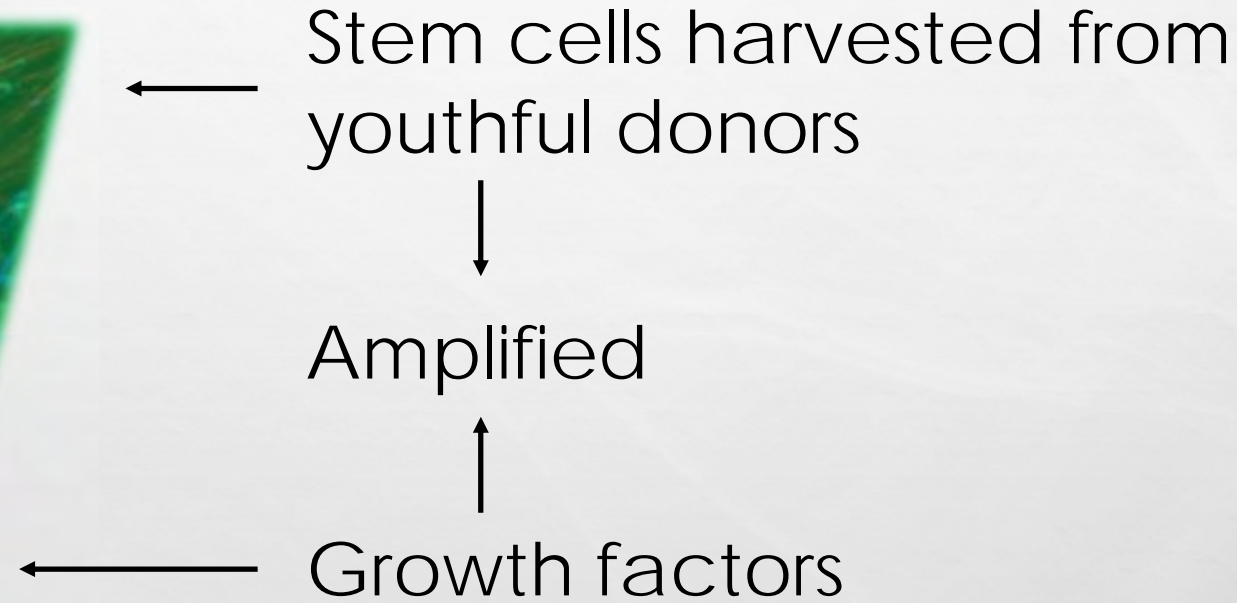
65-YEAR-OLD STEM CELLS



OUR INNOVATION: EXTRACELLULAR MATRIX (ECM)



film-like substrate



U.S. Patent Application:

MODIFIED EXTRACELLULAR MATRIX FOR ENHANCED STEM CELL HOMING AND ENGRAFTMENT

EVIDENCE: ECM ENCOURAGES REGENERATION

20-30 YEARS HUMAN EQUIVALENT*

56-69 YEARS HUMAN EQUIVALENT*

high activity



original



high activity

AFTER EXPANSION

high activity



control



no activity

high activity



young ECM treated

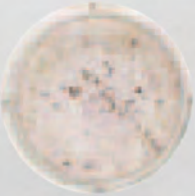


medium activity

low activity



old ECM treated

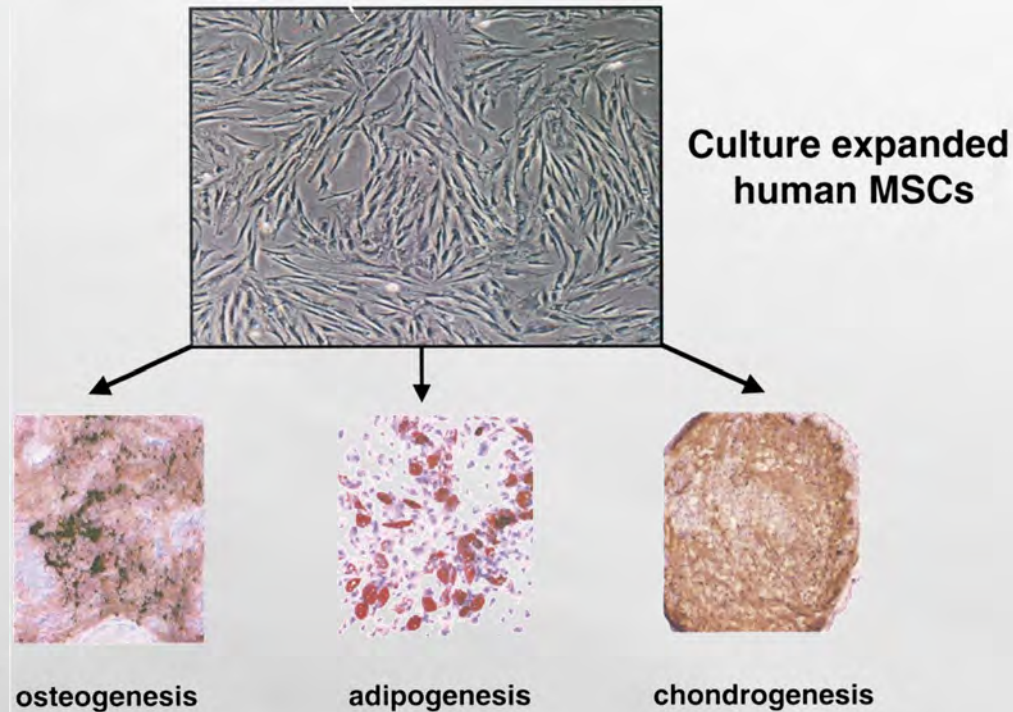


no activity

[source: The Jackson Laboratory at <http://research.jax.org/faculty/harrison/ger1vLifespan1.html>]

EXTRACELLULAR MATRIX (ECM) TECHNOLOGY

Adult stem cells / Mesenchymal Stem Cells (MSCs) can differentiate into different tissues.



Human MSCs - Mesenchymal differentiation in vitro

Example: Differentiation into bone tissue (osteogenesis) is dependent upon the culture conditions (growth media) and the matrix used to implant the cultured stem cells.

- The growth media can include growth factors that induce differentiation into bone (e.g. bFGF and BMP-2)
- The matrix used to implant the cultured stem cells can be a natural source (collagen scaffold) or a synthetic one (e.g. hydroxyapatite/tricalcium phosphate (HA/TCP) ceramics).

Figure 1. Culture-expanded human mesenchymal stem cells exhibit a spindle-shaped fibroblastic morphology following culture expansion ex vivo (top panel). Under appropriate inducing conditions, the culture will demonstrate adipogenic differentiation evidenced by fat globules, chondrogenic differentiation as measured by staining for type II collagen, or osteogenesis as seen by calcium conditions. Assays are described in Pittenger et al. [7].

OUR VALUE PROPOSITION FOR PATIENTS

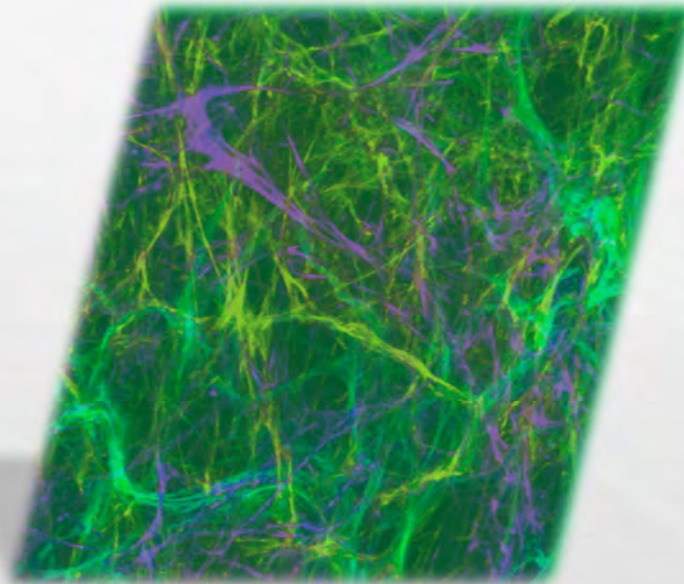
Scaffold

ECM Matrix

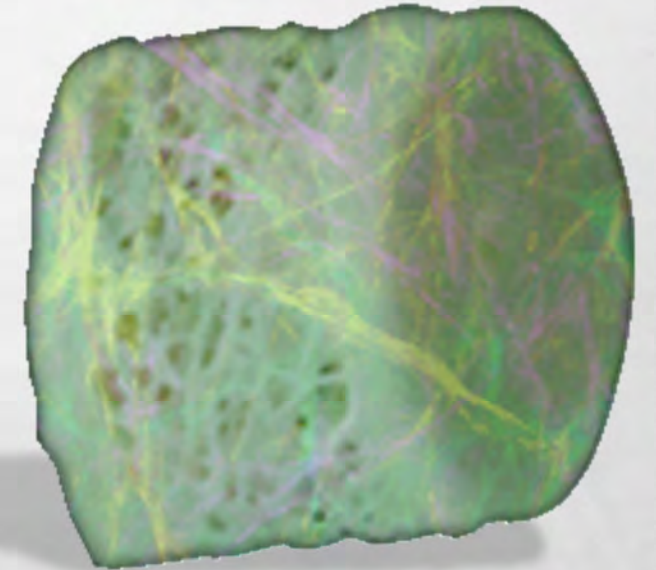
Superior Scaffold



+



=



- Directed scaffold
- Regenerates properly
- Promotes natural healing

EXTRACELLULAR MATRIX (ECM) TECHNOLOGY

The same ECM technology can be used to grow a cancerous tumor outside the body...

Question:

Why would we want to grow a tumor outside of the body?

Answer:

Diagnostics.

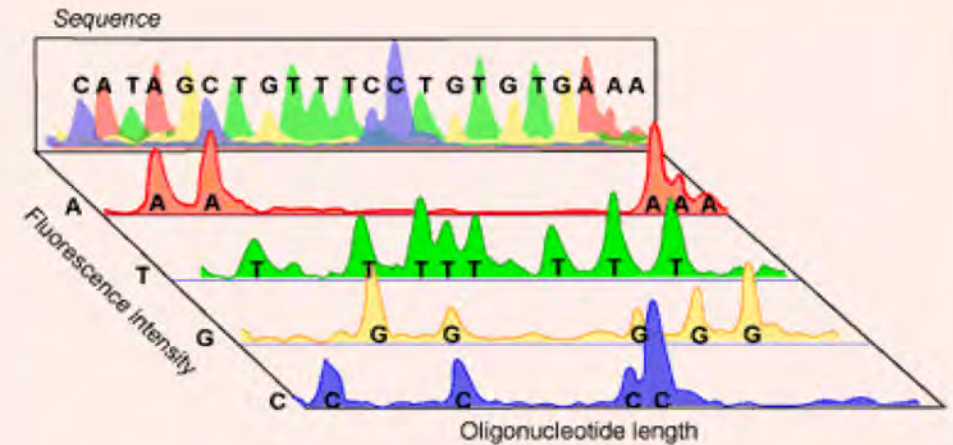
MODERN CANCER DIAGNOSTICS

Today's cancer diagnostics aim to identify:

- Where primary tumors are located
- If and where cancer has spread throughout the body
- The “stage” of the cancer

In addition to initial diagnostic characterization, further tests can inform the best pathways of treatment and may include:

- **Tumor genetics** - DNA sequencing can identify mutations or chromosomal abnormalities that drive the transformation of normal cells into cancerous cells
- **Tumor biomarkers** - Substances shed by the tumor, including proteins or cellular components that can be detected in the blood or other bodily fluids)

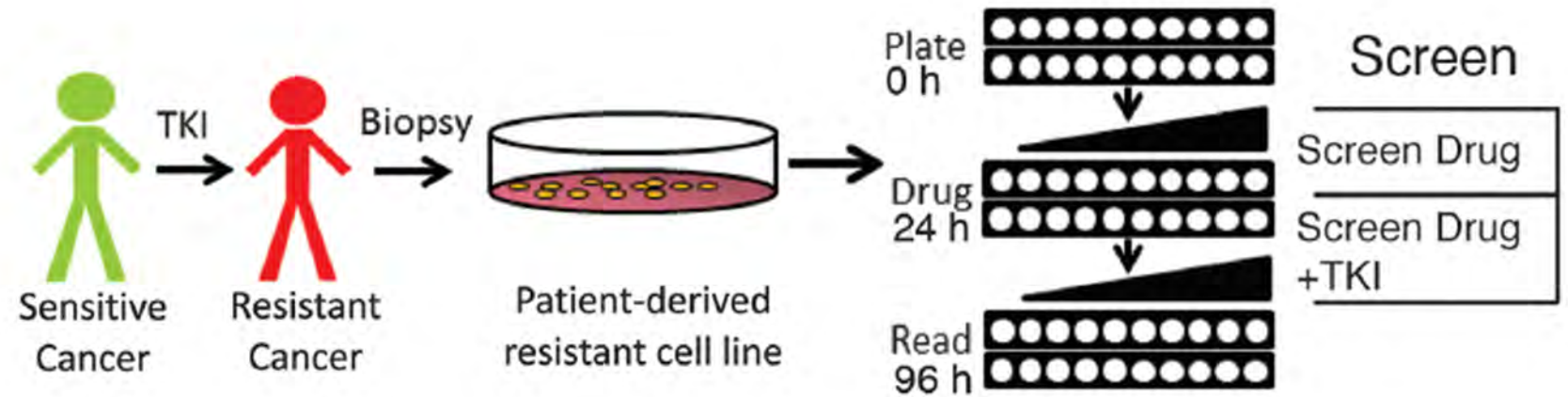


Advances in DNA sequencing technologies using automation and fluorescent compounds have made cancer genetics tests a routine part of wellness care.

[source: <http://www.cancer.net/navigating-cancer-care/diagnosing-cancer/stages-cancer> | Image Source: <http://www.scq.ubc.ca/genome-projects-uncovering-the-blueprints-of-biology>]

COMBATTING RESISTANCE TO ANTI-CANCER DRUGS

Although the number of drugs available to treat cancers has increased significantly over the years, cancer still often develops a resistance to treatment.



The challenge is to develop accurate drug screens using the patient's own cells which have been grown in a lab, which requires effectively reproducing the tumor microenvironment.

Lattice uses human-derived ECM and optimal growth conditions to mimic the native environment of a biopsy site.

[source: Crystal AS, et al. (2014) Patient derived models of acquired resistance can identify effective drug combinations for cancer. Science 346: 1480-6]

TUMOR CELLS AND THEIR SURROUNDINGS

Cancer cells can influence their surrounding microenvironment, affecting normal cells, molecules, and blood vessels that surround and feed tumors.

One of the critical challenges of growing patient tumor cells in a lab is replicating the conditions those cells experienced when they were still growing in the patient's body. Re-establishing those conditions is essential for analyzing the natural cellular behavior and understanding response to various stimuli and treatments.

The goal is to create a lab environment that closely mimics the natural cellular environment in order to form accurate conclusions.

Growth Techniques: There are multiple methods for growing cells within a lab, such as: monolayer (2D) culture, 3D culture, and suspension.

Trouble with the “Dish Life”: Cells can respond differently to drugs administered to them, depending on the way they are grown.¹

In some cases, they will behave like stem cells, showing the ability to self-renew. Other times, they may go dormant. These different cellular behaviors are related to the microenvironment the cells experience when grown in a dish and may not accurately reflect what the experience of the cells would be if they were still in the patient's body.

Growth Method Examples

2D Culture

Monolayer culture



3D Culture

Pellet culture



Alginate beads



Suspension



[source: ¹Bernardo MM, et al (2015) Maspin expression in prostate tumor cells averts stemness and stratifies drug sensitivity. Cancer Res 75: 3970-3979]

BUILDING THE MICROENVIRONMENT

Lattice Biologics is developing products that prompt patients' stem cells to:

- **Migrate** to the injury site
- **Engraft** (implant)
- **Proliferate** (multiply)
- **Vascularize**
- **Heal** the injury

This technology customizes the Extracellular Matrix (ECM) to mimic the optimal microenvironment for cell growth and division.

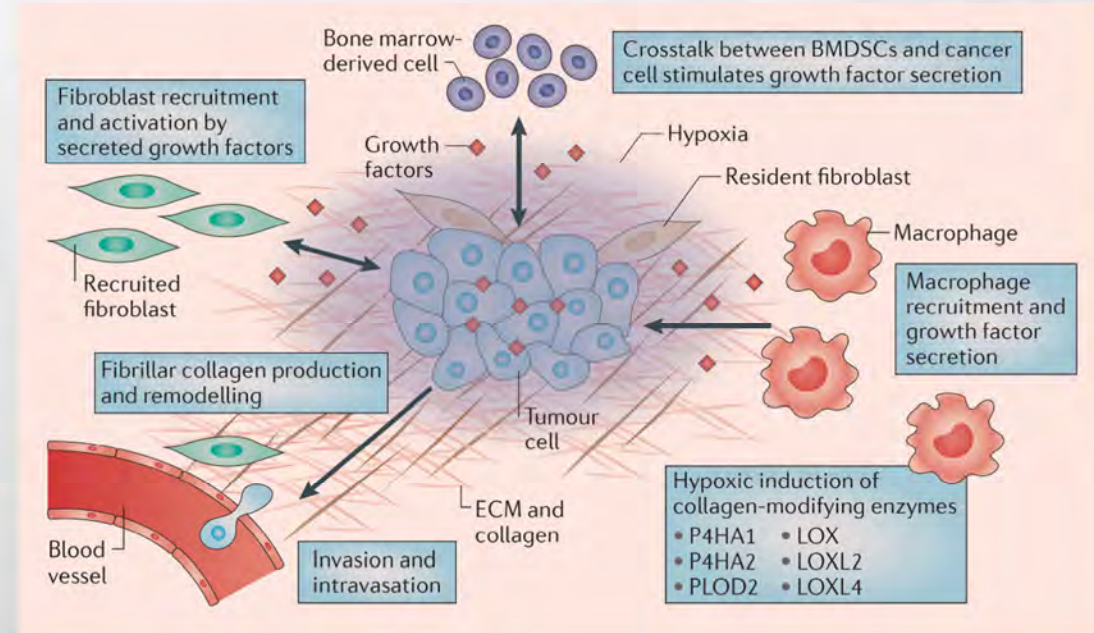
New Life for Cancer Diagnostics:

In addition to their therapeutic abilities for improved healing, these technologies could also support the development of advanced cancer diagnostics tools.

By replicating the natural microenvironment tumor cells experience in the body, we can achieve more accurate results when testing drugs in a laboratory setting.

This next generation of cancer diagnostics will better inform anti-cancer therapies customized for individual patient results.

In this case...
IMITATION
is the highest
form of
INNOVATION



[source: Gilkes DM, Semenza GL, Wirtz D (2014) "Hypoxia and the extracellular matrix: drivers of tumour metastasis." Nature Reviews Cancer 14, 430-439]

PRODUCT PIPELINE

Product	2016	2017	2018	2019	
1) Human Demineralized Cortical Bone	FCS	First Commercial Sale (FCS)			
2) Amnion	FCS				
3) Marcell		FCS			
4) Bone Scaffold + ECM		510(k) Filed	Review	FCS	
5) Skin + ECM		510(k) Filed	Review	FCS	
6) Cartilage + ECM			510(k) Filed	Review	FCS

Superior products... fast to market

TISSUE REPAIR: A TARGET-RICH MARKET

US\$MM					
Date	Acquiror	Target	Transaction Value	LTM Revenue	Implied EV/Revenue
7/31/15	X-spine Systems	Bacterin International Holdings, Inc.	\$65.0	\$80.0	N/A (merger)
6/25/2015	Integra LifeSciences	TEI Biosciences	\$312.0	\$63.5	4.9x
10/23/2014	Globus Medical	Transplant Technologies	\$51.1	\$8.00	6.4x
12/21/2010	MiMedx Group	Surgical Biologics	\$14.3	\$1.56	6.1x
8/16/2010	Medtronic	Osteotech	\$135.2	\$95.8	1.2x
5/8/2008	NuVasive	Osiris Therapeutics (Osteocel Biologics Business)	\$85.0	\$20.9	4.1x

EXCITING AND DOABLE OPPORTUNITY

1



Licensed
facility

2

200
to
2

New
products

3

\$3B

Huge
market

4



KOL

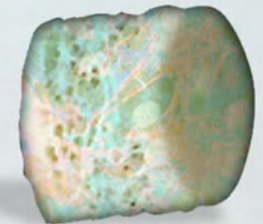
Incentivized
market
access
partners

5

\$36M
↑
53% 4-year
CAGR
\$6M

Growth

6



Differentiated,
superior,
scalable
products

THANK YOU!

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NOW TRADING!

Lattice Biologics Ltd. is traded as TSX-V:LBL | OTCBB: BLVKF

