Writing a Tech Brief

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President

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With thanks to Michael Pratt, April Effort and Jane Muir

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Agenda

- Overview
- 3 General Steps in the Productization Process
- Writing Tech Briefs and Quad Charts
  - Sample Tech Briefs and Quad Charts
  - Titles
  - Applications
  - Features vs Benefits
  - More Examples

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Productizing Early Stage Technology

- Scientists send us raw disclosures:
  - Detailed science
  - Light on technology
  - Hints of a product
  - Devoid of a value proposition
  - No thought about scale-up
- Industry buys products:
  - User oriented
  - Need clear benefits
  - Must be competitive

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Step #1: Focus on the underlying value of the science

- Understand the technology

  (Requires meeting with the inventor or graduate student to grasp the problem(s) the technology solves, what it does, how it does it etc…)

- …having an understanding of the technology will enable you to imagine what kinds of products can be created from it (sometimes different from inventor e.g., the DNA Extraction project) and to effectively communicate the value to others

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Value Proposition Framework

- Target Customer(s)
- When they (do what we want them to do)
- They receive (description of benefit experiences)
- The value of benefit (experiences to them)
- In order to receive the benefits they must (costs to them)
- However, unlike (their alternatives)
- Our solution enables them to

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Communicating Your Value Proposition

You need to construct what you hope your customers will be able to say about your product:

- If I…
- instead of…
- the following good things will happen…
- I believe them because….

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Getting Started:…The Tech Brief

- The vehicle for communicating the value proposition
- Used to market technologies through the website, targeted marketing campaigns and at trade shows
- Either:
  - Flyer (vertical) format – Tech Brief
  - or poster (horizontal) format – Quad Chart

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Two vehicles

- Quad Chart
  - Poster-like
- Tech Brief
  - Aka Non-confidential Disclosure (NCD), Technology Description, Tech Flyer, etc.
  - Written document

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Ref #: BU02-57
updated: 2/15/2008

BOSTON UNIVERSITY Technologies Available for License
Office of Technology Development

A New Receptor in Angiogenesis: Dual Endothelin-1/VEGF-signal peptide Receptor (DEspR)

Invention: The inventors discovered DEspR, a cell surface receptor that has a key role in angiogenesis related physiology and pathology. DEspR-knockout experiments reveal that DEspR is critical to angiogenesis, acting downstream to, and distinct from VEGF-mediated pathways.

Background: The inventors have shown in an animal model that alterations in the *DEspR* gene contribute to hypertension susceptibility. Additionally, the DEspR homozygous knockout mouse is embryonic lethal due in part to a lack of blood vessels in the placenta, yolk sac and embryo, highlighting the importance of this receptor in developmental angiogenesis (picture, left). The inventors have further demonstrated that administering antibodies to DEspR substantially reduces tumor growth, since tumors are also angiogenesis-dependent.

Applications: DEspR ***antagonists***, such as anti-DEspR antibodies or small molecules could serve as viable treatment options for angiogenesis-dependent diseases including cancer, macular degeneration, diabetic retinopathy and restenosis by inhibiting blood vessel formation. DEspR ***agonists*** could stimulate angiogenesis and vascular networking in conditions such as diabetic ischemia, impaired wound healing and myocardial infarction where neovascularization is important.

Stage of Development: PROOF OF CONCEPT: An anti-human DEspR antibody has been made.

The anti-human DEspR antibody:

- ✓ Detects DEspR in human cancer tissues and cell lines
- ✓ Inhibits angiogenesis of primary human microvascular endothelial cells and human umbilical vein endothelial cells – this is an anti-angiogenic effect
- ✓ Inhibits the invasiveness property of an aggressive human breast cancer cell line that expresses DEspR – this is an anti-metastatic effect

Inventors: Victoria Herrera, Nelson Ruiz-Opazo

Intellectual Property: National Applications filed – US, EPO, Canada, Japan, Australia

Publications: Herrera et al, *Physiol Genomics* (2005) 23:257-68; Kaneko et al, *Physiol Genomics* (2005) 20:157-164; Ruiz-Opazo et al, *Mol Med* (1998) 4:96-108

Contact: Rick Clark
• Tel: (617) 358-4208 • rclark@bu.edu • Website: http://www.bu.edu/otd

Boston University

Interactive Life Science Project Space

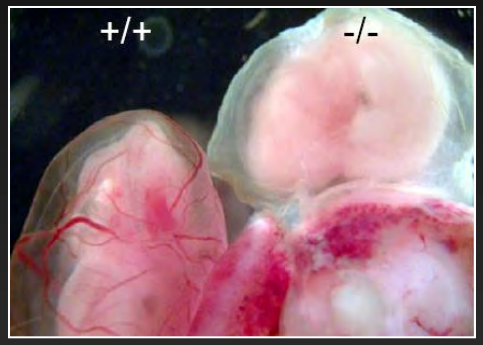
DEspR: A New Receptor in Angiogenesis & Monoclonal Antibody Therapy

Value Proposition

- A novel antibody therapy against tumor angiogenesis

Description

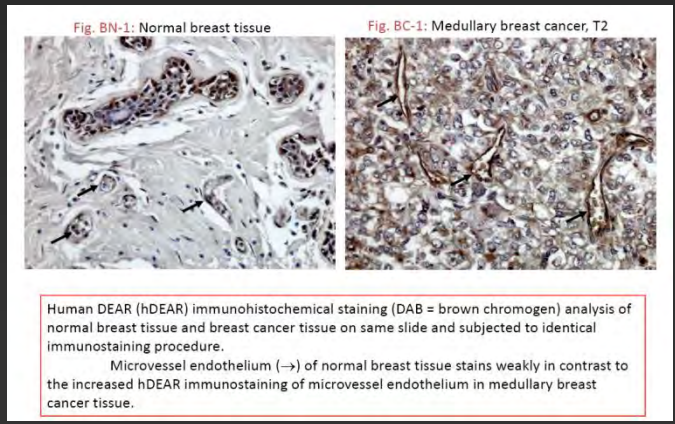
- The DEspR homozygous knockout mouse is embryonic lethal due in part to a lack of blood vessels in the placenta, yolk sac and embryo, highlighting the importance of this receptor in developmental angiogenesis (picture top right). The inventors have further demonstrated that administering antibodies to DEspR substantially reduces tumor growth, since tumors are also angiogenesis-dependent.



Status

Proof of Concept: The anti-human DEspR antibody:

- Shrinks tumors *in vivo* (including pro-malignancy nuclear grade)
- Detects DEspR in human cancer tissues
- National Applications filed – US, EPO, Canada, Japan, Australia



Note: DEspR previously called DEAR

Next Steps

- Make humanized anti-DEspR antibody, license or NewCo

Inventors

Dr. Victoria Herrera & Dr. Nelson Ruiz-Opazo

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BOSTON UNIVERSITY

Technology Available for License

Office of Technology Transfer - 108 Bay State Road Boston, MA 02215
(617) 353-4550 Fax: (617) 353-6141

Sensory Prosthetic for Improved Balance Control

Invention

Researchers at the Neuromuscular Research Center at Boston University are developing a sensory substitution prosthetic device designed to improve balance control.

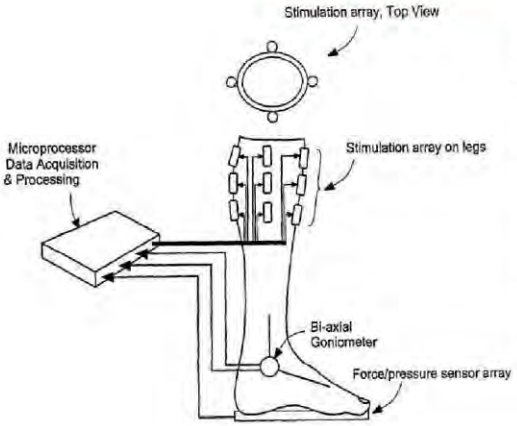
Advantages

- **Improved upright balance control**
- **Reduced risk of falls and associated injury**
- **Easily integrated into unconscious postural control system**

Potential Applications

- **Balance aid** – patients suffering from gait and balance problems due to peripheral sensory neuropathy and other balance sensory deficits
- **Countermeasure device** – to reduce plantar sole hypersensitivity resulting from prolonged bed rest, reduced weight bearing, or microgravity exposure
- **Artificial sensation** – virtual environment, for sports training or rehabilitation

Wearable Sensory Substitution Device



This is a feedback device for measuring balance related information, and for producing a stimulation of the skin that encodes the information in a way that is useful to the wearer of the device. At least one sensor detects balance information and transmits at least one balance information signal to a signal processing subsystem. The signal processing subsystem converts the received balance information signal into at least one stimulation control signal. The signal processing subsystem then transmits the stimulation control signal to at least one stimulator, which provides stimulation to a wearer of the device reflecting the stimulation control signal received from the signal processing subsystem.

Intellectual Property

Published US utility application (US 20050131317)

Inventors

Lars Oddsson and Peter Meyer

Contact

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Ref #: BU 05-54, BU00-67

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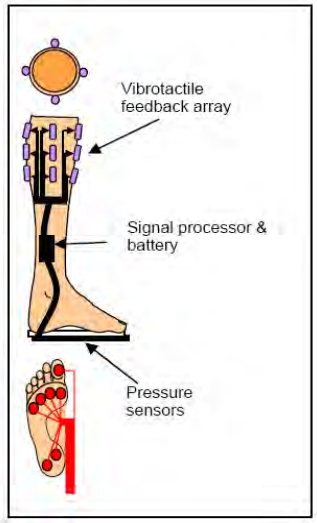
The *SmartSleepSock*

Value Proposition

- A wearable, low-profile, low-cost device for preventing falls.

Description

- A sock with pressure sensors underfoot and vibrotactile devices about the calf.
- The device enables sensory substitution - such that the calf experiences the pressure underfoot
- Improves balance and reaction time



Status

- Prototypes fabricated and tested (initial data on human subjects available)
- Business plan and pitch created
- US Utility application filed on method and apparatus

Next Steps:

- Identify entrepreneur
- Seek investment
- Form new entity

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Titles are Important!

See if you can tell what technology they are asking you to license?

Are you compelled to read further?

1. A Method of Preventing Flower Loss and Increasing Crop Yield
2. Design and Synthesis of Robust Alternating Maleimide-vinyl Ether Copolymer with Phosphonate Side Groups
3. Composite Electrolyte Containing Surface Modified Fumed Silica
4. Fish Behavior Inducer
5. Low Energy, Self-Cleaning Air Purification
6. Materials and Methods for Detection and Treatment of Insulin-Dependent Diabetes

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Applications Clarify Potential Use

- Specifying the applications for the technology makes it easy for potential licensees to understand its applicability to their industry
- Applications help to define the target market
- If applications are diverse, you may want to create separate Tech Briefs / Quad Charts for specific target markets
  - Incorporate specific features and benefits targeted to each market segment

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Features vs Benefits

A Feature or Fact	A Benefit
Can be Proven	Should be specific to a customer's need
Is Specific	Show a clear value to your customer
Is True	A reason to buy

If in doubt, apply the "So What?" test

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Features vs Benefits

- Features don't automatically communicate the resulting benefits
  - "Our unique sensor can detect ppm level of NO in % level of O_2."
    - So what?
- Benefits give a reason to buy
  - "The sensors are highly sensitive to specific gases, providing accurate and in-depth diagnosis of pollutants."
    - Now I know what the technology does

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Features vs Benefits

- Down the road, benefits will translate into pricing
  - What is the value of those benefits to the customer?
    - Increased revenues
    - Decreased costs
    - The “goodness”
  - How much of that value can I include in my price and still leave the customer with an incentive to buy?
    - How much do I have to “leave on the table”

Value Proposition is communicated in the benefit (low-cost, wearable, low-profile)

The ***S**martSleep**S**ock*

Lars Oddsson

Value Proposition

- A wearable, low-profile, low-cost device for preventing falls.

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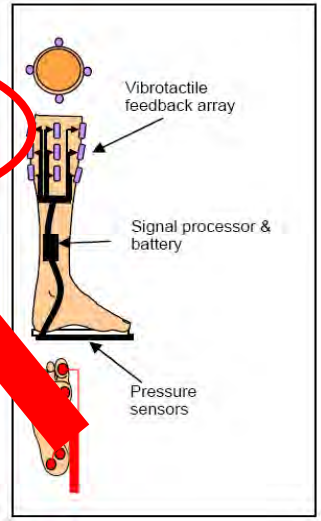


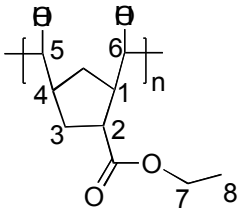
Novel Polymers for Viscosupplementation and Bulking Agents

Value Proposition

- Easy delivery, provides proper lubrication, and lasts longer (fewer injections)

Description

- A low cost synthetic polymer
- A new class of polymers with properties that may lead to longer residence time
- Can be used to treat osteoarthritis (reduce pain) or as a bulking agent (cosmetics or urinary incontinence)



Status

- Polymer has been produced and mechanical properties tested
- Initial cytotoxicity tests have been completed
- PCT patent application pending

Next Steps:

- Start-Up company (Flex Biomedical) established 11/07; seeking 1st round of VC funding

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Semiconductor Nanosensor Arrays

Value Proposition:

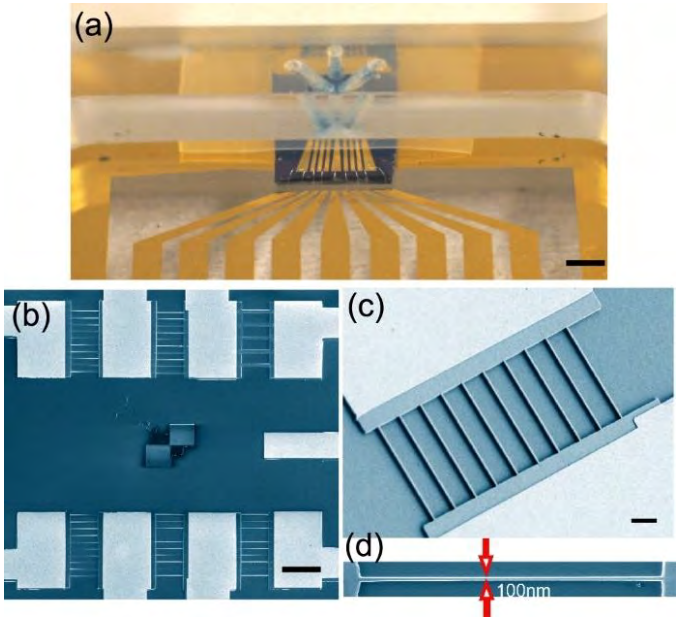
•Low cost, high sensitivity and specificity arrays that can provide patient-specific therapy

Description:

- Nanosensor arrays built with semiconductor methods that provide manufacturable sensors.
- Less expensive, portable, faster, measured in real-time
- Easier large scale manufacturing vs.traditional optical detection methods..
- Clinical need: Breast cancer. Detecting the unique "biomarker fingerprint" for breast cancer tumors can help lead to a specialized and more effective course of treatment for the more than 1.1 million cases of breast cancer are diagnosed each year.

Status:

- PCT filed in November, 2007 covering the sensor platform.
- Launch Award received from Office of Technology Development
- Proof of principle completed in multiple platforms.



Next Steps:

- Design and fabrication of breast cancer biomarker specific arrays.
- Detection of serum biomarkers.
- Ninth Sense, Inc. formed; seeking initial funds including VC, SBIR or STTR funding.

Contact:

Shyamsunder Erramilli, Ph.D.; 617-353-1271; shyam@bu.edu

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Osteoarthritis Knee Brace

Value Proposition

- A soft good with the performance of a rigid brace
- Low profile, light weight, ease of use, attractive gross margin, easy to manufacture

Description

- Pneumatic knee brace (inflatable air-bladder maintains a constant force to counteract the adduction moment throughout the full range of motion of the knee)

Status

- Modeling complete
- Prototype fabrication complete
- Provisional patent application pending

Next Steps:

- Impact analysis on existing businesses; visit to DJO scheduled for 2/08.
- Renewal application submitted to test prototype in a gait lab.

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Getting Started

- Start with the quad chart
  - Fewer words
  - Makes you focus on what's really important
- Write the Technology Description first
  - Get the technology out of your system
  - Focus on value proposition for rest of documents

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