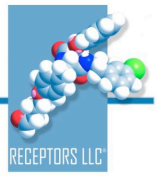
RECEPTORS LLC

SMART MATERIALS™
powered by
ACTIVEcapture™ TECHNOLOGY

Filling the Critical Gap:
S*4* Sensing Systems

CONTENTS

RECEPTORS LLC
STRATEGIC FOUNDATION



- PLATFORM TECHNOLOGY
  Combinatorial Artificial Receptor Array (CARA™)

- FLAGSHIP PATENT
  USPTO Patent No. 7,504,364 17 march 2009
  Methods of Making Arrays and Artificial Receptors

- PEER-REVIEWED PUBLICATION
  Weller Roska et.al.
  Small Molecule Based Binding Environments: Combinatorial Construction for Multiplexed Affinity Screening
  J. Am. Chem. Soc., **2009**, *131* (46), pp 16660–16662

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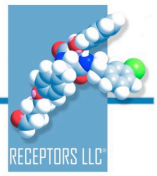
RECEPTORS LLC
TECHNOLOGY FOUNDATION



- CARA™ AFFINITY by DESIGN™ PLATFORM TECHNOLOGY

- **PROBLEM:** CREATE A PLATFORM SOLUTION FOR THE SELECTIVE MODIFICATION OF ANY SURFACE.

- **SOLUTION:** OUR SMART MATERIALS™ SURFACE MODIFICATION CHEMISTRY THAT CREATES SELECTIVE SURFACES FOR APPLICATION TO SIMPLE, SCALABLE AND STABLE PRODUCTS BASED ON ACTIVEcapture™ TECHNOLOGY.

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PATH:
TECHNOLOGY to PRODUCTS

CARA™ AFFINITY by DESIGN™ TECHNOLOGY

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SMART SURFACES™

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ACTIVEcapture™ MATERIALS

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PRODUCTS & MARKETS

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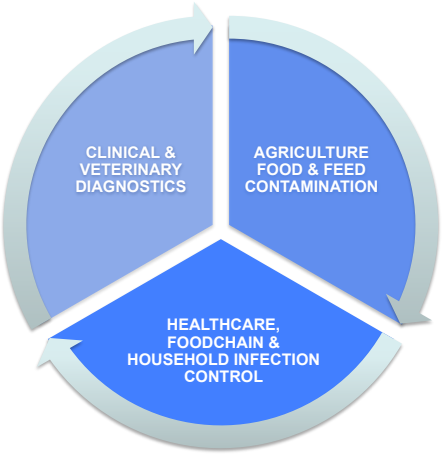
ACTIVEcapture™ MARKETS



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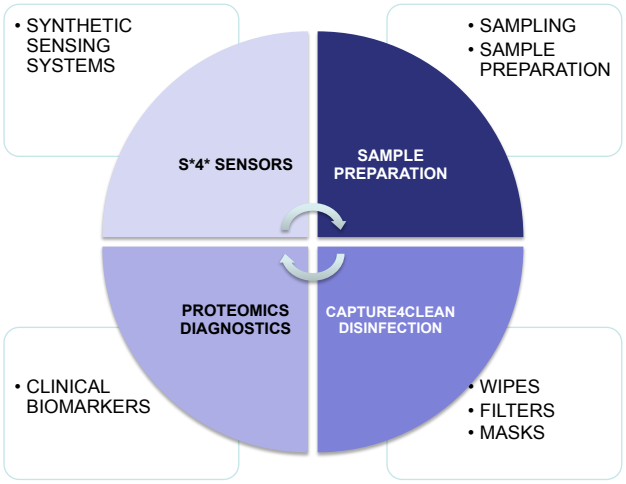
ACTIVEcapture™ Materials:
Product Applications



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S*4* SENSORS APPLICATION

I. RECEPTORS' Technology and Markets [Slides 2-7]

II. Glucose Sensing System [Slides 8-12]

III. Product Opportunities [Slides 13-15]

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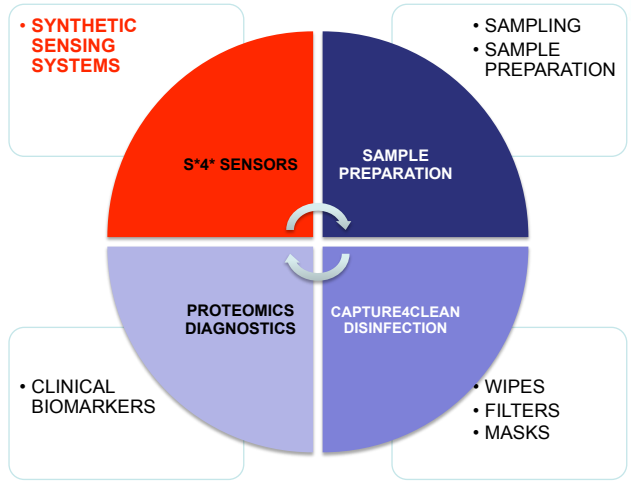
S*4* SENSORS APPLICATION



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S*4* SENSORS APPLICATION
Diabetes and an Implantable Glucose Sensor

SMART MATERIALS™
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DIABETES is one of the most significant global health challenges of the 21st century. It remains one of the leading causes of death, is a major contributor to cardiovascular disease, and is the leading cause of kidney failure, non-traumatic lower-limb amputation and new cases of blindness in the United States. Worldwide, the predominance and occurrence of diabetes has reached epidemic proportions and is expected to grow to 438 million affected persons by 2030. Currently, diabetes is not curable but can be controlled through proper management in order to improve lifestyle and lifespan. Effective and consistent testing, which is essential for accurate monitoring and disease management, remains a barrier because of poor patient compliance due to the invasive and costly nature of currently available monitoring devices.

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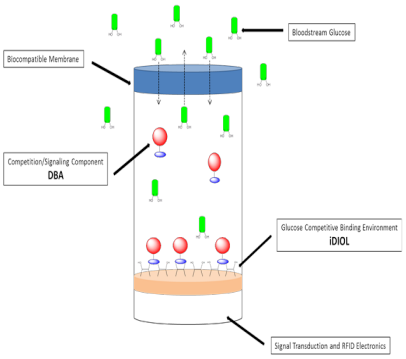
S*4* SENSOR APPLICATION
Diabetes and an Implantable Glucose Sensor

A TECHNICALLY AND COMMERCIALLY SUCCESSFUL IMPLANTABLE GLUCOSE SENSOR requires the integrated design and development of several critical components.

The mission critical self-contained and closed-cycle ***sensing component*** must be designed to interface with an appropriate ***signal transduction/signal processing device*** that in turn is coupled to the sensor's ***electronics and communication*** function. Further, the entire device must be enclosed in a ***porous, biostable and biocompatible*** material that simultaneously prevents biofouling of the device and allows biotransport of the glucose analyte in and out of the device.

Failure to integrate any of these components into the implantable device invariably leads to product development failure. While each of these component pieces will be critical to the success of the device, the ***sensing system*** **is the mission critical component**.



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ACTIVEcapture™ APPLICATIONS
Glucose Sensing System

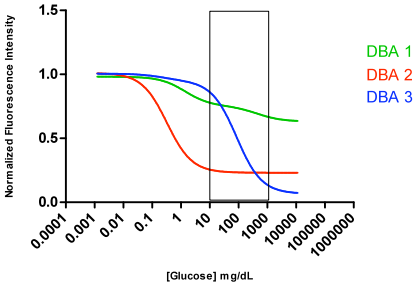
STATUS We have successfully completed development of the glucose sensing system, which is the mission-critical component of the implantable glucose sensor for use by diabetic patients. The proof of principle demonstration demonstrated that the closed-cycle, self-contained glucose sensing system can produce a consistent, measurable response to physiologically relevant levels of glucose while functioning under biologically relevant conditions. The sensing system requires the interaction of two components:

1) the competitive agent/signaling component, which is a dendrimer-boronic acid construct **(DBA)** and

2) the glucose competitive DBA binding environment, which is an immobilized monosaccharide mimic **(iDIOL)**.

The demonstrated sensing system meets our primary stability, sensitivity and specificity criteria. These results, accompanied by our library of synthetic materials and binding affinity database, provide a firm foundation upon which to optimize the glucose sensing system and incorporate it into the implantable sensor device.

FIGURE. Glucose competition curves showing glucose competition profiles for several DBA constructs versus an iDIOL environment.



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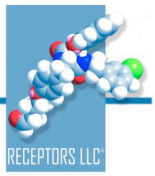
S*4* SENSOR PRODUCTS



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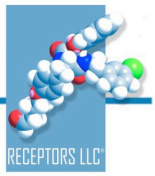
ACTIVEcapture™: S*4* SENSOR
Available Product Opportunities



ACTIVEcapture™ Sensing System products are currently in development with our primary focus on the Implantable Glucose Sensing System. Please contact us to discuss Joint Development Agreement partnerships.

TARGETED S*4* SENSOR PUBLICATIONS

DEVICE ANIMATION

POSTER PRESENTATION

PEER REVIEWED PUBLICATION: (in preparation)

AVAILABLE ON THE WEB SITE HOME PAGE

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TECHNOLOGY **WITH** a STRATEGY

CORE COMPETENCE:
SURFACE FUNCTIONALIZATION FOR SELECTIVE BINDING

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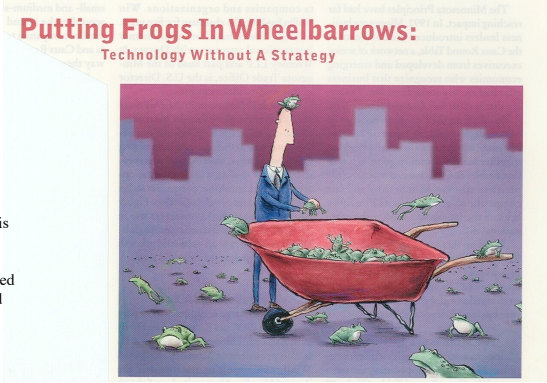
"The cruel reality is that nobody cares about technology. People are interested in applications and products."
Michael Knapp / Cambrios



Minnesota Technology Magazine

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