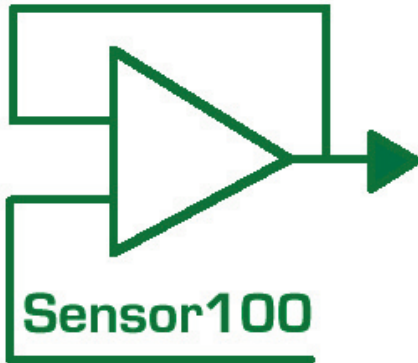


January 2017

Sensor100

The International Bio-sensor and Chemo-sensor Network

Linking academic, clinical and
commercial worlds



**News and views from the
Sensor100 community**

**Edited by:
Michael Brand PhD SM
FRSC**

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See **Sensor I00** on social media



Sensor I00



Sensor I00 Group



@Sensor I00AgTech



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From the Editor

By the time you read this, the holiday season will be a distant memory, and New Year resolutions, if you made any, will certainly have been broken. And so we move boldly into the New Year, which is now one twelfth gone already.

Sensor100 has ambitious plans for 2017. We will continue, and expand our conference series which uniquely focuses on applications - environment, food & ag, healthcare and medicine. We will continue to explore the issue of why there is so much sensor research, but why so little of it reaches the market place.

Last year, we began to look at sensors for cancer diagnosis, which has the potential to become the biggest commercial application - think of a screening test which everyone used once a year. We will continue to press on with this, despite apparent scepticism from the established cancer industry.

You may notice that my picture has changed to reflect my 2016 beard. If there are not too many objections, I'll keep it and get a better photo.

Kind regards

Michael
michael@sensor100.com





Emerging Technologies Competition 2017

Each year, the Royal Society of Chemistry invites 40 shortlisted entrants to present their technologies to panels of industry experts at Chemistry Means Business, the Royal Society of Chemistry's flagship event for the chemistry-using industry. The competition welcomes disruptive technologies in the fields of:

Health, | Energy & Environment | Food & Water | Materials

Find out more at <http://rsc.li/etc3>

Winners receive:

- Tailored support from multinational companies
- Support with media coverage and publicity
- Financial mentoring and guidance from KPMG
- Business training at the Judge Business School
- £10,000 of non-dilutive funding

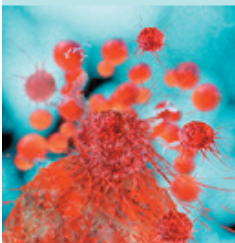
Enter the Competition

Deadline for Entries: 13 March 2017

Competition Partners

AstraZeneca | GE Healthcare | Johnson Matthey | Schlumberger
Unilever | Croda | GSK | Pfizer | AkzoNobel | Mondelez
Diageo | University of Cambridge Judge Business School

Sensors for Cancer Diagnosis



Royal College of Obstetricians and Gynaecologists

4 - 5 April 2017

London

Developing more effective, earlier stage, diagnostic tools for cancer is among the world's leading technology challenges. One in two of us will be diagnosed with the disease - the earlier the diagnosis is made, the greater the chance of a cure.

Following Sensor100's Workshop on Biosensors for Cancer Diagnosis in July 2016, we are now planning a 2-day conference to explore this issue and the opportunities for sensor technology in more depth.

You are invited to submit an Abstract for Oral Presentation at the conference on any of the topics below.

- Sensors for molecular, protein, cellular biomarkers
- Sensors for VOC biomarkers in breath, urine
- Biomarkers for cancer: what we know and need to know
- Alternative early diagnostic technology: liquid biopsies; cancer screening; CTCs
- Barriers to adoption of sensor technology
- The future outlook: screening; monitoring of pre-diagnosed disease; diagnosis; diagnosis of pre-symptomatic disease; companion diagnostics
- The role of the Cancer Diagnostic Network

Abstracts should conform to the [Guidelines](#)

Closing date March 10th

Sensors for Cancer Diagnosis

Do sensors have a role in cancer diagnosis?

What is the current state of the art?

What competing technologies are there?

Will sensors ever be sensitive and selective enough for early diagnosis?

Who Should Participate?

Cancer biologists | sensor researchers | biomedical engineers | oncologists
medical device companies | oncology pharmaceutical companies

Join the Discussion: is this the biggest opportunity for biosensors?

Registration

Delegate	Fee
Academic/clinical/not-for-profit	£420
Commercial	£525
Student	£150

20% VAT will be added to all registration fees

Members of the **Cancer Diagnostic Network** receive a £100 discount

Registration at:

Sensors for Cancer Diagnosis



Royal College of Obstetricians and Gynaecologists

27 Sussex Place

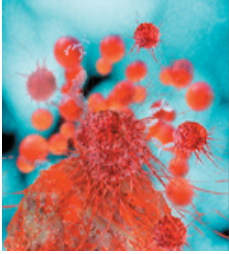
Regent's Park

London NW1 4RG

Tel: +44 20 7772 6200

Directions

Parking is **NOT** available at the RCOG



Cancer Diagnostic Network

- ✓ Are you developing biosensors for cancer diagnosis?
- ✓ Do you think early diagnosis needs more recognition?
- ✓ Would it help to know who else is working on this?
- ✓ Do we need better early stage diagnostic tools?
- ✓ Can improved diagnosis enhance cancer therapy?

If you identify with any or all of these questions, join the **Cancer Diagnostic Network**, now being formed as one outcome from Sensor100's Workshop "Biosensors for Cancer Diagnosis" held in July 2016.

What will the Network do?

It will evolve as the membership grows, but to start:

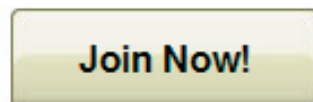
- Quarterly newsletter
- One or two conferences a year, with reduced fees for members
- Help raise funds for an Innovation Challenge Platform to identify the most promising early stage diagnostic tools

One in two of us will be diagnosed with cancer. Most diagnoses are made at the later stages when the chance of a cure is significantly lower, *CRUK*

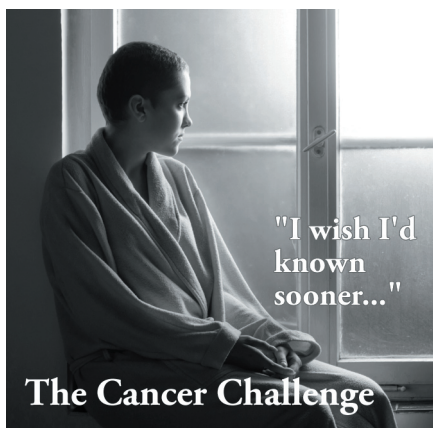
How to Join The Network?

Annual Fees

Individuals & Pre-revenue companies	£100
Charities, SMEs, & universities	£250
Companies	£1000



Note: 20% VAT added to all Membership fees



Development of low cost rapid diagnostic tools for early stage cancer must be the greatest humanitarian challenge facing biosensor technology - and one which has the potential for the greatest commercial return, significantly larger than the market for glucose sensors. #cancerdiagnostics

“We spend most of our money in treating, rather than investing in diagnostics to know what we’re treating”
Professor Lord Ara Darzi, Imperial College London
Kings Fund report: The Future is Now (2015)

Market Research Reports

Global Bio-Sensors Market for non-clinical Applications 2016-2020

Publisher's analysts forecast the global biosensor market for non-clinical applications to grow at a CAGR of 11.58% during the period 2016-2020.

Reported by **ReportsWeb** 19 January

Earnings to Grow to US\$21.6 bn in 2020; Biosensors Market Migration to Happen

TransparencyMarketResearch forecasts the emergence of infectious disease sensors, and notes the early emergence of sensors for cancer diagnosis.

Reported by **MedGadget** 19 January

Global Market Study on Biosensor: Asia-Pacific to Witness Highest Growth by 2020

The global biosensor market was valued at USD 12,963.6 million in 2014 and is expected to grow at a CAGR of 9.7% from 2014 to 2020, to reach an estimated value of USD 22,551.2 million in 2020

Reported by **MedGadget** 20 January

Glucose Biosensors Market, Size, Growth Drivers, Market Opportunities, Industry Trends and Forecast to 2021

Absolute Reports forecast the glucose biosensors market could grow a 10.3% CAGR from 2016 to 2022

Report distributed by **SBWire** 19 January

Global Glucose Biosensors Market by Manufacturers, Regions, Type and Application, Forecast to 2021

This report focuses on the Glucose Biosensors in Global market, especially in North America, Europe and Asia-Pacific, South America, Middle East and Africa.

Report by **360 Market Updates** 2 Dec 2016

Sensor100 Conferences Uniquely Bridge the Research to Application Gap

To submit an Abstract please follow our [GUIDELINES](#)



Call for Papers

- Air, soil and water monitoring
- Sensor technology platforms
- IoT, data analysis, models
- The environment and health
- Ethical & regulatory issues



Sensors in Medicine 2017 will be limited to sensors in diabetic care and infectious disease diagnosis

Call for Papers

- Sensors for glucose monitoring
- Sensors for infectious diseases



Call for Papers

- Sensors for crop production
- Sensors for animal welfare
- IoT, data analysis, models
- PoC technology for food contaminants, pathogens
- Regulatory issues
- Commercial adoption of sensor technology



Berkeley Sensor & Actuator Center
Research Review & IAB Meeting
Tutorials Energy Harvesting

March 8 - 10
2017 UC BERKELEY

[Register](#)



5th INTERNATIONAL CONFERENCE ON
BIO-SENSING TECHNOLOGY

7-10 MAY
2017
RIVA DEL GARDA
ITALY

Medical Informatics World's Inaugural **Sensors for Medical Applications**

Sensor Design, Engineering & Manufacturing for Integrated Health-care Devices

May 22-23 | Boston MA USA

2017 Events Calendar

[Requires pdf reader]

Send details of events to be included in the Calendar to:
info@sensor100.com

5th INTERNATIONAL CONFERENCE ON **BIO-SENSING** TECHNOLOGY

7 - 10 May 2017 | Riva del Garda (on Lake Garda), Italy

This conference will provide a forum for accessing the most up-to-date and authoritative knowledge from both commercial and academic worlds, sharing best practice in the field as well as learning about case studies of successfully integrated bio-sensing technologies. The meeting will provide an opportunity to highlight recent developments and to identify emerging and future areas of growth in this exciting field.

The conference will include:

- Presentations from leading specialists highlighting new opportunities in bio-sensing technologies
- An opportunity to share best practice in the integration of technologies for bio-sensing
- An exhibition of leading-edge, commercial technology
- A poster forum for unveiling new research ideas and concepts
- Networking opportunities
- A strong industry focus with companies presenting their technologies

Conference Chairman

Professor Richard Luxton

Institute of Bio-Sensing Technology, UWE Bristol, UK

**Register
Now!**

Organised by



Supporting Publications



www.biosensingconference.com

sensors expo & conference

JUNE 27-29 2017

McENERY CONVENTION CENTER / SAN JOSE / CALIFORNIA

EXHIBIT DATES: JUNE 28-29, 2017

The sensors industry is moving at lightning fast speed.

Experience this change firsthand at the industry's premier event for sensor technical training. The 2017 Sensors Expo & Conference will feature over three days of **Keynotes, Symposia, Case Studies, Technical Sessions, Hands-on Workshops, Networking Parties, and more.**



Conference Tracks & Topics Include:

- EMERGING TECHNOLOGIES
- ENERGY HARVESTING & POWER
- FLEXIBLE & WEARABLES TECH
- IOT & WIRELESS
- MEASUREMENT & DETECTION
- MEMS & SENSORS
- NOVEL SENSOR APPLICATIONS
- OPTICAL SENSING & DETECTION
- SENSOR DATA
- SENSORS & EMBEDDED SYSTEMS DESIGN

"Overall, I found the Sensors Expo event a worthwhile and informative event, effectively structured to enable attendees a variety of experiences, from large keynotes, time to explore the exhibition, technical talks and networking time."
- LEO KENNY, PLANET SINGULAR

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and join 6,000+ of your closest colleagues!

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www.sensorexpo.com

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*Discount is off currently published rates. Cannot be combined with other offers or applied to previous registrations.



A pocket breathalyzer could help figure out the foods that make you sick

A breath test which detects hydrogen in the breath, arising from digestive issues was on show at CES 2017. By tracking consumption in a food diary baked into the Aire app and using the breathalyzer, users may be able to get a comprehensive look at what settles well in their stomachs and what sends them running for the bathroom. Though the tests are easy and safe to perform, a number of studies

have found that they are unreliable and present a high yield of false-positive and false-negative results. (Source: Business Insider UK)

Read more: [FoodMarble](#)

Food Safety/HACCP Using Environmental Monitoring

Food Safety/HACCP Using Environmental Monitoring

Discover a user friendly LIMS designed for change

Environmental Monitoring Module

Autoscribe INFORMATICS
Delivering Configurable Future-Proof Solutions

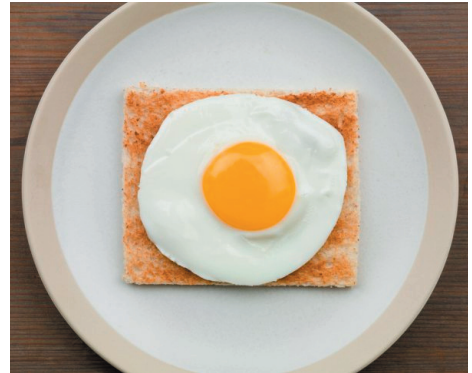
This video provides a brief overview of the Matrix Gemini Environmental Monitoring solution. It allows Food and Beverage Companies to comply with the with Food Safety Modernization Act (FSMA) and Current Good Manufacturing Practice requirements (CGMPs), driving HACCP (Hazard Analysis and Critical Control Points) monitoring programs which will help them meet these strict environmental monitoring requirements.

[Technology Networks](#) 10 January

New Urine Test Can Quickly Detect Whether a Person Has a Healthy Diet

Scientists have developed a urine test that measures the health of a person's diet. The five-minute test measures biological markers in urine created by the breakdown of foods such as red meat, chicken, fish and fruit and vegetables. The analysis, developed by researchers from Imperial College London, Newcastle University and Aberystwyth University, also gives an indication of how much fat, sugar, fibre and protein a person has eaten.

Imperial College News 13 January



Amazing Drone Spot-Applies Herbicide



Winners and guests at the 2016 Environmental Respect Awards were treated to a demonstration by Virginia Tech professors and students of a drone that is programmed to spot and then to target specific weeds with a focused spray of herbicide. The demonstration took place at DuPont's Chesapeake Farms research facilities.

Environmental Respect Awards 12 January

Post Conference Summary



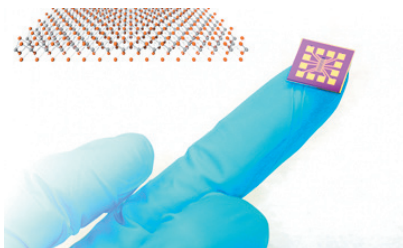
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The Knowledge Foundation's Third Annual Biodefense World Summit brings together leaders from government, academia, and industry for compelling discussions and comprehensive coverage on pathogen detection, sample prep technologies, point-of-care, and biosurveillance. Across the four-track event, attendees can expect exceptional networking opportunities in the exhibit hall, across panel discussions, and shared case studies with members of the biodefense community from technology providers to policy makers.

[Read more...](#)

Ultra-fast, Ultra-sensitive PtSe₂ Gas Sensors



Researchers from Trinity College Dublin, Ireland have shown that PtSe₂, a little-studied transition metal dichalcogenide has potential for a variety of uses. In particular, PtSe₂ is an excellent high performance gas sensor, and fabrication is compatible with silicon chip foundries. To demonstrate possible applications for the new material, the researchers tested its performance in sensing NO₂. Gas molecules adsorbed onto the surface of the PtSe₂ change its conductivity, lowering the resistance. The researchers found that the PtSe₂ had extremely high sensitivity, measuring 100 ppb NO₂ at room temperature. The sensor was also extremely fast to respond to the gas – detecting low quantities of gas in only seconds – and recovering completely within a minute when the inert atmosphere was restored. For commercial sensing applications, the sensor must be responsive only to specific gases, which require some additional processing steps.

Reported by [PhyOrgNews](#) 13 January

Indian Scientists Design Inexpensive Biosensor for Disease Diagnosis

Two scientists from the Indian Institute of Science (Bangalore, India) have devised an economical paper based biosensor detecting lipase, an enzyme routinely investigated in cardiac and liver related diseases

Reported by **Bioanalysis Zone** 19 January

Pall ForteBio Acquires the Pioneer SPR Product Line from SensiQ Technologies

Pall ForteBio, the developer and provider of industry-leading label-free biosensor technology platform, announced that they will acquire the assets related to SensiQ's Pioneer product line and Pioneer products are immediately available for sales, service and support via Pall ForteBio

Reported by **Select Science** 18 January

European Commission Clears Acquisition of Alere by Abbott

"This regulatory clearance marks a significant milestone toward the completion of our transaction with Abbott, and we remain highly confident that the merger will close according to the terms of the agreement," Alere CEO Namal Nawana said in a statement.

Reported by **GenomeWeb** 25 January

Longitude Prize Offers Discovery Awards

The Longitude Prize for AMR technology is now offering Discovery Awards: small seed grants to help teams and individuals further develop their ideas for the Longitude Prize. Next closing date for applications is 21 April.

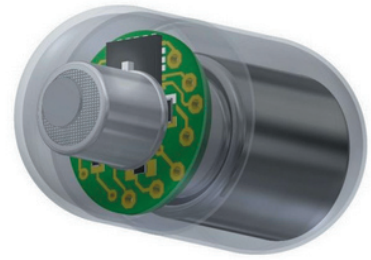
[Read more...](#)

Gas Sensing Capsules for Better Gut Health

Researchers at RMIT and Monash Universities in Australia have developed a gas sensor which can be swallowed and which transmit data on intestinal gases to a smartphone.

The Age, 22 January, reported the first human trial of the technology in which six volunteers swallowed the capsule, and monitored its progress through their alimentary system.

Reported by: **RMIT University**



Purine Biosensor Detects Strokes

A three year trial of a purine sensor made by Sarissa Biomedical, a spin-off of Warwick University, will conclude in April 2017. The test is designed to detect strokes, from all the other physiological signs which “mimic” strokes. By eliminating the 50% false strokes, it is expected that treatment of stroke victims will be faster and more effective.

Reported by **The Guardian** 22 January



Prof. Nicholas Dale with his SMARTchip, or biosensor.

Photograph: Antonio Olmos for the Observer

Five Predictions for Health Tech and Services in 2017

By Dan Gebremedhin MD, MBA*

1. The 21st Century Cures Act makes “Real World Evidence” a buzzword in pharma and payer circles, and justifiably so
2. Clinical Decision Support moves into the world of Prescriptive Analytics and finally takes root
3. MACRA spells the end of the standalone primary care provider and health tech looks to fill the void
4. Start-ups develop a “high risk” appetite and target “node” conditions in high risk populations such as Medicare Advantage and Dual Eligibles
5. Health tech industry innovation will not waver over the next 4 years, it will subscribe to republican orthodoxy and free market forces

*The author is a Principal at Flare Capital Partners, an early stage Health Technology and Services focused VC Firm. He is a practicing physician at the Massachusetts General Hospital.

Reported by [MobileHealthNews](#) 27 January

Alphabet's Verily life sciences company lands \$800M investment from Temasek

Alphabet's health-focused subsidiary Verily, formerly Google Life Sciences, has received an \$800 million investment from Temasek, an investment company based in Singapore

Reported by [TechCrunch](#) 26 January

Smart-Cutaneous Wearables-Medical Device Alert

This edition of Medical Device Alert depicts trends across smart-cutaneous wearables, with advancements in health monitoring. The Medical Device Alert analyses and reports on new and emerging technologies and advances in R&D; product development; and regulatory matters related to neurology, ophthalmology, respiratory/anaesthesia, wound care and management, surgical tools and instrumentation, drug delivery, orthopedics, endoscopy, cardiology, and monitoring.

[Research and Markets](#) April 2016

Deep learning algorithm does as well as dermatologists in identifying skin cancer

A dermatologist uses a dermatoscope, a type of handheld microscope, to look at skin. Computer scientists at Stanford University have created an artificially intelligent diagnosis algorithm for skin cancer that matched the performance of board-certified dermatologists. (Image credit: Matt Young)



Stanford News January 25 January

Discover the label-free detection market worth 2.13 billion USD by 2020.

The report “Label-Free Detection Market by Technology (Surface Plasmon Resonance, Bio-Layer Interferometry), Products (Consumables, Microplates, Biosensor Chips), Applications (Binding Kinetics, Binding Thermodynamics, Lead Generation) - Global Forecasts to 2020” , provides a detailed overview of the major drivers, restraints, challenges, opportunities, current market trends, and strategies impacting the global label-free detection market along with the estimates and forecasts of the revenue and share analysis.

WhatTech 26 January

Artificial silk has been developed from whey protein

Scientists at the Royal Institute of Technology (KTH) in Sweden have found a way to spin artificial silk out cow’s whey proteins could pave the way for novel biosensors.

Indian Express 24 January

Decentralized Infectious Disease Testing Market - Global Industry Analysis, Size, Share, Growth, Trends and Forecast 2016 - 2024

Transparency Market Research January

What Tears Can Tell Us About Our Nutritional Health



Having adequate levels of nutrients in our bodies is essential for proper growth, maintenance and functioning of cells and tissues. The monitoring of our nutritional health can therefore play an important role in preventing deficiencies and subsequent diseases.

Technology Networks January 18

Wearables Will Turn a New Corner — or Die Trying

One of eight digital health predictions for 2017 from MobileHealthNews

2016 was a rough year for wearables. It was the end of the line for Pebble, for Basis, for the Microsoft Band, and, while Jawbone seems to be hanging on by a thread, there's no question that 2016 wasn't kind to them. Fitness wearables have lost their luster as a hot new gadget and at the same time haven't really proved their worth as a health device. So what happens next for the category?

Dan Ledger, the founder of Path Collaborative, which consults with wearable companies, thinks wearables need a big re-invention to grow beyond a niche category for athletes and health nuts. That could mean unlocking one of the areas of wearable tracking that no one has managed to produce really high quality data in yet — namely stress and sleep. A wearable company that can usefully and accurately track stress and help users reduce stress, or help their users to improve the quality of their sleep, could open up a larger market. But ultimately, he said, the next step for wearables might involve a more radical reinvention.

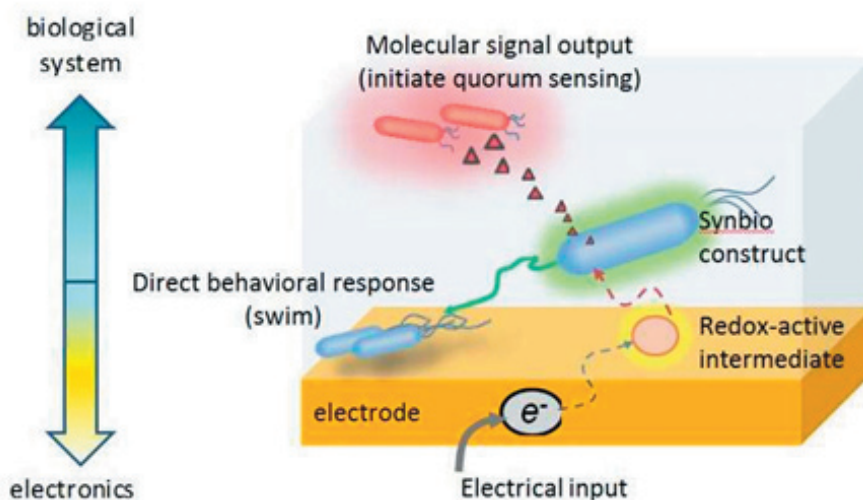
"I think if Apple and Fitbit haven't cracked this, if the brute force approach with today's technologies hasn't produced anything, we have to be looking at other companies who are taking these more radical approaches and saying 'You know what? Maybe this doesn't have to be a wearable at all. Maybe we just need to question everything. Maybe this isn't on someone's person 24/7, maybe it's something someone uses for five minutes a day.'" Ledger said. "I think the people who aren't afraid to ask questions about form factor and modality will be the ones who open up the next wave of innovation here."

MobileHealthNews 03 January

F. Hoffmann-La Roche Ag patents opto-chemical sensor for chloride in aqueous solution.

Optical-chemical sensor US 6835351 B2

System holds promise for study of biological systems, biosensors and bio-hybrid devices



Reported by [PhysOrg](#) 18 January

Imperial Innovations rebranded “Touchstone Innovations”

Sensor100
Cumberland House
35 Park Row
Nottingham NG1 6EE
United Kingdom

