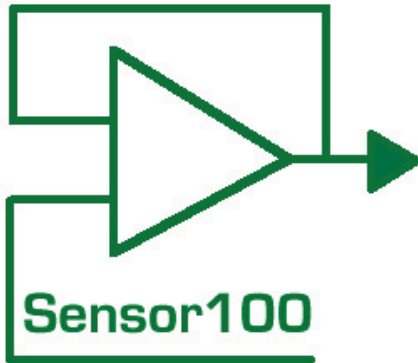


March 2017

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**

**Sensor100's eNewsletter
is published by:**

Captum Capital Limited
Cumberland House
35 Park Row
Nottingham NG1 6EE
United Kingdom

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See **Sensor I00** on social media



Sensor I00



Sensor I00 Group



@Sensor I00AgTech



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From the Editor

Moving the clocks forward happens two weeks later in the UK than in the US - no idea why, but it is a sign that Spring is coming, and hopefully some sunshine and warmth.

This seems to an historic time we are living through. The UK has formally announced it is withdrawing from the European Union - Brexit - which if nothing else will ensure at least two years of uncertainty. The US too seems to be having problems with its newly elected President, who has not so far had quite the smooth landing he was anticipating. The science community is viewing both these developments with some trepidation, but only time will tell what lasting impact might result.

Some of you may have noticed our webs site was down for a few hours earlier this month. The site came under what the experts called a “sustained attack”. It is fixed now, and is said to be more impregnable (no, me neither), but that is not a challenge for someone to have another go. If the perpetrator of the earlier attack is reading this, I sincerely hope you find lumps in your mashed potatoes for the rest of your life!

Kind regards

Michael
michael@sensor100.com



Professor Francis Ligler Inducted into the National Inventors Hall of Fame



Professor Francis Ligler, Lampe Distinguished Professor in the joint NC State and UNC-Chapel Hill Department of Bioengineering performs research in the fields of biosensors, biomaterials and microfluidics. She was inducted into the National Inventors Hall of Fame for her work on optical biosensors.

“[Optical biosensors] is a whole field where biological molecules are being used for recognition and transduce an optical signal to a small device,” Ligler said. “My teams and I demonstrated the use of optical biosensors for detection of pathogens in food, infectious diseases in people, biological warfare agents, environmental pollutants, explosives and drugs of abuse — things that can kill you.”

Ligler started her research with a group in the Naval Research Laboratory, the corporate research laboratory for the United States Navy and the United States Marine Corps, where they were trying to solve problems with the Navy.

She joined the JDBE at NC State and UNC-Chapel Hill. in 2013.

technicianonline.com 29 March

Wearables Future

Did you do your 10,000 steps today? Unless you are a fitness fanatic - what used to be called a weekend warrior - the chances are, not. The wearable you bought in a fit of enthusiasm is possible now at the back of your sock drawer. **Sensor100** has long argued that the plethora of apps intended to promote your health and well being cannot all be commercially successful, and most will not be. Are there beginning to be signs that this prediction is becoming true?



Is it time to move on from wearables?

IDTechEx posed this question in a webinar earlier this month. “The hype around wearable technology is all but over. Whilst new wearable technology products have generated billions of dollars in new revenue in just a few years, the hype was too much to live up to for many at the core of the sector. As such, the discussions around wearable technology are beginning to change. The broad, sensationalistic optimism is gradually being replaced with a more pragmatic, measured tone in which wearables are less “the next big thing” and more like a series of related product types, some of which have done well in recent years.”

The company’s 2016 market research report **Wearable Technology 2016 - 2026** forecasts sales of \$150 by 2026, but continues the cautionary theme: “Fuelled by a frenzy of hype, funding and global interest, wearable technology was catapulted to the top of the agenda for companies spanning the entire value chain and world. This investment manifested in hundreds of new products and extensive tailored R&D investigating relevant technology areas. However, the fickle nature of hype is beginning to show, and many companies are now progressing beyond discussing “wearables” to focus on the detailed and varied sub-sectors.



Future for Health Gives “3 Reasons Why Wearables are Dead”

1. Questionable data gathering: When used for prevention, it has become clear by now, that a person gets tired of using a wearable or a health app in only a few months.
2. We are measuring what we can, not what we should: Prof. Anthony Turner, Head of The Biosensors and Bioelectronics Centre at Linköping University Sweden: “we haven’t yet made the sensors we really need, we are using the sensors that we happen to have.” That is why in recent years investors have been more interested in other sensors: ingestibles, implantables, etc.
3. Questionable measurements: as Prof. Turner says, “from a laboratory perspective and for research purposes you always look for the best. However, Point of Care devices for patients just need to be good enough for managing conditions and early warnings. Personal devices for diabetes are not as accurate as clinical laboratory, but it doesn’t matter – they are good enough for management decision.”

Big Data Could Be Medicine’s Next Big Move

FinancesWire argues the case for the “Connected Self”. For years, businesses in the digital health market have been focused on applying technologies that can help individuals collect more data about themselves. But the problem with this approach is that it has led to a situation in which there is mountains of data, but it’s all siloed away in people’s devices. The next wave of innovation, and something smart businesses are already looking into, is the “connected self.” The idea here is that it isn’t sufficient to simply collect data on an individual and store it, but that those data also need to be shared with the medical profession and even other companies.

4 Market Sectors ?

It is possibly premature to suggest that wearables are dead, although the relative merits of wearables vs smart phones will continue to occupy technology companies’ planners for many years. **Sensor100** suggests four distinct wearable market segments:

Fitness buffs	Professional or amateur athletes who use fitness data effectively
Worried well	Otherwise healthy people who are obsessive about collecting data on themselves
Chronic sick	Those with diagnosed chronic illness, who have a real need to monitor their disease
Military	From aircrew to soldiers in battle, physiological and biochemical measurements provide safety for military personnel

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

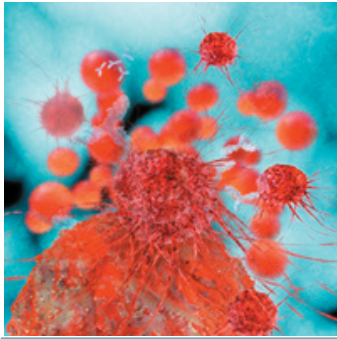
Call for Papers

- 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



Sensors for Cancer Diagnosis

22 - 23 May 2017

Royal College of Obstetricians and Gynaecologists

Note the Change of Date for this Conference

The Conference objective is to bring together research which can lead to the early stage diagnosis of cancer through rapid, non-invasive, precision technology.

Key Topics:

- Biosensors for molecule, protein and cell biomarkers
- Sensors for volatile organic compounds
- Liquid biopsies; sensors for CTCs
- Sequencing technology
- Biomarkers for cancer

Keynote Speakers from:

Cancer Research UK | IBM Research | Imperial College Department of Bioengineering | University of Athens | University of Birmingham
University of Warwick

Call for Papers:

Papers are invited on topics relevant to the early stage diagnosis of cancer.
Deadline for receipt of Abstracts: **12 April**

Registration is now open

Register Now!

www.sensor100/SCD



The 3rd Annual Conference will include all applications of sensors and related technology applied to environmental monitoring.

Topics will include, but are not limited to:

- Air monitoring, particularly in cities
- Effluent, fresh, sea and surface water monitoring
- Sensor networks and the IoT
- The environment and human health

Content

The Conference will include:

- Invited and submitted papers
- Posters; awards for best posters
- Exhibits of sensor technology, and service providers
- Panel discussion: “Brexit and regulatory compliance”
- Networking reception and barbecue

Call for Papers

Abstracts in the Conference format marked “Oral” or “Poster” should be submitted by 28 April to info@sensor100.com

Exhibition Space

Contact

info@sensor100.com

Register Now!

www.sensor100.com/SiE2017

Sensors in Medicine 2017

2-days September

London



The 5th Annual **Sensors in Medicine** Conference will take place in London in mid-September. The format for SiMI7 will be slightly different from its predecessors. The two day conference will be limited to 2 topics which are the most important clinical and commercial applications of biosensors:

- Sensors for glucose monitoring and diabetes care
- Sensors for infectious disease diagnosis and monitoring

Keynote Speaker:



Professor Tony Cass
Imperial College London

As in previous years, there will be invited and contributed papers, poster displays, exhibits, panel discussions and a networking reception

Call for Papers

Abstracts in the Conference format marked “Oral” or “Poster” should be submitted by 28 July to info@sensor100.com

Exhibition Space

Contact

info@sensor100.com

www.sensor100.com/SiM2017



Sensors in Food and Agriculture

5 - 6 December 2017
Møller Centre Cambridge UK

The 3rd Annual **Sensors in Food and Agriculture Conference 2017** will take place at the Møller Centre, Cambridge UK on 5-6 December.

The Conference will explore current applications and future developments in sensor technology for food production. Sensor networks and PoC devices are of growing importance in Agriculture and SFA2017 is the UK's leading conference on this topic. The Conference will be international in scope, reflecting the advances in sensor technology for food production in economies which are more dependent on agriculture.

As at all **Sensor100** conferences there will be a mix of invited and contributed papers, poster displays, exhibits of technology and service providers, panel discussions and a Christmas themed networking reception.

The Møller Centre provides an ideal location for the Conference, situated close to a major agricultural region of the UK, with exceptional facilities for the event and offering accommodation on-site.

Call for Papers

Abstracts in the Conference format marked "Oral" or "Poster" should be submitted by 20th October to info@sensor100.com

Organising Committee

Dr. Michael Brand (Sensor100) | Dr. Andrew Frame (ARM) | Dr. Eric Ober (NIAB)
Dr. Jon West (Rothamsted) | Steve Whalley (Lightsense Technologies)

Exhibition Space

Contact

info@sensor100.com

Register Now!

www.sensor100.com/SFA2017

 5th INTERNATIONAL CONFERENCE ON **BIO-SENSING** TECHNOLOGY 7-10 MAY 2017
RIVA DEL GARDA
ITALY

 **MAY 8-9, 2017**
BOSTON MARRIOTT NEWTON

Driving Sensor Development and Innovation in Medical and Healthcare Applications

[+ Register Now!](#)

**Medical Informatics World's Inaugural
Sensors for Medical Applications**
Sensor Design, Engineering & Manufacturing for Integrated
Healthcare Devices
May 22-23 | Boston MA USA

**International Conference and Exhibition on
Nanotechnology & Materials Science**
NOVEMBER 20-22, 2017 DUBAI, UAE
nanotechnology.conference@scalyticpublishers.com
<http://scalyticpublishers.com/conferences/nanotechnology-materials-science-2017/>

2017 Events Calendar
[Requires pdf reader]

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

THIRD ANNUAL
BIODEFENSE
WORLD SUMMIT 2017

June 26-29, 2017 | Alexandria, VA

BIODETECTION TECHNOLOGIES

PART 1

PART 2

BIOSURVEILLANCE INTEGRATION

SAMPLE PREP TECHNOLOGIES

Electrochem 2017

10 - 12 September
University of Birmingham

BBMEC 12th Workshop on
Biosensor & Bioanalytical Microtechniques
in Environmental, Food & Clinical Analysis

INTERNATIONAL BIOSENSOR CONFERENCE
25. – 29. September 2017 | Rome, Italy

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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

Practicalities of Developing and Manufacturing Quantitative Assays

Lateral Flow Workshop

May 9-11, 2017 | Zaragoza, Spain

DESCRIPTION

This 3-day practical workshop, co-hosted by BioDot and OPERON, brings to life the steps between research and commercialization of quantitative assays. Lateral flow technologies are being pushed ever harder to deliver end-user benefits. This workshop keeps practitioners up-to-date.

- Learn from component and technology suppliers
- Network with fellow developers and manufacturers
- Keep up-to-date with current industry developments
- Produce a working hCG test

TOPICS

- Reagents
- Materials
- Conjugation
- Lamination
- Cutting
- Readers
- Advances in Quantification
- Troubleshooting
- Hands on Lateral Flow Practical

*Produce A Working hCG Test
Dispensing, Laminating, Cutting and Testing
against +ve and -ve controls*

Fee:
£740/€850/\$915

Includes:

- Presentations
- Practicals
- Materials for the production of a working lateral flow test
- Course book
- Conference dinner
- Lunches/refreshment breaks

Where:

Hotel Palafox
Marques de Casa Jiménez, s/n.
CP. 50004 Zaragoza (Spain)
Phone + 34 976 23 77 00
dircom@palafoxhoteles.com
mention "BioDot Workshop"

Questions:

Please contact Trish Morley
+44 (1243) 542831

Registration:

<https://goo.gl/2KP9YW>



Register Soon...

Registration Deadline ... April 25th

Exhibiting/Sponsorship spaces are available.

Contact: John Witton +44 (7808) 255256



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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Main Conference Pass!*



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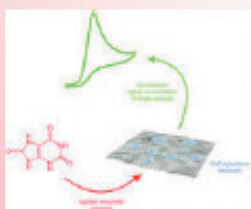
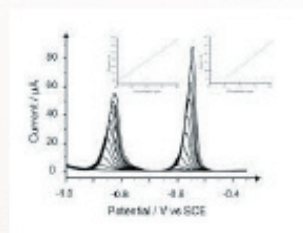
*Discount is off currently published rates. Cannot be combined with other offers or applied to previous registrations.

Electroanalysis Masterclass

3rd - 4th October 2017

Why Electroanalysis?

Electroanalysis are the methods underpinning all electrochemical sensors. This course will provide the attendees with the tools to develop their own electrochemical systems



Targeted

Developed by award winning industrialists and Cambridge academics, this masterclass delivers a rewarding lesson in electrochemical techniques and sensing applications.

Combining both classroom and 'hands on' learning experience, the delegate will leave with the confidence to tackle this expanding technological area.

Structure

Day 1

AM: Fundamental Electrochemistry
PM: Practical Sessions

Day 2

AM: Electroanalysis at work
PM: Developing your toolset

Course Fee

Early bird (prior to 1st July):
Two Days £660 (exc.VAT)
One Day £450 (exc.VAT)

Paid In Advance through Zimmer and Peacock

Contact

Dr. Adrian Fisher (acf42@cam.ac.uk)

<https://www.zimmerpeacocktech.com/2017/03/13/cambridge-university-electrochemical-masterclasses/>

BBSRC Hosts Workshop on Sensing Systems for Early Detection of Animal and Plant Health Threats

In what seems to be a developing interest in the UK in the application of sensor technology in the food and agriculture sector, BBSRC*, in collaboration with EPSRC* and DSTL* hosted a Workshop in London on 22 February. Readers of

Sensor100 will be aware that we have held two conferences on Sensors in Food and

Agriculture (**SIFA15** and **SIFA16**); **SIFA17** will be held on 5-6 December in Cambridge, UK. Innovate UK's **Knowledge Transfer Network** also held one-day conferences on Sensors in Agriculture in 2015 and 2016. All of this activity points to a growing recognition of the role sensor technology could play in food and agriculture.



There is a well recognized need to increase global food production by 70% by 2050 (UN Food and Agriculture Organization) and food producers themselves are under pressure to increase productivity and reduce costs. How sensor technology can contribute to solving these problems is an evolving story. The UK supports a number of world class academic centres in sensor technology, but almost all of this effort is funded to develop technology for human health. Providing incentives for universities to apply their sensor technology to the food and agriculture sector can only be beneficial to solving the global production problem.

The BBSRC Workshop was well attended by about 80 delegates, mostly from the UK's academic and research institute sector. With such a diverse and well informed audience, a great many ideas were floated; BBSRC has an unenviable task in attempting to formulate an appropriate policy from this surfeit of information. Themes which resonated with **Sensor100** included: the need for collaboration between agricultural scientists and bioengineers in developing sensor systems; multi-pathogen platform sensors; the need for a technology translation organization to bridge the academic-industry divide.

It will be interesting to see how BBSRC develops its sensor policy in the light of this welcome Workshop.

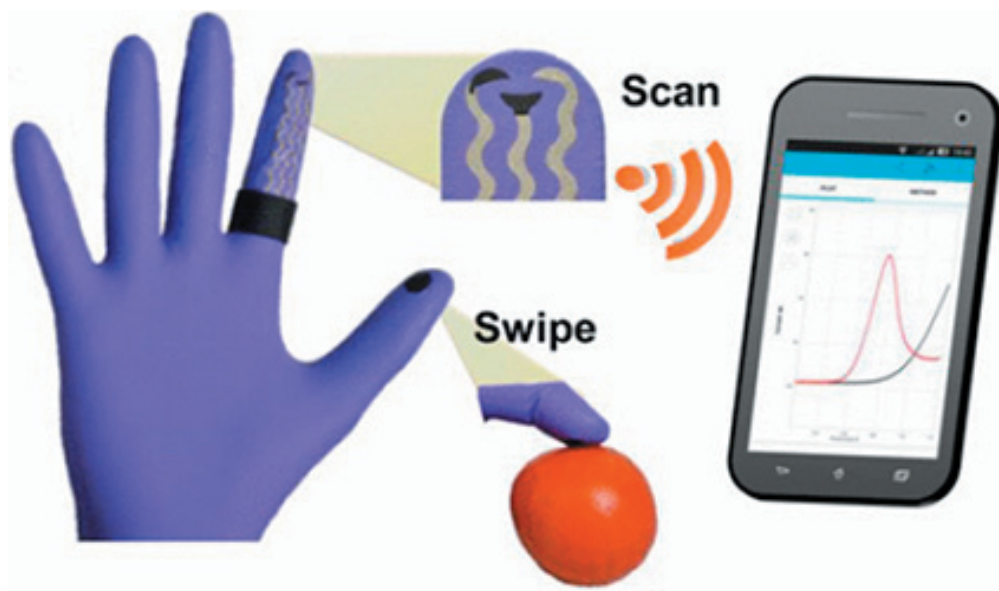
* Biotechnology and Biological Sciences Research Council;
Engineering and Physical Sciences Research Council;
Defense Science and Technology Laboratory

Food Scanner Award Ceremony

The Food Scanner Horizon Prize goal is awarded to bring affordable non-invasive mobile solutions to the market that enable users to measure and analyse their food intake. The prize is mainly dedicated to people suffering from food-related medical conditions (allergies, diabetes, obesity). However, applications should eventually benefit everyone, by improving health and well-being, and help to make informed choices on nutrition.



Novel Flexible Glove-Based Biosensor for Detecting Organophosphates

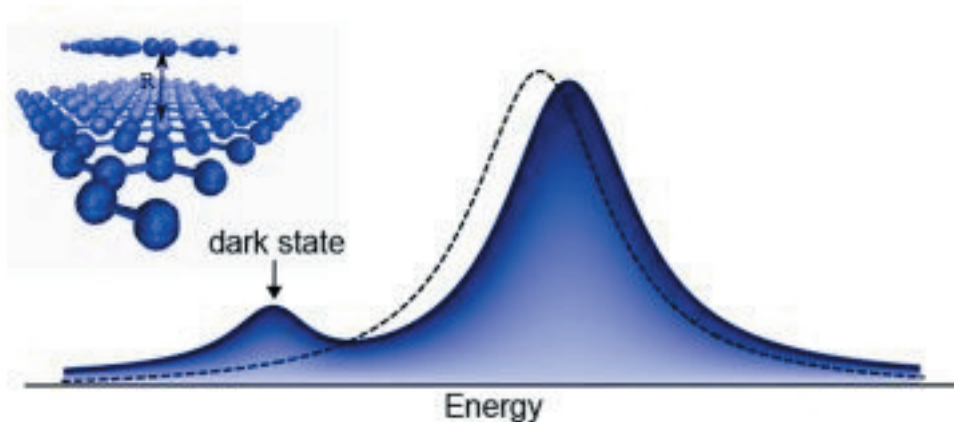


A recent study published in the journal *ACS Sensors* describes a novel flexible, wearable, disposable glove-based biosensor that detects organophosphate compounds in real-time. The glove biosensor enables sampling and electrochemical biosensing of suspicious surfaces using different gloved fingers, which contain either a collection or sensing element printed using flexible ink. The thumb is used for sampling, whereas the index finger is equipped with an electrochemical organophosphate biosensor. When the thumb and index fingers are brought into contact, an enzyme-based electrochemical analysis is performed and the results sent to the user's mobile device using Bluetooth technology.

ACS Sensors March 3

Ultra-thin Nanomaterials Set to Improve Environmental Sensing

A project at Sweden's Chalmers University of Technology could lead to a new type of chemical nanosensor, thanks to research into atomically thin nanomaterials that are extremely sensitive to changes in their surroundings.



The sensors are based on transition metal dichalcogenides (TMDs), a class of substance known to be promising for novel sensor architectures thanks to their strong interactions with light, and an optimal surface-to-volume ratio when formed into thin layers. TMDs are potentially effective as sensors thanks to the nature of the direct band gap in the material, which readily leads to the creation of excitons - bound states of electrons and electron holes - when they interact with light. These “bright” excitons are influenced by the environment of the material, and so offer a way to make TMDs respond to their surroundings.

optics.org 22 March

Alcohol and Formaldehyde Detection Sensors Among Others in Expanded Range

Dart Sensors, known for its breath alcohol and formaldehyde detection is expanding its range to include:

transdermal alcohol sensor; food freshness; oxygen sensor

Reported in: [Electronics Media](http://electronicsmedia.com) 23 March

**Ocean Optics March eNewsWire
Includes this video on Environmental Monitoring**



Owlstone Medical Opens New High Volume Breath Biopsy® Lab

Former UK Prime Minister Tony Blair Cuts the Ribbon



Owlstone Press Release 17 March

Theranos Founder to Give up Shares to Investors who Pledge not to Sue

The story that keeps on giving! Theranos Inc. plans to give additional shares to investors who pledge not to sue the battered blood-testing company or Elizabeth Holmes, its founder and chief executive, people familiar with the matter said. The shares will come from the founders own stake in the company, thus reducing her controlling interest.

The Wall Street Journal 23 March



IdTechEx Publishes New Report on Diabetes Management

The report examines diabetes technologies across seven key areas:

- Sensors for Glucose Monitoring
- Beyond Blood Glucose Monitoring
- Sensors for Ketone Monitoring
- Smart Insulin Pens
- Insulin pumps: towards an artificial pancreas
- Sensors for Side Effects
- Sensors for Early Diagnosis

See [IdTechEx announcement](#), March 28

UC Berkeley Measures Proteins in Breast Cancer CTCs

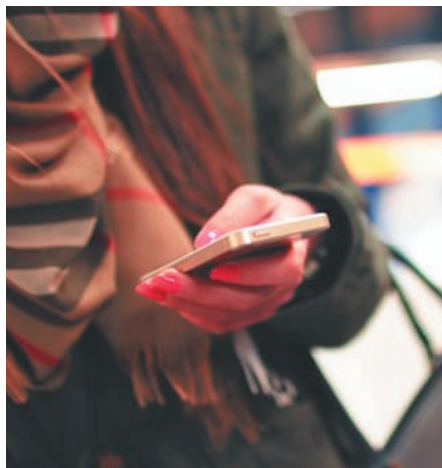
“Tremendous advances have been made in DNA and RNA profiling in cells collected using a liquid biopsy. We extend those advances to highly selective measurement of proteins -- the ‘molecular machines’ of the cell,” said Amy Herr, Berkeley a bioengineering professor and leader of the study team. “We are working to create medicine that would allow a doctor to monitor a patient’s treatment response through a blood draw, perhaps on a daily basis.” To better study circulating tumor cells, the researchers collaborated with physician-scientists and industry engineers to develop a microfluidics system that separates these large cells into a concentrated sample. A key advance the team made was in devising a system to precisely handle and manipulate the concentrated cells from blood. The Berkeley researchers then analyzed each circulating tumor cell for the specific panel of cancer proteins. To do so, they placed each rare cell in a microwell (with a diameter roughly half the width of a human hair). Once settled in the microwell, the circulating tumor cells were burst open and the proteins released from inside each cell were separated according to differences in size or mass. The scientists were then able to identify cancer proteins by introducing fluorescent probes that bind to and light up a specific protein target.

[Science Daily](#) March 24

UK data scientists, digital media company team up to develop AI chatbots to triage care for NHS

The University of Essex has a plan to save the National Health Services billions of pounds per year: outsource treatment of minor ailments to a fleet of automated, AI-powered general practitioners, available right on a smartphone.

Through a partnership with digital and social media company Orbital Media and Innovate UK, a group of developers, data scientists and research will collaborate for 30 months to develop photo realistic avatars that will function as primary physician chatbots. People can access the service to get interactive medical information on things like coughs, colds and flu, which fall into the category of self-treatable conditions that the NHS estimates account for nearly \$2.5 billion (2 billion British pounds) per year of wasted healthcare spending.



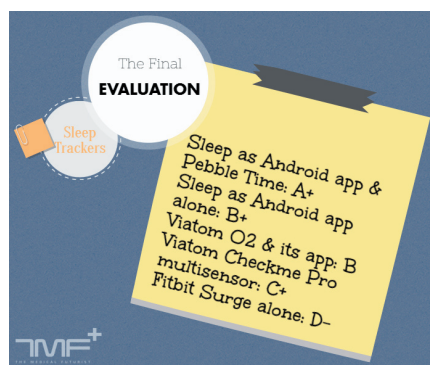
And in another NHS project, an AI chatbot called **Babylon** is being tested for non-emergency medical triage in north central London.

Reported by: [MobileHealthNews](#) 22 March

The Medical Futurist Tests 5 Ways for Sleep Tracking: A Week-Long Experiment With Apps And Sensors

Sleep tracking is not an easy business. There are plenty of options on the market, while choosing and paying for a sensor, an app or both is a serious commitment. TMF decided to carry out a week-long experiment by testing various sleep apps, sensors and their combinations in order to help you with the results. Check it out!

The Medical Futurist Newsletter 20 March



Blood Test used for Rapid Diagnosis of Heart Attacks in Hospital

Elkerliek Hospital (Helmond, the Netherlands) and Royal Philips, a HealthTech company, have announced their collaboration to pioneer the use of point-of-care testing in the hospital's dedicated cardiac emergency department. As a key part of the collaboration, Philips' CE marked cardiac troponin I (cTnI) blood test for the rapid diagnosis of heart attack, which is based on the company's Minicare I-20 handheld diagnostics platform, will be used to provide test results within 10 minutes using only a single 'finger-prick' drop of blood.



Based on Philips' proprietary biosensor technology, the Minicare I-20 handheld diagnostics platform is designed to detect multiple target molecules at very low concentrations in a single 'finger-prick' blood sample, and display the results on a handheld analyzer within minutes. Minicare I-20 is simple and easy to use by non-laboratory staff. The analyzer's in-built connectivity allows direct transfer of the data to laboratory and hospital information systems to update patient files, while integrated calibration and fail-safe functionalities ensure the robustness and accuracy needed for confident on-the-spot decision making.

Reported by: [Select Science](#) 3 March

Wearable/disposable Sweat-based Glucose Monitoring Device

Researchers at the Centre for Nanoparticle Research in Seoul report the electrochemical analysis of sweat using soft bioelectronics on human skin to provide a new route for noninvasive glucose monitoring without painful blood collection. However, sweat-based glucose sensing still faces many challenges, such as difficulty in sweat collection, activity variation of glucose oxidase due to lactic acid secretion and ambient temperature changes, and delamination of the enzyme when exposed to mechanical friction and skin deformation.

[Science Advances](#) 8 March

Moving Toward Diabetes Solutions That Think for Themselves

One of the exciting things about the race for the artificial pancreas (AP) is that it isn't on one path—experts in academia and the commercial sector are pursuing many different solutions at once, which advocates for people with diabetes say is a good thing.

Any solution will require data-driven technology to “think” in place of a pancreas that fails to do its job of delivering the right amount of insulin at the right time. But what will drive that technology? More than 40 studies had contributed to the fine-tuning of algorithms over the past decade by 2014, according a review reported in *Diabetes Care*, and more have occurred since.

A company called Aspire Ventures, which specializes in predictive technology, is taking a different approach. It has created an adaptive artificial intelligence (AI) platform known as A2I, and through its subsidiary Tempo Health, developed a noninvasive system—dubbed Rhythm—to customize glucose monitoring.

Rhythm takes multiple algorithms and creates one that fits the individual patient. And a small study that Tempo Health recently presented shows that the system does a better job than one of the best clinical settings in the world, Diabeter in the Netherlands, which Medtronic purchased in 2015.

Reported by: AJMC.com March 13

How Dolby Is Using Biosensors to Help Produce Better Movies and TV Shows

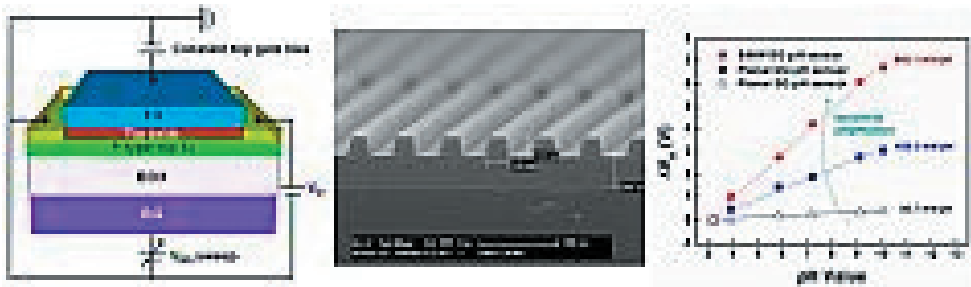


In 1965, Ray Dolby founded the audio-enhancing technology company that would bear his name. Over five decades later, while that remains its primary domain, Dolby has branched out into video – at the cinema with projection systems – and even virtual reality. But it's doing more.

Inside a darkened, sound-proofed living room – which Dolby has dubbed the 'Biophysical Lab' – the company's team of scientists use a variety of biosensors, including a 64-channel EEG cap to monitor brain activity, a pulse oximeter for heart-rate, a wrist sensor that measured galvanic skin response – sweat glands and nervous system – and a thermal imaging camera to track responses to emotional stimuli.

Gadgets360 23 March

Silicon Nanowires Improve Fabrication of Transistor-based Biosensors



[Left] Schematic of a DG FET, [middle] SEM image of a cross-section of SiNWs fabricated on a silicon-on-insulator wafer and [right] change in the response voltage of planar and SiNW pH sensors for a wide range of pH (3–10). (c)2016 Cheol-Min Lim, In-Kyu Lee, Ki Joong Lee, Young Kyoung Oh, Yong-Beom Shin and Won-Ju Cho.

Korean researchers are improving the fabrication of transistor-based biosensors by using silicon nanowires on their surface. When molecules bind on a field-effect transistor, a change happens in the surface's electric charge. This makes FETs good candidates for detecting biological and chemical elements. Dual-gate FETs are particularly good candidates because they amplify this signal several times. But they can still be improved. The team used a method called 'nanoimprint lithography' to fabricate silicon nanowires onto the surface of a DG FET and compared its sensitivity and stability with conventional DG FETs.

The team found that their device was more stable and sensitive than conventional DG FETs. "We expect that the silicon-nanowire DG FET sensor proposed here could be developed into a promising label-free sensor for various biological events, such as enzyme-substrate reactions, antigen-antibody bindings and nucleic acid hybridizations [a method used to detect gene sequences]," conclude the researchers in their study published in the journal *Science and Technology of Advanced Materials*.

Reported by: [ACN Newswire](#) 28 February

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