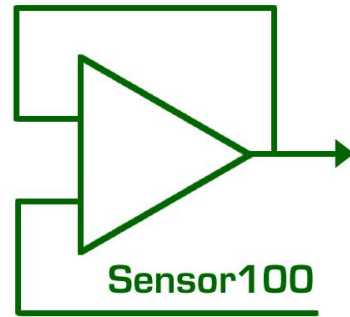


Post Conference Summary



Sensors in Medicine 2016

Organised by:



The international network of people and organisations active in the development and commercialisation of bio- and chemo-sensors

www.Sensor100.com

Welcome

The Fourth Annual **Sensors in Medicine** Conference took place in the London Docklands on 9-10 November 2016. If you came to the Conference, we hope you found it an enjoyable and useful event. This short presentation will serve as reminder of the Conference, and its outstanding speakers.

If you were not a delegate at SiM16, this presentation will give you a taste of what happened, and perhaps encourage you to join us at SiM17 next October.

I would like to express my thanks to the speakers, exhibitors, and the many people behind the scene who made the Conference the success it was.

Join us at [Sensors in Medicine 2017](#) 3-5 October 2017.

Michael Brand
Conference Chair



Program

	Wednesday 9 th November		Thursday 10 th November
08:30	Registration		Registration
09:00	Introduction and Welcome		Introduction and Welcome
09:10	Keynote address		Keynote address
10:00	<i>Session: Infectious Diseases</i>		<i>Session: Clinical Applications</i>
13:00	Lunch		Lunch
14:00	<i>Session: Advanced Technology</i>		<i>Session: New Technology</i>
17:00	Panel Discussion		Conference Ends
18:00	Networking Reception		
20:30	Reception Ends		

Venue

DoubleTree by Hilton Hotel London - Docklands Riverside

Situated across the River Thames from London's thriving Canary Wharf development, the Docklands Riverside provided an outstanding venue for Sensors in Medicine 2016.

Located in a restored warehouse, the Docklands Riverside combines ultra-modern facilities with historic ties to the era when the River Thames was main trading route to London. The hotel is conveniently located for London City Airport, with connections to most major European cities.



Keynote Address

High-precision microfluidics for portable immunodiagnos-
tics:
What do we have
and what is
missing?



Yuksel Temiz

IBM Research - Zurich



Technical Session

Infectious Diseases



Chair: **Dr. Michael Brand**
Sensor100

Rapid Diagnostic Tests for Antimicrobial Resistance (AMR)

Chronic Wound Care Programme

- Development of a an easy-to-use, portable medical device that can be readily applied to diagnose and treat chronic wounds in a clinical environment and in the community.
- University of Edinburgh, NHS Lothian, Zisys Ltd. research provider
- Aim: **Molecular MRSA detection from clinical specimen without PCR**



Dr Till Bachmann
University of Edinburgh

Enhanced, Personalised and Integrated Care for Infection Management at the Point-of-Care

The landscape of infection management in 2016

NHS
National Institute for Health Research

80 year old male
Presenting generally unwell with fever to A&E
Confused
Unclear source of infection



Day 1 → Day 2 → Day 3 → Day 4 → Day 5 → Day 6 → Day 7 → Day 8



Dr Timothy Rawson
Imperial College

DeskTop Biology-Translation from Lab to Desktop



Dr Giles Sanders
The Technology Partnership

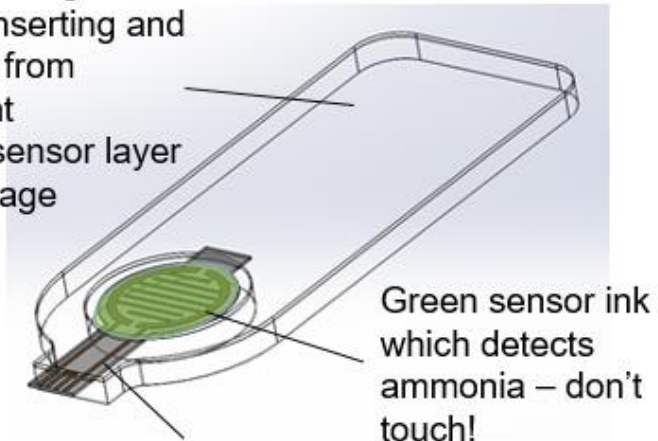


Non-Invasive Point-of-Care Breath Diagnostic Technology: From Research to Commercialisation

How does it work?

- The sensor

Plastic cartridge for holding, inserting and removing from instrument
Protects sensor layer from damage



Silver conductive connectors to connect sensor layer to the instrument



Prof Anthony Killard
University of the
West of England

Technical Session

Advanced Technology



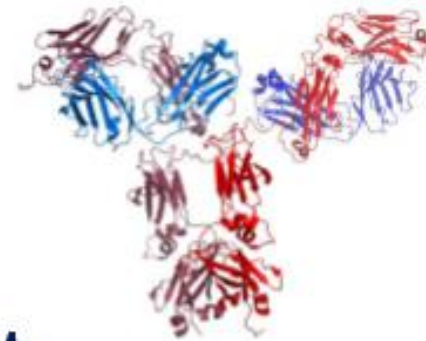
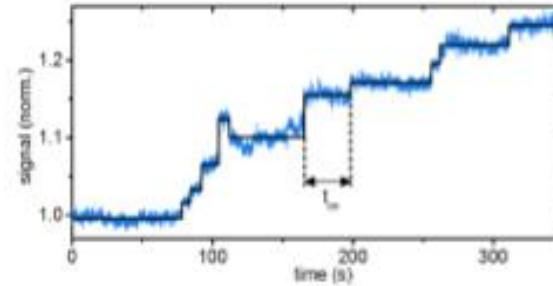
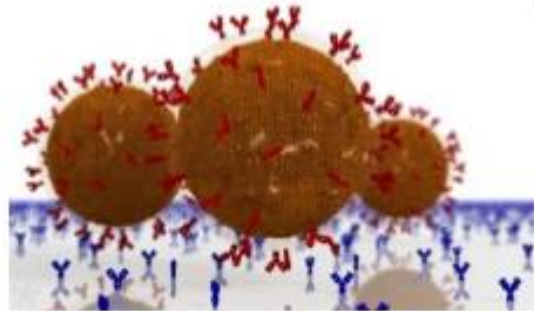
Chair: **Dr. Michael Pringle**
Principal, Clinical
Diagnostics Solutions

Biosensing based on particles and single-molecule methods



Menno Prins

Eindhoven University of Technology

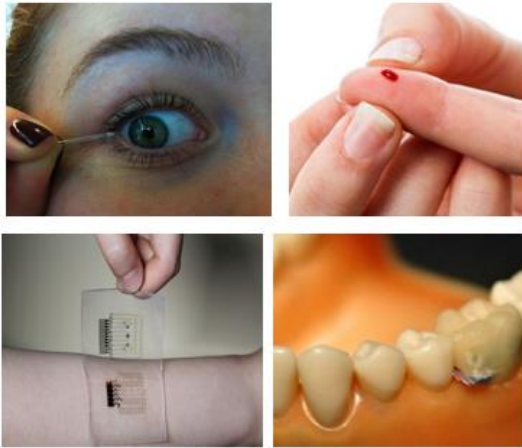


Electrochemical Sensing for Point of Care, Implantable and Wearable Diagnostic Devices



Glucose Concentration

- Ex-vivo (e.g. wearables) typically require very high performance
 - Take glucose for example



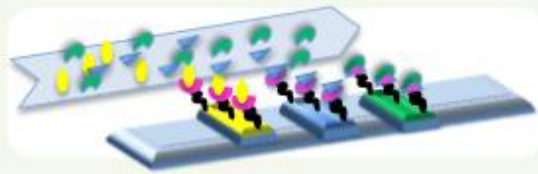
Medium	Glucose concentration (mM)
Finger Prick	
Human blood	~5.0
Implantable devices	
Human ISF	~<5.0
Non-invasive / Ex vivo devices	
Human tears	~0.01 - 0.6
Human saliva	~0.03-0.10
Human sweat	~0.170

www.nanoflex.com



Dr Marcus Swann
Nanoflex

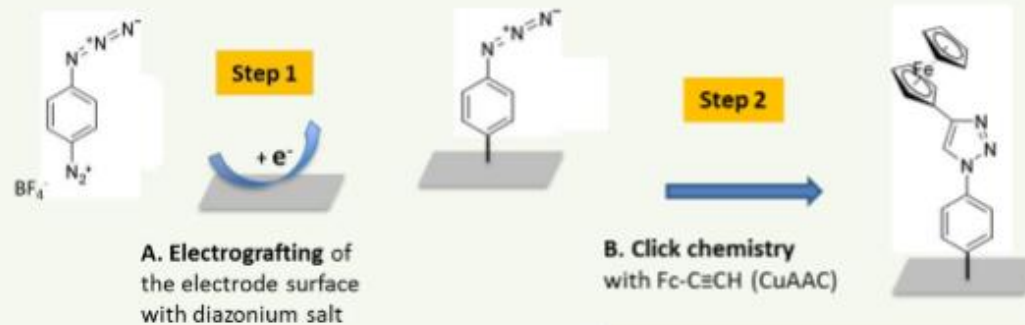
Surface Functionalization of Thin Layer Platinum Microbands for Customized Microsystems



Towards a SElective Solid
phAse Microextraction
(SESAM) device



Modification strategy: Electrografting + CLICK CHEM on surface



Dr. Laura Gonzalez-Macia
PSL Research University
laura.gonzalez@chimie-paristech.fr

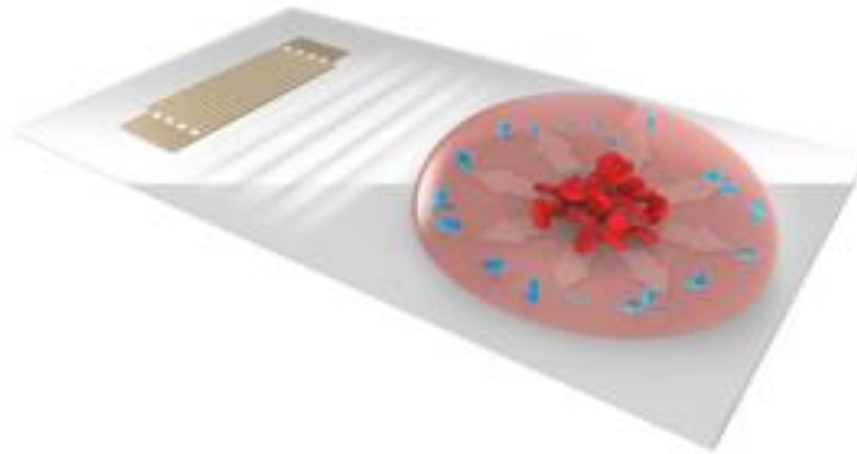




Acoustic Holograms – Creating Unique Flows & Functions in Microfluidics

Professor Jon Cooper, FRSE, FREng
The Wolfson Chair of Bioengineering
The University of Glasgow

EPSRC



Molecular Diagnostic Platforms for Early Detection of Prostate Cancer from Liquid Biopsies

Imperial College
London

Our Target: Circulating micro RNAs

Need for reliable, highly sensitive, specific and quantitative sensing technology

- Secretion in body fluids (saliva, serum, plasma...)

Ideal for minimally invasive diagnosis

BUT

- Low concentration in these cell-free fluids
- miRNAs have very similar sequences



Dr Sylvain Ladame
Imperial College

Panel Discussion: Healthcare in 2036

– Will Sensor Technology Have a Role?



Dr. Michael Brand
Sensor100
Chair



Dr. Giles Sanders
TTP



Dr. Till Bachmann
University of Edinburgh

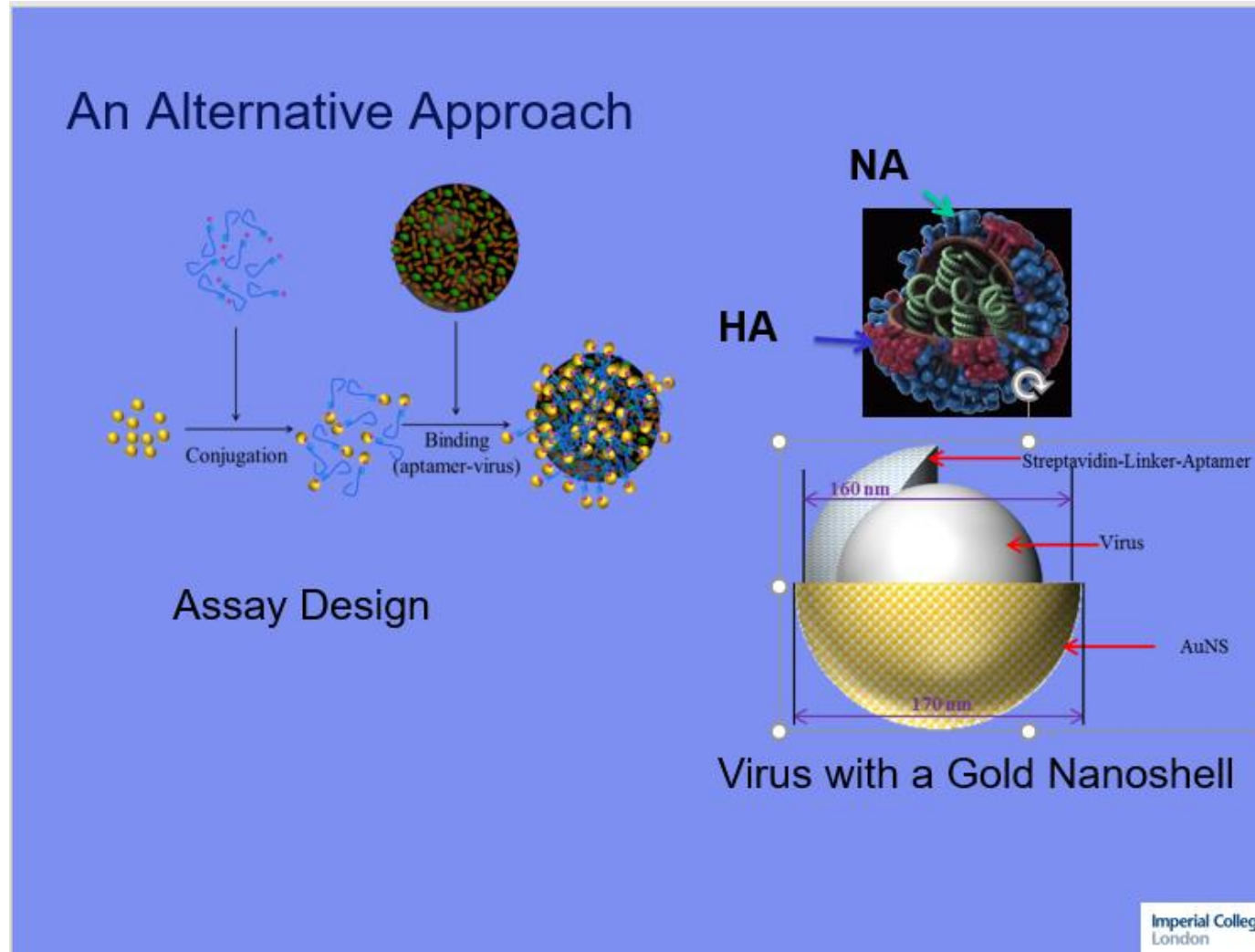


Dr. Yuksel Temiz
IBM Research, Zurich



Prof. Tony Cass
Imperial College,
London

Keynote Address: Engineering Nucleic Acid Aptamers for Molecular Sensing



Prof Tony Cass
Imperial College

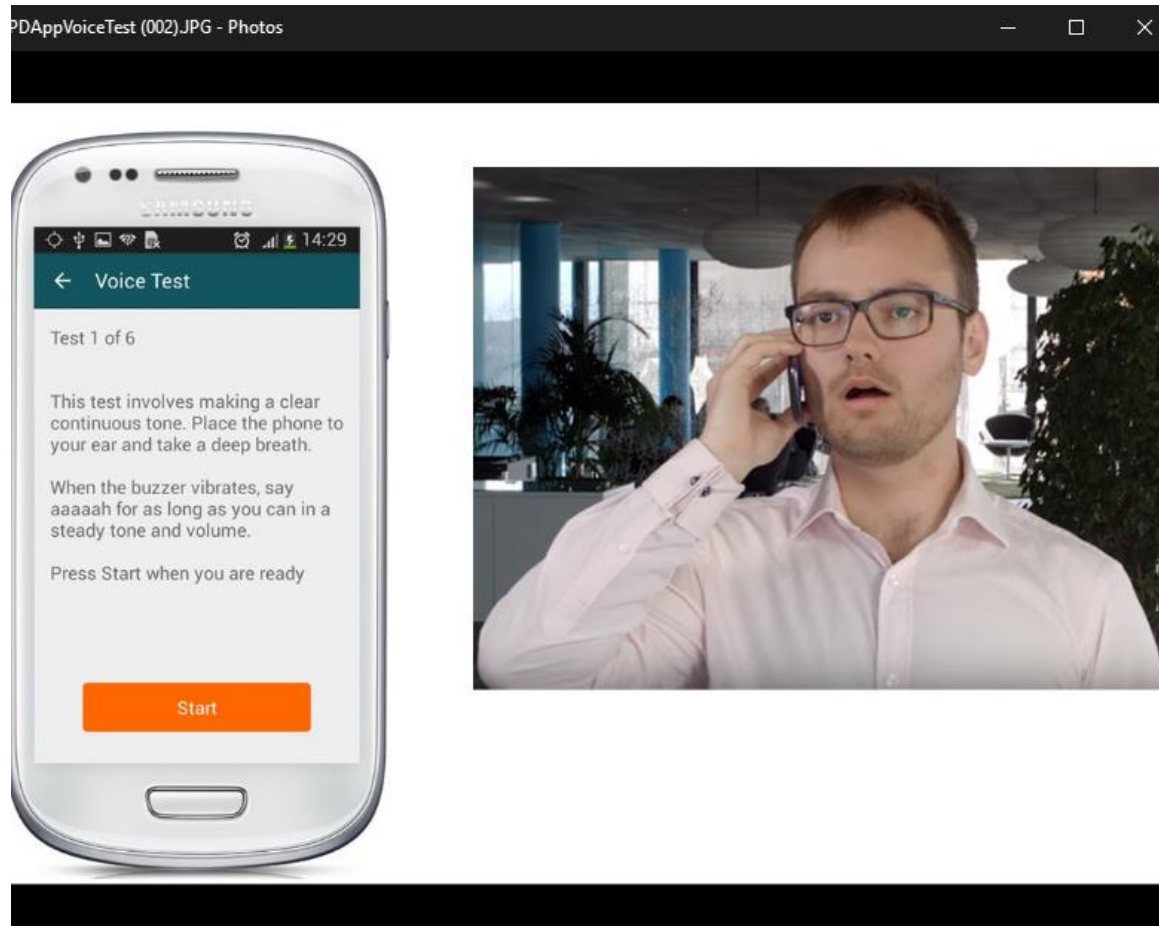
Technical Session

Clinical Applications



Chair: **Prof. Jon Cooper**
University of Glasgow

Use of a Smartphone Voice Test as Digital Biomarker in a Parkinson's Disease Clinical Trial

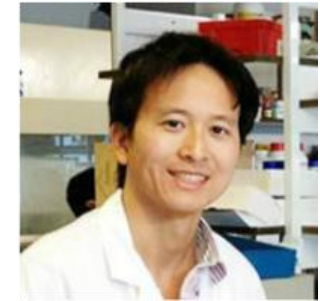


Dr. Detlef Wolf
F. Hoffmann-La Roche AG

Optical Detection for Point of Care Testing in Medicine



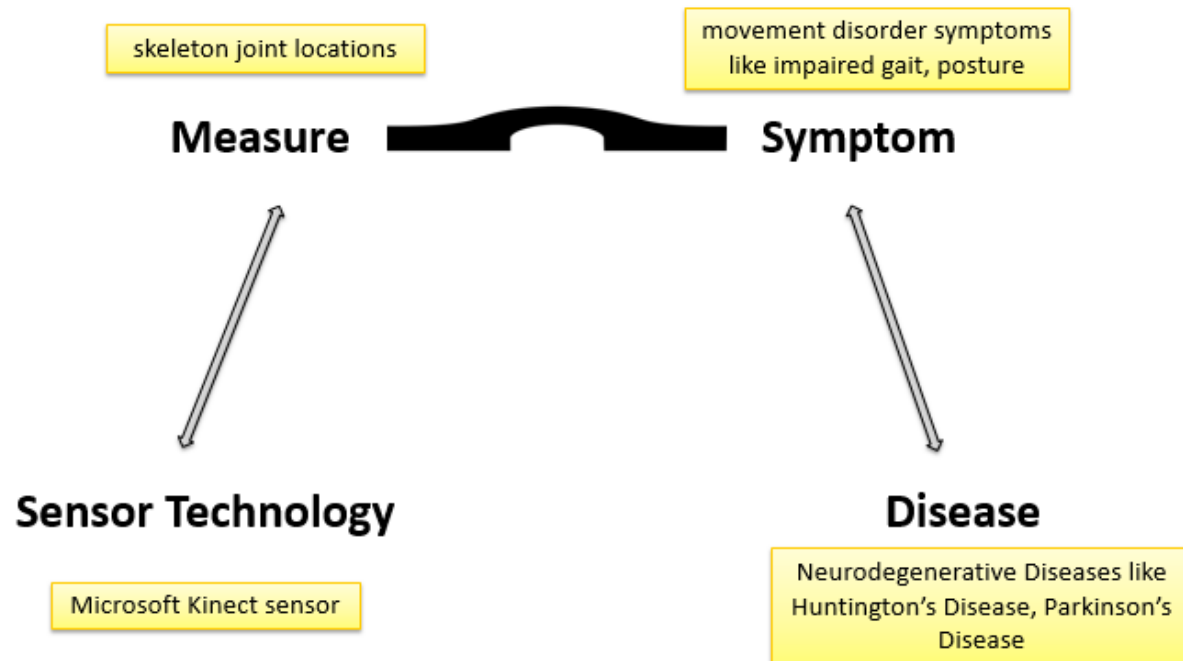
POINT OF NEED. ALWAYS. EVERYWHERE



Dr MengHan Kuok
CamTech

Assessment of Gait and Balance Characteristics Using Kinect Sensor to Understand Movement Disorder

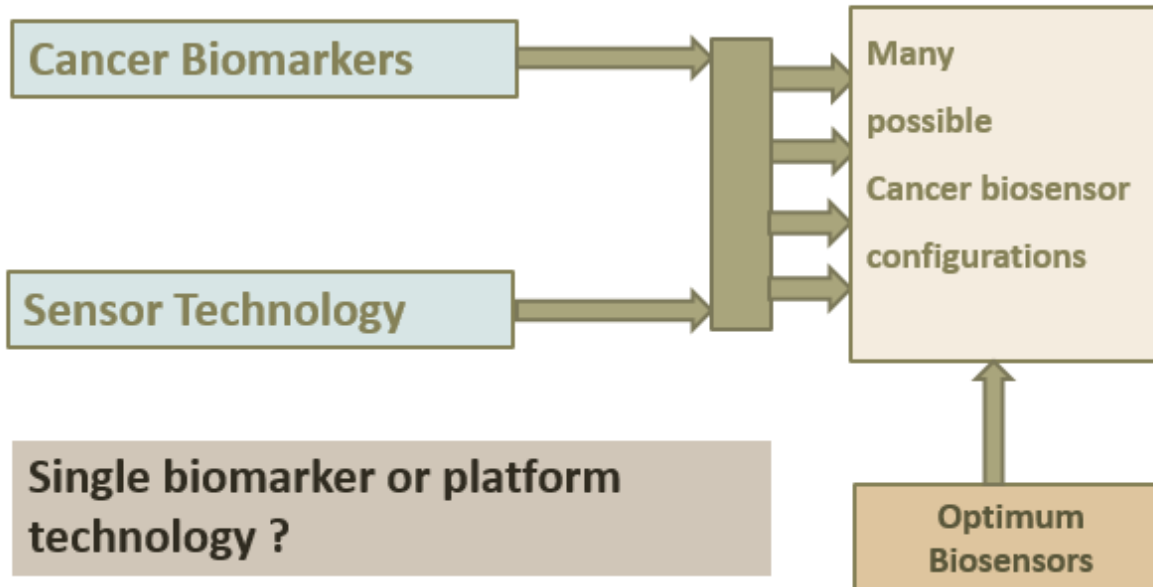
The Role of Sensor Technology



Dr. Xing Chen
F. Hoffmann-La Roche AG

Biosensors for Cancer Diagnosis – Reality or Dream

Optimum Biosensor



Dr Michael Brand
Sensor100

Technical Session

Advanced Technology



Chair: **Dr. Michael Brand**
Sensor100

Printed Electronic Biosensors

Summary



C|D|T

- Introduction:
 - Cambridge Display Technology
 - Why are we interested biosensors?
 - Advantages of printed electronics in rapid, reliable, user friendly devices
- Sensors:
 - Optical components – Organic Light Emitting Diode (OLED), Organic Photo Diode (OPD), filters, “test” area
 - Detection – Fluorescence
- Experimental proofs:
 - CRP
 - Troponin
 - Metal ions
- Prototype demonstrators



Simon Cass
Cambridge Display Technology

Amperometric Detection in the Femtomolar Range Using Two-Electrodes and Ultramicroelectrode



ParisTech



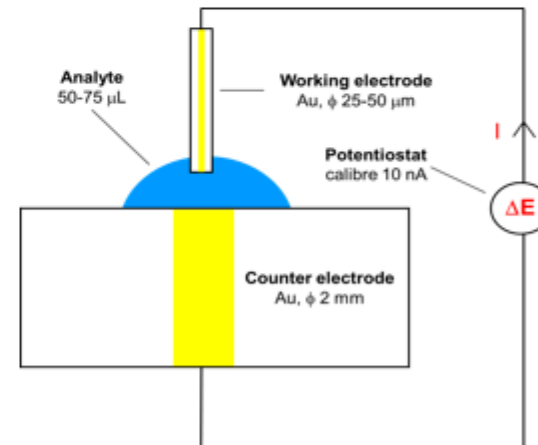
RESEARCH UNIVERSITY PARIS



ELECTROCHEMICAL microRNA

BIOSENSORS: AN ERGONOMIC

MINIATURIZED TWO-ELECTRODE SETUP



Inserm



UNIVERSITÉ PARIS DESCARTES



FRANÇOIS-XAVIER GUILLON

PSL PhD

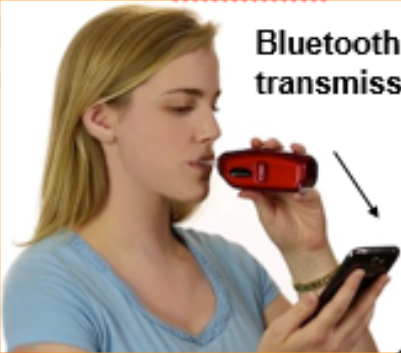
Wearable and Smartphone Technologies: What can they tell about your health?

Metabolism

Starter kit \$350 from Breezing Co.

BREEZING metabolism tracker

Bluetooth transmission




Measures by indirect calorimetry:
Resting Energy Expenditure – the number of calories burned by their metabolism daily;

Your Energy Source – carbohydrates, fat, or both;

Your Total Energy Expenditure – the total number of calories you burn (metabolism + activity level) depending on how active you are;

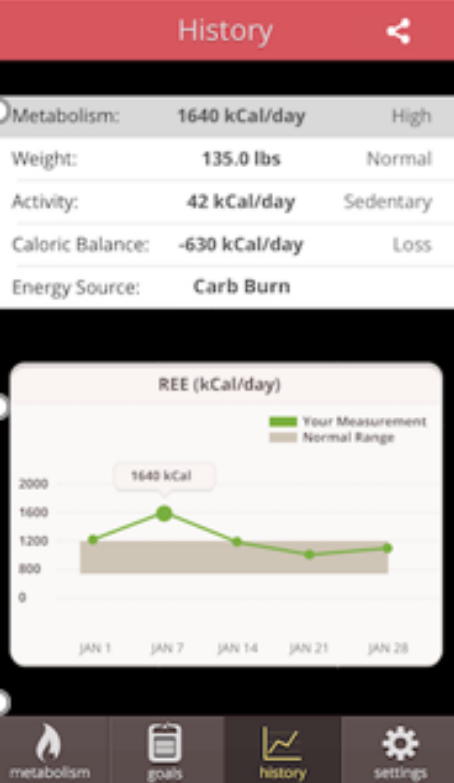
Metabolic History – changes in metabolism over time;

Weight History – changes in weight relative to metabolism over time.



Arizona State Univ spin-out

Metabolism:	1640 kCal/day	High
Weight:	135.0 lbs	Normal
Activity:	42 kCal/day	Sedentary
Caloric Balance:	-630 kCal/day	Loss
Energy Source:	Carb Burn	



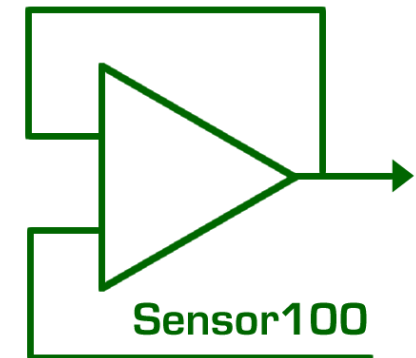
25

Michael J Pringle, PhD, Principal: Clinical Diagnostics Solutions

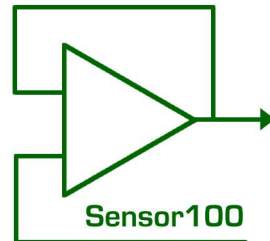


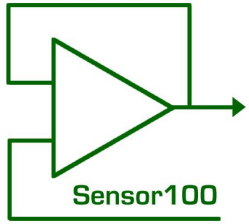
Dr Michael Pringle
Clinical Diagnostics Solutions

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5th Annual Sensors in Medicine 2017

Linking Academic, Clinical and Commercial Worlds

Tuesday 3rd October

Sensors for glucose monitoring & diabetic care

Wednesday 4th October

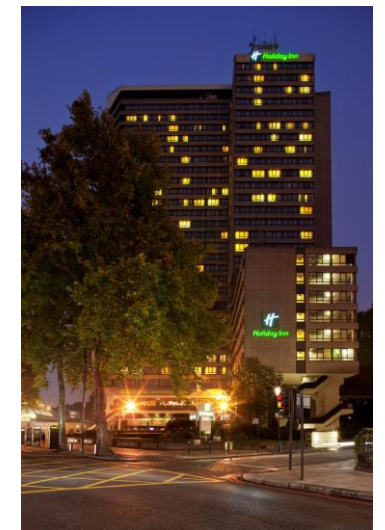
Sensors for infectious disease diagnosis & PoC technology

Thursday 5th October

Sensors for cancer diagnosis

Venue

Holiday Inn London
– Kensington Forum
97 Cromwell Road
London SW7 4DN



Exhibits | Poster Competition | Panel Discussions | Networking Receptions

Register for any one, any two or all three days

[Call for Papers](#) open

[Register Now!](#)

www.Sensor100.com/SiM17

About **Sensor100**

- The international network of people and organisations active in development and commercialisation of bio- and chemo- sensors
- Formed in 2011, now has over 3000 members in over 70 countries
- Publishes a monthly eNewsletter, distributed free of charge
- Conference series:
 - [Sensors in Medicine](#)
 - [Sensors in Food and Agriculture](#)
 - [Sensors for Cancer Diagnosis](#)
 - [Sensors in the Environment](#)

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Contact us

Sensor100

Cumberland House
35 Park Row
Nottingham NG1 6EE
United Kingdom

t: +44 115 988 6154

e: info@sensor100.com

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