Driving Innovation through Collaboration

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• Introduction to the HealthTech and Medicines Knowledge Transfer Network

• KTN priority areas & the Innovation funding landscape

• Routes for innovation collaboration
Knowledge Transfer Networks (KTNs) Connect and Catalyse specific technology sectors to drive innovation.
Building a Healthy Nation through Business Innovation

The HealthTech and Medicines KTN supports business innovation through partnerships, access to funding and knowledge transfer.

- **Connecting partners**
  - Bringing together & facilitating collaborations with a common goal

- **Access to funding**
  - Identify and influence new and existing sources of funding

- **Knowledge transfer**
  - Opening doors to wider networks of people, organisations
HTM KTN Partners

Co Directors
- Tony Bradshaw (BUK)
- Sue Dunkerton (TWI)

Knowledge Transfer
- Daniel Smith (BUK)
- Mehdi Tavikoli (TWI)
- Terry O Neill (TWI)
- Mark Bustard (BUK)

*BioProcessUK
* BioProcessUK is affiliated to the BioIndustry Association

Marketing & Admin
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- Jean Aligorgi (BUK)
- Chris Ansell (BITECIC)
- Sarah Forson (TWI)
- Angela Dowdells (BUK)

Knowledge Transfer
- Sarah Goulding (BUK)
- David Calder (TWI)
- Laurence Archibald (M4)
- Kevin Kiely (Medilink)
- Tom Pinto (TWI)
- Malcolm Rhodes (BUK)
- Judith Juhasz (TWI)
HTM KTN Priority Areas

- Assisted Living Innovation Platform (ALIP)
- Biopharmaceutical & Bioprocessing (BB)
- Detection and Identification of Infectious Agents (DIIA)
- Medical Devices and Diagnostics (MDD)
- Regenerative Medicine (RM)
- Stratified Medicine Innovation Platform (SM)
Company Landscape

Medical Biotechnology
- 37,000 employees
- 900 companies
- Biopharmaceutical pipeline valued at £24 billion

Medical Technology
- 50,000 employees
- 3,000 companies
- 25% conduct R&D

Pharmaceutical
- 45,000 employees
- 60% conduct R&D
Driving Innovation through Collaboration

Regional Projects

International

TSB Collaborative R&D

CASE Awards

Knowledge Transfer Partnerships

RC Industry Clubs

European Funding

BRIC - BIOPROCESSING RESEARCH INDUSTRY CLUB

www.innovateuk.org/healthktn

Building a Healthy Nation through Business Innovation
Biopharmaceuticals and Bioprocessing

- Bioprocessing Research Industry Club
- North of England Regional Project
- Official Groups: Analysis, Formulation, Biomanufacturing Innovation, Bioprocessing Advanced Therapies
- Emerging Professionals Network
  - Imperial College; 13-14th Sept 2011
The HTM KTN is a partner in the BBSRC/EPSRC/Industry Bioprocessing Research Industry Club (BRIC) and acts to drive engagement of the bioprocessing industry and input into skills and training agenda.

**BRIC Phase 1**
- £13.7 million research grants allocated
- 25 Projects
- 19 Universities
- 40 PDRAs funded
- 18 Industry members

**BRIC Phase 2**
- Further £10M over 5 years (£3.7 million research grants allocated)
- Strategic alignment of 10 PhD studentships to projects
- Industry-run training modules being offered to BRIC researchers
- Biopharmaceutical Bioprocessing Summer School in planning
Innovation in Bioprocessing in the North of England (NoE)

- Unique collaboration between the HTM KTN and the 3 RDAs in the NoE (18 month project)
- Drive innovation in the areas of Bioprocessing and Regenerative Medicine into NoE
- Facilitate Collaborative R&D within the strong academic and industrial communities in the NoE.
- Create partnerships across regional boundaries.
- Champion a ‘Network of Excellence’.
North of England – Activities and Impact

Key Activities for 2010-11

• 3 out of the 4 official group events held within the NoE
  – 10 NoE speakers out of 15 across the events.
• TSB promotional events for Regenerative Medicine (and Stratified Medicine) held in the NoE.
• Focused Knowledge Transfer engagement with companies, academics & networks within the NoE.
• Assisting over 10 different consortia with the TSB CR&D calls.

Impact for 2010-11

• A total in excess of £2.5m successfully secured for collaborative R&D projects into the NoE.
• 15 companies interested in KTP funding – at least 2 of these have now successfully been awarded.
• NoE representation on KTN RM networking mission to Boston, USA.
• 14 ‘new’ companies are now engaged within the HTM KTN community.
Regenerative Medicine

- The ‘RegenMed Programme’
- KTN International Networking Missions
- Official Groups: Cardiac Devices, Urology, Orthopedics, Bioprocessing Advanced Therapies

- Support the development of academic Centres of Excellence
  - IMRC for Regenerative Medicine, University of Loughborough
  - IKC on Regenerative Therapies & Medical Devices, University of Leeds
HealthTech and Medicines is the lead KTN in the ‘RegenMed Programme’

Managed by TSB; total investment of £21.5 million over 2 years incl. £3.5 million from the research councils.

Aims to create a step-change in the competitiveness of UK regenerative medicine businesses and technology providers, and enhance the ability of UK business to provide global solutions.
Regenerative Medicine CR&D Funding Phase 2; 2010

Funding to underpin and enable the best regenerative medicine businesses to flourish in the UK

<table>
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<tr>
<th>Therapeutic Development</th>
<th>Tools &amp; Technologies (Feasibility Studies)</th>
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<tr>
<td>29 Applications received</td>
<td>43 Applications received</td>
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<tr>
<td>16 Funded to a total of £3.6M</td>
<td>12 Funded to a total of £1.6m</td>
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www.innovateuk.org/healthktn
Regenerative Medicine 2011
TSB CR&D Call

Therapeutic Development
- Up to £2.5m CR&D, up to 75% funded

Project scope:
- Preclinical Areas
- Formulation & Delivery
- Establishing Clinical Trials
- Scale-up & Manufacturing

Tools and technologies 2 - for cell based therapies
- Up to £8m CR&D, up to 75% funded

Project scope:
- Safety/Efficacy
- Manufacturing

Outputs: Technology Application Commercial

Industrially-led Collaborative R&D Funding for Regenerative Medicine
UK Regenerative Medicine Networking Mission – East Coast & West Coast USA

JULY 2010

Chair
KTN staff:

Dr. Cathy Prescott, Biolatris
Prof Mehdi Tavakoli, Dr Daniel Smith, Narpal Sihra, Dr Sarah Goulding

British Consulate-General Boston
British Consulate-General Los Angeles
British Consulate-General San Francisco
Mission Overview

The **HTM KTN co-ordinated** the East and West Coast US Mission with the British Consulate-General of **Boston, Los Angeles** and **San Francisco** working with **UKTI** and the **Science and Innovation** team.

The mission aimed to **learn about key developments in the regenerative medicine field** and **identify where the UK could work with the US to advance technologies** and **build world leading expertise**.

**Delegates visited 15 different organisations** linked to Regenerative Medicine and took part in **workshops and round table discussions with over 100 US delegates**.

(i) **Funding & Collaboration**, (ii) **Standards**, (iii) **Reimbursement**, (iv) **Regulations**

The mission **explored sharing best practise for the industry** and learning's which will **help set-up and build an international network of networks** to connect and support UK / US networks and clusters.
“The mission was both useful and enlightening with an excellent opportunity to visit a good cross section of companies across the spectrum of technologies. **We are actively following up at least one potential prospect as an output of this mission**”

“The mission was a great opportunity to learn at first hand about activity in Massachusetts with a first class service from the consulates there. **We has the chance to move on some key discussions**, and had the chance to meet with a good number of new contacts”

“The mission provided **a great opportunity to meet new contact and allowed us to cement a relationship with a key company for our activity**. As a result work is now coming out of this, the mission allowed us to forge good relationships”

“The mission really was **a once in a lifetime opportunity to meet some very key people in the US**. It provided us with an opportunity to move forward a key project for the company with a US partner which was extremely useful and timely.”
Over £50 million of government funding over a 5 year period will be invested to accelerate Stratified Medicine in the UK for development of medicines targeting smaller subgroups of patients.

Bringing together government, researchers and industry the initiative aims to establish the UK at the centre of a revolution in the diagnosis and treatment of disease.

The first competition focused on tumour profiling to improve cancer care, developing biomarkers for more effective drugs, and developing business models in stratified medicines.
The **Theme Health** is aligned with the fundamental objectives of EU research policies:

- Improving the health of European citizens
- Increasing competitiveness of European health-related industries and services
- Addressing the socio-economic dimension of health care and global health issues

**Call OPENS 20th JULY 2011**

**1.2 DETECTION, DIAGNOSIS AND MONITORING**

1.2-1. Development of technologies with a view to patient group stratification for personalised medicine applications.

- SME-targeted Collaborative Project
- Projects up to €6.0million
Medical Devices and Diagnostics

- EPSRC Industrial CASE Awards
- Knowledge Transfer Partnerships
- Official Groups: Dentistry, Drug Delivery, Advanced Wound Management, Biomedical Surfaces, Medical Devices Clinical Studies, Healthcare Associated Infections
Supporting Industrial CASE Studentship Awards

EPSRC/HealthTech and Medicines KTN Industrial CASE Studentship Awards

- HTM KTN has acted as a broker for over 40 EPSRC Industrial CASE Studentship Awards in the area of medical devices.

- Current 2011-12 call for 5 EPSRC Industrial CASE awards is now closed.

- Additional prioritisation is given to small and medium enterprises (SME), and particularly to companies establishing new collaborations with clinical/academic partners (EPSRC guidelines).
Wide range of CASE project areas supported

Cardiovascular: Adsorption filtration device for fat removal in cardiac surgery - led by UCL

Dental: Aluminium-free glass-ionomer bone cements - led by Sheffield University

Development of self disinfecting dental impression materials - led by QMUL

Orthopaedics: Bone grafts for spinal fusion - led by Cambridge University

Tools for pre-clinical evaluation of novel knee hemi-arthroplasty devices - led by Leeds University
CASE: Optimisation of Silicon Substituted Apatites, Bone Grafts for Spinal Fusion (OSSAP)

Department of Materials Science & Metallurgy

The Orthopaedic Research Unit, Addenbrooke’s Hospital

‘Optimisation silicon-substituted hydroxyapatite for spinal fusion applications’

Silicon incorporation into the HA enhances osteoconduction.

Dense and macroporous granules (images left) of HA and Si-HA with wt% substitutions of 0-2% were implanted into sheep femoral bone.

Determined optimum substitution level, the material that is now produced commercially.

A highly successful project with a real clinical benefit and good research output (7 papers and 5 conference presentations)

ApaTech Ltd. acquired by Baxter International Inc. in 2010 for ca. $330m
Supporting Knowledge Transfer Partnerships (KTPs)

HealthTech and Medicines KTN promote Knowledge Transfer Partnerships (KTPs)

- Support for full time post-graduate within industry
- Typically 1-3 years duration, but new system enables shorter duration
- Opportunity for company to work closely with academia or other research provider
- Requirements for success:
  - strategically important to the business
  - requires external research input
  - provides challenge for associate
KTP Case Study: AAA and the Anaconda Device

Treatment of Aortic abdominal aneurysms (AAA) using the Anaconda Device

The Vascutek Anaconda AAA stent graft system (courtesy of Vascutek Ltd)
KTP Case Study: AAA and the Anaconda Device

The manufacturing joining technique uses manual assembly of hand sewed Nitinol Stents on the Graft.

Advantages
- Simple Process
- Tested over many years
- High Strength (300 – 450N)
- No sophisticated machinery

Disadvantages
- Labour intensive
- High production times
- High labour costs
- Quality Control issues
- Variability / Consistency

KTP Project: AAA and the Anaconda Device

‘Alternative potential techniques for joining endovascular grafts using laser and ultrasonic welding are evaluated’
- The project was successful
- The KTP Associate was employed by Vascutek
Technology Strategy Board Detection & Identification of Infectious Agents Innovation Platform

TSB along with the DoH, launched an £11 million competition to fund projects aimed to develop diagnostic devices and improve their uptake in the human and animal healthcare sectors.

‘To fight infection through detection’

The competition was split into three different project types:

- Feasibility studies (£2.5million)
- Fast-track projects (£1.0million)
- Larger collaborative R&D projects (£7.5million)
The DIIA Innovation Platform’s second series of competitions will focus on **SEPSIS**

Projects should focus on developing tools and capabilities to improve the outcome of sepsis

- A condition that **costs the NHS ~£1.5 billion per year**.
- **Worldwide** there are **1.8 million cases/year** with a **mortality rate of 28-50%**.
- Patients with severe sepsis **use 46% of all ICU bed days**
- **Risk of death increases by 6-10% every hour** from onset of septic shock to the start of effective treatment

The competition details will be announced on 5th July 2011, The Waldorf Hilton, Aldwych, London

To attend the launch event please register here: [http://www.partners4healthcare.com/](http://www.partners4healthcare.com/)

**Competition due to open in September/October 2011**
Sepsis I (CR&D, max 48 months) £5M
Multi-pathogen detection and/or simple discrimination

Industry led consortia will be challenged to develop POC systems capable of near patient, multiple pathogen detection or simple devices for use in, for example, primary care. The need for “simple” devices capable of, for example, distinguishing between bacterial and viral infections has been highlighted by experts as being desirable in addition to multi-pathogen detection.

Sepsis II (CR&D, max 36 months) £2.5M
Advancing biomarker use in sepsis management

Focus on the clinical evaluation of candidate biomarkers in the management of sepsis, the idea being to significantly advance this field which has remained somewhat static for many years. The competition will run under CR&D. It is envisaged that most consortia will not aim to produce a product but to address how biomarkers can be used to inform clinical decisions.
DIIA SBRI: (Max 24 months) £1M
Assessing the impact of near patient testing

This SBRI competition relates to all DoH priorities shown below:

- **Tuberculosis**
- **Sepsis**
- **Antimicrobial resistance:**
  - Hospital-acquired infections (MRSA, *Clostridium difficile*, ESBL-producing bacteria)
  - Community-acquired pneumonia
  - Antibiotic prescribing in primary care (diagnostic tools to reduce the inappropriate prescribing of antibiotics)
- **Sexually transmitted infections:**
  - Chlamydia
  - Gonorrhoea

SBRI enables government departments and public sector organisations to procure new technologies faster and with managed risk through a phased development programme, and it provides paid contracts for the critical stage of product development.
Translational research in major infectious diseases: to confront major threats to public health

Call OPENS 20th JULY 2011

2.3.0-1 Diagnostics for infectious diseases.
This topic covers the development and/or validation of diagnostic tests for HIV/AIDS, malaria, tuberculosis, hepatitis, neglected infectious diseases, emerging epidemics as well as anti-microbial drug resistance, including fungal pathogens, with the aim of meeting real clinical needs.

• SMEs should take a leading role in application
• Project should be < 3 years
• €6,000,000 ceiling is max only
How to Maximise Benefit from the HTM KTN

• Engage, participate and host the KTN’s Official Groups
• Join the KTN ‘_connect’ portal (www.innovateuk.org/healthktn)
• Make sure that the KTN knows you, the research intensive companies and academics
• Attend briefing events for TSB funding calls
• Remember the other funding schemes and KTNs

www.innovateuk.org/healthktn
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