Academic Options for the Physician in Training

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Clinical academic research
Drivers for Change
Drug discovery revolutionized but… …

- dislocation of basic science and medical need
- dislocation of academia from industry
- basic scientists have few incentives to undertake translational research:
  - complex regulatory and patent issues
  - perceived risk to careers
  - lack of team incentives
  - lack of resources and relevant infrastructure
- clinical pharmacology has disappeared from the core curriculum
US FDA approvals...

Figure 1 | FDA drug approvals. New molecular entities and biologic license applications approved by the US FDA’s Center for Drug Evaluation and Research by year.
The training of clinician scientists...

Training bodies:
- Royal Colleges
- Postgraduate Deans
- PMETB

Regulation

Patient care

young clinical scientist

Employers:
- NHS
- Universities
- Industry

Research funders

Teaching

Research

£

£
A new environment…

Collaboration & organisation
- UK Clinical Research Collaboration
- Office for Strategic Co-ordination of Health Research
- NIHR
- a ring-fenced fund for R&D
- Tooke Report
- Darzi – Next Stage Review

Infrastructure
- Clinical Research Facilities
- Clinical Research Networks
- biomedical research centres
- flexible academic career pathways

Science
- genetics
- medical imaging – physiology
- Medical engineering
- genomic and proteomic analysis
- e-health and informatics
New pathways…

- a pilot two-year integrated academic Foundation Programme targeted in part at MB-PhD students
- Academic Clinical Fellowships:  
  - up to 250 per annum
- In-Practice Academic Fellowships:  
  - up to 10 per annum
- ‘Interim’ Clinical Lectureships:  
  - up to 100 per annum
- “New blood” Senior Clinical Lectureships:  
  - up to 200 posts over ten years
PhD programmes

• supporting the most promising medically qualified clinicians to undertake rigorous research training

• traditional models of stand alone fellowships to structured programmes

Programmes provide:

• structured and mentored training environment

• provide individual trainees opportunities to sample high-quality research environments

• develop a research proposal that is tailored to their individual interests

• flexibility to undertake basic, clinical or translational science research training

• international opportunities
New programme: £11 m

Interdisciplinary Training Programmes for Clinicians in Translational Medicine & Therapeutics

• establishment of high-quality integrated research training programmes for clinicians

• to produce a cadre of clinicians with the expertise to design and conduct studies that aim to develop and evaluate novel therapies in humans

• partnerships: from a single academic institution and industrial partner to more complex consortia

• awards made to:
  
  ◦ Scottish Translational Medicine & Therapeutics Initiative (University of Edinburgh, Aberdeen, Dundee & Glasgow/Wyeth Research)
  
  ◦ Translational Medicines & Therapeutics (University of Cambridge/GSK)
  
  ◦ Clinical Pharmacology & Translational Medicine (University of Newcastle/Roche, AZ, Sanofi-Aventis, Sitris Pharmaceuticals, PTC Therapeutics)
  
  ◦ Experimental Medicine for New Therapeutics Development (Imperial College/GSK)
New programme:
Postdoctoral Training Fellowships for MB/PhD Graduates

- unique opportunity for most promising newly qualified MB/PhD graduates to make an early start in developing independent research careers
- enable successful candidates to undertake a period of postdoctoral training in the best laboratories in the UK and overseas
- tailored to allow candidates to continue their postgraduate clinical training
New programme:
Starter Grants for Clinical Lecturers

- new £5m grants scheme designed to provide support to research active Clinical Lecturers

- Starter Grants aims to provide modest ‘start up’ funds to enable research active Clinical Lecturers to:
  - pursue their research work
  - gather preliminary data
  - strengthen their applications for longer-term fellowships and funding
Clinical research facilities

- a network of UK centres for experimental medicine
- aimed at speeding up the translation of scientific advances into real benefits for patients
- provide significant opportunities for scientists to work closely with clinical researchers, enabling the development of new therapies and treatments
Major New Facilities: UKCMRI

A National centre for major collaborative, interdisciplinary and translational medical research between the UK’s principal medical research organisations

Enabling the partners to:
• take a long-term approach to important research and innovation problems
• promote interdisciplinary and translational research
• provide cost-effective access to world-class infrastructure, resources, services and specialist facilities
• exploit intellectual property more effectively
• enable the UK to secure access to or retain world-class scientists
• provide a high-quality environment in which to recruit, train and develop future scientists
• develop close links between the Institute and the outstanding research intensive hospitals nearby
• exploit the close proximity of the British Library
Mentorship and environment

• choosing the right research environment is crucial

• trainees should:
  ♦ find one or two mentors
  ♦ visit the laboratory
  ♦ talk to current and past graduates

• the environment should:
  ♦ encourage academic questioning
  ♦ provide critical mass
  ♦ provides the best opportunities for continued training
  ♦ provide the best supervision and support for writing grant applications
Translational medicine

Key to an innovative healthcare and pharmaceutical industry we must:

• develop bench to bedside – bedside to bench approaches
• optimize academia & industry links
• develop innovative public private partnerships
• reinvigorate undergraduate medical curriculum
• provide flexible training routes
• streamline approval processes
“We don't have to look for model organisms anymore because we are the model organism”

Sydney Brenner
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