

Academic Options for the Physician in Training

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Clinical academic research

Drivers for Change

Recruitment of New Physician Investigators in Clinical Research: Findings from a Survey of Clinical Department Chairs at U.S. Medical Schools

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Bioscience 2015

Promoting Translational and Clinical Science: The Critical Role of Medical Schools and Teaching Hospitals

Report of the AAMC's Task Force II on Clinical Research

Strengthening Clinical Research

A report from the Academy of Medical Sciences

October 2003

Medically- and dentally-qualified academic staff: Recommendations for training the researchers and educators of the future

Report of the Academic Careers Sub-Committee of Modernising Medical Careers and the UK Clinical Research Collaboration

March 2005

Better Health

Association of American Medical Colleges



A widening gap?

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...

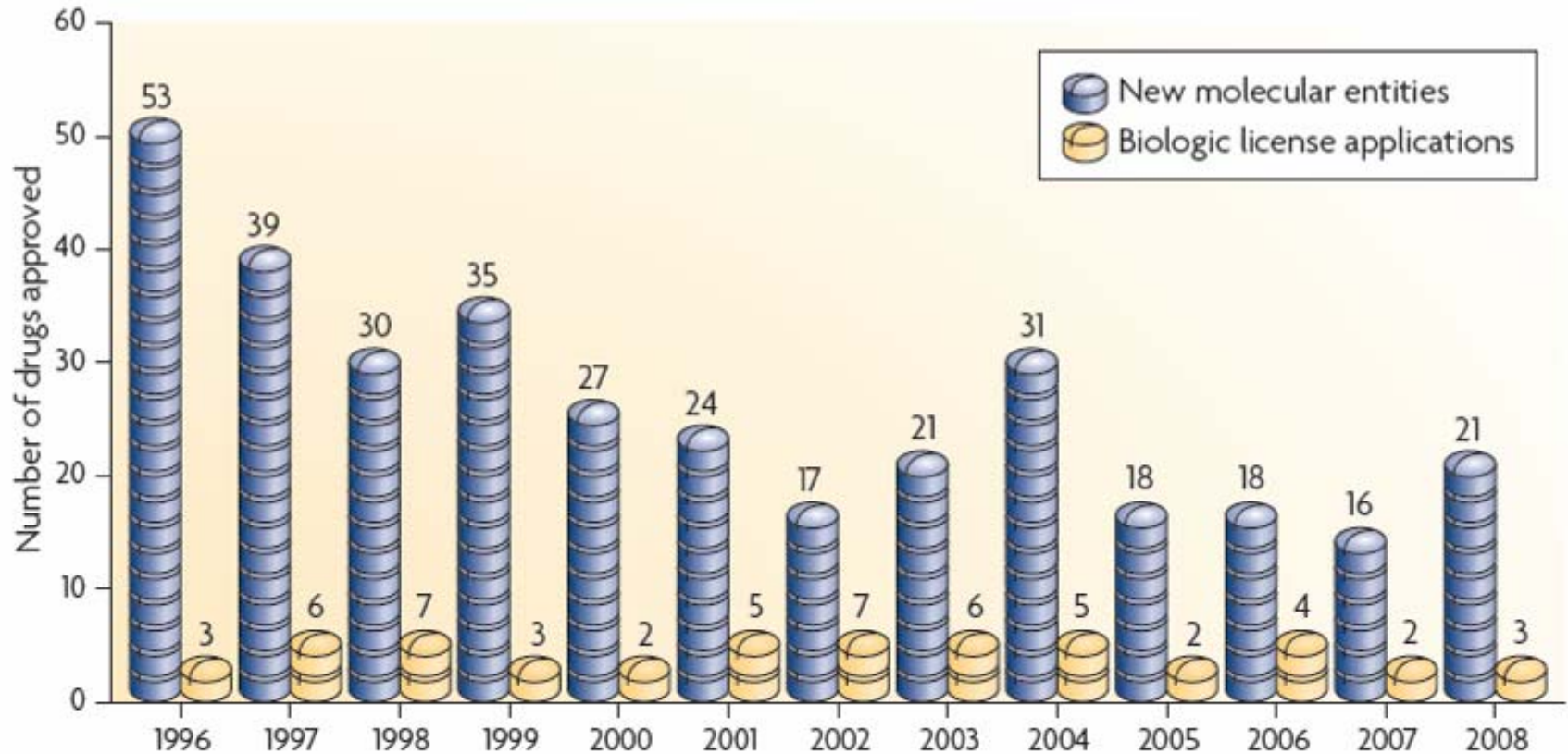
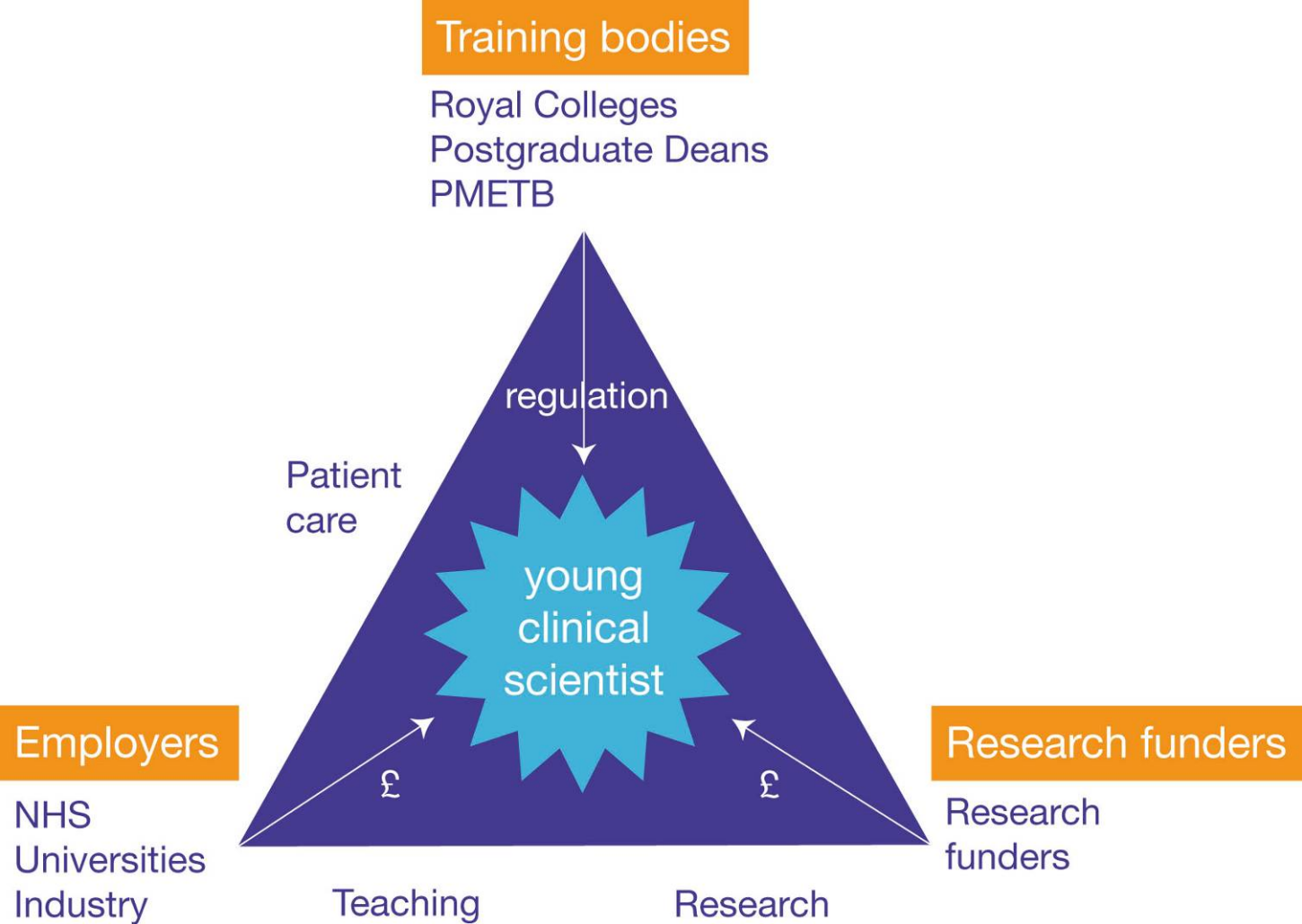
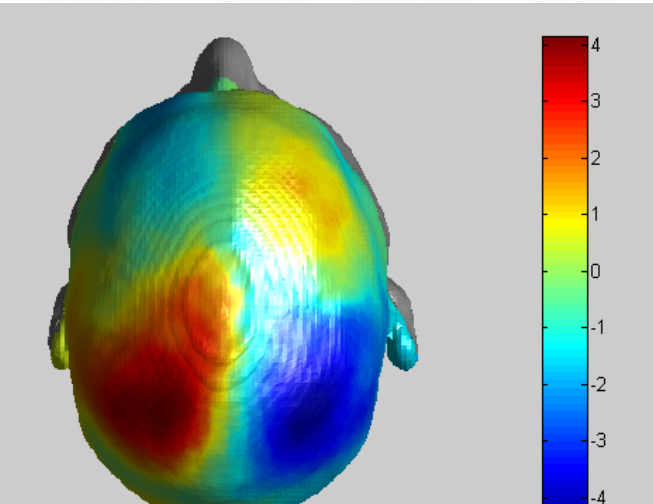
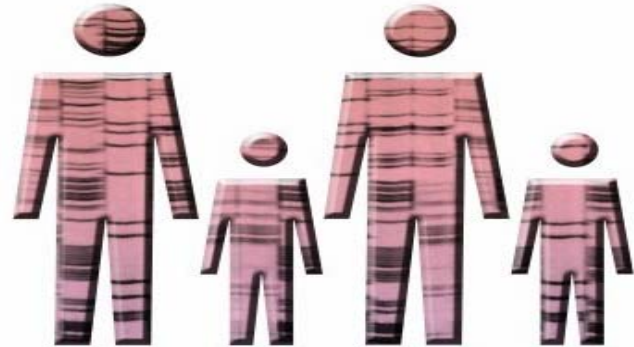


Figure 1 | **FDA drug approvals.** New molecular entities and biologic license applications approved by the US FDA's Center for Drug Evaluation and Research by year.

The training of clinician scientists...





Wellcome Images

A new environment...

Collaboration & organisation

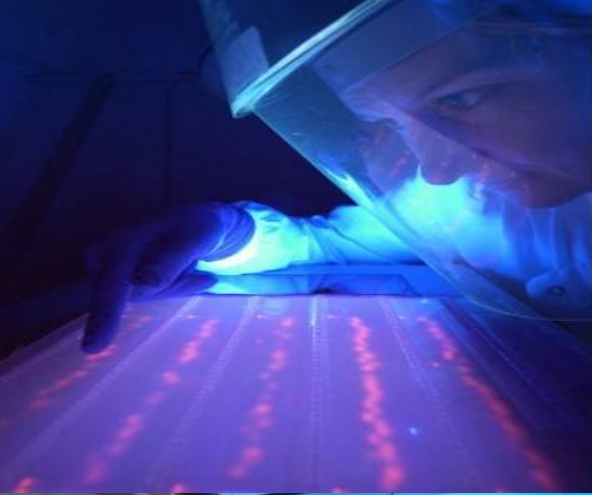
- UK Clinical Research Collaboration
- Office for Strategic Co-ordination of Health Research
- NIHR
- a ring-fenced fund for R&D
- Tooke Report
- Darzi – Next Stage Review

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

RESEARCH CAREER FUNDING

For basic science and clinical researchers based in the UK or the Republic of Ireland

BASIC

Principal Research Fellowships

Senior Research Fellowships in Basic Biomedical Science

Research Career Development Fellowships

Sir Henry Wellcome Postdoctoral Fellowships

Four-year PhD Studentship Programmes

PhD

Research Career Re-entry Fellowships/Flexible Travel Awards/University Awards

Clinical PhD Programmes

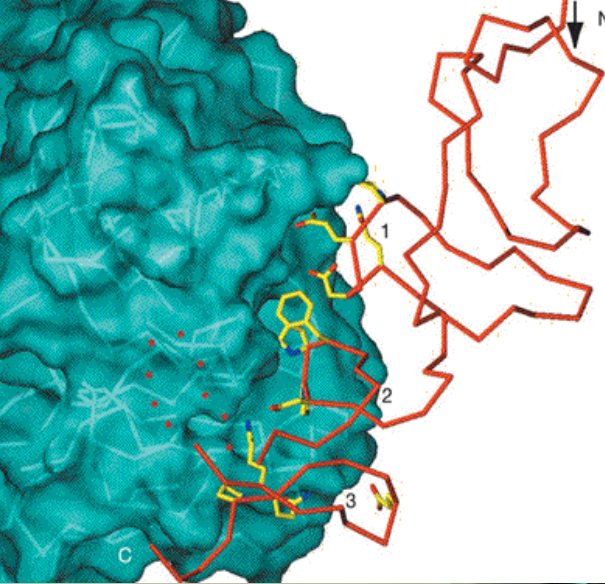
Research Training Fellowships

Intermediate Clinical Fellowships*

CLINICAL

Senior Research Fellowships in Clinical Science

Principal Research Fellowships



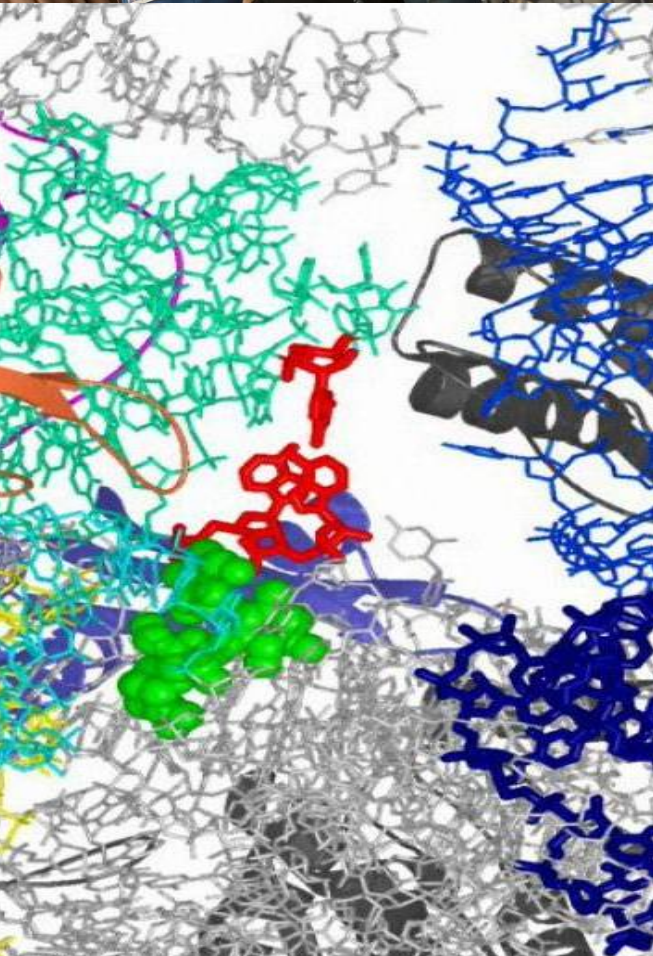
PhD programmes

- 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

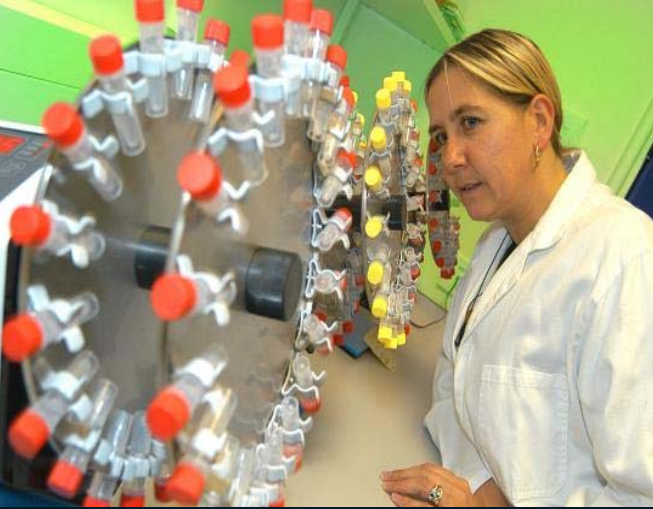


New programme:

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



wellcome trust



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:

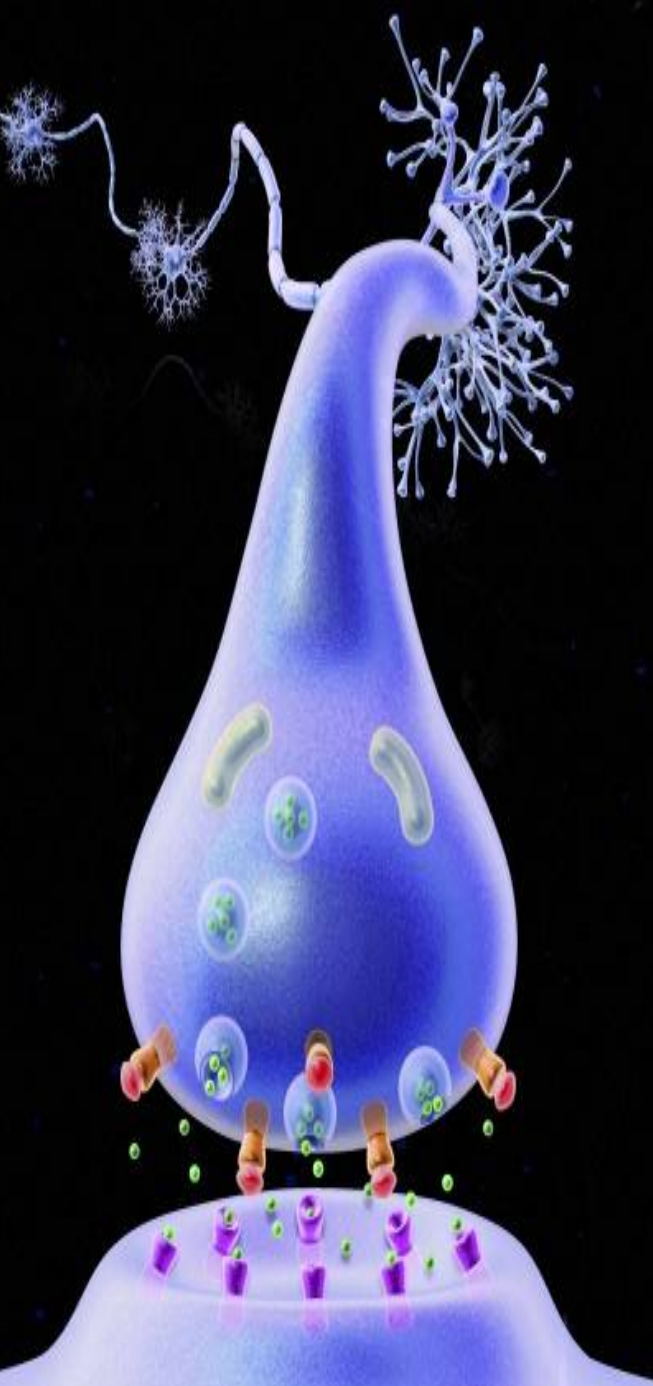
- take a long-term approach to important research and innovation problems
- promote interdisciplinary and translational research
- provide cost-effective access to world-class infrastructure, resources, services and specialist facilities
- exploit intellectual property more effectively
- enable the UK 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

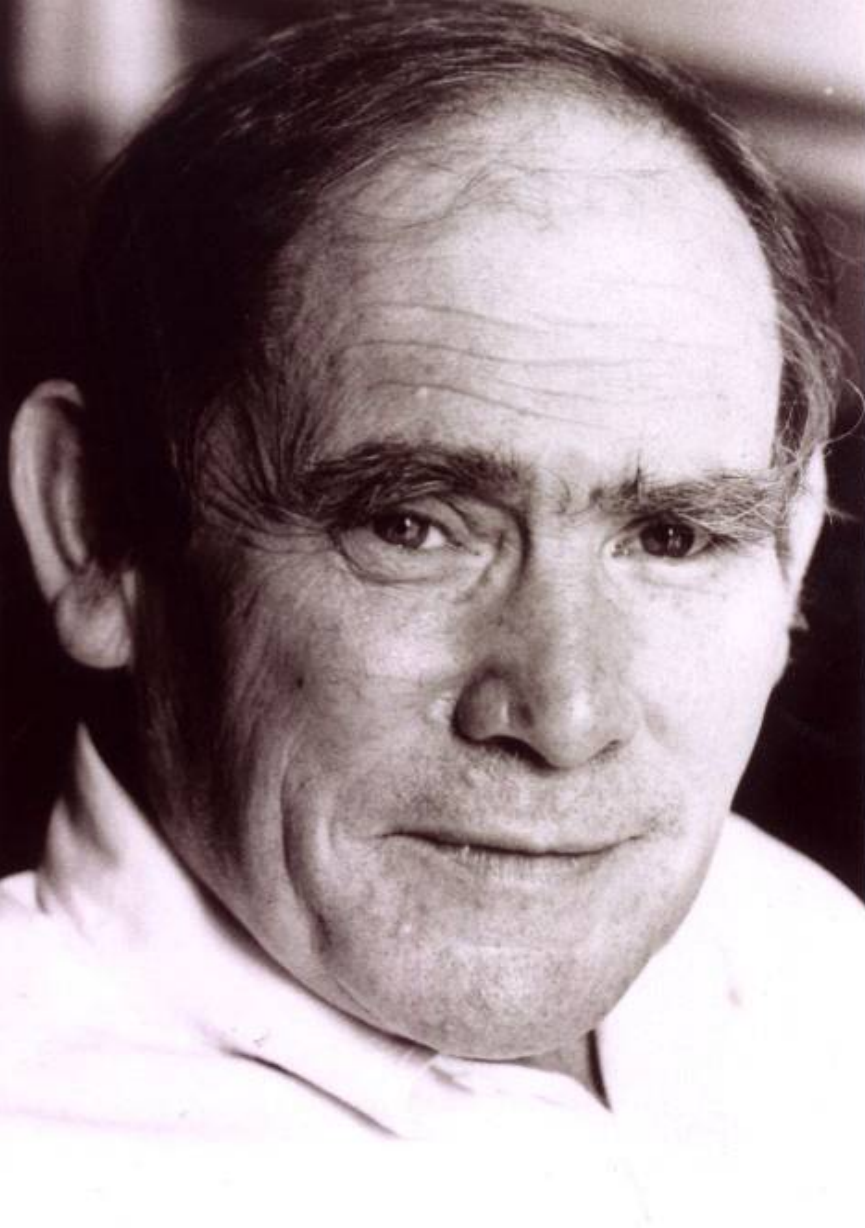
- choosing the right research environment is crucial
- trainees should:
 - ◆ find one or two mentors
 - ◆ visit the laboratory
 - ◆ talk to current and past graduates
- the environment should:
 - ◆ encourage academic questioning
 - ◆ provide critical mass
 - ◆ provides the best opportunities for continued 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

AACR April 2008

Photograph: Molecular Sciences Institute in Berkeley, California