Recruitment, Training & Retention of Post-doctoral Physician-Scientists

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CABTRAC Retreat-Baltimore
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Local history of mixing up science with medicine

William Welch

First dean of Johns Hopkins School of Medicine

Recruited to Baltimore 1884

By 1886, had 16 Post-doctoral fellows in his lab

1850-1934
Saving the Endangered Physician-Scientist — A Plan for Accelerating Medical Breakthroughs

Mukesh K. Jain, M.D., Vivian G. Cheung, M.D., Paul J. Utz, M.D., Brian K. Kobilka, M.D., Tadataka Yamada, M.D., and Robert Lefkowitz, M.D.
Bridging the gap between science and medicine

Bay of lost ideas?
28 year old police woman with newly diagnosed metastatic mismatch-repair deficient metastatic colorectal cancer presents with shortness of breath.

Questions:

- Why
- What is mismatch repair
- Why is the colon a major site
- What is the natural history
- Screening, prevention
- Are there other subsets like this of patients who could benefit
- Resistance mechanisms
The need for bilingual oncologists

“Europeans are so rude. In Italy I ordered latte caldo venti and got twenty glasses of hot milk. Can’t they learn English?”
The importance of developing strong scientific skills in clinical oncology training

- Critique and appreciate the basis underlying new molecular advances
- Anticipate toxicities and resistance mechanisms
- Train future Team Members not simply executors
- Bridge language barriers in new areas of molecular oncology
Challenges to physician-scientist training and retention

Williams et al. JCI Insight 2018
Trends of graduation of women and UIMs from US MD/PhD Programs

Akabas and Brass *JCI Insight* 2019
Time to graduation and to first fulltime position for men and women MD/PhD Students is similar.

10,591 graduates of 80 MD-PhD programs (65%) over 50 years, survey based
All MSTP-trained (T32 funded programs)
Cohort effects: Time dedicated to research

Akabas and Brass *JCI Insight* 2019
RO1 gaps for under-represented in medicine groups

Any grant

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<th>% of Alumini in Academia full time</th>
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<td>UIM (168)</td>
<td>65%</td>
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<td>non-UIM (2862)</td>
<td>64%</td>
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NIH RPG

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Challenges to physician-scientist training and retention

Williams et al. JCI Insight 2018
Ways to stop the leak: Some efforts from one Johns Hopkins T32

• Recruit widely (MDs and MD/PhDs)
• Early exposure to role models
• Create a network of physician-scientists
• Integrate scientific exposure through clear patient-focused examples (journal clubs...etc.)
• Targeted research training (orientation, retreats, dedicated discussions with diverse role models, and coursework)
• Mentorship needs of under-represented groups (peer, group, cross-T32)
• Support funding for extended 4th year of training
• Other activities e.g. participation in editorial board...etc.
• Involvement in national networks (physician-scientist societies...etc.)
Panel: Recruitment, Training & Retention of Post-doctoral Physician-Scientists

Mary Armanios, MD
Kathy Burns, MD, PhD
Curt Civin, MD
Scott Divine, PhD

Johns Hopkins
Johns Hopkins
University of Maryland
University of Maryland

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