The Importance of International Collaboration

Steve Hill
University of Nottingham
The Importance of International Collaboration
The importance of international collaboration

• Do international collaboration have a positive impact on publication citations?
• How important are Industry collaborations?
• Do they help you establish the “Impact” of your research?
• What is “Impact” and why is it important?
• How might they be funded?
Background

BSc Pharmacology (Bristol)

PhD Pharmacology (Cambridge)

MRC Post Doc (Cambridge)

Current job

Professor of Molecular Pharmacology, University of Nottingham
Academic Lead Drug Discovery
Recent Head of School
Raine Visiting Professor, UWA

Chair, MRC MCMB Board
Member of MRC Strategy Board

Founder CellAura Technologies
Education Officer, K4DD
Founder, Nottingham Drug Discovery

Ever wish to

Barrel making!
Great great-grandfather was a cooper - Bristol
The importance of international collaboration

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# The UK Research Excellence Framework 2014

<table>
<thead>
<tr>
<th>Element</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outputs</td>
<td>65%</td>
</tr>
<tr>
<td></td>
<td>Original Papers (4/academic)</td>
</tr>
<tr>
<td>Impact</td>
<td>20%</td>
</tr>
<tr>
<td>Environment</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Grants, PhD students, facilities, Infrastructure, Strategy etc</td>
</tr>
</tbody>
</table>
## Assessment Criteria

<table>
<thead>
<tr>
<th>Star Rating</th>
<th>Quality Description</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Quality that is <strong>world-leading</strong> in terms of originality, significance and rigour.</td>
<td>££££££££££</td>
</tr>
<tr>
<td>3</td>
<td>Quality that is <strong>internationally</strong> excellent in terms of originality, significance and rigour but which falls short of the highest standards of excellence.</td>
<td>£</td>
</tr>
<tr>
<td>2</td>
<td>Quality that is recognised <strong>internationally</strong> in terms of originality, significance and rigour.</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>Quality that is recognised nationally in terms of originality, significance and rigour.</td>
<td>0</td>
</tr>
<tr>
<td>Unclassified</td>
<td>Quality that falls below the standard of nationally recognised work. Or work which does not meet the published definition of research for the purposes of this assessment.</td>
<td>0</td>
</tr>
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The UK Research Excellence Framework 2014

Strategy

- Who to return (Impact on HR - appeals)
- How many to return (Partial return – how partial?)
- Research Power or GPA (funding versus prestige)
- Journal Impact factors (important?)
- Citations (the likely future of REF)
- Number of impact cases (related to point 2 above; for 100 returnees need 10 Case Studies)
- What is impact?
- Evidence?
Scopus and SciVal inform national research assessments and policies

- Sole citation data service provider for UK’s national Research Excellence Framework assessment program, 2014

- Data, analyses, insights: Knowledge Networks and Nations Royal Society, 2011

- Sole citation data service provider for national Excellence in Research for Australia assessment program, 2012

- Data, analyses, insights: International Comparative Performance of UK Research Base, UK Government (BIS), 2011
International collaboration and publication impact

- International scientific collaboration is generally acknowledged as a positive force driving national impact and prestige.
- Domestic articles (‘1’) have no collaboration partners have around 3 times fewer citations per article than those with four collaborating countries (‘5’).
“It’s all about creative interactions between science and business.

“You get innovation when great universities, leading-edge science, world-class companies and entrepreneurial start-ups come together.

“Where they cluster together, you get some of the most exciting places on the planet.

“What is where you find the creative ferment which drives a modern economy.”

Rt Hon George Osbourne MP, Chancellor of the Exchequer
Royal Society, 9th November 2012
Industrial collaboration and publication impact

Impact of collaboration

Research output forthcoming from collaboration with Industry (Corporate) is cited 2.5 times more than papers co-authored by researchers within the same institution.
European Union.
• EU network established for GPCR Drug Discovery Biology (Montpellier, Wurtzburg, Amsterdam, Bonn, Copenhagen, Nottingham, Glasgow) – Marie Curie Training Network and EU Mobility schemes in development.
• Cost Action – GLISTEN – Nottingham a member – SJB - Treasurer.
• IMI K4DD – Nottingham a member; SJH Education Officer

Australia
• UWA – ARC Linkage Grant (Promega; BMG, UWA, Nottingham), Raine Visiting Professor
• Drug Discovery Alliance established with MIPS, Monash University. Intercontinental 4-Year PhD programme established (MoA in place).

Brazil
• Fiocruz, State University Rio de Janeiro (MoU’s signed)
• Fiocruz/CAPES Fellowships: Maria Arruda, Vinicius de Frias Carvalho
• BBSRC/FABESP/CAPES/Nottingham/Birmingham funding available

USA
• Promega, Madison. RTK’s and BRET (BBSRC Link Grant applied for)
• UCSD, Neutrophils, Ross Corriden. (MRC Programme grant)
COST Action CM1207

GLISTEN

GPCR-Ligand Interactions, Structures, and Transmembrane Signalling: a European Research Network

2013 | 2017
Objectives

G protein-coupled receptors (GPCRs) are the largest family of proteins involved in signal transduction across membranes and one of the most important pharmaceutical drug target classes. GLISTEN will

- Utilize the unprecedented number of X-ray structures of GPCRs solved recently to unravel details of the activation mechanism, ligand binding, and the effect of the membrane and other interaction partners on GPCRs.
- Make a concerted push in the investigation of GPCRs, in particular their activation mechanism and different ways to modulate their activity.
- Foster collaborations and multidisciplinary approaches which are instrumental in GPCR research.
- Transfer skills and knowledge among institutions through STSMs.
- Develop novel effector molecules to be used as lead structures for drug development, offering valuable new opportunities for European pharmaceutical research and industry.
- Educate ESRs, as they will be the ones carrying out most of the research and will constitute a generation off highly trained future investigators.
Summary
Drugs work by binding with molecules in the body and to either block or alter the action of the target molecule. The goal of the K4DD project is to improve our understanding of how potential drugs bind with their target, and develop methods and tools to allow researchers to study drug-target interactions with greater ease. These tools would help researchers to determine whether a drug candidate is likely to be safe and effective much earlier in the drug development process.
Participants
EFPIA
Bayer Pharma AG, Berlin, Germany
AstraZeneca AB, Sodertalje, Sweden
F. Hoffmann-La Roche AG, Basel, Switzerland
GlaxoSmithKline Research and Development Ltd, Brentford, UK
Janssen Pharmaceutica NV, Beerse, Belgium
Merck KGaA, Darmstadt, Germany
Sanofi-Aventis Deutschland GmbH, Frankfurt am Main, Germany

Universities, research organisations, public bodies, non-profit groups
University Leiden, Leiden, Netherlands
Foundation Top Institute Pharma (Stichting Top Instituut Pharma), Leiden, Netherlands
Imperial College Of Science, Technology & Medicine, London, UK
Ruhr-Universität Bochum, Bochum, Germany
Stichting VU-VUMC, Amsterdam, Netherlands
Universität Wien, Vienna, Austria
University of Dundee, Dundee, UK
University of Nottingham, Nottingham, UK
University of Oxford, Oxford, UK

SMEs
European Screening Port GmbH, Hamburg, Germany
Heptares Therapeutics Limited, Welwyn Garden City, UK
HITS gGmbH, Heidelberg, Germany
Sierra Sensors GmbH, Hamburg, Germany

Start date 01/11/2012
Duration 60 months
Contributions €
IMI funding 8 300 000
EFPIA in kind 9 800 000
Other 2 800 000
Total cost 20 900 000
Linkage grant

Development of class-leading bioluminescence resonance energy transfer technologies for real-time monitoring of molecular interactions

Kevin Pfleger
Steve Hill
Keith Wood
Giovanni Abbenante
The importance of international collaboration

• International collaboration will have a positive impact on publication citations.
• Industry collaboration will enhance impact further and add to evidence of translation.
• Scientists of the future need to be trained to take advantage of international collaborations.
• Collaborations will give access to unique and high-end instrumentation and expertise.
• High quality research is paramount (choose collaborators carefully – set the bar high!).
...and keep a weather eye on location....
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Thank You