From postdoctoral Researcher to Principal Investigator

Aims of this workshop:

1) To give advice to ALL postdoctoral researchers on how to apply for research grants.
2) To motivate women to stay in research and apply for research grants.

Professor Rachel Williams
Institute of Ageing and Chronic Disease
EPSRC Fellow

Professor Miren Iturriza-Gomara
Institute of Infection & Global Health
Former MRC Fellow

Dr. Ainhoa Mielgo Iza
Institute of Translational Medicine
Sir Henry Dale Fellow

Women in Science
At least 5 ways to become a Research Team Leader

Professor Sylvie Urbe
Institute of Translational Medicine
Former Wellcome Trust and CRUK Fellow

Dr. Violaine See
Institute of Integrative Biology
Former BBSRC Fellow
Overview of the workshop

- Gender gap statistics. Dr. Ainhoa Mielgo

- 5 research fellowship holders will share their experience and advice
  - Prof. Miren Iturriza-Gomara
    Former MRC Fellow. Institute of Infection & Global Health

  - Dr Violaine See
    Former BBSRC Fellow. Institute of Integrative Biology

  - Dr. Ainhoa Mielgo
    Sir Henry Dale Fellow. Institute of Translational Medicine

  - Prof. Sylvie Urbe
    Former Wellcome Trust and CRUK Fellow. Institute of Translational Medicine

  - Prof. Rachel Williams
    EPSRC Fellow. Institute of Ageing & Chronic diseases

- Panel discussion. Q&A
Gender gap statistics

Dr Ainhoa Mielgo
Women do not apply as much as men for Research grants

Only 30% of the applicants for Wellcome Trust Research fellowships are women!!

So, only 30% of applicants funded are women

~ 15% success rate
EARLY CAREER

Female representation among science and engineering faculty members in the United States has lagged behind gains in graduate education, in part because many women do not apply for tenure-track jobs. But women who do apply are more likely than men to receive interviews and offers.

![Gender Gap in Early Career](chart)

“At least part of the lack of applications is due to the fact that women look at these careers and don’t see people like themselves.”

Hannah Valentine, Stanford University

### Early Career Gender Gap

<table>
<thead>
<tr>
<th>Field</th>
<th>Female PhDs (1999–2003)</th>
<th>Female applicants for academic jobs</th>
<th>Female interviewees for academic jobs</th>
<th>First job offers that went to women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology</td>
<td>45%</td>
<td>28%</td>
<td>28%</td>
<td>34%</td>
</tr>
<tr>
<td>Chemistry</td>
<td>32%</td>
<td>18%</td>
<td>25%</td>
<td>29%</td>
</tr>
<tr>
<td>Physics</td>
<td>14%</td>
<td>12%</td>
<td>19%</td>
<td>20%</td>
</tr>
</tbody>
</table>

In Health Sciences

- PhD in Biology: 45% women - 55% men
- Applicants for academic jobs: 26% women - 74% men

**Why women do not make the step from Postdoctoral researcher to Principal Investigator?**
Reasons why women leave research at postdoctoral level

1. Children

A 2009 survey of postdoctoral fellows at the University of California showed that women who had children or planned to have them were more likely to consider leaving research.

POSTGRADUATE POSITIONS

A 2009 survey of postdoctoral fellows at the University of California showed that women who had children or planned to have them were more likely to consider leaving research.

POSTDOCS WHO DECIDED AGAINST CAREERS AS RESEARCH FACULTY MEMBERS (2009)

- No children or plans to have them: 19% Men, 20% Women
- No children, but plan to have them: 17% Men, 28% Women
- Children previous to postdoc: 19% Men, 32% Women
- New children since start of postdoc: 20% Men, 41% Women

“The plan to have children in the future, or already having them, is responsible for an enormous drop-off in the women who apply for tenure-track jobs.”
Wendy Williams, Cornell University

2. Lack of women in academic positions

“At least part of the lack of applications is due to the fact that women look at these careers and don’t see people like themselves.”
Hannah Valantine, Stanford University
Why we care?
Why we want women to stay in Research?
Why awareness for Gender equality?

Scientific & economic reasons
Without women scientists, a country or Institution denies itself its full complement of scientifically creative minds. This can be a serious handicap both to the development of science and to the generation of wealth in an increasingly competitive world.

We need to give EVERYBODY the same opportunities, but also make sure we keep selecting the best candidates for research only based on scientific merit (avoid positive discrimination).
What can we do to motivate women with a great potential for research to stay in research?

- Make a family friendly working place.
  - Allow and respect flexible and part-time work.
  - Provide daycares/nurseries at the workplace.
  - Avoid organising meetings at school drop-off and pick-up times so anyone (women or men) with children responsibilities can attend an important meeting.

Good News! All this is happening!

- Convince women (or anyone with caring responsibilities) that it is possible to be a research team leader and at the same time have a life and time to care about our families, friends...

So, if you like research and you are good at it, GO FOR IT, apply for a research grant!
Women at the Faculty of Health & Life Sciences that successfully applied for research fellowships

Professor Rachel Williams
Institute of Ageing and Chronic disease
EPSRC Fellow

Professor Miren Iturriza-Gomara
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Former MRC Fellow

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Dr. Violaine See
Institute of Integrative Biology
Former BBSRC Fellow
Prof. Miren Iturriza-Gómara MSc PhD FRCPath

A quick career trajectory review
Undergraduate Studies

UPV and Univ of Granada 1984-1989

Research Assistant

Clinical Microbiology/virology 1989-1992
Basque Government Scholarship UK, The Netherlands and Belgium 1993-94

MSc in Biotechnology

EU FW5 Human Mobility University of Gent 1995-1997

Postgraduate Researcher

Postdoc Clinical Scientist Trainee

PhD Student Clinical Scientist Trainee

CMPHL, Addenbrookes’ Hospital, Cambridge 1997-2000

EUFW5 Human Mobility University of Gent 1995-1997

Research Assistant

Unpaid work
Failed to obtain funding for PhD
Failed to secure public health lab training post PhD offer at Cambridge University, funding withdrawn at the last minute
PGCE became very useful!, gap year teaching in an independent international school

MSc in Biotechnology

Best way to describe it ....
A character forming experience

Clinical Scientist Trainee

FANTASTIC!

Postgraduate Researcher

Frustration served as a motivation to drive the next career move

PhD Student

Registered as a Clinical Scientist
Many opportunities for collaboration

Postdoc Clinical Scientist Trainee

Became a Mum
Fellow of the R College of Pathologist
Organisational changes started to interfere with the ability to do research

MRC Fellowship Research Career Development

A bit of a gamble .... It has paid off!

PhD Student

Senior Clinical Scientist Deputy Unit Head Unit Head

HPA, Baylor College of Medicine and NIH 2001-2003

Senior Lecturer

HPA 2004-2008
2008-2010
2010-2012

Chair

IGH, UoL 2012

2014
There are many paths
  • Understanding career structures would have been helpful... but these are ever changing and often unclear
  • In academia, career structure and training opportunities for scientists beyond the PhD are poorly defined and insufficiently funded
  • This is in contrast with clinical careers, in which gender imbalance is less apparent

I like what I do!
  • My career has been defined by the desire to do the work I enjoy and do best, but it is important to identify and grab opportunities....
  • Have found some challenges on the way, but managed to find ways around them
  • It is good to have a general direction... But need to be prepared to take diversions... (rarely shortcuts... )

Good collaborations have been crucial
  • Have meet wonderful colleagues through my work, and have maintained long lasting and very successful collaborations. But like all relationship.... They do not always work
Violaine Sée
Lecturer in IIB
(since 2011)
The ideal career?

1. PhD
   1997-2001

2. Post-doc
   2001-2005

3. Fellowship
   2005-2011

4. Academic position
   2011-

Three 1st author publications
Including a Science and a Cell paper

Successful post-doc
2 more publications including one in Science

Violaine Sée; violaine@liverpool.ac.uk
The real career

1. PhD
   1997-2001

Three 1st author publications

2. Post-doc
   2002-2005

One 1st author publication. One middle author paper in Science

3. Fellowship
   2005-2011

3 months visiting scientist

4. Academic position
   2011-

Co-director of the Centre for cell imaging

Violaine Sée; violaine@liverpool.ac.uk
The even more real career

1. PhD
   1997-2001

2. Post-doc
   2002-2005

3. Fellowship
   2005-2011

4. Academic position
   2011-

1 short post-doc/
fixed term lectureship
2001-2002

Violaine Sée; violaine@liverpool.ac.uk
Tips and advices for fellowship applications

1. It is as much you as the project
2. Key contacts /collaborators
3. Support
4. Luck

Is it getting easier once you have obtained your fellowship?

1. Build a research group: write grants
2. Perform experiments
3. Write papers
4. Manage people
5. Manage finances
6. Supervise students
7. Admin role
8. Teaching
9. SECURE A POSITION

Violaine Sée; violaine@liverpool.ac.uk
A PhD is not the ticket to an academic career that it once was. As the number of doctorate holders worldwide grows, many PhD graduates find themselves funnelled into the world of postdoctoral research, where researchers are pitted against one another on an increasingly competitive stage. Only a small proportion will make it through to a permanent academic role.
Ainhoa Mielgo Iza, MS, PhD

Principal Investigator

Sir Henry Dale Fellow
Royal Society & Wellcome Trust

Institute of Translational Medicine
University of Liverpool

amilgo@liv.ac.uk
My story

Spain:
2000-2002
Fellowship Spanish Research Council
MSc

Switzerland (Basel):
2002-2006
PhD ( + met my husband)

USA (San Diego):
2006-2012
Post-doctoral fellowships
Swiss Nat. foundation, Novartis & Caja Madrid.

2012
Husband academic position in Liverpool

UK (Liverpool):
2013-
Principal Investigator
Sir Henry Dale Fellow
(Wellcome Trust & Royal Society)

- Dual career problem (+ husband researcher in the same field).
- 2 Children born during my post-doctoral training.
My story

- 2012: My Husband got an academic position at the University of Liverpool.

  - I knew my only chance to build a research team at the same place than my husband was by applying for my own fellowship.

  - When I was writing my application for the Sir Henry Dale Fellowship, my daughter was 4, my son was 1 year-old.

- 2013: I received a Sir Henry Dale Fellowship.

  From the Royal Society and the Wellcome Trust, 5 years funding and the exciting start of my independent research team!
My current position

Sir Henry Dale Fellow  
Royal Society and Wellcome trust  
Principal Investigator

- Research  
  - Role of the tumour microenvironment in solid cancers.  
  - Exploiting new therapeutic opportunities  
  - Funded by the Royal Society, Wellcome trust and NWCR.

- Teaching  
  - Undergraduate students  
  - PhD students

- Administration  
  - Member of ITM Athena SWAN committee  
  - Member of NWCR centre strategic advisory team  
  - Member of editorial board Frontiers in Cell & Developmental biology  
  - Member of AcademiaNet: Expert database for outstanding female academics

- Technology Directorate Voucher Scheme

- Only for Biomedical research  
- Only exists since 4 years (created for specific needs for biomedical researchers)  
- Success rate ~15%  
- Average post-doctoral experience ~5.5 years (max of 6 years)  
- 5 years funding, PI salary, RA or post-doc + consumables

Wellcome

NWCR

University of Liverpool

Athena SWAN Silver Award
Can we lead a research team and at the same time have a happy family without going nuts?
YES, we can!
We have to find the right balance

Lab life with kids
Balancing research with raising children takes scheduling skills and organization.
Having your own research fellowship can help you find that work/family balance you need so much!

- Funding agencies are very supportive and have many “family friendly” policies:
  - support flexible & part-time working
  - take in account parental leave
  - Provide financial support for childcare if you need to attend a meeting...

- Having your own research fellowship allows you “to create” your own research position where you need it and have control on creating your own work/family balance.
Advice for grant applications

1) **Plan the correct timing** for your grant application:
   - Good publication record in the field (as first author).
   - Have some preliminary data to support your proposal.

2) **Identify all grants you can apply to** (check eligibility criteria)
   Age/Years after PhD criteria: if you had some parental/sick/any type of leave this can be taken into account. Contact program director for advice.

3) **Choose the right Institution to apply with**
   Best fit and support for your research and future perspectives, worth discussing this with HoD/HoI up-front.

4) **Apply to all grants you are eligible for.**

5) **Start writing your grant at least 3 months before deadline.**

6) **Think first the aims.** Talk to senior experts around you about your proposal. Make sure your proposal makes sense and is **addressing an important question in your field**.
Advice for grant applications

7) Contact research fellows that received that grant recently and ask them for advice.

8) Do not propose something too ambitious/risky, involving a technique you have never used before, but it should still be novel and unique to your expertise. Do not propose something too similar to what your previous PI is investigating. Find the right balance.

9) Contact the program director if you have any doubts. They are very friendly and helpful.

10) If invited to an interview, prepare yourself and practice with MOCK interviews. Ideally with people that have gone through the same type of interview, identify those researchers in your institution and even those outside your institution if needed.
UK Funding agencies for major grants in Health & Life Science

- Wellcome Trust (Career development awards, senior fellowships, clinical fellowships...)
- The Royal Society (University Research Fellowships and many more)
- Sir Henry Dale Fellowship (joined Royal Society & Wellcome Trust, only for Biomedical research)
- Cancer Research UK (CRUK career development award, senior fellowship, career establishment award...)
- Medical Research Council (career development award, senior fellowship, New Investigator award...)
- Engineering & Physical Sciences Research Council (EPSRC)
- Biotechnology and Biological Sciences Research Council (Future leaders & David Phillips fellowships)

Career re-entry fellowships

- Dorothy Hodgkin (Royal Society)
- Career re-entry fellowship (Wellcome Trust)
- Daphne Jackson Fellowship (Research Councils)

EU funding

- Marie Curie Fellowships
- ERC starting grant

➢ For more details on eligibility: visit their websites, contact the program director.
Persevere to achieve your goal

Research is fascinating but challenging. Perseverance is essential to research (experiments, publications, grants...)
Thank you

Good luck!
Professor Sylvie Urbe
Fellowships - Definition

- Awarded on an individual basis
- 1-10 years
- Cover salary (and research support)
- Career opportunity not career path
Fellowships - Levels

• Post-doctoral Fellowships
  
  Henry Wellcome (Wellcome Trust)
  
  EMBO
  
  Marie Skłodowska-Curie Fellowships (EU)

• Career Development Fellowships (CRUK, WT, MRC, BBSRC)

• Senior Fellowships (see above)

• Principal Fellowships (WT)
Fellowships - Pros

- Path to establish independence
- Ownership of your work
- Develop skills to run a lab
Fellowships - Cons

- Highly competitive - effort required (application -> interview)
- Fixed term contracts - not a tenured position (however in many institutions integrated in tenure track structures)
## 2014/15 fellowship application success rates, by fellowship type

<table>
<thead>
<tr>
<th>Fellowship type</th>
<th>No. of applications</th>
<th>No of application awards</th>
<th>Success rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical Fellowships</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinician Scientist Fellowship</td>
<td>35</td>
<td>11</td>
<td>31%</td>
</tr>
<tr>
<td>Senior Clinical Fellowship</td>
<td>4</td>
<td>1</td>
<td>25%</td>
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<tr>
<td>Clinical Research Training Fellowship</td>
<td>121</td>
<td>38</td>
<td>31%</td>
</tr>
<tr>
<td><strong>Non-Clinical Fellowships</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career Development Award</td>
<td>100</td>
<td>14</td>
<td>14%</td>
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<tr>
<td>Senior Non-Clinical Fellowship</td>
<td>18</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Specialist Schemes</strong></td>
<td></td>
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</tr>
<tr>
<td>Career Development Award in Biostatistics</td>
<td>10</td>
<td>5</td>
<td>50%</td>
</tr>
<tr>
<td>Early Career Fellowship in Economics of Health</td>
<td>3</td>
<td>1</td>
<td>33%</td>
</tr>
<tr>
<td>Methodology Research Fellowship</td>
<td>9</td>
<td>2</td>
<td>22%</td>
</tr>
<tr>
<td>Fellowship type</td>
<td>Gender</td>
<td>No. of applications</td>
<td>No. of applications awarded</td>
</tr>
<tr>
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<tr>
<td><strong>Clinical Fellowships</strong></td>
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<tr>
<td>Clinician Scientist Fellowship</td>
<td>Female</td>
<td>12</td>
<td>4</td>
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<tr>
<td></td>
<td>Male</td>
<td>23</td>
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<td>0</td>
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<tr>
<td></td>
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<td></td>
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<td>0</td>
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<tr>
<td>Clinical Research Training Fellowship</td>
<td>Female</td>
<td>55</td>
<td>17</td>
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<td></td>
<td>Male</td>
<td>64</td>
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<tr>
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<tr>
<td>Career Development Award</td>
<td>Female</td>
<td>46</td>
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</table>
MRC Non-clinical Fellowship applications
MRC Non-clinical Fellowship awards

![Bar chart showing the distribution of MRC Non-clinical Fellowship awards by gender and role for different years from 2009/10 to 2014/15. The chart includes categories for CDA Female, CDA Male, Senior Female, and Senior Male. The data indicates fluctuations in the number of awards received by women and men across the years.]
Fellowships - CRUK recent awards

• Clinical Fellowships

• Career Development Fellowships
  
  *4 awarded last year, 1 female*

• Career Establishment Award

  *2 awarded, both male*

• Senior Fellowships (see above)

  *2 awarded, both male*
Basic requirements

- You need a good CV (not just first authorships)
- Good references / patronage
- Some Fellowships require you to move country
- Some Fellowships are restricted to early researchers (defined as no of years since PhD)
- Also watch out for Career re-entry fellowships (MRC) and Dorothy Hodgkin Awards (Royal Society)
Career Path

- Post-doctoral research assistant

- Wellcome Trust Career Development Award (4 yrs, 1 post-doc, equip)
  
  Position underwritten after 2 years

- CRUK Senior Research Fellowship (6 yrs, 1 post-doc, 1 PhD student, 1 RA, equip)
  
  Appointed as Reader and the Professor towards the end of the Fellowship
Advice

• Work hard and be proactive
• Work in laboratories of international standing
• Be aware of the deadlines and eligibility requirements
• Identify subject area and produce a synopsis early on
  
  Project should be interesting and important
• Identify a host institution and MENTOR
• Seek AND USE advice
• *Don’t take no for an answer!!!*
How did I get to where I am today?

• Rachel L Williams
• Department of Eye and Vision Science
• Institute of Ageing and Chronic Disease
  • University of Liverpool
Timeline

1980: BSc in engineering science University of Exeter
1990: MSc in biomedical engineering University of California, Davis
1990: PhD @ University of Liverpool
PDRA @ University of Liverpool
Lecturer @ University of Liverpool

2000: Senior lecturer @ University of Liverpool

2010: Reader @ University of Liverpool

2020: Professor @ University of Liverpool
Current position

• Research
• EPSRC engineering fellowship for growth
• Knowledge Transfer Partnership with Polyphotonix Ltd
• Knowledge exchange voucher

• Teaching
• MRes students
• PhD students

• Administration
• Institute director of postgraduate research
• Member of Institute management group
• Member of Institute and faculty research strategy groups
• Member of the EPSRC strategic advisory team