Grant Writing - A short guide to survival and success

Walter Kolch & Lauren Montague

CONWAY INSTITUTE
Agenda

1) Which grants can I apply for? (Lauren Montague)

2) Grantsmanship – the theory (Walter Kolch)

3) Break

4) Why did this grant fail and this one succeed? - practical examples (Walter Kolch)

5) So what should I do now? – a surgery for individual needs (Lauren & Walter)
Which grants can I apply for?

Lauren Montague
SBI Grants Manager
Looking for help in all the wrong places

• Lab mates who have never submitted a grant before

• Internet rumour chat sites “score obsession”

• Most grant writing workshops (except this one, of course!)

• Faculty / Staff who have never received funding
Tips from the desk of the grant manager

Find a successful story and try to replicate it!

Get copies of successful proposals - network through this and other University Research Offices – websites list past recipients

Find a mentor who has served on a review panel

Edit, Edit, Edit.....get help from pros
Finding Opportunities – Show me the money!

Universities employ people to review suitable funding opportunities – put their expertise to work for you!

- UCD Research Intranet
  https://intranet.ucd.ie/research/

- Other University Websites – “Research Office= Sponsored Programs= FP7 EU Grants Office”
<table>
<thead>
<tr>
<th>Rolling Call Funding Opportunities</th>
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<tbody>
<tr>
<td>Choose a research area:</td>
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<tr>
<td>Choose another research area (if</td>
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<tr>
<td>multi-disciplinary):</td>
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<tr>
<td>What type of research activity:</td>
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</table>
Finding Opportunities – Show me the money!

Rolling Call Funding Opportunities
Choose a research area: Health
Choose another research area (if multi-disciplinary): Food, Agriculture and Biotechnology
What type of research activity: Fellowship

Search Results

Alexander von Humboldt Foundation - Humboldt Research Fellowship for experienced researchers
The Foundation promotes cooperation between scientists and scholars from Germany and abroad. This scheme provides sponsorship for a research stay at a research institution in Germany lasting from 6 to 18 months for outstanding academics who completed their doctorate less than 72 years ago and whose work demonstrates an independent academic profile. The fellowship is flexible and can be divided up into as many as three stays within three years.
Topics: Humanities and Humanistic Social Sciences
Please note that there is a separate application process for this funding source and researchers must contact the UCD Development Office if they intend to submit an application to this call. The contact person is Jessica Kavanagh (jessica.kavanagh@ucd.ie or 7161268).

Alexander von Humboldt Foundation - Humboldt Research Fellowship for postdoctoral researchers
The Alexander von Humboldt Foundation promotes cooperation between scientists and scholars from Germany and abroad. This scheme provides sponsorship for a research stay at a research institution in Germany lasting from 6 to 24 months. Applicants must have completed doctorate less than 4 years ago.
Topics: All disciplines
Please note that there is a separate application process for this funding source and researchers must contact the UCD Development Office if they intend to submit an application to this call. The contact person is Jessica Kavanagh (jessica.kavanagh@ucd.ie or 7161268).
Finding Opportunities – Show me the money!

- Writing a grant
  - The basics

Humboldt Research Fellowship for Postdoctoral Researchers

Submit an application if you are a researcher from abroad with above-average qualifications, at the beginning of your academic career and only completed your doctorate in the last four years. A Humboldt Research Fellowship for postdoctoral researchers allows you to carry out a long-term research project (9-24 months) you have selected yourself in cooperation with an academic host you have selected yourself at a research institution in Germany.

Scientists and scholars of all nationalities and disciplines may apply to the Alexander von Humboldt Foundation directly at any time. The Humboldt Foundation grants approximately 600 Humboldt Research Fellowships for postdoctoral researchers and experienced researchers annually. Short-term study visits, participation in congresses and training courses cannot be financed.

To apply, please only use the application documents which can be downloaded here.

- Other important details
  - Complete application package (DOC/PDF/RTF)
  - Programme Information (PDF)

Further information

- Members of the selection committee for the allocation of Humboldt Research Fellowships
- Information for hosts
- Information for expert reviewers
- Information for independent peer reviewers
Finding Opportunities – Show me the money!

Unusual research interests or background? – Try Google Alerts
Finding Opportunities – Show me the money!

Broad vs. Specific Search – Try Google Alerts
Finding Opportunities – Show me the money!

From General to Specifics – Try Google Alerts
Finding Opportunities – Show me the money!

Writing a grant
• The basics

There were no results for your search terms in the last day. Below is a sample of the type of results you will get.

Web
5 new results for Marie Curie IIF Open

Results: Marie Curie (IF)
Apr 8, 2011 ... You are here: Homepage > Application and Open Calls > Last Calls (results) ... 2011-03-17 New Call for Marie Curie Fellowships ... eu.funds.gov.uk/.../.../results-marie-curie-if.html

MARIE CURIE INTERNATIONAL INCOMING FELLOWSHIPS (IF) - European ... Mar 16, 2011 ... Marie-Curie Actions Calls: FP7-PEOPLE-2011-IIF. Information Package | Electronic ... Theme. Marie-Curie Actions. Open or close this section ... cordis.europa.eu/fp7/dc/index.cfm?reeaction=uparticle

Marie Curie Documents and Websites
Marie Curie Fellowships & Grant. IEF, IOF, IIF & CGI ... 16.03.11 00:00. PEOPLE 2011 Calls for Individual Fellowships open! 2010.10.17 17:44 ... www.euresearch.ch/index.php?id=190

EU FP7 Marie Curie People program IEF IIF IF tips
Dec 22, 2010 ... EU FP7 Marie Curie People program IEF IIF tips ... This action, open towards the rest of the world, aims to respond to the needs for ... hubpages.com/.../EU-FP7-Marie-Curie-People-program-IEF... 

Marie Curie IEF, IIF and IOE Calls for Proposals Launched ...
Mar 21, 2011 ... FP7-PEOPLE-2011: Marie Curie International Incoming Fellowships (IIF) ... Marie Curie funding schemes are bottom-up and open to all ... researchblogs.lincoln.ac.uk/.../marie-curie-ieff-ief-and-ietf-calls...
Finding Opportunities – Show me the money!

Other Research Universities troll the internet for opportunities that are public. Use their expertise to your advantage – Such as [http://www.euresearch.ch](http://www.euresearch.ch)
Some Starting Places – Tried and True

IRELAND

http://www.ircset.ie/  Emphasis on innovation

- Post Graduate Scholarship Scheme
- Postdoctoral Fellowships Scheme
- The Enterprise Partnership Scheme
- Rolling calls throughout the year

***It is intended to have the results of the
EMBARK POSTGRADUATE SCHOLARSHIP
COMPETITION 2011 posted up on our website
on Thursday 21st April*** (IRCSET Website)
Some Starting Places – Tried and True

EU FUNDING SOURCES – Framework Program FP-7

MARIE CURIE FELLOWSHIP SCHEMES


“dedicated to stimulating researchers' career development”

Highly competitive – extremely prestigious - lucrative!!!

Marie Curie Intra-European Fellowships for Career Development (IEF)
Marie Curie European Reintegration Grants (ERG)
Marie Curie International Reintegration Grants (IRG)
Marie Curie Co-funding of Regional, National, and International Programmes (COFUND)

http://cordis.europa.eu/fp7/people/cofund_en.html#COFUND
### Some Starting Places – Tried and True

http://cordis.europa.eu/fp7/people/cofund_en.html#COFUND

<table>
<thead>
<tr>
<th>Funding organisation</th>
<th>Link to Programme</th>
<th>Closing date of next call</th>
<th>Geographical scope</th>
<th>Scientific Area</th>
<th>Required research experience</th>
<th>Programme Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIB</td>
<td><a href="http://www.vib.be/yeastsec">http://www.vib.be/yeastsec</a> 2011-08-31</td>
<td>any country</td>
<td></td>
<td>Integrative biology, omics technologies in life sciences</td>
<td>PhD</td>
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<tr>
<td>Foundation for Science and Technology of Portugal</td>
<td>WELCOMES</td>
<td>2013-12-31 (closed) Worldwide (incoming)</td>
<td>Exact, natural and health sciences, engineering, social sciences and humanities, including all scientific topics</td>
<td>Post-Doctoral researchers in 3rd countries for the last three years; having the nationality of a EU Member State or FP7 Associated Country</td>
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<tr>
<td>Austrian Science Fund</td>
<td>SCHOLARSHIP FELLOWS</td>
<td>0000-00-00 (continued) Worldwide (outgoing), with a return phase</td>
<td>All disciplines (Science and Humanities)</td>
<td>Postgraduate at least 4 years of research experience</td>
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<tr>
<td>EMBO</td>
<td><a href="http://www.embo.org">EMBO Long-Term Fellowships</a></td>
<td>2013-12-31 (closed) Worldwide</td>
<td>Life Sciences</td>
<td>PhD</td>
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<tr>
<td>CERN</td>
<td>CERN-FOUNF</td>
<td>2013-12-31 (closed) Worldwide (incoming to CERN in Genoa), possibility of outgoing for 3rd year</td>
<td>Particle physics, engineering, computing</td>
<td>Postgraduate with 4-6 years of research experience</td>
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<tr>
<td>NEBP Ireland</td>
<td>CEMP Post-doctoral Fellowships</td>
<td>2013-12-31 (closed) Worldwide</td>
<td>Biophotonics and Imaging</td>
<td>PhD</td>
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<tr>
<td>CEEI</td>
<td>CEEI Research Fellowship Programme</td>
<td>2013-12-31 (closed)</td>
<td>17 CEEI Member States: Albania, Austria, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, North Macedonia, Poland, the Republic of Serbia, Slovenia, Slovakia, Slovenia, Turkey, Ukraine</td>
<td>Physics, math, genetics, biotechnology, neuroscience, nano-science, bioinformatics</td>
<td>PhD or 4 years of research</td>
<td></td>
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</table>

**Writing a grant**
- The basics

[Image of EU flag and Marie Curie logo]
Not obvious – EU Website now Participant Portal

http://ec.europa.eu/research/participants/portal/page/people&state=open

Lost ? Send email to lauren.montague@ucd.ie
Not obvious – EU Website now Participant Portal

http://ec.europa.eu/research/participants/portal/page/people&state=open

Lost? Send email to lauren.montague@ucd.ie
Other Fellowship Opportunities

DEADLINES
Long-Term Fellowships
15 February
15 August
Short-Term Fellowships
Open all year
Molecular Medicine Sabbaticals
1 August

http://www.embo.org/programmes/fellowships.html
Other Fellowship Opportunities – Specific Groups

Look for your unique niche – nationality, expertise and search

http://www.womeninscience.co.uk/

L’OREAL Fellowships for women –

Because you’re worth it !!!
Other Fellowship Opportunities worth a look

Sir Henry Wellcome Postdoctoral Fellowships

http://www.wellcome.ac.uk/Funding/Biomedical-science/Funding-schemes/WTX033549.htm

This is an annual competition.

This is an annual competition. Details of the 2012 competition:

* Deadline for preliminary applications: 1 November 2011
* Deadline for full applications: 31 January 2012
* Shortlisted candidate interviews: 28-30 May 2012

Your fellowship may not start until your PhD is awarded, and must be taken up within one year of the grant being awarded.

TWO to THREE – STAGE PROCESS !!
Sir Henry Wellcome
Research Career Development Fellowships in Basic Biomolecular Science

http://www.wellcome.ac.uk/Funding/Biomedical-science/Funding-schemes/Fellowships/Basic-biomedical-fellowships/WTD004431.htm

Applications for this scheme are considered twice a year. Details of the next round of applications:

* Next preliminary application deadline: 23 September 2011
* Invited full application deadline: 5 December 2011
* Expert Review Group review: April/May 2012
* Shortlisted candidate interviews: June 2012

Schedule for full applications submitted for 1 July 2011 deadline:

* Expert Review Group review: October/November 2011
* Shortlisted candidate interviews: December 2011

Late applications will not be accepted at any stage.
Other Fellowship Opportunities worth a look

HFSP fellowships support top postdoctoral researchers that propose innovative, ground-breaking projects that have the potential to advance the knowledge in their field of study and open a new approach to the research problem.

Two international programs for basic research training are available:

**Long-Term Fellowships (LTF)** are reserved for applicants with a Ph.D. in a biological discipline to embark on a new project in a different field of the life sciences. Preference is given to applicants who propose an original study in biology that marks a departure from their previous Ph.D. or postdoctoral work so as to learn new methods or change study system.

**Cross-Disciplinary Fellowships (CDF)** are open to applicants with a Ph.D. from outside the life sciences e.g. in physics, chemistry, mathematics, engineering or computer sciences who have had limited exposure to biology during their previous training. Applicants for the CDF should propose a significant departure from their past research by changing e.g. from material science or physics to cell biology, from chemistry to molecular biology, or from computer science to neuroscience.

*The deadline for registration is 25 August and the submission deadline is 8 September 2011.*
Grantsmanship

THINK BIG
Writing a grant

- The basics
- The proposal
- The process
- Fellowships
- The help
Definition of grant

Research Grant
A sum of money or financial support provided to a worker or researcher for performing innovative or novel work.

A grant proposal is a political affair.
   > It is not, as usually the funding recommendation is made by an independent panel of peer scientists.

In a grant proposal I need to say what the reviewers want to hear. Therefore, I need to anticipate who will review it.
   > This is a waste of time: (1) you very rarely will guess right; and (2) it reflects lack of confidence in your work and proposal

My proposal needs to be cheap, this will increase my chance to get funded.
   > Absolutely wrong. You need to observe the limit of the award, and within these limits apply for the money you need.

A grant proposal is a purely scientific affair.
   > No, it is not. **A grant proposal is a sales pitch**
What do I sell?

A grant proposal is a sales pitch. A good sales pitch needs passion, ambition, vision & credibility

You sell

➤ Yourself
➤ Your vision
➤ Your ideas
➤ Your track record and/or preliminary results

These are the points you need to bring across. They do not fall out of the sky. You need to prepare yourself.
Selling yourself

Why should an agency award a grant to you?

- Do not dwell on your weak points

- Consider your strong points:
  - What have you achieved?
  - What distinguishes you from your competitors?
  - What puts you in a position to achieve the proposed goals?
  - Why should the agency trust your skills? Do you have a track record, i.e. publications relevant to the proposal?
Selling your vision

Selling a vision is the single most important item!
To sell a vision you need to have one!

- What excites you about your research?

- What are the big questions? – Do not be shy!
  
  I have no special talent. I am only passionately curious  (Albert Einstein)

- If you had all the money in the world, what would you work on?

- For which of your ideas would you be prepared to spend weekends in the lab?

  These are the good ones!
Selling your ideas

Why is your idea good & worth funding?

➢ Does it address an interesting question?

➢ Will the answer change the field or open a new view?

➢ Can you say it in one sentence?

If the answers are yes, the idea is good!

Do not look for the “niche”.
Most likely you just will end up in a spot nobody else is interested in.
Selling your preliminary results

If you have no preliminary results you will not get funded

➢ As a rule of thumb, ca. 20-30% of what you are proposing should be supported by preliminary results

Your ideas will fly on your preliminary results

Good preliminary results make up for a lack of track record!
Selling your preliminary results

Refer to your preliminary results throughout the proposal.

Present your preliminary results in an appealing way.

Just dropping a huge amount of data on the reviewer does not work well

Showing hypothesis, experimental design & results together works well

Localisation of ERK activity localises RhoA activity

Motility enabled

Motility blocked
What makes a good grant proposal?

A good grant proposal has

- Clear overall concept
- Clear line of thought
- Clear purpose
- Wow factor, yet
- Comfort that it can be achieved
- Appealing design

Ludwig Mies van der Rohe
BRNO Chair, designed 1930
Why are concept & clarity so important?

The reviewer most likely reads your proposal

- on an airplane or train
- in a crowded place
- under time pressure
- on the weekend

A grant has to be written in a way that an overworked reviewer can read and understand it after a sleepless night while being stuck at an airport.
Clear overall concept

Any intelligent fool can make things bigger and more complex... It takes a touch of genius - and a lot of courage to move in the opposite direction. Albert Einstein

Distil out the big question in your proposal. And ask it!

By the way, less is usually more.
Clear overall concept

An example:

**Cancer can be caused by**
- Oncogenes
- Loss of tumour suppressor genes
- Genetic instability
- Viruses
- Mutagenic chemicals
- ...

- We have found all that out in the last 40 years. We understand cancer better than ever before.
- Cancer prognosis has dramatically improved mainly due to better screening & early diagnosis.
- However, our vastly improved understanding of cancer has not lead to equally dramatic improvements in the therapy of cancers

The big question

**So, what halts progress in cancer therapy based on molecular cancer research?**
Clear overall concept

Explain the concept!

This is your chance to lead the reviewers where you want them
Clear line of thought

You have started with the big question in your proposal!

Now develop the details from it.

The experimental plan should flow logically from the hypothesis.

An good way is to work with questions.
For instance, instead of saying “The role of protein interactions is unknown, and we will investigate it here”, say:

“What is the role of protein interactions?”
Clear purpose

Explain what your project will deliver.
Which outcomes are you aspiring to achieve?

- New knowledge
- New applications
- New methods
- Etc.

The reviewers want to see the experimental parts but also what you want to build out of them!
The Wow factor

What excites you about your proposal?
What makes it different & better?

- Just a cool idea
- An unexpected outcome
- New methods
- Etc.

Think hard. Be bold, but realistic.
Comfort that it can be achieved

Writing a grant
- What makes a good proposal?
Supplying the comfort

Make sure your plan of research is realistic.

Main mistake is to include sideline projects.

Concentrate on the core experiments and hammer them home.

Mention your skills that will ensure a positive outcome.

This is especially needed when using new technologies. You need to show that you have the skills & tools.
Supplying the comfort

Show that you can manage a project.

- Include a GANTT chart.

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<th>Yr 1</th>
<th>Yr 2</th>
<th>Yr 3</th>
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<td>AIM 1</td>
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<td>AIM 2</td>
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<td>AIM 5</td>
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</table>

- Include any project management or supervisory experience you have.

- Include a justification of resources.

- Include a description of facilities necessary for your project, and access arrangements.
Appealing design

Writing a grant
• What makes a good proposal?

First impressions count!

The first pages win or lose the proposal!
Appealing design

How to make a good impression?

Content
- Clear
- Interesting
- Easy to read

Layout
- Appealing
- Uncluttered
- Easy to read

Pictures
- Scheme of concept
- Scheme of workflow
- Key experimental data
Fellowship Applications

A few points to consider

You are selling
- Your science
- Your achievements
- Your future potential
- YOURSELF

The main question of the reviewers will be: Can s/he do it?

This question is usually answered by the track record of the applicant. In a fellowship application you have to provide the answer for this question yourself.
For you the main challenge is the balancing act

Your proposal needs to be / or have

- Innovative
- Creative
- Exciting
- Have an important question
- Broad scope
- New Technologies
- Your own baby
- Basis for your career

- Feasible
- Credible
- Doable
- Competitive
- Focussed
- Skills & instruments available?
- Anchored in the scientific community
- Reachable within the timeframe
Fellowship Applications

How do you juggle this?

Develop your idea
  • explain why your idea is important
  • explain the progress arising from the answer
  • mention your relevant background and skills

Develop your research plan
  • explain the approach and why are you taking it
  • have a backup plan and describe it
  • make sure the experimental approach fits the goals
  • If there is special equipment involved explain how you will access & use it
  • Include preliminary results
  • mention your relevant background and skills

Show how this fellowship will develop your career
  • State your overall career goal & how this fellowship will help achieve it
  • State what benefits (intellectual, publications, networking, exposure to different research culture, etc) you will derive from this grant
1) Read the instructions.

2) Read the instructions again.

3) Obey them to the letter.

A large number of applications fail on formal grounds.

There may be some sections where you have no clue what to write. Do not ignore. Ask somebody who has experience with grant writing.
**Sundries**

**Start in good time.** You will get into a squeeze with the deadline. (see below)

Have an experienced peer critically read the proposal.

**Get all the letters of support you need.** If you ask for such a letter, provide all the necessary information. Poor information will give you a poor letter of support!

**Get all collaboration letters you need.** If you ask for such a letter, provide all the necessary information. Poor information will give you a poor letter of collaboration!
Carefully choose which grant you want to apply for!

Help is available

General support: UCD Research
Karina Daly  karina.daly@ucd.ie

Support for Systems Biology Ireland & the Conway Institute
Lauren Montague  lauren.montague@ucd.ie
The End