How to cope with an AIRC grant application
Lessons from peer reviewing

This presentation is meant as a series of suggestions for writing of an AIRC application. To apply, please read the AIRC Call for proposals 2015, where the entire eligibility requirements and rules are listed.

AIRC Peer Review Office

Milan, February 2015
1. Some information about AIRC: history and mission

2. How do we fund research?
   A brief tour of our funding streams

3. Submitting a grant application to AIRC: tips for applicants
Some information about AIRC

AIRC was founded in 1965 at the National Cancer Institute in Milan.

Since then, AIRC has become the major Italian charity with:
- More than 1.500.000 donor members
- About 5000 researchers supported all over Italy

Our mission

- **Funding research** carried out at scientific institutions for the cure and research on cancer, university laboratories and hospitals in Italy.
- **Completing the education** of young researchers in Italy and abroad by offering fellowship awards for further study.
- **Informing the public and raising awareness** of progress in cancer research.

In 2014 AIRC invested € 74.898.991 to support cancer research in Italy
Some information about AIRC

Provides support for junior and senior scientists

- Fellowships abroad
- Grants for junior scientists
- Grants for senior scientists
- multi-unit Grants

The selection of applications to be funded is based on merit

- Publication of the Call
- Applications submission
- Selection by Peer review
- Ranking
- Funding
## Types of AIRC grants 2015

<table>
<thead>
<tr>
<th>Type of grant</th>
<th>Funding limit (€/year)</th>
<th>Duration (years)</th>
<th>Age limit PI (years)</th>
<th>Track record</th>
<th>Exp. abroad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investigator Grant (IG)</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>Last-author papers</td>
<td>-</td>
</tr>
<tr>
<td>My First AIRC Grant (MFAG)</td>
<td>€ 75.000</td>
<td>3</td>
<td>≤ 40</td>
<td>Last-author papers</td>
<td>Yes</td>
</tr>
<tr>
<td>Start-Up</td>
<td>€ 150.000</td>
<td>3+2</td>
<td>≤ 35</td>
<td>First-author papers</td>
<td>Yes</td>
</tr>
<tr>
<td>TRIDEO ‘challenge ideas’ (AIRC/Cariplo)</td>
<td>€ 100.000 (total)</td>
<td>1-2</td>
<td>≤ 40</td>
<td>First-author papers</td>
<td>-</td>
</tr>
</tbody>
</table>
## Types of AIRC fellowships 2015

<table>
<thead>
<tr>
<th>Type of fellowship</th>
<th>Funding (€/year)</th>
<th>Duration (years)</th>
<th>Eligibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRC/FIRC – Italy</td>
<td>€ 25.000</td>
<td>1-2-3</td>
<td>≤ 6 years from degree (laurea)</td>
</tr>
<tr>
<td></td>
<td>€ 30.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIRC/FIRC – Abroad</td>
<td>based on destination</td>
<td>1-2</td>
<td>≤ 6 years from degree (laurea)</td>
</tr>
<tr>
<td>AIRC/EU – iCARE (mobility to-from Italy)</td>
<td>€ 50.000 x coeff. dest.</td>
<td>2</td>
<td>Ph.D. or ≥ 4 yrs from degree (laurea)</td>
</tr>
</tbody>
</table>
Results of our 2014 peer review process – research grants

- **IG**: Number of applications peer reviewed (450), Number of grants awarded (170)
- **MFAG**: Number of applications peer reviewed (50), Number of grants awarded (10)
- **Start Up**: Number of applications peer reviewed (20), Number of grants awarded (5)
- **TRIDEO**: Number of applications peer reviewed (100), Number of grants awarded (25)
Results of our 2014 peer review process - fellowships

- **Italy**: 264 applications peer reviewed, 50 fellowships awarded
- **Abroad**: 33 applications peer reviewed, 8 fellowships awarded
- **iCARE**: 45 applications peer reviewed, 12 fellowships awarded
Success rates for Investigator Grants 2014

**Success rate all candidates**
- 37.7%

**Success rate new candidates**
- 19.1%

**Success rate Candidates previously funded by AIRC**
- 52.7%

6.2% of candidates that never applied for an AIRC grant are funded.

All the IG proposals go through the same evaluation process. Statistically, first time applicants have a lower success rate than more experienced PIs.
The number of IG applications in the last 3 years is increasing.
The amount of funds requested in the last 3 years is increasing whereas the amount of allocated funds is constant.
Our peer review

The peer review ensures a fair, independent, and expert assessment of the scientific merit of each application submitted to AIRC.
AIRC relies on the expertise well-established **international investigators working abroad** for the evaluation of applications. Internationally recognized Italian scientists are also involved in the evaluation process, as members of the “Comitato Tecnico Scientifico” (**CTS**) and the “Comitato Scientifico Borse” (**CSB**).
Three reviewers per grant application

Each application is evaluated in an independent manner by **three different reviewers with specific expertise** in the research area of the application. Reviewers assignments are made in compliance with **conflict of interest rules**.

**Investigator Grants:** 2 international reviewers and 1 member of the AIRC CTS

**MFAG:** 3 international reviewers

**Start-Up:** 3 international reviewers

**TRIDEO:** 3 international reviewers
Three reviewers per fellowship application

Each application is evaluated in an independent manner by three different reviewers with specific expertise in the research area of the application. Reviewers assignments are made in compliance with conflict of interest rules.

**Fellowships (Italy):** 3 members of the AIRC CSB

**Fellowships (abroad):** 2 members of the AIRC CSB and 1 international reviewer

**iCARE:** 1 members of the AIRC CSB and 2 international reviewers
International reviewers 2014: where do they work?

For the evaluation of applications AIRC relies on the expertise well-established international investigators working abroad.

Our panel comprises approx. 600 reviewers from all over the world. In 2014 more than 400 reviewers were involved in the review process.
Our review criteria

• significance and relevance to cancer

• innovation

• approach and feasibility

• expertise and track record of the applicant

• adequacy of the budget requested

• experience in mentoring and training (fellowships)
Our review criteria

- Is the young investigator seriously **committed to cancer research**? (all grants)

- Is the proponent showing enough **maturity** to act as an **independent group leader**? (Start-Up, MFAG)

- Is he/she coming from a **truly exceptional post-doc abroad**? (Start-Up)

- Is there **innovation** and **potential for competition** at the international level? (Start-Up, MFAG, TRIDEO)

- Is the project **feasible**? (all grants)

- Has the proponent the **expertise** and the **track record** needed to perform the proposed work? (all grants)

- How is the **environment** and the **standing of the host Institution** at the International level? (all grants)

- Is the requested **budget appropriate**? (all grants)

- Has the sponsor experience in **mentoring** and **training** (fellowships)?
Reviewer assignments are made in compliance with conflict of interest rules to ensure a review free from inappropriate influence.
AIRC rules on conflict of interests

The following circumstances represent conflicts of interest:

1. The reviewer works in the same institution of the applicant
2. There are ties of kinship between the reviewer and the applicant
3. The reviewer and the applicant are collaborating on a research project (or have been in the past five years)
4. There are personal or scientific conflicts between the reviewer and the applicant

Reviewers in conflict with an applicant for any of the reasons listed above are excluded from the review of that application.
In case of discrepancy among the scores and comments from the reviewers, the application and the divergent reviews are evaluated by a fourth referee who acts as an editor.
At the end of the review process, **applications are ranked** based on their scientific merit. The final ranking and the financial availability of AIRC will determine the recommendation for funding, to be endorsed by the AIRC Board of Directors.
First step: 467 applications assigned to 442 foreign reviewers + 28 members of the CTS

Rejected (172)

Approved (78)

“Gray zone” (217)

Second step: 28 members of the CTS in study section meeting

Gray zone: rejected (119)

Gray zone: approved (98)

REJECTED, TOTAL: 291

APPROVED, TOTAL: 176
Timeline (grants)

**November:**
Board of Directors meeting and notification of results

**October:**
Study section Meeting (IG, TRIDEO)

**September:**
evaluation of final report of previous funding (IG)

**January 2nd 2016:**
Start of grant

**February:**
Call for proposals

**March:**
Deadline for applications

**April:**
Reviewers assignment

**June:**
Deadline for review

**August:**
Analysis of reviews, initial ranking

**November:**
Board of Directors meeting and notification of results
Monitoring the productivity of AIRC researchers

• Publications on scientific journals (AIRC scientific officers)

• Final report analysis in case of previous fundings (reviewers)

• Site visits for 5-year grant programs, e.g. Start-Up, 5 per mille (reviewers)

• Attendance at scientific meetings, retreats, etc. (AIRC scientific officers)
How to prepare a grant application to AIRC
Lessons from peer reviewing

This presentation is meant to provide a series of tips and suggestions for writing an AIRC grant application. Please refer to the AIRC ‘Calls for proposals 2015’ for a complete list of eligibility requirements and rules.
Eligibility criteria: Hosting Institution

Applicants must operate in:

- An Italian Research Institution for the entire duration of the grant;
- with the **mission to develop biomedical research and to disseminate its results**;
- must provide **proper working spaces, laboratories, equipment, qualified personnel and resources** to allow the project execution;

Any change occurring in the relationship between applicant and the Hosting Institution (e.g. termination, retirement, leave of absence, sabbatical etc.) or in the Hosting Institution legal entity or organization (e.g. changes in Institution name, merging, legal representative turn-over, changes in addresses) must be promptly notified to AIRC.
Double affiliation:
AIRC reserves the right to reject proposals from PIs who, even if jointly affiliated to an Italian and a foreign institution, do not meet criteria for continuous presence in the Italian institution for at least 50% of their time, regardless of the “Effort on project” indicated in the application. AIRC will enquire with the dean of the foreign institution to make sure this requirement is met. MFAG and Start-Up candidates must operate at least at 70% of their time in the Italian institution, on the AIRC project.

Resubmissions:
AIRC allows only one resubmission for applications that were not funded. Applicants who fail to receive funding after two submissions (i.e. the original and the revised application) may submit a new application only if its research plan is fundamentally different in content and scope from the two that were previously considered not fundable. An application submitted for the third time (by the same or other applicants) will not be sent out for review and will automatically be rejected.
The application form
The title must be sharp and effective
• What is the question?
• What is the scientific problem related to cancer?

“Control of direct and immune-mediated antitumor activities of IRF-8 by epigenetic drugs in colorectal cancer”
“Dissecting p63 functions in skin cancer initiation and progression”
“Plasma microRNA profiling as first line screening test for lung cancer detection: a prospective study”

“Post-translational modification of proteins”
“Terminal differentiation opposes transformation, functional bases”
“Proteins as anticancer targets”
You should answer the following questions:

- What is your key aim?
- Why is your question important and how you will answer?
- What advance will be made?
- What is the impact on cancer?
Keep it short. Get it focused and balanced: do not give too much of introduction in the background, go straight to the point describing the hypothesis, the aims, experimental design, expected results and impact on cancer.

NO

YES
Keywords

- Keywords assigned to both proposals and reviewers’ expertise help make a tentative match between each application and a trio of referees.

- In order to get the match that is the most appropriate and fitting, it is very important to choose the keywords accurately.

Do not choose a set of keywords that are:

- too vague (e.g. genetics + animal model + genomics)

- too similar with each other (e.g. DNA damage + DNA repair)

Try to choose a set that combines the key features of your research plan.

Examples:

- dendritic cells + NF-kB family + colorectal cancer + animal model

- Cell cycle checkpoint G1/S + DNA repair + Genomic/Genetic instability + Translesion synthesis + yeast
Focus and keep it simple
“The PI does not realize that sometimes less is more”.

Write a compelling story
“A collection of tasks not related to each other is not a project.”

No fishing expeditions
(unless supported by preliminary data)
“This is mainly a ‘fishing’ expedition. On the one hand, it is possible for fishermen to catch fish. On the other hand, one would like some indication that fish are really present in these waters.”
Feasibility: preliminary data

“While the initial idea is excellent, the proposal is poorly prepared and does not contain any preliminary data to support the feasibility of the proposed approach.”

Feasibility: statistical analysis

“The experimental plan is seriously flawed. Some of the studies are too small to achieve statistically powered results.”

See also, David L. Vaux, “Know when your number are significant”, Nature, Dec. 31 2012 p. 181

Feasibility: experience in the proposed research field

“It is not clear that the investigator has the experience to do the work”.
Caveat and pitfalls

Grants often fail because “if the first experiment fails (i.e. the hypothesis was wrong and you disprove it), they have nothing to do”.

You need to highlight possible caveat and pitfalls of your project and describe alternative strategies to reach the project’s purposes.
Personnel involved must have an appropriate expertise.

Provide a CV of personnel members (1 page in English each) to describe their expertise/experience.

Too many «To Be Defined» (TBD) in the personnel section are strongly discouraged.
• Ask for what you really need to carry out the proposed research plan (no reverse engineering).

• AIRC discourages the purchased of large instrumentation.

• Reviewers will know whether the budget is inflated and can recommend budget cuts, which AIRC WILL undertake.

"Each and every component of the budget is inflated given the relatively straightforward nature of much of the programme. I recommend a 40% reduction in the total budget requested."

• Make sure the financial request is in line with the number of people that will be involved in the project.

"This budget is overestimated for the few people that will be actively working on the research plan."
Publications

• Emphasis is on prior track record: first/last author publications are considered part of the **feasibility** of the project.

• A complete and accurate information about **authorship** is necessary to provide correct bibliometric parameters for the evaluation of an applicant’s CV.

• Applicants will be asked to underwrite a document to certify the information provided is correct.
Summing up...

- **Why would AIRC want to fund this project?** Tell us directly.
- **Preliminary data are very important.** Show the key figures.
- **Keep the application simple** and have one (or more) clear hypotheses to test.
- Present clear but concise descriptions of experiments to be performed (**you don’t need lots of experimental details**).
- **Do not cram too much text onto the form** (spaces and diagrams help).
- If **statistics are relevant** (*i.e.* number of sample, patients etc.), please get them right!
- What is the fallback position? Make sure to have **contingency plans**.
- **Why is the PI suitable to conduct the research?**
- Ask for an **amount of money that is consistent** with the proposed experiments.
- **Get several people to read it:** an expert to tell you any missing points, a generalist to tell you if they understand it.
- **Don’t leave it too late to do a proper job.**
This presentation is meant to provide a series of tips and suggestions for writing an AIRC grant application. Please refer to the AIRC ‘Calls for proposals 2015’ for a complete list of eligibility requirements and rules.
Lisa Vozza (AIRC chief scientific officer)
- Degree in Biological sciences
- Research Fellow at New York University, USA (1994-95)
- Joined AIRC in 2004
- Edits and writes popular science books in parallel to her work at AIRC

Alessandra Mazzoni
- Degree in Biological sciences
- Research fellow at the National Cancer Institute, Milan (1993-1997)
- Research fellow at the National Institutes of Health, USA (1997-2008)
- Intern at the NIH Center for Scientific Review, USA (2008)
- Joined AIRC at the end of 2008

Laura Galbiati
- Degree in Biological sciences
- PhD and Post Doctoral fellow at SISSA/ICGEB, Trieste (1999-2005)
- Research fellow at the University of Sussex, UK (2005-2007)
- Joined AIRC in 2010

Ilaria Guerini
- Degree in Biotechnologies
- PhD and Post Doctoral fellow at the University of Milan-Bicocca (2005-2009)
- Post Doctoral fellow at the Gurdon Institute in Cambridge, UK (2009-2012)
- Free-lance scientific writer for Springer Healthcare Italy (2012)
- Joined AIRC at the beginning of 2013