





## Getting Research Grant Applications Scored in the High Fundable Range

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Hong Kong, 2009







## Presentation Overview

1. Reviewers – make it easy for them!
2. Sections of Proposal
3. Applicant Qualifications
4. Document Appearance
5. Questions and Discussion

## Clanachan Grant Review Experience

1. Internal Reviewer
  - Heart and Stroke Foundation of Canada
    - Physiology-Pharmacology committee
  - Heart and Stroke Foundation of Alberta
  - Canadian Institutes of Health Research
    - Cardiovascular committee
    - New Investigator committee
    - University – Industry committee
2. External Reviewer


## Current Granting Trends (Canada)

Personal Observations (i.e., not scientific):

Teams: - single investigator can't be expert in all areas  
 - more comprehensive approach possible

Translational: - not just bench to bedside  
 - also interdisciplinary

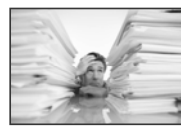
Targeted: - proposals sought in specific areas  
 - less investigator-driven areas




## Who will be reviewing your grant?

**Grant Reviewers:**

- are usually fellow scientists
- may be internal or external
- may be non-expert in your specific scientific area
- often have busy schedules, spouses and family
- required to rank many grants of similar quality
- dislike arrogant or overly apologetic applications
- dislike hard to read, highly dense documents




Hint: Make your reviewer's job as easy as possible!



## Who will be scoring your grant?

**Grant Panel Review Committee:**

- fellow scientists (usually internal)
- often non-expert in your specific area
- often required to score many grants
- probably only read Abstract or Summary Page



Hint:  
 Make the panel member's job as easy as possible!

**Consider Reviewer's Report**

**Reviewer's job:**  
 "Usually requested to provide a written critique on:  
 background, hypothesis, objectives, rationale,  
 methods, feasibility, design, data analysis,  
 originality, potential impact".

**Make the reviewer's job as easy as possible:**

- get copy of review form
- use same section headings and sub-headings
- avoid unusual abbreviations and acronyms

**Sections of Grant Application**

**Main Proposal**  
**Summary Page**  
**Past Progress or Preliminary Data**  
**Figures and References**  
**Applicant Qualifications and Track Record**  
**Budget**  
**Letters of Support or Collaboration**

**Hint: All sections are extremely important!**

**Main Proposal**

**Background Literature Review:**  
 Is it relevant or is it applicant's recent review article?  
 Is it sufficiently focused for the proposed work?  
 Is it unbiased and balanced, or mostly self-citations?  
 Does it answer question - why do the work now?

**Hypothesis:**  
 Is hypothesis reasonable, clearly stated and testable?  
 Can the reviewer find it?

**Objectives / Aims:**  
 Are all experimental objectives clearly defined?  
 Can reviewer easily transcribe aims into review form?


**Style of Experimental Objectives**

Consider each objective and how YOUR experimental questions can be addressed:

**Weak:** to observe, to list, to describe, to correlate

**Better:** to interpret, to distinguish, to estimate

**Best:** to solve, to discover, to measure, to discriminate, to rank, to conclude, to invent, to create, to devise, etc



Google: Bloom's Taxonomy

**Main Proposal**

**Rationales:**  
 Are rationales clearly described?  
 Are their significance explained?

**Methods:**  
 Are model systems well-justified?  
 Are the experimental protocols and design clear?  
 Are there sufficient (or too many) details presented?  
 e.g., - drug dosages / concentrations / selectivity  
 - patient ethics /numbers / group heterogeneity  
 - antibody availability, specificity and sensitivity  
 - assay methodologies and sensitivity  
 - anticipated problems and alternate approaches

**Main Proposal**

**Feasibility:**  
 Are all aspects of experimental work feasible?  
 - within applicant's laboratory or institution?  
 - with existing (or potential new) technical staff?  
 - with existing (or potential new) equipment?  
 - with available drugs/chemicals/antibodies/patients?  
 - within term of application, if awarded?  
 - might letters of collaboration be beneficial?

**Experimental Design and Data Interpretation:**  
 Can data be interpreted without ambiguity?  
 Will cause-effect relationships be established?  
 Is there adequate statistical considerations?  
 - power analysis, sample size and availability

**Main Proposal**

**Timelines / Milestones / Roadmap:**  
 - include expected and reasonable timelines



**Originality:**  
 Is proposed work new and original?  
 How does it fit in "big picture"?

**Potential Impact:**  
 How valuable are potential results and information?  
 How will results be used, short-term and longer-term?  
 Will our understanding of area be extended significantly?  
 Will it lead to high impact publications?  
 Will Nobel Committee request your presence in Sweden?

**Main Proposal**

**Proposal Styles to Avoid:**

- house of cards
- trust-me (just send me the money)
- overly ambitious, can't be completed within grant term
- multiple disconnected and diffuse aims
- fishing expedition
  - measure everything, see what happens
- appearance of competition with mentor
- too novel - might be seen as very risky
- too safe - might be seen as boring

**Summary Page**

**Abstract / Summary page is VERY important:**

- often is first page read by reviewer
- often ONLY page read by panel members
- but often last page written before deadline

**Solution:**

- preserve time to craft abstract / summary page
- get expert and non-experts to review critically
- accept all advice, act on only what helps

**Preliminary Data & Progress**

**Quality vs Quantity:**

- do not be tempted to include ALL preliminary data
- ensure included data is of the highest quality


**Are Preliminary Data Supportive?**

- make sure data provide support
  - for hypothesis
  - for feasibility
  - for technical competence
- make sure data do NOT pre-empt any part of proposal

**Figures and Diagrams**

**Unpublished Figures:**

- prepare publication quality figures
- be aware of poor photocopy contrast
- use color, if PDF submission
- OK if n is low, give stats, if available
- flowcharts / diagrams help reviewer understanding




If permitted - embed figures in proposal text  
 - helps readability, and makes reviewers happy!

**Figures and References**

**References:**

- sometimes unlimited number, but don't be excessive  
(range in documents received is 0 to 227)
- give full citation
- be generous and acknowledge, suspected reviewers, if possible!
- helps keep reviewers happy!



**Applicant Qualifications**

**Applicant Track Record:**

- Has applicant obtained adequate research training?
- Has applicant demonstrated clear independence?
- What has applicant accomplished so far?
- What is quality of applicant's trainee supervision?
- Has applicant received any prestigious awards?
- Is applicant a "star" or "rising star" in their field?

**Applicant Qualifications**


**Applicant Track Record:**

Does the applicant have a good publication record?

- citation #, impact factors, progress
- how should review articles be considered?
- how should patents be considered?

Has applicant contributed fully to their published work?

- any "piggy-back" papers
- clarify % contributions
- senior authorships dominate
- papers per \$ past funding
- report only years requested
- abstract-paper ratio
- avoid "in preparation"



**Applicant Qualifications**

**Applicant – Project Linkages:**

- establish how applicant is best qualified for project
- explain roles of all co-applicants

**Environment and Institutional Support:**

- any special issues about space and infrastructure
- has applicant protected research time
- is there a critical mass of colleagues
- are there quality letters of support
- any additional expertise in area for collaboration


**Budget and Budget Justification**

**Budget Accuracy:**

- in arithmetic, and units (e.g., \$ / year, \$ / total award)
- in reporting history of funding as PI or Co-PI
- in reporting current grant & institutional funding
- in reporting overlaps or perception of overlaps

**Budget Justification:**

- use to full advantage
- list assets, even if no funding required
- include CVs of PDFs and Graduate Students



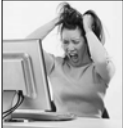
**Re-Submission Rebuttals**

**Address Previous Comments:**

- express gratitude and summarize positive comments
- respond fully to negative comments
- better to present solutions rather than aggression
- addressing all concerns should increase score

**BUT**

- new committee may identify other issues



**Letters of Support**

**Fellow Scientists:**

- most creditable from leaders in the field
- brief superficial letters are unhelpful
- OK for applicant to prepare initial draft
- avoid multiple letters with similar content

**Institutional Support:**

- availability of infrastructure, space and facilities
- financial commitment for establishment (new staff)
- availability of willing collaborators



## Grant Appearance - First Impression

1. **Make your grant special, make it stand out from others**
  - use color if permitted, especially figures or PDF submissions
  - select distinctive font, if allowed
2. **Following all instructions very carefully**
  - do not compress line spacing
  - abide by formatting rules
3. **Ensure no parts are missing or incomplete**
4. **Check information in all sections match:**
  - hypothesis, aims, # of publications, letters of support, etc
5. **Provide "white space" / avoid typos & very dense text**  
**Make it easy for reviewer to read & score highly!!**

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## Good Luck!!



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