



# Grant crafting 101: CHRI Team Grants

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# Overview of workshop

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## ***Target Audience***

- applicants to the VCHRI Team Grants competition
- those new to research grant applications

## ***Content***

- introductions
- basic grantscrafting from planning to completion
- key sections in a research proposal
- what reviewers look for
- Team Grants competition information

# Should you apply?

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- competition priorities? →
  - address important and original research questions; results will be directly applicable to the provision of care/service at VCH
- eligibility requirements? →
  - *for investigators*
  - *for projects*
  - Are you a VCH staff or physician?
  - Do you have a (co-PI) who will actively participate in project design AND implementation?
- team? →
  - Do you have a supportive manager and team of colleagues?
- are deadlines doable for you? →
  - registration deadline: January 15<sup>th</sup>
  - application deadline: March 31<sup>st</sup>

# So you are going ahead!

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## **Get together with your team**

- Ensure that everyone working on the proposal has a copy of the guidelines/forms
- Talk about the project AND the application
- Who else do you need on board?
- Review the application guidelines AND forms
- Identify who is responsible for each aspect of the process – who is the lead
- Review all relevant deadlines – the competition and your dept/program/organization
- Ask questions if something is unclear – of the funder and of your team

# Importance of guidelines/forms

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- provide critical information on what the funder (VCHRI) requires & what the reviewers will be looking for
- help you plan out what information needs to be included and where
- help you and your team set timelines to ensure everything is completed in time
- many errors made in past applications could have been avoided by carefully reading the guidelines and asking questions:
  - project not eligible
  - researcher co-PI listed as being paid from budget
  - no proposal attached
  - missing signatures

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# Grant Crafting:

Content

Structure

The words on the page

# Part 1: Content and Structure

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## What is a grant?

An elite sales pitch.  
A response to a request.

## **A Grant is NOT:**

A review article  
Scholarship  
Literature

# A basic and reliable proposal format

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**OVERVIEW** (12-20 lines)

**HYPOTHESIS (RESEARCH QUESTION) and AIMS** (on page 1)

**BACKGROUND** (begins on page 1)

**RESEARCH PLAN** *\*KEY section\** *\*Subheadings are crucial here\**

**LIMITATIONS & ALTERNATIVE APPROACHES**

**SIGNIFICANCE.** Ex: Predict the impact be on practice.

There are also *non-categorized* **crucial** concepts to be dealt with throughout, woven into the above:

Feasibility

Innovation

Research Environment

Significance

# The Proposal in detail

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## ***OVERVIEW*** (12-20 lines)

Summarize the problem enough to justify it.

Segue into your objective.

State the objective (and format it to stand out)

## ***HYPOTHESIS (RESEARCH QUESTION)***

A good proposal is driven by a strong hypothesis or research question.

It's the foundation of your proposal.

One overriding hypothesis or goal per proposal

The Proposal: in detail *cont...*

## Developing the Hypothesis

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### **\*\*Ideas vs. GOOD ideas**

Question must be important to the field.

Your question must be answerable.

You must have a means of testing it.

Your specific objectives & outcomes, clearly measurable

### **Provide a rationale for the hypothesis.**

Make sure it's based on current literature.

Consider alternatives.

Explain why you've selected the one you have.

### **A good hypothesis is significant.**

It increases understanding of biologic processes, diseases, treatments and/or preventions, practice.

**Writing HINT: \*\*State your hypothesis in both the specific aims section of the research plan and the summary. \*\***

The Proposal: in detail cont...

## Background

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2-5 paragraphs (with subheadings).

All information directly supports the research question, the rationale, and the research methods.

How does the proposed research fit in the body of evidence?

Why is it an important area of study?

**What is the knowledge gap you will address?**

Convey the significance of your research to increasing scientific knowledge and/or improving public health.

## Research Plan

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- Research Design and Methods

***\*\*This is the heart of your proposal\*\****

- At least 50% of the pages

- **Spell out:**

what you propose to do  
how long it will take, and  
what resources you need

- It's not enough to state:

*"We will use standard techniques."*

Reviewers want to know which techniques and tools; the rationale for using them, and exactly how the techniques will be used to answer your questions.

The Proposal: in detail *cont...*

**Research Plan, *cont...***

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## **Possible sections include:**

**Preliminary Data**

**Sample selection procedures**

(e.g., inclusion / exclusion criteria)

**Data Collection**

Tools, methods, documentation.

**Data analysis:**

What techniques? Who is going to do it?

What are their qualifications?

**Sample population:**

Recruitment, Inclusion/Exclusion, Non-responders

**Resources and expertise available**

**Animals**

## The Proposal: in detail *cont...*

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### **LIMITATIONS & ALTERNATIVE APPROACHES**

- Show that you are aware of potential pitfalls (could be related to methods, research environment, etc..)
- Present alternative approaches if possible. (You needn't give all the details of the alternatives.)

### **SIGNIFICANCE**

Significance of outcomes. Impact on field or patient care, etc.

**\*\*Avoid the "So what?" effect\*\***

### **APPENDICES**

Use appendices wisely

What is allowed? What are the limits? (Varies with agency)

Put nothing in an appendix that is crucial to the proposal

# Rationale

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*Why this, why now, why you?*

- Have you conveyed the need?
- Have you defended the need?
- Have you defended your methods?
- Have you made it clear YOU are the one who can best do the work?

Work this in throughout the proposal. Explain “Why”, often.

# Feasibility

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- Will your approach answer the question?
- Do you have the experience to conduct the research?
- Are there appropriate collaborators in place?
- Is there pilot data?
- Is the research environment appropriate? Will your environment support you? (Resources? Time, etc...)

# Summary Page (see handout)

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*\*\*\*\*In some ways the most important component.*

**Overview:** (20-30% of the page)

Set the general (biological/health/social) stage, and then set the research stage.

**General Objective/Over-all Hypothesis and Specific Aims.**

- *"The General Objective of our research is to identify critical regulators of..."*
- *"To attain this objective, we have three Specific Aims:...." List them.*

**Proposed research** (50-60% Page).

(1) State **what** you plan to do:

- *"To identify molecular regulators of axonal guidance, we will..." or*
- *"To establish what family members think about genetic testing, we will..."*

(2) Then, state **why** you are using a specific strategy:

- *"Our approach will be to identify homologues of CUB domain proteins expressed in the developing brain, since proteins of this class have been shown to..." or*
- *"The research is designed to produce empirical data about the social ramifications of genetic testing."*

**Significance of the work** (a short paragraph, or even one sentence)

- *"This work will enhance our understanding of the biology of... and provide a foundation for elucidating [disease category or health issue]."*

## ***Breakdown of a Summary page overview:***

"The development of the brain is one of the most complex biological processes known. Each cell in the brain contacts about 1,000 other cells **but the mechanisms that guide and regulate these connections are poorly understood.** A number of inherited disorders have been shown to be associated with defective nerve cell connections. **Our goal is to determine...."**

*set the biological stage*

*the knowledge gap*

*Health-related justification and segue into the proposed research area*

*Statement of objective*

# Importance of co-Investigators

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## **For new researchers:**

Collaborative endeavors are critical to a good start.

**BUT:**

Who is a collaborator?

Who is a coPI?

## **How to decide:**

Intellectual Contributions

Long term involvement & guiding progress

# Letters of collaboration

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Use appropriate experts, where they will help

Example circumstances:

- Permission to conduct research on a given site
- Supplying a critical component for an experiment (but not doing the experiment)
- Others?

**Draft the letter yourself** (or tell them what to say)

Be specific

Give lots of advance notice

# Response to Reviewers

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Don't take refusal and criticism personally  
**Don't become defensive and combative**

**Begin** with thanks and appreciation  
**Highlight** the positive points

**Address Criticisms – 4 categories:**

1. **Fatal.** Will never get funded, ever.
2. **Major, but not fatal.** Overhaul grant.
3. **Minor.** Saved by incorporating reviewers' advice.
4. **Ludicrous.** The reviewer is flawed, not your proposal.

# Part 2: The words on the page

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## *Welcome to writing...*

Lewis Black, Comedian (Daily Show) and author:

*Anybody who likes writing a book is an idiot.*

*It's like having a homework assignment every stinking day until it's done.*

*Writing isn't fun. It's never been fun....it's a brutal experience in many, many ways.*

# Grant-crafting strategies

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1. READ A LOT OF GRANTS.
2. Contact previous winners - ask if they would be willing to share their proposal with you.
3. Start with an outline. (otherwise known as the Potential Sequence of Events)
4. Use a dictaphone.
5. Explain research idea to a friend in an email.
6. Read the grant out loud.
- 7. Have a fantastic mentor.**

# Brief Comment on Language

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## **Good Writer**

Suggestive

Exploratory

Surprising

Subtle

Creative

vs.

## **Good Grant-writer**

Predictable

Organized

Logical

Linear

**Persuasive!**

## *Language, continued...*

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**Goal is to preempt reviewer criticisms.**

**Phrase to Persuade.** Persuasive language is:

**(1) Positive and Active, NOT passive.**

For example, always write,

*"We will develop a cell line," not*

*"A cell line will be developed."*

**(2) Short and sweet and direct and obvious**

No long sentences with multiple parenthetical asides.

# Your Tool Box: Words and Structure

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“Studies show that when presenting people with a factual statement, manipulations that make the statement easier to mentally process - even totally nonsubstantive changes like writing it in a cleaner font or making it rhyme or simply repeating it - can alter people’s judgment of the truth of the statement, along with their evaluation of the intelligence of the statement’s author.” (from the Boston Globe, Jan 2010)

**In other words, ease of reading matters!**

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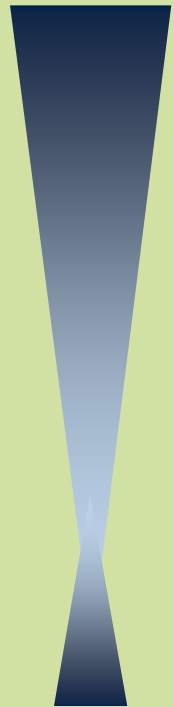
# Your Tool Box: Words and Structure

One goal per proposal,

One idea per paragraph.

# Good expository writing

## *A paragraph in pictures*



**Lead Sentence.**  
*The main message*

**Elaboration sentences**

**Sum up.** *Reiterate how this point relates to the proposal, or a specific Aim/Hypothesis.*

## **Key features:**

### **A great lead sentence.**

Says what the paragraph is about.

You should be able to grasp a grant by reading lead sentences alone.

### **Rest of the paragraph elaborates on the lead**

### **Common Error:**

A rousing concluding sentence instead of a strong lead.

Usually, the conclusion can be slightly reworked, into a great lead sentence.

\*\*\*That said – a great lead sentence PLUS a summary sentence to reiterate “why this is important to my research” is best.

# Make Life Easy for Reviewers

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**Appearance Matters.**

**Use white space.**

Reviewers volunteer their time and they can give you money. Keep them on your side.

Write a grant they can “*read without reading*”.

## **In Short:**

Huge blocks of uninterrupted text are depressing.

If it looks hard to read, reviewers are less likely to read it.

# Make Life Easy for Reviewers

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## Formatting Tricks

- Include a glossary of abbreviations. Options:
  - As a footnote on the first page
  - In a table/appendix
- **Use headings, subheadings, and bold text to create “chunks” of information.**
- Headings and subheadings must be informative.
  - Bad:**        *PI3K enzymes*
  - Good:**      *PI3K enzymes regulate a diverse range of cellular processes*
- **Bold** summary or intro sentences in important paragraphs
- Put a box around extremely important text.

# Guide reviewers with graphics

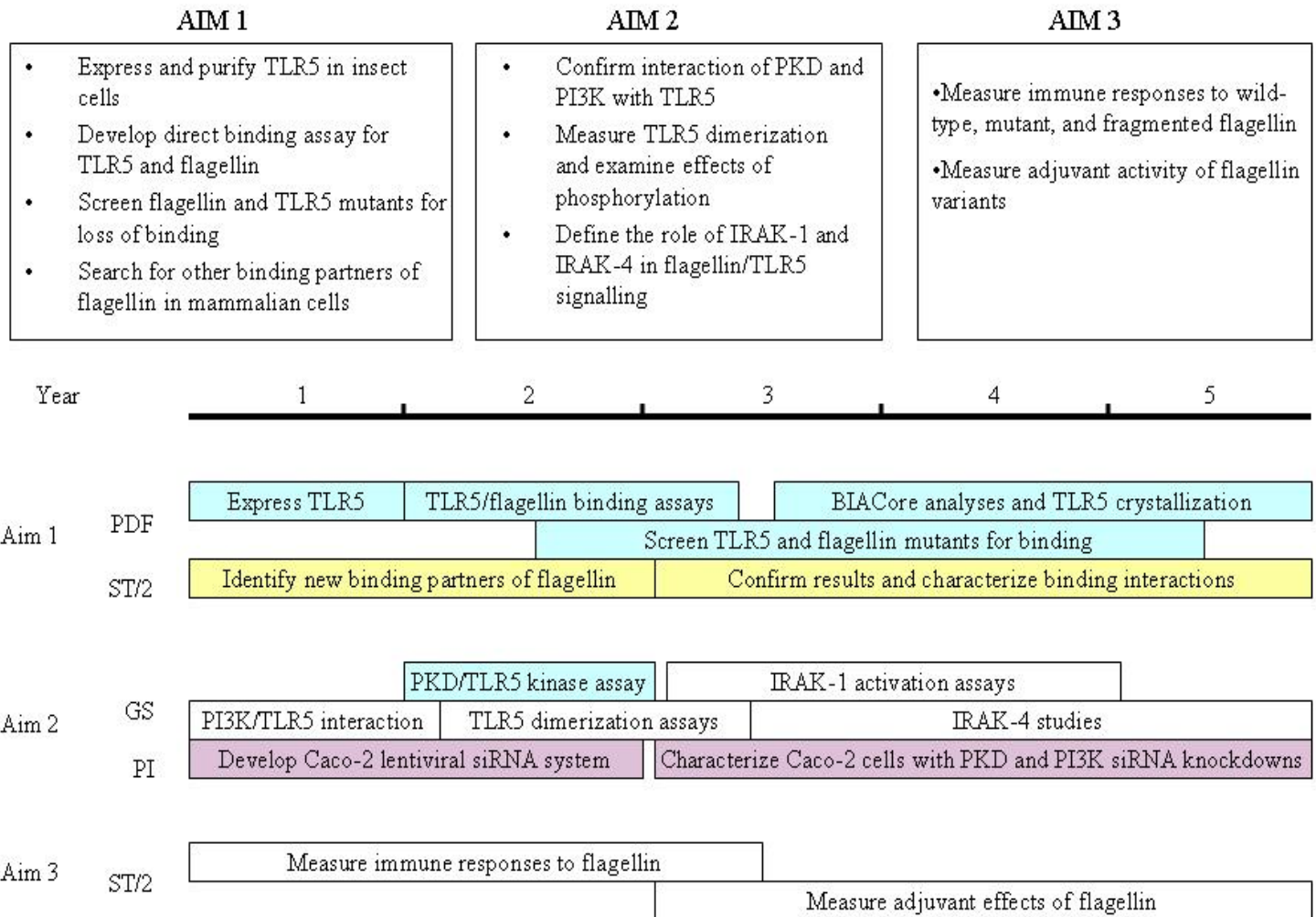
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- Timelines, charts, etc... help readers grasp information quickly.
- For time sensitive grant programs a timeline is critical.
- Figures that sketch out the research plan  
(E.g. team member goals/responsibilities)
- Follow guidelines as to how to insert figures into the proposal.

# Great timeline figure #1

**Figure 12: Proposed timeline for the current application**

Interdependent experiments are shown in identical colors; independent experiments are shown in white. Personnel required are listed at the left (GS= graduate student; PDF= postdoctoral fellow; ST/2 = half-time of senior technician; PI= principal investigator)



# Great timeline figure #2

Activity	GY1				GY2			
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
• Develop items for survey	■	■						
• Review and revise items with experts' panel.		■	■					
• Pre-test items with representative sample of target population.		■						
• Program software to administer survey.			■	■				
• Prepare survey sites for study.			■	■				
• Recruit and train Study Reps.			■	■				
• Recruit 1,000 subjects and administer survey at 5 sites.					■	■	■	■
• Statistical analysis of data.							■	■
• Preparation and submission of manuscripts to peer-reviewed journals.								■

# Make Life Easy for Reviewers

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## Write, Proof, Edit

### Be a ruthless editor.

Remove all extraneous words (such as "*We found that...*" and "*It has been demonstrated that..*")

Avoid writing a review article.

Stay on-point, be linear, and focused.

**Be obvious and explicit**, to ensure reviewers make all the connections.

**Remove tentative language.** "*Will*" instead of "*may*". Also remove: "*possible*", "*might*", "*could*".

Reviewers are critical. Don't give them an opening.

**Submit a "perfect" grant.** No typos; correct number of pages and correct margins.

## Be obvious and explicit. EXAMPLES:

- If the reviewers won't recognize that your proposed research is novel *EXPLICITLY* state that " *The proposed research is novel*" and explain why.
- If part of your research plan is risky, state that it's risky and explain the value of doing the work.
- If you have a skill set that is unique and highly relevant to the proposed research, be sure to mention that.

## Achieving Short & Direct sentences. Example:

**Before:** *This issue is an important one, bearing in mind how common colon cancer is (2<sup>nd</sup> most common cause of cancer-related mortality in Canada) and that conventional measures are not always successful in achieving a cure.*

**After:** *Colon cancer is the 2nd most common cause of cancer-related mortality in Canada and conventional treatments do not always achieve a cure.*

# Tips for the Grant

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- **START EARLY.** Make a timeline with milestones.
- Find and read successful proposals.
- **Start with RESEARCH PLAN.** Once you have described everything you plan to do, it's easier to determine what needs to be included in the intro/background.
- Ask **CRITICAL** colleagues to review the grant.
- Then ask your spouse/child/friend to read the grant.
- **Less is often more.** The more non-essential information you give reviewers, the more they have to find fault with.
- Read a lot. Practice writing.
- **Repeat main themes** (tie paragraphs back to the hypothesis/objectives).
- Read the grant out loud for your final copy-edit.

## *Tips for the Grant, cont..*

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### **Finish the "Junk" in Month One**

All the extra crap takes a lot of time to obtain or complete, and generally much more time than you think (often several weeks).

### **Accompanying documents include:**

- CV module

- Letters of collaboration

- Cost quotes (if needed)

- References (Keep track of these from the start.)

# Grant Killers (see handout)

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Problems in any of the following:

- Significance
- Goals/Objectives/Aims
- Approach
- Investigator
- Environment

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# Completing Your Team Grant Application

# Application documents & process

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An application is always more than the proposal.

**Cover sheet** –most applicable to the PI (not the co-PI)

**Research Module:** an auto-fill form

- Sections: all of these contain information used by the reviewers in assessing the application
- Budget
  - Read the guidelines and budget page in the form to find out the limits and allowable expenses
  - Budget justification
- Attachments – research proposal, project timeline, appendices (only those stipulated in guidelines)

# Application documents & process *cont...*

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## Supervisor Statement of Support

## CV Modules

- From ALL investigators; signed
- VCHRI CV Module (even for the co-PI)

## Signatures

- VCHRI and Research Services signatures will be obtained after you submit – not your responsibility
- All of these documents have required signatures

**Submission:** Original + 2 hard copies and an electronic copy

# Heading to your final draft

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- Designate a person to pull the complete draft together **well in advance of the deadline**
- **Final formatting**
  - Check with the guidelines to ensure that your format is acceptable and you have all the documents and signatures required
  - Ensure it reads like one person wrote it
  - Check grammar, spelling and jargon

# Review process

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- the review committee members are researchers across various fields; familiar with and/or involved in applied research
- it is a multidisciplinary committee → write for people who do not know your field
- two reviewers assess your application in detail and write reviews and provide an initial rating (scale is 0 – 5.0)
- applications are presented by the reviewers and there is a discussion by the committee (unless ‘triaged’)
- a ‘consensus score’ is reached and each member can then record their score (+/- 0.5) on their score sheet (anonymous)
- scores are averaged → final score
- feedback to you – decision letter (including final score and rank) with anonymous reviews

# Resources

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- [www.med.ubc.ca/research/grant\\_mentorship/grantsmanship.htm](http://www.med.ubc.ca/research/grant_mentorship/grantsmanship.htm)

The Art of Grantsmanship by Jacob Kraicer  
How To Write a CIHR Operating Grant by Dr. Hugh Brock  
Common CIHR Applicant Mistakes

- **[www.ahprc.dal.ca/GUIDELINES.PDF](http://www.ahprc.dal.ca/GUIDELINES.PDF)**
- **More:** Google ‘*grantscrafting*’ or ‘*grant crafting*’, ‘*grant writing*’, or ‘*grantsmanship*’.

*(Note: Confirm the accuracy of any agency-specific information you find in external links)*

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# QUESTIONS?