## **Visiting Scholar Program**

## Writing techniques for grant proposals: An "easy read" for your reviewers





### **Territorial Acknowledgement**

The University of Alberta, its buildings, labs, and research stations are primarily located on the traditional territory of Cree, Blackfoot, Métis, Nakota Sioux, Iroquois, Dene, and Ojibway/Saulteaux/Anishinaabe nations; lands that are now known as part of Treaties 6, 7, and 8 and homeland of the Métis. The University of Alberta respects the sovereignty, lands, histories, languages, knowledge systems, and cultures of First Nations, Métis, and Inuit nations.



This session is a follow-up to the expert panel discussion: <u>How to write a winning</u> grant proposal

- Video
- List of University of Alberta resources and supports



Technique #1: Give your reviewers a map Technique #2: Give your reviewers a break Technique #3: Give your reviewers reasons to care



Technique #1: Give your reviewers a map

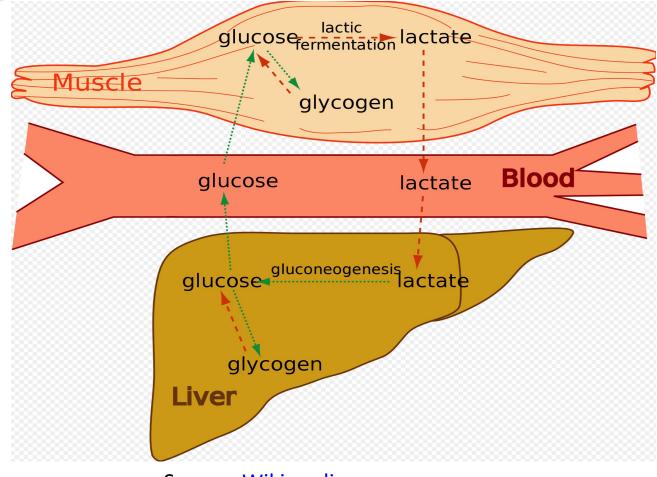
- Visuals
- Informative headings
- Topic sentences



# Technique #1a: Give your reviewers a mapVisuals







Source: Wikimedia commons



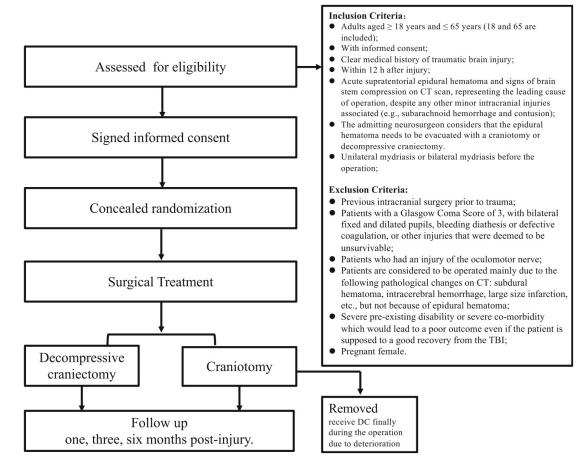


Fig. 1 Study flow chart

Source: <u>Yang et al., Trials</u> Creative Commons Licence 4.0



Technique #1b: Give your reviewers a map

Informative headings and sub-headings





Main Heading 1 Sub-heading 1 Text Sub-sub-heading 1.1 Text Sub-sub-heading 1.2 Text Sub-heading 2 Text Sub-sub-heading 2.1 Text Sub-sub-heading 2.2 Text



Background Literature review Text Studies of children aged 1 to 5 years Text Studies of children aged 6 to 16 years Text **Comparing data on different age groups** Text Data on disease prevalence Text Data on disease progress Text



## Informative headings: Some good examples

- The first problem: Vulnerable populations in an under-served setting
- Why is C. elegans an excellent model system to study mitochondrial diseases?
- An experienced multidisciplinary project team
- Aim 1: Identify symptoms and practices with the greatest impact on care and patient experience



Technique #1c: Give your reviewers a map

Topic sentences





### Topic sentence example

Recent advances in genetic manipulation have extended the potential for understanding structure-function relationships for proteins. Site-directed mutagenesis offers clues about how small alterations change function. A single amino acid change can be correlated with measurable changes in functional properties. The eventual goal of this work is to design and synthesize proteins that perform new and desirable functions. These designer proteins are often desirable for industrial or pharmaceutical applications.



### Create a topic sentence

Enzymes that are classed as serine proteinases have an unusually reactive serine residue in the enzyme active site, which is key to catalysis. Essential histidine and aspartic acid residues work with the serine as the "catalytic triad." Two general families of serine proteinases are known: the chymotrypsin-like enzymes and the subtilisins. Members of both these families use the same mechanism of catalysis, but they differ completely in their 3D structure except in the arrangement of their catalytic triad. These two families are believed to have developed through convergent evolution.



Technique #2: Give your reviewers a break

- Simple formatting
- Shorter and simpler sentences



Technique #2a: Give your reviewers a break

Simple formatting





### No formatting

Revised Grants Evaluation Criteria - Interpretation Guidelines

The revised grants evaluation criteria apply to all operating, catalyst, team and emerging team grant applications. The factors listed under each criterion may be supplemented by additional factors, and the relative importance of the criteria varied, in order to align the review process with the funding opportunity objectives.

Guidelines for the interpretation of the individual criteria:

Criterion #1: Research Approach. This criterion concerns the description of the research plan and can encompass whether the writing style facilitates understanding of the plan (clarity of the research question) and whether the proposed research can be successfully concluded as described (feasibility of the research approach and anticipation of difficulties). Clarity of rationale for the research approach and methodology refers to whether the reasoning behind the overall strategy is clearly presented.

Criterion #2: Originality of the Proposal. For this criterion, original research is defined as research that will yield new knowledge. Typically, this refers to research that has not been carried out previously. However, there are times where replicative studies will yield new knowledge that may be crucial to progress within a field, for example by conclusively verifying or refuting a central or novel hypothesis.



### White space + heading formats

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Technique #2b: Give your reviewers a break

Shorter and simpler sentences





### Example: Too long, too complex

The specific objectives of this funding opportunity are to understand how to implement evidence-informed interventions in different urban contexts and populations so that they result in positive and equitable health outcomes in real-world settings, including understanding how specific interventions can be adapted to different regions, ages, cultures, genders, or conditions, and how the interventions can be scaled given unique social, political, economic, cultural, and geographical contexts.



### Example: Too long, too complex

There is an agreed upon importance to enhance research and partnerships by: harnessing big data from cohort studies, genomics and other "-omics" such as proteomics, metabolomics, microbiomics, epigenomics; clinical, social and other records; new drugs and other therapies; artificial intelligence; and address unmet needs (e.g. research with Indigenous communities, research on the social determinants of health and health inequalities, positive health and wellbeing, policy-driven research, patient-oriented research, precision medicine, parental health, environmental health, mix-method research, and qualitative research).



Technique #3: Give your reviewers reasons to care

- In your summary page
- On your proposal's first page
- In your hook



# Technique #3a: Give your reviewers reasons to care

pediatrics.ualberta.ca

### In your summary page



# Technique #3b: Give your reviewers reasons to care

On your proposal's first page





### Elements of a strong first page

- a short, informative, striking opening sentence that gives immediate context
- the overall goal of the research
- why the research is important and relevant
- how the research fits with your previous work
- the hypotheses or research questions, and how they will be approached (e.g. theoretical framework)
- a brief outline of specific aims and methods
- a summary of expected outcomes and potential impact, to remind reviewers of the bigger picture
- your map visual



Technique #3c: Give your reviewers reasons to care

 In your hook: a short, informative, striking opening sentence that gives immediate context



### Examples of hooks

- Protein folding is a pivotal biological process in both health and disease.
- Glaucoma is a common as heart disease.
- Autism is the most severe form of a spectrum of neurodevelopmental disorders.



RSO resources on writing for reviewers <u>How to write clearly for the reviewer</u>

How to write a striking summary page

Writing a successful research summary for CIHR grant applications



# Questions or comments?





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