

# Proposal Writing for Sanofi- Aventis Biotalent Challenge

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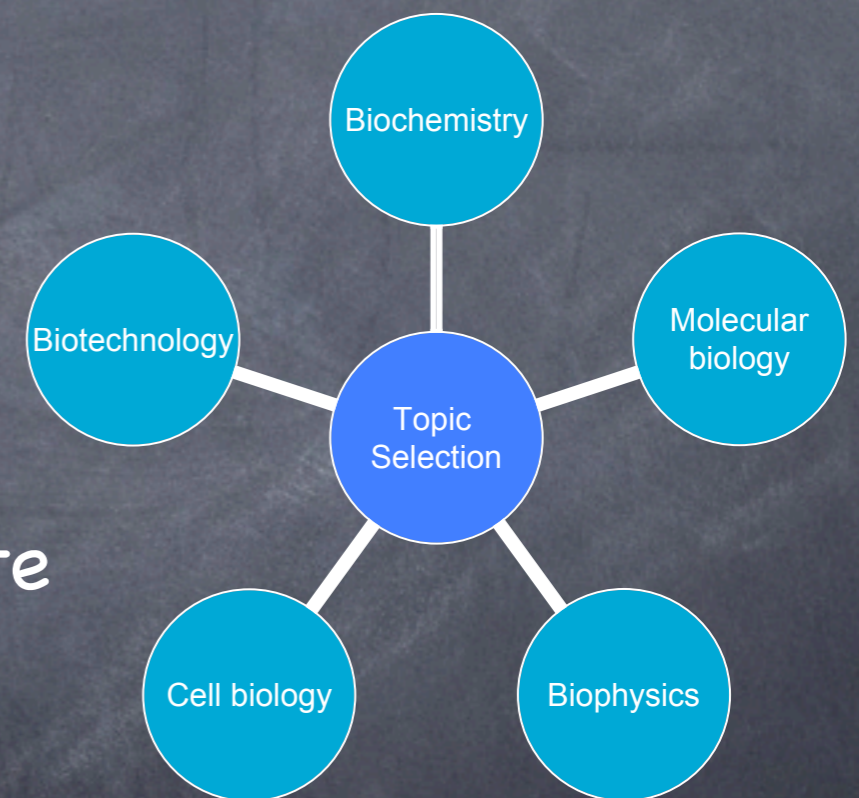
Charlottetown Rural October 20, 2009

# It all starts with a QUESTION

- Think about a research topic.....
- What interests you ?
- Do a little background research.....
  - local newspaper,
  - magazines (Scientific American and Discover),
  - web databases like PubMed (abstracts),
  - local biotechnology companies (PEI BioAlliance)
    - [www.peibioalliance.com](http://www.peibioalliance.com)

# You are not alone !

- Think of "idea generation" as a collaboration.....
- University of Prince Edward Island
- Atlantic Veterinary College
- National Research Council -Institute for Nutrisciences and Health
- Holland College
- PEI Food Tech Centre



# Getting Started

- What is your question ?
  - Hypothesis
- Why is your study important ?
  - Significance
- How are you going to do it ?
  - Experimental Design

# BIG PICTURE Considerations

- Must be biotechnology-related
  - use of the knowledge of biological systems to produce goods and services
- Resources (\$ and time)
- Mentor with research in this area
- Equipment to carry out research
- See example in Proposal Devt. "Gene Therapy for Breast Cancer"



# Sections of the Proposal

- Title (6)
- Objective (1)
- Introduction (2)
- Relevant Application (Rationale, Significance) (3)
- Experimental Design (4)
- Expected Results & Interpretation (5)
- **APPENDICES**
  - Materials and Methods (4)
  - Budget (8)
  - Project Timeline (7)
  - Mentorship support (9)

# Title : Importance

“First impressions are strong impressions; a title ought therefore to be well studied, and to give, as far as its limits permit, a definite and concise indication of what is to come”

Thomas Clifford Allbutt

Medical researcher and inventor clinical thermometer

# Title : Preparing

- Title is the first point of contact.
- Chose words carefully and be specific.
- Beware of faulty syntax (word order).
  - "Using a fiberoptic bronchoscope, dogs were immunized with sheep red blood cells"
- Definition of a good title.....fewest possible words that adequately describe paper contents.
- Avoid abbreviations and acronyms.

# Title : Example

- Good:

- Gene Therapy for Breast Cancer

- Better:

- P53-mediated Gene Therapy for Breast Cancer

- Poor:

- P53-mediated Retrovirus Gene Therapy for SH-SY5Y Breast Cancer Cells

# Objective

- What question are you trying to answer? (1-2 sentences)
- Example: To determine if gene therapy can suppress the growth of breast cancer cells.
- Example: To identify a surface that would resist the absorption of proteins while encouraging the adhesion of the body's own cells.

# Introduction

"A bad beginning makes a bad ending"

Euripides

- Background information on the organism(s) or process(s) that will be investigated (1-2 short paragraphs)
- The introduction should.....
  - provide the rationale
  - state clearly the purpose / problem
  - provide the important background information
  - be written mostly in the present tense

# Relevant Application

- Explain how you arrived at your idea.
- Justify why your investigation is worth doing.

How could the world benefit from your research and who would benefit !!

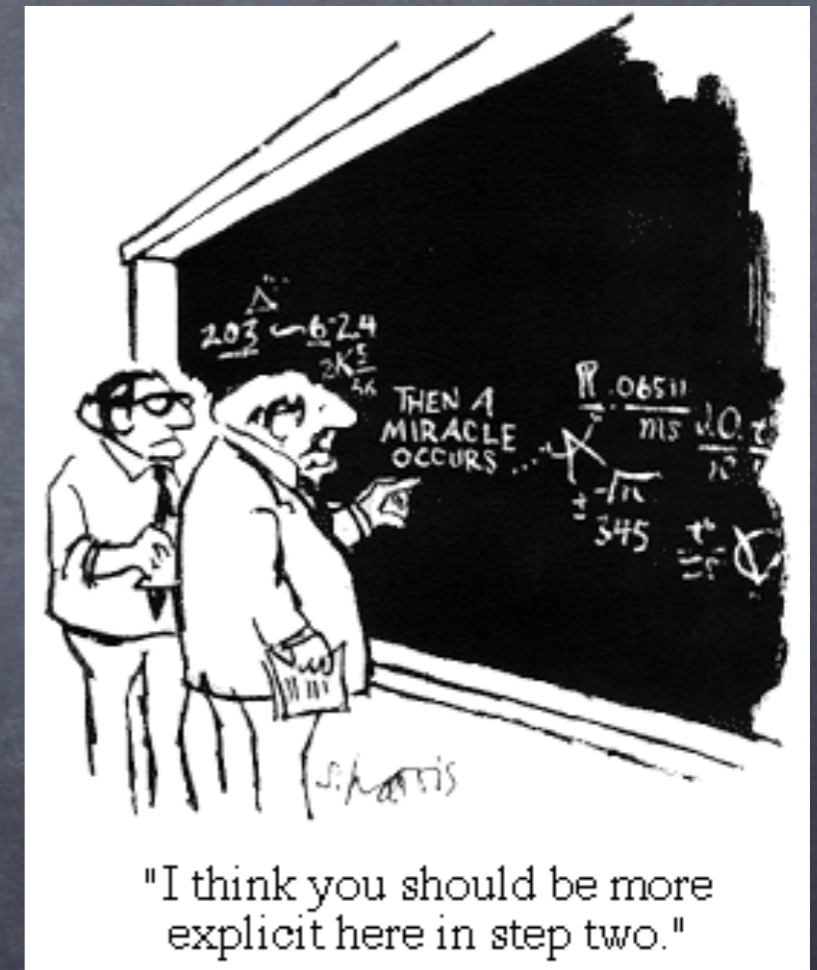


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Schwab

# Experimental Design

- Detailed description of experiments, including:
- Subject groupings
  - e.g. testing 3 different drugs – group a, group b, group c
- Variables being controlled, manipulated, measured
  - e.g. time of day, delivery mechanism, anything performed by a human hand, sample size, drug concentrations
- Phase of experiments if done in stages
  - Phase I – test drug toxicity
  - Phase II – test drug efficacy on cells



# Results and Interpretation

- Explanation of the results and suggestion of possible mechanisms (1-2 sentences)

Linked to HYPOTHESIS

- What do you anticipate the result of your experiment will be, and why do you think you will get this particular result?

# Materials and Methods

- Detailed explanation of methods & methods used.....
  - e.g. protocols, techniques, cells, instruments, suppliers, reagents etc.
- Use sub-headings if needed (each step in the process); at least new paragraph per section.
- List materials, instruments & equipment that your school will be able to provide.
- Write in the present tense.

# Project Timeline

- How long will the experiments take from conception to reporting?
  - **December** – start stage 1 (design retrovirus construction)
  - **January** – start stage 2 (amplify p53 gene)
  - **February** – final stage (create retrovirus vector, infect cells, analyze p53 expression)
  - **March** – draft report
  - **April** – report complete & presentation
- Sometimes helpful to draw timeline diagram to illustrate this

# Budget

- Include itemized budget up to \$200 in your proposal to receive funding (clarification on amount & necessity of this section)



- Check scientific websites (ask mentor) for prices of research materials

# Mentorship Support

- Name and contact information for supervising teacher.
- Name and contact information for mentor(s) or indicate that suggestions for a mentor(s) are required.

# Evaluation Criteria

- Clarity and Soundness of Objective (20%)  
Is there a clearly defined objective that is sound, logical and “realistic to accomplish”?
- Design and Feasibility of Experiment (50%)  
Could these experiments provide results that would lead to answer(s) for the question(s)? Are these experiments feasible?
- Relevance of Proposal (10%)  
Does this research proposal have any relevance within the broad definition of biotechnology?
- Skill Level Requirement (10%)  
What is the difficulty level of carrying out the proposed experiments?
- Presentation of Proposal (10%)  
How clearly and well presented is this proposal?

# Final Thoughts

- Read the proposal guidelines carefully
  - Many submissions are rejected immediately because they propose the use of animals in contravention of the SABC regulations. Please see the section on "Regulations about research involving animals " (FAQ Section).
- Read the FAQ section for helpful hints
- Read the application instructions very carefully before continuing
  - e.g. printed copy, word limit (max 1200 words)
- How does this year's project differ from any other projects you have proposed? (approx 200 words)
- Start uploading a few days ahead of time (system crashes, identify missing things)
- Final submission deadline – November 15th, 2009