DEVELOPING AND PRESENTING A WINNING PROGRAM
Defining clear goals and objectives

- Content of the goals and objectives
  - Clearly defining the need
    - Relate directly to the stated need so that the goals are clearly identified and included in this section of the proposal

- A goal is a projected state of affairs that you intend to achieve
  - What is it you are trying to accomplish or improve

- An objective is a description of how goals can be attained
  - It should be measurable, i.e., quantifiable terms
  - Time –phased results
  - Narrower in focus than goals

- Goals and objectives are tied to needs statement
  - Determine how your organization will be measured
Objective

- Should be stated in quantifiable terms
- Stated as outputs, outcomes or impact
- Should state outcomes, not activities or processes
  - Left for methods
- Should be realistic, i.e., attainable within a reasonable time

- Language
  - To reduce
  - To increase
  - To decrease
  - To expand
Common mistakes that will sink your grant

1. The reviewers did not find your central scientific question interesting
2. The preliminary data are weak and call into question the feasibility of the proposal and the validity of your central hypothesis
3. The overall success of the grant is dependent on the outcome of a key experiment which has yet to be performed
4. The scope of the project is too ambitious with multiple hypotheses or rationales that fill the grant with disparate directions
5. The PI and/or research team lacks the experience to carry out the proposed work.
Is your central scientific question interesting?

- Reviewers perception that your central scientific question lacks significance.
- Fail to highlight important links between the work in question and other fields
- Fail to explain how work will transform or add significantly to existing body of work or field
  - Provide reviewers with confidence that the results will add importance to current body of work or field
- Common causes:
  1. Failure to communicate its significance clearly
  2. Overly narrow focus
  3. Lack of novelty/originality
- When using multiple approaches, it is necessary to provide your readers with a clearly understandable strategy for organizing and interpreting the mass of high-throughput data
- If you can provide your reader with an appreciation of why you are doing the work, you are on the right track.
Weak preliminary data question feasibility of proposed work and central hypothesis

- Large gap between your hypothesis and actual available data (cited or as preliminary data)
  - Like a good murder mystery, there is a need for detailed evidence
  - Exam:
    - If your hypothesis is about dinosaur physiology and your approach requires fresh dinosaur tissue, there is a problem

- Must convince reviewers of the chain of logic that connects your elegant hypothesis to the actual data cited (published or preliminary)

- What kills some applications is the gap between the hypothesis and what the results likely to show.
  - Scores are reflected accordingly
The proverbial house of cards:
The outcome of the key experiments is dependent on work that is yet to be performed

- The tendency to organize experiments in a linear and sequential fashion
  - Results of each form the basis for next series of experiments
  - Succeeding aims all depend on a positive outcome of 1st aim (aim yet to be proven)
  - Risky strategy

- Another is applying for a three-year grant and anchoring it to questions that will take 20 years to test the proposed hypothesis

- Reviewers are much more likely to advocate for a grant whose aims are independent,
  - with mutually supporting experiments that will provide information whether or not the starting hypothesis is true
The scope of the project is too ambitious with multiple hypotheses or rationales that fill the grant with disparate directions

- “The spaghetti syndrome”
  - A good hypothesis, experiment or reagent is a PI’s pantry is thrown at the problem
  - This approach hopes the reviewers will find some or a few good ideas stuck on the proverbial wall that will raise enthusiasm

- Organizational flaws usually diminish enthusiasm
  - Signals inability to prioritize the various facets of the project
  - Inefficient deployment of staff and resources
  - Exam; grants that have 3 good aims, but add 4th & 5th that are less interesting and feasible

- A good research plan should try to strike a realistic balance of what you hope to accomplish and available research support and risky/adventurous
The PI and/or research team lacks the experience to carry out the proposed work.

- Once reviewers determine the proposed work is meritorious, they must answer question;
  - “Does the PI have appropriate experience to carry out the proposed work?”

- For junior faculty or early investigators, the training and accomplishments during their postdoctoral years provide likelihood of success

- If experience with a particular approach is unproven in the lab, the most reliable strategies are:
  - Identifying and soliciting an outside collaborator with a published track record in the method, or
  - Devoting an effort to generate the preliminary data to support lab’s ability to perform specific method

- The use of updates, short progress reports that can be sent the program officer after the submission of your grant, but before the panel meets for discussion
Helpful tips

- If unsuccessful at first,
  - Communicate with program director
  - Review the reviewers comments
  - In your resubmission, state and address each of the reviewers comments

- Rotational programs for scientists, engineers and educators

- Serving on review panels
Usefull links

- http://edt.ite.edu.sg/ActionResearch/ar5c.doc
- http://www.mste.uiuc.edu/courses/ci302msp00/article_review_template.htm
- http://www.nigms.nih.gov/Minority/