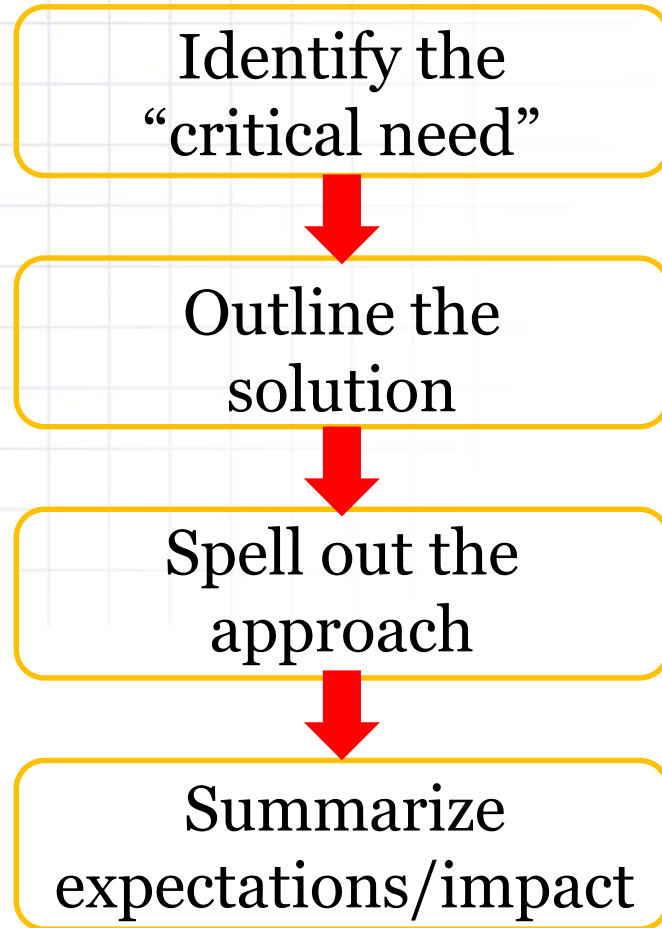


One Page Overview of Your Research Project

BAE815

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A template for the overview



Four paragraphs,
all on one page!

Credit: David Morrison, Grant writers' seminar & workshop

Identify the
“critical need”



Outline the
solution



Spell out the
approach



Summarize
expectations/impact

- Opening sentence
- Important known and unknown in the field
- Frame the problem/need
 - The “critical need” provide the driving force for you to look for the solution

Opening sentence

First draft

“The long-term stability of reinforced concrete structure is critical for safety of America’s highways and bridges.”

Second draft

“Detection of delamination and void defects in reinforced concrete structures is an essential, but currently difficult, aspect of effective construction and maintenance of highway bridges.”

Example: Prostate cancer

Opening sentence

“Strong evidence indicates that the highly invasive characteristics of prostate cancer cells are mediated by complement receptor C1q-dependent signaling through NF- κ B and AP-1 transcription factors leading to secretion of matrix metalloproteinase-9 (MMP-9).”

Example: Prostate cancer

Important known and unknown

“This serves to promote prostate cancer cell adhesion, cellular migration and invasion of tissues.

Of potential importance, Crocetin, a traditional Oriental medication recognized for centuries for its therapeutic potential in preventing or treating various human diseases, has been suggested as an effective therapeutic strategy to treat several cancers.

Extracted from the Crocus plant, this molecule has been frequently reported to show significant antiviral, anti-inflammatory and anticancer effects in a number of the experimental animal models of disease pathogenesis, however the mechanism(s) by which these effects are manifest have not been determined. ”

Example: Prostate cancer

Frame the problem/need

“Given the current polarization of thought between the skepticism that often surrounds therapeutic efficacy of alternative medical strategies to treat diseases, and the highly suggestive evidence in support of beneficial effects of Crocetin, there is a critical need to identify a specific mechanism by which Crocetin manifests its therapeutic benefit in prostate cancer.

In the absence of such evidence, decisions concerning adoption of this alternative strategy for treatment/prevention of prostate cancer will not be possible. ”

Identify the
“critical need”



Outline the
solution



Spell out the
approach



Summarize
expectations/impact

- Long term goal: Broadest
- Objectives for this research: More focus
 - Should match the “critical need”
- Central hypothesis: Most narrow
- Rationale for the objectives

Linkage of three components

Goal: Design strategies for reinforced concrete structures with optimal safety features.

Objectives: Develop improved non-destructive diagnostic procedures to detect structural flaws in concrete.

Hypothesis: Application of ground penetrating radar and impact echo techniques will allow accurate non-destructive detection of flaws in concrete structures.

The objectives

First draft

“Our objective is to study the effects of family environment and language skills on preparedness for kindergarten.”

Second draft

“Our objective is to determine the key factors that predict success for failure in transition from preschool to kindergarten.”

Example: Prostate cancer

“Our long term goal is to develop novel and effective therapeutic intervention strategies for the treatment of cancer that are based upon natural remedies.

Our objective in this application is to determine the molecular mechanism(s) of action and therapeutic efficacy of Crocetin in inhibition of prostate cancer cell metastases. ”

Example: Prostate cancer

“Our central hypothesis is that Crocetin specifically inhibits C1q-dependent signaling pathways leading to cell migration by selectively targeting the activation of key transcription factors NF-kB and AP-1 in vitro, and that these activities will be faithfully reproduced in an in vivo animal model of prostate cancer metastases. We have formulated this hypothesis on the basis of our preliminary data suggesting an inhibitory effect of Crocetin extract on nuclear translocation of NF-kB and AP-1, and our observation that enhanced activation of NF-kB and AP-1 are required for secretion of MMP-9 from prostate cancer cells.

Our rationale for these studies is that development of scientifically-based evidence to support a therapeutic benefit of Crocetin would provide a foundation for Phase 1/Phase 2 clinical trials to test potential benefits in cancer patients.”

Identify the
“critical need”



Outline the
solution



Spell out the
approach



Summarize
expectations/impact

- Provide a logical step-by-step development of the key tasks (aims) by which you will fulfill the objectives (test the hypothesis) so as to address the “critical need”.

Example: Prostate cancer

“Specific Aim #1: Identify the molecular pathway(s) responsible for Crocetin-mediated inhibition of prostate cancer cell adhesion and cell migration in vitro. Our working hypothesis, based upon strong preliminary data, is that Crocetin suppresses NF-kB and AP-1 mediated transcriptional activation leading to reduced production of MMP-9 by inhibition of nuclear translocation.

Specific Aim #2: Evaluate the therapeutic efficacy of Crocetin in inhibition of prostate cancer growth and metastases in vivo. Our working hypothesis is that oral daily administration of Crocetin to mice will inhibit prostate tumor growth and metastases by down regulation of the same pathways identified to be inhibited in vitro in a mouse model of human prostate cancer.”

Identify the
“critical need”



Outline the
solution



Spell out the
approach



Summarize
expectations/impact

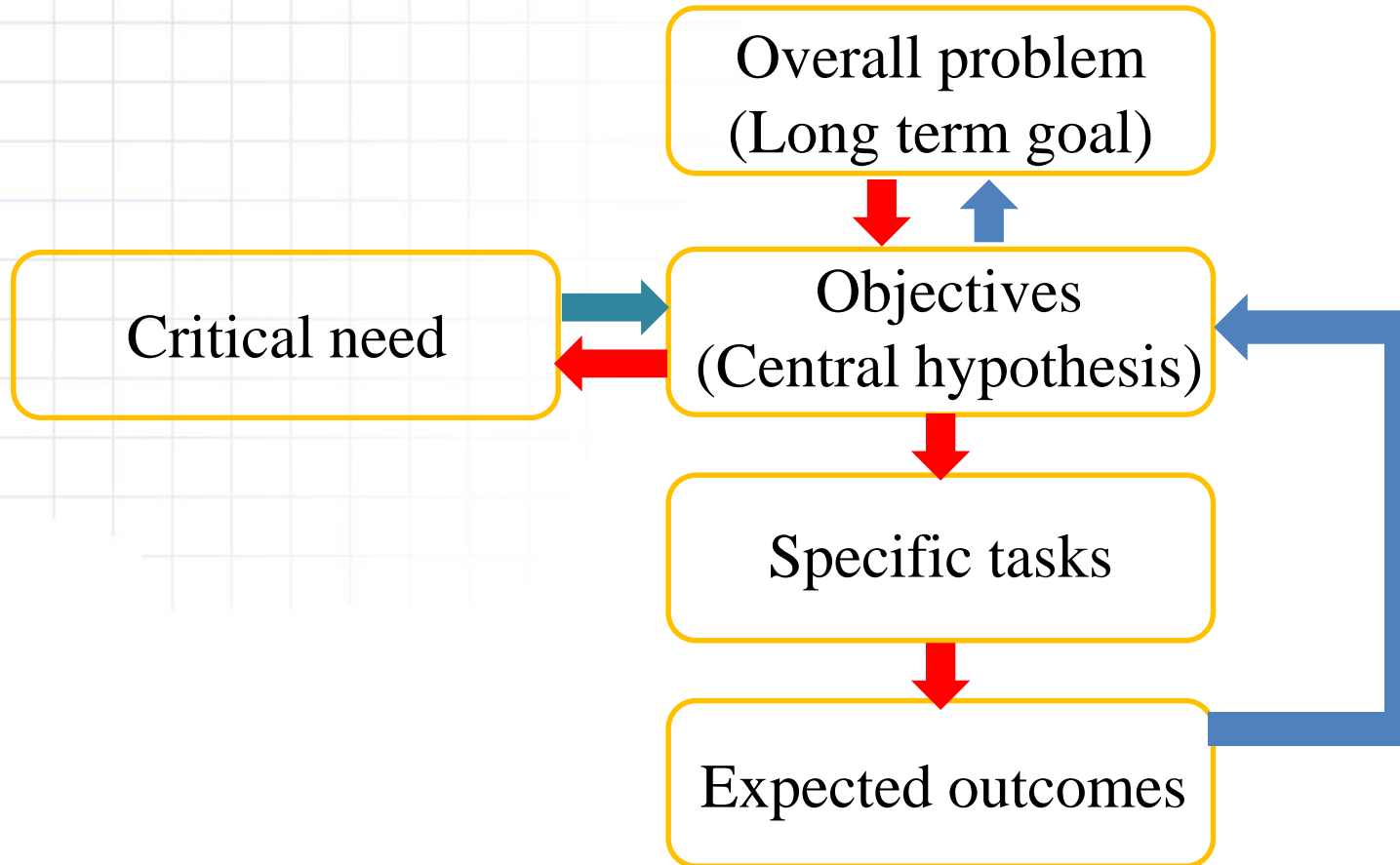
- What are the expected outcomes? How the outcomes will fill the identified need?
- What do you expect your specific contributions will be?

Example: Prostate cancer

“At the completion of this project, it is our expectation that we will have elucidated the mechanism(s) by which Crocetin suppresses growth and migration of prostate cancer cells in vitro, and the extent to which similar events can be extrapolated to in vivo modulation of prostate cancer cell growth and metastases. It is likely, based upon our preliminary data, that the inhibitory effect will be a direct inhibition of translocation of transcription factors required for enhanced expression of the MMP-9 metalloproteinase.

The primary positive impact of our anticipated findings would be evidence-based scientific verification of a traditional Chinese medicine from the Crocus plant as a dietary supplement that could be considered for the prevention and/or treatment of prostate cancer. Such results would also provide opportunities for evaluating Crocetin as a therapeutic agent in other cancers and inflammatory diseases.”

The flow of logic



If you were able to develop an one page overview of your research topic to this point, the rest of your research activities/life would be much easier.