

The specific aims page

- A one-page elevator pitch to reviewers
- The 10,000-foot view of your proposal
- The first / most important component read by reviewers
- The *only* component read by some reviewers
- Makes your idea irresistible
- Demonstrates why you / your institution are the correct people for the job

Ensure your proposed research is unique/innovative

- Ensure idea isn't already **published**
www.pubmed.gov (follow timeline and review old literature)
- Ensure idea isn't already **funded**
 - NIH RePORTer (NIH, VA and some others):
<https://reporter.nih.gov/>
- Write “**And-But-Therefore**” statement about your idea, using published literature.

And-But-Therefore Impact (ABTI) Approach

UTIs are bad **AND** reoccur often **AND** risk of antibiotic resistance

BUT: Don't know why some develop persistent or recurrent disease and therefore can't make non-antibiotic therapies.

THEREFORE: We will define the pathways that drive bacterial persistence and recurrence to enable targeted, non-antibiotic prevention strategies.

IMPACT: This work will reveal fundamental mechanisms of rUTI, laying the groundwork for non-antibiotic therapies.

ABTI also works for abstracts & intros

Eukaryotic genomes are folded into loops and topologically associating domains, which contribute to chromatin structure, gene regulation, and gene recombination. These structures depend on cohesin, a ring-shaped DNA-entrapping adenosine triphosphatase (ATPase) complex that has been proposed to form loops by extrusion. Such an activity has been observed for condensin, which forms loops in mitosis, but not for cohesin. Using biochemical reconstitution, we found that single human cohesin complexes form DNA loops symmetrically at rates up to 2.1 kilo-base pairs per second. Loop formation and maintenance depend on cohesin's ATPase activity and on NIPBL-MAU2, but not on topological entrapment of DNA by cohesin. During loop formation, cohesin and NIPBL-MAU2 reside at the base of loops, which indicates that they generate loops by extrusion. Our results show that cohesin and NIPBL-MAU2 form an active holoenzyme that interacts with DNA either pseudo-topologically or non-topologically to extrude genomic interphase DNA into loops.

Don't succumb to the specific aims domino effect!

- Aims must be independent
- Question: If Aim 2 can only occur if Aim 1 is successful, then what happens if Aim 1 fails?
- Answer: Specific Aim 1 and 2 fail.
- Do not create aims that are interdependent.



What to cover on Specific Aims Page

- Why the research is **necessary** – be specific ! Not just to ‘cure a disease’ – but reason why proposed work will advance the area of research.
- Objective reasons why your idea / team / environment are **ideal** (use wording that addresses the funding criteria (eg, for F31, Applicant, Sponsor, Training Potential, Institutional Environment/Commitment
- Your **overarching hypothesis**
- **1-3 research objectives** – written as testable hypotheses; short and digestible

Formulate an excellent hypothesis

- Specific and objective
- Committal: state expected directional changes
- Testable
- Unbreakable (use independent clauses to insulate in case one clause fails to develop)

Resources for writing aims; each proposal is unique – try many strategies to determine which is ideal for your proposal

- <https://www.biosciencewriters.com/NIH-Grant-Applications-The-Anatomy-of-a-Specific-Aims-Page.aspx>
- <https://www.niaid.nih.gov/grants-contracts/draft-specific-aims>
- + Google Search ‘how to write specific aims” to find others.

Additional Tips

- Some reviewers **WILL** be non-experts
 - Use AI to flag jargon/complex ideas
 - Get a true non-expert to review
 - Ask what they didn't understand
- Revise weekly before submission
- Use a reviewer sheet and address scoring criteria in Aims page
 - Mirror key language from criteria
- For training grants: link research to training area