

# NIH ENHANCING REPRODUCIBILITY GUIDELINES

what you need to know

## WHAT ARE THE FOUR ELEMENTS OF RIGOR?

1

RIGOR OF THE PRIOR RESEARCH

2

RIGOR OF THE PROPOSED RESEARCH

3

BIOLOGICAL VARIABLES

4

AUTHENTICATION

Send inquiries to  
reproducibility@nih.gov

## WHERE IN THE APPLICATION?

### 1 RESEARCH STRATEGY

The research strategy is where you discuss the significance, innovation, and approach of your research plan. Let's look at an R01, for example:



The research strategy guidelines require that you:

- Describe the strengths and weaknesses in the rigor of the prior research that serves as key support.
- Describe plans to address weaknesses in the rigor of the prior research.
- Describe how your experimental design and methods will achieve robust and unbiased results.
- Explain how relevant biological variables, such as sex, are factored into research designs and analyses.

### 2 ATTACHMENT FOR AUTHENTICATION OF KEY BIOLOGICAL AND/OR CHEMICAL RESOURCES

You must briefly describe methods to ensure the identity and validity of key biological and/or chemical resources used in the proposed studies.

These include, but are not limited to:



Standard laboratory reagents that are not expected to vary do not need to be included in the plan. Examples are buffers and other common biologicals or chemicals.

- DO NOT** put experimental methods or preliminary data in this section
- DO** focus on authentication and validation of key resources

### 3 REVIEW GUIDELINES

Here are the additional criteria the reviewers will be asked to use:

- Is the prior research that serves as the key support for the proposed project rigorous?
- Have the investigators included plans to address weaknesses in the rigor of prior research that serves as the key support for the proposed project?
- Have the investigators presented strategies to ensure a robust and unbiased approach, as appropriate for the work proposed?
- Have the investigators presented adequate plans to address relevant biological variables, such as sex, for studies in vertebrate animals or human subjects?



Reviewers will also be asked to comment on that new attachment (see Update 2)!