



# Rigor, Reproducibility & Transparency: *Authentication of Biological Variables*

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## Why is NIH doing this?

- Improve accountability, transparency, and rigor into our scientific exercises.
- Improve success rate of clinical trials and reproduce findings.



# Specifics of Authentication

- Making sure resources are accurate.
- Example: Antibodies. What is the justification for your findings?
- Example: Cell lines. Are you working with the right cell line?
- One page attachment about authentication is required as part of your application.



# How to approach Authentication

- Example: Antibodies. Single band or multiple band.
  - Gold standard is to use a source where the protein is either deleted or not expressed in those cells or tissues that you are looking at.
  - That way a negative result would be important as it would recognize the protein as you think it is.



# How to approach Authentication

- Using a scrambled sequence controls things like the interferon response not necessarily for the sequence.
- Use multiple siRNA's to control outcome of the gene.
- Sequence the RNA to see what changes are happening.
- Show same response across multiple siRNA knockdown targets.



## Are these scored?

- Scientific premise, rigor and biological variables are scored events.
- But authentication is like the vertebrate animal section, it is NOT scored.
- However, if your authentication is deemed not acceptable by reviewers, it could impact your funding.



# Delays

Delays will be caused without all of the right authentication information. Program officers will have to come back for additional information about how you are going to authenticate, causing delays.