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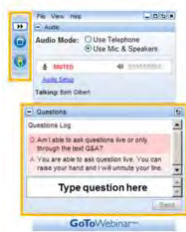
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Have Questions?



Use the Questions Box!



Or tweet using #acswebinars



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Calling all Chemists



Do you know of someone in the chemical industry that is a dynamic speaker? Recommend them to be featured on ACS Webinars! For more information and to nominate please visit

<http://acswebinars.org/chemists-got-talent>

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Today in Chemical History



Admission Ticket to attend Aaron Dexter's Classes, dated Oct 14, 1790

Harvard Gets a Chemistry Teacher

Aaron Dexter appointed first professor of chemistry and materia medica at the newly organized Harvard Medical School in 1783. The first class was comprised of two students that graduated in 1788.


At the time the students would pay the professor directly for their classes and would be given a ticket for each class.


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Upcoming ACS Webinars™
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Thursday, May 31, 2012
**Pigments, Dyes and Chemical Fingerprints
in Art Conservation**
Dr. Kristin Wustholz, College of William and Mary


Thursday, June 7, 2012
**Startup Support – Who Provides What and
At What Terms or Qualifications?**
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ACS WEBINARS™
May 24th, 2012



**Creating Successful Research Proposals: Tips
from the Trenches**


Celia Elliott
University of Illinois at Urbana-
Champaign




David Harwell
ACS

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Use the Elliott equation* to estimate the time it will take to prepare your proposal:

$$t = 3H + \varepsilon , \quad [1]$$

where t is the time it actually takes to prepare, check, and submit a proposal, and H is the number of hours you think any idiot ought to be able to do it in




*based on >19 years of solid empirical data


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Don't propose too much



Narrow and deep usually trumps broad and shallow



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Ask for advice from people who can help you

- From the program officer**
- From your colleagues**
- From your business office**
- Ask early—ask often!**
- And don't *assume* anything...**



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Show how your project will contribute to the funder's mission

Make it clear that funding your proposal will advance the objectives of the agency

Every RFP contains an "objectives" section—quote their words back to them

Put your project in the context of the overall agency mission—look at its website, read its materials



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Q1: How many proposals were submitted to NSF-CHE in FY09*?

- a) <500
- b) 750
- c) 1000
- d) 1250
- e) 1500



*Last year for which I have data
<http://www.nsf.gov/pubs/2010/nsf10066/nsf10066.pdf>

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Start with the RFP and make an individualized checklist



Individual program announcements may deviate from standard policies

Agencies are getting stricter

Decisions are made on the margins

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Include some extra sections (think "prospectus")



Qualifications of key personnel

Timeline

Specific deliverables

Contributions to research infrastructure and human resources

Plan B

Plans for sustainability (think "business plan")

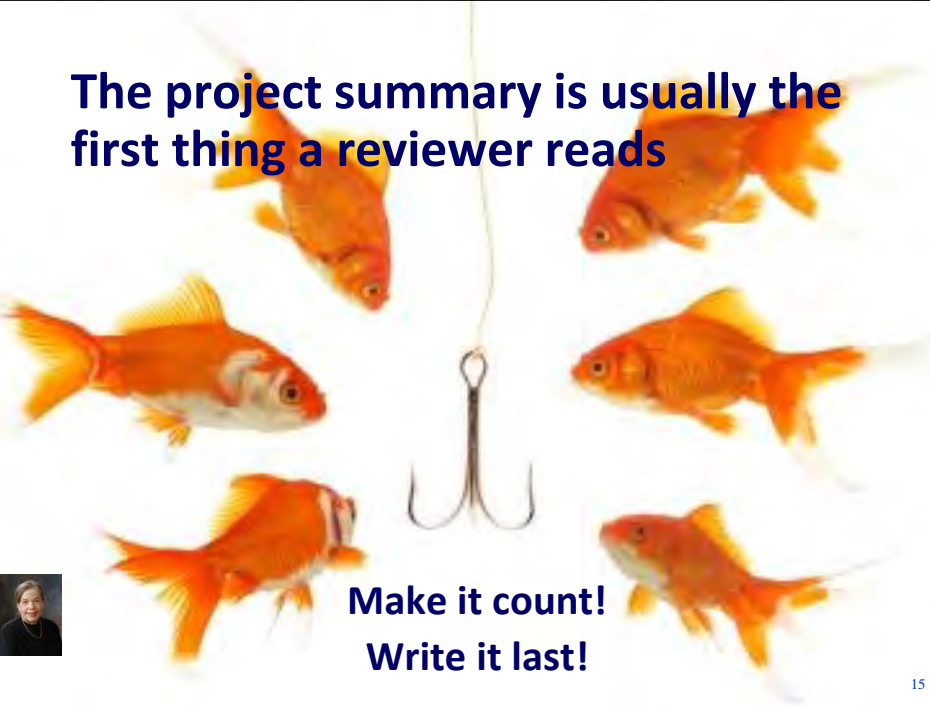
Summary section



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The project summary is usually the first thing a reviewer reads



**Make it count!
Write it last!**



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Position your important points strategically in the technical narrative



...and make it easy for a busy reviewer to pick them out of the surrounding text



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Use meaningful, content-rich headings to guide the reviewer



- “Introduction”
- “What we still don’t know about HTSCs”
- “Experimental Set Up”
- “Novel Scanning SQUID Microscope”
- “Broader Impacts”
- “Introducing Middle Schoolers to *Nano*”

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Q2: What percent of research proposals submitted to NIH are funded?

- a) <15 percent
- b) 15 percent
- c) 20 percent
- d) 25 percent
- e) >25 percent



http://report.nih.gov/success_rates/index.aspx

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Be aware of the realities of review

Reviewers are experts, and they're busy

They read proposals under less-than-ideal conditions

They are looking for mistakes, omissions, objections

They may be reading several proposals on the same topic—how will yours compare with others'?

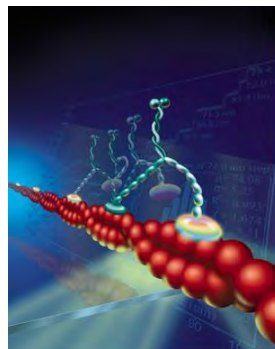
Give the reviewers "quotable" points to help them write their evaluations



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Use figures to illustrate your most important points



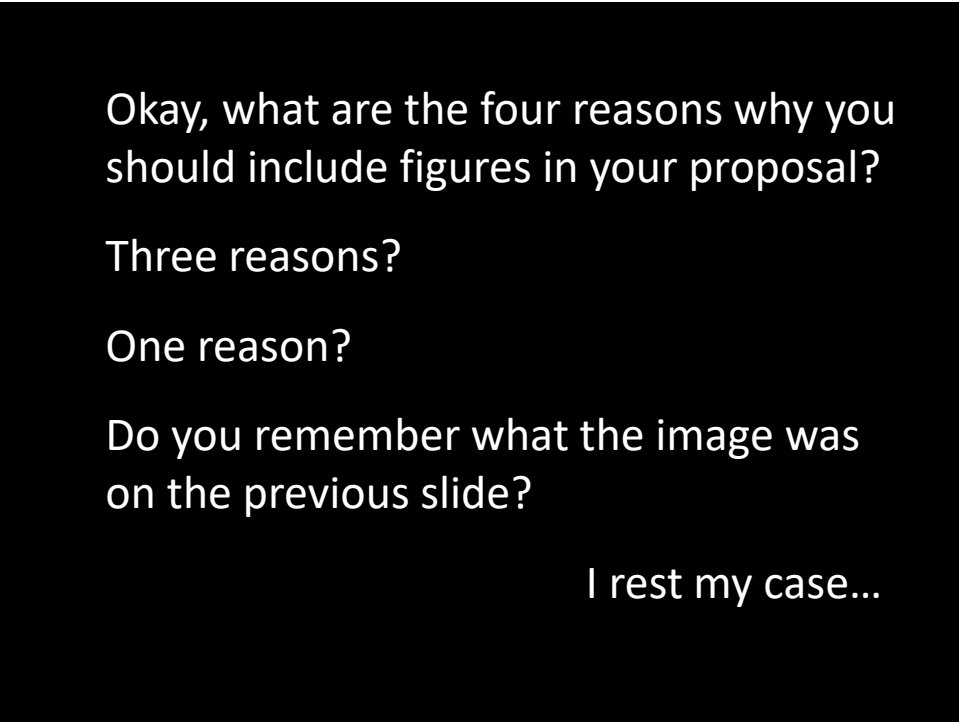
Myosin V "walking" on actin
Courtesy of P. Selvin

Figures promote reviewer interest, provide supporting evidence, help explain complex ideas and relationships quickly, and give the reviewer something to remember

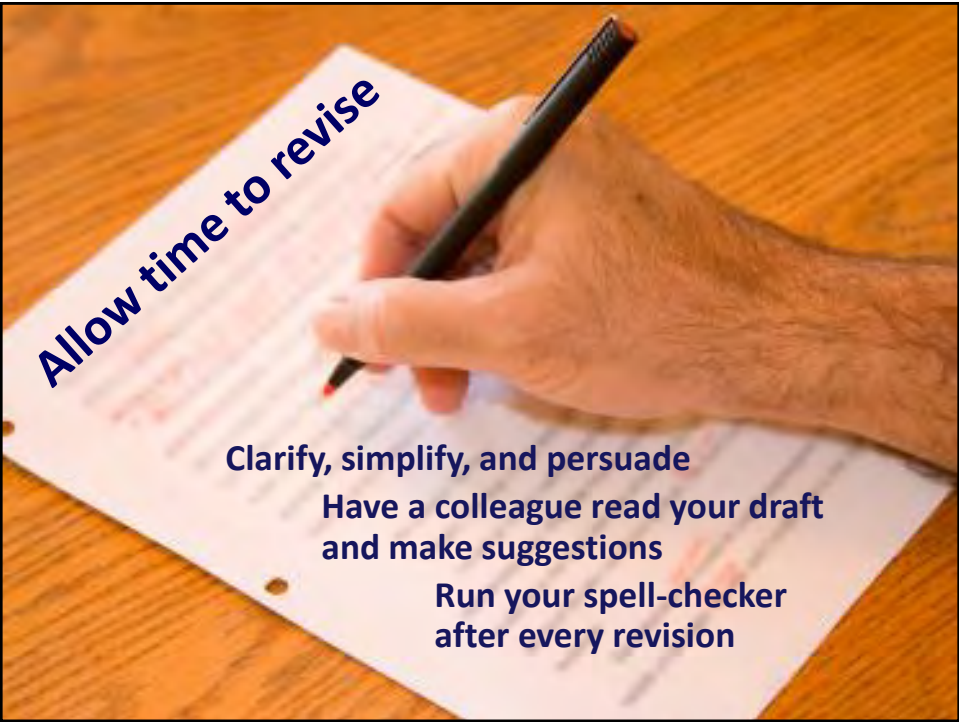


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Never stop selling



Put every section of the proposal to work for you—biosketches, facilities, budget justification—refer the reviewer back and forth between sections



Don't make the reviewer hunt for reasons to say "must fund"

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Check a hard copy printed from the portal's server

Section D. References Cited

1. Yildiz, A. J.N. Forke walks hand-over-hand. *Science*, 2003, **300**(5628): p. 1469.
2. Yildiz, A., M. Tomishige, C. Kural, C., H. Kim, S. S. Serpinsky, and A.S. Rohde. Tracking melanosomes in vivo: a tug-of-war or coordinated movement? *Proc Natl Acad Sci U S A*, 2007, **104**(11): p. 1515.
3. Kural, C., M.L. Nonet, and A.S. Rohde. Tracking melanosomes in vivo: a tug-of-war or coordinated movement? *Proc Natl Acad Sci U S A*, 2009, **106**(22): p. 466.

Section D. References Cited

- 1N YildizLAJNForkeleyLSMMcKinneyLTNHaLYIENGGoldmanLand PIRNselvinLMyosin V walks hand-over-hand: single fluorophore imaging with 1.5-nm localization. *Science*LRPPS000HV8IZ pNRPV1MNN
- RN YildizLAJNMNTomishigelRNValeLDH and PNsSelvinLRNLKinesin Walks Hand-Over-Hand. *Science*LRPPS003ZpWVWVWVW
- SN KuralLCJHMKimLSNsyedLGNgoshimaLVHNGelfandLand PIRNselvinLKinesin and dynein move a peroxisome in vivo: a tug-of-war or coordinated movement? *Science*LRPPUN308HUVWZpN1TVVWRN
- TN KuralLCJANISerpinskayaLYHNCbouLRDNGoldmanLVHNGelfandLand PIRNselvinLTracking melanosomes inside a cell to study molecular motors and their interaction. *Proc Natl Acad Sci U S A*LRPPVW04HSTZpNLSVWWRN
- UN RohdeLCJBLFNZengLRNGonzalezRRubioLMNAngelLand MFFNYanikLMicrofluidic system for on-chip high-throughput whole-animal sorting and screening at subcellular resolution. *Proc Natl Acad Sci U S A*LRPPVW04HSTZpNLSVWWRN
- VN HalmelSRELSWShevkopyanLJNayfeldLWNFontanaLand GBMNWhitesidesLA microfabricated array of clamps for immobilizing and imaging *C. elegans*. *Lab Chip*LRPPVW07H1ZpNUIUMSN
- WN KuralLCJMLNNonetLand PIRNselvinLFIONA on *Caenorhabditis elegans*. *Biochemistry*LRPPYN48FRZpNTVVSNN
- SN ZhangLRLENRothenbergLGNFruhwithLINGoldingLTNNgLWNLopesLand PIRNselvinLRapid Two-Photon Imaging with Nanometer Accuracy of Individual Quantum Dots in a Biological Environment. *Nature Methods*LRP1PLsubmittedN



...and don't use proscribed fonts, either

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Sources of good advice and further reading...



HHMI—Making the Right Moves: A Practical Guide to Scientific Management for Postdocs and New Faculty

NIH—NIH Peer Review Revealed, Center for Scientific Review

NSF Regional Grants Conferences



Volunteer to be a reviewer!

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To recap:

Don't neglect other sections of the proposal by focusing only on the technical narrative

Ask for help

**Read the directions
(and follow them witlessly)**

Make the reviewers' job easy

Remember $t = 3H + \epsilon$!

Never stop selling, and never give up



Questions? cmelliot@illinois.edu
<http://physics.illinois.edu/people/Celia>

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