CSUPERB Proposal Writing Workshop

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www.calstate.edu/csuperb
www.csuperb.org/blog

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Possible Topics (pick & choose order!)

• Introduction to the CSUPERB and the Grant & Award Programs – facts & figures (next annual report out end of July – so some numbers haven’t been updated yet!)

• Overview of the CSUPERB review process

• Top Ten Tips* for Writing a Winning Proposal according to CSUPERB Reviewers

• How to Read a Request for Proposals (RFP)
  – Entrepreneurial Joint Venture
  – Faculty-Student Research: New Investigator
  – Faculty-Student Research: Research Development
  – Programmatic

* Also see: Morgan Giddings, 4 Steps to Funding (2011), http://fourstepstofunding.com ; blog at http://morganonscience.com/
CSUPERB Schedule 2012-2013

<table>
<thead>
<tr>
<th>Program</th>
<th>RFP Issued</th>
<th>Application Deadline</th>
<th>Award Notification</th>
<th>Maximum Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial Joint Venture Matching Grant Program (JV)</td>
<td>Sept. 2012</td>
<td>Feb. 4, 2013</td>
<td>May</td>
<td>$25,000</td>
</tr>
<tr>
<td>Programmatic Grant Program (PR)</td>
<td>Sept. 2012</td>
<td>Feb. 4, 2013</td>
<td>May</td>
<td>$15,000</td>
</tr>
<tr>
<td>Faculty-Student Collaborative Research Grant Programs (New Investigator &amp; Research Development)</td>
<td>Sept. 2012</td>
<td>Feb. 4, 2013</td>
<td>May</td>
<td>$15,000</td>
</tr>
<tr>
<td>Travel Grant (Faculty and Student) Programs</td>
<td>OPEN</td>
<td>October 15, 2012</td>
<td>November May</td>
<td>$1500</td>
</tr>
<tr>
<td>Howell-CSUPERB Research Scholar Awards Program (for students)</td>
<td>OPEN</td>
<td>October 10, 2012</td>
<td>December April</td>
<td>$2000 (up to $1500 to lab) $8000 ($6000 to student; $2000 to lab)</td>
</tr>
<tr>
<td>Presidents' Commission Scholars (for students)</td>
<td>OPEN</td>
<td>October</td>
<td>March</td>
<td>$1000-1750 / award</td>
</tr>
<tr>
<td>Symposium Awards Program (faculty &amp; students): Andreoli, Eden, Faculty Research, Nagel &amp; Pauling Awards, CSUPERB-I2P Early-Stage Biotechnology Commercialization Challenge (NEW)</td>
<td>OPEN</td>
<td>Sept. 28 - I2P Teams Declare, October 8 - Award Nominations Due</td>
<td>At Symposium</td>
<td>$1000-1750 / award</td>
</tr>
<tr>
<td>25th Annual CSU Biotechnology Symposium, Anaheim, CA</td>
<td>January 3-5, 2012</td>
<td>October 8 - Poster Abstract Due</td>
<td>First Week, November</td>
<td>$350-475 (in addition to $150 travel reimbursement)</td>
</tr>
</tbody>
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Tip #1 for Applicants
Questions?
Contact CSUPERB Program Office!

619-594-2822

We do not sit/vote on the peer review committees.
We don't have a conflict of interest.
We can give advice before & after proposal is submitted.

CSU
The California State University
PROGRAM FOR EDUCATION AND RESEARCH IN BIOTECHNOLOGY (CSUPERB)
TIP #2 for Campuses

‘Student-focused’ and ‘Apply to all programs and we will win’ strategies work

Consistent Campus & PI Best Practices:
- send students and faculty to symposium,
- apply for travel grants,
- mentor Howell-CSUPERB or Presidents’ Commission scholars,
- nominate students and colleagues for awards,
- encourage (& mentor!) colleagues to apply to CSUPERB programs.

SECTION ONE:

Introduction to the CSUPERB

- What is the Program Mission?

- Facts & Figures from Grant & Award Programs
CSUPERB Mission:

“...is to develop a professional biotechnology workforce by mobilizing and supporting collaborative California State University (CSU) student and faculty research, innovating educational practices, and responding to and anticipating the needs of the life science industry.”

- Faculty-led program formed in ~1985
- California legislature recognized and funded program in 1999 (AB 968, Ducheny) to “maintain and enhance its role in the preparation of the biotechnology workforce”
- First strategic plan produced in 2008; new one available on website
- The fiscal return-on-investment of the major grant programs averaged 1:10 (or 1000%), based on CSUPERB dollars awarded in the five academic years (AY04/05 – AY08/09) compared to follow-on funding received by CSUPERB-supported faculty
- The graduation rates of CSUPERB-supported student researchers is >80%, far exceeding the averaged CSU STEM six-year graduation rates (28% for freshman entering in 2002).
- >80% of CSUPERB-supported students continue on in life science career paths, whether accepting jobs in the life science industry or entering professional and graduate school programs.

On average CSUPERB directly supports 550 individuals per year across the CSU
**CSUPERB is continually ‘renewing’ applicant pool and increasing supported biotech researchers system-wide**

Percentage of first-time faculty applicants averages 36% (2006-2012); win rates similar

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**But our grant applicant and award pools are not as “disciplinary-diverse” as we’d like them to be!**
Distribution of CSUPERB Grants & Awards Budget
$617,183 awarded to 18 CSU campuses in AY10-11

All CSUPERB programs are competitive and reviewed by CSU faculty.

The 2009-2012 CSUPERB Strategic Plan put an emphasis on support for faculty-student research within the CSU in order to create new opportunities for professional development for both groups. The Seed, Travel, Howell and Eden/Nagel programs support collaborative faculty-student research teams. In 10/11, ~75% of the CSUPERB grants and awards budget went to these programs.

2011-2012 Grants & Awards Program Summary

| Participation | | |
|----------------|----------------|
| Total Proposals, Applications and Nominations Received | 399 / 20 |
| (Including all competitive grants and awards program) / # Campuses Applying | |

<table>
<thead>
<tr>
<th>Success</th>
<th># Awards / $Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty-Student Research Seed Grants</td>
<td>28 / $415,000</td>
</tr>
<tr>
<td>Entrepreneurial Joint Venture Grants</td>
<td>5 / $125,000</td>
</tr>
<tr>
<td>Programmatic Grants</td>
<td>2 / $30,000</td>
</tr>
<tr>
<td>Travel Grants (Faculty and Student)</td>
<td>48 / $61,805</td>
</tr>
<tr>
<td>Howell-CSUPERB Research Scholar Awards</td>
<td>11 / $33,000</td>
</tr>
<tr>
<td>Presidents’ Commission Scholars (new in 2012)</td>
<td>25 / $200,000</td>
</tr>
<tr>
<td>Symposium Awards</td>
<td>6 / $11,250</td>
</tr>
<tr>
<td>Total # CSUPERB Awards/Grants &amp; Awards Dollars</td>
<td>125 / $876,055</td>
</tr>
<tr>
<td>(increase of 30% over AY 10-11)</td>
<td></td>
</tr>
<tr>
<td>Number of Campuses Funded</td>
<td>20</td>
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</table>
2012-2013 CSUPERB Funding Distribution
(all peer reviewed programs, including symposium participation).
Published each year in annual report available at www.calstate.edu/csuperb

Retrospective CSUPERB Proposal Success Rates
(Funded Proposals / Total Number of Applications Received)

Success Rates are converging (30-40%), as recommended by FCG
CSUPERB Faculty-Student Collaborative Research Grants

numbers/amounts of awards steady

The California State University
PROGRAM FOR EDUCATION AND RESEARCH IN BIOTECHNOLOGY (CSUPERB)

Applicant Pool Analysis

Assumption: Most CSUPERB applicants & awardees are assistant professors.
Truth: Just barely true this year for first time since 2006

Conclusion: Research Development program impacted assistant/associate professor distribution
SECTION TWO:

Overview of the CSUPERB review process

Due to current award amounts, CSUPERB grants are intended to seed, not sustain, programs and provide professional development opportunities.

CSUPERB-funded projects reflect “convergence” of disciplines addressing BIOtechnology projects

- We accept proposals from tenure track CSU faculty and CSU students from life sciences, physical sciences, computer and clinical sciences, engineering, agriculture, math and business

- Funded projects fuse biology and technology
  - To see what CSUPERB is funding, see project abstracts at: http://www.calstate.edu/csuperb/grant-abstracts/author.shtml

- For a list of current focus or application areas, see BIO’s Biotech Now: http://www.biotech-now.org/
  - Technologies and Tools
  - Health Care Applications
  - Agricultural Production
  - Food Biotechnology
  - Industrial and Environmental Applications
  - Pandemics and Biodefense
  - DNA Fingerprinting
  - Intellectual Property
  - Ethical Practices
CSUPERB makes funding decisions based on:

- final ranked lists from peer review meeting
- available budget
- program priorities

There is no ‘formula’ for campus or disciplinary distribution of funds. The campus distribution depends on applications received.

CSUPERB Program Priorities

- Innovative projects that can garner follow-on funding (to fund more student research opportunities)
- Seed funding to impact program trajectories
- System-wide impact
- CSU faculty-student research teams
- Multi-disciplinary partnerships
- Biotechnology focus

Not all grant programs can address all program priorities & that is why CSUPERB has multiple grant programs (with differing review criteria). The Requests for Proposals issued each fall reflect the program priorities set by the CSUPERB Presidents’ Commission and the Strategic Planning Council.

Read the 2009-2012 CSUPERB Strategic Plan for further insight.
Despite award size and overall budget, CSUPERB grants are transformational and impactful. Review committees have proven adept at recognizing good ideas that are nationally competitive biotechnology projects.

CSUPERB Major Grant Review Process

- Proposals sent to CSU faculty reviewers (~10 each) in March
  - Reviewers are FCG representatives, CSUPERB PIs, and ad hoc experts as needed
  - Usually ~ 60% of reviewers have reviewed proposals for federal agencies (USDA, NIH, NSF, etc.)
  - Conflicted reviewers are identified and must not be in room for discussion

- Written reviews due in CSUPERB office early April BEFORE in-person review meeting
  - Reviewers do not have access to other reviewer comments until written reviews submitted

- In-person review meeting held in early April

- Award / Non-Award Letters, along with written reviews, sent out to applicants in late April
CSUPERB Review Panels:

We try to assign two “subject area expert” reviewers and one “generalist” reviewer to every proposal

CSUPERB review criteria include general, non-scientific merit criteria that generalists can evaluate

Generalist reviewers usually ask the best questions and find ‘logic holes’ in proposals and discussions!

How does the discussion go?

• Panel Chair will call the start of each proposal review discussion (~ 15 minutes each!)
  o Reviewers with conflicts will leave the room before discussion begins

• Primary reviewer presents short synopsis of proposal, along with reasons (strengths and weaknesses) for their initial overall score

• If other two primary reviewers have different thoughts than those already expressed, they comment on proposal and their reasons for the initial score, as well

• After primary reviewers have weighed in, the discussion is opened to the entire panel for Q&A, with a laser-like focus on the review criteria

• When discussion has run its course, Panel Chair will ask if primary reviewers want to change their initial scores based on the discussion

• Panel Chair will announce range of scores allowed (reviewers must vote within range). Admins will collect scores ALL panelists in the room.

WATCH 15 minute NIH video "NIH Peer Review Revealed" (CSUPERB review nearly identical): http://www.youtube.com/watch?v=HMO3HoLJuJY
What happens next?

• CSUPERB admins calculate final, average scores – and a ranked list of proposals is produced from each review panel

• CSUPERB makes funding decisions based on:
  • final ranked lists from peer review meeting
  • available budget
  • program priorities

• Award and Non-award letters are sent out to applicants, along with written reviews

• CSUPERB releases an announcement about proposals funded at:
  www.calstate.edu/csuperb

• After a couple of weeks, CSUPERB updates the proposals funded database at:
  http://www.calstate.edu/csuperb/grant-abstracts/author.shtml

Anatomy of a CSUPERB Request for Proposals

• Written for both applicants and reviewers!

• Program description usually includes “strategic intent”

• Review criteria are the ONLY criteria used in review of the proposal package
  (poor spelling and bad grammar may reduce enthusiasm for the proposal, and if outstandingly bad, might be mentioned in the overall weaknesses section – but it should not factor into the overall score)

• Eligibility section usually expands on review criteria and is used in administrative review (before proposals are passed to review panel)

• Reviewers MUST consider all criteria – not only the scientific merit of the application! – but each reviewer synthesizes criteria into an overall score based on his/her enthusiasm for the proposal
2013 CSUPERB Review Criteria

ALL GRANT PROGRAMS:
• Projects must be original/innovative
• Project must be feasible (& in some way sustainable via follow-on funding, etc.)
As NSF might say, “Are the goals and objectives, and the plans and procedures for achieving them, innovative, well-enough-developed, worthwhile, and realistic?”

NEW INVESTIGATOR, RESEARCH DEVELOPMENT & PROGRAMMATIC:
• Involve or engage CSU students

JOINT VENTURE:
• Must demonstrate meaningful partnerships

NEW INVESTIGATOR & RESEARCH DEVELOPMENT:
• Consideration of previous or current grant support

If proposal is passed to review panel, program office considers it biotechnology-related

SECTION THREE:

Top Ten Tips for Writing a Winning Proposal ... according to CSUPERB Reviewers
Tip #3:

Grantsmanship requires life-long learning!

Reach out for advice early and often. Luckily today there are many resources online.

*** Subscribe to CSUPERB RSS Feeds at the blog (www.csuperb.org/blog)

*** Consider following grant-writing blogs like Morgan Gidding's blog (http://morganonscience.com/), RockTalk (http://nexus.od.nih.gov/all/rock-talk/), Medical Writing, Editing and Grantsmanship (http://writedit.wordpress.com/) or your own campus Research office newsletters and updates

CSUPERB Program Information

- Grants Webpage http://www.calstate.edu/csuperb/grants/
- Awards Webpage http://www.calstate.edu/csuperb/awards/
- Guidance Documents for PIs http://www.calstate.edu/csuperb/grants/principal-investigators/

*** Subscribe to CSUPERB RSS Feed at www.csuperb.org/blog!
Top Ten Tips for Writing a Winning CSUPERB Proposal

Original Presenter - Jim Prince at 2009 CSU Biotechnology Symposium;
Updated for 2010 & 2011 Symposia with input from Chris Meyer (NSF/CSU Fullerton), Mike Goldman (CSUPERB SPC Deputy Chair, SFSU), Bob Koch (CSUPERB SPC/FCG Chair, CSU Fullerton), Paula Fischhaber (CSU Northridge)

1. Follow the RFP directions carefully. Respond to each and every section in the RFP and use section headers to make things easy to find.

2. Do not propose too much. Remember that the reviewers will be evaluating the feasibility of the proposal and - as CSU faculty members - they fully appreciate the limitations of your time and resources.

3. Look at previously funded abstracts to get an idea of what we fund (see website!).
5. Submit on time.

6. Have strong science. Propose innovative ideas.

** Remember to get signatures on campus first!

7. Organize the proposal like a story, with a beginning, middle and end (you’re educating readers!) – WHY, WHO, WHAT, HOW?*

   Explain your plans concisely & CLEARLY— not every primary reviewer of your proposal will be a specialist in your field! Make sure that specific aims are clearly stated and easy to identify. Well-labeled figures can be very helpful to reviewers (complex signaling pathways, etc).

* Morgan Giddings, fourstepstofunding.com
Give attention to the special sections of a given RFP...

- Meaningful Involvement of Students
- Timeline/Milestones of Project
- Details about Follow-on Funding Sought
- Qualifications of Investigator or Campus Resources
- Detailed, Committed Letters of Support (on letterhead!)

8. If there are potential “pitfalls” in the successful execution of your experiments make sure you discuss briefly what your backup plan would be.

9. Spell-check and grammar-check. Sloppy proposals don’t go over well.

10. Don’t hesitate to contact the program office or Susan Baxter with questions or ideas.
Feasibility…the oft-forgotten review criteria

• Can the project be performed in the time available?
• …with the funds requested?
• …with the personnel proposed?
• …with the equipment available or proposed?
• …with the materials available or proposed?
• Did the PI demonstrate her/his qualifications?

SECTION FOUR: HANDS-ON ANALYSIS

How to Read a Request for Proposals (RFP)

• Entrepreneurial Joint Venture
• Faculty-Student Collaborative Research: New Investigator
• Faculty-Student Collaborative Research: Research Development
• Programmatic