Grantsmanship and Grant Opportunities

There are many approaches to the grant game, here are some things I do

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BACKGROUND AND VCOM RELEVANCE
VCOM desires to raise its research ranking among medical schools

- Primary cited source is US News and World Report Medical Schools Rankings
  - 170 Medical schools: 140 LCME (MD schools), 30 AOA (DO schools)
  - 116 provided information sufficient for ranking
- Rank assessment weighting
  - Peer assessment score (deans, medical directors) – 20%
  - Residency directors score – 20%
  - Student selectivity (MCAT, GPA, acceptance rate) – 20%
  - Faculty resources (faculty to student ratio) – 10%
  - Research activity (total $s, $s/faculty) – 30% (ONLY NIH FUNDING COUNTS)
According to the NIH, VCOM has no funding.

Only 2 stand alone DO schools have NIH funding.
NIH funding success rate (2015)

Average win rate is 16%.

So, we must submit 6 grants to win 1
What does this mean?

- To become the top research ranked stand alone DO school, we must have 8 NIH grants.
  - We must submit $8 \times 6 = 48$ to achieve this

- It is a numbers game….many feel it is not quality, but shear numbers

- Funding from non-NIH agencies should be leveraged to build preliminary data for a NIH grant application. Many private foundations encourage or require this.
OTHER FUNDING OPTIONS
Extramural funding by US Government agency
Consider all methods to fund your research

- **Public grants** (NIH, NSF, DoE, DoD, DoA, DARPA, DTRA, etc.)
  - Very broad, but very competitive
- **Private foundations** (AOA, Komen, Amer. Heart, nVidia, Gates.....)
  - Very focused, also competitive
  - Will fund less developed ideas, higher risk ideas
- **Corporations**
  - Do not fund basic research, but will fund work that advances their product line or sales
- **Philanthropy**
  - Will fund higher risk ideas, research must fit their personal mission
- **International** (Welcome Trust, ...)
  - International collaborators a must
- **Conduct right sized research with students with little to no need for other resources**
Make your own funding opportunity

- Schedule and visit funding agencies in DC to talk about your ideas
- Write white papers
  - Sometimes they are converted into RFAs
  - Some agencies (DARPA, DTRA, …) may request that you submit as a grant/contract application
  - You can find out if your idea is really not competitive
- Get on collaborator’s grants
  - Projects are strengthened by new technology, statistics, informatics approaches
  - Clinicians are an essential source of patients and patient material
### NIH Grant due dates

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<th>Activity Codes</th>
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## NIH Grant due dates

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<td>R03, R21, R33, R21/R33, R34, R36, UH2, UH3, UH2/UH3 - renewal, resub</td>
<td>Other Research Grants and Cooperative Agreements</td>
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<td>R41, R42</td>
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NIH Academic Research Enhancement Award (AREA) Program (R15)

• Goals
  – Support meritorious research
  – Expose students to research
  – Strengthen the research environment of the institution

• Eligibility
  – Accredited public or non-profit private institutions that grant DOs are eligible.
  – The institution may not receive more than $6 million per year in NIH support in each of 4 of the last 7 years.

• Developing an AREA Application
  – Find the NIH institute or center (IC) that supports your area of research.
  – Contact the AREA representative from relevant ICs to inquire about their interest in supporting your research project, as well as the IC’s funding plans for the AREA program.
  – Be aware of the unique application submission requirements and review criteria for AREA grants that allow reviewers to assess how each application addresses the goals of the AREA program.
  – Remember that this is a research award, not a training or fellowship award.
Centers of Biomedical Research Excellence (COBRE) grants

- COBRE support thematic, multidisciplinary centers that augment and strengthen institutional biomedical research capacity. This is accomplished by expanding and developing biomedical faculty research capability and enhancing research infrastructure, including the establishment of core facilities needed to carry out the objectives of a multidisciplinary, collaborative program.

- These centers are led by NIH-funded investigators with expertise central to the theme of the grant proposal. The centers promote collaborative, interactive efforts among researchers with complementary backgrounds, skills and expertise. In some instances, COBRE support facilitates the development of new, disease-specific research centers or augments the capability of existing centers. Researchers supported through COBRE are expected to compete independently for external peer-reviewed grant support.
Centers of Biomedical Research Excellence (COBRE) grants

Each COBRE includes:
- A principal investigator who is an established biomedical research scientist with expertise central to the research theme of the center, has an active research laboratory, has relevant peer-reviewed funding and has demonstrated administrative leadership and mentoring experience.
- Three to five individual research projects—each supervised by a single junior investigator—that stand alone but share a common thematic scientific focus.
- At least one mentor for each junior investigator, and a development and mentoring plan addressing how the junior investigators will transition to competitive grant support from NIH institutes and centers or other Federal or non-Federal agencies or organizations.

COBRE support comes in three sequential 5-year phases:
- **Phase I** focuses on developing research infrastructure and providing junior investigators with formal mentoring and research project funding to help them acquire preliminary data and successfully compete for independent research grant support.
- **Phase II** seeks to strengthen each center through further improvements in research infrastructure and continuing development and support of a critical mass of investigators with shared scientific interests. After 10 years of COBRE support, centers are expected to be able to compete successfully for other sources of research funding, such as program project or center grants from other NIH institutes and centers or other funding sources.
- **Phase III** transitional centers provide support for maintaining COBRE research cores developed during Phases I and II, and sustain a collaborative, multidisciplinary research environment with pilot project programs and mentoring and training components.
Centers of Biomedical Research Excellence (COBRE) grants

• Another COBRE activity is the IDeA Program Infrastructure for Clinical and Translational Research (IDeA-CTR) initiative. Enhance biomedical research activities in states that have had historically low NIH grant funding success rates.

• The IDeA-CTR encourages consortium applications from IDeA states to develop regional infrastructure and capacity to conduct clinical and translational research on diseases that affect medically underserved populations and/or diseases prevalent in IDeA states.

• IDeA-CTR awards support mentoring and career development activities in clinical and translational research and facilitate collaboration with clinical researchers in non-IDeA states.
DEVELOPING YOUR GRANT
Start developing the idea for the grant and establishing the background

- Write a hypothesis and a few sentences on approach and data needed to address the hypothesis to define the grant plan
- Generate preliminary data, this is essential, no matter what the solicitation says.
- Establish collaborations with experts in the field.
- Publish a paper that demonstrates the foundation principle of the planned grant (remember, only 16% of grants get funded, and you need to be far above others to win)
- It is acceptable to submit the same grant (after adjusting format) to multiple agencies. But, it is illegal to accept funds from multiple agencies for the same work. DoE is the only agency that does not allow you to submit your proposal elsewhere.
Identifying and Selecting a target funding agency

- Review available RFAs for various funding agencies
- What have they funded recently (review NIH RePORTER site)
- Consider submitting a pre-submission inquiry to the grant officer, or better, give them a call.
- Once selected, obtain and review the instructions to grantees and forms. If possible, see if a friend or associate will show you a successful application.
- For those affiliated with Virginia Tech, a person in the Vice President for Research sends out a monthly grant opportunity summary (e.g. [opportunityupdate-g] Virginia Tech Office of Research News and Funding Opportunities - 10/2) by email.
- Virginia Tech offers a variety of resources for grant writing (e.g. http://www.research.vt.edu/announcements/09-07-16/fall-2016-ovpri-training-schedule)
Steps in developing a grant application

- Keep an up-to-date set of standard files used in grant applications
  - NIH CV
  - Environment and resources
  - Human/Animal subjects information
- Develop the idea and do background literature review
- Consider talking to the granting agency about your idea (Does it fit?)
- Select your team of collaborators and those in your group
- Begin writing and work on all parts
- Work with grant submission office to ensure that all parts are in order
- Red team should read and comment on the application
- Submit and wait
- Repeat

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**THE GRANT CYCLE**

*How it’s supposed to work:*

1. Write grant → Get $ → Do Research → Publish Results

*How it really works:*

1. Do Research
2. Write Grant to do what you already did → Get $ → Do Research
3. Use $ to pay for an unrelated new project
4. OK, now you can publish results
Composition of the Title and Abstract are critical

- First impressions count.
- Spend the most time building and refining the title and abstract.
- Title should be descriptive, but should be economical with words.
- Abstract needs to have:
  - a general sentence that describes the context of the research,
  - a hypothesis/thesis sentence,
  - an approach sentence,
  - a specific aims sentence,
  - A wrap-up statement on the implications and impact of the research.
NIH has been making grant applications shorter

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FOA instructions always supersede these instructions.
Responding to reviews should be thorough and tactful

• Review the peer-reviewer comments and study section scores to determine if you are going to resubmit or move on to another idea.
  – It is best to be thorough, and respond to each. In general, it is not to your benefit to respond harshly, even if you think it is deserved.
  – Stick to the facts.
  – You need to read-between-the-lines to assess whether they are inviting a resubmission or just using review-speak to say it is not worthy.

• Complement the reviewers for positive comments and for their work. Remember, many of them will probably review it again.

• Don’t hesitate to call the grant administrator to get them to help you interpret the review.
FINAL THOUGHTS
Improving your chances

- Get on a NIH study section to learn about how grants are really reviewed
- Get copies of successful applications and model after them
- Collect collaborators and get on their grant applications
  - Gibbs Cancer Center, Greenwood Genetics Center, Hudson Alpha, ..
- View non-NIH funding as leverage to get a future NIH grant
- Submit as many grants as possible
- Engage a PhD/DO/MD grant writer
- Consider working in teams

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*The 90% Rule of Grant-writing*

- Understanding the guidelines, instructions and requirements
- Contacting the sponsor, whenever appropriate
- Developing a sound project concept, including data
- Identifying and correcting the gaps in required information
- Expanding the concept to match the guidelines
- Identifying costs
- Writing/submitting the proposal

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QUESTIONS?