HOW TO SUBMIT SUCCESSFUL INVESTIGATOR-INITIATED GRANTS

Follow these steps to gain funding for your research endeavors.

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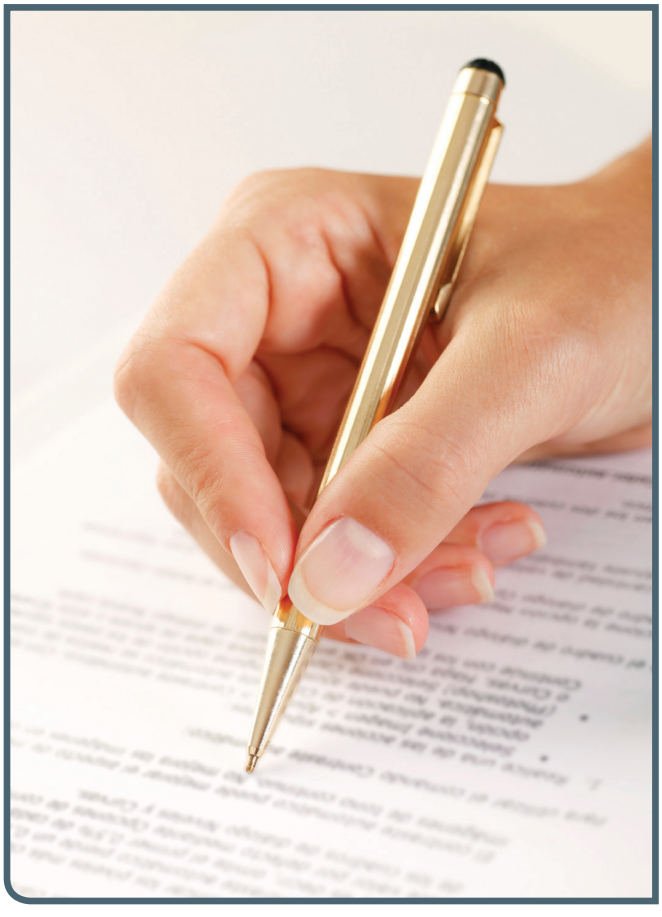
Investigator-initiated studies are designed by researchers who seek to advance medical and scientific knowledge. Numerous funding mechanisms are available for investigator-initiated studies, including industry, foundations, societies, and government agencies. If you are considering initiating your own study, follow these eight steps.

No. 1. FORMULATE A RESEARCH QUESTION

Your research question is critical to your success. You can develop one from your clinical experience or after conducting a literature review to identify a gap in clinical knowledge. Alternatively, many published research articles include a statement in the conclusion that provides ideas for future studies. Use this information to guide your inquiry and literature search. Once you have formulated a research question, design your specific aims and hypothesis. Become an expert on a specific research area such as imaging, perimetry, surgery, or screening, and build your reputation as an expert in this field.

No. 2. DESIGN YOUR SPECIFIC AIMS AND HYPOTHESIS

Most granting agency proposals require specific aims, which should be focused and measurable. Between two and four aims are usual, depending on how much funding you are requesting and for how many years you will be conducting the study. Use phrases such as *to evaluate*, *to measure*, *to understand*, *to assess*, and *to determine*. The first aim, or primary outcome, should describe what you will compare, how many patients will be included, the time period, the diagnosis being studied, and the patient population. The secondary aims can include additional analysis such as cost-effectiveness, clinical outcomes, and other comparisons and subanalyses. Directly state your hypothesis for each aim; for example, patients randomized to the intervention will have higher rates of adherence to follow-up for glaucoma care over a 2-year period compared to usual care.



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AT A GLANCE

- Begin by creating a clear, concise research question.
- Industry, foundations, societies, and government agencies are possible sources of funding for research.
- Build your research track record, develop preliminary data for the area you want to research, and publish often.

No. 3. ORGANIZE A MULTIDISCIPLINARY RESEARCH TEAM

Discuss your research questions, specific aims, and hypotheses with your colleagues, including a biostatistician. Engage an experienced biostatistician early in the study design process to help with a randomization schedule, the study's endpoints, sample size estimation, and statistical analyses. Invite senior and junior faculty, fellows, and residents to participate. Study coordinators and medical students are also helpful team members. Plan to hold monthly meetings with the team during the grant writing process and once the study is funded. Your role is to oversee all aspects of the project, including developing, implementing, evaluating, and disseminating results. If you have limited time as a clinician, consider appointing a project director and a research manager.

No. 4. DETERMINE THE TITLE OF YOUR PROJECT

Most granting agencies have a character limit for the title that ranges between 60 and 100 spaces. Carefully read the agencies' guidelines and strictly adhere to these limits. Titles should be concise and include the type of study (retrospective, prospective, randomized clinical trial, etc.), the study population, and the ocular condition you are investigating.

No. 5. IDENTIFY A FUNDING SOURCE

The National Institutes of Health lists numerous funding opportunities and notices, and you can search the agency's website by keyword and evaluate what types of grants have been funded. Grants.gov also has a searchable database. Several investigator-initiated grants are also available from industry. The Bright Focus Foundation National Glaucoma Research Program offers 2-year grants, and the American Glaucoma Society offers several types of grants for investigator-initiated studies. Patient-Centered Outcomes Research Institute (pcori.org) is also a potential funding agency. (See *Some Sources of Funding*.)

No. 6. CREATE A BUDGET AND JUSTIFICATION

Review the agency's website to understand what projects it has funded in the past, the amount funded, and the duration of funding. Requests can range from $10,000 to $500,000 per year depending on the number of patients, key personnel required, type of study, and the study design. When determining your budget, consider your recruitment efforts, patient testing requirements, staffing needs, data collection, and investigational review board (IRB) management issues. Create a spreadsheet, and remember to include direct and indirect costs, employee benefits (fringe rate), at least a 2% increase in salaries in future years, patient remuneration, testing costs, and supplies. If you are the principal investigator, allocate at least 10% of your effort to oversee the project. If you are submitting an application to a government agency, enlist an experienced grants manager to assist with all aspects of your budget.

No. 7. SUBMIT YOUR GRANT EARLY

Grant submission has become extremely complicated and time consuming, and the process now requires a lot of technical expertise. For example, last-minute details

SOME SOURCES OF FUNDING

US Government

National Institutes of Health

- funding opportunities and notices: https://grants.nih.gov/grants/guide/index.html
- keyword search for types of grants funded: https://projectreporter.nih.gov/reporter.cfm
- searchable database: http://www.grants.gov/web/grants/search-grants.html

Industry

- Alcon: http://www.alcon.com/corporate-responsibility/alcon-foundation.aspx
- Allergan Foundation: http://www.aaopt.org/AOF/Programs/Faculty/Allergan
- Bausch + Lomb: http://www.bausch.com/our-company/grants-and-charitable-contributions
- Novartis: http://www.nvfund.com/#OurFund
- Pfizer: http://www.pfizer.com/responsibility/grants_contributions/grants_process

Foundations and Societies

- The Bright Focus Foundation National Glaucoma Research Program: http://www.brightfocus.org/grants/types-grants
- American Glaucoma Society: http://www.americanglaucomasociety.net/grants_programs/grantsprograms

such as the dates of birth of all of your investigators may be required. Be aware of your deadline, and aim to submit your grant at least 2 days before then. This planning will ensure that you have adequate time to correct any errors and successfully submit an outstanding and fundable application.

No. 8. PREPARE AND SUBMIT AN IRB APPLICATION

After you submit your grant application, develop your IRB protocol, and submit it for approval. This strategy will expedite starting your study on time if you are awarded funding. Keep scanned copies of your IRB approval letters and amendments organized for progress reporting and manuscript development.

CONCLUSION

Vision researchers have many opportunities for funding investigator-initiated studies. Become a member of organizations such as the Association for Researchers in Vision and Ophthalmology, the American Academy of Ophthalmology, and the American Glaucoma Society, and build your network during their annual meetings. Consider all types of funding for your great ideas, including industry, foundations, societies, and government agencies. Keys to obtaining funding include building your research track record, developing preliminary data for the area you want to research, and publishing, publishing, publishing. ■

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