SBIR & STTR Proposal Basics

PHASE I APPLICATIONS



About SBIR/STTR Assistance

The Nevada Governor's Office of Economic Development provides assistance to companies in the preparation and submission of SBIR/STTR proposals

The goal is to increase the number of proposals submitted and grants awarded under the SBIR/STTR program to Nevada technology-based small businesses

APIO Innovation Transfer (APIOiX) works in partnership with UNLV's SAGE program (<u>https://www.unlv.edu/econdev/sagesouth</u>) to assist technology-based small businesses (<u>https://apioix.com/sbir-assistance</u>)

- Assessment of the business concept
- Guidance for registration of the company
- Review and input on project pitches and proposals
- Assistance in submitting the proposals



About APIOiX

Programs, Services, and Solutions to Accelerate Innovation Ecosystems

APIOiX accelerates innovation through business development, training, and technical assistance to innovators and inventors at universities, small businesses, and government entities across the globe.





Eligibility for SBIR/STTR Funding

"America's Seed Fund" Technology based Diverse portfolio Commercial application Non-dilutive funding

STTR requires partnership with a research institute The Nation's largest source of early stage/high risk funding for start-ups and small business

 In the words of program founder Roland Tibbetts: "to provide funding for some of the best early-stage innovation ideas; ideas that, however promising, are still too high risk for private investors, including venture capital firms."





Where to Start

https://beta.www.sbir.gov



About	Impact	Port

America's Seed Fund

Powered by the Small Business Administration

Federal innovation, scientific achievement, and diverse entrepreneurship through small business innovation and research. Through the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs, America's Seed Fund awards non-dilutive funding to develop your technology and chart a path toward commercialization. The federal government invests in your solution and gives you the freedom to run your business according to your vision.

Learn More



Contact Us 💬

Community

How To Apply

Do you have an idea for a specific scientific or technology solution? Explore opportunities for funding to take your idea from concept to commercialization.



Identify Opportunities

With help from organizations that support technology entrepreneurs like you



Apply

With the help of supporting organizations

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America's Seed Fund provides funding with the freedom to manage your business your way.





Where to Start

Search the topics

Find the NOFO that best fits what you are doing

Understand the requirements of the NOFO

Reach out to the Program Officer

Find Funding Opportunities

Explore participating agencies to learn about their missions, priorities, and programs. You can also search all topics to find opportunities that are a fit for your concept.



Elements of a Proposal

Abstract/introduction/project summary

Statement of work

- Objectives
- Approach
- Related work
- Significance
- Impact
- Other

Commercial development plan

Budget and budget justification

Company and key personnel



Thinking about the Proposal

From <u>a market opportunity perspective</u>, why should this phase 1 technical feasibility project be undertaken?
"What is the Phase 3 pay off if we fund Phase 1 and your innovation proves to be feasible?"

• If the agency determines that there is not a reasonable market opportunity in Phase 3, then a Phase 1 feasibility study is unlikely to be funded

What can be done in Phase 1

What does the company team look like



Drafting the Proposal

Formulate your proposal strategy

Draft the proposal

Get a review of the draft before submitting it

Get a debriefing after winners are announced



Generic Research Strategy Requirements

Understand the specifics of the Notice of Funding Opportunity (NOFO)

What

Conduct background research to identify the gaps (must track with the commercial development plan)

• Incremental improvements are usually insufficient

Cogent statement of work

- Well articulated specific aims of the project
- Detailed tasks to be performed for each specific aim



Generic Research Strategy Requirements

Resources need to perform the project and access to resources

Data management – publications, IP protection

Regulatory requirements need to perform the project

• IACUC/IRB/hazardous materials/stem cells

Clinical trials

PAGE / WORD REQUIREMENTS

Writing style – APA style guide (<u>https://apastyle.apa.org</u>)



Examples of Aims and Tasks

Objectives / aims /goals

• End points anticipated for the project

Tasks

• Specific steps necessary to achieve the end points

Goals for Phase I: Establish a lead candidate peptide through:

- 1. Determining the impact on glucose tolerance testing (GTT)
- 2. Determining the duration of protection KGYY15 versus KGYY6
- 3. Determining the impact on insulin and c-peptide production

Goals for Phase II:

Determine the cells types that are impacted by the CD40 targeting peptide(s) Determine potential immunogenicity of treatment peptide in short-term and long-term studies Determine how the treatment impacts natural immunity Perform extended pharmaco-kinetic studies Perform toxicity studies

The end deliverable of the phase II funding will be to submit the IND application with the FDA.

www.sbir.guide

BACKGROUND AND PHASE 1 TECHNICAL OBJECTIVES

In Phase 1 we will focus on determining whether the technology challenges can be overcome to develop an Alpha service for the initial target market, large players in the wholesale automotive market.

Key questions need to be answered in Phase 1 to determine the commercial viability:

- Does a sufficient data infrastructure exist to allow the development of a real-time reservation system for transporting automobiles? If not, can one be developed quickly through business partnerships or cost-effectively deploying new solutions?
- 2. Using the available data, can theoretical optimization models be developed that will improve the efficiency of automobile transportation over existing practices? What are the minimal data sets necessary to get this improvement? How much efficiency can be gained?
- 3. Can the optimization models be executed fast enough using commercial-grade computing hardware to allow the development of a real-time automobile transportation reservation system?
- 4. Given the data and optimization rules, what business logic would govern the marketplace? How would business processes work and how would transporters and shippers' interface with the system?
- 5. Given the market fragmentation, computational complexity, and data challenges, is there a capitalization plan that will allow ManyWheels to be developed by a start-up company?

PHASE I Objectives:

- 1. Determine feasibility for the development of operationally relevant techniques for fooling computer vision classifiers.
- 2. Conduct a detailed analysis of literature and commercial capabilities.
- 3. Assess which known techniques for image modification could be applied to this project of physical object modification.
- 4. Identify the target objects and computer vision classifiers to be used for testing the effectiveness of camouflage techniques.
- 5. Produce Phase II plans with a technology roadmap, development milestones, and projected Phase II achievable performance.



NSF Proposal





NSF – Technical Discussion and R&D Plan

Innovation Description

- Background (the reason that the innovation is needed)
- Sufficient technical detail for a knowledgeable reviewer
- Reason it is an innovation
- What are its benefits for the target market

Phase I key objectives

- Objectives to be accomplished
- How the key objectives address the technical AND commercial feasibility

Critical technical milestones to get the product or service to market

Research and development plan

- Objectives
- Timeline
- Experiments
- Computations



DOD Proposal





DOD – Technical Volume

Technical effort

• Understanding of the topic requirements

Technical objectives

Statement of work

- Tasks (how, where, when)
- Schedule of major milestones / events
- Demonstrate technical feasibility
- Related work

Key personnel



NIH – Research Strategy

Specific Aims

- Aim 1
- Aim 2

Significance of the project and proposed aims

Innovation detailed description

Approach

- Aim 1
- Milestones
- Approach / tasks detailed
- Potential challenges / risks
- Data management and analysis
- Timeline
- Goals for Phase II

Animals



Small Business Technology Transfer Program (STTR)

An STTR project requires the small business, to be teamed with a non-profit research institution

- The applicant is always the small business
- However, the PI for the project can be from the research institution
- The small business and the research institutions must be US based
- The narrative should clearly state what work is done where
- Each entity will need their budgets and budget justifications entered separately





Common Issues with Unfunded Proposals

Lack of:

- Clarity, consistency
- Technical detail
 - Especially vague research/work plans
- Evidence of innovation or uniqueness
- Statement of the feasibility question, risk, or solution
- Credible PI &/or team
- Credible/defensible/sensible cost proposal

Too much background stuff: the technology trap

Failure to elaborate a credible commercialization strategy

Insufficient access to resources to perform the work



Resources

APIOiX Small Business and Technical Assistance: <u>https://apioix.com/sbir-assistance</u>

• Provide general information and email link to obtain additional information

SBIR / STTR Tools & Resources: <u>https://apioix.com/tools-resources</u>

 Links to finding grant solicitations, examples of successful proposals (Phase I, Phase II, Fast Track), NSF Project Pitch rubric, budget templates for NIH and NSF Phase I proposals, budget justification templates for NSF and NIH

APIOiX Learning Center: https://apioix.com/learning-center

 Access to presentations on SBIR/STTR topics such as budgeting basics, subcontracting, how to write a winning proposal, basics of customer discover, and agency specific requirements.

SBIR presentations and slides: <u>https://www.sbir.gov/tutorials/accounting-finance/</u>

Salary validation: https://www.bls.gov/oes/current/oes_nat.htm#11-0000

NIH annotated SF424: <u>https://grants.nih.gov/grants/ElectronicReceipt/files/Annotated_Forms_SmallBus_forms-e.pdf</u>



Thank You



Arundeep S. Pradhan, MS Pharm Ad., RTTP has been engaged in technology transfer for over 30 years; was at the forefront of creating the biotech burst in Salt Lake City; helped develop the first biotech roadmap for Colorado; and, helped create the first biotech incubator and the first translational research development center in Portland, Oregon. Mr. Pradhan served on the AUTM Board, was the AUTM President in 2009, and AUTM Foundation President and Board Chair in 2011. He was the interim CEO of a research tools startup and currently serves as the president of Apio Innovation Transfer (APIOiX) and as the CEO and the vice-president for business development of Practical Biotechnology, an oncology therapeutics startup. Mr. Pradhan managed technology transfer offices at the University of Utah, Colorado State University Research Foundation, and Oregon Health and Science University. He continues to work with clients across the globe. <u>arundeep@apioix.com</u>



Ray Wheatley, MS CLP(E) is former Director for Technology Commercialization in the Office for Technology Development at the University of Texas Southwestern Medical Center, retiring in 2015 with 31 years of service. Mr. Wheatley and his staff evaluated over 2,500 new invention disclosures which led to more than 650 issued US patents and hundreds of foreign patents. These efforts resulted in more than 900 negotiated option agreements, license agreements and intellectual property management agreements generating more than \$178 million in license revenues. In addition, over 30 start-up companies were created. He has worked with US and foreign companies, including major pharmaceutical companies, venture capital firms and leading medical device manufacturers. He has been an invited speaker at many national and international meetings and has spoken on a variety of topics, most notably on negotiation skills and advanced licensing topics. <u>ray@apioix.com</u>



Michael Batalia, PhD is a serial entrepreneur and an expert in academic technology commercialization. He is also a member of the Mission II Team for the Perlan Project, an effort to fly engineless aircraft to the edge of space. He has over 16 years of experience in academic technology transfer, intellectual property management, and licensing at Wake Forest University as executive director of commercialization and North Carolina State University as associate director then director of technology transfer. Dr. Batalia is active regionally and internationally in support of technology transfer and biotechnology. He has served on the Boards of the Association of University Technology Managers, the North Carolina Biotechnology Center, the Biotechnology Advisory Committee of Piedmont Triad, and the North Carolina Center of Innovation for Nanobiotechnology. He is a co-founder of Wide Eyed Technologies and the CSO for Arctic, Inc. <u>michael@apioix.com</u>

