



WV-INBRE Request for Applications for Center for Natural Products Research

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Letter of Intent Due: March 26, 2024
Application Due: May 31, 2024
Award Announcement: ~August 1, 2024

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Section I. Funding Opportunity Description

The Center for Natural Product Research (CNPR) Program of WV-INBRE is announcing a Request for Applications for WV-INBRE network investigators to conduct pilot research on projects related to the discovery and/or application of natural products to chemotherapy. These one-year pilot projects can focus on discovery of potentially new chemotherapeutic agents, mechanistic studies to understand how newer chemotherapeutic agents produce their effects, combination chemotherapies utilizing natural products with other chemotherapeutic agents to increase effectiveness or reduce toxicity, and other related studies. Preference will be given to studies that focus on cancer chemotherapy, but meritorious antimicrobial chemotherapy directed studies will also be considered. Proposed research should not overlap with other funded research projects. This program is directed by Joseph Horzempa (West Liberty University).

Programmatic goal: The purpose of these grant awards is to allow investigators to gather data to increase the competitiveness of NIH R15, RO3, R21, R01 and other investigator-initiated proposals in the biomedical sciences.

Section II. Award Information

- Estimated Number of Awards in Y22/23: 5
- There are multiple options for CNPR Pilot Awards; each award period will be **one year**.
- Awards are limited to the following:
 - Standard pilot grants – up to \$50,000 direct costs to an investigator/ investigators located at a single WV-INBRE network institution. WV-INBRE network institutions include Bluefield State University, Shepherd University, University of Charleston, West Liberty University, West Virginia School of Osteopathic Medicine, and West Virginia State University.
 - WV-INBRE collaborative pilot grants – up to \$60,000 direct costs to be shared between two investigators at WV-INBRE network institutions (up to \$30,000 per investigator),
 - Collaborative pilot grants between one WV-INBRE investigator and one Puerto-Rico INBRE investigator. The WV-INBRE investigator may apply for up to \$50,000 to support their part of the project. Puerto Rico PIs will already have research funding or be seeking funding from PR-INBRE.
- Limit on funding per award: \$50,000 direct costs (plus indirect costs as detailed in Allowable Costs) for standard pilot grants or \$60,000 direct costs (plus indirect costs as detailed in Allowable Costs) for collaborative pilot grants between two WV-INBRE investigators at different partner institutions.
- Proposals must be received no later than 5 PM on May 31, 2024
- Pilot grant awardees will be notified in August/September 2024. Subawards will be made after the official Notice of Grant Award from NIGMS is received by Marshall University. Funding of any CNPR pilot grant is dependent upon funding of the parent award.

Section III. Eligibility and Application Requirements

The following classes of investigators are eligible to apply: (1) Tenure track and tenured faculty at WV-INBRE partner colleges and universities, (2) research track faculty (e.g. research assistant professors) at network colleges and universities. Applications from postdoctoral fellows and students will not be accepted. Applicants must commit to 25% effort and receive appropriate release time from their institution.

Investigators may not receive awards from two or more IDeA programs (WV-INBRE, COBRE and WV-CTSI) in the same time period (even if the proposal aims are non-overlapping). For example, WV-INBRE funded investigators may not receive simultaneous research project support from a COBRE or IDeA-CTR grant program, nor can they receive funding from a second WV-INBRE grant. However, once their COBRE/CTR funding has been completed, these investigators can be considered in rare cases for some pilot funding if there is a strong and compelling justification and rationale. (See NIGMS INBRE Funding Opportunity Announcement.) COBRE and IDeA-CTR investigators may serve and be supported as science advisors or collaborators in WV-INBRE programs as appropriate.

WV-INBRE Thematic Considerations: The current research theme for WV-INBRE is Cellular and Molecular Biology with an emphasis on chronic disease in humans. For CNPR grant proposals, projects should be related to the discovery, characterization, and/or application of natural products to chemotherapy applications. These one-year pilot projects can focus on discovery of potentially new chemotherapeutic agents, mechanistic studies to understand how newer chemotherapeutic agents produce their effects, combination chemotherapies utilizing natural products with other chemotherapeutic agents to increase effectiveness or reduce toxicity, and other related studies. Preference will be given to studies that focus on cancer chemotherapy, but meritorious antimicrobial chemotherapy directed studies will also be considered.

Limit on Number of Proposals: Individual investigators may only submit one application per year. There is no limit on the number of proposals a given institution may submit.

Section IV. Application Process and Submission Information

Notification of Intent to Apply: Applicants should notify Joseph Horzempa of their intention to apply by sending a letter of intent by email to joseph.horzempa@westliberty.edu no later than March 11, 2024. In your letter of intent, please provide the title and a brief summary (3-4 sentences) of your proposal. This information is needed to select application reviewers and is **not** a required prerequisite for submitting a full application.

Application Package

The CNPR grant application must contain the following completed sections:

- a) PHS398 face page with contact information (form page 1) including signature from business/institutional official.
- b) PHS398 form page 2 (complete all sections including project summary, relevance and performance sites)
- c) NIH Biographical Sketches of the Principal Investigator and any co-investigators or collaborators. For the bibliography section, you may provide an actual listing of your publications or provide a link to publications in SciENcv or My Bibliography.
- d) Letter of Support from your mentor if applicable.
- e) Detailed budget page which shows all supply and other costs (398 form page 4) for the first year of the grant and complete a Budget for the Entire Project Period (398 form page 5) which includes year two funding.
- f) Detailed budget justification. Your budget justification should be provided on a separate page or on PHS398 form page 5.
- g) Checklist page
- h) Goals and specific aims
- i) Introduction and background
- j) Approach
- k) Methods of analysis
- l) Expected outcomes and timeline of proposed research

- m) Plans for external grant applications based on the data obtained in the proposal
- n) Literature cited
- o) Vertebrate Animal Section 4 Points and/or Human Subject Protection if needed

Please use the most recent version of all PHS forms including the NIH Biographical Sketch. All PHS398 forms can be found at <http://grants.nih.gov/grants/funding/phs398/phs398.html>,

The combined narratives of sections (h) through (m) must not exceed 6 pages.

Applications that depend on animals must address the four points of animal welfare (VAS 4 points) in the application and receive IACUC approval before an award can be made. Applications that involve the use of human subjects must include the PHS398 sections for human subject research and have IRB panel approval before an award can be made. NIGMS administratively reviews Administrative Core-recommended proposals and requires IACUC and IRB approval letters before giving their approval.

Achievement milestones. Applicants must list proposal-specific achievements (deliverables) at the end of each year as part of the application. Examples of achievements include completion of specific aims, acquisition of new methods, presentations and/or publications. At a minimum, WV-INBRE requires a presentation at a scientific meeting in each year of the grant. While the WV-INBRE summer symposium is a required venue, relevant national/international research meetings are encouraged.

Single-cell genomic analyses: Investigators who propose the use of bulk RNA-Seq or single cell analysis e.g. single cell RNA-seq should discuss experimental design and costs with the director of the SMART Core.

Submission process: Please combine all components of your application into a single pdf and email the document to Joseph Horzempa at joseph.horzempa@westliberty.edu.

Proposal Due Date: All proposals must be received by 5PM on May 31, 2024.

Section V. Allowable Costs:

CNPR grant funds may only be used for (1) salaries for the principal investigator, students and technicians up to 25% of the total directs, (2) supplies, reagents and research-relevant software, (3) services such as animal care and next generation sequencing, (4) travel costs for attending research conferences up to \$2000 if the traveler is presenting and (5) publication costs. Equipment up to \$5000 is allowable. Mentors are required for applications from primarily undergraduate institution (PUI) investigators and will be paid \$2500 per year for their services from the WV-INBRE program. Mentor fees should not be included in your application budget.

WV-INBRE seeks to promote research collaborations between lead and PUI investigators. To encourage these collaborations, a principal investigator may name a

collaborator in the application. The following collaborations are acceptable: (1) Principal investigator at a PUI with an additional PUI collaborator (co-investigator) at a different WV-INBRE institution and (2) Principal investigator at a PUI with a collaborator (co-investigator) at an institution within the Puerto Rico INBRE network. Collaborative grants are eligible to request up to \$30,000 per institution (direct costs), not to exceed \$60,000 total. These funds may only be used for supplies, animal related costs and student labor. Applications must make clear which funds are for the principal investigator and which funds are for the collaborator (co-investigator); preparation of separate budget pages prime awardee and the collaborator is recommended. WV-INBRE will use this information to make the appropriate subawards to the principal investigator and collaborator.

Indirect costs are allowed for applicants at the undergraduate partner institutions and will be incorporated into the subaward agreement. Indirect costs will be based upon the applicant's negotiated indirect cost rate effective on August 1, 2024. If the partner institute has no negotiated rate, applicants may request the NIH de minimis rate of 10% of modified total direct costs. Award of the de minimis rate is subject to the availability of funds under WV-INBRE. For applications from the lead institutions, applicants should request zero indirect costs with the understanding that the appropriate indirect costs will be allocated in the WV-INBRE budget. Inquiries regarding allowable costs should be made to Don Primerano (primeran@marshall.edu).

Institutional Matching Funds: Not required or expected.

Section VI. Application Review Process

The primary review criteria for these applications are (1) significance and relevance to natural products research, (2) qualifications of the investigator, (3) quality of the experimental approach, (4) environment (e.g. equipment and resources) and (5) likelihood of generating publishable data and leveraging additional grant funding. Applications will initially be reviewed by a review panel consisting of 2-3 experts internal or external to the WV-INBRE program. This panel will make recommendations for funding to the CNPR director and the WV-INBRE Administrative Core (AC). Applications from Early Stage Investigators (ESIs) will receive a 0.5 point reduction. An ESI is defined by the NIH as "a new investigator who has completed his or her terminal research degree or medical residency—whichever date is later—within the past 10 years and has not yet competed successfully for a substantial, competing NIH research grant" (e.g. NIH R series award). Applications will be scored using the standard (1-9) scoring system; point reductions would therefore improve the overall score. The AC will then submit the review panel recommendations to the WV-INBRE External Advisory Committee (EAC) and the NIH/NIGMS for final approval. The review process will take 8-12 weeks to complete. We expect to notify all applicants in August/September 2024. Previous recipients of CNPR awards may apply for new awards. In these cases, the investigator's productivity in the form of publications and grants will be added to the review criteria.

Section VII. Award Administration Information

CNPR grant awards and amounts are dependent on the receipt of the parent grant at the requested levels. We expect to announce awards in August/September 2024. All funds must be expended no later than July 31, 2025. Applicants must follow institution regulations regarding research purchases and receipt deadlines. Questions about the application process (eligible projects, allowable costs, etc.) should be addressed to Joseph Horzempa. He can be contacted by phone (304-336-8284) or by email (joseph.horzempa@westliberty.edu).

Section VIII. WV-INBRE Program Contacts

WV-INBRE Program Officers:

Gary Rankin, PhD, WV-INBRE Principal Investigator, 304-696-7313, rankin@marshall.edu

Stan Hileman, PhD, WV-INBRE, Program Coordinator, 304-319-2254, smhileman@hsc.wvu.edu

Piyali Dasgupta, PhD, Student Data Collection, 304-696-3612, dasgupta@marshall.edu

Joseph Horzempa, PhD, CNPR Program Director, 724-630-1756, joseph.horzempa@westliberty.edu

Travis Salisbury, PhD, SMART Core Director, 304-696-7314, salisburyt@marshall.edu

Drew Shiemke, PhD, WV-INBRE Mentoring Coordinator, 304-293-2310, ashiemke@hsc.wvu.edu

Section IX. Notification

Notification of awards will be made to the submitting PI and the applicant's organization. PIs whose proposals are declined for funding will be advised as promptly as possible. Copies of anonymous reviewer comments will be provided upon request.

Section X. Responsibilities of CNPR pilot grant recipients.

1. As with other WV-INBRE developmental awards, pilot grant recipients from undergraduate partner institutions will be paired with a **mentor** to advise in experimental design, data analysis and planning of future projects. Recipients may recommend a mentor as part of their application or request a recommended mentor from the WV-INBRE Mentoring Coordinator (Drew Shiemke, PhD) who will advise on required interactions between the awardee and the mentor.

2. Recipients of any award with a Next Gen Sequencing component are required to consult with the SMART Core staff before any experimentation or sample preparation begins.

3. All recipients of WV-INBRE funding including CNPR grants are required to provide a written report to the WV-INBRE Administrative Core to be submitted as part of the annual progress report (RPPR). As part of the progress report, recipients are expected to summarize the impact and results of their work, describe progress toward specific aims, describe the work of graduate and undergraduate students involved in the project, and list presentations, publications and grant proposals to other programs such as federal, private, or state programs.

Completion of the Undergraduate Student Tracking Form (available from Dr. Dasgupta) is also required.

Projects awarded in Y24 may potentially be considered for an additional year of funding through a competitive renewal application process. Progress made toward the goals of the Y24 funded project, student involvement and productivity, along with the research proposed to be conducted in a second year of funding, will all be considered as part of the scoring process.

4. Recipients may also be asked to give oral or poster presentations at the WV-INBRE Summer Symposium and/or Steering Committee/External Advisory Committee meetings.

5. The WV-INBRE program and the SMART Cores are evaluated based on their productivity which includes presentations, publications and grants. Recipients are strongly encouraged to present and publish their findings. Investigators must acknowledge support from the Genomics Core Facility and WV-INBRE (NIH grant P20GM103434) in all presentations and manuscripts.

6. The CNPR Director will review and evaluate the CNPR program and investigator progress towards milestones as part of the internal WV-INBRE program review and at the Steering Committee meetings.