

West Virginia Established Program to Stimulate Competitive Research (EPSCoR)  
Collaboration Plan for the West Virginia Network for Functional Neuroscience and  
Transcriptomics (WV-NFNT)

1. Rationale for Team Approach and Team Configuration

The WV-NFNT team approach is driven by the transdisciplinary requirements necessary to establish WV as a leader in neuroscience and transcriptomics research. The team proposes create a network of neuroscientists and bioinformaticists that will meld state of the art neuroscience high-resolution imaging with spatial transcriptomics to accelerate understanding of neural function and structure. Education and Workforce Development efforts will focus on broadening participation of first-generation college students and under-represented students. The team consists of members from West Virginia State University (WVSU), West Virginia University (WVU), Marshall University (MU) and Shepherd University (SU), West Virginia Higher Education Policy Commission (WV HEPC – the NSF EPSCoR office), and a broad range of stakeholders.

2. Collaboration Readiness

This is a new collaborative project that brings together scientists, students, educators, and workforce specialists from across the state of West Virginia to address questions in neuroscience at a fundamentally new level. In preparation for this collaboration, strong and open lines of communication have been initiated between team members, both within and between institutions.

The Pips Group, LLC, worked with the proposal team to bring to light critical issues around team science and facilitated a series of workshops to support the co-development of this collaboration plan. Through this initial work, the team identified gaps in expertise and required equipment and worked together to determine the best way to allocate resources to optimize collaboration and address project goals.

If the project is funded, we have identified a consulting firm (The Mark USA Inc.) that will serve as evaluators and facilitate development of a research plan with evaluation metrics tailored to the project and will evaluate programmatic performance annually. The WV-NFNT team will regularly seek opportunities to enhance collaboration over the course of the project through workshops, trainings and/or facilitated events.

The administrative and education components have extensive collaboration experience both within and outside EPSCoR activities and are instrumental in supporting a strong team.

3. Technological Readiness

Three project teams (Theme 1, Theme 2, and Education/Workforce Development/Diversity) will use data sharing and collaborative tools to share data among project members. Further details may be found in the Data Management Plan.

Teams will utilize high-quality video conferencing tools, such as Zoom and Teams, for frequent meetings. Reporting will be coordinated and shared via Google Docs and Sheets. Teams will schedule meetings directly through Google Calendar and will ensure compatibility and interoperability of systems via Virtual Private Network (VPN) to access datasets.

#### 4. Team Functioning

In order for the research and education teams to function optimally, we strive to develop a healthy culture for effective collaboration. Because the teams are dispersed throughout the state of West Virginia and across different types of universities, it is critical that all stakeholders have access to appropriate data storage and computing.

Communication is key for successful team science. Although we wish to avoid interpersonal friction between team members, we want to promote healthy dialog and challenge current ideas about the science, education, and workforce development in order to advance knowledge. The WV-NFNT culture will be based on values that reflect transparency, respect, diversity, and shared expectations for excellence.

#### 5. Communication & Coordination

Meetings of the Theme 1, Theme 2, and Education–Workforce Development–Diversity (EWDD) or Working Group teams will be held monthly via Zoom/ Teams for sharing of information and for reporting on goals progress. Quarterly reports will be generated by each team and are the responsibility of the three team leads (Theme 1 [Dr. Horstick], Theme 2 [Dr. Spitzer], and EWDD [Dr. Strait]). Research results will be shared in publications and presentations. In addition to meetings of the three teams and the annual All Hands Meetings (to which all project participants will be invited), an in-person cross-project meeting of the three teams and the Executive Leadership Team within the first 6 months of the award will be used to review the Collaboration Plan and to enhance productive relationships and communication norms. The three team leads (Theme 1, 2 and, EWDD) are members of the Executive Leadership Team (ELT), which will also meet monthly to monitor project progress and share results of the project with the Expanded ELT for Resources (EELTR), HEPC, and the Science & Research Council (the EPSCoR advisory board). The External Advisory Board and Industrial Advisory Board will meet regularly and will produce an annual report with suggestions for the project that will be shared with the NSF.

Shared calendars will be used to schedule the use of equipment and resources across teams. Progress will be tracked on a shared tasks/objectives table that is generated during development of the strategic plan for the project. The content of this table will be clearly linked

to items in the quarterly reports. Development of the strategic plan will include definition and establishment of clear lines of communication among all participants.

## 6. Leadership, Management and Administration

The Executive Leadership Team (ELT) will consist of the PI, co-PIs, and at least one technical lead for each Theme. The ELT is responsible for making sure the project meets the milestones identified in the strategic plan and will meet at least monthly. The EWDD Team will be led by the co-PI for Education and Workforce Development who is also a member of the ELT. Vice Presidents or Provost of Research at each institution will serve on an Extended ELT to support conversations associated with resource allocation and related topics. All of these groups will meet on a regularly scheduled basis as described in the proposal. The project PI has overall fiscal responsibility and is responsible for project management. Each co-PI will co-ordinate the project work at each institution. The overall fiscal and external communications project administration will be driven through the WVHEPC office.

Each institution will identify a research lead, an education/workforce/diversity lead, and a budget lead that the PI will recognize as a point of contact and will work in concert with the co-PI at each institution. Leaders for Theme 1, Theme 2, and Education/Workforce will be responsible for monitoring, collecting and summarizing research progress.

The Industrial Advisory Board and External Advisory Board will provide input on progress of the project to the ELT and other groups. The external evaluators will monitor and assess progress on goals and milestones for the entire project.

## 7. Conflict Prevention and Management

Team Conflict: The complex nature of the proposed work necessitates that we operate under a culture of collaboration and shared respect. We strive to create a culture of co-learning and knowledge co-development that values diversity and one in which every member is valued. Team members will strive to be transparent, respectful and constructive, to promote civil dialogue and to head off unhealthy conflict. Despite best intentions, conflicts are likely to occur due to overall diversity in thought, methodology and personal approaches. Conflicts can occur when they are expected, due to differing disciplinary preparations and expectations, but also when unexpected, such as between those with similar disciplinary training who may underestimate the potential for conflict due to differing understandings of expectations.

We recognize that robust intellectual debate is important for the development and creation of transdisciplinary research. The Leadership Team agrees to ensure that scientific debate and matters of other concern are raised in a respectful manner; to assist team members in resolving conflict; and to promote open and civil dialogue in all team interactions. Effort will be made to develop a shared understanding and language to reduce conflict due to avoidable misunderstandings. In the event that a team member is involved in a conflict within the team,

members are encouraged to share their concerns with management team personnel who will serve as peer mediators and help to craft a sustainable resolution. Communication pathways will be developed to make this process as straightforward as possible.

Conflicts of Interest: The National Academy of Sciences notes that "a conflict of interest in research exists when the individual has interests in the outcome of the research that may lead to a personal advantage and that might therefore, in actuality or appearance, compromise the integrity of the research." Team members will identify and address potential conflicts of interest through the appropriate Office of Research Integrity for their campus.

## 8. Training

This initial framework for the team training plan is based on conversations during the proposal development stage. Training documents will be housed in a centralized folder that has subfolders housing the following overarching themes: Project Management, Team Process, Research, and Education and Workforce Development. Team members will have access based on their roles in the project.

The Project Management subfolder will include a database describing the management structure, central list of contacts of individuals within each institution, project role and email, forms for program participants, grant acknowledgement information, templates for reporting, agenda templates, data reporting, budget management and milestone charts, identification of issues and solutions, as well as strategies for identifying accountability. The WVU Office of Research Project Management (ORPM) will serve as an important resource and support system for the overall project.

The Team Process training subfolder houses information about topics such as mentoring, cultural understanding, conflict management, micro biases, and how to track student development through independent development plans.

The Education and Workforce development training subfolder includes information about high school teacher training, curriculum, best practices in logistics such as recruitment, registration, project-based instruction (PBI), and CodeWV (the state chapter of Code.org, a nationwide Computer Science initiative).

The Research subfolder will include resources about central guidelines around safety, CITI training, research techniques, training for scientific equipment, how to access data with algorithms and online, citation formats, scientific communication to public, data collection, and analysis.

The training folder is a living document that will be updated as needs arise or as identified during the annual external evaluation. This folder will house documents that spell out best practices across the campuses and identify resources that help on-board new faculty and support goals of existing faculty. The delivery mode of the training will vary depending on the

content structure with some trainings available online and others offered in-person.

## 9. Quality Improvement Activities

The project team will collect pertinent data, take time to analyze and reflect, and subsequently utilize the information gleaned to make continual improvements to team processes. Multiple project oversight and quality improvement mechanisms led by the external evaluators, external advisory board, and NSF site visits, provide feedback and offer opportunities for the team to reflect on project development.

The project will adopt a quarterly reporting structure to capture milestone achievements, review up-to-date information and discuss areas that need to be improved. Project teams and the external evaluators will work together to create a streamlined process for collecting data for the NSF annual report and utilize Qualtrics or Google forms to collect data pertaining to products, partnerships, and external engagement activities throughout the year.

During the first three months of the project, the team will reinforce the importance of data collection and ensure every participant understands their role in the reporting process.

## 10. Budget/Resource Allocation

All participating institutions recognize that this is a collaborative project that requires substantial planning and thoughtful resource allocation in order to successfully address all of the project's elements. Given the scope and length of the funding period, it is likely that overall project needs and those of individual institutions may vary for a variety of different reasons. In order to address project needs, remain flexible and support effective and data-driven decision making, our shared leadership and management structure details specific roles at each institution and across the overall project. See Leadership Plan for further details.

A significant portion of project resources will be directed toward required statewide research capacity building. While individual institutions will contribute to these elements, the budget of WVHEPC includes funds to facilitate statewide communication through the annual All Hands Meeting, travel, evaluation, team science workshops, strategic plan development and other activities that support the overall team.