

The goal of the Wyoming INBRE is to help Wyoming build its biomedical research and education infrastructure. To accomplish this, INBRE programs promote the development, coordination, and sharing of research resources and expertise at UW, Wyoming community colleges, and other western IDeA states that will expand research opportunities for faculty and students and increase the number of competitive investigators in Wyoming.

## Impact of IDeA and Wyoming INBRE in Wyoming

Wyoming INBRE is in the 5<sup>th</sup> year of its 4<sup>th</sup> 5-year award. Since its inception in 2002 it has been awarded \$67,971,376 in NIH IDeA funding to help Wyoming build its biomedical research and education infrastructure.

### Research

- ✓ Supports research in cell biology, diabetes, obesity, cardiovascular disease, neurosciences, sensory biology, biomaterials, and neuroinflammation and degeneration.
- ✓ Supports research infrastructure at UW, UWC, and all WY community colleges. All Wyoming CCs and UWC have well-equipped research dedicated laboratories for faculty to mentor students in research. Chemistry Departments at CCs all have benchtop NMR instruments for organic chemistry teaching and training.
- ✓ Assist recruitment of CC and UW faculty with startup and project funding.
- ✓ 200+ research projects funded since 2002 including 50 directly partnering CC and UW faculty. All INBRE research awards require CC/UW education/research collaboration commitment.
- ✓ Investments in WY Science Initiative including INBRE Data Science Teaching and Research Laboratory and Center for Advanced Scientific Instrumentation (2 spinning disk confocal microscopes, dual-source single crystal x-ray diffractometer, BD Biosciences FACSDiscover™ S8 Cell Sorter, Genomics Chromium X Single Cell Analysis Instrument, support staff).

### Education

- ✓ Mentoring and professional development for early career and CC faculty.
- ✓ Education/training pipeline for students from community colleges to UW to biomedical and allied health careers, including ~20 graduate research assistants and ~90 undergraduates/year directly supported.
- ✓ Curriculum and infrastructure support for CC life science programs.

### Workforce Development

- ✓ Connecting biomedical researchers to business and industry.
- ✓ Training the next generation of biomedical scientists and educators.
- ✓ Student industry, federal, and state laboratory internships.
- ✓ Collaborating with Advanced Research Computing Center and Wyoming Innovation Partnership to enhance statewide access to UW computational/data science infrastructure, expertise and training.

### Public Health

- ✓ Research ranging from the biochemical to community-based focused on rural and Native American health issues.
- ✓ Connection to regional Health Disparities programs and projects through MW CTR-IN.

**THE IDEA PROGRAM HAS HAD A ~\$225M ECONOMIC IMPACT IN WYOMING SINCE 2000.**

## Program Overview

The Wyoming INBRE Network includes the University of Wyoming (UW), the lead institution, and seven Wyoming Community Colleges (CCs)- Casper College, Central Wyoming College, Eastern Wyoming College, Laramie County CC, Northwest College, Sheridan College and Western Wyoming CC. As a member of the Regional Alliance of INBRE Networks, Wyoming also shares expertise and resources with Alaska, Hawaii, Idaho, Montana, Nevada, New Mexico.

Statewide opportunities include support for course curriculum development, research consulting, and collaboration, and data science workshops and consulting through the INBRE Data Science Core Center in the new Science Initiative Building (SIB) at UW. Network faculty also have access to high end equipment and technical support via the Center for Advanced Scientific Instrumentation in the SIB.

Programs to support community colleges include support for faculty and student laboratory research experiences, collaborative research project funding for UW and CC faculty and students, student research internships, and equipment and supplies. Since 2002 ~\$10.7M has been allocated to CCs.

At UW INBRE supports faculty pilot research projects, graduate student research assistantships, undergraduate internships, major equipment purchases, research space renovations, and new faculty recruitment and hiring.

To facilitate Network interactions between faculty and students WY INBRE hosts a spring annual research conference, a fall Network retreat, and a summer undergraduate research internship program.



# Success Stories

A goal of the INBRE Research Network is to increase collaboration between CC and UW investigators to enhance access to expertise, resources, and equipment across the Network. This is particularly critical since UW is the only research-intensive institution in Wyoming and CCs have limited facilities, infrastructure, and human resources to support research, and the resources they do have are the result of INBRE. Thus, the success of the Network is dependent on INBRE and UW resources. To achieve this goal, collaborations are encouraged by the CC-UW collaborative research and STEM-seed program grants, and by requiring access to INBRE supported instrumentation for all INBRE Network students and faculty. Since 2002, 45 collaborative research projects have been funded by INBRE. During the current INBRE award, ~20 CC faculty and their students are working with 24 UW faculty investigators on collaborative projects.



To broaden INBRE’s biomedical education impact, INBRE is working to enhance opportunities for Curriculum-based Undergraduate Research Experiences (CUREs) at Wyoming community colleges (CCs) and UW. In 2024-25, the UW Department of Chemical Engineering and Biomedical initiated articulation discussions with CCs. Critical to colleges offering an organic chemistry course comparable to UWs was integrating hands-on laboratory activities and experiments into CC courses. Central to the effort was equipping each CC with benchtop Nuclear Magnetic Resonance instruments so students can conduct experiments to explore the molecular structure of materials. INBRE provided funding (~\$64,000/instrument) to purchase NMRs and will further facilitate by supporting development of learning modules and CUREs for students and faculty across Wyoming’s higher education system.

## Wyoming NIH NIGMS IDeA Funding

Program/Grant Name	Type / Institution	FY	Cong District	Amount
Wyoming IDeA Networks for Biomedical Research Excellence (PI: R. Scott Seville, 5P20GM103432-21)	INBRE/University of Wyoming (UW)	2024	WY-001	\$4,241,550
Sensory Biology Center of Biomedical Research Excellence (PI- Q.Q. Sun, 2P20GM121310-06)	COBRE / Institution	2024	WY-001	\$2,480,469
Mountain West Clinical and Translational Research- Infrastructure Network (PI: Francisco Sy, 5U54GM104944-09)- Wyoming subaward	CTR /UW	2024	NV-001	\$0
<b>Total Funding 2024</b>	<b>UW and WY Community Colleges (CCs)</b>	<b>2024</b>		<b>\$6,722,019</b>
<b>Total IDeA Funding to Wyoming 2000-</b>				
Wyoming IDeA Networks for Biomedical Research Excellence (5P20GM103432)	UW/CCs	2002-24	WY-001	\$67,971,376
Sensory Biology Center of Biomedical Research Excellence (PI- Q.Q. Sun, 2P20GM121310)	UW	2004-24	WY-001	\$36,998,137
Mountain West Clinical and Translational Research- Infrastructure Network (5U54GM104944) Wyoming subaward	UW	2013-23	NV-001	\$381,984
<b>Total</b>	<b>UW</b>	<b>2002-24</b>	<b>WY-001</b>	<b>\$105,351,497</b>
<b>INBRE Network Subawards to Wyoming Community Colleges</b>				
WY INBRE Casper College/UW-Casper	CC/UW-C	2002-23	WY-001	\$3,005,071
WY INBRE Central Wyoming College	CWC	2004-23	WY-001	\$1,300,474
WY INBRE Eastern Wyoming College	EWC	2009, 2014-23	WY-001	\$830,515
WY INBRE Laramie County Community College	LCCC	2008-23	WY-001	\$1,409,326
WY INBRE Northern Wyoming Community College District/ Sheridan and Gillette Colleges	NWCCD	2003-23	WY-001	\$1,165,976
WY INBRE Northwest College	NWC	2003-23	WY-001	\$1,153,494
WY INBRE Western Wyoming Community College	WWCC	2002-23	WY-001	\$1,858,474
<b>Total- Wyoming INBRE Network (Wyoming Community Colleges and UW-Casper)</b>				<b>\$10,723,332</b>