



# LIFE SCIENCE AND BIOTECHNOLOGY



Biotechnology industries are not found in every region. Asheville-Buncombe and Western North Carolina (WNC) are anchored by the presence of global medical supply manufacturers. Pharmaceutical Preparation Manufacturing is the 2nd largest manufacturing industry in the 24-county WNC region.



**ECONOMIC  
DEVELOPMENT  
COALITION**

Asheville-Buncombe County

[ECONOMICDEVELOPMENTASHEVILLE.ORG](http://ECONOMICDEVELOPMENTASHEVILLE.ORG)

# REGIONAL CORRIDOR

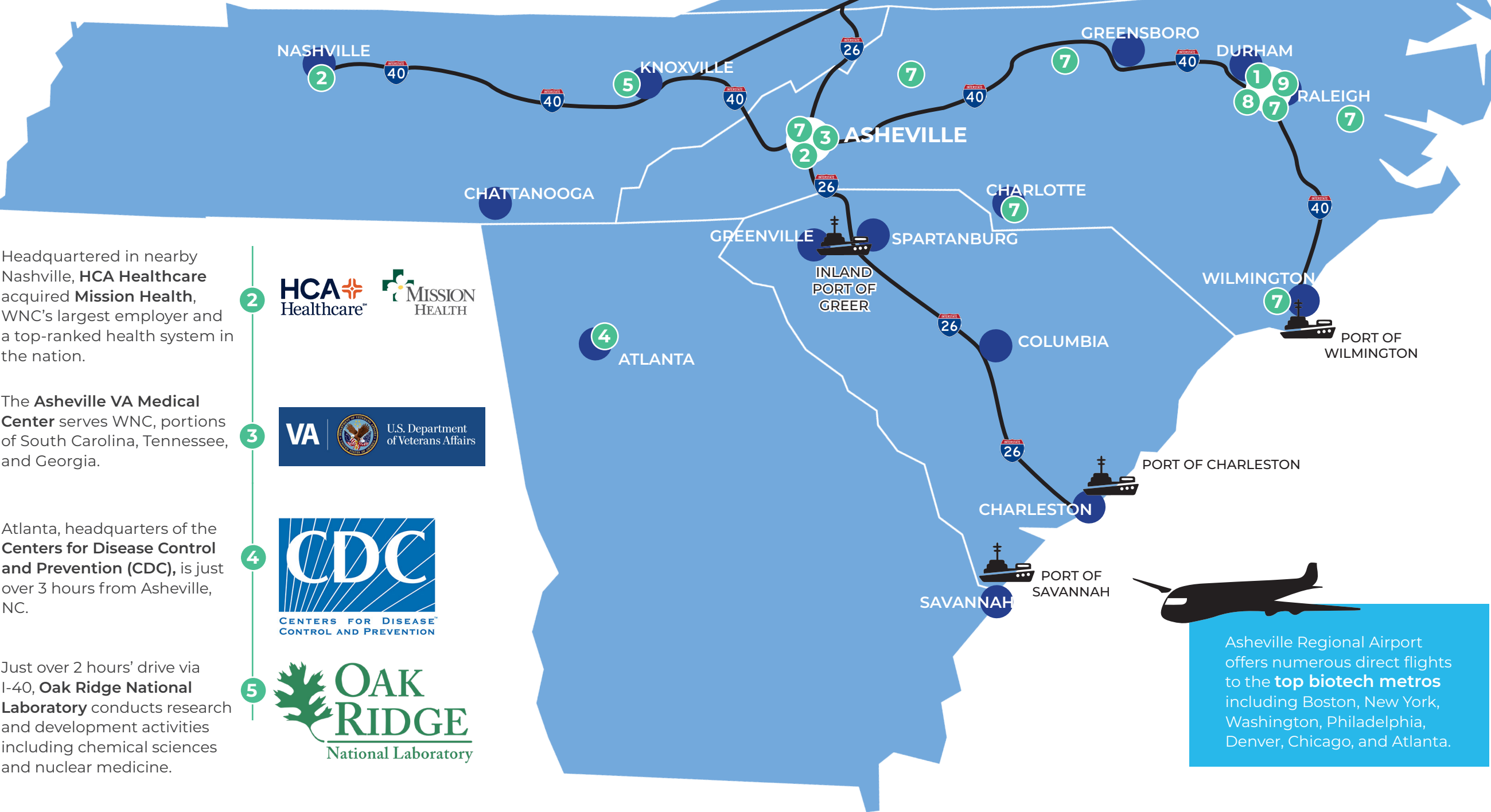
WNC OFFERS EASY ACCESS TO MAJOR MARKETS ON THE EASTERN HALF OF THE U.S.

**Research Triangle Park (RTP)** is the largest research park in the United States. RTP is home to 300+ companies and 50,000+ employees including industry specializations in biotechnology and life sciences.

1



**Research Triangle Park**



Headquartered in nearby Nashville, **HCA Healthcare** acquired **Mission Health**, WNC's largest employer and a top-ranked health system in the nation.

2



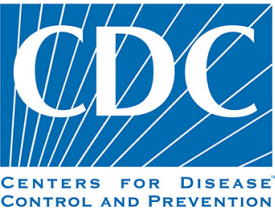
The **Asheville VA Medical Center** serves WNC, portions of South Carolina, Tennessee, and Georgia.

3



Atlanta, headquarters of the **Centers for Disease Control and Prevention (CDC)**, is just over 3 hours from Asheville, NC.

4



Just over 2 hours' drive via I-40, **Oak Ridge National Laboratory** conducts research and development activities including chemical sciences and nuclear medicine.

5



**Baxter**

6

McDowell County in Western North Carolina is home to **Baxter International**, a Fortune 500 pharmaceutical manufacturing company with employees worldwide. The largest manufacturer in WNC, Baxter's products range from IV solutions to pharmacy devices and renal care products.

**North Carolina Biotechnology Center**

7

The **North Carolina Biotechnology Center** is the first state-sponsored biotechnology initiative in the United States. The mission is to provide long-term economic and societal benefits to North Carolina through support of biotechnology research, business, education and strategic policy. Offices are located across NC including Asheville.



8

**Pfizer** is a top-ranked American pharmaceutical and biotechnology corporation that has several locations in Raleigh, as well as a pharmaceutical manufacturing plant near Sanford, NC.



9

RTP is home to several top pharmaceutical and biotech companies, including the multinational company **GlaxoSmithKline**.

Asheville Regional Airport offers numerous direct flights to the **top biotech metros** including Boston, New York, Washington, Philadelphia, Denver, Chicago, and Atlanta.



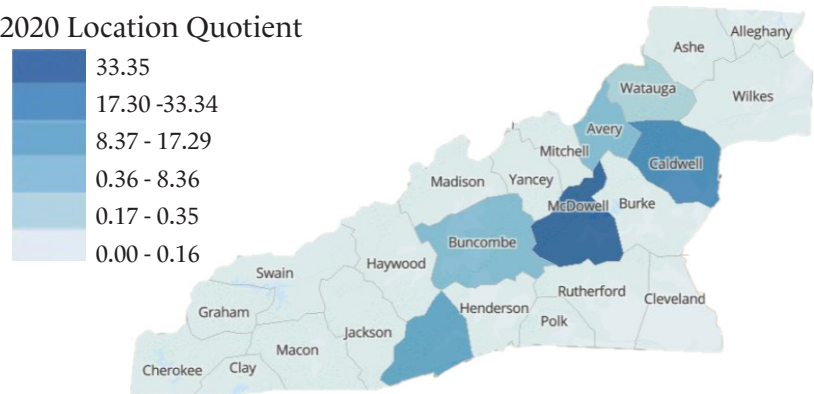
# INDUSTRY OVERVIEW

## THREE-CLUSTER FOCUS

With an overall labor force just over **580,000** in 2020, there were an estimated **65,000** jobs in the broader Healthcare and Social Assistance sector in the 24-county WNC area and another **60,000** jobs in Manufacturing.

### BIOPHARMACEUTICALS

2020 Location Quotient



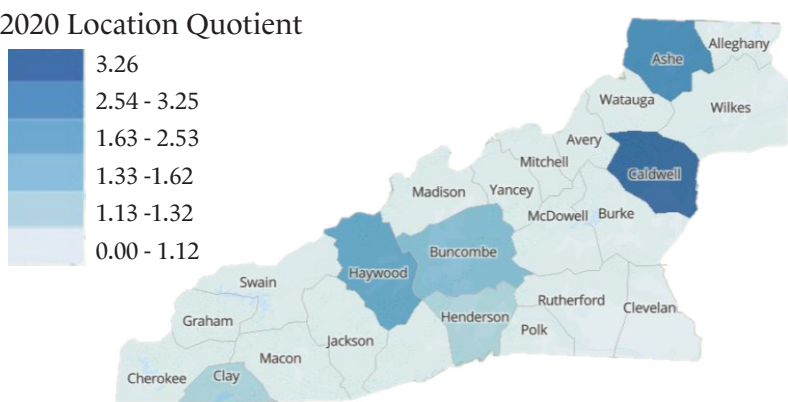
INDUSTRIES INCLUDE:

- Pharmaceutical Preparation Manufacturing
- Medicinal and Botanical Manufacturing
- In-Vitro Diagnostic Substance Manufacturing
- Biological Product Manufacturing

Examples include Baxter International, Avadim Health, and Exela Pharma Sciences.

### MEDICAL DEVICES

2020 Location Quotient



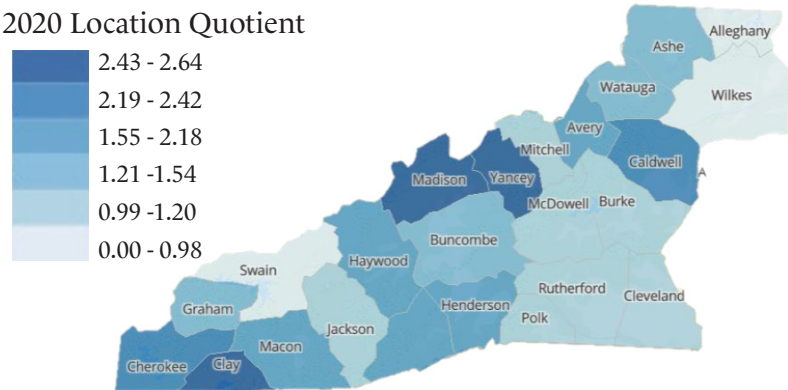
INDUSTRIES INCLUDE:

- Optical Instrument and Lens Manufacturing
- Surgical and Medical Instrument Manufacturing
- Surgical Appliance and Supplies Manufacturing
- Ophthalmic Goods Manufacturing

Examples include Jabil Company, Aeroflow, and Owens & Minor.

### FOOD PROCESSING & MANUFACTURING

2020 Location Quotient



INDUSTRIES INCLUDE:

- Breweries
- Wineries
- Soft Drink Manufacturing
- Spice and Extract Manufacturing
- Fluid Milk Manufacturing

Examples include Sierra Nevada, Gaia Herbs, Blue Ridge Food Ventures, and Milkco Inc.

*Note: Cluster industries are based on Harvard Cluster Mapping definitions.*

# INDUSTRY OVERVIEW

## THREE-CLUSTER FOCUS

The Western NC Biotech Center office focuses life science and biotechnology across 24 counties. Three clusters of industries help describe regional presence. *Estimates may be conservative due to industry classification limitations.*

### BIOPHARMACEUTICALS

JOBS - 2020	Location Quotient*	AVERAGE EARNINGS	PAYROLL ESTABLISHMENTS	PERCENT OF STATE JOBS
2,382	2.48 (148% more than the National Average)	\$68,948	12	11%

### MEDICAL DEVICES

JOBS - 2020	Location Quotient*	AVERAGE EARNINGS	PAYROLL ESTABLISHMENTS	PERCENT OF STATE JOBS
725	0.79	\$57,132	14	12%

### FOOD PROCESSING & MANUFACTURING

JOBS - 2020	Location Quotient*	AVERAGE EARNINGS	PAYROLL ESTABLISHMENTS	PERCENT OF STATE JOBS
3,271	0.92	\$49,285	162	13%

*\*Note: The Location Quotient indicates the local job concentration in an industry relative to the national job concentration. A Location Quotient of greater than 1 means the local job concentration exceeds the national job concentration in that industry.*

# DISTINGUISHED BUSINESSES

## FORTUNE 500 & FORBES GLOBAL 2000

### BAXTER INTERNATIONAL

- Fortune 500 company and Forbes 2000 Global company
- Intravenous (IV) dialysis and renal solutions produced in McDowell County
- Approximately 3,000+ employees

### JABIL HEALTHCARE

- Formerly Nypro with four expansions in the Asheville area since 2005, Jabil is a Fortune 500 company and Forbes 2000 Global company
- Plastic injection molding for pharmaceutical and healthcare products
- 250-499 employees

### OWENS & MINOR

- Fortune 500 company and Forbes 2000 Global company
- Healthcare logistics for medical supplies
- 50-99 employees

### THERMO FISHER SCIENTIFIC

- Fortune 500 company and Forbes 2000 Global company
- Cold storage equipment, centrifuges, and ovens for medical and research labs
- 500-750 employees



<< Photography:  
Courtesy of Thermo Fisher  
Scientific

FORTUNE  
500



# DISTINGUISHED BUSINESSES

## INC 5000

### AEROFLOW HEALTHCARE

- Inc. 5000 company
- Healthcare products include wound care, mobility, and bracing
- 20-49 employees



### AVADIM HEALTH

- Inc. 5000 company
- Asheville Headquartered with product offerings in neuromuscular disorders, infection and wound care
- 100-150 employees

“When you look at a medical device company, which could be anywhere these days, why would you not want to be in Asheville?” — STEVE WOODY | Chairman & CEO  
Avadim Health

### ECOLABS

- Global leader in water treatment, purification, cleaning and hygiene
- Products for a wide variety of applications
- 100-199 employees

## A FEW TOP LIFE SCIENCE INNOVATORS IN WESTERN NORTH CAROLINA

### GILES CHEMICAL

Epsom salt for food, pharmaceuticals, and agriculture products

### GAIA HERBS

Medicinal herbs and vitamin supplements to promote health

### MOUNTAIN HORTICULTURAL CROPS RESEARCH AND EXTENSION CENTER

NC State University College of Agriculture and Life Science

### ATLAS PRECISION

Plastic injection molding for pharmaceutical and healthcare

### KING BIO

FDA-registered homeopathic pharmaceutical manufacturer

### NC ARBORETUM GERMPLASM REPOSITORY

Propagation and nutrition research, projects related to food and health

### TUTCO-FARNAM

Heaters and products for chemistry and life science lab applications

### GENOVA DIAGNOSTICS

Global clinical lab

# BUSINESS HIGHLIGHTS

## MANUFACTURING AND INNOVATION

Food processing and manufacturing are included as part of Western North Carolina’s life science and biotechnology presence due to the region’s unique synergies with food and beverage manufacturing - especially breweries, as well as specialty crop and evolving bio-processes. Fermentation science is one way in which the manufacturing and life science processes meet when developing food and beverages.

### WHITE LABS

- Leader in fermentation science for brewing, distilling, and wine-making
- Recognized for pioneering scientific studies on improving strains of yeast at a molecular level
- Facilities world-wide, including Copenhagen and Hong Kong
- 50-99 employees



*We looked for a location with a thriving beer community, an amazing quality of life with outdoor amenities and an involved community. When we visited Asheville, we didn’t want to leave. We knew this would be the perfect location for us to grow our business with a production facility.”*

— LISA WHITE  
Vice President, White Labs



### A PLUS INTERNATIONAL INC.

- A joint venture between HCA Healthcare and A Plus
- Production of personal protective equipment (PPE) Level 1 and Level 3
- Manufacturing center located in Asheville

## INNOVATION AND ENTREPRENEURSHIP

### ELITE HRV

- Pioneering health & wellness wearables along with technology to determine your vitals through a web cam

### ASHEVILLE SPECIALTY PHARMACY

- Providing medications throughout Appalachia for chronic health conditions by building strong partnerships with a patient’s healthcare provider, insurance companies, and local service organizations

# HEALTHCARE PARTNERS

## PROGRAMS AND INITIATIVES

### HCA-MISSION HEALTH

#### HCA HEALTHCARE MISSION FUND

The HCA Healthcare Mission Fund is a \$25 million innovation fund administered by HCA Healthcare, the region’s largest employer. The fund seeks to make strategic investments in innovative companies offering products or services that improve the quality and delivery of healthcare in WNC. This innovation fund expects to lead funding rounds and locate companies in WNC while looking forward to helping pilot and bring to market novel technologies through the Mission Health system. Investments will range from \$500k to \$5 million with up to \$3 million available for follow on investments.

INNOVATION FUND | \$25 MILLION

#### DOGWOOD HEALTH TRUST

The Dogwood Health Trust is a \$1.5 billion community fund established to provide investment opportunities, increasing the health and wellbeing of communities in WNC.



#### VIRUS MITIGATION INITIATIVE

Mountain Area Health Education Center (MAHEC) is a branch campus of the University of North Carolina. MAHEC has partnered with educational institutions in the region including UNC Asheville, Warren Wilson, Western Carolina University, Montreat College, Mars Hill, and Brevard College to research and adopt virus mitigation health protocols as a result of COVID-19. In addition, three COVID-19 related studies will be pursued through the partnership.



### BENT CREEK INSTITUTE

- Botanical research supporting crop and plant biotechnology and natural products
- Therapeutic protocols to help understand health benefits of botanical medicine
- Validation of botanically-based approaches to complementary and alternative medicine
- International repository related to study and commercial use of medicinal plants and endophytes



# EDUCATION HIGHLIGHTS

## ASHEVILLE MSA

Excellence in education actively supports demand for life science and biotechnology talent. Not limited to these examples, many offerings and programs prepare students for science fields with direct and transferable skills.

## UNC ASHEVILLE

### PHARMACY GRADUATE PROGRAM

UNC Health Sciences at MAHEC offers a unique interdisciplinary collaboration with the University of North Carolina, Western Carolina University, and regional community partners. The unique academic programs include Research and Scholarship in Pharmacy (RASP), the dual-degree program for Pharm.D./M.B.A and Pharm.D./M.P.H., as well as the Global Pharmacy Scholars Program.

### BIOLOGY, CHEMISTRY, AND UNDERGRADUATE RESEARCH

Degrees such as Biology and Chemistry are offered with state-of-the-art research labs preparing students with the background needed for Master's and Ph.D. programs. More than 60% of students complete original research in their field of study through the National Conference on Undergraduate Research (NCUR), an opportunity usually found only in graduate programs.

### NC GLAXOSMITHKLINE FOUNDATION SCHOLARS PROGRAM

UNC Asheville received a 5-year grant from the North Carolina GlaxoSmithKline Foundation Scholars Program. This \$1.6 million grant supports the development and strengthening of scholars, fellows, and faculty mentors in Medicinal Chemistry, Biochemistry, and Chemical and Molecular Biology at the university.

## WESTERN CAROLINA UNIVERSITY

### BIOLOGY

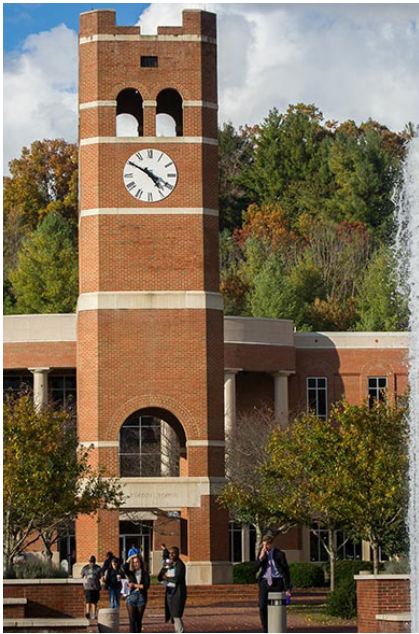
A biology degree from Western Carolina University prepares students for immediate employment or further graduate study. Through the years, WCU graduates have gone on to become scientists, researchers, program directors and biological technicians.

### CHEMISTRY FOUR + ONE

Western Carolina University offers a unique Chemistry Four + One Program that combines and connects education across the sciences, including physics, biology, engineering and medicine. The program prepares students for careers in chemical technology, laboratory management, chemical health and safety, chemical manufacturing, biotechnology and medicine.

## NC BIONETWORK - ASHEVILLE

A life science training initiative of the North Carolina community college system including **A-B Tech**, **Blue Ridge Community College** and **Haywood Community College**. Training offerings include medical laboratory, science, food and beverage, and natural products.



WCU Campus  
Photography: Courtesy of WCU

# EDUCATION HIGHLIGHTS

## 100-MILE RADIUS

## APPALACHIAN STATE UNIVERSITY

### CELL AND MOLECULAR BIOLOGY

Appalachian State University's Cell and Molecular Biology students enjoy excellent laboratory facilities and access to a wide variety of advanced equipment. Students seeking advanced training in the health professions (e.g., medical, dental, veterinary, physician's assistant, and medical technology) often seek degrees in this concentration and many enter graduate programs in a wide range of lab sciences.

## UNC CHARLOTTE

### BIOTECHNOLOGY

UNC Charlotte offers a concentration and minor in Biotechnology while students pursue a Biology degree. This interdisciplinary program housed within the College of Liberal Arts & Sciences is designed for students interested in careers in the biotechnology field.

WITHIN A 60-MILE RADIUS

1,539

Annual completions in  
Bio-related programs  
(2020)

## CLEMSON UNIVERSITY

Clemson University offers B.S., M.S., and Ph.D. opportunities in their Genetics and Biochemistry programs.

## UNIVERSITY OF TENNESSEE

### PLANT SCIENCES

University of Tennessee offers a program designed for students wishing to pursue advanced degrees in plant molecular biology, bioenergy, and biotechnology and/or careers in the plant biotechnology industry.

### GENOME SCIENCE & TECHNOLOGY

The University of Tennessee-Oak Ridge National Laboratory Graduate School of Genome Science and Technology (GST) is a unique and multidisciplinary program for full-time graduate study leading to the Master of Science or Doctor of Philosophy degree.



# INCENTIVE OPPORTUNITIES

*“Over the past four decades North Carolina has assumed an international leadership role in the Life Sciences, representing an annual economic output that today exceeds \$85 Billion across all regions of our state. We see an especially bright future for continued expansion in Western North Carolina. This beautiful region offers the growing workforce, collaborative ecosystem and abundant water resources needed to fuel growth in this high growth sector of the global economy.”*



— MACHELLE SANDERS

North Carolina Secretary of Commerce

## STATE INCENTIVES

INCENTIVES	DESCRIPTION
<b>JOB DEVELOPMENT INVESTMENT GRANT (JDIG)</b>	A performance-based, discretionary incentive program that provides cash grants to new and expanding businesses to help offset the cost of locating or expanding a business facility in North Carolina. Companies can qualify for a JDIG based on the project location, number of jobs, and average wage. The grant amount is based on a percentage of the personal income tax withholdings associated with the new jobs.
<b>ONE NORTH CAROLINA FUND (ONE NC)</b>	A performance-based, discretionary cash-grant program requiring a local government match. Awards are based on the number of jobs created, investment level, project location, and economic impact of the project.
<b>CUSTOMIZED INDUSTRY TRAINING PROGRAM</b>	Administered by the NC Community College System, the Customized Training Program provides customized training assistance to companies relocating to or expanding in North Carolina. Training programs are developed and led by the partnering community college.
<b>NC BIOTECH FUNDING</b>	<p><b>Small Business Research Loan:</b> Supports business inception and research critical to the development of products, processes or tools with clear commercial potential. Award range: \$75,000 to \$250,000.</p> <p><b>Strategic Growth Loan:</b> Matches Biotechnology Center investment with angel or venture capital investments to fund life science companies that have established technical proof-of-concept and require further support to accelerate growth. Award range: \$250,000 to \$500,000.</p>

## LOCAL INCENTIVES

Buncombe County and the City of Asheville each offer performance-based incentives for projects that advance the economic development goals of the community. Incentives are tied most closely to key metrics that include: capital investment, total new jobs created, and average wage of new jobs.



ACCREDITED  
ECONOMIC  
DEVELOPMENT  
ORGANIZATION  
International Economic Development Council

The Economic Development Coalition (EDC) for Asheville-Buncombe County is a public-private partnership committed to creating and retaining high quality jobs, community leadership, and being a resource for better business decisions. The EDC accomplishes this mission through its four core services: Business Retention and Expansion, Small Business and Entrepreneurship, Research, and Marketing and Recruitment.

SOURCES: EMSI 2020.3; Related company and educational institution websites

### PLEASE CONTACT US

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