

# Charting a Federal Career in Molecular Biology and Biotechnology

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## **Allow Me to Introduce Myself**

I currently serve as the Director of the Office of Cancer Clinical Proteomics Research at the National Cancer Institute, which is situated within the National Institutes of Health. Our work focuses on utilizing emerging science [molecular biology/biotechnology] to better detect, treat, and ultimately cure cancer.

# What are Molecular Biology and Biotechnology?

Molecular biology is the branch of biology that deals with the macromolecules essential to life.

Biotechnology involves the manipulation of living organisms to create useful products.

Sources: Oxford and Merriam-Webster Dictionaries



# Why Did I Choose a Career in Molecular Biology and Biotechnology?



I always knew that I was interested in biology, but biology is a broad field.

Then, in 1982, the same year in which I entered college, Humulin was approved by the FDA. Humulin used molecular biology and biotechnology to forever alter the course of diabetic care and inspired me to explore this aspect of biology.

# Typical Career Paths in Molecular Biology and Biotechnology



**Academia**  
(e.g. universities)

Undergraduate degree → graduate degree →  
postdoctoral research → faculty position



**Industry**  
(e.g. biotech companies)

Researcher, analyst, product manager,  
project manager, etc.



**Government**  
(federal, state, or local)

Researcher, director, project manager,  
project officer, project administrator, etc.

# Relevant Education for Different Career Paths in Molecular Biology and Biotechnology



**Academia**  
(e.g. universities)



**Industry**  
(e.g. biotech companies)



**Government**  
(federal, state, or local)

There is no “best” educational path to pursue. It depends on the circumstances, for example, what opportunities are available to you at a given time. A career in molecular biology and biotechnology can be forged by many unique combinations of experiences.



# What's the Takeaway?

When embarking on an educational journey with the ultimate goal of pursuing a career in molecular biology and biotechnology, take advantage of all opportunities available to you.

FAU not only offers rigorous coursework in the sciences, but also can expose you to topics like project management, a skill critical to a career as a scientist.

Learn more about FAU's project management offerings here:  
<https://business.fau.edu/executive-education/professional-development/course-offerings/project-management>



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## PROJECT MANAGEMENT - COURSE

All programs are available for corporate on-site training.

Project management has become the business world's most sought-after skill set. As business becomes increasingly complex, organizations are challenged with addressing a seemingly unlimited supply of new projects. FAU's College of Business offers a wide selection of in-class and distance learning project management training programs, providing a comprehensive project management methodology, preparing for the CAPM® PMP®, PMBOK® exams, or maintaining your certifications with specialized courses for project management professionals who need advanced training or need to meet continuing certification requirements.



### Introduction to Project Management

The Introduction to Project Management, offered in convenient on-site or online formats, provides the foundation of project management methodology and best practices in project management and follows the internationally-accepted A Guide to the Project Management Body of Knowledge (PMBOK® Guide).

- Introduction to Project Management In-Class
- Introduction to Project Management Online



### Executi

based

# Relevant Education for Different Career Paths in Molecular Biology and Biotechnology



**GOVERNMENT**  
(federal, state, or local)

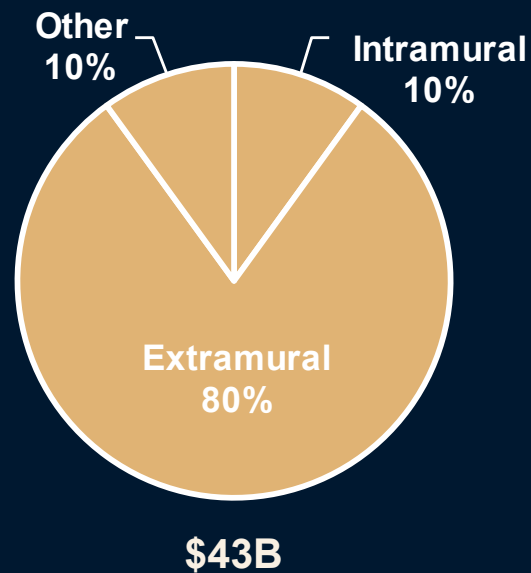
Research

Administration and management

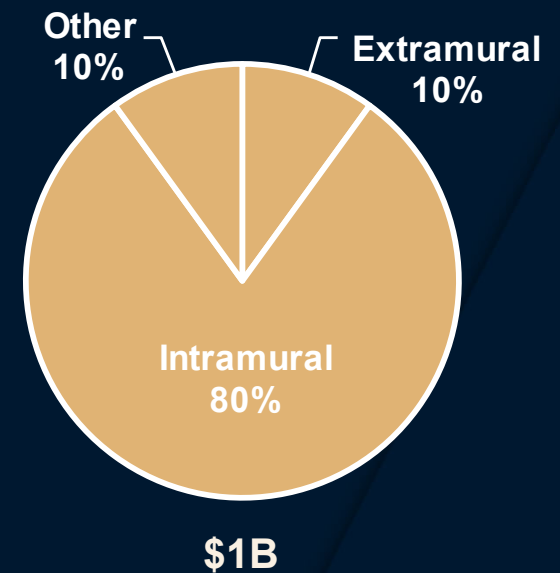
Policymaking



# Research and Management Positions in Government



NIST

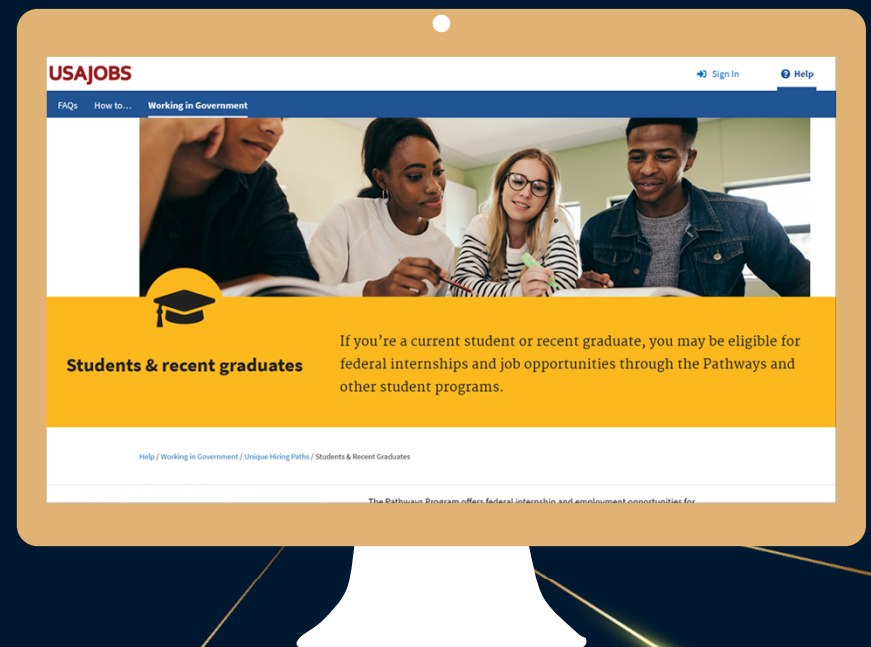


# Policymaking Positions in Government

Many government agencies has an Office of Science Policy, Scientific Integrity, or Office of Government and Congressional Relations that advises the Director on matters of significance to the agency, the research community, and the public, by promoting progress in the biomedical research enterprise through the development of sound and comprehensive policies.

# How to Find Positions and Gain Experience

The federal government hosts an institution-wide job site, USAJobs.com. You can use this site to find openings that interest you.



# The Pathways Program



## **Internship Track**

- Offers internships for current students (A.A., B.S., B.A., etc.)
- Paid opportunities are available



## **Recent Graduate Track**

- Offers positions for recent graduates (graduated within the past two years) of qualifying educational institutions or certificate programs



## **Presidential Management Fellows**

- A leadership development program for recent graduates who hold advanced degrees (M.S., Ph.D., J.D., etc.)

You can learn more about the Pathways Program here:

<https://www.usajobs.gov/help/working-in-government/unique-hiring-paths/students>

# More Information on the Pathways Program

In order to further help current students and recent graduates, the federal government uploaded a number of helpful tutorials on YouTube detailing how to use the USAJobs.com website and how to apply for Pathways Program positions.



## Pathways Internships Tutorial

USAJOBS.gov

24K views • 8 years ago



## Do I Need to be a United States Citizen to Work for the Federal Government?

USAJOBS.gov

16K views • 7 years ago



## What is the Pathways Recent Graduates Program?

USAJOBS.gov

21K views • 4 years ago



## How to Apply for Federal Jobs

USAJOBS.gov

106K views • 3 years ago



## Are All Federal Internships Under the Pathways Program?

USAJOBS.gov

11K views • 7 years ago



## What is the Excepted Service?

USAJOBS.gov

17K views • 3 years ago

The background image shows the exterior of a modern building at night. The building features a mix of brick and stone masonry. A prominent curved overhang on the right side is illuminated from within, casting a warm, golden glow. Several windows are lit up, and a few people can be seen sitting on a bench in the lower left. The overall atmosphere is professional and academic.

# Training Opportunities Exclusive to Molecular Biology and Biotechnology



# The National Institutes of Health

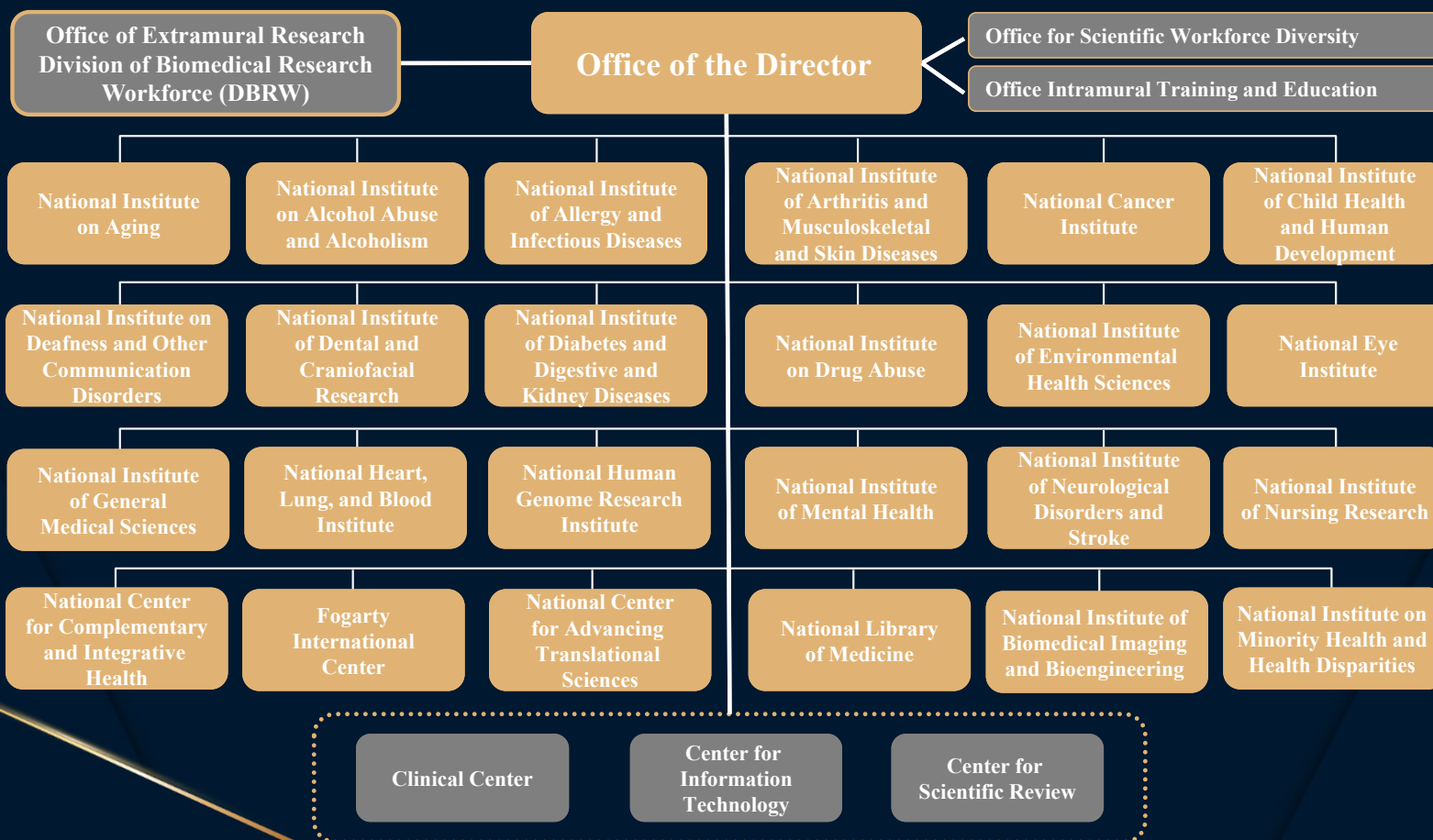
The National Institutes of Health has a mission to acquire new knowledge in the quest to prevent, detect, diagnose, and treat disease and disability worldwide.

The Institutes fund basic, translational, and clinical research in the fields of biomedical, behavioral, and social science.

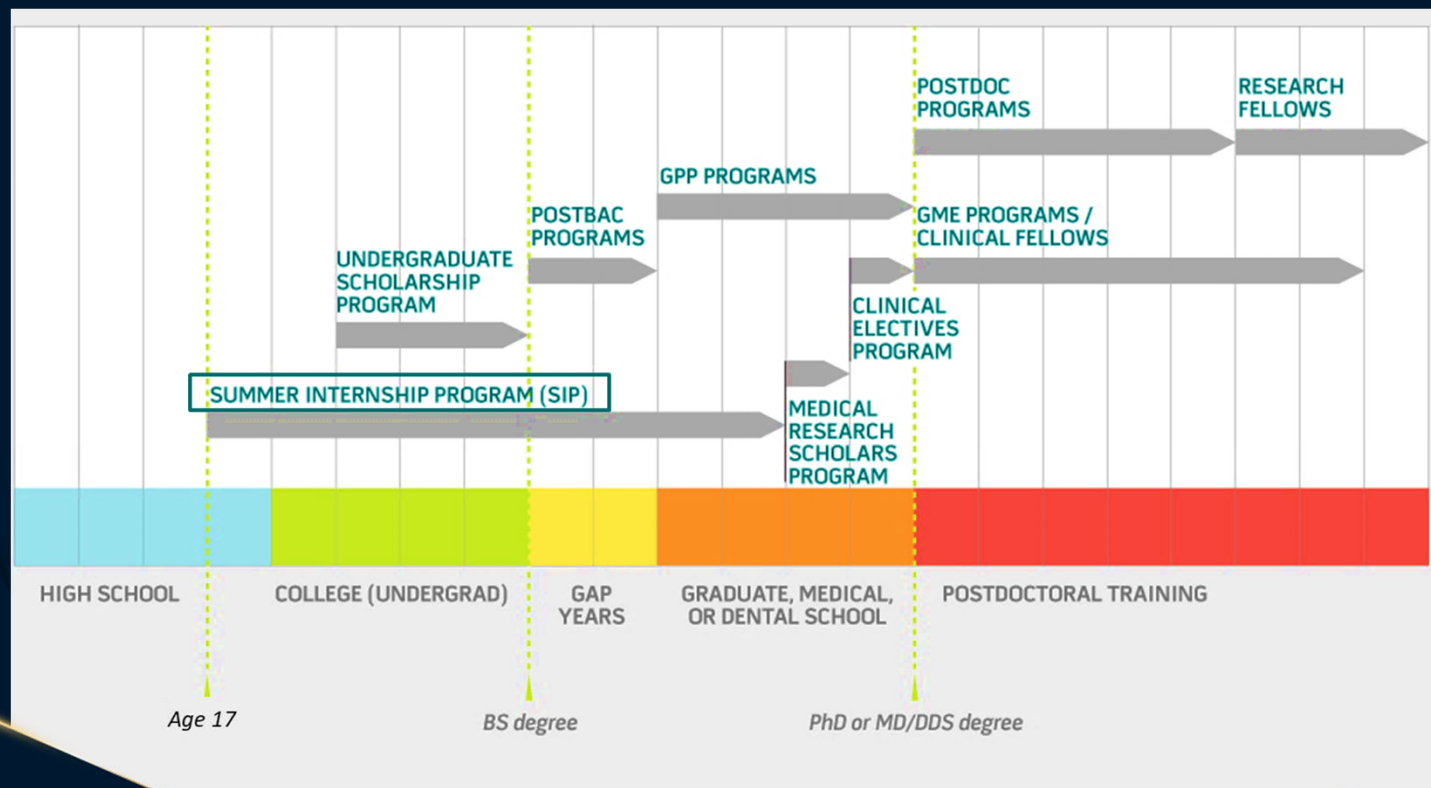
National Institutes of Health campuses are located in MD, NC, MT, MI, MA, and AZ.



# 27 Unique Institutes and Centers



# Training Programs in Biomedical Sciences at the NIH



# NIH Summer Internship Program (SIP)

SIP positions are open to college, graduate school, and professional school students. They generally last for eight to 11 weeks during the summer. Approximately 6,000 applications are received each year, with 1,200 being selected. A stipend is available commensurate with education level.

Learn more at:

[https://www.training.nih.gov/trainees/summer\\_interns](https://www.training.nih.gov/trainees/summer_interns) and  
[https://www.training.nih.gov/assets/2021\\_Summer\\_Handbook.pdf](https://www.training.nih.gov/assets/2021_Summer_Handbook.pdf)



## SIP Eligibility and Deadlines

<b>Education</b>	Two-year degree program, four-year degree program, graduate level program, professional program
<b>Age</b>	At least 17 years old by June 15, 2021
<b>Location Limit</b>	No location limit
<b>Citizenship</b>	U.S. citizens or permanent residents
<b>Application Deadline</b>	March 1, 2021
<b>Reference Letter Deadline</b>	March 15, 2021



# NIH Institute/Center-Specific SIP Opportunities



Several institutes and centers within the National Institutes of Health run their own separate summer internship programs.

Applications to these institute-specific opportunities will often require both the general SIP application and additional materials or eligibility requirements.

You should reach out to the specific program coordinator for questions.

Learn more here:

[https://www.training.nih.gov/other\\_summer\\_programs\\_at\\_the\\_nih](https://www.training.nih.gov/other_summer_programs_at_the_nih)



## **Additional SIP Resources**

**Information on SIP:** <https://www.training.nih.gov/programs/sip>

**SIP FAQs:** [https://www.training.nih.gov/sip\\_faqs\\_2019](https://www.training.nih.gov/sip_faqs_2019)

**Reference letter FAQs:** [https://www.training.nih.gov/reference\\_faqs](https://www.training.nih.gov/reference_faqs)

**Application tips:** [https://www.training.nih.gov/assets/Writing\\_Successful\\_NIH\\_Applications.pdf](https://www.training.nih.gov/assets/Writing_Successful_NIH_Applications.pdf)

**Application link:** <https://www2.training.nih.gov/apps/publicforms/sip/forms/login.aspx>



# The National Institute of Standards and Technology

The National Institute of Standards and Technology aims to promote American innovation, industrial competitiveness, and quality of life by advancing measurement science, standards, and technology.

NIST is a non-regulatory federal agency within the Department of Commerce.

NIST is headquartered in MD and has an additional campus in CO.

# National Institute of Standards and Technology Summer Undergraduate Research Fellowship (SURF)

SURF offers an 11-week summer research fellowship available to current students enrolled at two- and four-year institutions and majoring in chemistry, biology, computer science, engineering, materials science, nanotechnology, fire research, information technology, mathematics, manufacturing, statistics, or another STEM discipline.

Stipends are available, as well as travel and housing funds in certain circumstances.

Learn more here: <https://www.nist.gov/surf>





# National Center for Toxicological Research at the Food and Drug Administration

The U.S. FDA is responsible for reviewing, approving and regulating medical products, including pharmaceutical drugs and medical devices.

The NCTR conducts research to define biological mechanisms of action underlying the toxicity of products regulated by the FDA.

FDA headquarters in MD; 223 field offices and 13 labs throughout the 50 States, the U.S. Virgin Islands, and Puerto Rico.  
(NCTR in AR)



# National Center for Toxicological Research Summer Student Research Program



The Summer Student Research Program is available to both undergraduate and graduate level students. The program lasts for 10 weeks. Student researchers will be based in Arkansas, at the National Center for Toxicological Research campus. Stipends are available.

Learn more here: <https://www.fda.gov/about-fda/scientific-internships-fellowships-trainees-and-non-us-citizens/summer-student-research-program-nctr>

# Conclusion and Takeaways

**01**

## **Strong Foundation**

Build a strong educational and experiential foundation. While there is no formula, pursue opportunities that expose you to the field.

**03**

## **Build Your Network**

Meet others who are involved in the work you are interested in. They can be mentors or peers. Build and maintain a relationship with them.

**02**

## **Non-Science Skills**

Hone skills which are often not taught in science courses. Valuable scientists also know how to work with and manage others on a team.

**04**

## **Be Open-Minded**

The best opportunities come when you least expect them. Be willing to take a different path to achieve your goals. Remain flexible and adaptive.



# Thank you.

Keep in touch



<https://proteomics.cancer.gov>



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