# Executive Summary

## Chair, Department of Biochemistry, Molecular Biology, and Pharmacology

Spring 2025

# An Introduction to Indiana University School of Medicine

Indiana University School of Medicine, Indiana's only allopathic medical school, is the largest medical school in the United States. Founded in 1903, Indiana University School of Medicine has a long history of innovation and excellence in medical education, research, and care. Our faculty developed the cure for testicular cancer, pioneered use of echocardiography and led the development of the electronic medical record, among other accomplishments.

That tradition continues today. Under the leadership of Dean Jay Hess, MD, PhD, and the school's executive team, IU School of Medicine has built on more than a century of success and is transforming the way health care is delivered in Indiana and afar.

## Research Growth

IU School of Medicine researchers were awarded more than $243 million from the National Institutes of Health (NIH) in federal fiscal year 2023. According to rankings released by the Blue Ridge Institute for Medical Research, this makes IU School of Medicine No. 13 in NIH funding among all public medical schools and No. 29 among all medical schools in the United States.

As the research program at IU School of Medicine grows, so do the benefits to our state. According to data from a 2022 report by United for Medical Research, every $1 million in NIH funding awarded to Indiana researchers created nearly 13 jobs, the income and other associated expenses from which generated $2.76 million in economic activity. Based on that data, IU School of Medicine's 2023 NIH funding is responsible for creating about 3,142 jobs and an estimated $672 million in economic activity in Indiana — more than half of the estimated total $1.02 billion in economic activity generated in Indiana from all NIH funding in the state.

## Statewide Training

The school is capitalizing on its statewide footprint and the strengths of its nine campuses to graduate physicians who will serve all Hoosiers. More students are completing clinical rotations outside of Indianapolis; the school is partnering with community hospitals to add residency programs throughout the state; and campuses are developing scholarly concentrations that showcase their unique expertise.

## Leading-Edge Care

Indiana University School of Medicine has moved more than 65 independent physician groups into a single faculty group practice, IU Health Physicians, to improve delivery of care and strengthen the alignment of clinical, education and research missions. As a result, more Hoosiers have access to advanced care and the most promising therapies in the form of clinical research studies.

## We are IU School of Medicine

Above everything, we are healers. We are guided by the principles of science, dignity, and compassion, by a mission to strive for the well-being of humanity. We fight against what pains our world, and that fight takes place far beyond drugs or therapies. It is about improving communities, offering hope and comfort. And now more than ever, it is about breaking down inequalities that stand as barriers to quality of life.

Watch: "We are IU School of Medicine": https://go.iu.edu/6VY1

INDIANA UNIVERSITY
SCHOOL OF MEDICINE

# 2023-2024 FACT SHEET

## RESEARCH

| | |
|---|---|
| $519,009,218 | TOTAL GRANTS AWARDED FOR CALENDAR YEAR (ENDING DECEMBER 31, 2023) |
| $243,608,100 | TOTAL NIH FUNDING FOR FEDERAL FISCAL YEAR (ENDING SEPTEMBER 30, 2023) |
| 29 | RANKING FOR NIH FUNDING AMONG ALL U.S. MEDICAL SCHOOLS* |
| 13 | RANKING FOR NIH FUNDING AMONG ALL PUBLIC U.S. MEDICAL SCHOOLS** |

## EDUCATION

### CLASS OF 2027 - NEW BEGINNERS

- **6,109** APPLICATIONS RECEIVED
- **364** STUDENTS ENROLLED
- **178/186** MALE / FEMALE
- **88** UNDER-REPRESENTED MINORITIES
- **284** IN STATE
- **80** OUT OF STATE
- **3.8** AVERAGE GPA
- **511.7** AVERAGE MCAT

| MD ANNUAL TUITION | |
|---|---|
| IN STATE | $37,553 |
| OUT OF STATE | $63,700 |

| MEDICAL STUDENT BODY | |
|---|---|
| BLOOMINGTON | 92 |
| EVANSVILLE | 82 |
| FORT WAYNE | 80 |
| INDIANAPOLIS | 845 |
| MUNCIE | 57 |
| NORTHWEST GARY | 67 |
| SOUTH BEND | 99 |
| TERRE HAUTE | 80 |
| WEST LAFAYETTE | 59 |
| TOTAL | 1,461 |


| GRADUATE MEDICAL EDUCATION | |
|---|---|
| TOTAL RESIDENTS + FELLOWS | 1,442 |
| TOTAL ACCREDITED PROGRAMS | 114 |
| OTHER PROGRAMS | 94 |

| GRADUATE + UNDERGRADUATE PROGRAMS | |
|---|---|
| MASTER'S STUDENTS | 174 |
| PHD STUDENTS | 195 |
| HEALTH PROFESSIONS PROGRAM | 253 |

## FACULTY AND STAFF

| FACULTY | | | |
|---|---|---|---|
| VOLUNTEER | 3,248 | FULL-TIME | 3,392 |
| PART-TIME | 253 | | |

| FULL-TIME STAFF | |
|---|---|
| TOTAL | 2,409 |

*SOURCE: BLUE RIDGE MEDICAL RESEARCH INSTITUTE
**RANKING NOT SUPPLIED DIRECTLY BY BLUE RIDGE, BUT CALCULATED BY IU SCHOOL OF MEDICINE USING BLUE RIDGE SOURCE DATA
ALL DATA IS UPDATED ANNUALLY IN FEBRUARY

INDIANA UNIVERSITY
SCHOOL OF MEDICINE

# IU SCHOOL OF MEDICINE DIVERSITY FACT SHEET ACADEMIC YEAR 2023-2024

| | TOTAL | FEMALE | INTER NATIONAL | HISPANIC OR LATINE | TWO OR MORE RACES | AMERICAN INDIAN/ ALASKAN NATIVE | AFRICAN AMERICAN / BLACK | ASIAN AMERICAN/ ASIAN | NATIVE HAWAIIAN/ PACIFIC ISLANDER | WHITE | UNKNOWN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **STUDENTS[1]** | | | | | | | | | | | |
| MEDICAL EDUCATION | 1,461 | 50.0% | <1.0% | 11.2% | 5.3% | 0.0% | 6.6% | 17.5% | 0.0% | 58.7% | <1.0% |
| GRADUATE: DOCTORAL PROGRAMS | 260 | 61.5% | 28.8% | 6.5% | 1.9% | 0.0% | 4.2% | 6.9% | 0.0% | 51.2% | <1.0% |
| GRADUATE: MASTER'S PROGRAMS | 144 | 61.1% | 2.8% | 6.9% | 6.3% | 0.0% | 11.1% | 9.7% | 0.0% | 63.2% | 0.0% |
| UNDERGRADUATE PROGRAMS | 343 | 85.7% | <1.0% | 13.7% | 5.8% | 0.0% | 5.5% | 5.2% | 0.0% | 68.5% | <1.0% |
| **FULL-TIME STAFF[1]** | | | | | | | | | | | |
| PROFESSIONAL | 2,346 | 76.7% | 3.3% | 4.9% | 2.1% | <1.0% | 9.1% | 5.4% | <1.0% | 74.9% | <1.0% |
| **FULL-TIME FACULTY[2]** | | | | | | | | | | | |
| TENURE-TRACK/TENURED | 712 | 33.7% | -- | 4.2% | 1.7% | 0.0% | 4.1% | 22.8% | 0.0% | 67.0% | <1.0% |
| NON-TENURE (INCLUDES FT AFFILIATES) | 2,680 | 43.0% | -- | 3.9% | <1.0% | <1.0% | 4.0% | 24.4% | <1.0% | 66.9% | 0.0% |
| **TRAINEES[3]** | | | | | | | | | | | |
| RESIDENTS/FELLOWS | 1,435 | 47.9% | 8.2% | 4.6% | 4.9% | <1.0% | 7.2% | 20.3% | <1.0% | 62.6% | 0.0% |
| POST-DOCTORAL FELLOWS (AC1) | 204 | 44.1% | -- | 9.8% | 0.0% | 0.0% | 4.4% | 58.8% | 0.0% | 27.0% | 0.0% |
| **STATE OF INDIANA[4]** | | | | | | | | | | | |
| POPULATION ESTIMATES, 2023 | 6,862,199 | 50.3% | -- | 7.9% | 2.4% | 0.4% | 10.3% | 2.8% | 0.1% | 77.0%[5] | -- |

[1]IU STUDENT AND STAFF DATA FOLLOWS FEDERAL REPORTING GUIDES CATEGORIZING INDIVIDUALS WHO SELECTED MORE THAN ONE RACE OR ETHNICITY INTO INTERNATIONAL, HISPANIC OR LATINX, OR TWO OR MORE RACES. SEE UIRR DATA GUIDE FOR MORE INFORMATION ABOUT LOGIC APPLIED. THE ORDER OF RACE OR ETHNICITY CATEGORIES, FIRST, FOLLOWS LOGIC APPLIED, AND THEN, ALPHABETICALLY LISTS SINGLE-SELECTED CATEGORIES.
[2]IU SCHOOL OF MEDICINE FACULTY DATA SYSTEM DOES NOT REPORT INTERNATIONAL STATUS AS A RACE OR ETHNICITY CATEGORY.
[3]TWO OR MORE RACE DATA APPEARS DIFFERENT FROM PREVIOUS YEARS; IN THE PAST, THIS DATA WAS NOT COLLECTED DIRECTLY IN MEDHUB. EACH RACE/ETHNICITY GROUP WAS BROKEN INTO A DISTINCT BUCKET FOR THE PURPOSES OF THE TABLE ABOVE, E.G., AN INDIVIDUAL SELECTING WHITE + HISPANIC WOULD ONLY APPEAR ONCE IN THE TWO OR MORE RACE COLUMN.
[4]SOURCE: U.S. CENSUS BUREAU
[5]WHITE ALONE, NOT HISPANIC OR LATINO

FOR FULL-TIME FACULTY AND POSTDOC FELLOWS, INDIVIDUALS WHO SELECTED AFRICAN AMERICAN OR BLACK AND ANOTHER RACE OR ETHNICITY ARE INCLUDED IN THE AFRICAN AMERICAN OR BLACK PERCENTAGE.

ALL DATA IS UPDATED ANNUALLY IN FEBRUARY

## Chair of the Department of Biochemistry, Molecular Biology, and Pharmacology

Indiana University School of Medicine, a national leader in research, education, and clinical care, is announcing the search for the inaugural Chair of the Department of Biochemistry, Molecular Biology, and Pharmacology, a strategic merger of the Department of Biochemistry and Molecular Biology and the Department of Pharmacology and Toxicology. This is an extraordinary opportunity for a visionary leader to advance a newly reorganized department to new heights of excellence.

The IU School of Medicine is the largest medical school in the U.S. and is ranked among the top medical schools in the nation by U.S. News & World Report. The school offers high-quality medical education, leading medical research supported by over $500M in external funding and a wide range of clinical training on its nine campuses across the state. According to the Blue Ridge Institute for Medical Research, the IU School of Medicine ranks No. 13 in 2023 National Institutes of Health funding among all public medical schools in the country.

The newly merged Department of Biochemistry, Molecular Biology, and Pharmacology brings together the rapidly evolving and increasingly convergent fields of biochemistry and pharmacology to create new opportunities to advance the tripartite mission of the school through its contributions to research, education, and service. The unified department will be the academic home for a significant number of investigators across several major IU School of Medicine research centers including the Stark Neurosciences Research Institute, IU Simon Comprehensive Cancer Center, and the Center for Diabetes and Metabolic Disease. Departmental strengths include diabetes/metabolism, cancer biology, neurodegenerative disease, molecular mechanisms of pain, transcriptional regulation, structural biology, and drug discovery. Competitive chair candidates will have internationally recognized research expertise in one or more of these areas. The department will play a pivotal role within the School of Medicine through state-of-the-art technologies implemented in three Core Facilities operated by department faculty members: Proteomics, Chemical Genomics, and an electron microscopy Core which includes CryoEM.

The current departments are significant leaders in the education mission, contributing to and offering outstanding educational programs for medical students, graduate students, and postdoctoral trainees as well as students in allied health programs. Doctoral degrees are offered in Pharmacology and Toxicology as well as Biochemistry and Molecular Biology. Master's degrees are also offered in Translational Toxicology and Biochemistry and Molecular Biology. Faculty members teach biochemistry in core courses of the MD curriculum as well as pharmacology across all organ systems to medical, graduate, and professional students, including physician assistants and anesthesia assistants. The faculty are deeply committed to training and mentorship of the next generation.

The chair will integrate and build upon the strengths of these two historically distinct departments to capitalize on synergistic research and educational opportunities. This position is ideal for a collaborative and transformational leader who is visionary in developing biomedical research programs that address current and emerging health conditions; adept at bringing people together to foster scientific collaboration; committed to mentorship of faculty and all levels of learners and trainees; and dedicated to excellence in all mission areas. Doctorate or Terminal degree is required. Minimum qualifications include an MD, PhD, MD/PhD or equivalent, and eligible for tenure based on academic credentials. The individual selected for this position will have a strong track-record of extramurally funded research and be a principled leader with exceptional communication, interpersonal and change management skills.

**Visit the search website** to learn more and **apply.** To apply please include (1) a letter of interest including key leadership experiences, a summary of research interests, and accomplishments in education and (2) a curriculum vitae. The priority review deadline is **March 4, 2025.** Nominations are accepted here. The position will be open until filled.

IUSM is committed to being an institution that reflects the learners we teach and the patient populations we serve and pursues the values of equity and inclusion that inform academic excellence. We desire candidates whose work contributes to equitable and inclusive learning and working environments for our learners, staff, and faculty. We invite individuals who will join us in our mission to improve health equity and well-being for all throughout the state of Indiana.

Indianapolis is the capital and most populous city in the state of Indiana. It is growing economically thanks to a strong corporate base anchored by the life sciences. Indiana is home to one of the largest concentrations of health sciences companies in the nation, including the largest pharmaceutical company in the world. Indianapolis has a sophisticated blend of charm and culture with a wonderful balance of business and leisure. The growing residential base is supported by rich amenities and quality of life – the city possesses a variety of professional sports, arts venues and outdoor recreation areas. Residents of this dynamic city, and surrounding suburbs, enjoy leading educational systems and top-ranked universities, paired with a diverse population. Indianapolis International Airport is a top-ranked international airport, being named “Best Airport in North America” by Airports Council International for many years. IU School of Medicine is committed to providing dual career services to assist new faculty with their personal or family’s relocation needs.

## Department Insight – Biochemistry and Molecular Biology

The Department of Biochemistry and Molecular Biology seeks to provide a scholarly environment wherein faculty and trainees can pursue a creative life in science and education. Its hallmarks are (a) insight into molecular processes of life, (b) innovation in approaches and (c) mentorship at all levels – as shared in a diverse, open, and generous community. Its mission within the school spans medical education, graduate education, and service, including the operation and continuous improvement of key school-wide Dean's Core Facilities.

The Department of Biochemistry at the Indiana University School of Medicine (IUSM) can trace its existence to the 1920's. Over time, the Department has developed a strong reputation for research, medical and graduate education, key roles in the maintenance and development of research cores with the school and for fostering a highly collaborative research environment among its own faculty and across the school.

The Department plays key roles in the tripartite mission of IUSM through its contributions to research, education, and service. A gifted and diverse faculty seeks to achieve international impact in the respective scientific fields spanned by the individual laboratories and to enhance the vibrancy of the IUSM's overall culture, environment, and sense of community.

The Department has an outstanding record of supporting its early career faculty members on their successful trajectories toward promotion and tenure and of mentoring Associate Professors toward promotion to Professor.

The research mission of the Department envisions synergies between basic and translational research. A model is provided by research programs that concurrently address foundational questions of mechanism (such as principles of protein foldability, proteostasis, signaling, and gene regulation) and explore applications to the diagnosis or treatment of disease. The latter activities are often enabled by collaborative teams that integrate basic and clinical faculty.

The Department plays a catalytic service role within the School via the introduction and provision of state-of-the-art technologies, as implemented in three Dean's Core Facilities operated by Departmental faculty members: Proteomics, Chemical Genomics, and most recently, an electron microscopy Core upgraded to include CryoEM (via an NIH S10 grant obtained by the Department); it also brought genomic technologies to the School by forming the Center for Medical Genomics. Each of these Cores provides regular training activities and webinars on respective technologies. Departmental leadership of core facilities seeks to support broad institutional utilization toward enhanced scientific impact and its correlates, School-wide grant revenues and intellectual property. Additional institutional service is provided by faculty membership on standing School- or University-wide committees, such as Admissions, Animal Safety and Radiation Safety.

The Department currently has 23 tenure-track faculty: two Distinguished Professors, eight Full Professors, five Associate Professors, eight Assistant Professors. The Department is home to 16 faculty in the non-tenure-track line ("Research Professor" track). These faculty play important roles in Dean's Core Facilities as senior personnel in individual lab groups, and as key collaborative links between labs. As primary faculty in the department, each of these non-tenure-track researchers has access to career development activities in the Department and School, including mentoring committees that help guide their career progress.

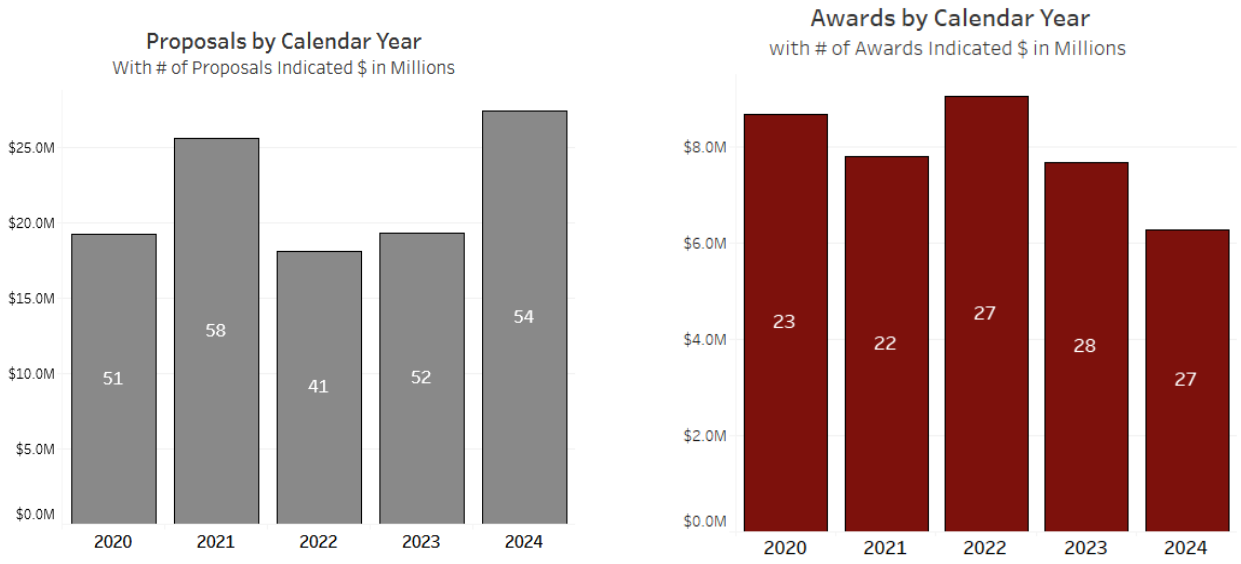
## RESEARCH

Faculty in the Department of Biochemistry & Molecular Biology have developed strong, funded research programs that fall into four general areas: Structural and Chemical Biology, Metabolism and Proteostasis, Signaling and Gene Expression, and Synthetic Biology (Figure 1). The vibrancy of these research areas has led to sustained and increasing NIH funding as a pillar of the Department's business plan. These have impact far beyond the Department, contributing greatly to the overall research mission of the School of Medicine. Strategic hiring over recent years focused on building research groups that strengthen and support the core research mission of the Department and contribute to the overall mission of IUSM.

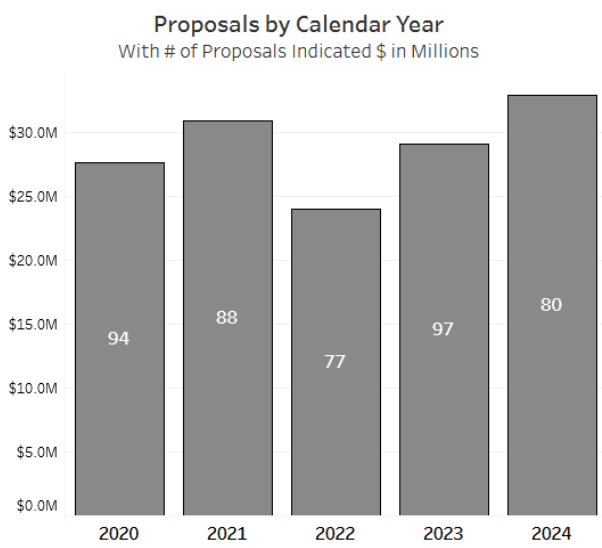
The vision and values of the department embrace research programs that are at once basic and translational: on the one hand, exploring fundamental principles or devising innovative methods, while on the other hand, seeking clinical applications, often as MPI teams in strategic alignment with the clinical mission of the school. Examples include identification and characterization of small molecules that can serve both as chemical tools to probe function and potential leads for therapeutic development, development of novel computational approaches for in silico drug screening, engineering of novel peptide-based therapeutics and nucleic acid-based nanoparticles for drug delivery, and development of technologies that enable identification and characterization of disease- associated genetic variants.

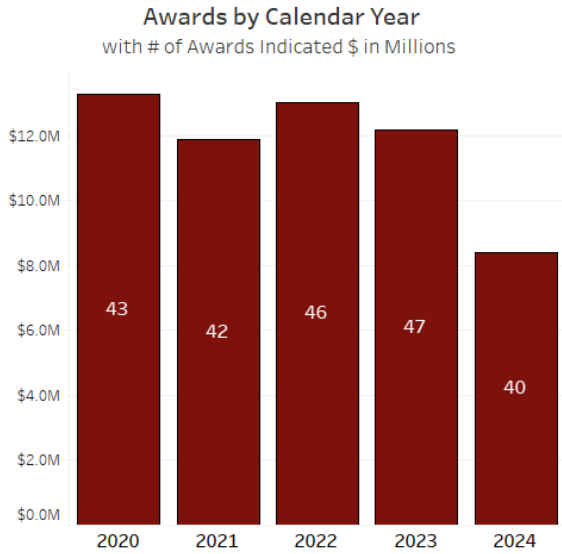
The departmental culture encourages faculty members to submit NIH R01 applications both based in the Department (with foundational Aims) and as led by an IUSM disease-state teams (with translational Aims). This vision thus highlights potential synergies between basic and clinical perspectives as a distinctive feature of a basic-science department situated in a School of Medicine. In each NIH-funded program in the Department, the ongoing national/international revolution in medical genetics and genomics—vibrantly represented in our peer IUSM Department of Medical and Molecular Genetics—provides a bridge between molecular principles and clinical translation. Key elements of this bridge are provided by disease-associated mutations and genetic variation as "experiments of nature" that illuminate a biological process or mechanism. This interdisciplinary perspective will position the Department well for continued vitality and national/international impact in the coming decade.

### NIH FUNDING

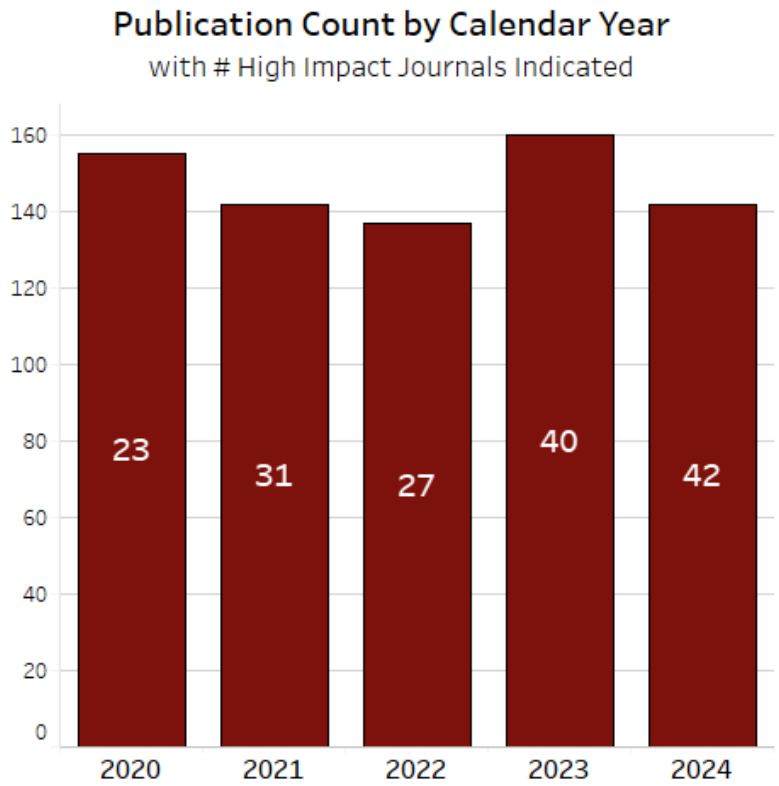


## ALL FUNDING




## Total Publications (last five years)



The Department also impacts the faculty research programs of other IUSM Departments. Many faculty contribute to multiple research groups, providing critical interconnections that build collaborative research programs both within the Department and across the School of Medicine. The faculty are members of Centers of research that include the IU Simon Comprehensive Cancer Center, the Stark Neurosciences Research Institute, the Center for Computational Biology & Bioinformatics, and the Center for Diabetes & Metabolic Diseases. In addition to the primary faculty, Biochemistry has over 50 faculty with secondary appointments. These faculty have primary appointments in other Departments but serve as mentors for Biochemistry graduate students and provide expertise and collaboration opportunities for Biochemistry.

The long-standing commitment of the Department of Biochemistry & Molecular Biology to improving the research infrastructure of the School of Medicine is a natural consequence of the faculty's collaborative nature. One tangible measure of the impact of collaboration is in the number of collaborative publications with faculty from other Basic Science and Clinical Departments within the School.

## EDUCATIONAL AFFAIRS

In the past three decades the disciplines of biochemistry and molecular biology have broadly expanded, and now reach virtually all areas of research and all departments at IUSM. The department has established and maintained vibrant graduate and medical programs to train students and post- doctoral trainees in both the scientific and technical bases of these disciplines, as well as to excel at problem solving, a critical skillset for students' careers in academia or industry. A spirit of collegiality and a tradition of open, ethical behavior have always been considered essential in fostering the careers of the next generation.

### BMB PHD GRADUATE PROGRAM OVERVIEW

The graduate training mission of the Department is to provide an environment in which students can pursue and nurture their scientific training and careers. The first Ph.D. degree was awarded in 1962. To date, the Department has awarded ~280 Ph.D. degrees. Graduates from Biochemistry & Molecular have gone on to careers in academics, industry, medicine, and law.

### MASTERS (MS) GRADUATE PROGRAM OVERVIEW

The first M.S. degree in the Department was awarded in 1961 with a total of 100 awarded Master's degrees. The Department of Biochemistry & Molecular Biology constitutes its own admissions committee for the MS program. To complete the program, M.S. students must take at least 30 credit hours.

### MEDICAL EDUCATION

IUSM is one medical school with nine campuses across the state of Indiana. Each fall 366 students matriculate, with 144 students located on the Indianapolis campus; the remaining students are spread out among the eight regional campuses. In 2016 IUSM rolled out a revised pre-clerkship curriculum that is delivered simultaneously across all campuses. The new curriculum transitioned from a discipline-based approach to courses that integrate across cells, tissues and organ systems. Each of the twelve pre-clerkship courses is managed by a team of faculty (termed course management teams), with a representative (site leader) from each campus; one of these site leaders also serves as the Statewide

Course Director. Biochemistry & Molecular Biology faculty are involved in the delivery of the Molecules to Cells and Tissues (MCT) and the Preparing for Professional Practice courses.

## Department Insight- Pharmacology and Toxicology

The Department of Pharmacology and Toxicology functions as the research center to advance the understanding of the interactions of chemicals and drugs with living systems and to assist in the development of new therapeutics and strategies to treat disease.

The Department of Pharmacology and Toxicology has changed and grown immensely since it was founded in 1915, under the chairmanship of B. Bernard Turner, who was recruited from the laboratory of John Jacob Abel, the "father of American pharmacology." The department was renamed the Department of Pharmacology and Toxicology in 1984 to formally recognize the leadership in Toxicology by Dr. Harger and his prominent student, Robert B. Forney.

There are now 12 tenured/tenure track primary faculty in the Department at the Indianapolis campus. There is one full professor, eight associate professors, and ten assistant professors. The Department is home to five faculty in the non-tenure-track line (“Research Professor” track).

The Department has 19 secondary faculty. Fifteen of those faculty have primary appointments in several departments across the medical school including Pediatrics, Ophthalmology, Medicine, Emergency Medicine, Clinical Pharmacology (Medicine), Medical Genetics and Genomics, Neurology, and Anesthesia. In addition, there is one adjunct faculty at Purdue University and three at Eli Lilly Corporation. Fourteen teaching faculty are at IUSM regional campuses (Bloomington, Fort Wayne, Northwest (Gary), South Bend, Terra Haute, and West Lafayette).

The research mission of the department aligns directly with the strategic plan of School of Medicine to establish excellence in neurosciences, cancer, and diabetes. Most primary faculty have appointments in IUSM Centers or Institutes including the Stark Neurosciences Research Institute, IU Simon Comprehensive Cancer Center, and the Center for Diabetes and Metabolic Disease.

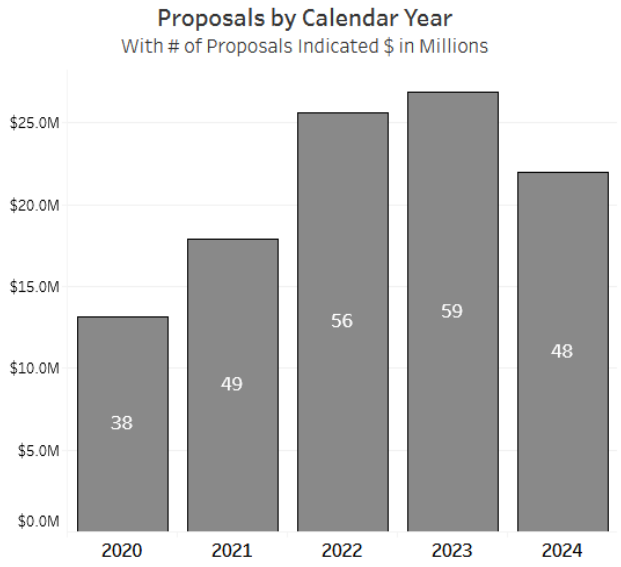
The education mission of the Department aligns with the education mission of the School of Medicine. The Department faculty teach pharmacology across all organ systems to medical and graduate students. It is the department’s mission to prepare them for successful careers in medicine and the biomedical sciences as researchers, clinicians, and educators in professional schools, colleges and universities, the pharmaceutical industry, and the broader healthcare industry. The faculty teach foundation courses in the Physician’s Assistant Program and the Anesthesiologist’s Assistants program. Graduate students in the department can pursue a PhD or Master's in Translational Toxicology, or train toward the MD/PhD dual degree offered through the Medical Scientist Training Program.

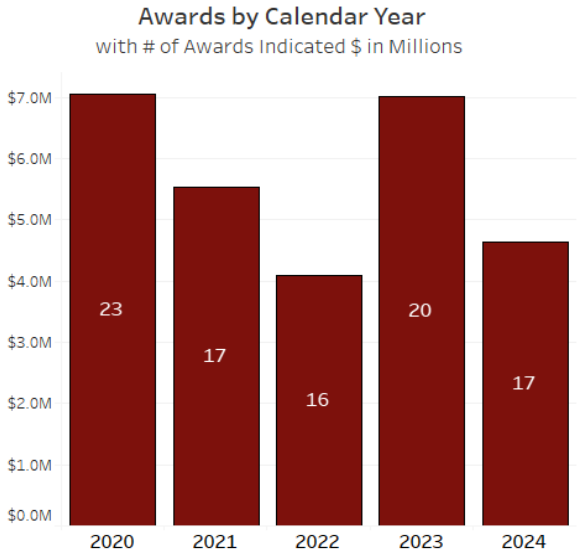
In response to advancement and changes in the field, the department prioritizes creating more interdisciplinary teams for future growth with the goal of employing interactive and integrated physiological analyses at a systems level with bioinformatics based on drug structure and structure-function relationships.

## Research Highlights:

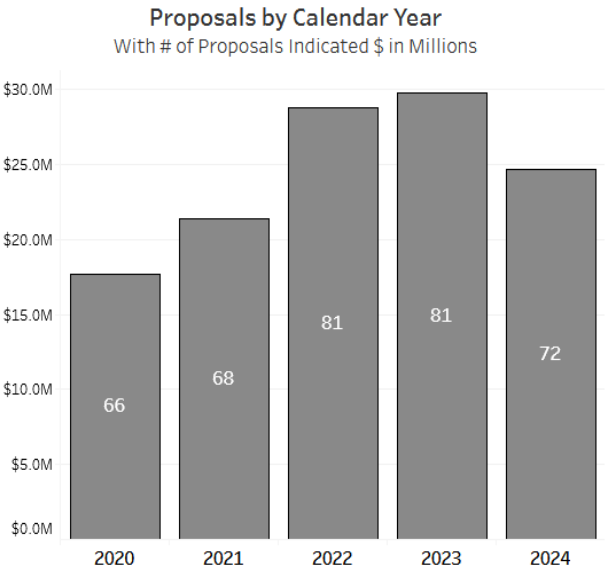
Over the past five years, department has advanced toward its research mission with an active NIH and overall funding:

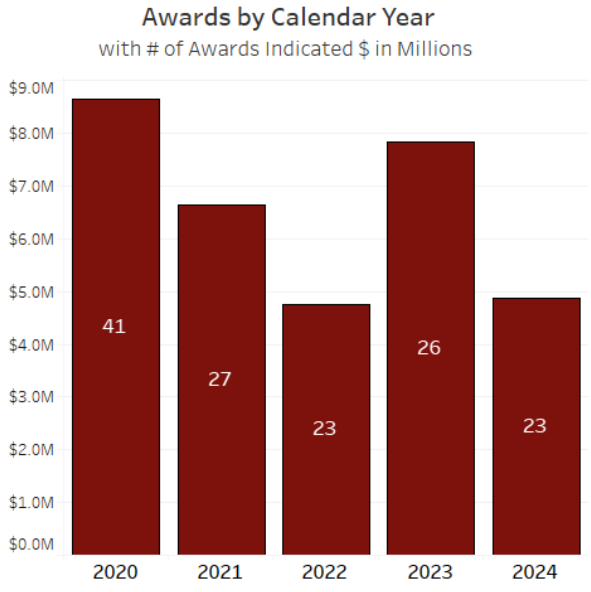
### NIH FUNDING




### ALL FUNDING

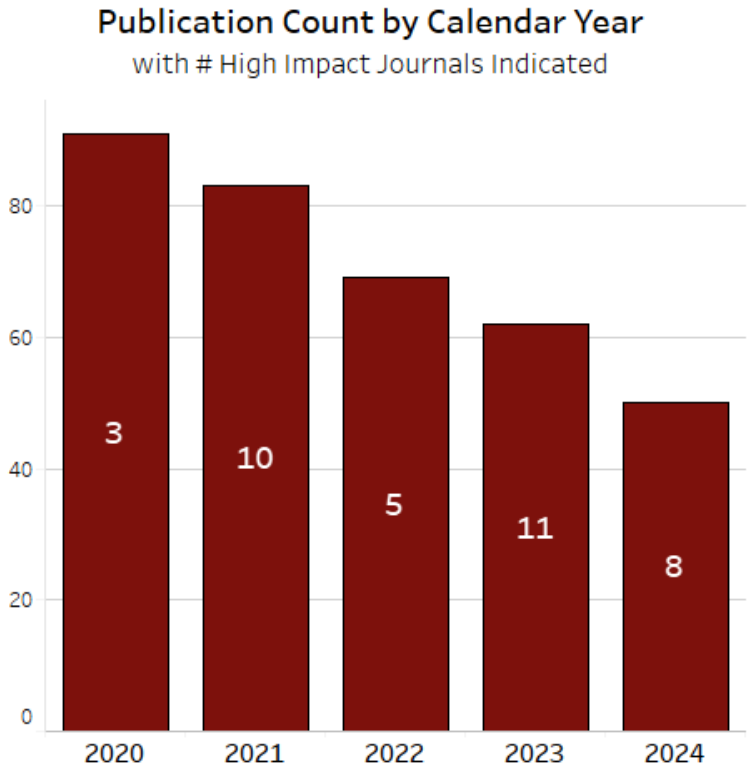


2. Successful recruitment of NIH funded faculty in the areas of neuroscience, cancer and infectious disease that builds upon the existing expertise within the department.

3. Established common equipment facilities. Common facilities that housed shared equipment did not exist in 2015. The department has since purchased common equipment and established a common equipment room and shared confocal microscopes (n=3), a room with a shared fluorescent microscope, and a common freezer room.

4. Total Publications (last five years)



## Educational Highlights:

The faculty of the department are engaged learners, educators, collaborative, and are well-integrated into the overall strategic plan of the School of Medicine. The Department is engaged in the teaching of pharmacology across all organ systems to medical, graduate, and professional students including physician assistants and anesthesia assistants. Although the research in the department is multi-disciplinary and contributes to the research mission of the school across a broad spectrum, it remains committed to teaching and research focused on the discipline of pharmacology. Pharmacology encompasses biochemistry, physiology, cell biology, and therapeutics and is foundational to translational biomedical research.

Primary strategic accomplishments:

- Maintained high-quality local pharmacology teaching/expertise since switching to a pharmacology curriculum that is now divided across seven courses with pharmacology only comprising a small component of each course
- Maintained a pharmacology footprint in the new organ-based curriculum and worked with seven different course teams to continue providing strong pharmacology teaching
- Maintained pharmacology faculty-student interactions in the pre-clerkship years
- Comparability in pharmacology education across the nine campuses as determined by similarities in delivery, outcomes, and feedback
- Added pharmacology-focused opportunities for fourth year students
- Reviewed and revised curricular content with DEI in mind

Other highlights:

1. Physician Assistant: 44 students: one semester survey pharmacology course
2. MSMS (Master of Science in Medical Science): about 10 students: 1 semester survey pharmacology course
3. Anesthesia Assistant: 18 students: one semester survey pharmacology section of the foundational clinical science course
4. IBMG/PhD Graduate: 25 students: five-week module general principles of pharmacology course (ligand-receptor interactions)
5. Medical
    a) MS1 ~350 with ~150 in Indianapolis: pharmacology taught within three courses: Fundamentals of Health and Disease (FHD), Host Defense (HD), and Neuroscience and Behavior (N&B)
    b) MS2 pharmacology taught within four courses: Cardiovascular and Hematology (C&H), Renal and Respiratory (R&R) GI Systems and Nutrition (GI&N), Endocrine, Reproductive, Musculoskeletal, and Dermatology (ERMD)
    c) MS1 and MS2 Preparing for Professional Practice - PPP1 and PPP2 involvement (fall and spring) – four PHTX faculty serving as small group facilitators in PPP1 and five PHTX faculty serving as small group facilitators in PPP2
    d) MS4 electives (2 wk) include Drugs A History, Step 1 and Clerkship Preparedness, Pharmacology Exam Question Writing, Pharmacology Case Development, Small Group Best Practices; also developed a two-week Basic Science Research in Pharmacology

Elective. In the past, there was also a successful experiential elective partnership with Eli Lilly in which students spent a month learning about pharmaceutical development. This elective has been on hold since the pandemic.

Over the past five years, department advances toward its education mission include:

1. Postdoctoral, graduate, postgraduate, and undergraduate toxicology research training (2015-present). Currently training or have trained 4 PhD in the department's toxicology program. Have also trained in toxicology-based research, 3 postdoctoral fellows, 11 graduate (from other programs), 1 postgraduate, and 10 undergraduate students.
2. Development of a Master of Science in Translational Toxicology Program (2019-present). Developed a novel one-year Master of Science in Translational Toxicology.
3. Development of Novel Toxicology Courses (2018-2019):
    a) Principles of Pharmaceutical Toxicology in the 21st Century (F828)
    b) Internship in Toxicology (F807)
    c) Principles of Toxicology I (G748)
4. Direct and teach toxicology-based courses such as Principles of Toxicology I (offered twice a year), and Principles of Pharmaceutical Toxicology in the 21st Century. Additionally, department offers toxicology-based content in Animal Models of Human Disease (G727).
5. Recruitment of Toxicology-based Industry Experts as Adjunct Faculty (2018-present)
6. Career Development Presentations by Industry Toxicologists (2017-present)
7. Local and Regional Community Outreach Indianapolis Fire Department (2009-2018)
8. Indianapolis City Council, Air Pollution Board (2017-2018). Faculty advised board members, local communities, and the public on toxicology-based concerns
9. Secondary School Workshops and Presentations (2015-2018)