



Together,

we empower the potential,
promise and impact of
Wistar Science.

One of the world's great engines of transformative biomedical discovery, Wistar drives advances that change the lives of millions. We're fueled by a passion to solve problems and advance human health.

Table of Contents

1

The Power of
Philanthropy in 2021

2

Your Impact on
Advancing Science

12

Educating the Scientific
Leaders of Tomorrow

21

Our Donors

With your support,
we're making
seminal discoveries
in science and
medicine that will
improve lives.

Over the last year, our donors and funding partners have joined with Wistar to advance our science, technology and education and training programs.

As this report demonstrates, your generosity fosters scientific potential, brings ideas to life, breaks down barriers and impacts lives around the globe. Your investment in Wistar science enables our scientists to address the medical needs of today and build a healthier world for tomorrow. Thank you.

The Power of Philanthropy in 2021

YOU WERE ONE OF

721
DONORS

TOGETHER, YOU GAVE MORE THAN

\$46.5
MILLION

ANNUAL GIFTS

Your gift had an immediate impact. Donors who give annually help address emerging and high-priority needs.

217

Loyal donors who have supported Wistar each year for the past five years

179

First-time donors

ENDOWED GIFTS

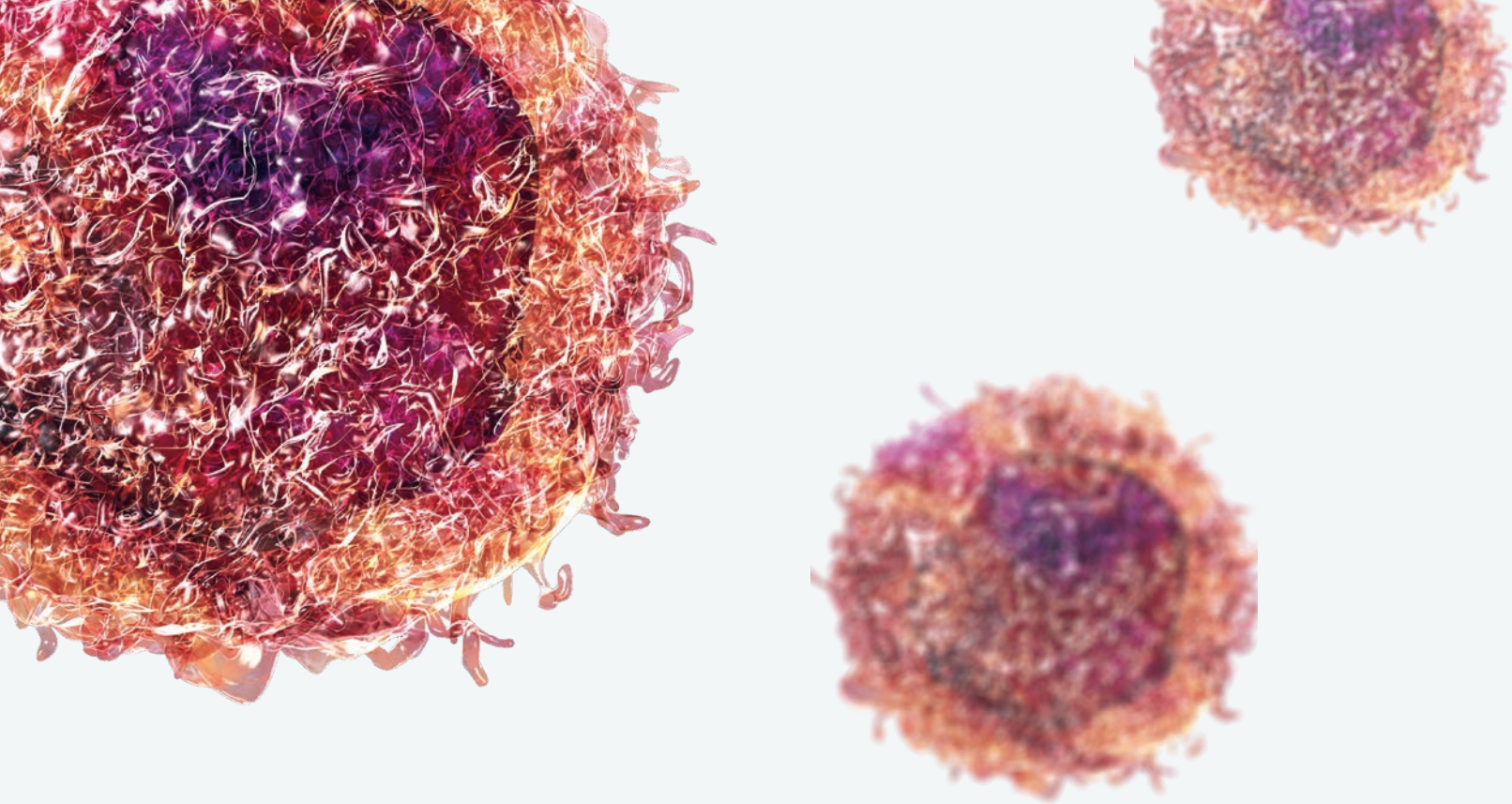
Your gift has an enduring impact. Donors to endowed funds provide the Institute with a steady, predictable and perpetual source of income.

\$217,809,000

Value of The Wistar Institute endowment at the close of 2021

\$7,703,000

Made available in 2021 from endowment funds to support research and training



Your Impact on Advancing Science

Philanthropic support drives our research enterprise in the areas of cancer research and vaccine and immunotherapy development.

Historic Cornerstone Gift creates The Ellen and Ronald Caplan Cancer Center of the Wistar Institute

For more than a century, The Wistar Institute Cancer Center has led many of the major advances in cancer research and treatment. Wistar scientists were among the first to describe genetic abnormalities that are now recognized as the early-stage clues to cancer. Wistar scientists were the pioneers in monoclonal antibodies, paving the way for targeted therapies and immunotherapies that are—in most instances—the most effective cancer treatments.

The progress Wistar scientists have made is foundational to curing cancer but the journey to a cure or vaccine continues. In some instances, targeted drugs yield short-term benefit for patients before the cancer acquires drug resistance and spreads in the body. How exactly the disease achieves this resistance—such as by genetic changes or adapting to the tumor microenvironment—is essential to understanding cancer to ensure we can develop treatments to stop its progression.

To tackle these and other biological mysteries about cancer, Wistar is expanding its capacity for groundbreaking fundamental and translational cancer research within its walls thanks to a \$10 million gift from Ellen and Ronald Caplan. The newly named Ellen and Ronald Caplan Cancer Center of the Wistar

Institute will help forge new avenues for basic and disease-relevant research, recruit 10 new faculty members, and expand our high-end technological capabilities in imaging, single-cell profiling, and structural biology.

One of the top priorities at the Ellen and Ronald Caplan Cancer Center will be to establish platforms that allow rapid identification of personalized cancer treatment options that can overcome treatment resistance. This goal will require enhanced efforts to link tumor genomic analysis with therapeutic response and the development of laboratory models that mimic patients' sensitivity to various cancer therapies.

The Ellen and Ronald Caplan Cancer Center will also support Wistar's capacity in computational research. Machine learning and artificial intelligence (AI) enable scientists to understand cancer characteristics, such as likelihood of treatment response and progression, which in turn have started to allow personalized treatments for patients in some cases. But by probing deeper, scientists can better predict how cancers will behave and evolve.

The scale and impact of the Caplan naming gift is unprecedented for Wistar and builds on a foundation



the Caplans have made to the Institute. Since 2009, Ronald has served on Wistar's Board of Trustees. In 2014, he and Ellen donated a 200-seat high-tech auditorium in the Robert and Penny Fox Tower. It is named the Sarah and Matthew Caplan Auditorium for their children, because the couple hopes that cures for cancer will be found in their kids' lifetime.

The Wistar Institute Cancer Center became the nation's [first](#) National Cancer Institute (NCI)-designated cancer center dedicated to basic research in 1972. It is among only seven centers in the U.S. to hold this distinction without interruption for a half century. The gift to establish the Ellen and Ronald Caplan Cancer Center ensures that the critical contributions of Wistar to fundamental and translational cancer research will continue well into the future. ●



Transformational Gift to Create New Center for Advanced Therapeutics at The Wistar Institute

In 1979, at the dawn of the biotechnology era, The Wistar Institute was awarded the first of several patents for the production of monoclonal antibodies against tumors and influenza virus antigens, which would lay the foundation for the entire field of immunotherapy. Leveraging this important discovery and intellectual property, Centocor, an immunotherapy start-up company led by Dr. Hubert Schoemaker in close collaboration with Wistar scientists brought Wistar's seminal research discoveries in monoclonal antibody technology into a commercial platform that underpins a sizeable majority of today's industry in biotherapeutics.

Now, nearly forty years later, Wistar is again poised to revolutionize the immunotherapy field with the creation of the new Center for Advanced Therapeutics, which is on target to launch in December 2023. The Center, which was made possible by a transformational **\$20M anonymous donation to Wistar's Bold Science//Global Impact campaign**, will focus solely on the custom design and development of tailored next-generation immunotherapy-based medicines.

The core scientific objectives of the Center for Advanced Therapeutics, which will bridge immunotherapy and vaccine biology with small molecule chemicals, will be fueled by collaborative research in immunology, next-generation sequencing technologies, chemical and structural biology, and computational, artificial intelligence (AI)-driven systems. The center will augment Wistar's capabilities to create stand-out research programs that are unique in the academic world and position Wistar to develop a sustainable pipeline of future therapeutics that, just as it did four decades ago, attract co-development partners for generating impactful outcomes.

The spirit of the new Center will be one of continuous exchange of ideas, collaboration, and partnership. Here, a diverse group of scientists will approach the various facets of the drug discovery journey to bring long-lasting value, unique innovation, and general impact. Emphasis will be placed on both next-generation immunotherapies as well as small molecule therapeutics to "drug-the-undruggable," shining laser focus on acutely unmet medical needs and hard-to-treat conditions in cancer and infectious diseases. Relying on its collaborative and multidisciplinary framework, the Center will tackle critical and largely unexplored research areas of enormous therapeutic potential such

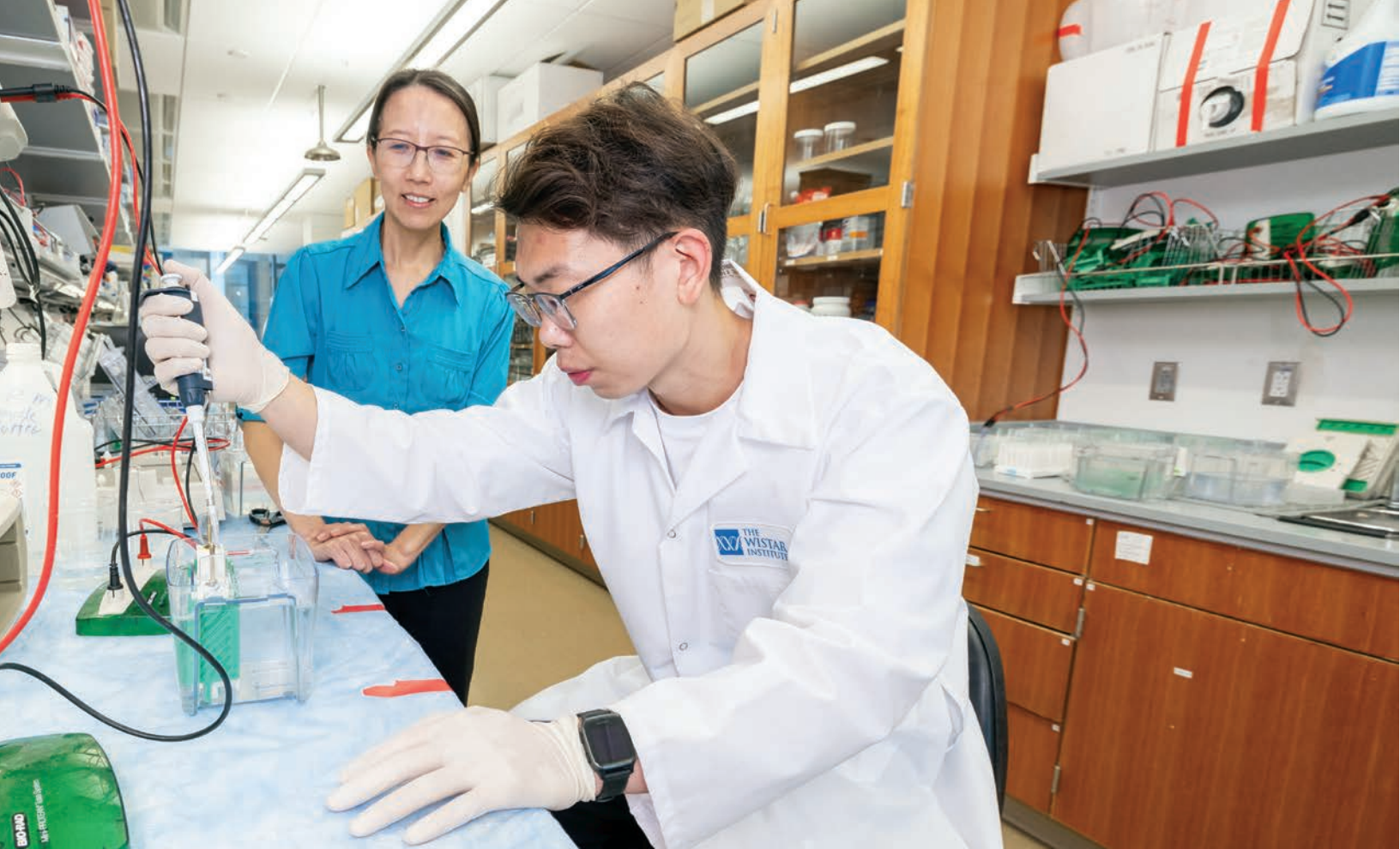


as the diversity of B cell and T cell repertoires, novel drug-target interfaces, cancer neoepitopes, and groundbreaking vaccine platforms.

As always, the first goal is to aggressively recruit the best and brightest researchers to build our scientific capital and expertise in the biology of the immune systems, high-throughput approaches, and chemical and structural biology. Once these researchers have been identified, we will need to secure access to cutting-edge equipment to identify promising, disease-relevant targets, study their efficacy, and validate their activity in models of different disease conditions. The scale, high-throughput approaches, and multidisciplinary thinking behind the Center, will create a unique platform to address fundamental, unanswered questions in medicine and biology.

Wistar has always understood that to transform a field, and create a truly paradigm shifting technology platform, innovative researchers must find an ideal environment to support their ideas, their goals, and their boldest aspirations and dreams. The Institute has a long and proud tradition of excellence in creating the medicines of tomorrow, bringing scientists together to solve complex problems of human health. This successful past combined with our ambitious future will provide the most compelling foundation to again create the most conducive, collaborative environment for the new Center, where new ideas and concepts will become medicine designed to revolutionize the treatment of some of the most complex and challenging human diseases. ●

The Institute has a long and proud tradition of excellence in creating the medicines of tomorrow, bringing scientists together to solve complex problems of human health.



50 Years of Supporting Scientists at Wistar

The Pew Charitable Trusts shares a commitment to advancing human health and supporting outstanding science. There is a long history between Pew and Wistar, with Pew having supported our scientists for more than 50 years.

When biomedical scientists think about the Pew Charitable Trusts, the first thing that probably comes to mind for many is the [Pew Scholars Program in the Biomedical Sciences](#). The program, which launched in 1985, has been supporting [promising](#) early-career researchers at institutions across the United States—including a growing number at The Wistar Institute.

But the history of the relationship between Pew and Wistar stretches back much farther. Since 1969, the Pew Charitable Trusts, a [nonprofit organization](#) which itself dates back to 1948, has been generously supporting a wide range of activities at Wistar through institutional grants. These include focused research programs, building renovations, and new faculty member recruitment—as recently as 2016 and 2019, Pew awarded Wistar a grant to bring on three new investigators.

Given the decades-long, steadfast mission of both Pew and Wistar to advance groundbreaking health research, it would seem a funding match made in heaven. One of the [earliest priorities](#) of Pew was to support cancer research, and The Wistar Institute, in addition to its longstanding leadership in vaccine research, has had an intense [focus](#)

on this area of study, and in 1972, earned the prestigious designation of National Cancer Institute Cancer Center in basic research.

“The combination of bold ideas, innovative science, and commitment to improve human health is at the core of both The Wistar Institute and the Pew Scholars program,” noted [Dario C. Altieri, M.D.](#), Wistar president & CEO, director of the Ellen and Ronald Caplan Cancer Center, and the Robert and Penny Fox Distinguished Professor.

The most recent support from Pew, a \$1M grant that was awarded in September, will provide key help in Wistar’s effort to recruit a director for its new Center for Advanced Therapeutics. The Center will be dedicated to identifying and developing therapeutic candidates in the categories of small molecules, antibodies, and personalized vaccines. The director and scientists in the Center will work closely with those in the newly named Ellen and Ronald Caplan Cancer Center and the Vaccine & Immunotherapy Center at Wistar to advance discoveries with translational potential.

Wistar will soon begin the search for a Center director who is a world-class research leader with a vision to integrate immunological approaches with small molecule therapeutics and chemical biology to conceptualize the medicines of the future. The director will in turn recruit researchers to the Center who are innovators in immunology, computational and structural biology, and other fields, as well as oversee a total of about 10 research labs in the Center and put into use the Center’s new drug discovery platform.

The grant from Pew will contribute to the director’s salary, benefits, and start-up research funding. The ability to recruit an exceptional director will help ensure that the new Center continues, and accelerates Wistar’s tradition of making transformative contributions to therapeutic and technological development in vaccine and cancer research. These advances will, in turn, improve public health and well-being, which is a key element of Pew’s health program.

The new institutional grant is the second major award that Pew has bestowed upon Wistar this year. In June, the Pew Scholars Program in the Biomedical Sciences selected [Amelia Escolano, Ph.D.](#), Assistant Professor in The Wistar Institute’s Vaccine & Immunotherapy Center, as one of the 22 Scholars for the 2022 cohort. Amelia, who was



The new institutional grant is the second major award that Pew has bestowed upon Wistar this year.

just recruited to Wistar last year along with three other exceptional early-career faculty members, is the fourth Wistar scientist to earn the honor.

The Pew Scholars award gives Escolano a [grant](#) of \$300,000 over four years, which will fuel her work toward developing new vaccination strategies against HIV-1, SARS-CoV-2 (the virus that causes COVID-19), and other highly mutating pathogens, as well as vaccines targeting cancer. In addition to receiving the grant support, Escolano will join a community of all past and present Scholars, with their diverse backgrounds and research programs, that collaborate and support each other in their continued pursuit of discovery and innovation.

The Wistar Institute is extremely proud of the longstanding partnership with The Pew Charitable Trusts and is grateful for their support to advance novel scientific discoveries and accelerate biomedical research advances to improve human health. ●

The views expressed are those of the author(s) and do not necessarily reflect the views of The Pew Charitable Trusts.



Advancing High-Risk, High Reward Science

In [2016](#), The Wistar Institute established the Wistar Science Accelerator Awards through the generosity of the Tobin-Kestenbaum Family, the Schaeffer Family, and the Philadelphia Health Care Trust. Ever since then, the awards have been providing internal seed funding of up to \$125,000 a year to principal investigators (PIs), postdoctoral fellows, and industry partners that support innovative, investigator-initiated research, and have the potential to support the development of preliminary observations into robust intellectual property positions.

The Wistar Science Accelerator Awards welcome proposals from Wistar postdoc fellows, PIs, and partners with early-stage research in a range of life science areas, including therapeutics, diagnostics, drug delivery technologies, and enabling technologies for drug discovery. Each project is evaluated by a scientific advisory committee on its overall potential for impact, including its scientific and technical merit, its development needs, and the commercial prospects of the technology.

A New Principal Investigator Award Supports First Project

A goal of the **Bold Science//Global Impact** strategic plan and ensuing capital campaign is to expand the Institute's translational ecosystem by increasing the number of Wistar Science Accelerator Awards that we can provide to our faculty. Joe Goldblum, a member of Wistar's Board of Trustees and a dedicated Wistar philanthropist, was early to step up and commit to fund an additional investigator award — **The Goldblum Family Healthcare Fund Principal Investigator Award**.

Following the careful scientific review of the submitted applications by the science advisory committee, Joe, with input from Wistar leadership, selected to fund a project from Dr. Jessie Villanueva's lab that focuses on finding therapies for drug-resistant melanoma. This project had personal significance for Joe as he lost his grandfather to melanoma and had been a member of Wistar's Melanoma Research Center Advisory Board since he joined Wistar's Board of Trustees. For Joe and his family, it was also important to invest philanthropically in high-risk, high-reward projects that enhance inclusion in STEM professions. Dr. Villanueva grew up in Peru and is leading Wistar's Diversity, Equity, and Inclusion programs.

Her long-term research goal, which the Goldblum Family Healthcare Fund will advance, is to develop novel therapeutic strategies to give patients with drug resistant melanoma effective treatment options.

The Project

The project Dr. Villanueva is working on focuses on finding new therapeutics for drug resistant melanoma. Despite significant progress and improved treatments, about 70% of melanoma patients do not obtain sustained benefit from FDA-approved therapies and experience disease progression. Melanomas that are resistant to MAPK inhibitors (MAPKi-R), including those that harbor mutations in the NRAS gene (NRASmut), have exceptionally poor prognosis and no efficacious second line therapies. Thus, developing rational approaches to combat MAPKi-R tumors, especially those driven by oncogenic NRAS, is urgently needed. Dr. Villanueva's team has identified S6 kinase 2 (S6K2) as a critical therapeutic vulnerability in NRASmut MAPKi-R melanoma. Moreover, they have identified a unique approach and developed novel S6K2 inhibitors to target this class of tumors. Her long-term research goal, which the Goldblum Family Healthcare Fund will advance, is to develop novel therapeutic strategies to give patients with drug resistant melanoma effective treatment options. ●

Unrestricted Planned Gift Supports Purchase of State-of-the-Science Instrumentation

Luis J. Montaner, D.V.M., D.Phil, and his team are making tremendous strides studying the ability of natural killer (NK) cells, a type of immune cell, to wipe out HIV-infected cells. Meanwhile, other groups within Wistar's HIV Research Program, which Montaner leads, are in hot pursuit of alternative immunotherapy strategies, such as modified antibodies and CAR T cell therapies, to stamp out infected cells.

The research progress of all these labs was recently pole-vaulted forward thanks to a generous and visionary seven-figure unrestricted planned estate gift from Robert A. Fox (Bob). [Bob](#), who passed away in 2021, helped transform Wistar into a leading biomedical research institute, through numerous donations that he and his wife, Penny, made and his two-decade role on Wistar's Board of Trustees.

The new unrestricted gift enabled the purchase of three state-of-the-science advanced instrumentation and equipment. Flow cytometry is technology that isolates specific types of cells from tissue samples for analysis, along with a host of other customizable features, that will benefit and advance a wide range of Wistar scientists. Another is a technology platform consisting of two pieces of equipment for high-resolution imaging and spatial profiling of cellular structures and molecules at unprecedented speed and scale. The system will forge new insights into interactions between cancer and immune cells and the tumor microenvironment that nearly every lab at Wistar can deploy. The third is equipment, which is dedicated to the HIV Research Program, for a live cell analysis system that tracks cells growing in tissue culture plates.

"The investment is going to accelerate an excellence that is already here," says Montaner, who is the vice president of Scientific Operations and associate director for Shared Resources at Wistar. "It is not a bet by any means. It is a sure thing that, by providing these tools, scientists can answer questions we couldn't before, and answer the questions we were after better with added insights that will allow to move novel concepts towards clinical trials faster," he explains.

The live cell analysis system will allow all laboratories in the Wistar HIV program to pinpoint exactly how well and how quickly various immunotherapy strategies are killing HIV-infected cells. The equipment also opens the door to being able to gather multiple timepoints on samples from HIV-infected patients, which are typically of very limited quantity.

The equipment is now bolstering research on developing combination immunotherapy as a cure for HIV for which the Montaner Lab and other groups in the BEAT-HIV Martin Delaney Collaboratory were [awarded](#) a five-year, \$29.15M award from the NIH last year.

One of the most powerful aspects of an unrestricted gift is the time it saves. The traditional route that Wistar, and research institutes in general, take to obtain new, cutting-edge equipment is to apply for an NIH Shared Instrumentation Grant. But applications are only accepted once a year, and if grants are reviewed well and awarded, which has been the case for many of Wistar's last submissions, it still takes one to two years to receive the equipment. Instead, an unrestricted gift entrusts Wistar to direct the support where it thinks it can have the greatest benefit and purchase equipment immediately.

"Unrestricted gifts allow Wistar scientists the capacity to quickly seize opportunities to remain competitive in an environment that is very dynamic when it comes to platforms that allow you to innovate," Montaner says. "This gift advances what we are doing right away, while simultaneously increasing our competitive edge to grow our programs by writing new grant proposals that take advantage of the state-of-the-art capacities."

In addition to the work in the HIV Research Program to help bring immunotherapies to the clinic, the investment will benefit Wistar's research on cancer therapies and COVID-19 vaccines. "The impact is immediate with both present and future returns for all of these programs," Montaner says. ●

A photograph of a man with grey hair and glasses, wearing a dark sweater over a white collared shirt, working in a laboratory. He is focused on a piece of scientific equipment, possibly a microscope or a specialized imaging system. His hands are positioned near a petri dish containing several wells of purple liquid. The background shows various lab instruments and equipment, creating a professional and research-oriented atmosphere.

“Unrestricted gifts allow Wistar scientists the capacity to quickly seize opportunities to remain competitive in an environment that is very dynamic when it comes to platforms that allow you to innovate.”

Luis J. Montaner, D.V.M., D.Phil



Educating the Scientific Leaders of Tomorrow

Over the last 130 years, we have learned that we must constantly fuel the flame of discovery and hand off the torch of knowledge so new generations of scientific leaders can carry on our mission. The **Hubert J.P. Schoemaker Education and Training Center** brings all Wistar education and training programs under a single umbrella to make a lasting global impact on biomedical research. Its mission is to advance a well-trained, sustainable life science workforce—comprising a diverse and inclusive talent pipeline—for the benefit of our region and beyond. The Center will continue to broaden and expand long-standing programs that teach sought-after scientific skills needed for careers in the life science sector.

How to Train an Entrepreneur?

Wistar's newly expanded Life Science Innovation course is a good place to start

For as far back as he can remember, Roger Malerba wanted to be a physician. He majored in biology at La Salle University and even shadowed doctors to learn more about orthopedic surgery, the specialty he planned to pursue.

But Malerba's career plan got turned upside down his sophomore year when he opted to take a biology elective that sounded a little different from all the others—Life Science Innovation (LSI). The course taught La Salle undergraduates about technologies developed at The Wistar Institute and the many aspects of creating a biotech startup, such as intellectual property (IP) and financing. Then, it sets students loose to work in teams to create business plans around one of the technologies.

“It was eye-opening seeing all these different areas that are still in the greater healthcare industry, and that you can make an impact without being a physician or researcher,” Malerba says. He kept thinking about the course for months after the semester ended until one day, while studying for the MCAT, the admission test for med school, he realized that his heart was really in the business and technology world. Malerba is now the associate manager of business development and operations at Inventia Life Science.

The LSI course, which launched in 2016, has proven invaluable to students at a primarily undergraduate institution such as La Salle that do not have a large research enterprise to expose students to,



says David Zuzga, Ph.D., the Wistar associate dean of biomedical studies. Zuzga created the course with Heather Steinman, Ph.D., M.B.A., Wistar vice president for business development and executive director of technology transfer when he was an assistant professor at La Salle.

This year the course, which is offered every spring, expanded to include undergrads from Cheyney University of Pennsylvania, as well as Wistar graduate students and postdoctoral fellows and interns in Wistar's Business Development Office's Wi-Stars internship program. Like La Salle, Cheyney, which is the nation's first historically black college and university (HBCU), focuses on undergrad programs, and thus the LSI course offers a rare opportunity for its students to learn about biomedical research and the biotech sector.

For Wistar trainees who are already entrenched in the world of biomedical research, the course can help them see how to advance their discoveries beyond the bench. "We want the course to catalyze an entrepreneurial mindset in our trainees and for them to reflect back on how to translate their own research into the clinic and a potential commercial product," Zuzga says.

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David Zuzga, Ph.D.

It is a mindset that Zuzga had to acquire the hard way, when the university where he did his Ph.D. research filed for a patent for some of the discoveries he had made. Zuzga and his colleague navigated cofounding a cancer diagnostics startup, and even secured some initial financing and started a pilot study. Although the company fizzled out, Zuzga met Steinman, along the way and the two dreamt up the idea for the LSI course.

Each year, Steinman puts together a portfolio of different Wistar discoveries and technologies and Wistar scientists who were involved in the research meet with students in the class. Students and trainees divide up into several teams representing their respective institutions and the teams choose one of the technologies to use as the basis for their startup. In addition, a wide range of subject matter experts representing the entire path to commercialize biomedical technology—IP attorneys, market researchers and analysts, investors, clinical researchers, and others—present to the class in weekly online classes.

Throughout the semester, the teams develop a business plan, including potential commercial applications for the technology, and meet with faculty at their home institutions once a week to get feedback. The course culminates in a Shark Tank-style competition at Wistar. Teams pitch their plan to a panel of judges, most of whom are actual biotech investors, and the judges select a winning team from La Salle, Cheyney, and Wistar. The undergrads receive course credit and Wistar participants receive a certificate in entrepreneurship and life science innovation.

Malerba's team captured the prize among the La Salle groups back when he took the course in 2018. The team—made up of five students, a mix of biology, business, and integrated science majors—decided to focus on DNA-based vaccines as potential therapies for HPV (human papillomavirus)-induced cervical cancer. They



scoured research articles to become experts on the technology, and for the business plan, brainstormed about other virally induced cancers where the technology could be applied to broaden their business plan. Malerba fondly recalls how Zuzga shot down some of their ideas for a company name before his team settled on “Thera-T” (because the vaccines elicit a T cell response).

Although Malerba was disappointed not to spin a company out of their plan—a difficult feat, he notes, for a group of undergrads—he got something even more valuable from the course: connections. As soon as he decided to leave his med school path, he reached out to Steinman and investors who had presented to his class to learn about the path to work for life science startups and venture capital firms. “What I determined is that there’s not a right next step. You just take one and see what works and keep moving from there,” Malerba says.

For Malerba, the first next step was to complete the Wi-Stars Internship program led by Steinman to gain more experience in market research and analysis. Zuzga notes that taking the LSI course is now actually part of the Wi-Star internship. In addition, any Wistar trainee who completes the course can continue their education by participating in a new journal club led by Steinman that evaluates peer reviewed publications for IP potential.

Through his internship, Malerba met the chief operating officer of Inventia and got an offer for his

current job where he is now helping grow the small life science instrument company. Malerba’s dream is to eventually create his own biotech startups, including one based on discoveries made by his good friend from the LSI course who decided to stay in academic research.

The LSI course is receiving support from generous donors, including the Justamere Foundation, an organization that provides non-traditional scholarships and grants for career education. “The support is absolutely vital as we have worked to scale up and include Cheyney participants and bring in more technology and resources,” Zuzga says. Philanthropic partnerships have allowed the course to include more faculty to guide the students and trainees, and to host the Shark Tank event at Wistar. (Before this year, it had taken place at La Salle.) Zuzga hopes to further expand the course to include other undergrad institutions in the area.

Along with its expanded scale, the LSI course has a new home at Wistar, in the recently opened Hubert JP Schoemaker Education and Training Center. The location has special meaning because Schoemaker licensed Wistar technology back in the 1970s and co-founded Centocor, the nation’s first biotech company. “We will use his story as a case study for the course in taking a basic discovery, launching a company, finding your way, and actually being successful and impacting patients around the world,” Zuzga says. ●



Wistar Trains the Next Generation of Research Technicians Thanks to The Fox Family's Multigenerational Support

Since 2000, students at the Community College of Philadelphia have been participating in a summer program at The Wistar Institute to learn the ins and outs of being a research technician. Graduates of this program have the opportunity to apprentice in a lab at Wistar or one of its partners to develop more specialized skills, and ultimately, the foundation for a life science career.

Now, the newly named Fox Biomedical Research Technician Apprenticeship, has additional financial security and the ability to expand to more schools in the region thanks to an endowed gift to Wistar from Penny Fox, Amy Fox, and Daniel Wheeler in June. Along with providing continuity for community college students in their training journey, the gift reflects the enduring, multigenerational support of the Fox family.

Starting in the 1970s, Robert A. (Bob) and Penny Fox were instrumental in elevating Wistar to its current place as an international leader in vaccine and cancer research, through Bob's decades on Wistar's Board of Trustees and the couple's numerous investments. These resulted in the construction of a state-of-the research [building](#) and the establishment of a distinguished [professorship](#), both named after the couple, as well as a recent unrestricted estate gift. Since Bob passed away in 2021, their daughter Amy and her husband Dan have been carrying on the family's legacy.

"My parents have always supported education at various levels and the apprenticeship program fits in really well with their historical giving motivation," says Amy Fox. "The idea that Wistar is training the next generation of young Philadelphia and regional students to be able to work in the sciences is very important to us and aligns with our own personal values and mission," Fox adds.

Wheeler, who has been a member of Wistar's Board of Trustees for 20 years, first got really excited about the training programs when he saw how motivated and enthusiastic the Community College of Philadelphia students were to talk about the programs. "It was a real eye opener for me--these are the people we are trying to reach," he says. Wheeler sees the programs as a shining example of workforce development and job creation in the region that could be replicated at colleges and research institutions around the world. "Everyone talks about 21st century jobs, but very few people actually create them," he says.

The need for experienced laboratory technicians in the Philadelphia region has never been greater, with the explosion in the life sciences sector in the area in recent years. As many as 80% of US biotechnology companies have offices in Philadelphia, as well as many major pharmaceutical companies. These industry players, together with academic institutions, nonprofits

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Amy Fox





and local government stakeholders, are turning the area into a thriving hub of biomedical research.

The Fox Biomedical Research Technician (BRT) Apprenticeship is open to community college students who complete the summer instruction and internship, known as the Biomedical Technician Training (BTT) Program, which is a state-registered nontraditional pre-apprenticeship program. Last year, Wistar added students from Cheyney University, and with funding from the National Science Foundation and state of Pennsylvania, is looking to expand to additional colleges and universities.

“Part of our choice in undergraduate partners is schools where students don’t have the opportunity to get that hands-on training while they are undergraduates; these are smaller schools that don’t have biomedical research, or do not have enough opportunities for all of their science majors

to take part,” said Kristy Shuda McGuire, Ph.D., the Wistar dean of biomedical studies, who leads the programs.

The pre-apprenticeship program, which last year was consolidated from two summers to one, involves a 2-week lab orientation at Wistar and a ten-week work experience in labs at Wistar or one of its partners. After completing the program, students have the option to join the approximately 10-month Fox BRT Apprenticeship, either immediately or after they continue further along in their education. The only condition is that they start a full-time, paid position within a lab at Wistar or one of its employer partners such as Integral Molecular, a Philadelphia biotech company. The Fox BRT Program helps students find these positions and assesses their skills when they start the apprenticeship, at the halfway point, and once they complete the apprenticeship, after working 2,000 hours (including the pre-apprenticeship).

“The pre-apprenticeship is providing general skills that are applicable in many biomedical research labs, but then the Fox BRT Apprenticeship is training them for the specific skills that labs need.”

Kristy Shuda McGuire, Ph.D.

“The pre-apprenticeship is providing general skills that are applicable in many biomedical research labs, but then the Fox BRT Apprenticeship is training them for the specific skills that labs need,” explains Shuda McGuire.

The gift from the Fox family is critical for the Fox BRT Apprenticeship program because it supports Wistar faculty who run the program, and allows us to stay in touch with the apprentices, and assess them during their program, Shuda McGuire says. What is more, the gift is flexible in that it can also be directed toward the expanding pre-apprenticeship programs and help increase the number of pre-apprentices at various schools.

“That is what is great about institutional advancement at Wistar because, with funders, we approach their support like a partnership,” Shuda McGuire says. For his part, Wheeler notes that, “It has always been important to us not to be rigid and be guided from Wistar to know where they need the help.”

Three students are just beginning the Fox BRT Apprenticeship program, which is part of Wistar’s new Hubert J.P. Schoemaker Education and Training Center. After completing the apprenticeship, students may stay on as research technicians with their employer lab or continue on another path, such as pursuing further education.

William Wunner, Ph.D., a recently retired Wistar professor, created the BTT Program more than 20 years ago after noticing that research technicians in Europe did not need bachelor’s degrees and often stayed in their positions longer than those in the U.S. “The idea was to diversify and stabilize Wistar’s workforce to get long-term research technicians because it takes so much to train somebody,” Shuda McGuire says.

The Fox BRT Apprenticeship is the first-ever registered apprenticeship program for biomedical research by the Pennsylvania Department of Labor & Industry. “Traditionally, apprenticeships are used in construction and the trades, so the nontraditional aspect of the Fox BRT Apprenticeship is that this is outside of those areas, in life sciences,” Shuda McGuire says. “Being able to train for an industry, even if you are going to continue your education, is really powerful,” she says, adding that, no matter what students go on to do, they are more likely to have a career in STEM (science, technology, engineering, and mathematics) because of the pre-apprenticeship programs and the Fox Biomedical Research Technician Apprenticeship.

“We are very happy to continue my parents’ legacy. It is a great legacy,” says Fox. ●

International Fellows Program

Biomedical research knows no borders. Scientific exchanges across academic institutions around the world enrich knowledge, accelerate the pace of discovery, and facilitate the development of new cures. A cornerstone of scientific collaboration is the exchange of qualified and dedicated research trainees: motivated, hardworking young scientists who embrace the challenge of working abroad in a supervised research environment that will provide them with excellent training, new skills, and research know-how they will be able to bring back to their own country at the end of their stay. The United States has historically been a magnet for such trainee exchanges. Generation of scientists throughout the world have come to the US to acquire new research skills, contribute substantial research advances in many fields of study, and dramatically expand the reach and accomplishments of American scientific programs in countless fields.

Wistar plays a unique role in advancing early-stage discovery and our primary workforce at the Institute is comprised of postdoctoral fellows, with a majority of them visiting from foreign countries. Postdoctoral fellows have obtained their terminal degrees, typically a Ph.D. or an M.D., and are pursuing an outstanding



“I am so pleased to support The Wistar Institute, both because it is one of the transformative and leading biomedical research organizations in the country, and secondly, as there are long-existing family ties here,”

I. Wistar Morris, III



training experience to advance their careers, while contributing to the research efforts and advances of their hosting laboratory. Postdoctoral positions are not permanent and are on a defined time-limit. At Wistar, a postdoctoral fellow can only remain in the position for up to five years. Throughout its 130 year-history in the biomedical sciences, The Wistar Institute has fulfilled its mission of being a magnet and a haven for the education, training, and career development of foreign graduates, and benefitted for their contributions in research innovation in cancer, immunology, and vaccines.

As part of Wistar’s **Bold Science//Global Impact** campaign, **The Cotswold Foundation and I. Wistar Morris, III** pledged to invest in a five-year postdoctoral training fellowship at The Wistar Institute for one International Ph.D. or M.D. graduate who has recently received their degree.

Recognizing that the potential of scientific discovery in biomedical research extends well beyond our borders, The Wistar Institute is thrilled to create a postdoctoral fellowship in immunology, cancer research, and/or vaccine biology for recent Ph.D. or M.D. graduates. Wistar scientists come

from all over the world, and foreign trainees are often not eligible to apply for federal grants and other sources of funding available to American citizens, so the Cotswold fellowship represents special opportunities for these early-career researchers.

“I am so pleased to support The Wistar Institute, both because it is one of the transformative and leading biomedical research organizations in the country, and secondly, as there are long-existing family ties here,” said Mr. Morris.

Wistar’s ability to attract and support a cadre of exceptional, diverse, and talented postdoctoral fellows is critical to our continued success in conducting transformative biomedical discoveries to advance improvements in human health and save lives. Thank you to The Cotswold Foundation and I. Wistar Morris, III for their generosity and foresight. ●

The Cotswold Postdoctoral Fellow will be appointed by the end of 2022.

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Powerful support — your support — can expand and accelerate our progress, bringing lifesaving breakthroughs to reality years sooner. Thank you for being a partner in our research community.

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