

# UNIVERSITY OF PENNSYLVANIA *Almanac*

Tuesday  
January 11, 2022  
Volume 68 Number 18  
[www.upenn.edu/almanac](http://www.upenn.edu/almanac)

## Welcome Back From the President

### Truly Without Peer

This will be my final *Almanac* Welcome Back column as the president of the University of Pennsylvania. I want to say from the bottom of my heart and with boundless affection, thank you! What a phenomenal run it has been with this ever-amazing Penn community!

Seventeen years ago, when I first put pen to paper for the January issue, I wrote about our brand-new Penn Compact. We set out together—the very best faculty, staff, students, and alumni—united by a shared University vision to propel Penn from excellence to eminence.

Thanks to all of you and to every member of the Penn community, we have not only accomplished what we set out all those years ago to do. We have soared past each successive finish line, exponentially expanding the inclusion, innovation, and impact of our University, and changing and saving countless lives. Forget eminence. By every measure, Penn has performed so remarkably, our team so admirably, that the University of Pennsylvania now rightfully stakes its claim to preeminence.

We have achieved and shared so much together: Becoming the largest university to go all-grant for undergraduate financial aid; dramatically growing affordability and opportunity for the most talented students from all backgrounds; recruiting and retaining the finest and most diverse faculty; fostering groundbreaking innovation while breaking ground on millions of square feet of the most beautiful, sustainable, and cutting-edge campus facilities, renovations, and green spaces; and serving as a mighty force for good locally, nationally, and globally.

All of this we have done and much more. Through highs and lows, through the Great Recession and this terrible pandemic, through convocations and commencements, Hey Days and homecomings, Alumni Weekends and academic processions, edifying symposia and seminars beyond counting, jubilant matches at the Palestra and on Franklin Field, snow days on College Green and sunny afternoons in Penn Park. Throughout it all, I have always felt enormous pride and will always be profoundly grateful for my Penn family, who have made being president of this phenomenal institution without a doubt the very best job in the world.

Among the best parts of the best job is celebrating together the never-ending achievements of the Penn community. Take as just two recent examples out of many our latest Rhodes Scholars, Penn Seniors Raven Kariyawasam and Nicholas Thomas-Lewis, and our newest Marshall Scholars, Penn Seniors Kennedy Crowder and Chinaza Ruth Okonkwo. Or the record-breaking success of our *Power of Penn* campaign, which raised more than \$5.4 billion for Penn and inspired alumni and friend engagement like we've never seen before. Or our new \$750 million investment to advance Penn's contributions across many pathbreaking areas of scientific research. From the most recent semester alone, I could fill volumes with the array of impressive accomplishments and accolades for our preeminent Penn faculty, students, staff, and alumni.

When I first arrived at Penn, I already knew that our people are something special. To borrow from our founder, here is a community of action-oriented scholars distinguished by their unique inclination joined with a powerful ability to open doors, cross disciplines, and do good in the world. Here's what I could only predict back then and what is fantastically manifest now: the incredible, irresistible momentum we would build, together. We would not only attain preeminence but continue to push smartly, joyfully ahead to the next advance, the next life-changing initiative, the next big chapter.

In my first-ever January *Almanac* column, I remarked that with the Penn Compact as our North Star, I saw nothing stopping us from skyrocketing to become a 21<sup>st</sup> century university truly without peer. We have indeed confronted historic challenges, but nothing has stopped us. Penn today is a preeminent American university with a global perspective for the 21<sup>st</sup> century and beyond, a leader and an educator without peer. That is because our people, my wonderful Penn family, are truly without peer. Thank you all for everything, and here's to another fantastic semester of life-changing education, research, and service at Penn.

—Amy Gutmann, President

## Kevin Johnson: David L. Cohen University Professor

Kevin Johnson, a Penn Integrates Knowledge Professor who holds joint appointments in the department of computer and information science in the School of Engineering and Applied Science and the department of biostatistics, epidemiology, and informatics in the Perelman School of Medicine, has been named the David L. Cohen University Professor.



Kevin Johnson

"David Cohen's extraordinary leadership at the University and Penn Medicine, and longtime dedication to Philadelphia, has without a doubt shaped the booming campus, health system, and city we so much enjoy today," said Penn President Amy Gutmann. "His dedication is mirrored by the extraordinary

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## Vance Byrd: Presidential Associate Professor

Vance Byrd joined Penn Arts & Sciences as a Presidential Associate Professor of Germanic Languages and Literatures on January 1. Dr. Byrd is a scholar of late-18th- and 19th-century German cultural studies, the history of the book and periodicals, literature and visual media, Black studies, and environmental humanities. He is the author of *A Pedagogy of Observation: Nineteenth-Century*



Vance Byrd

*Panoramas, German Literature, and Reading Culture*, and has co-edited two books and two

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### A Message Concerning Masks, Testing, and Vaccine Booster Clinics

January 7, 2022

We hope that all of you had a good Winter Break, and we are excited to welcome you back to the spring semester. While the current circumstances may not be what any of us would prefer, we are determined to sustain our core university missions. We know that we can count on every member of our community to be part of this effort, as we all navigate together this challenging phase of the pandemic. With that in mind, we are writing to update you on four key steps that we are taking to maintain our shared health and safety as we begin the semester. Please note that UPHS-affiliated faculty and staff should follow guidance from the Health System.

**Pre-Arrival Testing:** All students are required to complete pre-arrival testing 48 hours before returning to campus. Faculty, staff, and postdocs are also strongly encouraged to complete a test before returning to campus. A PCR test is preferred, but rapid tests are also acceptable. Those who receive a positive PCR test result must email their result to [covidtesting@upenn.edu](mailto:covidtesting@upenn.edu) and report their positive result through [PennOpen Pass](#). Those who receive a positive rapid test result must report their result through [PennOpen Pass](#). Anyone with a positive pre-arrival test should complete their isolation at home before arriving to campus. Negative test results do not need to be submitted to the University. Those who do not have access to a pre-arrival test should immediately test upon arrival to campus and quarantine until they receive a negative test result.

**Gateway Testing:** As an additional safety measure, all students, faculty, staff, and postdocs who will be on campus and/or enrolled during the spring semester are required to complete a gateway test after returning to campus and no later than January 31, regardless of vaccination status or result of pre-arrival testing. Those arriving to campus after the end of January should test on the day they arrive to campus. This test must be completed through our Penn Cares testing system. Anyone with a positive result from a gateway test will be required to isolate and cooperate with our contact tracing efforts. All University community members can [schedule their gateway test on the Penn Cares website](#).

**Masking Requirement:** Masking remains a key mitigation strategy in our efforts to minimize transmission during this virulent phase of the virus. Beginning January 10, all members of the Penn community in campus buildings will be required to double mask (layering a cloth mask on top of a disposable mask) or to wear a KN95 or N95 mask. We will also increase the availability of masks across campus.

**Vaccine Booster Clinic:** Vaccine booster clinics will be held on January 14, 17, 18, and 19. More information about scheduling a booster clinic appointment will be forthcoming. For more information about the booster requirement, please visit the [Public Health Guidance](#) page.

We are closely monitoring this evolving situation, and we will continue to communicate with you and to adjust our protocols as circumstances change. We are grateful for the extraordinary resilience and flexibility of our Penn community as we move forward, and we hope to be able to share some better days ahead in 2022.

### A Message to Penn Faculty, Staff, and Postdocs

December 31, 2021

We hope that all of you have been enjoying the winter break. We are writing with several updates and reminders, as we head into the new year and the new semester, on the following topics:

- Updated CDC guidance on isolation and quarantine
- Available PCR testing on campus and required gateway testing
- Remote work
- Vaccine booster

The Centers for Disease Control and Prevention recently [updated its guidance](#) to reduce, for those who are fully vaccinated or boosted against COVID-19, both the length of isolation after contracting COVID-19 and the quarantine period for those exposed to the virus. Accordingly, we have also [updated our guidance](#) and [provided additional FAQs](#). We will communicate further with students about this guidance before the start of the spring semester.

PCR testing is readily available on campus for all students, faculty, staff, and postdocs throughout winter break. Symptomatic testing is also available and has been relocated to Irvine Auditorium. Additional information about hours and locations can be found [here](#). Gateway testing will be required of all faculty, staff and post-docs upon return to campus and no later than January 24, 2022.

All members of the Penn community who do not have an [approved exemption](#) are required to get a booster vaccine shot by January 31, 2022

or as soon as they become eligible if they have not already done so, and to document their latest dose [in Workday](#). The University will offer additional booster clinics in January, and we will share the details about those clinics as the dates get closer. Those who have been granted a medical or religious exemption from vaccination will be required to continue to test twice a week.

University staff members, as indicated in our [message on December 23](#), are reminded to consult with their supervisors about working remotely until January 24, 2022.

UPHS-affiliated faculty and staff should follow guidance from the Health System.

We will continue to share information and updates as we move forward. We wish you all good health and happiness for the new year and through the remainder of winter break.

### Important Information Regarding the Start of the Spring Semester

December 23, 2021

As we wish you all a joyful and healthy holiday break, we write to update you on our plans to start the new semester in a way that ensures the safest and most fulsome Penn educational experience.

Recognizing the high level of concern about the Omicron variant and its potential impact on spring semester operations, we have been consulting closely with medical and public health experts, as well as monitoring data concerning the variant's spread. While this is an uncertain situation, the data modeling suggests that we must take steps to prepare for a potential surge of cases in January. To that end, we summarize below our plan for the start of Penn's 2022 spring semester. Our plan is designed to optimally protect the health and safety of our community and sustain the educational and research mission that defines our university. It is supported by the talented and dedicated Penn team that has done so much since the start of the COVID-19 pandemic in spring 2020.

#### Delayed In-Person Classes and Student Move-In

We will begin undergraduate classes as scheduled on January 12 in virtual formats online (except for clinical courses), and then transition to in-person classes on January 24. We will also delay undergraduate student move-in to campus housing by one week, to begin on January 15. More detailed information will follow in the coming weeks. Students in graduate and professional programs will receive additional guidance from their programs, as will postdoctoral fellows. These measures are designed to reduce the spread of COVID-19 on campus during the peak weeks of January when the spread will potentially be most active.

#### Pre-Return to Campus Testing Requirements

All students will be required to complete a negative PCR test 48 hours before returning to campus. We will send more information in January about this requirement. Free testing will continue to be available to all students, faculty, staff, and post-docs on campus throughout winter break; you can find the testing [schedule here](#).

#### Ongoing Mitigation Measures

We will continue to enforce our testing, masking, OpenPass, and vaccination guidelines, along with our [new booster requirement](#). Upon initial return to campus, we will require a new gateway test for all faculty, staff, students, and post-docs. We also will continue our suspension of indoor social events. Dining will be grab-and-go pending further evaluation of the case trends. We will follow up in the new year with more details concerning these policies and actions.

#### Faculty and Staff Information

For faculty members, you will hear more from your individual deans about plans and protocols in your schools. For staff members, we strongly encourage deans and vice presidents to allow employees to work remotely until January 23, when possible, given job responsibilities and organizational needs. UPHS-affiliated faculty and staff should follow guidance from the Health System. We are enormously appreciative of all employees who continue to work on campus in support of our entire community.

In the weeks ahead, we will continue to assess the evolving context and communicate to you about it. We will not hesitate to change our guidance based upon input from our medical and health experts. We are grateful for the patience, resilience, and flexibility of every member of our community as we face unpredictable circumstances together.

We again wish you a healthy and happy holiday break, and we look forward to getting started together on the spring semester in the new year.

—Amy Gutmann, President

—Beth Winkelstein, Interim Provost

—Craig Carnaroli, Senior Executive Vice President

—J. Larry Jameson, Executive Vice President for the Health System



## Kevin Johnson: David L. Cohen University Professor

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narily influential, innovative, and committed Dr. Kevin Johnson, whose university professorship will now bear Ambassador Cohen's name."

Dr. Johnson came to Penn in 2021 from the Vanderbilt University School of Medicine. A board-certified pediatrician and leading medical informaticist, he is also vice president for applied informatics at the University of Pennsylvania Health System and has a secondary faculty appointment in the Annenberg School for Communication.

David Cohen has served for two decades on Penn's Board of Trustees and recently concluded a 12-year term as chair. He was confirmed by the U.S. Senate in November 2021 as United States Ambassador to Canada, bringing to the role decades of experience as a senior executive at Comcast Corporation, chair of the Ballard Spahr law firm, chief of staff to Philadelphia Mayor Ed Rendell, trustee chair at Penn, and major player in a number of other business, civic, political, and philanthropic venues.

In addition to serving as a Penn Trustee, Mr. Cohen is a Penn alum, having graduated from what is now the University of Pennsylvania Carey School of Law in 1981.

His wife and son also attended the Carey Law School. Mr. Cohen's leadership at Penn has been credited with helping guide the growth and advancement of Penn and its Health System, in close partnership with both President Gutmann and her predecessor, Judith Rodin.

"It's an honor to hold a professorship named after Mr. Cohen," Dr. Johnson said. "Throughout his career, he has provided inspired leadership across Penn and our city and region. He is a passionate believer in uniting the public, private, and nonprofit sectors to tackle complex challenges and strengthen communities. Those who know me know that I've played a similar role as a pediatrician who works with technology, and who uses digital media to communicate to lay audiences about both. His passion for this city and our University's educational mission is inspiring."

## Vance Byrd: Presidential Associate Professor

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special issues of journals. His new co-edited collection, *Queer Print Cultures*, is forthcoming. Dr. Byrd's research has been supported by grants from the National Humanities Center, the National Endowment for the Humanities, the Fulbright Commission, and the Getty Research Institute.

In 2019, Dr. Byrd was awarded a New Directions Fellowship from the Andrew W. Mellon Foundation. He is currently on the editorial boards of *Monatshefte*, *The German Quarterly*, and the *Signale* book series at Cornell University Press. He comes to Penn from Grinnell College.

The Presidential Professorships are five-year term chairs awarded by University of Pennsylvania President Amy Gutmann and approved by the Provost. These awards are made to outstanding scholars and individuals who contribute excellence and diversity to Penn's inclusive community.

## Deaths

### Richard Schwartz, Electrical Engineering

Richard (Dick) Frederick Schwartz, a former professor in Penn's Moore School of Electrical Engineering, passed away on December 4, 2021 after complications from a fall. He was 99.

Dr. Schwartz served in the U.S. armed forces during World War II (an experience that made him an anti-war activist later in life). After completing his education, Dr. Schwartz began his career by working at RCA Victor. In the late 1950s, he came to Penn's Moore School of Electrical Engineering, which has since been absorbed into Penn Engineering, as an assistant professor. In 1959, he co-authored *The Eavesdroppers*, a non-fiction book that explored the history of privacy in America and suggested that the dystopian world of George Orwell's 1984 could be put into practice via government surveillance.

In the fall of 1960, Dr. Schwartz spent a semester at the University of Michigan at Ann Arbor as a visiting assistant professor of electrical engineering. In 1963, he served on a Penn panel that created the curriculum for Penn's first undergraduate computer course. Outside of Penn, Dr. Schwartz was involved with Philadelphia engineering circles. In 1962, he was a judge at the annual Delaware Science Fair, and four years later, he was the keynote speaker of a conference of the Engineering and Technical Societies Council of Delaware Valley. Around 1966, he was promoted to associate professor at Penn.

In 1971, Dr. Schwartz wrote an op-ed in *Almanac* contesting a proposed unification of all Penn's undergraduate students into one program (*Almanac May 20, 1971*). "Freshmen in the college frequently complain that they feel 'lost' with no sense of identity," the piece stated. "Making all students part of a still larger student body will not alleviate this, only make it worse. On the contrary, presently the new engineering students quickly feel a sense of identity. They feel they 'belong.' Because of this, the trend should not be toward greater concentration, but rather toward greater decentralization." Dr. Schwartz was active elsewhere in the Penn community, serving on several Faculty Senate and University Council committees in the late 1960s and early 1970s.

Dr. Schwartz left Penn in 1973 to serve as chair of the department of electrical engineering at Michigan Technology University. Twelve years after that, he accepted a position as a professor of electrical engineering at Binghamton University's Watson School. A gifted tinkerer, Dr. Schwartz would attempt to fix just about any piece of electronic equipment and could build a functioning radio with a lump of galena and some spare parts lying around his shop. After retiring from Binghamton in 2006, Dr. Schwartz moved to Peru, New York, but remained active in teaching, mentoring young students in the Binghamton area. In his spare time, Dr. Schwartz was a clarinetist and pianist.

He is survived by his children, Kate (Schwartz) Mortimer, Stuart Holland (Doug Federhart), Frieda (Schwartz) Cialek (Brett Nyman)



Richard Schwartz

and Eric Schwartz (Margaret Yaukey); his stepchildren, Rachel Romanowicz (Ed) and Richard Boes (Lori); three grandchildren, and four step-grandchildren. A funeral ceremony and memorial service have yet to be scheduled. Gifts in Dr. Schwartz's memory can be made to the Eleanor L. Schwartz Memorial Fund at the Cortland YMCA, 22 Tompkins St, Cortland, NY 13045.

### James Mann, FRES

James Raymond (Jim) Mann, an architectural illustrator in Penn's division of Facilities and Real Estate Services (FRES), passed away on December 26, 2021. He was 75.

Mr. Mann apprenticed under Edward H. Leaman, the White House artist during the Kennedy administration and the designer of renovations for the Red Room and the Green Room commissioned by Jacqueline Kennedy, in the 1960s and 1970s. In 1976, Mr. Mann joined Penn's Planning Office, the precursor to today's FRES, as an architectural illustrator (or, in his words, as a "graphic stuntperson"). He worked with planners and architects to produce renderings (and later, photos) of proposed buildings and renovations on Penn's campus. Many of his drawings appeared in *Almanac* over the years, illustrating exciting Penn building projects.

Over the course of his forty-year career, Mr. Mann was responsible for managing virtually all campus signage and graphic standards, including the now-familiar building identification and wayfinding blades, campus maps, donor signage, construction fencing scrims, and event banners. The Penn banners currently displayed on street-light poles around campus are his design. When Mr. Mann retired in 2015, he mentored the two graphic designers who succeeded him.

Outside of his role at Penn, Mr. Mann was an established landscape artist, painting watercolor scenes of farm life, small-town scenes, covered bridges, trains, and especially lighthouses. His work filled calendars and magazine stories and appeared on the occasional book cover. In his retirement years, Mr. Mann lived on a farm in Orefield, PA, and raised all manner of wildlife. Upon his death, Mr. Mann donated his body to the Perelman School of Medicine for research.

Mr. Mann is survived by his wife, Joyce Susan Mundis Mann; his sons, Jason (Tina), Joshua (Julia), and James; and five grandchildren. In lieu of flowers, donations in Mr. Mann's name can be made to Meals on Wheels or another meaningful cause of the donor's choice.

### Archbishop Desmond Tutu, Honorary Degree Recipient

Desmond Tutu, a groundbreaking anti-apartheid and human rights activist who served as the first Black African Bishop of Johannesburg and then Archbishop of Cape Town, passed away on December 26, 2021. Archbishop Tutu held many prestigious positions in the religious and secular civic life of South Africa, and often endured house arrest and other punishment at the hands of South Africa's racist regime. Archbishop Tutu was awarded the 1984 Nobel Peace Prize for his work.

In May 2003, Rev. Tutu delivered Penn's commencement address and received an honorary degree. In his address, "We All Are Family" (*Almanac May 27, 2003*), he described the struggle for freedom in South Africa and emphasized nonviolence and forgiveness: "We learned in South Africa that there is no way in which you are going to have true security that comes from the barrel of a gun."

# Honors & Other Things

## Elijah Anderson: Stockholm Prize in Criminology

Elijah Anderson, the Charles and William Day Distinguished Professor Emeritus of the Social Sciences in the School of Arts and Sciences' department of sociology, has been awarded the 2021 Stockholm Prize in Criminology for his groundbreaking urban ethnographies documenting violence and life in inner-city African American communities.

In announcing the annual award, the most prestigious in the field of criminology, the Stockholm Prize in Criminology Foundation said that Dr. Anderson's scholarship "has considerably improved our understanding of the dynamics of interactions among young men and women that lead to violence, even among good friends."

"His years of immersion in street life in Chicago and Philadelphia provide a social microscope for observing and understanding the consequences of prejudice and blocked opportunities through the eyes of people growing up in those areas," the foundation stated.

Dr. Anderson, who is also the Sterling Professor of Sociology and African American Studies at Yale, is one of the country's leading urban ethnographers and cultural theorists. As a doctoral student at the University of Chicago in the 1970s, he began studying street corner life at a local bar/liquor store located on Chicago's South Side for his dissertation. He visited the same location nightly for nearly three years to gain a deeper understanding of the group of men he met there. This qualitative fieldwork provided the basis for his widely acclaimed first book, *A Place on the Corner: A Study of Black Street Corner Men*, which vividly depicts how the men he observed maintained their social status in the eyes of the others, revealing a complex social order regulated in part by violence. He has since authored four other books that examined status and racial hierarchies and divisions in urban settings.

The Stockholm Prize in Criminology is an international prize established under the aegis of the Swedish Ministry of Justice and with major contributions from the Torsten Söderberg Foundation. First awarded in 2006, the prize recognizes outstanding achievements in criminological research or the application of research results to reduce crime and advance human rights.

## Cherie Kagan: Fellow of the National Academy of Inventors

Cherie Kagan, Stephen J. Angello Professor in the departments of electrical & systems engineering and materials science & engineering in SEAS, has been named a 2021 fellow of the National Academy of Inventors (NAI), an award of high professional distinction accorded to academic inventors. Elected fellows have demonstrated a prolific spirit of innovation in creating or facilitating outstanding inventions that have made a tangible impact on quality of life, economic development and the welfare of society.

Dr. Kagan's research interests include studying the chemical and physical properties of nanostructured materials and integrating materials with optical, electrical, magnetic, mechanical, and thermal properties to create multi-functional devices. Her lab explores the properties of materials and measures the characteristics of devices using spatially- and temporally-resolved optical spectroscopies, AC and DC electrical techniques, electrochemistry, scanning

probe and electron microscopies, and analytical measurements.

In addition to serving as Penn Engineering's Associate Dean of Research, Dr. Kagan is also the director of the NSF Engineering Research Center for the Internet of Things for Precision Agriculture (IoT4Ag), an interuniversity initiative that seeks to address food, energy, and water security challenges by developing a suite of novel, networked technologies. Through soil-based microsensors, mobile robots, and analytical software tailored to agricultural decision-making, IoT4Ag aims to make modern farming more efficient and train the next generation of agricultural workers to maximize these tools.

The academic inventors and innovators elected to the rank of NAI Fellow are named inventors on U.S. patents and were nominated by their peers. Along with 163 other newly elected Fellows, Dr. Kagan will be inducted on June 15, 2022, at the NAI 11th Annual Meeting in Phoenix, Arizona.

## Kennedy Crowder and Chinaza Ruth Okonkwo: Marshall Scholars

University of Pennsylvania seniors Kennedy Crowder and Chinaza Ruth Okonkwo have been named 2022 Marshall Scholars. Established by the British government, the Marshall Scholarship funds up to three years of study for a graduate degree in any field at an institution in the United Kingdom.

Ms. Crowder and Mx. Okonkwo are among the 41 Marshall Scholars for 2022 representing 33 institutions in the United States, chosen from 1,000 applicants. The prestigious scholarship, meant to strengthen U.S.-U.K. relations, is offered to as many as 50 Americans each year.

Ms. Crowder, of Landenberg, Pennsylvania, is majoring in English, minoring in East Asian languages and civilizations with a concentration in Japanese, and earning the certificate in American Sign Language in the College of Arts and Sciences. With an interest in critical and creative writing, Ms. Crowder is a peer tutor, a course-embedded writing fellow a Robeson High School Initiative teacher, and a curriculum developer at Penn's Marks Family Center for Excellence in Writing. She is executive editor of the *Penn Undergraduate Law Journal*, a managing editor of *The F-Word Magazine*, and a managing editor of *The Penn Review* literary magazine. In the summer of 2020, she created the collective Black Penn English, a discussion space and support group for Black members of the English department. Ms. Crowder is the inaugural recipient of the English Department Community Award and is in the English Honors Program. An advocate for Black academic excellence, she is a member of the Gamma Epsilon Chapter of Alpha Kappa Alpha Sorority Inc. and the Paul Robeson and Anna Julia Cooper Scholars Program, and the community service chair of the Onyx Senior Honor Society. Ms. Crowder plans to pursue a master's degree



Kennedy Crowder

in Black humanities at the University of Bristol and a master's degree in English and related literature at the University of York.

Mx. Okonkwo, of Los Angeles, is majoring in philosophy and history in the College of Arts and Sciences with a concentration in moral and political philosophy and world history and minors in Africana studies; gender, sexuality, and women's studies; and Native American and Indigenous studies. They submatriculated into the philosophy master's program and will also receive their master's degree upon graduation in May. Mx. Okonkwo is a 2021 Beinecke Scholar, an Andrea Mitchell Center Undergraduate Fellow, a Wolf Humanities Center Undergraduate Fellow, a Mellon Mays Research Fellow, a Perry World House Student Fellow, a Paul Robeson and Anna Julia Cooper Scholar, and a Benjamin Franklin Scholar. They have done extensive research across the humanities and social sciences throughout their Penn career. Mx. Okonkwo's current independent research project on Igbo philosophy aims to explore Igbo metaphysics and epistemology and reshape the understanding of indigeneity as it relates to Africa. They are also interested in Igbo political philosophy and institutions and in the history of the Igbo women's war. They were an editor of the *Penn History Review*, a research peer advisor, and the founder of a digital radical reading collective. Mx. Okonkwo plans to pursue a BPhil degree and a DPhil degree in philosophy at the University of Oxford.

Ms. Crowder and Mx. Okonkwo applied for the Marshall Scholarship with assistance from the Center for Undergraduate Research and Fellowships. Penn has had 21 Marshall Scholars since the scholarship's creation in 1953 and seven in the past four years.

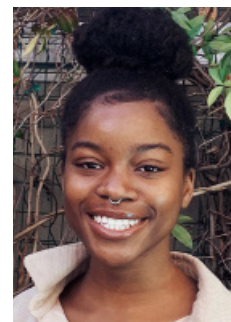
Ms. Crowder and Mx. Okonkwo applied for the Marshall Scholarship with assistance from the Center for Undergraduate Research and Fellowships. Penn has had 21 Marshall Scholars since the scholarship's creation in 1953 and seven in the past four years.

## Layla Murphy: Secretary of State Award

Layla Murphy, C'23, is a winner of the 2021 Secretary of State Award for Outstanding Volunteerism Abroad (SOSA) from the Associates of the American Foreign Service Worldwide. The award recognizes Ms. Murphy's work in the UAE during her gap semester.

Ms. Murphy, from Cairo, Egypt, shares the award with Sari Heidenreich, director of programs in Oman and Kuwait for Do Bold, a human rights organization. Together they supported the repatriation of Sierra Leonean domestic workers who had been trafficked to and/or exploited in Oman. They helped raise nearly \$30,000, which allowed 43 victims of trafficking and exploitation to return home; organized repatriations logistics; provided direct education and empowerment to hundreds of women; and conducted research to help the international community better understand how to address the underlying issues.

Ms. Murphy, a philosophy major, is currently a student intern with USAID, and a research assistant in political science. She is co-founder and editor-in-chief of *Quake Magazine*.



Chinaza Ruth Okonkwo



## Nominations for Penn Fellows and Mellon Fellows Accepted Through February 15, 2022

The Office of the Provost requests nominations for the fourteenth cohort of Penn Fellows and the second cohort of Mellon Fellows.

### Penn Fellows Program

The Penn Fellows program provides select mid-career faculty (newly tenured to early full professors) with opportunities to develop their leadership skills, build networks, think strategically, and interact with campus leaders. It also promotes an interdisciplinary network of support for participants as they move through their careers. Previous Penn Fellows have subsequently served as deans, department chairs, and vice provosts.

### Mellon Fellows Program

The Mellon Fellows Program, with financial support from the Mellon Foundation, supports mid-career faculty (newly tenured to early full professors) in core humanities and arts disciplines, from departments that are strongly inflected by the humanities, and/or whose work is strongly based on cultural/historical analysis. The program is intended to introduce arts and humanities faculty to the fundamentals of leadership roles, encourage collaboration and community across departments and disciplines, and build the next generation of higher education leaders imbued with humanistic culture and values.

### Expectations

Participants are expected to participate in the leadership development sessions created for these programs. These sessions will be scheduled over the course of the 2022-2023 academic year. Participants will

also be invited to participate in the Provost's Leadership Academy.

### Qualifications

Candidates for both programs should be mid-career faculty (newly tenured to early full professors) with a demonstrated record of academic excellence, administrative leadership potential, and interest in higher education leadership. Of particular interest are faculty who have not yet held senior higher education leadership positions, faculty from groups that are historically underrepresented in higher education leadership, and faculty who can further contribute to the excellence and diversity of our campus leadership.

The Mellon Fellows program is limited to faculty in core humanities and arts disciplines, from departments that are strongly inflected by the humanities, and/or whose work is strongly based on cultural/historical analysis.

### Request for Nominations

For 2022-2023, we seek to select approximately 15 faculty members for each program.

Nominations should be submitted to [provost-fac@upenn.edu](mailto:provost-fac@upenn.edu) by February 15, 2022. Nominations should identify the preferred program and include the candidate's curriculum vitae and a letter of support from their dean or department chair. Previously nominated candidates may be re-nominated.

Please direct questions to Connie Chang at [conniech@upenn.edu](mailto:conniech@upenn.edu).

—Office of the Provost

## Athletics Events Closed To Public Effective Immediately

The Division of Recreation and Intercollegiate Athletics (DRIA) at the University of Pennsylvania has announced that it will be restricting spectators for all winter sports effective immediately and until further notice. This decision has been made in response to the increase in positivity rates of COVID-19 within the City of Philadelphia and after consultation with University and campus health leadership. This decision will help DRIA maintain athletic competition for our student-athletes and coaches as we continue to monitor local health conditions.

### Penn Athletics Ticket Policy

**Season Ticket Holders/Mini-Plans:** Payment may be applied as a credit for future events, counted as a tax-deductible donation in support of Penn Basketball, or you may receive a refund. Please e-mail [tickets@pobox.upenn.edu](mailto:tickets@pobox.upenn.edu) or visit the following link detailing your request: <https://fs28.formsite.com/GoPennAthletics/form6/index.html?1640909604813>.

**Single Game Buyers/Student Guests:** For ticket exchange or refunds please contact the ticket office via [tickets@pobox.upenn.edu](mailto:tickets@pobox.upenn.edu) or visit the following link detailing your request: <https://fs28.formsite.com/GoPennAthletics/form6/index.html?1640909604813>.

**Groups:** Groups will be contacted directly by the Penn Ticket Office in the coming days to discuss exchange/refund options.

### Additional Information

- Effective December 31 and until further notice, all winter sport athletic events will continue to be held as scheduled; however, events will not be open to the general public.
  - Only a limited number of guests of the home and visiting team student-athletes and coaches will be permitted to attend the competition via pass list.
  - Ticket holders for all games that fall under these guidelines should [click here](#) for ticketing options.
  - Proof of vaccination is still required per the previous winter sport spectator guidelines for eligible player/coach guests who are permitted to attend:
- 1) Spectators, ages 12 and above, must show proof of vaccination to access the Palestra. A valid government or school-issued photo ID must also be shown with proof of vaccination.

- 2) Spectators 5 years and 3 months through 11 will need to show proof of one dose of COVID vaccine to gain admission and must be fully vaccinated by February 3 to gain access to the Palestra. A photo ID is not required for this age group.
  - 3) Acceptable forms of vaccination proof include a physical vaccination card or a photo of a full vaccination card on a smartphone. Apps and QR codes will not be accepted.
  - 4) Proof of exemptions or negative test results are not valid to gain admission.
  - 5) Eligible player/coach guests under the age of 5 will not be required to be vaccinated but must wear masks at all times if able.
  - 6) All eligible player/coach guests are required to wear a mask that covers their nose and mouth at all times upon entering, and throughout an indoor competition venue. There will be no food or beverages available within the venue. This applies to all hospitality areas, media workspaces, and concourses within, or adjacent to, the competition venue. Venue staff will be monitoring compliance throughout the competition. Those that do not comply will be asked to leave the venue by event management.
  - 7) Eligible player/coach guests are only permitted to bring in one sealed bottle of water during the competition.
  - 8) Eligible player/coach guests should use [PennOpen Pass](#) or [PennOpen Campus](#) to receive the required green PennOpen pass for admission to competition venues. (Eligible player/coach guest guardians will attest for eligible spectators aged 5 years and 3 months through 17 under their supervision).
  - 9) Doors open 60 minutes before the scheduled start of all winter sport competitions for eligible player/coach guests.
  - 10) Eligible player/coach guests are reminded to monitor their health symptoms daily and not attend an event if they feel sick.
- Any further updates regarding health and safety protocols for spectators for Penn winter sport athletic contests will be announced as needed based on local health conditions.

—Division of Recreation and Intercollegiate Athletics

## Calling All Summer Camps and Programs

*Almanac* publishes a supplement early each year featuring the camps and programs taking place at Penn over the summer. Offerings listed are camps for children, teens, and young adults for an array of activities from academic enrichment—including anthropology, business, law, veterinary medicine, and music—to numerous

recreation and sports camps. To submit information about a camp, email [almanac@upenn.edu](mailto:almanac@upenn.edu) with the following information:

- Name of camp
- Dates held (if multiple sessions, indicate dates for each)
- Age range for participants

- Short summary of the program
- Cost (note any discounts)
- URL for enrollment/application forms
- Deadline to apply/enroll (if applicable)
- Email, link, and/or phone number for more information.

## Suspension of Normal Operations

Although Penn typically never stops operating, emergencies like snow, hurricanes, and other severe weather conditions may sometimes result in the cancellation of classes and/or the full or partial closure of certain areas of the University. The Senior Executive Vice President (SEVP) makes decisions affecting work schedules and class cancellations in consultation with the Provost. The University will announce a closing or other modification of work schedules through the following channels:

- The University's emergency information number: (215) 898-6358 (215-898-MELT)
- Communications from the Division of Public Safety
- KYW News Radio (1060 AM), the City of Philadelphia's official storm emergency center
- The [UPennAlert Emergency Notification System](#) (for University-related incidents and crises)

The University's emergency radio identification code numbers (KYW News Radio) are "102" for day classes and schools/centers, and "2102" for evening classes. The message that accompanies the code number will provide the University's operating status. Be sure to keep this information in a place you can easily access.

Even when Penn is officially closed due to an emergency, some essential services must still be provided, such as Public Safety, Facilities, and Penn Dining. Staff members in essential positions are still required to work as normally scheduled under these circumstances.

For more information, please review the [Suspension of Normal Operations policy](#).

—Division of Human Resources



## The Penn Labs Freezer Challenge

The Penn Labs Freezer Challenge is designed to promote best practices in cold storage management. The Freezer Challenge covers all forms of cold storage, including refrigerators, freezers, and cold rooms. Labs participating in the challenge will be asked to submit an online scorecard, encouraging them to take actions toward freezer efficiency including regular defrosting, cleaning out old samples, temperature tuning, and sharing cold storage spaces. Sign-ups are accepted on a rolling basis. The challenge will start on *January 15, 2022*, and the deadline to complete the challenge is *April 15, 2022*. This challenge is also run on the international scale. For more information, visit [freezerchallenge.org](http://freezerchallenge.org). First, second, and third place winners will be awarded prizes at the celebratory end-of-challenge party where drinks and snacks will be served. Last year Cremins Lab of the Perelman School of Medicine took first place. Please email Laura Barron, sustainability analyst, at [lbarron@upenn.edu](mailto:lbarron@upenn.edu) to sign up, or if you have additional questions or comments. To learn more, visit: <https://www.sustainability.upenn.edu/events/penn-labs-freezer-challenge>.

## Call for Nominations for Penn Alumni's Faculty Award of Merit

Penn Alumni's Faculty Award of Merit was established in 2014 by Penn Alumni and the Office of the Provost. It is presented annually to an individual or group of collaborators for their outstanding contribution to alumni education and engagement at Penn by sharing their unique scholarship work with the alumni community. Special emphasis is placed on faculty members who go above and beyond the call of duty by engaging Penn alumni with the University as their intellectual home and educating the faculty community about the alumni engagement opportunities available to them. The 2021 honoree was Al Filreis, Kelly Professor of English, faculty director of Kelly Writers House, director of the Center for Programs in Contemporary Writing, co-director of PennSound, and publisher of *Jacket2* magazine ([Almanac November 16, 2021](#)).

The award consists of a formal citation and will be presented during the fall 2022 Alumni Award of Merit Gala.

All Penn faculty, staff, and alumni are eligible to nominate a faculty member for this award. For more information about award criteria and eligibility, or to nominate a faculty member, visit the [Faculty Award of Merit Presented by Penn Alumni](#) webpage. Nominations are due by *February 25, 2022*.

## Penn Predoctoral Fellowships for Excellence Through Diversity

The University of Pennsylvania invites applications for the 2022-2023 Predoctoral Fellowships for Excellence through Diversity. These awards are designed to provide mentorship and access to Penn's resources for doctoral students in the humanities or social sciences, enrolled in graduate or professional programs at universities other than Penn, as they complete their dissertations. The fellowships are intended to support scholars from a wide range of backgrounds who can contribute to the diversity of Penn and the higher education community.

These residential fellowships support graduate students in the final stages of dissertation research or writing at Penn for an academic year, usually from September through August. They offer an opportunity for scholars who plan an academic career to take advantage of Penn programs and faculty expertise and afford access to libraries and the resources of the Philadelphia region. Each scholar will be selected and hosted by a department or school and assigned a faculty mentor. Recipients will be in the stage of advanced dissertation research or writing.

The fellowship provides a stipend of \$40,000, health insurance, library privileges, and a \$5,000 research and travel fund. The application deadline is *January 14, 2022*.

### Qualifications

Recipients of this fellowship must be a U.S. citizen or permanent resident and enrolled in a PhD program in the humanities or social sciences at an accredited university graduate or professional school other than Penn. Eligible applicants should have passed all doctoral qualifying examinations and be in an advanced stage of research and writing on an approved dissertation topic. Selected applicants will be of exceptional academic merit and advance equity, diversity, and inclusion. Applicants are asked to disclose whether they belong to a group that is underrepresented in higher education, come from a disadvantaged background, have overcome significant personal obstacles, and/or pursue academic research on cultural, societal, or educational problems as they affect disadvantaged or underrepresented sectors of society.

### Application

Applicants should submit:

- Two letters of recommendation, signed and on official letterhead. One must come from the dissertation advisor, commenting on the student's performance, potential, and expected time to degree. At least one of the letters must address the applicant's contribution to diversity in higher education.
- Graduate transcript(s).
- Current curriculum vitae.

Applications will be accepted at <http://apply.interfolio.com/97878>. Questions can be addressed to the Office of the Vice Provost for Faculty at [provost-fac@upenn.edu](mailto:provost-fac@upenn.edu).

## Provost's Graduate Academic Engagement Fellowship at the Netter Center

The Provost's Graduate Academic Engagement Fellowship at the Netter Center for Community Partnerships (PGAEEF@NC) is an opportunity for PhD students across all schools and fields at the University of Pennsylvania. Fellows are outstanding students whose scholarship significantly involves Academically Based Community Service (ABCS) and related activities, including locally based community problem-solving, engaged scholarship, service learning, and learning by teaching in public schools.

The fellowship will involve the following:

- Years One (2022-2023) and Two (2023-2024): Participation in a faculty-student seminar on community-engaged research and teaching, a research fund for each fellow of \$5,000 over the two years, as well as support to attend and present at conferences.
- Year Two (2023-2024): A full fellowship in which fellows continue their studies and/or work on their dissertation. This fellowship should be treated like an external fellowship consistent with the practices of your graduate group.

**Eligibility:** PhD Students will be eligible to apply in the spring semester of their first year of study or any year thereafter provided they have at least two years left in their program at the start of the next term. The deadline for PhD students to apply is *January 31, 2022*.

For more information, visit [nettercenter.upenn.edu/get-involved/pgaeef](http://nettercenter.upenn.edu/get-involved/pgaeef) or email [provost-ed@upenn.edu](mailto:provost-ed@upenn.edu).



# Update

January AT PENN

## CHILDREN'S ACTIVITIES

### Penn Museum

Online events. Info: [www.penn.museum/calendar](http://www.penn.museum/calendar).

**11** *At-Home Anthro Live: Create a Legendary Creature*; 1 p.m.

**18** *At-Home Anthro Live: The Meaning and Making of Mandarin Squares*; 1 p.m.

## CONFERENCES

**14** *New DBEI Research Integration Focused Series: Wearable Devices and Mobile Health*; will facilitate collaborative work on both scientific and methodological questions that require further research; 10 a.m.-4 p.m.; Zoom webinar; join: <https://tinyurl.com/cceb-conference-jan-14> (Center for Clinical Epidemiology & Biostatistics).

## EXHIBITS

**13** *Lawrence Shprintz: A Work in Progress*; a lifelong dedication to the camera and medium of photography by American photographer Larry Shprintz (1927-2020), exploring many subjects, locations, and approaches; Fine Arts Gallery, Charles Addams Hall. Through January 25.

### Penn Museum

Online and in-person events. Info: [www.penn.museum/calendar](http://www.penn.museum/calendar).

**14** *Virtual Global Guide Tour: Asia Galleries*; 2:30 p.m.

**15** *Mexico & Central America Gallery Tour*;

### WXPN Board Meeting: January 26

The next meeting of the WXPN Policy Board will take place *Wednesday, January 26* at noon at WXPN.

For more information, email [tess@xpn.org](mailto:tess@xpn.org) or call (215) 898-0628 during business hours.

## The University of Pennsylvania Police Department Community Crime Report

**About the Crime Report:** Below are the **Crimes Against Persons** or **Crimes Against Society** from the campus report for **December 27, 2021-January 2, 2022**. Also reported were 3 crimes against property (2 auto thefts and 1 theft from building). Full reports are available at: <https://almanac.upenn.edu/sections/crimes>. Prior weeks' reports are also online. —Eds.

This summary is prepared by the Division of Public Safety and includes all criminal incidents reported and made known to the University Police Department between the dates of **December 27, 2021-January 2, 2022**. The University Police actively patrol from Market St to Baltimore Avenue and from the Schuylkill River to 43rd St in conjunction with the Philadelphia Police. In this effort to provide you with a thorough and accurate report on public safety concerns, we hope that your increased awareness will lessen the opportunity for crime. For any concerns or suggestions regarding this report, please call the Division of Public Safety at (215) 898-4482.

01/01/22	1:31 PM	4000 Walnut St	Carjacking at gunpoint
01/01/22	5:24 PM	200 S 33rd St	Domestic assault

### 18th District

**Below are the Crimes Against Persons from the 18th District:** 7 incidents (4 robberies, 1 aggravated assault, 1 domestic assault, and 1 indecent assault) were reported for **December 27, 2021-January 2, 2022** by the 18th District covering the Schuylkill River to 49th St & Market St to Woodland Avenue.

12/27/21	1:40 PM	200 S 47th St	Aggravated Assault
12/27/21	4:12 PM	232 S 45th St	Robbery
12/28/21	6:09 PM	405 S 45th St	Robbery
12/29/21	11:32 PM	4700 Walnut St	Indecent Assault
12/31/21	6:06 AM	4700 Chestnut St	Robbery
01/01/22	1:31 PM	4000 Walnut St	Robbery
01/01/22	6:10 PM	3400 Spruce St	Domestic Assault

11 a.m.

*Global Guide Tour: Middle East Galleries*; 2:30 p.m.

**16** *Africa Galleries Tour*; 11 a.m.

*Global Guide Tour: Mexico & Central America Gallery*; 2:30 p.m.

## FITNESS AND LEARNING

### Graduate School of Education (GSE)

Unless noted, online events. Info: <https://www.gse.upenn.edu/news/events-calendar>.

**14** *Friday Virtual Chats with Admissions*; 9 a.m.

**18** *Virtual Financial Aid Info Session*; 6 p.m.

## TALKS

**12** *Priming the NLRP3 Inflammasome*; Jelena Bezbradica Mirkovic, University of Oxford; noon; BlueJeans webinar; join: <https://primetime.bluejeans.com/a2m/live-event/xqbwzwhrb> (Microbiology).

**13** *Mechanical Forces and Morphogenesis of the Airway Epithelium*; Celeste Nelson, Princeton; 4 p.m.; Zoom webinar; join: <https://tinyurl.com/nelson-talk-jan-13> (Penn-CHOP Lung Biology Series).

*Fels Public Policy in Practice Speaker Series*; Marshall Ganz, Kennedy School of Government; 6 p.m.; Zoom webinar; register: <https://www.fels.upenn.edu/events/ppp-speaker-series-marshall-ganz> (Fels Institute of Government).

**18** *The Fission Fingerprint of Ruthenium Isotopes*; Susan Hanson, Los Alamos National Laboratory; noon; Zoom webinar; info: [rvargas@sas.upenn.edu](mailto:rvargas@sas.upenn.edu) (Chemistry).

*Topological Inference and Learning for Graphs*; Moo K. Chung, University of Wisconsin-Madison; 12:30 p.m.; Zoom webinar; join: <https://tinyurl.com/chung-talk-jan-18> (Center for Clinical Epidemiology & Biostatistics).

### Penn Dental

Unless noted, online webinars. Info: <https://www.dental.upenn.edu/news-events/events/>.

**11** *How to Manage Complex Patients When Things Go Wrong*; Miguel Stanley, Penn Dental; 6 p.m.

**14** *Methodology and Systematic Reviews with Meta-Analysis, What Are They?*; Anita Aminoshariae, Case Western Reserve; 8-10 a.m.

**17** *Orthodontic Assisted Periodontal Treatment*; Mandy Pen Shui, Penn Dental; 6 p.m.

## AT PENN Deadlines

The **January AT PENN calendar** is online. The February AT PENN submission deadline is today, **January 11**.



*Lawrence Shprintz: A Work in Progress, on display at Addams Hall through January 25. See Exhibits.*

## Almanac

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The University of Pennsylvania's journal of record, opinion and news is published Tuesdays during the academic year, and as needed during summer and holiday breaks. Its electronic editions on the Internet (accessible through the Penn website) include HTML, Acrobat and mobile versions of the print edition, and interim information may be posted in electronic-only form. Guidelines for readers and contributors are available on request and online.

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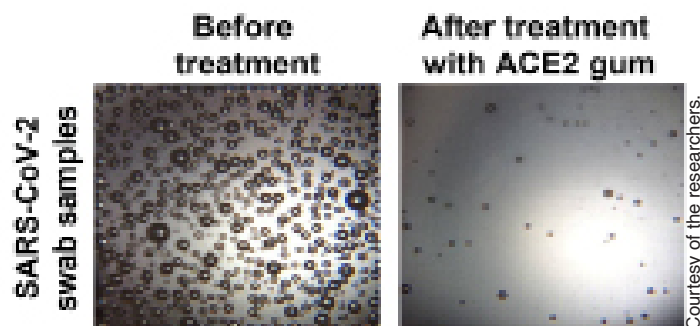
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# Interdisciplinary Research on Chewing Gum That Could Reduce SARS-CoV-2 Transmission



*In a measure of viral load using microbubbles, the chewing gum infused with the ACE2 protein triggered a reduction in the amount of virus in samples taken from COVID-19 patients.*

A chewing gum laced with a plant-grown protein serves as a “trap” for the SARS-CoV-2 virus, reducing viral load in saliva and potentially tamping down transmission, according to a new study.

The work, led by Henry Daniell at Penn’s School of Dental Medicine and performed in collaboration with scientists at the Perelman School of Medicine and School of Veterinary Medicine, as well as at the Wistar Institute and Fraunhofer USA, could lead to a low-cost tool in the arsenal against the COVID-19 pandemic. Their study was published in the journal *Molecular Therapy*.

“SARS-CoV-2 replicates in the salivary glands, and we know that when someone who is infected sneezes, coughs, or speaks some of that virus can be expelled and reach others,” said Dr. Daniell. “This gum offers an opportunity to neutralize the virus in the saliva, giving us a simple way to possibly cut down on a source of disease transmission.”

Vaccinations for COVID-19 have helped change the course of the pandemic but haven’t stamped out transmission. Even people who are fully vaccinated can still become infected with SARS-CoV-2 and, according to recent research, can carry a viral load similar to those who are unvaccinated.

Before the pandemic, Dr. Daniell had been studying the angiotensin-converting enzyme 2 (ACE2) protein in the context of treating hypertension. His lab had grown this protein, as well as many others that may have therapeutic potential, using a patented plant-based production system. By bombarding plant material with the DNA of target proteins, they coax plant chloroplasts to take up the DNA and begin growing the proteins. The plant material, freeze-dried and ground up, could be used as a means of delivering the protein. This system has the potential to avoid the usual obstacles to protein drug synthesis: namely, an expensive production and purification process.

Dr. Daniell’s past work on ACE2 proved fortuitous in the context of the COVID-19 pandemic. The receptor for ACE2 on human cells also happens to bind the SARS-CoV-2 spike protein. Other research groups have shown that injections of ACE2 can reduce viral load in people with severe infections.

Meanwhile, another line of work by Dr. Daniell and Penn Dental Medicine colleague Hyun (Michel) Koo has involved research to develop a chewing gum infused with plant-grown proteins to disrupt dental plaque. Pairing his insights about ACE2 with this technology, Dr. Daniell wondered if such a gum, infused with plant-grown ACE2 proteins, could neutralize SARS-CoV-2 in the oral cavity.

To find out, he reached out to Ronald Collman at Penn Medicine, a virologist and pulmonary and critical care physician whose team had been collecting blood, nasal swabs, saliva, and other biospecimens from COVID patients for scientific research since the early stages of the pandemic.

“Henry contacted me and asked if we had samples to test his approach, what kind of samples would be appropriate to test, and whether we could

internally validate the level of SARS-CoV-2 virus in the saliva samples,” Dr. Collman said. “That led to a cross-school collaboration building on our microbiome studies.”

To test the chewing gum, the team grew ACE2 in plants, paired with another compound that enables the protein to cross mucosal barriers and facilitates binding, and incorporated the resulting plant material into cinnamon-flavored gum tablets. Incubating samples obtained from nasopharyngeal swabs from COVID-positive patients with the gum, they showed that the ACE2 present could neutralize SARS-CoV-2 viruses.

Those initial investigations were followed by others at the Wistar Institute and Penn Vet, in which viruses, less-pathogenic than SARS-CoV-2, were modified to express the SARS-CoV-2 spike protein. The scientists observed that the gum largely prevented the viruses or viral particles from entering cells, either by blocking the ACE2 receptor on the cells or by binding directly to the spike protein.

Finally, the team exposed saliva samples from COVID-19 patients to the ACE2 gum and found that levels of viral RNA fell so dramatically to be almost undetectable.

The research team is currently working toward obtaining permission to conduct a clinical trial to evaluate whether the approach is safe and effective when tested in people infected with SARS-CoV-2.

“Henry’s approach of making the proteins in plants and using them orally is inexpensive, hopefully scalable; it really is clever,” Dr. Collman said.

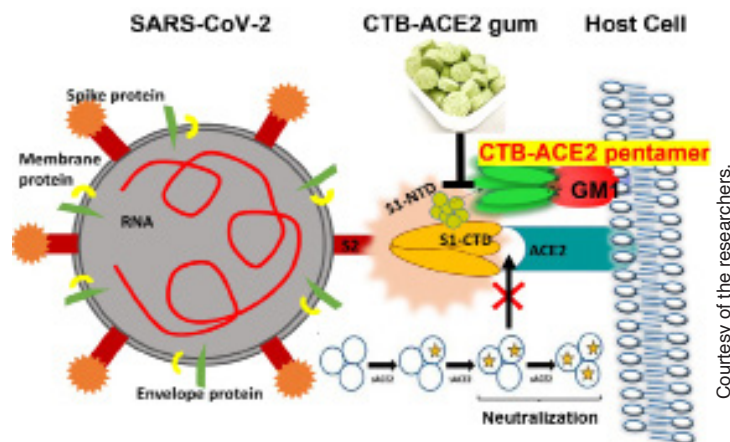
Though the research is still in the early stages of development, if the clinical trials prove the gum is safe and effective, it could be given to patients whose infection status is unknown or even for dental check-ups when masks must be removed, to reduce the likelihood of passing the virus to caregivers.

“We are already using masks and other physical barriers to reduce the chance of transmission,” said Dr. Daniell. “This gum could be used as an additional tool in that fight.”

*Adapted from a [Penn Today release](#) by Katherine Unger Baillie, December 3, 2021.*



*Henry Daniell*



*A plant-based protein drug production platform was used to grow the ACE2 protein, which was then infused in chewing gum. By either blocking the ACE2 receptor or binding to the SARS-CoV-2 spike protein, the ACE2 in the gum appears to be able to reduce viral entry into cells.*