No. 25-1627

UNITED STATES COURT OF APPEALS FOR THE FIRST CIRCUIT

PRESIDENT AND FELLOWS OF HARVARD COLLEGE,

Plaintiff-Appellee,

vs.

UNITED STATES DEPARTMENT OF HOMELAND SECURITY; KRISTI NOEM, in her official capacity as Secretary of the United States Department of Homeland Security; UNITED STATES IMMIGRATION AND CUSTOMS ENFORCEMENT; TODD LYONS, in his official capacity as Acting Director of United States Immigration and Customs Enforcement; STUDENT AND EXCHANGE VISITOR PROGRAM; JOHN DOE, in their official capacity as Director of the Student and Exchange Visitor Program; JAMES HICKS, in his official capacity as Deputy Assistant Director of the Student and Exchange Visitor Program; UNITED STATES DEPARTMENT OF JUSTICE; PAMELA BONDI, in her official capacity as Attorney General of the United States; UNITED STATES DEPARTMENT OF STATE; MARCO RUBIO, in his official capacity as Secretary of the United States Department of State,

Defendants-Appellants.

On Appeal from United States District Court
for the District of Massachusetts
Hon. Allison Burroughs, U.S. District Judge
Case No. 1:25-cv-11472-ADB

BRIEF OF *AMICI CURIAE* OF U.S. COLLEGES AND UNIVERSITIES IN SUPPORT OF PLAINTIFF-APPELLEE AND AFFIRMANCE

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CORPORATE DISCLOSURE STATEMENT

Pursuant to Rule 26.1(a) of the Federal Rules of Appellate Procedure, *amici curiae*, listed in Appendix A, hereby disclose that *amici* have no parent corporations and that no publicly held corporation owns 10% or more of *amici*'s respective stock.

Dated: January 20, 2026

/s/ Donald B. Verrilli, Jr.
Donald B. Verrilli, Jr.

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INTEREST OF *AMICI CURIAE*[1]

Amici curiae are American colleges and universities. They all enroll international students and therefore rely on and understand the importance of student visas. Student visa recipients support the work of *amici*'s research labs, hospitals, and clinical programs, and contribute enormously to the quality of education *amici* provide. Their contributions have benefitted not just *amici*, but the American public.

When Congress created the student visa programs, it sought to enhance the United States' economy, public health, and ability to compete on the international stage. It did so by partnering American universities with global talent. *Amici* submit this brief to demonstrate the importance of that partnership and to highlight the cost to the American public of jeopardizing such programs.

INTRODUCTION

Attracting the best and the brightest from all over the world has long been one of the United States' competitive advantages. The telephone, the elevator, the electron microscope, and vaccines for diseases ranging from polio to cervical

[1] In accordance with Federal Rule of Appellate Procedure 29(a)(4)(E), *amici* certify that (1) this brief was authored entirely by counsel for *amici curiae* and not by counsel for any party, in whole or in part; (2) no party or counsel for any party contributed money to fund preparing or submitting this brief; and (3) apart from counsel for *amici curiae*, no other person contributed money to fund preparing or submitting this brief. All parties have consented to its filing.

cancer to COVID-19 all were invented by scientists who came to the United States from other countries. Though immigrants comprise roughly 15% of the U.S. population, they account for a quarter of all patents and almost 30% of our Nation's recent Nobel Prize winners in the sciences.

Recognizing that the next Einstein (or Tesla or Graham Bell), like the first, may be born beyond our borders, Congress has long maintained avenues for individuals from all over the world to pursue higher education in the United States. Congress created these pathways to bring talented individuals to our institutions, with the goal of bolstering the U.S. economy and fostering mutual understanding between nations. And Presidents from both parties have built upon and expanded these programs to attract and retain international talent.

This longstanding investment in foreign-born talent has paid off many times over. Student visa recipients have helped make the United States' colleges and universities world-class research institutions tackling the world's most pressing problems. These students have gone on to cure diseases, invent transformational technologies, and found companies that have fueled American economic growth.

The cancellation of Harvard's student visa program, if allowed to stand, will disrupt this pipeline of talent and inflict profound harms—both short and long term. At institutions targeted by the government, cancellation disrupts ongoing projects like clinical trials, stifles burgeoning scientific careers, and creates labor

shortages that are not easily filled. And the impact is not limited to the targeted school: other institutions see the chilling effects of this cancellation in their own student bodies, as talented individuals from other countries choose to go elsewhere rather than face uncertainty about their visa status. U.S.-based employers, in turn, see a diminished pipeline of qualified physicians, engineers, scientists, and even future Nobel Prize winners. And for the American public, the destabilization of student visa programs via arbitrary cancellations threatens to stymie progress in scientific research, medical advancement, and technological innovation, with untold and irreversible consequences for the United States.

ARGUMENT

I. Foreign-Born Talent Has Enhanced America's Status As A Global Leader.

Individuals born beyond our borders have contributed to many of the most significant scientific advances in the United States in the last century—from the Internet, to mapping the human genome, to the computer chips that are now powering the AI revolution.[2]

Perhaps no innovation illustrates the competitive advantage gained by welcoming scientific talent from across the globe—and the profound risk of

[2] Tess Danielson, *Decade by Decade. The American Immigrants That Built Generation-Defining Tech*, BetaBoom (May 5, 2025), https://www.betaboom.com/magazine/article/american-immigrants-built-generation-defining-tech.

excluding that talent—better than the Manhattan Project. The atom bomb, one of the most consequential inventions of the 20th century and a bedrock of American national security, was made possible only because of the research contributions of foreign-born scientists like Albert Einstein (Institute for Advanced Study in Princeton), Enrico Fermi (University of Chicago), and Hans Bethe (Cornell). Not only did these scientists immigrate to the United States; they came here from the very same countries against which the United States was racing to build the bomb.

The track record of recent Nobel laureates confirms that the United States' outsize contribution to global scientific research depends heavily on its ability to attract top talent from around the world. In 2021, Princeton professor David MacMillan—who came from Scotland to the United States to get his Ph.D.—won the Nobel Prize for Chemistry for developing an entirely new way to build molecules that can "more efficiently construct anything from new pharmaceuticals to molecules that can capture light in solar cells."[3] The same year, Ardem Patapoutian—who immigrated from Lebanon and earned his doctorate at Caltech—won the Nobel Prize for Physiology or Medicine for his discovery of the receptors responsible for our ability to sense pressure and temperature.[4] Just two

[3] The Royal Swedish Academy of Sciences, Press Release, *Nobel Prize in Chemistry 2021* (Oct. 6, 2021), https://www.nobelprize.org/prizes/chemistry/2021/press-release.

[4] The Royal Swedish Academy of Sciences, Ardem Patapoutian, Biographical,

years later, former University of Pennsylvania professor Katalin Karikó, who came to the United States from Hungary for post-doctoral research at Temple University, won for her foundational work to "develop[] effective mRNA vaccines against COVID-19 during the pandemic."[5] And just a few months ago, a Canadian-born, Northwestern University-educated Brown University professor, Peter Howitt, won the Nobel Prize in Economics for his work studying the economics of disruptive technologies.[6]

Each of these individuals not only studied in the United States; they stayed afterwards and have contributed to the U.S. throughout their careers. They are not isolated examples: In total, individuals born outside the U.S. accounted for 40% of U.S.-based Nobel Laureates in physics, chemistry, and medicine from 2000 to 2023.[7]

This scientific progress spurs tremendous economic growth. For example,

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Nobel Prize in Physiology or Medicine 2021, https://www.nobelprize.org/prizes/medicine/2021/patapoutian/biographical.

[5] The Royal Swedish Academy of Sciences, Press Release, *Nobel Prize in Physiology or Medicine 2023* (Oct. 2, 2023), https://www.nobelprize.org/prizes/medicine/2023/press-release.

[6] Brown University, *Brown University economics professor Peter Howitt wins Nobel Prize in Economic Sciences*, News from Brown, (Oct. 13, 2025), https://www.brown.edu/news/2025-10-13/howitt-nobel.

[7] *Immigrants and Nobel Prizes: 1901 – 2023*, National Foundation for Am. Policy 1 (Oct. 2023), https://nfap.com/wp-content/uploads/2023/10/Immigrants-and-Nobel-Prizes-1901-to-2023.NFAP-Policy-Brief.October-2023.pdf.

Google,[8] NVIDIA,[9] and Tesla[10] were all founded or co-founded in the United States by individuals born abroad. Together, these companies are worth over $8 trillion, employ over 300,000 people, and have transformed the internet, computing, and artificial intelligence. Indeed, in 2018, more than half of the 91 U.S.-based, privately-held startups valued at $1 billion or more had a founder or co-founder born outside the United States.[11] These companies have created an average of 1,200 jobs per company.[12] Between 1990 and 2016, 16% of all U.S. inventors were immigrants.[13] And in that same period, immigrants produced 23% of all patents.[14]

In recent years, foreign-born individuals who now conduct research at U.S.

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[8] *Sergey Brin and Larry Page: Google: Computing and Telecommunications*, Lemelson-MIT Program, https://lemelson.mit.edu/resources/sergey-brin-and-larry-page.

[9] *Jensen Huang, Forbes Profile*, Forbes, https://www.forbes.com/profile/jensen-huang.

[10] Liv McMahon, et al., *Who is Elon Musk and what is his net worth?*, BBC (Nov. 7, 2025), https://www.bbc.com/news/articles/c0r1975ded7o.

[11] Stuart Anderson, *Immigrants and Billion-Dollar Companies*, National Foundation for Am. Policy, NFAP Policy Brief (Oct. 2018), https://nfap.com/wp-content/uploads/2019/01/2018-BILLION-DOLLAR-STARTUPS.NFAP-Policy-Brief.2018-1.pdf.

[12] *Id.*

[13] Shai Bernstein, et al., *The Contribution of High-Skilled Immigrants to Innovation in the United States*, Cato Inst. Research Briefs in Economic Policy, No. 350 (Sept. 20, 2023), https://www.cato.org/sites/cato.org/files/2023-09/RB350.pdf.

[14] *Id.*

institutions have been responsible for breakthroughs that will save and improve countless lives. These breakthroughs include the identification of a gene responsible for metastatic cancer, and the discovery of a compound that disables it;[15] the development of methods of mining the human microbiome for new and more effective antibiotic medications;[16] and the adaptation of algae's CO_2-concentrating structures, which could boost crop production and help sustainably address the world's growing demand for food.[17] And that is just at Princeton University.

Simply put, researchers and innovators who were born beyond the United States' borders have made transformational contributions to the nation's economy, health, and security. *Amici*'s own faculty and alumni prove the point: MIT alumni who were born in other countries have gone on to co-found and develop innovative

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[15] Liz Fuller-Wright, *New cancer therapy from Yibin Kang's lab holds potential to switch off major cancer types without side effects*, Princeton University (Nov. 29, 2021), https://www.princeton.edu/news/2021/11/29/new-cancer-therapy-yibin-kangs-lab-holds-potential-switch-major-cancer-types.

[16] Caitlin Sedwick, *Princeton researchers listen in on the chemical conversation of the human microbiome*, Princeton University (Dec. 13, 2019), https://www.princeton.edu/news/2019/12/13/princeton-researchers-listen-chemical-conversation-human-microbiome.

[17] Yasemin Saplakoglu, *Green algae could hold clues for engineering faster-growing crops*, Princeton University (Sept. 21, 2017), https://www.princeton.edu/news/2017/09/21/green-algae-could-hold-clues-engineering-faster-growing-crops.

companies like Moderna,[18] Google Brain,[19] and Thermo Electron Corporation.[20] Caltech's foreign-born innovators developed methods for visualizing atoms in motion[21] and discovered quasars, the cosmic objects billions of light-years away whose discovery broke open exploration of the far reaches of the universe.[22] Immigrant faculty members at the University of Pennsylvania are responsible for developing the first computer-designed antibiotic with efficacy in animal models;[23] co-inventing lab-grown human organs called "organs-on-chips" that are transforming preclinical drug testing;[24] and creating methods to produce

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[18] *Noubar Afeyan*, Flagship Pioneering, https://www.flagshippioneering.com/people/noubar-afeyan.

[19] Karen Hao, *Andrew Ng: Forget about building an AI-first business. Start with a mission.*, MIT Tech. Rev. (March 26, 2021), https://www.technologyreview.com/2021/03/26/1021258/ai-pioneer-andrew-ng-machine-learning-business.

[20] Mary Beth Gallagher, *Celebrating the life and legacy of George Hatsopoulos*, MIT Dep't Mech. Eng'g (Feb. 2, 2021), https://meche.mit.edu/news-media/celebrating-life-and-legacy-george-hatsopoulos.

[21] The Royal Swedish Academy of Sciences, Ahmed Zewail, Facts, *Nobel Prize in Chemistry 1999*, https://www.nobelprize.org/prizes/chemistry/1999/zewail/facts.

[22] Whitney Clavin, *Remembering Maarten Schmidt, 1929–2022*, Caltech (Sept. 29, 2022), https://www.caltech.edu/about/news/caltech-mourns-the-passing-of-maarten-schmidt-1929-2022.

[23] De La Fuente Lab, *Principal Investigator*, Univ. Penn. (last visited Dec. 24, 2025), https://delafuentelab.seas.upenn.edu/principal-investigator.

[24] Evan Lerner, *Bioengineering's Organ-on-a-chip Spin-off is Growing*, Penn. Eng'g (Apr. 20, 2021), https://blog.seas.upenn.edu/bioengineerings-organ-on-a-chip-spin-off-is-growing.

nanomaterials used in energy-efficient screens, experimental solar cells, and medical imaging agents.[25] Brandeis University is home to international physicists who have done groundbreaking research at the Large Hadron Collider, including researching the properties of the Higgs Boson and dark matter particles.[26] Foreign-born faculty at Dartmouth have invented the BASIC computer programming language,[27] made cutting-edge advancements in cyber security,[28] founded numerous biotechnology companies,[29] and discovered new ways to produce antibodies and other human therapeutic proteins.[30] At the University of Pittsburgh, faculty who were born abroad are researching the inhibitory receptors that suppress

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[25] Penn. PIK Univ. Professorships, *Christopher B. Murray* (last visited Dec. 24, 2025), https://pikprofessors.upenn.edu/meet-the-professors/christopher-murray.

[26] Jarret Bencks, *Coming Full Circle at the Large Hadron Collider*, Brandeis University (last visited Dec. 17, 2025), https://www.brandeis.edu/75/stories/higgs.html; Gabriella Sciolla, Martin A. Fisher School of Physics, Brandeis University (last visited Dec. 17, 2025), https://www.brandeis.edu/physics/people/profiles/sciolla-gabriella.html.

[27] Office of the President, *John G. Kemeny*, Dartmouth College (last visited Jan. 9, 2026), https://president.dartmouth.edu/people/john-g-kemeny.

[28] Arts & Sciences Faculty, *Sergey Bratus*, Dartmouth College (last visited Jan. 9, 2025), https://faculty-directory.dartmouth.edu/sergey-bratus.

[29] *Dartmouth Professor Gerngross Elected to National Academy of Engineering*, Dartmouth Eng'g (Feb. 9, 2017), https://engineering.dartmouth.edu/news/dartmouth-professor-gerngross-elected-to-national-academy-of-engineering.

[30] EureakAlert!, Press Release, *Dartmouth, GlycoFi researchers make leap in protein bioengineering* (Jan. 22, 2006), https://www.eurekalert.org/news-releases/563452.

the body's immune response to tumors;[31] developing new vision restoration therapies;[32] and designing therapies for motor paralysis stemming from strokes, spinal cord injuries, and motoneuron diseases.[33] And Carnegie Mellon's foreign-born scholars have secured the internet with CAPTCHA and reCAPTCHA,[34] revolutionized language learning with Duolingo,[35] built the self-driving car technology that became the foundation of Waymo,[36] and devised kidney-exchange algorithms that have enabled thousands of lifesaving transplants.[37]

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[31] Integrative Systems Biology, *Dario Vignali, Ph.D.*, Univ. Pittsburgh Sch. Med. (last visited Dec. 24, 2025), https://www.isb.pitt.edu/people/faculty/dario-vignali-phd.

[32] Department of Ophthalmology, *José-Alain Sahel, MD*, Univ. Pittsburgh Sch. Med. (last visited Dec. 24, 2025), https://ophthalmology.pitt.edu/people/jose-alain-sahel-md.

[33] Neurological Surgery, *Spinal Cord Stimulation Laboratory*, Univ. Pittsburgh Sch. Med. (last visited Dec. 24, 2025), https://www.neurosurgery.pitt.edu/research/labs/spinal-cord-stimulation.

[34] Nat'l Inventors Hall of Fame, *Luis von Ahn* (last visited Dec. 24, 2025), https://www.invent.org/inductees/luis-von-ahn.

[35] *Id.*

[36] *Driven: How Chris Urmson and Aurora Are Building the Future of Self-Driving*, Index Ventures (June 5, 2025), https://www.indexventures.com/perspectives/driven-how-chris-urmson-and-aurora-are-building-the-future-of-self-driving.

[37] Press Release, *Tuomas Sandholm of Carnegie Mellon University wins 2023 AAAI Award for Artificial Intelligence for the Benefit of Humanity*, Ass'n for Advancement of A.I. (Feb. 1, 2023), https://aaai.org/tuomas-sandholm-wins-2023-aaai-award-for-artificial-intelligence-for-the-benefit-of-humanity.

II. Congress Created The Student Visa Program As A Targeted Strategy To Attract This Talent. And It Has Worked.

Congress has long understood that attracting the best and the brightest from across the globe furthers this Nation's interest. In 1924, when Congress first enacted a quota system for immigration, it excluded foreign-born students at American colleges and universities from those quotas.[38] When it overhauled that system with the Immigration and Nationality Act ("INA") in 1952, it promoted "interchanges on a reciprocal basis" with foreign-born "leaders in fields of specialized knowledge or skill."[39] Congressmembers acknowledged the value of international students and scholars to the United States, stating, for example: "[T]he educators who have chosen America as their home have made invaluable contributions to our national economy and culture; indeed, without them we would never have been able to achieve the tremendous advances in technology which have characterized our production in recent years."[40]

Since then, Congress has expanded the student visa program to attract and retain international talent. Congress added visas for visiting research scholars, professors, and leaders in specialized fields.[41] And it amended the INA to create

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[38] *See* Immigration Act of 1924, Pub. L. No. 68-139, § 4, 43 Stat. 153, 155 (1924).

[39] Immigration and Nationality Act of 1952, Pub. L. No. 82-414, § 201, 66 Stat. 163, 168, 276 (1952).

[40] 98 Cong. Rec. 5169 (1952) (statement of Sen. Pastore).

[41] Mutual Educational and Cultural Exchange Act of 1961, Pub. L. No. 87-256,

pathways for these visa recipients to remain in the United States to apply what they have learned—with great success. For example, when Congress allowed physicians who entered the United States on student visas to seek waivers of the requirement to return to their home country if they practiced in a geographical area with a shortage of health care professionals for three years,[42] the program resulted in 23,000 doctors to address shortages in underserved areas of the country.[43]

These programs have drawn support from political leaders of both parties. Both Republican and Democratic administrations have adopted policies that authorize student visa recipients who obtained degrees in science, technology, engineering, and mathematics to remain in the United States for several years after graduation, making it easier for them to find jobs and start careers in the United States.[44] Our Nation's leaders did so because they understood that attracting and

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§ 109, 75 Stat. 527, 534 (1961); *see also* 8 U.S.C. § 1101(a)(15)(J).

[42] *See* Immigration and Nationality Technical Corrections Act of 1994, Pub. L. No. 103-416, § 220, 108 Stat. 4305, 4319 (1994) (codified as 8 U.S.C. § 1184(*l*)(1)(D)).

[43] Thomas Rauner, et al., *Findings of the Conrad 30 J-1 Visa Waiver Physician Survey, 2022* at 3, 3RNET (Jan. 2023), https://3rnet.org/Prism/Resources/J1-22.

[44] *See* Extending Period of Optional Practical Training by 17 Months for F-1 Nonimmigrant Students With STEM Degrees and Expanding Cap-Gap Relief for All F-1 Students With Pending H-1B Petitions, 73 Fed. Reg. 18944-02, 2008 WL 925258 (Apr. 8, 2008); Improving and Expanding Training Opportunities for F-1 Nonimmigrant Students With STEM Degrees and Cap-Gap Relief for All Eligible F-1 Students, 81 Fed. Reg. 13040-01, 2016 WL 913049 (March 11, 2016).

retaining foreign-born talent "benefit[s] the U.S. educational system, U.S. employers, and the broader U.S. economy."[45]

These programs have been a resounding success for the American people. Individuals who came to the United States on student visas, and are now affiliated as faculty or alumni with *amici*, have contributed to this success in countless ways—from creating a neural network model of vision (Brown), discovering likely causes of Parkinson's (Cornell), developing a hormone treatment for prostate cancer (University of Chicago), and inventing the blue light-emitting diode used for computer and phone screens (Boston University) to designing iconic American landmarks like the Rock & Roll Hall of Fame and the East Building of the National Gallery of Art (MIT), developing the Coase theorem about transaction costs and property rights (University of Chicago), and devising the patch-clamp electrode, which has advanced profoundly our understanding of cystic fibrosis, epilepsy, neuromuscular disorders, and many other diseases (Yale).

And as Congress recognized in crafting the student visa programs, visa recipients contribute to American colleges and universities in ways that extend far beyond their particular area of academic study. Domestic students who regularly engage with international peers develop better foreign language skills, learn how to

[45] 2016 STEM Extension, 81 Fed. Reg. at 13043.

work with people of different backgrounds, and gain a deeper understanding of the role of science and technology in society.[46] International students also provide a boost to the U.S. economy during their degree programs, contributing over $40 billion and supporting over 375,000 jobs in the 2023–24 academic school year alone.[47] This impact is felt all across the country. For instance, the 89,000 international students who studied in Texas that year created 22,000 jobs and $2.5 billion in economic activity.[48] In Missouri, more than 32,000 international students led to over a billion dollars in economic activity and nearly 9,000 jobs.[49] Beyond the university, "exchange programs improve foreign relations and strengthen the national security of the United States."[50] These outcomes are not incidental; they are the reason Congress created student visas.

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[46] *See* Jiali Luo & David Jamieson-Drake, *Examining the Educational Benefits of Interacting with International Students*, 3 J. Int'l Students 85, 91 (2013).

[47] *See The United States of America: Benefits from International Students*, NAFSA: Ass'n of Int'l Educators, https://www.nafsa.org/sites/default/files/media/document/EconValue2024.pdf.

[48] SiteSelection, *Economic Impact of International Students Breaks Record*, https://siteselection.com/economic-impact-of-international-students-breaks-record/ (citing 2023-2024 NAFSA data).

[49] *Id.*

[50] *United States Hosts More Than 1.1 Million International Students at Higher Education Institutions, Reaching All-Time High*, Inst. Int'l Educ. (Nov. 18, 2024), https://www.iie.org/news/us-hosts-more-than-1-1-million-intl-students-at-higher-education-institutions-all-time-high.

III. Preventing Universities From Enrolling International Students Would Stymie American Progress.

At this moment, the hundreds of thousands of international students enrolled at U.S.-based institutions are working on essential cutting-edge research. At Johns Hopkins alone, international graduate students support more than 600 clinical trials currently underway, are researching materials to protect troops in the face of weapons of mass destruction, and are working with NASA to develop the ability to redirect asteroids that could threaten Earth, to name just a few current projects of enormous potential importance.[51] This essential research would grind to a halt without these students. The same is true at countless other institutions, where international students make up a critical mass of graduate students and undergraduate research assistants carrying out essential research, including at *amici* Carnegie Mellon, Cornell, Caltech, University of Chicago, Dartmouth, Princeton, Rice, Boston University, University of Maryland, University of Michigan, MIT, University of Pennsylvania, Brown, University of Pittsburgh, and Yale. These institutions perform critical research, including conducting clinical trials designed to prevent cancer relapse by eradicating cells that survive treatment (University of Pennsylvania),[52] developing new neurotechnologies to treat brain

[51] Johns Hopkins University, *Research Saves Lives* (last visited Dec. 24, 2025), https://researchsaveslives.jhu.edu/#research-mission.

[52] Kirsten Weir, *Keeping cancer conquered*, Penn. Med. (May 20, 2025),

disorders (Boston University),[53] and discovering how inflammation affects metabolism, aging, and cancer (Yale).[54]

Lingering uncertainty over whether student visas will remain available has already led many talented foreign students to seek opportunities elsewhere. For example, in the aftermath of the rescission of Harvard's student visa program, the number of international students electing to study in the United States dropped by nearly 20 percent.[55] That is a loss of more than 70,000 students, including future doctors, medical researchers, and engineers who might discover the next cure, the next transformative technology, or the next battlefield advantage.

The need to attract top talent is, if anything, even more pressing today than ever before, as other global powers seek to surpass the United States as the global leader in innovation. With the dawn of the age of artificial intelligence, the United States is locked in a fierce competition for top talent, and student visas are essential to our success. The AI revolution—as sudden as it may have seemed—is the

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https://www.pennmedicine.org/news/keeping-cancer-conquered.

[53] Han Lab, Boston U. (last visited Dec. 24, 2025), https://www.bu.edu/hanlab.

[54] *Ruslan Medzhitov, PhD*, Yale Sch. Med. (last visited Dec. 24, 2025), https://medicine.yale.edu/profile/ruslan-medzhitov.

[55] Aatish Bhatia & Amy Fan, *Nearly 20 Percent Fewer International Students Traveled to the U.S. in August*, N.Y. Times (Oct. 6, 2025), https://www.nytimes.com/interactive/2025/10/06/upshot/us-international-student-travel.html.

product of decades of research at institutions like *amici* that has been powered by student visa recipients in collaboration with their U.S.-born peers. At Carnegie Mellon *alone*, former student visa recipients who are either alumni still in the United States or on the faculty have made essential breakthroughs involving AI spoken language systems and speech recognition, autonomous vehicles (including autonomous combat medical vehicles), and methods of using AI to assist with biomedical research into diseases like Alzheimer's. Foreign-born faculty at Johns Hopkins have used AI to transform facial recognition and biometric security,[56] create new tools for monitoring Parkinson's disease symptoms,[57] and develop an early-warning system for sepsis detection that has reduced sepsis mortality rates by 18% in dozens of U.S. hospitals.[58] Talent like this has driven the United States' leadership in the AI age; and continuing to attract and retain such talent will be essential to the national interest in maintaining that leadership.

International students are equally critical to the pipeline of talented STEM graduates across the economy. Last year, at American colleges and universities,

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[56] Whiting School of Eng'g, *Rama Chellappa*, Johns Hopkins Univ. (last visited Dec. 24, 2025), https://engineering.jhu.edu/faculty/rama-chellappa.

[57] Phil Sneiderman, *Smartphone app can help doctors track severity of Parkinson's symptoms*, Johns Hopkins Univ. (Apr. 6, 2018), https://hub.jhu.edu/2018/04/06/parkinsons-disease-severity-smartphone-app.

[58] Jaimie Patterson, *Sepsis Detection Platform Prevents Thousands of Deaths*, Johns Hopkins Univ. (Apr. 23, 2025), https://hub.jhu.edu/2025/04/23/nsf-funding-suchia-saria-sepsis-detection.

there were over 280,000 international students studying math and computer science and 210,000 in engineering.[59] In 2016, immigrants accounted for 23% of the total workforce in STEM jobs.[60] As President Bush recognized over a decade ago, "[s]lowing of the growth of the science and engineering labor force in the United States could affect both technological change and economic growth."[61] That is as true today as it was then.

Imperiling student visas puts at risk not only the pipeline of researchers who will develop the lifesaving drugs of tomorrow, but the pipeline of doctors who will prescribe and administer them. Thousands of physicians come to the United States each year to complete clinical residency and fellowship programs on student visas.[62] In 2024, physicians on J-1 visas served patients at nearly 770 teaching hospitals—some of them *amici*'s.[63] These physicians are sorely needed. The Association of American Medical Colleges published a study projecting that the United States will experience a shortage of up to 86,000 physicians by 2036

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[59] Veera Korhonen, *Fields of study with the most international students in the United States in the academic year 2023/24*, Statista Research Department (Nov. 28, 2024), https://www.statista.com/statistics/237704/fields-of-study-with-the-most-international-students-in-the-united-states.

[60] Bernstein, *supra*, at 1.

[61] 2008 STEM Extension, 73 Fed. Reg. at 18953.

[62] *J-1 Visa Sponsorship, 2024*, Intealth (Feb. 7, 2025), https://www.intealth.org/pdfs/J-1_US_Infographic.pdf.

[63] *Id.*

because "[p]rojected demand continues to exceed projected supply."[64] And even that estimated shortfall depends on "continued investment in training new physicians," without which "the projected shortfalls would be much more severe."[65] Shrinking the visa program will only exacerbate this problem, and thereby undermine the American healthcare system.

* * *

Recognizing that the United States does not have a monopoly on scientific talent, Congress designed our immigration laws to allow American colleges and universities to attract the best students from all over the world. In return, those students have contributed to groundbreaking innovations, cutting-edge technology, and lifesaving research to the United States. And they have enhanced the education of *all* students. Cancelling student visas—even at one university—risks undermining the entire system, and with it, all the ways visa recipients contribute to the United States.

CONCLUSION

The Court should affirm the district court's preliminary injunction.

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[64] *The Complexities of Physician Supply and Demand: Projections From 2021 to 2036*, at 3, Ass'n Am. Medical Colleges (March 2024), https://www.aamc.org/media/75236/download?attachment.

[65] *Id.* at 55.

Dated: January 20, 2026

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CERTIFICATE OF SERVICE

I hereby certify that on January 20, 2026, I electronically filed the foregoing document with the United States Court of Appeals for the First Circuit by using the CM/ECF system. I certify that all parties or their counsel of record are registered as ECF Filers and that they will be served by the CM/ECF system.

Dated: January 20, 2026

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CERTIFICATE OF COMPLIANCE

1. This brief complies with the type-volume limitation of Fed. R. App. P. 29(a)(5) because this brief contains 3,979 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii).

2. This brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6) because this brief has been prepared in a proportionally spaced typeface using Microsoft Word in Times New Roman 14-point font.

Dated: January 20, 2026

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Appendix A

American University
Amherst College
Arizona State University
Barnard College
Boston University
Bowdoin College
Brandeis University
Brown University
Bryn Mawr College
California Institute of Technology
Carleton College
Carnegie Mellon University
Colby College
Colorado State University
Columbia University
Cornell University
Dartmouth College
Georgetown University
Grinnell College
Illinois Institute of Technology
Johns Hopkins University
Massachusetts Institute of Technology
Middlebury College
Mount Holyoke College
Notre Dame University
Oregon State University
Princeton University
Rice University
Smith College
Stanford University
Swarthmore College
Tufts University
University of Chicago
University of Dayton
University of Denver
University of Maryland, Baltimore
University of Maryland, College Park
University of Michigan

University of Oregon
University of Pennsylvania
University of Pittsburgh
University of Rhode Island
University of San Diego
University of Vermont
Wellesley College
Wesleyan University
Williams College
Yale University