

Novartis strengthens commitment to Beacon of Hope initiative, engages new collaborators to support clinical trial diversity, break down economic and education barriers

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- Advarra, Virb and BeeKeeperAI sign on to Beacon of Hope to provide suite of digital tools to facilitate clinical trials and research on healthcare inequities at Historically Black Medical School Centers of Excellence
- Global Black Economic Forum lends support to Beacon of Hope to address economic disparities that disproportionately impact diverse communities of color around the world
- Amgen and Alnylam commit to run clinical trials across a spectrum of disease areas through the Centers of Excellence
- Beacon of Hope grant, scholarship and mentorship programs continue to empower next generation of diverse healthcare leaders

EAST HANOVER, N.J., July 12, 2023 -- Novartis and the Novartis US Foundation proudly announce the significant expansion of Beacon of Hope, our 10-year commitment to co-create programs that address health and education inequities and create greater diversity, equity, inclusion and trust across the research and development ecosystem.

The six new organizations joining Beacon of Hope were selected to provide tools and expertise to enable the Historically Black Medical School Centers of Excellence to accelerate progress on increasing diversity, equity and inclusion in clinical trials, support new research into healthcare disparities, as well as help break down economic and education barriers that often stand in the way of promising career opportunities for students of color.

"Our relentless commitment to the success of Beacon of Hope led us to undertake a comprehensive assessment of where we have made important progress, and where we still have gaps to fulfilling the mission of the program," said Linda Armstrong, US Novartis Foundation President and Head of Novartis US Corporate Responsibility. "We actively sought out collaborations with organizations that both possess the expertise necessary to bridge these gaps – particularly on the technology front – and that share our unwavering mission to tackle the fundamental factors that contribute to health and education disparities."

Securing a unique set of technology skills to advance the Centers of Excellence

To further enhance the clinical trial capabilities of the Centers of Excellence established under Beacon of Hope – so they can operate as efficiently and effectively as possible – Novartis and the Novartis US Foundation are welcoming three new collaborators that offer advanced technology support.

Advarra, BeeKeeperAI and Virb will each bring a unique skillset to Beacon of Hope: digitally enabled

technology and professional services to support clinical trial-site management at the HBCUs (Advarra); a privacy-preserving collaboration platform that enables protected algorithms to compute on real-world data, within the data steward's secure HIPAA-compliant environment (BeeKeeperAI); and assistance with the sourcing and training of clinical trial coordinators and research study staff (Virb). These strategic alliances will help to better meet the needs of the Centers of Excellence, and help them reach and engage desired patient populations.

"Advarra is honored to contribute to Beacon of Hope by providing HBCU medical centers with access to the same advanced technology solutions used by leading clinical research organizations – including academic medical centers, health systems and commercial research sites," said Gadi Saarony, CEO of Advarra. "We are excited to work in collaboration with Novartis, the Novartis US Foundation, and the other Beacon of Hope collaborators to accelerate progress on diversity, equity and inclusion in clinical trials and, ultimately, address global healthcare disparities. We feel confident that, equipped with Advarra's world-class technology and professional services, HBCU sites will lead the industry in delivering safe, compliant and inclusive clinical research at scale."

"BeeKeeperAI is bringing the power of healthcare AI with confidential computing to Beacon of Hope, offering new innovation to expedite the development and deployment of AI that is equitable and generalizable across all patients – regardless of race or social determinants of health. We are proud to be part of this important initiative to advance health equity through collaboration," said Michael Blum, MD, Co-founder and Chief Executive Officer at BeeKeeperAI. "By simplifying collaborations between data stewards and algorithm developers, safeguarding intellectual property, and preventing the misuse of sensitive privacy-protected data, BeeKeeperAI will contribute to Beacon of Hope's efforts to reduce the risk of bias and accelerate computing on ethnically diverse data."

"We are committed to delivering our best-in-class upskilling and training to enable the next generation of job-ready African American, Black and Hispanic clinical trial leaders, with measurable success and impact for health equity," said Garrett Walker, CEO of Virb, Inc.

Additionally, pharmaceutical industry leaders Amgen and Alnylam have also signed on to Beacon of Hope. They both will seek to run clinical trials through the Centers of Excellence. Alnylam also plans to offer a summer fellowship program to train under-represented students for careers in drug development.

"Amgen is proud to collaborate with Beacon of Hope on this critical initiative," said Ponda Motsepe-Ditsego, Vice President and Therapeutic Area Head of Global Medicine and Head of the Representation in Clinical Research team. "We look forward to working with these Centers of Excellence at Historically Black Medical Schools to increase representation in clinical trials among Black and brown communities as we work to make health equity a reality for all."

"At Alnylam, we are committed to clinical trial diversity and are excited to collaborate with Beacon of Hope to further our efforts," said Pushkal Garg, MD, Chief Medical Officer of Alnylam. "We will be working closely with the Centers of Excellence at Historically Black Medical Schools to not only hasten our progress in diversity, equity and inclusion in clinical trials, but to also offer summer fellowship opportunities at our company headquarters to students pursuing careers in drug development."

Combating economic and education disparities

Rounding out the six new organizations joining Beacon of Hope this year is the Global Black Economic Forum (GBEF), sharing its mission to empower the next generation of diverse leaders in STEM while working to address economic disparities. GBEF will provide career training and leadership development programs to the students who are currently in the Novartis and Thurgood Marshall College Fund (TMCf) scholarship and

mentorship program.

"We are thrilled to join Beacon of Hope and invest in the next generation of Black STEM leaders," said Alphonso David, President and CEO of GBEF. "We are committed to advancing economic opportunity across the Black Diaspora, and we are pleased to support the Beacon of Hope scholarship recipients and student mentees with a broad portfolio of impactful programs, which will help equip them with the skills needed to pursue the paths that will drive generational change."

Forging ahead with four clinical trials at Morehouse School of Medicine

Since the launch of Beacon of Hope, Morehouse School of Medicine's Clinical Trial Center of Excellence has initiated four Novartis clinical trials – three in cardiovascular disease and one in polymyalgia rheumatica. Two additional studies in relapsing multiple sclerosis and pulmonary artery hypertension are also under consideration at Morehouse School of Medicine.

Howard Medical School, Charles R. Drew University of Medicine and Science, and Meharry Medical School are currently reviewing proposals from Novartis for trials at their Centers of Excellence in hypertension, urticaria, giant cell arteritis and breast cancer – as well as for additional Merck and Sanofi trials – to determine which studies are best suited for their patient populations.

Advancing scientific inquiry into underlying causes of healthcare inequities

The teams at Morehouse School of Medicine are also addressing historical bias in data standards used to diagnose and treat disease, as well as tackling environmental and climate issues that disproportionately affect health in communities of color. The Novartis US Foundation continues to support two additional Centers of Excellence focused on research, advocacy and education in these areas:

- The Center of Excellence on the Validation of Digital Health Technologies and Clinical Algorithms has formed an advisory board featuring national experts on this critical issue, and submitted various papers focused on the use of race-based correction in lung function testing and the state of clinical trial diversity in novel FDA drug approvals.
- The Center of Excellence on Climate and Health has set up several research collaborations with organizations including the Centers for Disease Control and Prevention (CDC) and the Environmental Defense Fund. The Center has also provided research opportunities for students interested in contributing to the field, and plans to launch an environmental health track for the school's Masters in Public Health program in the upcoming academic year.

Empowering the next generation of diverse healthcare leaders through multiple career-readiness initiatives Beacon of Hope continues to prepare the next generation of HBCU students to become healthcare leaders through its series of programs focused on grants, mentorships, scholarships, educational training and career advancement:

- Beacon of Hope Summer Fellowship at Novartis Institutes for BioMedical Research – Novartis will continue the paid summer fellowship program this summer, offering a 10-12 week program for nine Historically Black Medical School students to gain valuable exposure to careers in the pharma industry and hands-on experience in Novartis labs.
- TMCN-Novartis US Foundation HBCU Alliance Scholarship and Mentorship program – Students will be entering the second year of their three-year scholarships awarded by TMCN and the Novartis US Foundation. The program was launched with the awarding of three-year scholarships of \$10,000 a year to 120 students at 26 Historically Black Colleges and Universities, pairing each recipient with a Novartis

mentor.

The mentorship program engaged approximately 200 mentees and 200 mentors, comprised of both scholarship recipients and those who were not receiving funding. Mentees participated in monthly pulse checks and were granted a Coursera scholarship to help provide certification and skill development in their areas of study. They also attended sessions on relevant industry topics hosted by Novartis leaders such as Marion Brooks, Vice President, US Country Head, DE&I, and participated in regular coffee chats with their mentors.

TMCF and Novartis US Foundation expect to award additional three-year scholarships again in 2025 and 2028 and have a goal of mentoring up to 1,200 students over 10 years.

- TMCF-Novartis US Foundation HBCU Alliance Faculty grants – TMCF and the Novartis US Foundation have awarded eight new \$25,000 grants to HBCU faculty – representing six colleges – for research substantiating key drivers of health disparities and informing areas for change. Additionally, the Novartis US Foundation is partnering with TMCF to co-develop a grant writing bootcamp which will be offered to select schools and faculty, giving them the opportunity to learn about the process of writing and applying for grants.

The TMCF-Novartis program kicked off last year by awarding ten \$25,000 grants. One of the 2022 recipients had their research on G-protein coupled estrogen receptor systems in diabetic and cancer conditions published in the MDPI Molecules Journal, and other candidates have submitted their final research reports.

Together, TMCF and the Novartis US Foundation plan on continuing to award research grants annually for the next eight years.

- Coursera Virtual-training Courses – Novartis and Coursera have entered into an industry partnership agreement to deliver healthcare content to more than 125 million learners and 7,000 enterprises, colleges and governments around the world. The initial goal of the partnership is to help increase diversity, equity and inclusion in clinical trials.

This month, Novartis is launching "Introduction to Good Clinical Practice," the first installment of a three-course series on Coursera. The remainder of the series, including courses in "The Fundamentals of Good Clinical Practice" and "Diversity Action Plans and Public Health Outreach," are expected to launch within the next 12 months.

The series is designed to empower and reflect the underrepresented groups it serves, and gives future investigators the fundamentals needed to become effective clinical trial leaders.

Scholarships for Novartis courses – as well as the broader Coursera catalog – will be offered to a range of partners, including those under the Beacon of Hope pledge. The Novartis partnership with Coursera will lead to a broader portfolio of courses, including an entry-level Professional Certificate in healthcare taught by Novartis experts and partners.

About Beacon of Hope

To address root causes of disparities in health and education, Novartis and the Novartis US Foundation launched Beacon of Hope in 2021, an innovative \$50 million, 10-year collaboration with 26 Historically Black

Colleges and Universities, including Morehouse School of Medicine, Howard University College of Medicine, Meharry Medical College and Charles R. Drew University of Medicine and Science, plus Merck, Sanofi, Coursera, the Thurgood Marshall College Fund, and the National Medical Association.

The partners are working collaboratively to increase diversity among clinical trial participants and investigators; improve access to high-quality education and promising jobs; examine clinical algorithms that include race as a diagnostic factor that negatively impact patients of color and recalibrate those algorithms to remove race to improve decisions and outcomes; and find actionable solutions to environmental and climate issues that disproportionately affect health among communities of color.

A guiding principle of Beacon of Hope is a recognition that achieving health and education equity at population scale, and addressing the systemic racism that has caused decades of disparity, is a long-term endeavor that will take sustained, collective effort from industry, academia and the communities. For more information on Beacon of Hope programs, please visit: <https://www.novartis.us/corporate-responsibility/beacon-hope>.

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About Novartis

Novartis is reimagining medicine to improve and extend people's lives. We deliver high-value medicines that alleviate society's greatest disease burdens through technology leadership in R&D and novel access approaches. In our quest to find new medicines, we consistently rank among the world's top companies investing in research and development. Novartis employs about 14,000 people in the United States. For more information, please visit <https://www.novartis.us>

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