



S N M M I | MARS SHOT

We empower research that transcends conventional boundaries, driving the breakthroughs needed to accelerate molecular-level therapies and imaging. By redefining the standard of care for cancer, neurodegenerative, and cardiac diseases, we are ushering in a new era of personalized medicine.

What is the Mars Shot? SNMMI's Mars Shot Research Fund advances nuclear medicine and molecular imaging and transforms patient care through an ambitious vision: to catapult molecular-level treatments and nuclear medicine imaging to enhance the standard of care for patients facing cancer, as well as neurodegenerative, cardiac, and other diseases. Mars Shot challenges researchers to push beyond conventional limits and achieve transformative medical breakthroughs through innovative work in an under-recognized area of biomedical research. We are proud to partner with the research community, clinicians in the field, donors, and patients to move beyond traditional boundaries to actualize the promise of personalized medicine.

2025 Goals: In our third year of making grant awards, Mars Shot aimed to build new partnerships, launch impactful clinical trials, and actively fund innovative research to move the needle in nuclear medicine and molecular imaging. We supported scientists and organizations to develop new advances that are not only life-saving but also quality-of-life-saving. We supported research that aims to detect disease earlier and address disease as painlessly as possible throughout diagnosis and treatment.

How we accomplished our goals. Throughout 2025, Mars Shot projects made waves across the medical landscape—from expanding access to radiopharmaceutical therapy programs in rural communities to exploring alpha therapy for neurological disease to the launch of an exciting young investigator award program in collaboration with the Prostate Cancer Foundation. Our support accelerated the development of advanced radiopharmaceuticals and pioneered targeted therapies, all while connecting researchers across disciplines and disease states to accelerate discovery.

Thanks to our supporters, we have created a funding mechanism for groundbreaking research and rising stars in nuclear medicine. Through your commitment to this mission over the past three years, we have built a network of researchers and partnering organizations with unmatched expertise, all dedicated to curing complex diseases and developing better, more precise technologies to more successfully diagnose and treat patients.

Our expanding research community. We are fostering the next generation of leaders in nuclear medicine and molecular imaging, with new awardees bringing expertise across diverse areas of theranostics research and clinical application. After a remarkable gift of \$1.1M in 2025 from Abass Alavi, MD, PET pioneer and elder statesman of nuclear medicine, and Jane Alavi, MD, a dedicated former clinician in hematology and oncology, we are poised to expand and deepen Mars Shot's powerful network of researchers even further.

Looking ahead to 2026. As we step into 2026, we hope to expand our awards and build momentum by funding more groundbreaking nuclear medicine and molecular imaging research, and branching into new areas of focus, including prostate and brain cancer research. In today's often uncertain research funding climate, the Mars Shot provides the critical infrastructure needed to sustain complex scientific exploration. Continue reading to explore how far we've come in achieving our goals and get a first look at the strategic roadmap that will guide our work ahead.

Letter from Leadership

As we reflect on 2025, we are proud to share that this past year marked one of the most significant milestones yet for the Mars Shot Research Fund. In only our third year, Mars Shot has built on its early foundation to generate strong momentum across nuclear medicine and molecular imaging, accelerating progress toward more precise, scalable theranostics and diagnostic tools advancing the next wave of precision nuclear medicine discovery.

This year underscored the power of collaboration. From extraordinary donors with deep personal connections to this field, to investigators spanning disciplines such as physics, radiochemistry, oncology, and informatics, Mars Shot continues to unite a community committed to one goal: delivering transformative, life-savings precision medicine diagnostics and therapies. The impact of Mars Shot is not theoretical, we are seeing it take shape in real time through the work of the researchers you have made possible.

Your commitment over the past three years has done more than just fund projects. It has helped sustain a critical scientific ecosystem, one that fuels innovation, supports emerging talent, and strengthens the pipeline for advanced radiopharmaceuticals and breakthrough treatments. There have been 17 Mars Shot grants awarded to date with at least 10 more to be awarded in 2026. The Mars Shot fund has supported highly innovative projects which can leverage additional funding sources and lead to transformative changes in human health. Because of you, we are helping expand access to nuclear medicine and molecular imaging, including in underserved and rural communities, while also empowering “rising stars” to push scientific boundaries in the lab and clinic. Your support is present in every milestone we celebrate.

As we enter 2026, Mars Shot is poised to broaden its reach and deepen its influence. In a time of uncertainty for research funding, your partnership provides the seeds of innovation for the future of our field and can help us pursue complex scientific challenges and accelerate translation from discovery to patient care. Together, we are fostering the next generation of leaders, expanding patient choices, and advancing nuclear medicine and molecular imaging for patients around the world.

Thank you for your generosity and your commitment to this mission. We look forward to building on this momentum and to transforming more lives together in the year ahead.



Richard Wahl, MD, FACR, FSNMMI, FACNM
Founder & Chair, Mars Shot Research Fund



Munir Ghesani, MD, FACNM, FACR, FSNMMI
Co-Chair, Mars Shot Research Fund



Jean-Luc C. Urbain, MD, PhD, CPE, FASNC
President, SNMMI

KEY ACHIEVEMENTS: Introducing the SNMMI-Prostate Cancer Foundation Young Investigator Awards

Prostate cancer offers one of the most compelling demonstrations of how radiotherapeutics and radiopharmaceuticals are redefining modern cancer care. While traditional radiation treatment delivers highly targeted energy that spares surrounding healthy tissues, radiopharmaceuticals have pioneered an entirely new therapeutic pathway. These agents selectively seek out specific disease markers, such as PSMA in prostate cancer, ensuring treatment reaches metastatic sites throughout the body. Together, these nuclear medicine approaches are actively shifting the paradigm of cancer care toward precision medicine.

Despite the significant strides the field of nuclear medicine has already made in treating prostate cancer, there remains vast potential for advancements. Many of these innovations will yield benefits far beyond any one cancer. Developments achieved in treating prostate cancer serve as crucial, transferable models for breakthroughs across many other tumor types.

To build a solid foundation for focused innovation in this field, SNMMI initiated a powerful partnership in 2025 with the Prostate Cancer Foundation (PCF). Phillip Koo, MD, Chief Medical Officer at PCF, recognized a synergy between PCF's mission, to eliminate death and suffering from prostate cancer, and the ambitious goals of the Mars Shot: to generate precise, lifesaving advances in nuclear and molecular medicine research. This shared vision was the catalyst for creating the **SNMMI-PCF Young Investigator Awards (YIA)**.

This new award is more than just funding; it is a strategic investment in the future leaders of nuclear medicine and oncology. The philosophy behind the YIA is intentionally focused more on the individual investigator than the specific research project. Dr. Koo explains:



Phillip J. Koo, MD
Chief Medical Officer at PCF
and Mars Shot partner

“

We know that investing in people will give us the biggest return over a longer period of time than a specific project. Specific projects can either fail or succeed. But if we can identify those rising stars within the nuclear medicine community and encourage them to commit to a career in prostate cancer, we know that will lead to more enduring outcomes.”

The PCF's existing YIA program serves as a strong model of success, having funded nearly 480 individuals over twenty years, resulting in countless high-impact publications and additional funding. The impact extends far beyond financial support: the YIA program prioritizes community, establishing a vital ecosystem of mentorship and collaboration that accelerates scientific progress across research areas. By launching the SNMMI-PCF YIA, the organizations are jointly propelling the next generation of researchers who will define the future of nuclear medicine in prostate cancer treatment and diagnosis.

The inaugural SNMMI-PCF YIA award winner will be announced in September 2026 at the annual PCF scientific retreat, marking the official beginning of their transformative research journey.

Alavi Legacy: A Vision Fulfilled

Abass Alavi, MD, did not begin his career with global ambitions; he began it with a promise. After losing his father to gangrene when he was just four years old, his mother requested he become a doctor, contributing by treating twenty patients a day in a local clinic. She could never have imagined that her son's research would ultimately impact millions, or that he would eventually support the future of his field through a landmark act of philanthropy.

Arriving in America in 1966, Abass discovered a passion for the use of radioactivity in medicine. Across 55 years at the University of Pennsylvania, he became a pioneer in nuclear medicine, creating the glucose analog that revolutionized medical imaging and developing Positron Emission Tomography (PET). Working alongside his wife, former neuro-oncologist Dr. Jane Bradley Alavi, Abass demonstrated that this compound could visualize cancer and brain disorders in ways conventional imaging never could.



Drs. Abass and Jane Alavi



“We [nuclear medicine] show how disease and normal tissue work in any part of the body,” he explains. “Structural imaging is very limited—you have a beautiful building that looks nice, but we turn on the lights and see how it actually functions.”

Despite the clarity PET provided, the road to widespread adoption was a twenty-five-year battle against skepticism. **“It was a real struggle to get this technology accepted,”** he remembers. Yet, his conviction never wavered: **“I was honestly seeing what’s happening today 50 years ago.”** In the clinic, Jane witnessed the tangible impact; PET could distinguish between living tumor and dead tissue, a feat impossible with conventional imaging. **“This really changed how we practiced,”** she notes.

Now, the behind-the-scenes nature of this field yields a philanthropic challenge. Because the significance is often invisible to the patient, it is frequently overlooked by donors. **“Patients are referred to us. We see them for an hour or two. They don’t even know the impact of what we have done,”** Abass explains.

Through their **\$1.1 million commitment** to the Mars Shot the Alavis are ensuring that the field receives crucial pilot funding, the very resource that launched Abass’s own career. By establishing the Drs. Jane and Abass Alavi Research Awards, they are supporting the next generation of researchers.

“I want to just encourage other people to do what we did,” Abass says. “If they have the means to do that, they should donate. Nuclear medicine is a great specialty.”

For Abass and Jane, this donation is the next chapter of a journey that transformed a mother’s simple wish into a global legacy. Alavi saw the promise of nuclear medicine 50 years ago; this generous gift ensures that his impact on the field will continue for the next 50 years and beyond.

Gambhir Trust: The Legacy of Sam Ghambhir

Sam Gambhir, MD, PhD, was a scholar whose deep love for physics initially drew him toward a life of pure research. However, a compromise with his father led him to pursue an MD-PhD at UCLA, a decision that allowed him to fulfill family wishes while igniting a revolutionary career in molecular imaging.

Leveraging his physics background, Sam developed pioneering technologies with a singular goal: detecting diseases like cancer earlier to ensure successful treatment. This mission became deeply personal when his wife, Aruna, was diagnosed with breast cancer. Years later, tragedy struck again when their 15-year-old son, Milan, was diagnosed with glioblastoma. Milan's passing further fueled Sam's commitment to early detection and personalized medicine.

Sam's sister, Sangeeta, witnessed his profound professional impact. **"He was one of the pioneers of molecular imaging... and one of the reasons that the MI was added to the SNMMI,"** she noted. Yet, beyond his accolades, his character left the deepest mark. **"I knew he was a great scientist and a great clinician, great educator. But after his passing, it just became much more apparent... how much he influenced everyone around him."** This legacy was rooted in his nature:



Sam Gambhir, MD, PhD

“Because more than just being a researcher, he was a really, really good human being.”

Though Sam and Aruna did not live to see the Mars Shot become a reality, today Sangeeta is confident the initiative will carry his life's work forward. Through a generous bequest, the family has ensured Sam's vision survives him. **"Their goal in leaving this bequest for SNMMI was basically to carry on what he hoped would happen from his research,"** Sangeeta explained.

“And the way he has done it is by leaving these funds and also by educating and collaborating with so many of the people who worked with him. So even though he is gone, I think his work does carry on.”

SNMMI is proud to acknowledge Sam Gambhir as our first legacy donor through this extraordinary gift.

James Cook: Taking Risks to Advance Cancer Care

James Cook stumbled into the field of nuclear medicine as a consultant and was immediately wowed by the work being done by its brilliant chemists, physicists, and clinicians. While his professional capacity required him to consider risk pragmatically, his perspective fundamentally changed when he underwent standard chemotherapy treatment for lymphoma. Navigating this personal experience revealed the true stakes: the “risk” wasn’t in the research, but in the opportunity lost if we fail to innovate.

By supporting the Mars Shot, James is backing the kind of high-risk high-reward research that aims to expand the number of cancer types treatable through radiotherapeutics, ultimately offering patients a better quality of life during treatment.

“I think we need to take risks to push things forward,” he explains. “Cancer patients are facing risks already. By no choice of their own.”

James stresses that early-stage innovation often comes from academia, as industry typically focuses only on projects with a high chance of financial return. This leaves crucial research unfunded, slowing down progress for patients. He points out the enormous potential waiting to be unlocked:



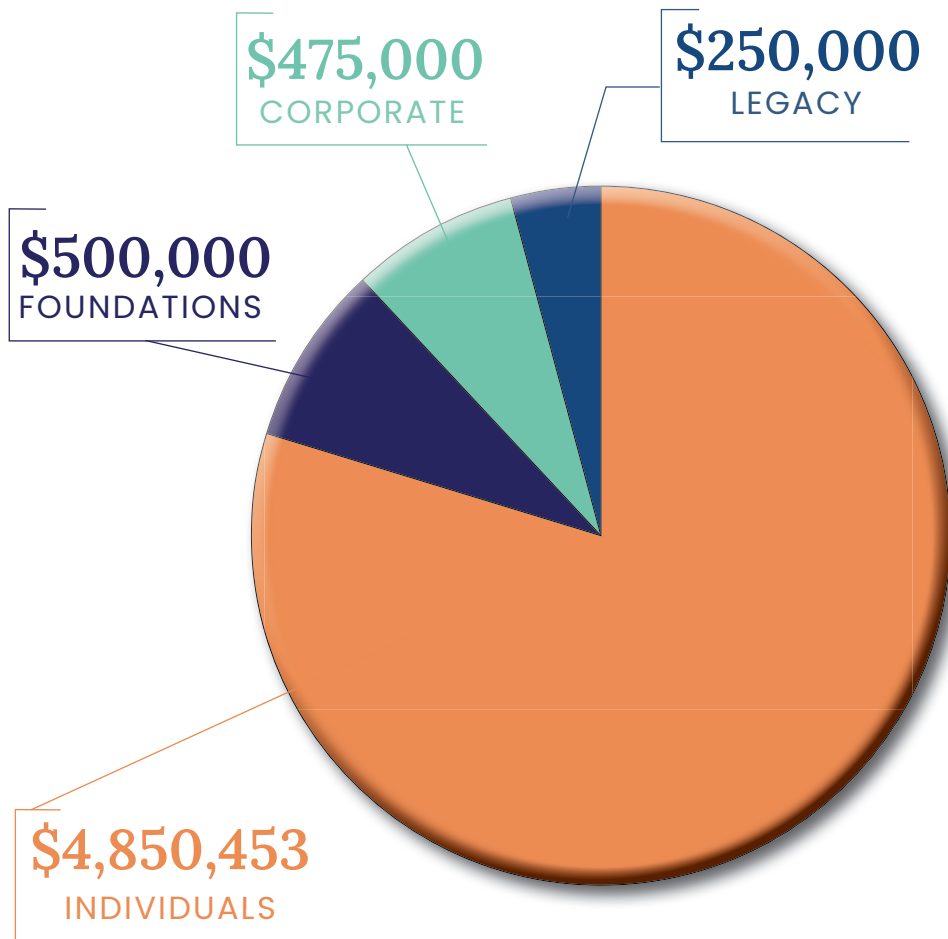
James Cook

“Radiotherapeutics are really used in only two disease areas right now, prostate cancer and neuroendocrine tumors... I think there are a lot of other cancer types that will eventually benefit from radiotherapies. It’s a question of how fast we can get there.”

Through his donation, James hopes the Mars Shot will accelerate this research by providing the early-stage support needed for bold research. With professional insights and profound personal experience, James Cook is excited for his contribution to directly fund this urgent work.

DONOR INFORMATION

Donation Sources



Current Grant Opportunities

COMMUNITY-BASED THERANOSTICS GRANT

These grants fund projects focused on the advancement of the implementation of targeted radiopharmaceutical therapies in community-based practices.

INNOVATOR'S GRANT

The focus of this grant is highly innovative research initiatives designed to advance precision and personalized healthcare through diagnostic and therapeutic nuclear medicine.

EARLY DETECTION OF PROSTATE CANCER MARS SHOT RESEARCH GRANT

This funding opportunity seeks proposals focusing on early diagnosis and diagnostic management pathways in prostate cancer using nuclear medicine methods.

SNMMI MARS SHOT-LOBULAR BREAST CANCER ALLIANCE INVASIVE LOBULAR CARCINOMA IMAGING RESEARCH FELLOWSHIP

The research supported by this collaboration is a crucial step toward a future where breast cancer treatments are more accurate, less invasive, and, ultimately, more effective.

SNMMI-PCF YOUNG INVESTIGATOR AWARDS

This grant is to be awarded to a researcher focused on advancing nuclear medicine and molecular imaging in prostate cancer.

Donation Options

Donations of over \$1,000 provide access to the Accelerators Circle.

MEMBERS OF THE ACCELERATORS CIRCLE RECEIVE:

- Insider access to Donor Lounges at the SNMMI Annual and Mid-Winter Meetings
- Recognition on the Virtual Wall of Honor
- Exclusive access to donor events and campaign milestones
- A distinctive donor ribbon at SNMMI events



For more information about donation options, visit our website.

RESEARCHER IMPACT

The nuclear medicine community, despite being medicine's smallest specialty, continues to be a profound source of inspiration. Situated at the intersection of physics, instrumentation, human physiology, and AI, this field naturally cultivates a supportive and collaborative culture, a characteristic evident across our entire community, from researchers to donors. The inquisitive minds of the investigators are not driven merely by what nuclear medicine or molecular imaging can do, but by a consistent due north question: How will this help the patient?

This dedication is perfectly illustrated by the awardees highlighted in this report, whose work is guided by crucial questions such as:

- How can we deepen our understanding of disease biology to truly tailor treatments?
- How can we implement new technologies to ensure equitable patient access to these therapies?
- How can we continually improve these applications to maximize patient impact?

At Mars Shot, we are not just backing the pivotal questions being asked; we are backing the extraordinary people who are asking them. They are the ones who will build, grow, and lead the future of medicine. Just as we place our trust in our awardees, they trust the Mars Shot to champion their pioneering work, especially when more conventional funding mechanisms fall short. We are confident that the research community we are building will repay that faith in kind, delivering breakthroughs that continue to transform care long after the initial funding round concludes.

Marina Sharifi: Decreasing Invasiveness and Time to Effective Treatment



Marina Sharifi, MD, PhD
Assistant Professor,
Hematology, Medical
Oncology & Palliative
Care, University
of Wisconsin

Mars Shot Fund awardee
2023: SNMMI/Lobular
Breast Cancer Alliance
Research Fellowship

"Integrating minimally invasive biomarkers of estrogen signaling to detect endocrine therapy resistance in metastatic invasive lobular cancer."

As a clinical researcher, **Marina Sharifi, MD, PhD**, was drawn to molecular imaging by a powerful drive to understand the disease biology of her breast cancer patients and use that knowledge to tailor treatments, decreasing invasiveness and improving responsiveness.

The majority of metastatic breast cancers are estrogen-driven, and current effective therapies focus on blocking estrogen signaling. However, these cancers frequently develop estrogen resistance. Under the current standard of care, resistance can only be confirmed at three month intervals at minimum, meaning patients endure unsuccessful treatment and experience significant delays to receiving more effective therapy.

Sharifi's research aims to develop functional biomarkers that can provide real-time information to guide treatment. Her guiding question is: **"Is [this] the right treatment for the patient that's sitting in front of me in clinic?"** Her Mars Shot-funded pilot study directly addresses this need by focusing on lobular breast cancer, a less common, estrogen-positive subtype that has been understudied. This focus provides an untapped opportunity to gather information that can benefit this specific subtype and potentially be applied to other cancers.

The study is exploring a novel tracer, FFNP, which serves as a biomarker for estrogen signaling. By using an estrogen signaling PET scan and a corresponding liquid biopsy to examine circulating cancer material in the blood, the team seeks to quantify disease burden and determine estrogen resistance much earlier in the treatment process. The Hypothesis: In patients whose cancers are sensitive to the drug, the team expects to see a significant decrease in estrogen signaling soon after treatment begins, indicating the drug is successfully blocking the pathway.

Although the research is in the early discovery phase, the initial results look promising. Sharifi notes: **"I've been really gratified that it seems like we are on the right track with it, which I wasn't sure was going to be the case."** Sharifi is optimistic about the future of cancer research, believing that clinical applications must evolve to stay ahead of the natural evolution of treatment resistance.

By moving beyond traditional DNA mutation biomarkers and leveraging functional biomarkers and liquid biopsies, researchers can gain deep insight into the active signaling pathway of an individual patient's cancer.

"There's a lot happening and a lot that's going to happen... We're moving beyond giving everybody with the same cancer diagnosis the same treatment... It's really exciting to be part of that."

Nicole Maughan: Medical Physics in the Mountains



Nicole Maughan, PhD, MS
Medical Physicist
Intermountain Health
Provo, Utah
2024 Mars Shot
Fund Awardee:
Community-Based
Theranostics Award

“Establishing
centralized
dosimetry process
with peripheral SPECT/
CT image acquisition
within an expanding
radiopharmaceutical
therapy program
throughout the
Mountain West.”



Nicole Maughan, PhD, MS, didn't know nuclear medicine existed until graduate school, when her radiation oncologist advisor introduced her to Y90 (Yttrium-90) microsphere imaging and dosimetry, a dual-action technique that combines targeted radiotherapy with vessel-blocking technology to treat and track liver tumors with high precision. “That was really where I started bridging those disciplines—radiation oncology, nuclear medicine, and medical physics all together,” she recalls. “I've loved it ever since.”

For the past 12 years, Maughan has built her career at this intersection with a unique focus: she works in community settings, not large academic centers. As a therapy medical physicist, she's concentrated on something equally critical as discovery—implementation science. “It's not about inventing something new, but how do we implement the new things so that patients have access to those new therapies,” she explains. Now, Maughan meets patients during treatment, surprising them by introducing herself as their “physicist”. She's learned to explain it simply: she's “the safety police” of their treatment, overseeing technical aspects, calibrating equipment, verifying dosimetry calculations, and ensuring each patient receives treatment tailored to their individual needs. “We double and triple-check everything to make sure it's delivered safely and exactly how the doctor wants it delivered.”

Her Mars Shot Community Theranostics Award addresses a fundamental inequity: personalized radiopharmaceutical therapy is typically only available near major academic centers. “It's hard to have access to that unless patients live really close to academic centers that have the resources to do dosimetry,” Maughan notes. Her project in the Mountain West brings personalized treatment to rural areas where it's needed most, and the response from rural communities has been glowing. When Maughan travels to smaller centers to implement dosimetry procedures, technologists are ready and eager to provide their patients with these higher-quality, personalized treatments. “They're like, ‘This is great. This is awesome. Let's get started,’” she says. “The patients are excited too, to know that their treatment is doing what they want it to and the doctor's watching it.”

While medical physicists can easily focus on developing “cool new detectors or cool new scanners,” Maughan's focus is on real-world, human impacts, asking: “What kind of impact does it have on patients? That's what I personally care most about.” Her advice to newcomers reflects this philosophy: “Collaborate across disciplines. Be willing to learn, especially from physicians, who ask, ‘why does it matter for patients?’ And keep in perspective why you're doing what you're doing. That's the patients, ultimately.”

Recently invited to present at the SNMMI Theranostics Conference, Maughan described what “physicists in community settings” actually means. For Maughan, it's simple: bringing cutting-edge, personalized nuclear medicine to patients who need it most, wherever they live. Through Mars Shot, Maughan is ensuring that innovation in nuclear medicine reaches every community, making the promise of personalized treatment a reality for patients from major cities to the rural mountain West.

Julie Sutcliffe: Advancing Theranostics for Lobular Breast Cancer



Julie Sutcliffe, PhD

Professor of Internal Medicine and Biomedical Engineering, University of California–Davis

Mars Shot Fund awardee 2023

“Evaluating the integrin $\alpha\beta6$ -targeted molecular imaging agent [^{68}Ga]Ga DOTA-5G as a diagnostic for lobular breast cancer.”



Through her Mars Shot grant, **Julie Sutcliffe, PhD**, is advancing the application of imaging techniques that target the protein integrin beta 6 ($\alpha\beta6$) in patients with Invasive Lobular Breast Cancer (ILC). This molecule is an ideal target as it is overexpressed on tumor cells, allowing them to be distinguished from healthy cells, where expression is low.

Building on decades of her laboratory’s research into early cancer detection and treatment, Sutcliffe’s team has developed a novel imaging agent (a molecule attached to the radioisotope gallium-68). This agent has already successfully detected very small metastases, including lesions in the brain, bone, liver, and lung, in patients with pancreatic cancer.

Now applying this successful agent to ILC, Sutcliffe and her team aim to use the imaging results to precisely select patients who will benefit most from the $\alpha\beta6$ -targeted therapy currently under development. This theranostics strategy is central to her robust clinical trial portfolio, which includes active studies for $\alpha\beta6$ -targeted radioligand therapy in pancreatic cancer, non-small cell lung cancer, and a recent trial for all metastatic cancers.

2025 AWARD RECIPIENTS

Mars Shot Community–Based Theranostics Research Grant



Dustin Osborne, PhD

Director, Molecular Imaging and Theranostics Research Program, University of Tennessee



James R. Crowley, MS, CNMT

Imaging Services Manager, Carilion Clinic, Roanoke, Virginia

“Expanding Access to Theranostics in Rural Appalachia: A Community–Based Educational Initiative.”

Targeted Radiopharmaceutical Therapies (TRT) offer life-saving, personalized treatment, but access is severely restricted in rural areas. The primary barrier is the lack of provider experience and confidence, exacerbated by the absence of a scalable, practical training infrastructure for both nuclear medicine specialists and referring providers.

Osborne and Crowley plan to address this gap by creating a structured and sustainable training model. The goal is to empower rural healthcare providers, enhance patient outcomes in Appalachia, and lay the foundation for future, replicable community-based theranostics programs nationwide.

Early Detection of Prostate Cancer Mars Shot Research Grant



Vikas Prasad, MD, PhD

Associate Professor of Radiology at WashU Medicine Mallinckrodt Institute of Radiology.

“BOOSTING PSMA EXPRESSION FOR PRECISION DETECTION OF LOCAL RESIDUAL DISEASE AND METASTASES PRE-RADIATION THERAPY.”

Prostate-Specific Membrane Antigen (PSMA) is a protein overexpressed by prostate cancer cells, making it a powerful target for diagnosis. However, variability in expression means current PSMA PET imaging misses lesions in a critical segment of patients (24%–40%). To close this diagnostic gap, Prasad will investigate the underlying complexities of PSMA expression. By identifying new ways to sharpen diagnostic contrast, this research aims to improve the accuracy of imaging in prostate cancer, ensuring more patients receive an early, precise diagnosis and improved clinical outcomes.

2025 AWARD RECIPIENTS

2025 SNMMI Mars Shot-Lobular Breast Cancer Alliance Invasive Lobular Carcinoma Imaging Research Fellowship



Randy Yeh, MD
Associate Professor of Radiology and Chief of Nuclear Medicine at the Icahn School of Medicine at Mount Sinai

"IMPROVING DETECTION AND OUTCOMES IN PATIENTS WITH METASTATIC INVASIVE LOBULAR BREAST CANCER THROUGH NOVEL FAPI PET IMAGING."

This project aims to improve detection and outcomes for patients with metastatic Invasive Lobular Carcinoma (ILC) using novel PET imaging. Currently, there are no imaging methods specific to ILC. Yeh will explore a novel radiotracer that targets fibroblast activation protein (FAP), which is abundant in the supportive tissue of ILC tumors. The goal is to establish FAPI PET as an improved imaging option for the diagnosis and monitoring of this specific cancer type.

Yeh previously received a grant of \$500,000 from Mars Shot to explore the potential of PET imaging to assess heterogeneity and predict treatment response in human epidermal growth factor receptor 2 (HER2)-low breast cancer. High HER2 expression is traditionally associated with a more aggressive, faster-growing cancer type, but it responds well to targeted therapies like Trastuzumab (Herceptin). In contrast, HER2-low cancers present a diagnostic and therapeutic challenge. This noninvasive PET imaging approach allows clinicians to comprehensively observe HER2 expression across various tumor sites, providing a complete picture of HER2 heterogeneity. This initial work successfully went on to receive NIH funding and was published in the *Journal of Nuclear Medicine*.

2025 Mars Shot Innovator's Grants



Kiran Solingapuram Sai, PhD
Associate Professor, Department of Radiology, Wake Forest University School of Medicine

"ADVANCING PET IMAGING OF MICROTUBULES FOR DIAGNOSTIC AND THERAPEUTIC TARGETING IN PARKINSON'S DISEASE."

Microtubule destabilization is a significant, early event and driver of degeneration in Parkinson's disease (PD). By exploring a novel PET-based radiopharmaceutical that selectively binds to destabilized microtubules, Solingapuram Sai seeks to provide molecular-level insights into PD mechanisms. The goal is to significantly enhance early diagnosis, accurately monitor disease progression, and inform the development of novel therapeutic strategies for PD.

2025 Mars Shot Innovator's Grants



Mark Sellmyer, MD, PhD
Assistant Professor in the Department of Radiology, Biochemistry and Biophysics at the University of Pennsylvania

"TRANSFORMING ANTIBODY-BASED IMAGING AND THERAPY USING A TETRAZINE-KNOCK-OUT (TKO) APPROACH."

Radioimmunotherapy provides precise treatment through targeted medicine that combines a radioactive substance with an immune molecule, called radioimmunoconjugates. The large size of traditional radioimmunoconjugates often leads to slow blood clearance, causing toxicity and impaired PET imaging. Sellmyer aims to engineer novel approaches for the rapid clearance of unnecessary radiation from circulation and non-target organs using a tetrazine-knock-out strategy. These improvements to versatility and clearance kinetics will have a broadly transferable impact on diagnostic imaging and therapy across all antibodies.

2025 Mars Shot Innovator's Grants



Tara Mastren, PhD
Associate Professor of Nuclear
Engineering at the University of Utah



Donna Cross, PhD
Associate Professor of
Neuroimaging and Biotechnology at
the University of Utah



Andrew Roberts, PhD
Associate Professor of Chemistry at
the University of Utah

"INVESTIGATING THE POTENTIAL OF TARGETED ALPHA THERAPY FOR THE ROUTINE TREATMENT OF ALZHEIMER'S DISEASE."

This collaborative project aims to develop a powerful new radioimmunotherapy approach for Alzheimer's disease, targeted alpha therapy (TAT). This strategy utilizes a highly specific targeting agent to deliver an alpha-emitting radioactive isotope directly to amyloid plaques in the brain. The high energy and short range of alpha particles allow for the precise disruption of plaque structures by inducing localized double-stranded DNA damage. By destabilizing these toxic aggregates at the molecular level, this research seeks to establish a transformative therapeutic platform. The results of this project will not only impact Alzheimer's but also hold significant potential for other neurodegenerative diseases such as Parkinson's and ALS.

2025 Mars Shot Innovator's Grants



Robert Flavell, MD, PhD
Chief of Molecular Imaging and Therapeutics
Clinical Section in the Department of Radiology
and Biomedical Imaging at the University of
California, San Francisco



Henry VanBrocklin, PhD
Director of the Radiopharmaceutical Research
Program in the Center for Molecular and
Functional Imaging at the University of
California, San Francisco

"RELEASABLE MICROSPHERE RADIOPHARMACEUTICALS FOR TREATMENT OF METASTATIC NEUROENDOCRINE TUMORS."

This research aims to improve the standard of care for Neuroendocrine Tumors (NETs) by combining radioactive beads (Yttrium-90 microspheres) with a radiotherapy agent (Lutetium-177 DOTATATE). Currently, there is no standardized second line of treatment to prevent disease progression in NETs. This novel approach will allow for the direct infusion of the agent into a localized tumor while simultaneously delivering additional radiation doses to distant metastases, providing a crucial, combined therapeutic strategy.

MARS SHOT: FUTURE VISIONS

Mars Shot is built on the belief that, with the ambitious, visionary work of nuclear medicine and molecular imaging researchers, personalized, life-saving therapy and diagnostics are within our immediate reach. For 50 years, this field has served as a cornerstone of modern diagnostics. Today, we are fueling a medical revolution that shifts the paradigm towards theranostics. In this era, we go beyond seeing disease; we treat it with surgical precision.

As we enter our fourth year, Mars Shot is shifting from establishing a foundation to scaling our impact:

Empower the Next Generation of Theranostics Pioneers: Scaling the “Rising Star” Pipeline

Through competitive funding mechanisms, we are cultivating a pipeline of innovators equipped to tackle tomorrow’s medical challenges. Supported by the legacies of pioneers like the Alavi and Gambhir families and strengthened by partners like the Prostate Cancer Foundation, we are providing the fellowships and seed funding necessary to ensure that the integration of diagnostics and therapeutics remains a dynamic, evolving field. These “rising stars” bring the fresh perspectives and technical creativity necessary to pave new pathways in personalized treatment across the full spectrum of disease.

Radical Collaboration Across Silos

True discovery accelerates when experts unite across traditional boundaries. Transformative care requires the dismantling of silos, fostering meaningful connections among healthcare providers in nuclear medicine, oncology, cardiology, neurology, and beyond. We are building a high-performance multi-disciplinary network of professionals dedicated to delivering comprehensive, patient-centered theranostics that treat the individual, not just the illness.

Strategic Expansion Into High Prevalence Cancers

In 2026, we are sharpening our focus on high-prevalence malignancies. Through deepened alliances, such as our partnership with the Prostate Cancer Foundation, we are merging evolving molecular imaging with diagnosis-specific expertise. This collaborative model will support targeted clinical trials and accelerate the development of next-generation radiopharmaceuticals, ensuring that the most advanced care reaches the patients who need it most.

In 2026, we aren’t just funding science; we are building the infrastructure for a medical revolution. Every dollar serves as a catalyst for a future where “incurable” is a term of the past.

Join Us in Transforming Medicine

Be a driving force in the nuclear medicine revolution. Help us translate molecular-level breakthroughs into the global standard of care. Whether you are an industry leader, a philanthropic foundation, or an individual, your collaboration is a powerful stimulus for innovation. Partner with us to accelerate clinical progress and expand global access to these transformative treatments.

For Researchers

We are committed to providing the crucial seed money for discovery stage projects necessary to launch transformative concepts. By partnering with us, you gain access to essential resources and community when you need them most. Join Our Mailing List to receive immediate updates on upcoming funding opportunities and calls for proposals.

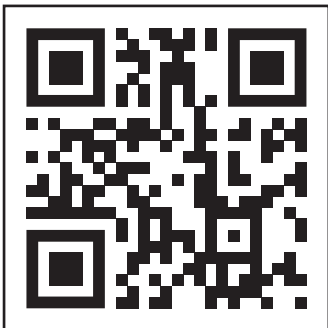
For Donors

Your generosity provides the critical funding necessary to move game-changing ideas from the lab to the patient. Every dollar of research funded by this initiative is an investment in medical revolution, directly expanding patient choices and transforming treatments globally. For more information about donation options, visit our website.

For All

Become an Advocate by sharing the story of SNMMI Mars Shot with your networks. Become a vital voice that raises awareness about the life-saving potential of nuclear medicine and inspires others to get involved in this revolutionary field.

Support the Mars Shot Fund.



Acknowledgements

The dramatic expansion of our mission this past year is a testament to the collective power of our broad community. Every contributor, staff member, researcher, and patient has played an active, essential role in advancing this initiative.

Special recognition is due to our exceptional leadership team—including Richard Wahl, MD; Munir Ghesani, MD; Gary Ulaner, MD, PhD; Virginia Pappas, CAE; Richee L. Smith Andrews, Esq., MBA; Bonnie Clarke; Lance Burrell, MS; Teresa Favero; Laura Ann Lopez; Teresa Ellmer; 360 Philanthropy Partners; and the Mars Shot Research Fund Board and Campaign Committee. Their vision and unwavering commitment have been the driving force behind our success.

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It is through this collective dedication and concerted effort that we are accelerating our work, launching discovery projects with the profound potential to transform the future of healthcare.

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