



City of
Hope®



in partnership with



SOTERIA
PRECISION MEDICINE FOUNDATION

Advancing Cancer Care for Those Who Serve

**The Precision Medicine for Combat Veterans
Research Program at TGen**





Members of the U.S. military make a commitment to serving our nation that is defined by courage and sacrifice. Unfortunately, one of the sacrifices these dedicated soldiers face is an elevated risk of developing cancer.

A growing body of research shows that U.S. military members have higher rates of certain cancers, and at younger ages, than the general population. The situation is particularly alarming for members of the U.S. Special Operations Forces (SOF), the elite combat units of the Army, Air Force, Navy and Marine Corps. For example, **Navy SEALs may be at 10 times higher risk of developing cancer than the rest of the Navy's personnel.**

The development of these cancers follows service members well after their deployments. According to the U.S. Department of Veterans Affairs (VA), more than 43,000 veterans have a new cancer diagnosis each year, 16% of which are rare cancers that are challenging to treat.

Investigating Cancers across the Military

While there are compelling theories for these high cancer rates, such as exposure to hazardous materials and the unique physical stressors of military service, research to date has not confirmed the specific causes of these cancers or suggested an intervention to address them.

To find answers to these vital questions, **scientists at the Translational Genomics Research Institute (TGen) are launching a novel precision medicine research study** of SOF veterans with cancer through the **Precision Medicine for Combat Veterans Research Program. TGen is a renowned center of genomic research and a core component of City of Hope.** City of Hope, ranked among the top five cancer institutes by *U.S. News & World Report*, is one of the nation's largest cancer research and treatment organizations, with clinical locations across the United States. For more than two decades, City of Hope's faculty at TGen have led the field in unraveling the genomic components of complex cancers and developing leading-edge precision medicine treatments for these diseases.

Under the joint leadership of Jeffrey M. Trent, PhD, FACMGG, TGen's President and Research Director, and TGen's Physician-in-Chief, Aleksandar Sekulic, MD, PhD, the program will begin with a pilot phase 1 research study that has the potential to enhance cancer prevention and treatment strategies for military members and veterans across the nation. TGen's leaders will be aided by the **Soteria Precision Medicine Foundation**, a nonprofit organization that connects cancer patients to precision medicine resources through state-of-the-art patient navigation.

TGen is honored to lead this research initiative, recognizing the enormous debt we all owe to members of our armed services who risk their lives on our behalf. While we cannot always keep these military members safe from harm in battle, we have an obligation to do all that we can to protect them from the repercussions of their tours of service, including serious disease. Our precision medicine study supporting SOF veterans aims to do exactly that.

Philanthropy will be an essential part of carrying out our \$6 million pilot research study and then building upon its findings with further research. We respectfully invite you to join us and help safeguard the health of the SOF veterans in our study and the thousands more who stand to benefit from the insights of our Research Program.



“This program marks an exciting step forward in City of Hope’s efforts to improve cancer care for U.S. military service members and veterans. Our commitment to achieving new breakthroughs on behalf of these selfless individuals will only grow in the years to come.”

— **Kevin Manemann**, Executive Vice President and Chief Integration Officer, Clinical Enterprise, City of Hope

Applying Precision Medicine to Veterans’ Cancer Care

Precision medicine is focused on leveraging the genomic analysis of tumors and a patient’s unique DNA profile to better diagnose, treat and prevent cancer. This revolutionary approach has opened a whole new paradigm in how we care for patients and view cancer risk. It has empowered clinicians to craft personalized therapies and produce research breakthroughs that have converted cancers once thought incurable into manageable conditions with potential for long-term remission.

TGen is leading the field in unraveling the genomic components of some of the most complex cancers in existence and developing more effective, genetically informed treatments for these diseases.

The scientists at TGen have deep experience in:

- Creating programs that provide comprehensive molecular genomic analysis of cancer within underserved communities, as well as illuminating behaviors and environmental exposures that can fuel cancer’s growth
- Providing clinical discoveries and superior treatment strategies for patients with rare cancers (especially significant since research points to a greater frequency of rare cancers among military service members)

Our TGen clinicians are proud to bring their world-class expertise to the Precision Medicine for Combat Veterans Research Program. The Soteria Precision Medicine Foundation will be a key partner in recruiting SOF veterans for our study and providing them with care navigation services. With their support, we will:

- Enroll 100 SOF veterans in our phase 1 study over the course of one year
- Provide these veterans with exceptional precision medicine testing
- Conduct research into the genetic origins of their cancer

Special Advisors to the Program

The Precision Medicine for Combat Veterans Research Program will benefit from the collective insights of a distinguished group of Special Advisors who will help TGen build this program to its fullest potential.



James Danforth Quayle

44th Vice President of the United States; Chairman, Cerberus Capital Management; Member, TGen Foundation Board of Directors



CAPT Rob Newson

United States Navy, Retired SEAL; Chief Community Officer, SOTERIA Precision Medicine Foundation



James H. Binns, Jr.

Entrepreneur/executive and Vietnam Veteran (Bronze Star Medal for Meritorious Service); Past Chairman, Research Advisory Committee on Gulf War Veterans Illnesses, U.S. Department of Veterans Affairs; Past Principal Deputy Assistant Secretary of Defense for International Security Policy, U.S. Department of Defense

Leading-Edge Genetic Health Services for Participating Veterans

Specialists at TGen will provide every veteran in our study with free, state-of-the-art analyses of their cancer and personal genetic profile.

More than 70% of U.S. cancer patients lack access to high-quality genomic profiling, and those who receive it often obtain tests on just a handful of their genes. TGen provides its patients with comprehensive clinical sequencing of cancerous tumors and the patient's full DNA profile, encompassing tens of thousands of genes, alongside advanced molecular analytics and the collective insights of our talented clinicians.



This broad array of genetic testing and analyses will provide SOF veterans and their personal physicians with an actionable health report that can:

- Point to key genetic factors in their cancer
- Identify treatment options and clinical trials that will improve their chances of a cure

At the same time, Soteria will support participating SOF veterans by delivering seamless patient navigation services, at no cost. This will include:

- An initial, thorough medical screening
- A nurse navigator team facilitating communication and scheduling between the SOF veteran patient, their personal cancer physicians and genetic specialists at TGen
- Ongoing education and guidance for the veterans and their care teams on the intricacies of precision medicine and logistics around recommended treatment strategies

Research That Illuminates the Sources of Cancer Among U.S. Veterans

While TGen's clinicians are supporting veterans' cancer care with the results of their genomic analyses, our research scientists will be exploring the wider problem of pervasive cases of cancer among the U.S. Special Forces. This will include investigations of the unique somatic (tumor-specific) and germline (affecting all cells) genetic mutations, cancer signatures, tumor characteristics and molecular changes affecting the SOF veterans in our study.

With some of the top genetic scientists in the nation analyzing this data, TGen's research teams will gain a deeper understanding of the potential genetic factors, behaviors and exposure to carcinogenic materials driving this health crisis within our military.

This game-changing research on the molecular structure of SOF veterans' cancers will be presented at national and international oncology conferences and published in top-tier, peer-reviewed medical journals. TGen will be pleased to recognize the program's philanthropic partners in the public events and published materials that come from this momentous work.

The Luminary Genomic Scientists Leading our Research Program

Jeffrey M. Trent, PhD, FACMGG

TGen President and Research Director

Dr. Jeffrey M. Trent is one of TGen's founders and a globally celebrated scientist who is advancing the use of genomic analysis to enhance medical care. He leads the development of innovative programs across TGen, including the Precision Medicine for Combat Veterans Research Program.

Prior to forming TGen in 2002, **Dr. Trent served for 10 years as the Scientific Director of the National Human Genome Research Institute (NHGRI) at the National Institutes of Health.** He is the author of more than 400 manuscripts of scientific literature and has received numerous honors and awards.

Dr. Trent's research is focused on molecular changes related to cancer risk and progression and the development of novel therapeutics to treat cancer. He has done extensive laboratory work on creating new approaches to melanoma, which has been found to have an 87% higher rate of occurrence among crews in the U.S. Air Force compared to the general population.



Aleksandar Sekulic, MD, PhD

TGen Physician-in-Chief; Professor and Director, Clinical Genomics and Therapeutics Division; Director of Dermatology and Translational Research, City of Hope Phoenix

Aleksandar Sekulic, MD, PhD, a renowned expert in precision medicine and immunotherapy, is **spearheading the development of multiple promising studies and programs that apply the power of advanced genomics research to complex cancers, including the Precision Medicine for Combat Veterans Research Program's phase 1 research study.** He also oversees a dynamic dermatology and cutaneous oncology program at City of Hope Phoenix that delivers advanced treatments and research breakthroughs for skin cancer patients. Dr. Sekulic has co-authored over 60 peer-reviewed articles, led numerous studies on cancer genomics and precision oncology, and designed multiple clinical trials that have led to new cancer medicines.





“Through this program, we will not only help ensure access to the best possible cancer therapies for deserving veterans, but will also aim to understand the driving forces behind these cancers at a molecular level. These insights hold promise to limit cancer’s impact among the next generation of U.S. military members, through more effective prevention and monitoring strategies, more accurate diagnosis and better treatment options.”

— Aleksandar Sekulic, MD, PhD

Join Us in Creating a Healthier Future for Those Who Serve

City of Hope and our faculty at TGen are proud to be spearheading this first-of-its-kind initiative to discover what is fueling the high rates of cancer among veterans of the U.S. Special Operations Forces.

After completing the first phase of the Precision Medicine for Combat Veterans Research Program, we anticipate broadening our efforts to provide precision medicine services to a larger population of veterans throughout the country and building upon our research of veterans’ cancers while doing so. Our leadership in genomic science and the scope of our national health system make us uniquely poised to accomplish these goals.

The health strategies that come from such an expanded program have the potential to generate significant advancements in cancer screenings, early diagnostics, personalized prevention strategies and targeted therapies for a wide range of heroic Americans. This expansive research stands to benefit not only the greater community of U.S. veterans and service members. It also holds terrific promise for enhancing the care of first responders such as firefighters and paramedics throughout the nation, whose valiant work in stressful environments often mirrors that of military personnel.

We respectfully invite you to help TGen achieve new scientific discoveries that can protect the health of these inspiring men and women by making a gift in support of our groundbreaking Precision Medicine for Combat Veterans Research Program. With your partnership, we will pursue lifesaving enhancements in healthcare for the brave individuals who regularly put their own lives on the line to keep us safe.

We look forward to continuing the conversation around this exciting opportunity.

For more information, please contact:



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City of Hope

City of Hope, ranked one of the top five cancer institutions in the nation, has been included among our country’s “Best Hospitals” in cancer by *U.S. News & World Report* for 17 consecutive years.

We were founded in 1913 by a community of volunteers and donors committed to providing care and dignity to those in need. Through the decades, a national philanthropic movement helped City of Hope grow into one of the largest cancer research and treatment organizations in the U.S. and one of the leading research centers for diabetes and other life-threatening illnesses. City of Hope’s growing national system includes our Los Angeles campus, a network of clinical care locations across Southern California, a new cancer center in Orange County, California, and cancer treatment centers and outpatient facilities in the Atlanta, Chicago and Phoenix areas.

With a National Cancer Institute-designated comprehensive cancer center at our core, City of Hope brings a uniquely integrated model to patients, spanning cancer care, research and development, academics and training, and a broad philanthropy program that powers our work.

The organization’s 11,000 employees serve over 130,000 patients each year across the nation, while conducting more than 800 clinical trials to create novel medical treatments. Compassion remains at the heart of our approach, and we are committed to helping our patients enjoy full and rewarding lives during and after their treatment journey.



TGen headquarters in Phoenix, Arizona

TGen, a part of City of Hope

The Translational Genomics Research Institute (TGen) is a Phoenix, Arizona-based nonprofit organization dedicated to conducting groundbreaking research with life-changing results. TGen is an integral part of City of Hope, and its exceptional expertise in precision medicine enables both organizations to complement each other in research and patient care, with City of Hope providing an expansive clinical setting to advance scientific discoveries made by TGen.



TGen is focused on helping patients with cancer, neurological disorders, diabetes and infectious diseases through leading-edge translational research that reveals the genetic components of both common and rare diseases in adults and children. Working with esteemed collaborators in the scientific and medical communities worldwide, TGen scientists are committed to realizing research breakthroughs that lead to new and more effective therapies for these challenging illnesses.

Soteria Precision Medicine Foundation

Soteria Precision Medicine Foundation is a non-profit organization dedicated to empowering patients, caregivers, and clinicians with the transformative capabilities of precision medicine navigation. Committed to breaking down barriers and informing cancer treatment planning, Soteria provides access to state-of-the-art technologies and personalized treatment options, making precision medicine insights available to every patient it serves.

