



INTERNATIONAL ASSOCIATION
OF FIRE FIGHTERS

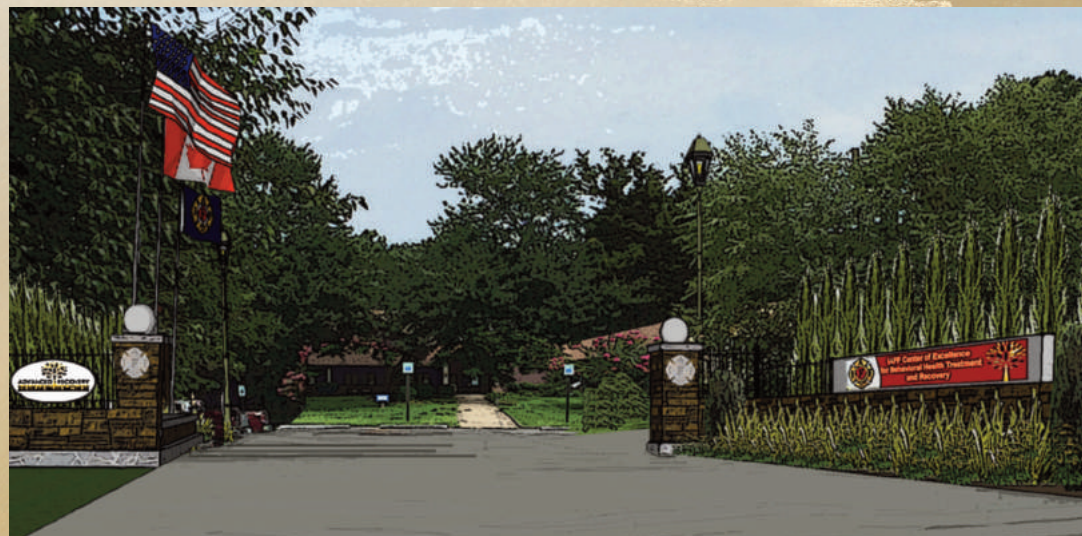


ADVANCED RECOVERY
SYSTEMS
an advanced approach to patient care

NOW OPEN!

The IAFF Center of Excellence for Behavioral Health Treatment and Recovery

Treatment exclusively for IAFF members • Completely Confidential
Addiction • Substance Abuse • PTSD



**24/7 Call Center and Dedicated IAFF Line
(855) 900-8437**

YOU ARE NOT ALONE — HELP IS HERE

www.IAFFRecoveryCenter.com

Our Mission: To offer treatment for successful recovery and help IAFF members return to the job.

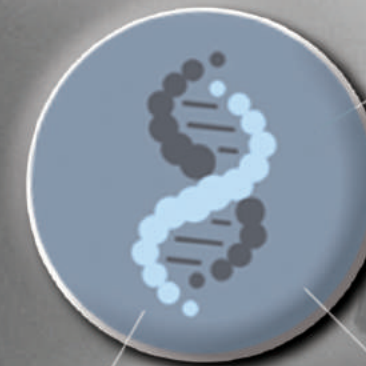
Fire Fighter

WINTER 2017
QUARTERLY

ADVANCED CANCER TESTING TECHNOLOGY



GENOMIC



PROTEOMIC



SPECTROMETRY

GPS Cancer Breakthrough Testing for Cancer Treatment Strategies

GPS Cancer: Breakthrough Testing for Cancer Treatment Strategies

Cancer is now the leading cause of death for fire fighters nationwide — 60 percent of the names on the Fallen Fire Fighter Memorial Wall in Colorado Springs are IAFF members who have died from occupational cancer. In fact, research suggests that the prevalence of cancer in fire fighters is 9-12 percent higher than the general population.

Everything — furniture, electronics, drapes, carpet and other household goods — is made of a chemical property that, when on fire, release countless carcinogens that fire fighters breath in or absorb into their skin over the course of their career.

The health and safety of members has always been this union's number-one priority. The IAFF has taken the lead in promoting studies and research programs on cancer in the fire service as part of continuing efforts to prevent and reduce cancer and cancer deaths. The IAFF has also been successful in 35 states and 11 provinces in getting presumptive laws passed that recognize many cancers as job-related diseases.

"We know why our members are contracting cancer. It's the toxins they're exposed to as part of the job," says General President Harold Schaitberger. "But the one area where we need to do more is in treatment for our members."

The need to learn more about the correlation between fire fighting and occupational cancer and innovative treatment protocols was the intent of Resolution 48 passed at the 2016 IAFF Convention calling for a Cancer Summit.

In October, researchers, physicians, epidemiologists and other subject matter experts, along with affiliate leaders from the United States and Canada, convened for the IAFF Cancer Summit in San Francisco. It was here that NantHealth Chairman and CEO Dr. Patrick Soon-Shiong first talked to the IAFF about a revolutionary new approach to fighting cancer that uses the latest in genomic and proteomic analysis and leverages the body's own immune system to customize treatments for cancer patients.

This new advancement — the GPS Cancer profile — is the only test that measures the exact amount of critical proteins present on the surface of a cancer cell from the patient's tissue sample. Drugs work on proteins, so whether a drug will be effective for a cancer patient or whether the patient's tumor is resistant to a drug is determined by what proteins are expressed on the surface of a cancer cell.

That's how GPS Cancer can predict a patient's response to drugs used to treat cancer before the patient actually is exposed to the drug, rather than trial and error as we do today. Historically, on average, three out of four of a patient's first treatments fail. Someone with a life-threatening cancer that can't be treated surgically may realistically have only one shot at treatment. There may not be six months to figure out that a treatment is not working.

About NantHealth

Founded in 2010 with headquarters in Culver City, California, NantHealth is a next-generation, evidence-based, personalized healthcare company enabling improved patient outcomes and more effective treatment decisions for critical illnesses.

NantHealth's unique systems-based approach to personalized healthcare integrates novel diagnostics with large-scale, biometric and phenotypic data to track patient outcomes and deliver precision medicine. ■

"Every cancer is unique," explains Dr. Soon-Shiong. "What works for one patient may not work for another. Oncologists can use the results of the GPS Cancer profile to develop personalized treatment plans based on the unique characteristics of each patient's cancer."

For example, GPS Cancer was used to assess the tumor of a lung cancer patient after the patient had been told that traditional therapies would give her little hope, and that she should begin to get her affairs in order. GPS Cancer results revealed a particular drug that might help, but which is typically not used in her type of cancer. The patient's physician followed the guidance provided by GPS Cancer and the treatment was provided to the patient. She is cancer-free six months later.

The GPS Cancer profile is a combination of comprehensive tests that analyze DNA, RNA and specific proteins in a patient's tumor in order to identify the unique drivers of an individual's cancer to determine whether a particular cancer will respond to chemotherapy, targeted therapy, or immunotherapy before a patient is treated. Compared with other genomic testing, which may have panels of 10 to 400 genes (DNA only), GPS Cancer sequences the entire genome, consisting of more than 20,000 genes and three billion base pairs.

GPS Cancer also goes beyond DNA, assessing protein expression through RNA sequencing and quantitative proteomics. This advanced molecular technology replaces outdated tests that are still used by many oncologists and provides them with the most information available about a person's unique tumor. As many oncologists are still learning about this cutting-edge technology, NantHealth has a dedicated team available to educate physicians on behalf of patients to ensure the profile can be ordered when appropriate. Much like smart phones have quickly changed the way individuals connect with their personal network, GPS Cancer will change the way physicians access cancer information for those appropriate for the GPS Cancer profile.

Intrigued by the opportunity to provide this ground-breaking molecular profiling technology to IAFF members that could assist physicians in their efforts to save their lives, following the Cancer Summit, the IAFF began working towards an alliance with NantHealth.

In December, a group of affiliate leaders from 11 locals with self-insured health plan coverage, along with their medical advisors, visited NantHealth's headquarters in Culver City, California, to see the facility and meet with Dr. Soon-Shiong and his team to discuss in depth the technological approach, and how IAFF members in the United States and Canada could gain access to the GPS Cancer profile.

The IAFF Executive Team, with input from local leadership, made the decision to endorse a partnership with NantHealth and support local efforts to provide members access to GPS Cancer through local-level self-insured health plan coverage or through a supplemental benefit (available later this year). GPS Cancer is already being covered in many cities, and partnerships with locals will be established throughout the United States and Canada over the course of 2017.

"This advanced technology is already providing unprecedented insights in the drivers of each patient's cancer," says Schaitberger. "These insights are supporting personalized cancer treatment strategies today, and could one day help lead to a cure. We have a chance to save members' lives with this innovative approach that supports physicians with decisions about the best options for cancer treatment."

What Is GPS Cancer?

GPS Cancer is a unique, comprehensive molecular profile offered by NantHealth. GPS Cancer integrates whole genome (DNA) sequencing, whole transcriptome (RNA) sequencing and quantitative proteomics, providing oncologists with unprecedented insight into the molecular signature of each patient's cancer to inform personalized treatment strategies.

- Includes whole genome sequencing of over 20,000 genes and three billion base pairs
- Incorporates whole transcriptome sequencing of over 200,000 RNA transcripts
- Leverages the power of quantitative proteomics
- Compares a patient's tumor genome to their normal genome
- Assist in selecting the right drug to fight an individual's cancer ■

The Man Behind the Method

NantHealth CEO and Chairman Dr. Patrick Soon-Shiong, a physician, surgeon and scientist, has pioneered novel therapies for both diabetes and cancer, published more than 100 scientific papers, and has over 230 issued patents worldwide on groundbreaking advancements spanning myriad fields.



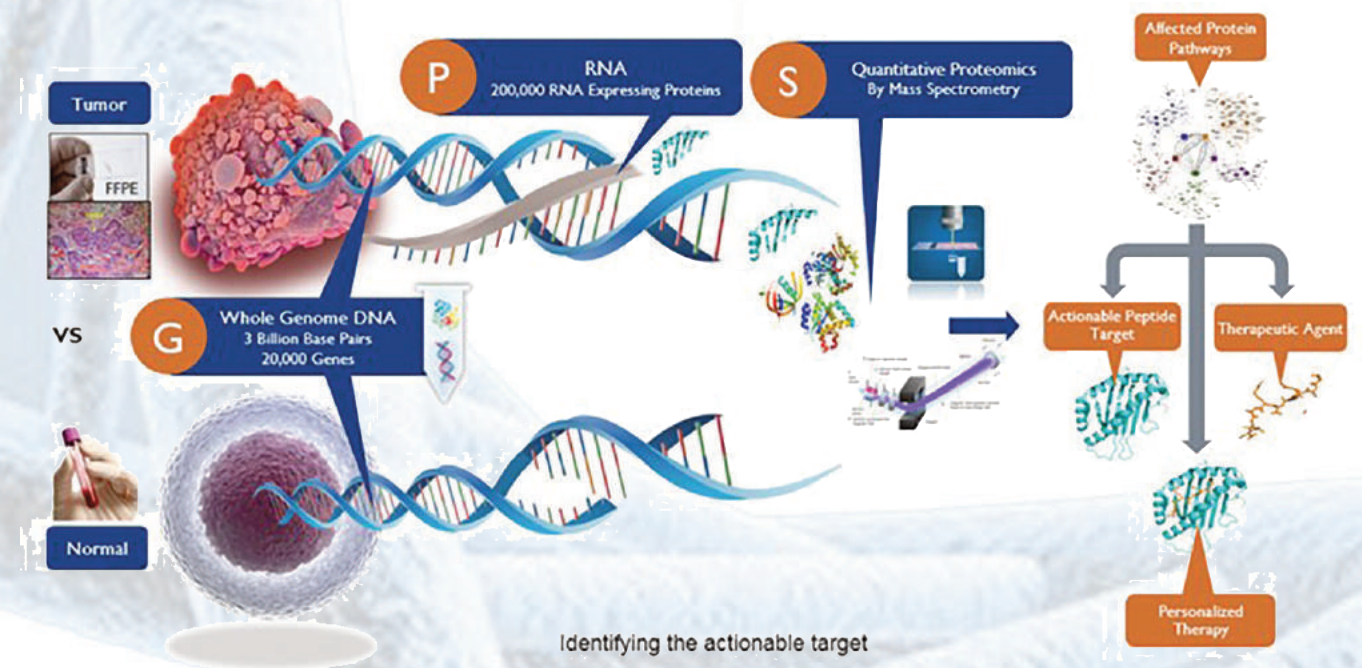
He performed the world's first encapsulated human islet transplant, the first engineered islet cell transplant and the first pig to man islet cell transplant in diabetic patients. He invented and developed Abraxane, the nation's first FDA-approved protein nanoparticle albumin-bound delivery technology for the treatment of cancer. Abraxane was

approved by the FDA for metastatic breast cancer in 2005, lung cancer in 2012 and pancreatic cancer in 2013. Abraxane is now approved in many countries across the globe with sales of approximately \$1 billion.

Dr. Soon-Shiong received his degree in medicine from the University of the Witwatersrand and a master's degree in science from the University of British Columbia. He is a board certified surgeon and a fellow of the American College of Surgeons and of the Royal College of Physicians and Surgeons of Canada.

Dr. Soon-Shiong was also honored at the Vatican in April 2016, where he received the 2016 Pontifical Key Visionary Award. ■

"Every cancer is unique. What works for one patient may not work for another. Oncologists can use the results of the GPS Cancer profile to develop personalized treatment plans based on the unique characteristics of each patient's cancer." — Dr. Patrick Soon-Shiong



For more information, visit www.GPSCancer.com or contact the GPS Care Center at 1-888-730-7972 or GPSCancer@Nanthealth.com