

HISTORIC NATIONAL COALITION FORMED TO ACCELERATE NEXT GENERATION IMMUNOTHERAPY IN CANCER

LARGE PHARMA, BIOTECH, MAJOR PAYER, FORTUNE 50 COMPANY, ACADEMIA AND COMMUNITY ONCOLOGISTS JOIN FORCES TO ANNOUNCE LAUNCH OF CANCER MOONSHOT 2020 PROGRAM

- Nation's first insurance coverage of next generation whole genome sequencing and proteomic diagnostic platform in cancer patients
- Next generation sequencing and precision medicine evolving from research to the clinical trial and cancer care setting
- Coalition to design, initiate and complete randomized clinical trials at all stages of cancer in up to 20 tumor types in as many as 20,000 patients in multiple phase 1 to 3 trials by year 2020
- Beneficiaries and patients will undergo next-generation molecular sequencing and gain access to over 60 novel and approved molecules to be tested as immunotherapy combinations in 20,000 cancer patients with cancer across all tumor types: The QUILT Program

SAN FRANCISCO – January 11, 2016 – Today, leaders from large pharma including Celgene and Amgen, biotech including NantWorks, NantKwest, Etubics, Altor Bioscience, and Precision Biologics, major academic cancer centers and community oncologists announced the launch of [The National Immunotherapy Coalition \(NIC\)](#), a historic alliance--in collaboration with Independence Blue Cross, one of the nation's largest payers and Bank of America, one of the largest self-insured companies in the U.S.--with a singular focus: accelerating the potential of combination immunotherapies as the next generation standard of care in patients with cancer.

This unprecedented collaboration of multinational pharmaceutical, biotechnology companies, academic centers and community oncologists will make possible access to over 60 novel and approved agents under exploration in the war against cancer and will enable rapid testing of novel immunotherapy combination protocols, forming the basis of [The Cancer MoonShot 2020](#) (<http://www.CancerMoonShot2020.org>). The NIC will design, initiate and complete randomized clinical trials in cancer patients with cancer at all stages of disease in up to 20 tumor types in as many as 20,000 patients by the year 2020.

The QUILT Program

The QUILT (QUantitative Integrative Lifelong Trial) program is designed to harness and orchestrate all the elements of the immune system (including dendritic cell, T cell and NK cell therapies) by testing novel combinations of vaccines, cell-based immunotherapy, metronomic chemotherapy, low dose radiotherapy and immunomodulators -- including check point inhibitors-- in patients who have undergone next generation whole genome, transcriptome and quantitative proteomic analysis, with the goal of achieving durable, long-lasting remission for patients with cancer.

The multiple Phase 1 and 2 protocol designs will be a collaboration between academia, pharma, and clinical scientific experts in immunotherapy in accordance with the recent published U.S. Food and Drug Administration guidance of “Co-development of Two or More New Investigational Drugs for Use in Combination.” Multiple companies are currently exploring first-in-human clinical trials as part of agreements between government agencies, including Immunology Branches of NCI, academia and community oncologists. Multiple randomized Phase 2 trials testing genomically and proteomically informed novel combinations of immunotherapy agents, will pave the way to identifying cancer therapy combinations with the lowest toxicity and the highest quality of life.

Both academic cancer centers and community oncologists will participate in the QUILT Program to enroll 20,000 patients by 2020. The QUILT Program will be stratified across multiple Phase 1 and Phase 2 trials, addressing up to 20 tumor types including breast, lung, prostate, ovarian, brain, head and neck, multiple myeloma, sarcoma, pancreatic cancer, among others. Pharmaceutical and biotechnology partners have made an unprecedented commitment to make more than 60 novel immunotherapy, targeted therapy and chemotherapeutic agents available to be combined across multiple tumor types.

"There are unique times in history when events and advancements in technology converge to elicit a quantum leap in medical care. This is not only a unique time, but also a unique inflection point in the history of cancer," said Dr. Patrick Soon-Shiong, M.D., Founder and Chief Executive Officer of NantWorks and the Chan Soon-Shiong Institute of Molecular Medicine. "The era of immunotherapy has taken the oncology world by storm. For the first time in 40 years there is a glimmer that we may be able to win this war against cancer. Large pharma and biotech companies are developing dozens of agents to activate the immune system. The problem is that while these drugs are being developed individually in silos by each entity, they need to act together when it comes to activating the immune system. If we follow the current path of drug development, it may take 40 or 50 years before we have worked out the right cocktail combination and countless lives will be lost as a result of this inefficiency."

Dr. Soon-Shiong continued, "Our knowledge in the science of genomics, proteomics, immunology and immunotherapy has advanced and converged at an unprecedented speed, making now the time for the rapid deployment and orchestration of immunotherapy for the benefit of millions of cancer patients. The Cancer MoonShot 2020 Program, the National

Immunotherapy Coalition and the QUILT Program are designed to do just that, bring together a diverse group of visionary leaders and stakeholders to pool resources and bring to patients a dramatic improvement in cancer care.”

Nation's First Insurance Coverage by Independence Blue Cross for Next Generation Panomic Sequencing Immunotherapy Moves Precision Medicine in Oncology from Bench to Bedside

"The insurance coverage of whole genome transcriptomic tests in patients receiving immunotherapy by Independence Blue Cross is a landmark milestone in moving precision medicine in oncology from the bench to the bedside" Dr. Soon-Shiong stated "Independence Blue Cross has taken the visionary lead to cover next generation sequencing. We are in discussions with the rest of the insurance industry, including Blue Cross on a national basis to encourage the industry to follow Independence's lead."

"At Independence Blue Cross, we are proud to be the first major insurer offering reimbursement to our members for this next generation whole genome sequencing," said Daniel J. Hilferty, President and Chief Executive Officer of Independence of Health Group. "We are committed to bringing state-of-the-art advances in oncology care to our members and making care accessible and affordable."

Mission of Cancer MoonShot 2020 Program

The mission of the Cancer MoonShot 2020 Program is to rapidly enroll and complete randomized Phase 2 clinical trials to validate the potential of panomic (whole genome, transcriptome and proteomic) analyses and to evaluate novel combination immunotherapies as the next generation standard of care. This coalition combines the efforts not only of major academic centers but also the community oncologists, enabling accelerated recruitment of patients to multiple Phase II trials. Utilizing a secure cloud-based infrastructure to integrate and enable the participation of both major academic and community oncologists at a national scale, the goal is to complete randomized clinical trials in patients with cancer at all stages of disease, across up to 20 tumor types in 20,000 patients within the next 36 months. By comparing standards of care to the next paradigm of less toxic immunotherapy combination therapy, the findings of these in the randomized QUILT Program will inform the design of Phase 3 registration trials, with the goal of bringing transformative advances in combination immunotherapies to cancer patients by 2020.

Col. Craig Shriver, M.D., FACS at the John P Murtha Cancer Center at Walter Reed Military Hospital and United States Army said, "We validate big science through our clinical trials network. There are 1.2 million active duty military members, 9.3 million beneficiaries that receive military health care. That's a huge network. Just in our active duty force, we get a thousand active duty members a year that come down with cancer. If a thousand active duty members were still getting injured in Afghanistan or Iraq, we would not accept this. So it's the same thing with how militaries respond to infectious diseases, illnesses that affect the readiness of our active force. Cancer is that threat."

Large Pharma and Biotech Collaboration

In this historic collaboration, large pharmaceutical and biotechnology companies --NantWorks, NantKwest, Etubics, Precision Biologics, and Altor Bioscience—along with others, have agreed to contribute their novel immunotherapy molecules, including adenovirus vaccines, neoepitopes antibodies, and natural killer cells, to accelerate the development of next generation immunotherapy combination cancer therapies across all tumor types.

“I am pleased that visionary leaders in the healthcare industry have agreed to participate in the early formation and launch of this coalition. Several pharma companies, biotechnology companies and others are currently assessing the opportunity to join the coalition at this early stage. As the Cancer MoonShot 2020 program coalesces and demonstrates rapid enrollment of patients, I am hopeful that many more multinational pharma leaders in the immunotherapy space, as well as other leaders in biotech, will agree to join this collaboration to accelerate immunotherapy development for the benefit of cancer patients.” said Dr. Soon-Shiong.

Celgene has established a research center of excellence focused on immunotherapy approaches such as checkpoint inhibitors, CAR-T therapies, NK cells, stem cells and others. Celgene has also advanced new approaches to chemotherapy, including the development of Abraxane®, the first cancer nanotechnology therapy globally approved for the treatment of breast cancer, lung cancer and pancreatic cancer. Celgene will participate in the Cancer MoonShot 2020 Program by applying its deep and diverse library of important molecules, both approved and in the development pipeline, to the QUILT Program. Robert J. Hugin, Chairman and Chief Executive Officer, Celgene Corporation said: “At Celgene, we are fully committed to the Cancer MoonShot 2020 Program as a part of our longstanding efforts to discover and develop new therapies for difficult to treat cancers. We have learned that the research and development of breakthrough treatments for patients requires novel approaches, bold science and strong vision. To realize this vision, we are excited to participate in the Cancer MoonShot 2020 Program by applying our deep and diverse library of important molecules, both approved and in the development pipeline, to the QUILT Trials, which we believe will play an important role in the rapid advancement of immuno-oncology for patients with life-threatening cancers.”

Paul Seligman, M.D., MPH, Amgen, Chief of R&D Policy: “At AMGEN, we are committed to using genomics and deep insights into biology to develop novel therapies for cancer. We are committed to the goals of collaborative research efforts in immuno-oncology and the development of innovative combination therapies. It is a time of unprecedented progress in our ability to understand how to harness the power of the immune system to treat tumors, and collaborative approaches represent a tremendous opportunity to combine the efforts of key stakeholders to accelerate progress.”

Luciano Rossetti, M.D., Executive Vice President and Head of Global R&D for the biopharmaceutical business of Merck KGaA, Darmstadt, Germany: “In 2014, Merck KGaA, Darmstadt, Germany, and Pfizer formed a global strategic alliance to jointly develop immuno-

oncology compounds. Forging strong partnerships between academia and the healthcare industry is of strategic importance in sharing knowledge and more effectively addressing existing challenges in cancer care. We look forward to learning more about this initiative, as we share a common goal of improving patient outcomes through the combination of highly innovative novel-novel therapies in the field of immuno-oncology."

Frank R. Jones, Ph.D., Chairman, President, and Chief Executive Officer of Etubics Corporation: "At Etubics, we specialize in developing innovative immunotherapies and vaccines for a wide-range of resilient diseases including cancer, so it goes without saying that we are extremely excited about this new initiative. We recognize the value in an immune stimulation treatment approach and look forward to volunteering our agents for combination clinical trials that we anticipate will produce groundbreaking results."

Hing C. Wong, Ph.D., CEO and Founder of Altor Bioscience Corporation said, "We have focused our technology pipeline on cytokine-based immunotherapies. We have discovered exciting results when combining our immunostimulant molecules with other elements of the immune system, such as natural killer and T cells. The opportunity to accelerate development of our molecules in combination with other technologies in the field of immuno-oncology is a major step to advancing their clinical development. We have enthusiastically joined this coalition and are honored to be given this opportunity to play a part in the Cancer MoonShot 2020 program."

Academic NCI – Designated Cancer Centers and Community Oncologists

The successful accrual of 20,000 patients by 2020 will require both community oncologists and major medical centers to collaborate for the common good. The partnership also anticipates the participation of the military health system.

Tom Kurtz, CEO of Windber Medical Center and Windber Research Institute: "Walter Reed has had a long standing partnership with the Windber Research Institute and through our collaborative efforts, we were responsible for providing over 90% of the breast cancer tissue genetically analyzed by the NIH Cancer Genome Atlas study. This human tissue repository is the nation's foremost Platinum-rated, CLIA CAP certified bio-repository for cancer tissue housing over 90,000 tissue specimens, and will be utilized as the tissue repository resource to support the QUILT Program. We are proud to be involved in this historic national initiative and to expand the efforts to elucidate the biologic mysteries of cancer and build on our work in genomics over the last decade. Windber Medical Center is a small community hospital supporting a population of 4,000. Cancer is a major issue as our population ages. It is a major honor and opportunity for our community to participate and have access to cutting edge technology through this Cancer MoonShot 2020 program."

Michael M. Crow, President of Arizona State University said, "American higher education cannot assume that its competitive position in the world is unassailable. Our research

universities must innovate to survive, and this Cancer MoonShot 2020 Program is an opportunity to innovate in healthcare research and training for the benefit of humanity. This program will link scientists and technological advances across dozens of areas around a single goal: clinical treatments individualized to the disease in a particular person. ASU is proud to be partners with NantWorks and the Chan Soon-Shiong Institute of Molecular Medicine in the development of a campus in Phoenix where the next generation of scientists, clinical decision specialists, integrated precision medicine engineers and medical data analysts can be trained for both research and healthcare delivery."

Ralph H. Hruban, M.D., Professor of Pathology & Oncology at Johns Hopkins University School of Medicine and Director of The Sol Goldman Pancreatic Cancer Research Center: "We are at a crossroads, a time of discovery that's transforming the ways we manage cancer. Johns Hopkins researchers and clinicians are working tirelessly to understand cancer better and to move treatments from bench to bedside so that patients can have a better shot at beating the disease. It is my hope that the National Immunotherapy Coalition, and others like it, will advance the understanding of cancer, not by small steps, but instead by leaps and bounds."

Mark C. Poznansky, M.D., Ph. D. Director – Vaccine & Immunotherapy Center, Physician - Massachusetts General Hospital, Associate Professor, Harvard Medical School: "The time is now to create an accelerated path, and advance medical science forward to save lives and improve health worldwide. The National Immunotherapy Coalition clearly unites and leverages the resources and expertise of a diverse network of medical and business professionals to safely and rigorously accelerate the pace of discovery, development and actualization of cancer treatment. By accelerating the development of new safe and cost effective therapies combating cancer, we can bring them to those that are most in need faster and more cost effectively than current approaches."

Manuel Hidalgo, M.D., Ph. D. Chief, Division of Hematology/Oncology and Clinical Director, Cancer Center at Beth Israel Deaconess Medical Center, Harvard Medical School. "We are now glimpsing the potential of modulating the immune system to treat cancer in an effective way. Integrating multiple treatment strategies in innovative clinical trial protocols is the path to make a real impact in cancer care. In the Cancer Center at BIDMC, we are constantly working to discover and implement new treatments for our patients. We are very excited to work with The National Immunotherapy Coalition and join efforts to advance cancer medicine."

Azra Raza, M.D., Columbia University, Director of MDS Center, Professor of Medicine: "We are very pleased to have the opportunity to work with the National Immunotherapy Coalition and collaborate with a world-class team who share a commitment to reduce cancer incidence and to improve the quality of life of those affected by cancer. Being able to pool resources and agents, we will be able to make a significant leap in developing new immunotherapeutic and combinations that will most benefit patients with various cancer types and stages."

Vivian S. Lee, M.D., Ph.D., M.B.A., University of Utah Senior Vice President for Health Sciences, Dean of the School of Medicine, CEO, University of Utah Health Care: "There really is a no more

fascinating or promising time to be in medicine. The National Immunotherapy Coalition is an amazing opportunity to discuss obstacles that may impede the successful moonshot for cancer and reach the goal of establishing an effective vaccine for this disease in 5 years instead of 20. The University of Utah is deeply committed to solving these dilemmas and I, for one, am heartened that we will help lead the way.”

Andrew M. Evens, DO, MSc, FACP, Professor & Chief, Division of Hematology/Oncology, and Director of the Tufts Cancer Center at Tufts Medical Center: “Tufts Cancer Center is honored to join a group of world-renowned expert physicians, scientists and researchers who have a shared passion for fighting cancer. We understand that cancer can affect every aspect of a person’s life and the lives of their loved ones. That's why we are dedicated to research focused on helping bring new and innovative treatments to patients in less time.”

Stephen D. Nimer, M.D., Director of the Sylvester Comprehensive Cancer Center and a Professor of Medicine, Biochemistry & Molecular Biology at the University of Miami’s Miller School of Medicine: “Every day, the physicians and scientists within Sylvester Comprehensive Cancer Center’s site disease groups and multidisciplinary research programs, are working to make exciting breakthroughs that can transform the way cancer patients are diagnosed and treated. We look forward to working for the National Immunotherapy Coalition and developing the most innovative strategies to fight the most deadly forms of cancer.”

Payers, Providers and Technology Solutions

Beneficiaries and patients will undergo next-generation molecular sequencing and gain access to over 60 novel and approved molecules to be tested as immunotherapy combinations in 20,000 cancer patients across all tumor types in a master protocol: The QUILT Program.

Daniel J. Hilferty, President and Chief Executive Officer of Independence of Health Group said, “Independence Blue Cross is committed to bringing state-of-the-art advances in oncology care. Although the science is still evolving, experts agree that immunotherapy is a game-changing approach that is expected to revolutionize the way we treat cancer in the future. We are proud to participate in the National Immunotherapy Coalition. We look forward to continued collaboration among this incredible team to develop the most innovative cancer fighting strategy in our lifetime.”

Jim Huffman, Senior Vice President, Head of US Health and Wellness Benefits, Bank of America: “Bank of America provides coverage for about 500,000 employees and their families and for the past five years has worked closely with NantHealth to explore innovative methods for improving health & wellness for their associates. We are doing our part to address an issue that affects the lives of our employees, our customers and clients, and the people in the communities we serve around the world. We are committed to providing the most advanced cancer care to our employees and the National Immunotherapy Coalition with its national footprint of oncologists practicing cutting edge medicine is a valuable resource we will now be able to offer to our 500,000 beneficiaries. Bank of America has partnered with Dr. Soon-Shiong

and his team over the past five years to bring advanced health and wellness to our associates and their families, and we are proud to be a part of this Cancer MoonShot 2020.”

Paul M. Black, Allscripts, Chief Executive Officer & Director: “The National Immunotherapy Coalition is an exciting step towards a more efficient future in cancer treatment, partnering research and health information technology in an entirely new way. As a leader in healthcare information technology solutions, the EHR solution for the NIH and the NCI, we will play the critical role of connecting this newfound medical insight to the communities of healthcare professionals at the frontlines of care delivery. Combining the cutting edge research being done by NantWorks with the power of their Allscripts clinical information solutions will better harness the enormous volume of newly available data, allowing the dissemination of new discoveries much more rapidly to connected communities than has been possible in the past. We have seen already that when new research is presented in the clinicians' workflow efficiently and in a way that feels natural to them, it allows them to focus first and foremost on the well-being of all those dealing with cancer.”

John Chen, Blackberry CEO: "At Blackberry, we understand the value that lies at the intersection of healthcare and technology, which is why we are constantly making advancements to reflect the ever-changing healthcare landscape. As we already power many of the tools that clinicians rely on heavily, we are confident that our involvement in the National Immunotherapy Coalition will be an asset to the future of Cancer treatment. This unique collaboration is pioneering extraordinary solutions to cancer care and we are truly honored to be a part of it.”

December 1st Meeting of the National Immunotherapy Coalition in Washington DC

The ambitious goals of the Cancer MoonShot 2020 Program were presented at a meeting hosted by Vice President Joseph Biden at his Naval Observatory residence in Washington DC on December 1, 2015, where members of the coalition presented their shared vision for translating the promise of precision medicine through the delivery of combination immunotherapy to routine clinical cancer care, as well as their shared commitment to accelerate the development of immunotherapy and vaccine therapy as the next generation evolution of cancer care.

Attendees of that meeting, convened and chaired by Dr. Soon-Shiong, included leadership from the pharmaceutical industry representing large pharma and biotech, leadership from national payers including Independence Blue Cross and Bank of America and healthcare leaders from security and interoperability organizations including Allscripts and Blackberry. Major academic cancer centers represented at this meeting included center directors from Massachusetts General Hospital, Johns Hopkins University, University of Miami, University of Utah, Tufts Cancer Center and the John P Murtha Cancer Center at Walter Reed as well as representatives from the oncologists in the community.

About The National Immunotherapy Coalition

The National Immunotherapy Coalition (NIC) is an historic alliance formed through the efforts of top leaders from large pharmaceutical, biotechnology, health insurance and technology companies. The coalition's singular focus is to accelerate the potential of combination immunotherapies as the next generation standard of care in patients with cancer. For more information, please visit <http://www.CancerMoonShot2020.org>

About The Cancer MoonShot 2020 Program

The Cancer MoonShot 2020 Program is the nation's most comprehensive cancer collaborative initiative seeking to accelerate the potential of combination immunotherapy as the next generation standard of care in cancer patients. This initiative aims to explore a new paradigm in cancer care by initiating randomized Phase II trials in patients at all stages of disease in 20 tumor types in 20,000 patients within the next 36 months. These findings will inform Phase III trials and the aspirational moonshot to develop an effective vaccine-based immunotherapy to combat cancer by 2020. For more information, please visit <http://www.CancerMoonShot2020.org>

Press Contacts:**Jen Hodson****NantHealth**Jen@NantWorks.com

562-397-3639

Christine Cassianoccassiano@w2ogroup.com

714-552-0326

Michael SitrickMike_Sitrick@sitrick.com

310-788-2850