COLLABORATION & COMMUNITY
With the pandemic entering its third year, we continue to witness the primary importance of community and collaboration. COVID-19’s ability to jump borders, hitch a ride on planes, and arrive on our doorstep is a constant reminder that we are all in this together. The upside of that reality is that our global community can work together to defeat a common enemy.

Competition has always had its place in the world of science. Koch and Pasteur were rivals in the field of microbiology. Tesla and Edison competed in the electronic revolution. Salk and Sabin raced against each other to defeat polio. Competition can stimulate discovery and expedite progress, but a global health crisis is a time for collaboration, not competition.

The sharing of information from one end of the world to the other has proved vital in bringing us to where we are today. In concert with government and nonprofit organizations, the scientific community has achieved the fastest vaccine development program in history. It is heartening to see what can happen when the power of the scientific community joins forces with people, like yourself, who believe in the power of science.

From our inception, NFCR has brought together a collaborative community dedicated to curing cancer. This year’s annual report highlights the many ways we collaborate and reach out to the global community. Consider the following:

• We support the AIM-HI Accelerator Initiative (see p.13), working closely with scientist-entrepreneurs to usher breakthrough laboratory discoveries through clinical trials and into the market.

• We spearheaded the creation of GBM-AGILE (see p.14), whose core comprises some 150 researchers from more than 40 leading institutions across four continents, all working together to conquer a deadly brain cancer.

• We introduced the Oncology Metaverse (see p.15), a cutting-edge virtual hub where cancer researchers, biotech leaders, entrepreneurs, investors, cancer patients, and advocates share information and ideas.

And this brings me back to one of our most important collaborations, which is with our donors. You play a critical role in enabling us to do what we do, and we thank you profoundly for your continued dedicated support. Together, we will triumph in the war against cancer!

Sincerely,

Sujuan Ba, Ph.D.
President & CEO
In a testimony to effective collaboration, Drs. Bennett, Uyhazi, and the members of their research team are going very far together in tackling cancer-associated retinopathy (CAR). CAR is a rare condition that occurs when anti-tumor antibodies that circulate in the body reach the eye, where they attack healthy retinal cells. The retina cannot regenerate after injury, so irreversible blindness may occur. CAR can occur in connection with various cancers, including gynecologic cancers and those of the lung, breast, pancreas, and prostate.

Dr. Bennett is a world-renowned pioneer in the field of retinal gene therapy. Indeed, she and her team developed the first FDA-approved gene therapy, a treatment for Leber’s congenital amaurosis (LCA), a genetic disease that causes a type of blindness in children. In 2017, Dr. Uyhazi began working as a postdoctoral fellow in Dr. Bennett’s lab at the University of Pennsylvania. Over time, she gained a lab of her own, and now these two women of science, along with members of their lab team, are exploring cell replacement therapies, in which healthy retinal cells replace damaged ones. Gene therapy will follow to supply crucial proteins to support the new cells.

With the dual support of NFCR and long-standing NFCR donor, The Ware Bluegrass Foundation, the team is currently testing cell replacement therapies in a mouse model of retinal disease. This year, Dr. Uyhazi has been isolating cells from mouse retinas and has successfully characterized novel populations of photoreceptor precursor cells, which are young cells that can be transplanted and have the potential to replace mature photoreceptor cells.

Decreasing vision can be the first symptom of cancer and is a red flag for primary care physicians who observe this problem in their patients. “While relatively rare, CAR can be devastating,” says Dr. Uyhazi. “If we can find something that can regenerate a photoreceptor cell, it will have broad implications for cancer patients.”

There is an African proverb that says, “If you want to go fast, go alone. If you want to go far, go together.” NFCR embraces that sentiment, for collaboration is at the heart of our work. We offer our scientists and entrepreneurs seed funding, nurture them with long-term funding, and help usher promising new treatments to the clinics.

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UNRAVELING THE MYSTERY OF METASTASIS

In metastasis, cancer cells break away from where they first formed and form new tumors in other parts of the body. With support from NFCR, today's leading scientists are gaining ground against the cancer patient's worst enemy, finding ways to foil and arrest the disease's ability to spread.

The “Key” to the “Lock”

An NFCR-supported scientist since 1996, Dr. Welch leads a team that is hard at work identifying the mechanisms of metastasis. Nearly 90 percent of cancer-related deaths are due to metastasized cancer, but the development of anti-metastatic drugs has lagged because of the difficulties in identifying metastases' distinctive characteristics.

Dr. Welch and his team are using a two-pronged approach in their research. First, they are developing novel metastatic cancer markers to assess a patient's likelihood of developing metastasis. Using a mouse model, the team's preliminary data has focused on a gene found in mitochondrial DNA that may enhance the likelihood of developing metastasis. These approaches open up a world of opportunities.

At the same time, the Welch lab is formulating unique anti-metastasis therapies. They have discovered that cells in various types of cancer can become metastatic when certain ‘metastasis suppressor’ genes get ‘turned off’ or become ‘abnormal.’ They are exploring ways to identify the ‘lock’ into which the metastasis suppressor ‘key’ fits so that they can develop new ‘keys’ or treatments based upon this information.

These approaches open up a world of opportunities. They will inform the decisions that physicians must make regarding risk assessment for metastasis and appropriate treatment, and they will help to develop drugs that target metastases.

Harnessing the Immune System

An NFCR-supported scientist since 2008, Dr. Fisher is internationally renowned for developing therapeutic viruses known as Cancer Terminator Viruses (CTV). In the near term, these viruses hold tremendous promise for effectively treating and destroying cancer without harmful side effects. Like all viruses, CTV’s infect and replicate in our body’s cells, eventually destroying the host cells.

What makes CTVs different, however, is that they have been genetically re-programmed to replicate only in cancer cells, both primary and metastatic, enabling destruction of only abnormal cells, leaving healthy, normal cells or tissues untouched. This, in other words, is a game-changer.

Recently, Dr. Fisher founded a company to develop PDZ1i, an inhibitor drug that is proving to be a powerful enemy of metastasis. PDZ1i binds specifically to the PDZ1 domain of a pro-metastatic gene called MDA-9/Syntenin that blocks interactions that regulate cancer-signaling properties. PDZ1i has exhibited profound anti-metastatic activity in multiple forms of cancer, including melanoma, GBM, and carcinomas of the breast, liver, lungs, pancreas, and prostate. NFCR applauds Dr. Fisher’s promising work with PDZ1i that may save the lives of many.

Targeting CTCs

Since 2000, NFCR has been proudly supporting the work of Dr. Haber, whose primary research focus in recent years has been on understanding and ultimately suppressing the mechanisms that underlie why breast cancer returns years later after seemingly successful treatment.

This year, Dr. Haber’s team has been digging deep into oxygen stress, which is damaging to cancer cells. They discovered various mechanisms that subsets of Circulating Tumor Cells (CTC) use to overcome the high oxygen stress as they circulate in the blood. Understanding these specific CTCs and how they survive in the blood to then give rise to a metastatic lesion can potentially lead to valuable antimetastatic treatments.

NFCR also supports Dr. Haber’s entrepreneurial initiatives through its AIM-HI Accelerator Initiative. Dr. Haber is a founding member of a privately-held, development-stage biotechnology company whose goal is to eradicate cancer metastasis by targeting CTCs. They are doing this life-saving work with the help of two innovations: a platform that is already a fully functional diagnostic solution that can isolate CTCs from patient biopsies, obviating the need for invasive biopsies, and a second platform that is developing novel therapeutics against CTCs and that is currently employed at research and commercial laboratories and clinical trial sites.

In helping to plant the seeds of Dr. Haber’s research, nurturing its growth, and now seeing how that research leads to new patient therapies, NFCR affirms its mission to achieve significant breakthroughs in cancer treatment.
THE WAY FORWARD

Cancer can develop anywhere in the body, and NFCR is hard at work fighting cancer wherever it occurs. We are proud to report that our NFCR-funded scientists are making especially great strides in fighting two forms of cancers that have long been among the most feared manifestations of this disease.

Battling Brain Cancer

It has been nearly three decades since new and effective treatments have been developed for patients with glioblastoma (GBM), a deadly brain cancer, but Dr. Jain is remediying that situation.

Recent research shows that difficult cancers are best tackled by combining two different treatments instead of relying on a single drug. Accordingly, Dr. Jain is tackling ‘immune checkpoints’—the molecules that tumors create that diminish the impact of cancer-fighting T cells—with new immune checkpoint inhibitors (ICIs).

Dr. Jain, who has received NFCR support since 1998, has advanced his theory that an imbalance in growth factors in tumors results in abnormal blood vessels and immune system suppression, thus mitigating the effects of treatments. Constructing lab models of GBM, he and his team use inhibitors of excess growth factor to ‘normalize’ the blood vessels and the tumor microenvironment, boosting the efficacy of ICI treatment. Potentially, a disease that spelled a death sentence for so many is being challenged by a new combination therapy that may save lives.

Tackling TNBC

TNBC, or triple-negative breast cancer, is one of the deadliest forms of the disease, with 50,000 patients newly diagnosed each year and about 20,000 patients succumbing. Identifying novel therapeutic strategies for treating TNBC is the focus of Drs. Schimmel and Yang, who have respectively received NFCR funding since 1994 and 2005.

In investigating the vital enzymes known as Aminoacyl-tRNA synthetases (aaRS), they have discovered that SeRS, one type of aaRS, can potentially thwart the growth of cancer and activate the immune system. At present, existing immunotherapy approaches have been shown to benefit a relatively small segment of cancer patients. Immunotherapy’s effectiveness on solid tumors, such as breast cancer, is limited, suggesting the need for combination therapies.

Drs. Schimmel and Yang view SeRS as a combination therapy within one molecule that can regulate multiple processes and properties related to cancer growth and metastasis, such as angiogenesis (the development of new blood vessels), cell adhesion and migration, and immunity. In addition to its application in cases of breast cancer, there is evidence that SeRS can extend survival rates for patients with other types of cancer as well, including ovarian, colorectal, stomach, thyroid, and gliomas that affect the brain and spinal cord.

Passing the Torch

Dr. Yang began her research career working in the lab of Dr. Schimmel. Directing her own lab since 2005, she is paving the way for a research career for graduate student Justin Wang.
Humankind has been using plants for medicinal purposes for more than 60,000 years. When a burial site of a Neanderthal man was unearthed in 1960, archaeologists found evidence that eight species of plants had been buried alongside him, some of which are still used for medicinal purposes today. The truly groundbreaking work that two of our NFCR-supported scientists have done with botanicals has changed the landscape of cancer treatment.

From Tradition to Innovation

Traditional Chinese Medicine (TCM), which goes back at least 23 centuries, has always relied strongly on herbs and herbal formulas. Historically, however, Western medicine has discounted such herbals as “alternative therapies” with little scientific proof to back up their efficacy. Since the late 1990s, Dr. Cheng’s laboratory has been working assiduously to bring TCM principles into the mainstream of Western medicine—very much with the help of NFCR, which has been funding his work since 1991, when “traditional” Western medicine was still skeptical of TCM.

Dr. Cheng’s team has been proving the therapeutic properties of PHY906, a Chinese herbal formula that has been shown to help alleviate certain depleting effects of chemotherapy. But there is more. Dr. Cheng’s research has now demonstrated that PHY906 comes with its very own set of powerful anti-tumor properties.

NFCR’s longstanding connections to the global medical community allows us to embrace ideas from every part of the world and convert ancient medical treatments into cutting-edge 21st century therapies.

Dr. Cheng, who has a track record of discovering four FDA-approved drugs for Hepatitis B and Cytomegalovirus, is at the center of a clinical-stage biotechnology company that has created YIV-906, a drug that appears to be remarkably effective in harnessing the body’s anti-cancer immune response. Studies have shown that when used in combination with immunotherapy, chemotherapy, and radiation therapies, YIV-906 turns “cold” tumors “hot” by overriding immuno-suppression, enhancing innate and adaptive immunity, and stimulating anti-tumor activity.

Dr. Horwitz, the 2020 winner of the Szent-Györgyi Prize for Progress in Cancer Research [see p. 16], has made pioneering use of botanicals in her development of a groundbreaking cancer treatment therapy. Taxol, whose generic name is paclitaxel, was already known to the research community to be toxic to cells. Dr. Horwitz discovered its unique mechanism of toxicity—by binding to microtubules in cells, stabilizing them and leading to arrest of cell division and subsequent cell death.

Yews are often seen in churchyards, as Christianity regarded this remarkable tree as a symbol of renewal. Dr. Horwitz’s development of the therapeutic properties of the yew plays on that theme, extending life to millions of cancer patients around the world.
The Importance of Individuality

Cancer has a unique and tremendous capacity for heterogeneity. Otherwise put, it manifests in a wide variety of unexpected variations. This capacity explains the failure of the ‘one-size-fits-all’ treatment approaches traditionally used. In the last three decades, however, the remarkable advancement of genomic technologies and informatics has validated the significance of individuality in cancer diagnosis and treatment and has pointed the way toward new treatments.

Supported by NFCR since 2006, Dr. Zhang uses cutting-edge cancer genomic analyses and data processing methodologies in the service of precision oncology. One focus in his lab has been endometrial cancer patients with different prognoses and responses to treatment, even among those with the same stage and tumor grade. This year, Dr. Zhang’s team has been using its technologies on 547 uterine or endometrial cancer samples to learn why a subset of patients with advanced cancer has a favorable response to chemotherapy and better odds of survival. Furthermore, they have discovered how specific mutations in the IK gene in some samples sensitize the cancer to chemotherapy. These results will likely guide the stratification of patients and their prognoses and help replace ‘one-size-fits-all’ therapies with precision medicine based on a tumor’s unique genetic profile.
NFCR, together with its strategic partner, the AIM-HI Accelerator Initiative, is lending its enthusiastic support to Dr. Jeremiah Johnson, Professor of Chemistry at MIT. Dr. Johnson is working with a Massachusetts-based therapeutics company founded in 2020 to create next-generation cancer therapeutics that have enough precision to overcome the limited efficacy and prohibitive toxicity that often confounds successful drug development and that foils favorable patient outcomes.

The majority of cancer patients may be immune-compromised and weakened from their illness, so the potential viable therapies for these patients are of limited efficacy due to tolerability, safety, and toxicity concerns. Dr. Johnson’s company has been hard at work developing the Bottle-brush Analogue Macromolecule (BAM) platform, which will enable patients with advanced cancer to receive and tolerate life-saving treatments without the dangerous effects of toxicities. The BAM platform could also transform treatment for patients with non-symptomatic cancers by making highly active treatments more tolerable for earlier intervention.

NFCR is excited to support Dr. Johnson’s work, which is well on its way to becoming a truly transformative force in cancer treatment.

NFCR launched the AIM-HI Accelerator Initiative in 2019 to bridge the gap between innovative, early-stage cancer research and the successful development of high-impact oncology products. Consider these scientist-entrepreneurs who have benefited from the critical seed funding we have provided.

**NFCR-supported scientist-entrepreneur**

Dr. Spadoni, who has more than 20 years of experience in the drug development field, tragically lost his first daughter to cancer. His response was two-fold: he set up a London-based charity focused on accelerating pediatric oncology drug development, and he joined forces with Ricardo Garcia, an entrepreneur and father of a six-year-old son diagnosed with a brain tumor. Together, they launched the first company focused exclusively on pediatric oncology drug discovery and development.

There is a great need for such a company, as only six pediatric cancer drugs have been approved in the last 40 years, compared to more than 200 for adults. NFCR’s early support enabled Dr. Spadoni and Mr. Garcia to establish a research discovery program for medulloblastoma, a central nervous system cancer, and secured the drug, Volasertib, for clinical trials, which has been granted the FDA’s Orphan Drug Designation to treat rare pediatric soft tissue sarcomas.

The example that NFCR set with our early support has been emulated by many other foundations and charities who recognize, as we did, the promise in Dr. Spadoni’s research.

**AIMING HIGH**

Dr. DePinho won NFCR’s coveted Szent-Györgyi Prize in 2009 for his groundbreaking discoveries that have significantly illuminated a consuming mystery for the cancer research field, which is the intimate link between advancing age and cancer. Now, Dr. DePinho is deeply involved with a clinical-stage biopharmaceutical company that is focused on developing STAT3 inhibitors, and they have identified a lead inhibitor. STAT3 is a key regulatory protein that is positioned at the intersection of signaling pathways integral to the survival and immune evasion of cancer cells.

Data reveals that more than 50 percent of all cancers are STAT3-activated and that the extinction of STAT3 has an inhibiting effect on triple-negative breast cancer and cancers of the lung and liver. STAT3 inhibitors have also been shown to potentially retard the development of inflammatory and fibrotic diseases.

NFCR is excited to report that the STAT3 inhibitor is performing well in Phase 1 testing, and Dr. DePinho and his team will focus on liver cancer in Phase 2.
GBM AGILE: A Global Community Approach

Survival rates associated with glioblastoma (GBM), the most common form of brain cancer, have been grim. Typically, a GBM patient who receives standard-of-care treatment survives only 14.6 months. Unwilling to accept those odds, NFCR and its partners around the world—a powerful corps that includes oncologists, statisticians, pathologists, neurosurgeons, imaging experts, advocates, and researchers from academia, industry, and government—joined forces with the nonprofit GCAR (Global Coalition for Adaptive Research), along with other nonprofits, to create the GBM AGILE (Adaptive Global Innovative Learning Environment) trial for patients with newly diagnosed or recurrent GBM.

Traditionally, efforts to bring new products to market can take years and cost billions. Standard trials typically test one therapy against the standard-of-care or a placebo. Significantly, the mortality rates connected with many cancers make standard trials unrealistic, as there may not be adequate time to gather important data. GBM AGILE is a revolutionary “adaptive” trial platform that is patient-centric and has a continual learning process factored into its structure.

“GBM AGILE is among the most innovative and paradigm-shifting trial platforms in the world, and one that provides huge impacts for brain cancer patients.”
—Webster Cavenee, Ph.D.,
Chair, NFCR Scientific Advisory Board

GBM AGILE can evaluate and test multiple drugs simultaneously as it seeks to identify new and effective therapies. The trial allows patients to enroll more quickly and uses adaptive randomization to dynamically adjust how treatments are assigned to patients. If one treatment arm outperforms another, a higher proportion of new enrollees will be assigned to that treatment arm.

In essence and by its very design, GBM AGILE is changing the very nature of clinical trials in the following ways:

• It lowers the cost of development and expedites the process.
• Its model of a perpetual learning system allows for the quick addition of potentially promising new drugs and the elimination of those deemed ineffective.
• Its design and trial structure requires fewer patients and shorter time frames to gauge a drug’s effectiveness.
• Its global reach enables the participation of a broader population of newly diagnosed and recurrent GBM patients.

But that is not all. Significantly, GBM AGILE serves as a model for other rare and deadly cancers, giving patients hope for treatments best suited to their particular needs.

The numbers are impressive. Consider these achievements:

• As of January 2022, GBM AGILE has screened over 1000 patients.
• Its enrollment rates are three to four times greater than in traditional GBM studies.
• There are now more than 40 trial sites in the U.S. and Canada.
• This year, many sites will open in Europe.
• Study start-up activities in China have begun.
• With five pharmaceutical partners, GBM AGILE is evaluating five promising treatments.
• The model created by GBM AGILE is being used to develop an innovative trial for ovarian cancer.

Oncology Metaverse

In an interview eight years ago with USA Today, Stephen Hawking said, “We are now all connected by the Internet, like neurons in a giant brain.” Recognizing that potential, NFCR and its venture philanthropy affiliate, the AIM-HI Accelerator Initiative, have been working to build a Virtual Conference Center that can bring those “neurons” together, both digitally and globally.

Consider the Oncology Metaverse’s capabilities:

• A smooth Livestream and data secure environment.
• An interactive 3D lobby, photo gallery, video wall, and networking.
• A digital front that is always available and easy to access.
• A library filled with valuable content that can easily be replayed.
• A virtual hub for cancer researchers, biotech leaders, entrepreneurs, investors, cancer patients, and advocates.

The future is limitless as we continue to build this community, offering an ecosystem in which information, insight, and innovation are easily shared.
October 31, 2021 was a very special day indeed for our worldwide NFCR community. Coming out of the most cloistered period of the pandemic allowed us to hold two very important symposiums, virtually and in-person. We also gathered for our always-anticipated annual ceremony, which honors recipients of the Szent-Györgyi Prize.

The Szent-Györgyi Prize for Progress in Cancer Research

The 2021 Szent-Györgyi Prize was awarded to the research duo of Mark M. Davis, Ph.D., professor of microbiology and immunology at the Stanford University School of Medicine, and Tak W. Mak, Ph.D., senior scientist at the Princess Margaret Cancer Centre and university professor at the University of Toronto. The prize recognized their breakthrough discoveries of the structure of T-cell receptor (TCR) and the mechanisms of T-cell recognition and development. These discoveries are playing a critical role in contemporary immuno-oncology and are providing the molecular foundation for life-saving T-cell-based immunotherapy approach that the FDA is anticipated annual ceremony, which honors recipients of the Szent-Györgyi Prize.

In their humorously insightful remarks at the awards ceremony, Drs. Davis and Mak evoked the challenges, sometimes daunting, sometimes exhilarating, that they have found in the world of science. “No sane person goes into science to win awards,” said Dr. Davis. “We work in this very strange type of business where we don’t know what we’re doing. We only work on things we don’t understand.” Dr. Mak echoed these sentiments, quoting Nobel Prize-winning physicist Richard Feynman, who said, “As I get older, I realize being wrong isn’t a bad thing, like they teach you in school. It is an opportunity to learn something.”

NFCR salutes that ethos of unfettered experimentation, knowing that it yields great rewards.

In the direction of the health care industry, the traits that characterize women entrepreneurs, and how young women looking to become leaders in science and technology can best prepare themselves. Addressing the audience were oncology surgeon Monica Bertagnolli of the Dana-Farber Cancer Institute and Harvard Medical School, who stressed the need for women entrepreneurs to develop long-term strategies, and Pamela Garzone, Ph.D., of Anixa Biosciences who, when asked to advise women entrepreneurs who may hear ‘no’ when seeking funding, said, “It is ok to fail, as long as you learn from it.”

Another high point in the day was our lively fireside lunch where attendees heard from female leaders in the life sciences. Among the topics discussed were the direction of the health care industry, the traits that characterize women entrepreneurs, and how young women looking to become leaders in science and technology can best prepare themselves. Addressing the audience were oncology surgeon Monica Bertagnolli of the Dana-Farber Cancer Institute and Harvard Medical School, who stressed the need for women entrepreneurs to develop long-term strategies, and Pamela Garzone, Ph.D., of Anixa Biosciences who, when asked to advise women entrepreneurs who may hear ‘no’ when seeking funding, said, “It is ok to fail, as long as you learn from it. The key piece of information is persistence, determination, and resilience.”

An audience made up of in-person attendees at the National Press Club in Washington, D.C. and virtual attendees participating via live-stream through NFCR’s Oncology Metaverse heard presentations from world-renowned scientific leaders who discussed their latest life-saving discoveries and the breakthroughs ahead in the field of cancer research:

Dr. Doug Lowy, Principal Deputy Director of the National Cancer Institute, gave the keynote address, focusing on cancer prevention and improved treatments for cancer patients. He discussed the early detection of cancers that are being made possible by liquid biopsy tests, which use standard blood samples rather than invasive biopsies. Dr. Lowy, co-discoverer of the vaccine for cervical cancer due to HPV (human papillomavirus), offered an exciting prediction. “If the single-dose vaccination currently in ongoing clinical trials—which is less expensive and logistically easier than two doses—is found to provide strong protection,” he said, “it may soon be feasible to end HPV-associated cancer worldwide as a public health problem.”

Dr. Hai Yan, Duke University School of Medicine, shared his team’s discovery of a mutation in a gene called IDH, which drives cancer development in deadly glioma brain cancers. His team also identified more objective biomarkers that offer better clinical prognoses and diagnoses for glioma patients.

Dr. Scott Lippman, Moores Cancer Center at the University of California, San Diego, presented his team’s discovery of gene deletions in head and neck cancer patients that result in resistance to ICIs. A new clinical test can now identify these patients. Precious months of their survival time will be saved instead of lost on ineffective and costly therapy.

Dr. Suzanne Topalian, Johns Hopkins University, is known for her work with the new immunotherapy, Immune Checkpoint Inhibitors (ICIs), with lasting responses in some patients with advanced melanoma, kidney or lung cancer. Her current promising research shows ICI therapy for four weeks prior to planned surgery results in a relapse-free survival at two years for 50% of patients with Merkel skin cell cancer.

Dr. Jennifer Grandis, University of California San Francisco, discussed her work leading collaborative research teams to advance precision medicine for patients with HPV-associated head and neck squamous cell cancer. The incidence of this cancer has increased 225% from 1988 to 2004 yet few targeted therapies are available.

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Dr. Jennifer Grandis, University of California San Francisco, discussed her work leading collaborative research teams to advance precision medicine for patients with HPV-associated head and neck squamous cell cancer. The incidence of this cancer has increased 225% from 1988 to 2004 yet few targeted therapies are available.

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Another high point in the day was our lively fireside lunch where attendees heard from female leaders in the life sciences. Among the topics discussed were the direction of the health care industry, the traits that characterize women entrepreneurs, and how young women looking to become leaders in science and technology can best prepare themselves. Addressing the audience were oncology surgeon Monica Bertagnolli of the Dana-Farber Cancer Institute and Harvard Medical School, who stressed the need for women entrepreneurs to develop long-term strategies, and Pamela Garzone, Ph.D., of Anixa Biosciences who, when asked to advise women entrepreneurs who may hear ‘no’ when seeking funding, said, “It is ok to fail, as long as you learn from it.” The key piece of information is persistence, determination, and resilience.”

An audience made up of in-person attendees at the National Press Club in Washington, D.C. and virtual attendees participating via live-stream through NFCR’s Oncology Metaverse heard presentations from world-renowned scientific leaders who discussed their latest life-saving discoveries and the breakthroughs ahead in the field of cancer research:

Dr. Doug Lowy, Principal Deputy Director of the National Cancer Institute, gave the keynote address, focusing on cancer prevention and improved treatments for cancer patients. He discussed the early detection of cancers that are being made possible by liquid biopsy tests, which use standard blood samples rather than invasive biopsies. Dr. Lowy, co-discoverer of the vaccine for cervical cancer due to HPV (human papillomavirus), offered an exciting prediction. “If the single-dose vaccination currently in ongoing clinical trials—which is less expensive and logistically easier than two doses—is found to provide strong protection,” he said, “it may soon be feasible to end HPV-associated cancer worldwide as a public health problem.”

Dr. Hai Yan, Duke University School of Medicine, shared his team’s discovery of a mutation in a gene called IDH, which drives cancer development in deadly glioma brain cancers. His team also identified more objective biomarkers that offer better clinical prognoses and diagnoses for glioma patients.

Dr. Scott Lippman, Moores Cancer Center at the University of California, San Diego, presented his team’s discovery of gene deletions in head and neck cancer patients that result in resistance to ICIs. A new clinical test can now identify these patients. Precious months of their survival time will be saved instead of lost on ineffective and costly therapy.

Dr. Suzanne Topalian, Johns Hopkins University, is known for her work with the new immunotherapy, Immune Checkpoint Inhibitors (ICIs), with lasting responses in some patients with advanced melanoma, kidney or lung cancer. Her current promising research shows ICI therapy for four weeks prior to planned surgery results in a relapse-free survival at two years for 50% of patients with Merkel skin cell cancer.
OUR GIVING COMMUNITY

Our donors are the backbone of our community. Without them, we would be unable to support the scientists, entrepreneurs, and scientist-entrepreneurs who are doing such extraordinary work in their effort to bring treatments and therapies to cancer patients. We invite you to meet a few of the generous folks who keep us in their minds and hearts.

JIM NICKELSPORN
Honoring Friends & Loved Ones

Maryland attorney Jim Nickelsporn’s mother seized life for all it was worth. When it came time for her to have a cancer screening in 1996 and the doctor suggested she have a sigmoidoscopy exam, which only examines the lower part of the colon, she said, “I want what you would give your own mother!” Sure enough, the colonoscopy detected cancer that the sigmoidoscopy would have missed. Learning a valuable lesson from Mom, Jim and his sister have a colonoscopy every three years. Jim has been just as steady with his donations to NFCR, supporting our work through our honor/memorial program to honor and remember loved ones in their battle.

MÁIREAD H. MCCONNELL
First-time Donor

A clinical health psychologist and assistant professor at Banner University Medical Center/University of Arizona in Tucson, Arizona, Mairead McConnell focused her dissertation on developing a scale to measure “double awareness” in patients living with metastatic cancer, which is the ability to engage meaningfully in life while also preparing for death. She offered to pay participants for their time, a routine practice in research studies, but every single patient refused. Helping just one patient in the same situation was all the incentive they needed. Inspired, Mairead decided to “pay it forward.” For every participant in her study, she donated $10 to NFCR, and these contributions have added up significantly.

STEVE COLELLA
A Monthly Donor

Illinois businessman Steve Colella watched his mother battle breast cancer, and lost his brother to lung cancer and his mother-in-law to pancreatic cancer. But Steve sees that great strides are being made in cancer research over the years, especially in precision and gene therapy. Thanks to these developments, life has been extended for many people, and their quality of life has also been improved. A supporter since 2007, Steve appreciates that NFCR does not focus on one type of cancer but on all cancers. Steve chooses to donate through NFCR’s monthly-giving program, Champion for a Cure, both for its convenience and because he enjoys the sense of being a regular and engaged supporter of good work.

WAYS TO GIVE

Here are some ideas about how you can help support the NFCR community—but we’d love to hear your ideas as well!

Champion for a Cure
Join our monthly giving program. This saves on fundraising costs, freeing up funds to sustain our scientists. For more information, visit: nfcr.org/monthly

Honor & Memorial Giving
Celebrate a loved one by visiting: nfcr.org/memorial

Create a Legacy
Remember NFCR in your will or living trust. It’s easy to arrange and may be changed at any time you choose through a provision or amendment prepared by your attorney.

You may also want to consider a Charitable Gift Annuity, which guarantees an income for life for a donor and/or a donor’s spouse, with a portion eligible for tax deduction.

Stock Gifts
Donating with long-term securities, including stocks and bonds, can offer significant tax benefits.

Charitable IRA Rollovers
Donate directly from your traditional or ROTH IRA. Donors must be at least 70 ½ years old. Check with your attorney on the benefits of your IRA contribution.

Corporate Matching Gifts
Does your employer have a matching gift program? It is a great way to maximize or even double your impact! Check with your HR Department for guidelines and gift matching forms. You can also discover more by visiting: nfcr.org/employermatch

NFCR gratefully accepts donations via cash, credit cards, donor-advised funds (DAF), PayPal, Apple Pay, or Electronic Funds Transfer.

Other Creative Ways to Give

And as to your ideas, perhaps you’re interested in creating a fundraiser of your own for NFCR? This could be done through NFCR’s GoFundMe page (nfcr.org/gofundme) or NFCR’s Facebook page (facebook.com/TheNFCR).

We’d love to hear what you have in mind, so please feel free to contact our Executive Director, Brian Wachtel, at bwachtel@nfcr.org or (301) 961-9159, for a confidential conversation with no obligations.
MISSION STATEMENT The National Foundation for Cancer Research fosters new and innovative ideas to address the unmet needs of cancer patients. We support scientists and entrepreneurs in achieving breakthrough discoveries and bringing powerful treatments and therapies to market.

Consistent with our Mission Statement, NFCR’s budget is primarily aimed toward research, as the graph illustrates.

Our fundraising supports Academic Grants, Translational Grants, Clinical Programs, Collaborative Programs, Scientific Awards, Early Detection, and Prevention Education.

Our 2021 audited financial statement will be published in this report’s digital version available at www.nfcr.org in the coming weeks.