

Extraordinary Leadership

Richard Jove, Ph.D.

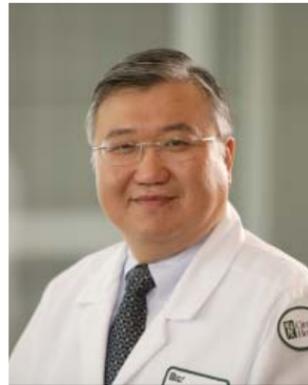
Jove serves as director of Beckman Research Institute, deputy director of City of Hope's National Cancer Institute-designated Comprehensive Cancer Center and as chair and professor of the Division of Molecular Medicine. His mission is to develop the next generation of cancer-specific treatments that exploit molecular and protein-based mechanisms giving rise to cancer. This is a new frontier, ushered in part by his own ground-breaking discoveries concerning Stat3 proteins. Jove brings a wealth of research leadership from his work with the H. Lee Moffitt Cancer Center and Research Institute, having served as its director of Molecular Oncology Program and associate director of Basic Research. He has published 135 original research articles in peer-reviewed journals, including his breakthrough discoveries concerning Stat3 proteins and their role in cancer development. His research is continually funded by the National Cancer Institute, and his scientific accomplishments have earned him countless awards, including the John S. Newberry Prize in Biology at Columbia University, the Damon Runyon-Walter Winchell Cancer Fund Postdoctoral Fellowship at Rockefeller University, among others.



Richard Jove, Ph.D., director, Beckman Research Institute; co-director, Developmental Cancer Therapeutics

Yun Yen, M.D., Ph.D.

Yen is professor of Medical Oncology, as well as director of Clinical and Molecular Pharmacology in the Division of Medical Oncology & Therapeutics Research, and is the associate cancer center director for Translational Research. Throughout Yen's career, he has dedicated himself to discovering the molecular foundations of cancer and developing more effective treatments. His scientific achievements have accorded him various prestigious grant awards, including those from the National Institutes of Health, a distinguished pre-doctoral fellowship training grant while at Thomas Jefferson University and a K12 training grant while at City of Hope. In addition, he has been awarded U. S. Army Breast Cancer and Prostate Cancer grants, and the National Cancer Institute's Cancer Therapy Evaluation Program has designated his laboratory the Ribonucleotide Reductase Real-Time PCR Reference Laboratory. Following Yen's fellowship in the Department of Internal Medicine, Hematology and Bone Marrow Transplantation and Oncology Section at Yale University School of Medicine, he joined City of Hope in 1993 as a staff physician. Yen's powerful discoveries have altered the course of cancer treatment. From new enzymic structures, to molecular causes of anti-cancer drug resistance, to the identity of cancer-specific genes, he has provided new hope for the treatment of cancer.



Yun Yen, M.D., Ph.D. co-director, Developmental Cancer Therapeutics



Developmental Cancer Therapeutics Revealing Molecular Clues to Cure Cancer



City of Hope
Development Center
1055 Wilshire Blvd., 12th Floor
Los Angeles, CA 90017
213-202-5735 www.cityofhope.org

Developmental Cancer Therapeutics: Unlocking Cancer's Cellular Secrets

City of Hope researchers are pursuing important research targeting cancer without injuring healthy cells in the body. Each person has a distinctive molecular signature — accounting for the differences that make us all genetically unique. The precise gene and/or protein that may mutate, and the manner in which it mutates, also differs from person to person. We are developing personalized drug therapies for each patient's unique molecular signature, one that will maximize treatment benefits while minimizing side effects. This new paradigm is the basis of Developmental Cancer Therapeutics (DCT).

Under the joint leadership of Richard Jove, Ph.D., and Yun Yen, M.D., Ph.D., the DCT program is broad, ambitious, and demanding. Experts at each juncture along this scientific journey are on board to expedite tomorrow's cures. Our team has earned the program international stature, being one of only a limited number in the U.S. recognized and funded by the National Cancer Institute to test novel cancer therapies at their earliest stage of development. We are confident about its promise and ability to produce powerful new cures.

Science Saving Lives

We are unlocking the mechanisms that cause disease so that we can exploit them for treatment and prevention. By targeting disease at the molecular level, we can maximize the power of treatment while minimizing side-effects, developing new life-saving therapies while preserving patient quality-of-life. A few of our current research studies are listed below:

Targeting Tumors

Researchers are developing new therapeutics to block **Stat3**, a protein that aids cancer development. These drugs will trigger the patient's immune system to attack the cancer and block its

food source at the same time. This new approach promises more powerful cures with fewer side effects. City of Hope scientists were the first to discover and target the relationship between Stat3 and cancer.

Preventing Drug Resistance

Our investigators are developing drugs that inhibit a specific enzyme known as **ribonucleotide reductase** to thwart cancer and prevent drug resistance, making treatment more effective. This potential targeting of ribonucleotide reductase was first discovered by our researchers. We are also partnering with Cal Tech scientists to use novel **nanoparticle** technology to enhance the delivery of these therapies.

Decreasing the Risk of Cancer

Lowering estrogen reduces a women's risk of cancer, so our researchers are creating drugs called **aromatase inhibitors** that suppress estrogen levels. We believe that cancer is best beaten through innovative prevention strategies.

Making Chemotherapy More Effective

Small Ubiquitin-Related Modifier (SUMO) is an enzyme linked to cancer. Our researchers are developing drugs that halt SUMO, reducing cancer's resistance to chemotherapy drugs, making the drugs more powerful. Patients would receive lower doses of chemotherapy with greater cancer-fighting results.

Disrupting Cancer's Communication System

Using pieces of genetically engineered material known as **ribonucleic acid interference** (RNAi), our scientists seek to disrupt distorted genetic messages that aid cancer development. By controlling the progress of cancer we can improve therapies and patient outcomes.

Laboratory Cores

We have established and continue to invest in a scientific infrastructure that promotes innovative research at all stages of discovery and development. DCT research programs are advanced by highly sophisticated labs, the scope and calibre of which few institutions possess, including:

Synthetic and Biopolymer Chemistry Core

This facility provides our scientists with the resources to identify and analyze chemical compounds with cancer-killing promise, while also developing processes to develop these compounds into cancer-fighting drugs.

High Throughput Screening Core

Dedicated to exhaustively mining ideal chemical compounds that our researchers can use for drug development, this lab automates and accelerates this intensive process.

Functional Genomics Core

With highly sophisticated equipment such an **Affymetrix GeneChip array** and **microarray data analysis**, this core enables our researchers to determine the function of genetic material.

Together, these labs maximize our scientific expertise and output, accelerating our mission to improve care for people with cancer.

Advanced Molecular Therapies Center

We are in the planning stages of building a state-of-the-science facility for the DCT program: the Advanced Molecular Therapies Center, where we will develop the next generation of molecular therapies. Designed specifically to unify highly specialized laboratory cores with innovative molecular research initiatives, the building will promote scientific collaboration and the rapid advancement of novel research concepts into innovative cancer therapies.

This modern facility will house:

- Highly specialized core laboratories, serving the DCT program and the entire campus, including Synthetic and Biopolymer Chemistry, High Throughput Screening and Functional Genomics
- Supportive biology, chemistry and biochemistry labs devoted to researchers' daily resource needs
- Scientific support spaces, promoting research collaboration
- Conference rooms, administrative offices and building support areas

Within this facility, researchers will:

- Identify and understand the molecular mutations that lead to cancer
- Develop drugs that affect the mutation and correct the defect
- Refine drug therapies to kill cancer without harming healthy cells
- Conduct extensive lab tests to verify drug efficacy and safety
- Develop and analyze clinical trials to evaluate treatment effectiveness in patients

Help Us Conquer Cancer

With this integrated approach, we will accelerate the pace of scientific and medical discovery and development, reducing delays in delivering improved therapies to patients everywhere. Our pioneering science has altered the course of modern cancer care. We aim to transform future cancer treatment with more powerful therapies. The pace of this research is inextricably linked to critical infrastructure needed to house our research initiatives. We invite you to become a partner with City of Hope in its mission to deliver the promise of the DCT program: saving more lives. Our development staff welcome your inquiries about how you can play an integral role in helping us achieve our lifesaving mission. Contact our Gift Planning Dept. at 800-232-3314 or via e-mail at giftplanning@coh.org. Thank you for your consideration of support.



Advanced Molecular Therapies Center