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New mechanisms of tumor resistance to targeted therapy for lung cancer are discovered

The small-molecule drug Tarceva (erlotinib) is one of the most effective targeted therapies for non-small cell lung cancer patients who have specific gene mutations. Yet most of these patients develop resistance to the drug within one to two years. Studies had previously discovered two molecular mechanisms that accounted for about 50% of the cases of Tarceva resistance.

CSHL Assistant Professor Rafaela Sordella, Ph.D., and her team have now discovered new resistance mechanisms. They report that lung tumor cells lose their sensitivity to Tarceva when they over-express levels of Hsp-60, a signaling molecule that is well known as a mediator of inflammation. Detailed knowledge of such drug-evading maneuvers will be essential in designing treatment strategies that circumvent resistance. The pages that describe these findings can be found in the August 20th edition of the Proceedings of the National Academy of Sciences. Sordella, who received the 2006 Human Research Award, is a prestigious grant from the Cancer Consortium, aims to determine why Hsp-60 facilitates the survival of cancer cells and how it protects them from death.

One type of stem cell creates a hospitable niche for another type within the bone marrow

Hematopoietic stem cells (HSCs) in the bone marrow are highly valued in medical research for their ability to self-renew and produce all blood-cell types in the body. CSHL scientists led by Associate Professor Gilberto Rutigliano, Ph.D., solved a mystery of a multi-institutional team that has discovered that these abilities are due to a "partnership" that HSCs form in the bone marrow with mesenchymal stem cells (MSCs), a stem cell type known to give rise to bone, cartilage, and other tissues. In a paper published on August 13th in Nature, the scientists described the role that MSCs play in the maintenance and movement of HSCs within a "niche" in the bone marrow. Understanding how MSCs support HSCs might allow researchers to maintain healthy stem cells and successfully use them for clinical use.

Congressman Steve Israel holds press conference at CSHL to urge reversal of human embryonic stem cell research ban

On August 29th, a Federal judge issued a ruling in that, in the words of CSHL President Bruce Stillman, "was an absolute shock to the scientific community. It had the effect of halting all federally funded embryonic stem cell research in the U.S., but testing even the limited work authorized under former President Bush. As the Obama administration vowed to appeal the ruling, Rep. Steve Israel (D-Huntington) came to the Cold Spring Harbor campus on August 29th for a press conference in which he proposed an immediate legislative resolution that would supersede the judicial decision. President Stillman and stem cell research advocate Rosalee Ellison, who studies and teaches at the city Stony Brook University, also spoke forcefully at the event, which received wide notice in the press.

Upcoming events and announcements:

The 2010 CSHL Cultural Series is proud to present two concerts in September. The first concert, performed by pianist Ully Von, and the second concert, by cellist Christian Dohra, are scheduled for September 3rd and 24th, respectively, at 6pm in Grace Auditorium. Tickets for these events can be purchased at the door.

A free public lecture, entitled "Hitting Leukemia Where It Hurts: Researchers and Physicians Unite to Knock Out Cancer," will be held on Sunday, September 26th at 3pm in Grace Auditorium. At this event, scientists and doctors from CSHL and North Shore-LIJ Hospital will discuss their very promising program in hematologic research that brings together the two spheres of research and patient care. Please contact CSHL Public Affairs at 516-994-4845 or jfogel@csidl.edu for more information.

The Christina Renna Foundation, which is dedicated to supporting research and raising awareness of childhood cancers, is holding a Walk-a-Thon and Wood Driving on September 19th. All funds raised will benefit children’s cancer research at CSHL.

Choco Mates, a non-profit organization that aims to build and improve diverse cognitive and social skills in children, will hold a “Long Island Chess and Science Outing” on September 20th at CSHL’s Blackford Hall. Registration begins at 10am.

CSHL’s President’s Council retreat is scheduled for Friday and Saturday, October 1-2, 2010 at the Banbury Center. This is the second of two meetings that members of the Council attend annually to explore timely scientific topics. This meeting will be the meeting of the Academy of Sciences and a Fellow of the Royal Society (London), more than 400 scientists conduct groundbreaking research to advance the understanding and ability to diagnose and treat cancer, neurodegenerative disease, and other causes of human suffering.

Cold Spring Harbor Laboratory is one of sixty-three institutions supported by the Cancer Centers Program of the National Cancer Institute (NCI) and has been designated as an NCI Cancer Center since 1987.

We would like to hear from you!
Contact us at press@csidl.edu.

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