

Dr. David Lyden

Dr. Lyden Makes Incredible Discovery in Cancer Metastasis

CCBF Physician-Scientist, Dr. David Lyden along with a team of researchers from Weill Cornell Medical College and Memorial Sloan-Kettering Cancer Center have discovered that cellular particles fuse with organs, and in doing so establish an environment ripe for the spread of cancer. While cancer researchers have known for over a century that different tumor types spread only to specific, preferred organs, no one has been able to determine how or why this happens. The discoveries made by Dr. Lyden and his team propose a new mechanism that controls cancer metastasis and offers fresh diagnostic and treatment potential.

The findings, recently published online by Nature Medicine, show how melanoma cancer cells release small “exosome” vesicles (microscopic particles like bubbles filled with many different molecules such as proteins and nucleic acids) that travel to the bone, liver, lung and brain. The exosomes fuse with these organs to create an ideal

environment for spreading tumor cells. Dangerous cancer exosomes have many effects, the researchers say, such as triggering inflammation, promoting leaky blood vessels and “educating” bone marrow progenitor cells to participate in the metastatic cascade soon to come.

These exosomes circulate in the blood and thus are readily measurable as well as accessible. This could provide an advantage to cancer diagnoses, prognoses and treatment the researchers say. “The exosome profile could be useful in a number of ways — to help detect cancer early, to predict the aggressiveness of a patient’s tumor and response to chemotherapy or other treatments, and to understand the risk of cancer recurrence or spread before traditional methods would be able to,” says Dr. Lyden, co-senior author of the study.

“We believe each tumor type will have its own exosomal protein profile that will represent each tumor subtype,” says Dr. Jacqueline

F. Bromberg, an associate attending physician at Memorial Sloan-Kettering Cancer Center, associate professor of Medicine at Weill Cornell and the study’s senior co-author. “The exosomal proteins will be useful for prognosis in predicting which patients, including those who develop disease decades after their original diagnosis, will likely be at risk for future metastatic disease.”

The study’s lead author, Dr. Hector Peinado, instructor of molecular biology in the Department of Pediatrics at Weill Cornell Medical College, says the study suggests that effective cancer treatment must be multi-layered. “If, in the future, we were able to find a way to control the ‘education’ of bone marrow cells, as well as the release and content of tumor exosomes in cancer patients, we would be able to curtail and reduce the spread of cancer, and improve the patient’s quality of life and survival,” he says.

Join us this September in our fight against Childhood Cancer, Sickle-Cell and ITP

Join us this September as we commemorate National Childhood Cancer Awareness Month, Leukemia & Lymphoma Awareness Month, National Sickle Cell Month, and National ITP Awareness Month.

Childhood Cancer

Thanks to the tireless work of our doctors and researchers and all those across the world engaged in the fight against cancer, the five-year survival rate for pediatric cancer patients has risen to 80% in the past half century. Yet, there are still serious challenges ahead as cancer remains the leading cause of death by disease for young Americans. Dr. Lyden's work, explained further in this edition of "The Key," is bringing the medical community a step closer to a cure for cancer with discoveries that offer new diagnostic and treatment potential.

Leukemia & Lymphoma

Survival rates for children with acute lymphocytic leukemia (ALL), the most common childhood cancer, have also risen over the past 40 years from 3% to approximately 90%, and Hodgkin lymphoma patient survival rates have doubled to 86% since the 1960s; yet, today there are still more than 1 million North Americans fighting blood cancers.

2012 Breakthrough Ball Gala

The 2012 Breakthrough Ball Honorees and Co-Chairs

The annual Breakthrough Ball benefit gala will take place on Thursday, November 15 at the Plaza Hotel in New York City. We are proud to present the coveted "Breakthrough Spirit" award to Denise Ilitch,

Dr. Aledo, in partnership with the national Children's Oncology Group (COG), discovered that Imatinib[®], a drug used to treat chronic myelogenous leukemia, is also a very effective and life-saving treatment for children and adults with ALL. Imatinib[®] is a pill that binds to a specific protein in cells and prevents it from proliferating. Using Imatinib[®] in combination with traditional chemotherapy may increase survival time enough so that blood and marrow transplantations, which have a high risk of complications, are no longer necessary.

Sickle Cell Disease

With approximately 72,000 Americans living with Sickle Cell Disease (SCD), and an estimated two million carrying the genetic trait for the disease, SCD represents the most commonly inherited blood disorder in this country. Dr. Rivella and his team are working to improve the lives of individuals and families struggling with the disease. They have designed a powerful gene therapy strategy that can treat both SCD and beta-thalassemia disease. This gene therapy technique has the potential to cure many patients and will likely make a substantial impact on a number of fields.

ITP

ITP affects approximately 200,000 individuals in the U.S., half of whom are children. The treatments for ITP were largely developed by leaders at the CCBF Division and are used today to help keep children's platelet counts in a safe range. Dr. Bussel continues to spearhead the development of thrombopoietic agents that will revolutionize the care of patients with ITP. With studies led by Dr. Bussel, NPLATE[®] and PROMACTA[®] became the first treatments of their kind for ITP patients and led to the first studies of ITP treatments in children.

As you can see, CCBF doctors and researchers are making incredible discoveries and leading the medical community in their study of childhood cancers, leukemia & lymphoma, sickle cell disease and ITP. Help ensure that this incredible work continues! Honor National Childhood Cancer Awareness Month, Leukemia & Lymphoma Awareness Month, National Sickle Cell Month, and National ITP Awareness Month this September by contributing to CCBF. Your help makes all the difference!

Esq., President of Ilitch Enterprises and Publisher of Ambassador Magazine. Ms. Ilitch and her family are an integral part of the philanthropic community and we are proud to recognize their tireless advocacy of

children in need.

Our newest honor, the “Medical Breakthrough” award, will go to CCBF Physician-Scientists Dr. James Bussel and Dr. David Lyden for their extensive contributions to the field of pediatric hematology and oncology. This past year, Dr. Bussel received the prestigious King Faisal International Award for Medicine for his breakthrough research on platelet disorders that affect fetuses and newborns and Dr. Lyden will receive the IJ “Josh” Fidler Innovation in Cancer Metastasis Research Award in September for his pioneering work focusing on the early prognosis and prevention of cancer at a molecular and cellular level.

We are excited to welcome back last year’s “Breakthrough Spirit” award

Summer Campaign

Bring Playtime to a Patient Exceeds its Goal

Thanks to your donations, the Give Playtime to a Patient campaign exceeded its goal of \$5,000! We raised over \$6,000, all of which will go to providing our patients with fun toys, games and crafts while receiving treatments as well as clinic visits from some of the best entertainers in town! Your contributions have already provided:

- Tickets to cheer on the New York Mets, Brooklyn Cyclones and New York Liberty
- A magical morning at the clinic with a performance by Madeleine the Magician
- A meet and greet with Tuffy the Tiger puppet
- A fabulously funny visit from the Kookie the Clown
- Entrance to some of the best children’s museums in the metro area, including the Liberty Science Center, the Children’s Museum of Arts and the Children’s Museum of Manhattan

recipients, Muffie Potter Aston and Buddy Valastro, as Honorary Co-Chairs. Mrs. Aston, a dedicated humanitarian and philanthropist, has helped to raise awareness for cancer research and treatment in New York City, and Mr. Valastro, Master Cake Decorator and Star of the Hit TLC Reality Show “The Cake Boss,” is an active member of the Make-A-Wish Foundation. We also welcome Heather Robinson, philanthropist and wife of NBA All-Star Veteran Cliff Robinson, as a Benefit Co-Chair. Mrs. Robinson has devoted her time and resources to her philanthropic endeavors over the years and is now bringing her energy and enthusiasm to the Breakthrough Ball.



During their regularly scheduled appointments, our patients undergo treatments that range from lasting just a few minutes to lasting several hours, and due to the nature of their illnesses, many patients

must continue to receive treatments throughout their entire lives. Our goal for this campaign was to brighten the day of our patients and help them forget about their illnesses, if just for an afternoon. After witnessing the visits from magicians and clowns we can assure you that your donations have brought smiles and comfort to our patients and their families. We couldn’t have done it without your incredible support!

Learn More

Learn How You Can Make a Difference

General Support

Your generous gift will help CCBF continue to offer quality care and remain a pioneer of pediatric oncology and hematology research.

Memorial and Tribute Gifts

These gifts allow you to make a donation in the name of a loved one.

Matching Gifts

Your gift could be doubled or even tripled! Check with your HR office to see how your company can match gifts.

Volunteer

CCBF is always looking for dedicated people to help in our fundraising efforts. Share in this rewarding experience.

Other Ways to Help

There are other ways to help, such as planned giving and gifts of stock. Ask us about other ways to donate!



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