

International research network funded to study links between lymphatic system and obesity

An international team of researchers has received a \$ 6 million grant to study links between the lymphatic system, obesity, and cardiovascular disease. Paris-based Fondation Leducq awarded the five-year grant to a research network of scientists at three U.S. and three European academic institutions.

The project unites leading investigators in vascular and lymphatic biology to explore evidence that links obesity and inflammation to problems in the system of vessels called lymphatics that carry lymph fluid and cells throughout the body. The goal is to identify novel approaches for preventing and treating obesity, inflammation, and related conditions.

Lymphatic vessels help maintain health by collecting and transporting fluid from tissues. They also help maintain normal immune function by serving as routes for immune cells, and they participate in body metabolism by absorbing ingested fat from the intestine and interacting with fat cells. Lymphatic vessels are located throughout the body. Because some are located in the outer layer of large arteries, scientists suspect they play a role in atherosclerosis. Disturbances in lymphatic vessel function can lead to accumulation of tissue fluid (edema), abnormal immune responses, and abnormal accumulation-of fat.

The research will examine how lymph fluid influences fat cell growth, function, and reaction to inflammation, how lymphatic vessels and fat cells communicate with each other, and how lymphatic vessel dysfunction could lead to certain types of obesity. The network will also study whether lymphatic vessels can facilitate removal of lipids and inflammatory cells from atherosclerotic plaques, whether lymphatic vessel growth can help ameliorate heart failure, and whether the interior surface lining cells of lymphatic vessels, like those of blood vessels, can suppress platelet activity and clot formation.

Kari Alitalo, University of Helsinki, is the network's European coordinator and Mark Kahn, University of Pennsylvania, Philadelphia, is the U.S. coordinator. Other network members are Hellmut Augustin, German Cancer Research Center Heidelberg and Heidelberg University, Michael Detmar, Swiss Federal Institute of Technology (ETH), Zurich, Donald McDonald, University of California, San Francisco (UCSF), Emile Mohler and Muredach Reilly, both of the University of Pennsylvania, Guillermo Oliver, St. Jude Children's Research Hospital, Memphis, and Marja-Riitta Taskinen, University of Helsinki.

Fondation Leducq is dedicated to improving human health through international efforts to combat cardiovascular disease. This project is funded through the organization's Transatlantic Networks of Excellence Program.

The German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ), employing over 2,500 staff members, is the largest biomedical research institute in Germany. More than 1,000 scientists are working to investigate the mechanisms of cancer development, identify cancer risk factors and develop new strategies for better cancer prevention, more precise diagnosis and effective treatment of cancer patients. In addition, the staff of the Cancer Information Service (KID) provides information about this widespread disease for patients, their families, and the general public. DKFZ is funded by the German Federal Ministry of Education and Research (90%) and the State of Baden-Wuerttemberg (10%) and is a member of the Helmholtz Association of National Research Centers.

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