Methods and Materials to Treat Lymphangiogenesis

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Technology description

The lymphatic vascular network penetrates most tissues in the body and plays important roles in a broad spectrum of functions, including immune surveillance, fat absorption and interstitial fluid homeostasis. Numerous disorders have been found to be associated with lymphatic dysfunction, such as cancer metastasis, inflammatory and immune diseases, infection, transplant rejection, obesity, hypertension and lymphedema. However, to date, there is still little effective treatment for most lymphatic disorders. Researchers at UC Berkeley (UCB) are working to advance the understanding of the mechanisms underlying pathologic lymphatic processes, such as lymphangiogenesis (LG), for new preventive measures and treatments. MicroRNAs are a class of small noncoding RNAs that negatively regulate gene expression by binding to complimentary sequences of target messenger RNA. UCB researchers are specifically investigating the role of microRNA 184 (miR-184) in corneal LGin vivoand dermal lymphatic endothelial cells (LECs)in vitro. Using preclinical animal models combined with human cell cultures, the researchers have discovered that miR-184 which is naturally expressed in the cornea is critically involved in LG and could potentially be used as an inhibitor of LG. Further research and understanding of these data may produce targets for miR-184 for new approaches to prevent or treat lymphatic disease which occurs both inside and outside the eye.

Additional Information

Related Materials

"MicroRNA-184 Regulates Corneal Lymphangiogenesis" by Grimaldo S, Yuen D, Theis J, Ng M, Ecoiffier T, Chen L.

Additional Technologies by these Inventors

Live Imaging of Corneal Lymphatic Vessels

Modulation of Ang-2 to Treat Pathologic Lymphangiogenesis

Combined Blockade of VEGFR-3 and VLA-1 to Improve Transplant Survival

Application area

Corneal vascularization in various diseases
Corneal transplants in low-risk and high-risk settings
Other tissue or organ transplant
Other immune- or lymphatic-related disorders, such as cancer metastasis

Advantages

Local or systemic administration
Demonstrated in mouse model
Demonstrated in humanin vitroculture system

Institution

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