Ligands for Improved Angiogenesis and Endothelialization of Blood Contacting Devices

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Technology description

Thrombus formation is a common cause of failure for blood-contacting medical devices. In most cases, RGD-based short peptide ligands have been used to reduce protein adhesion and enhance endothelial cell (EC) and endothelial progenitor (EPC) recruitment. These ligands, however, are non-specific and strongly bind platelets. Therefore there is a need for alternative ligands that can specifically target and promote endothelial function while resisting thrombosis and blood coagulation.
Researchers at the University of California, Davis have discovered novel endothelial targeting ligands that can specifically bind and capture ECs and EPCs for improved endothelialization and angiogenesis of medical devices and scaffolds. These ligands bind specifically to ECs and EPCs derived from native blood vessels and circulation. They are structurally stable and easy to chemically modify without compromising binding affinity to targeted cell surface molecules. These ligands offer novel therapeutic potential for vascular, intravascular, blood contacting and tissue engineering applications.
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Related Cases
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Application area

EC/EPC related biomedical applications
Cell delivery
Cell culture
Blood-contacting medical devices
Scaffolds used in tissue engineering

Advantages

EC and EPC binding specificity

Does not bind monocytes or platelets
Structural stability
Easily used for chemical modification without compromising binding affinity to targeted cell surface molecules

Institution

University of California, Davis

Inventors

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