Self-Assembling Multivalent Biodegradable Ligands for Nanoscale Heparin Binding

Fact Sheet

Project information

SAMUL-NANO-HEP

Grant agreement ID: 628757

Status
Closed project

Start date 1 October 2014

End date 30 September 2016

Funded under:
FP7-PEOPLE

Overall budget:
€ 221 606,40

EU contribution
€ 221 606,40

Coordinated by:
UNIVERSITY OF YORK
United Kingdom

Objective

This proposal targets the development of self-assembling nanoscale systems to bind heparin. Heparin is widely used as an anti-coagulant during major surgery, but once surgery is complete, it is necessary to remove the heparin and allow clotting to begin. The current therapy is protamine, a protein extracted from shellfish which acts as a powerful heparin binder, but unfortunately, causes allergic response and other problems in significant numbers of patients (ca. 10%). We are therefore targeting the development of novel synthetic nanoscale protamine replacements which may avoid some of these difficulties. Our unique strategy is to develop small molecules which self-assemble into nanoscale heparin binders. This has the advantage of being highly tunable and uses low molecular-weight (drug-like) building blocks – allowing structure-activity relationship understanding of the binding event to emerge. The self-assembled structures will be optimised in terms of their charge density, morphology, display of functional groups and ability to degrade, to maximise heparin binding and surgical potential. This project will provide fundamental insight into the requirements of an effective heparin binder. Our optimised systems will be tested in clotting and toxicity assays, and may have longer-term applications in a medical setting.
Field of Science

/medical and health sciences/clinical medicine/surgery

Programme(s)

FP7-PEOPLE - Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Topic(s)

FP7-PEOPLE-2013-IEF - Marie-Curie Action: "Intra-European fellowships for career development"

Call for proposal

FP7-PEOPLE-2013-IEF

See other projects for this call

Funding Scheme

MC-IEF - Intra-European Fellowships (IEF)

Coordinator

UNIVERSITY OF YORK

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Activity type

Higher or Secondary Education Establishments

EU Contribution

€ 221 606,40

Website

Contact the organisation

Administrative Contact

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