Silks as Biomimetic Ideals for Polymers: SABIP

Fact Sheet

Project Information

SABIP

Grant agreement ID: 233409

Project closed

Start date
1 January 2009

End date
30 September 2014

Funded under
Specific programme: "Ideas" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Total cost
€ 2 258 272,00

EU contribution
€ 2 258 272,00

Coordinated by
THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD
United Kingdom

Objective

Silk offers an attractive combination of strength and toughness coupled with environmentally benign processing and degradation. However, we lack key insights into the interactions between a silk s mechanical behaviour, its chemical composition and its fabrication processes. Hence practically, this ignorance impedes the development of synthetic and recombinant silks. More fundamentally, silks can

provide us with novel insights into other elastomeric natural protein polymers. Hence natural silk technology provides important insights both for the production of industrial bio-polymers and for understanding/copying other biological materials. I propose an extensive bio-mimetic programme to study silk diversity in order to gain new insights into the fundamentals of silk structure-property-functions relationships. WP Biomining will discover and screen silks with interesting material properties and gene-sequences with the proximate goal to discover novel silk types and the ultimate goal to identify silks suitable for commercial production. WP Material Analysis will focus on the acquisition of detailed data on silk material and chemical properties and will be using state-of-the-art measuring techniques. WP Multiscale Modeling is integral to the experimental programme in order to maximise all information obtained and optimise test conditions in order to fully derive and validate structure-property relations using our novel analysis techniques. Finally, WP Applications will disseminate our findings to colleagues in academia and companies throughout Europe. The proposed research will allow us to derive and validate a consistent set of quantitative structure-property relations for silk , which consider the evolutionary history of the different silks and their highly diverse genetic blueprints. This in turn will allow us to predict the mechanical properties of any silk at any stage during its natural and/or biomimetic production process.

Fields of science (EuroSciVoc)

humanities > history and archaeology > **history**

natural sciences > biological sciences > biochemistry > biomolecules > **proteins**

natural sciences > chemical sciences > **polymer sciences**

natural sciences > computer and information sciences > computational science > **multiphysics**

Keywords

SILK

silk

Programme(s)

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

Topic(s)

ERC-AG-LS9 - ERC Advanced Grant - Applied life sciences and biotechnology

Call for proposal

ERC-2008-AdG
See other projects for this call

Funding Scheme

ERC-AG - ERC Advanced Grant

Host institution

THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD

EU contribution

€ 2 258 272,00

Total cost

No data

Address

WELLINGTON SQUARE UNIVERSITY OFFICES
OX1 2JD Oxford
United Kingdom

Region

South East (England) > Berkshire, Buckinghamshire and Oxfordshire > Oxfordshire

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Beneficiaries (1)

THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD

United Kingdom

EU contribution

€ 2 258 272,00

Address

WELLINGTON SQUARE UNIVERSITY OFFICES
OX1 2JD Oxford

Region

South East (England) > Berkshire, Buckinghamshire and Oxfordshire > Oxfordshire

Activity type

Higher or Secondary Education Establishments

Links

Contact the organisation Website
Participation in EU R&I programmes
HORIZON collaboration network

Total cost

No data

Last update: 25 May 2022

Permalink: https://cordis.europa.eu/project/id/233409