

## Project goals

- ✓ Development of economically and ecologically sustainable processes to obtain brown algae from the Baltic Sea
- ✓ Setup of a database for the identification of suitable fucoïdians
- ✓ Pilots for fucoïdan-based applications in ophthalmology, regenerative medicine (tissue engineering) and cosmetics
- ✓ Establishment of a German-Danish value chain around the use of fucoïdians



## Project data

- 8 project partners
- 8 network partners
- March 2017 to February 2020
- 3.8 million Euro budget, thereof 2.2 million Euro funds
- FucoSan is supported by Interreg Germany-Denmark with funding of the European Regional Development Fund



FUCOSAN

## Contact

[www.fucosan.eu](http://www.fucosan.eu)

Prof. Dr Alexa Karina Klettner, project coordinator  
University Medical Centre Schleswig-Holstein  
Campus Kiel  
Department of Ophthalmology  
Arnold-Heller-StraÙe 3  
24105 Kiel, Germany

**Project Management**  
DSN Connecting Knowledge, Kiel, Germany

Mail: [info@fucosan.eu](mailto:info@fucosan.eu)  
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# Health from the Sea



**Interreg**  
Deutschland - Danmark



EUROPEAN UNION

## Extracting and characterising fucoidans

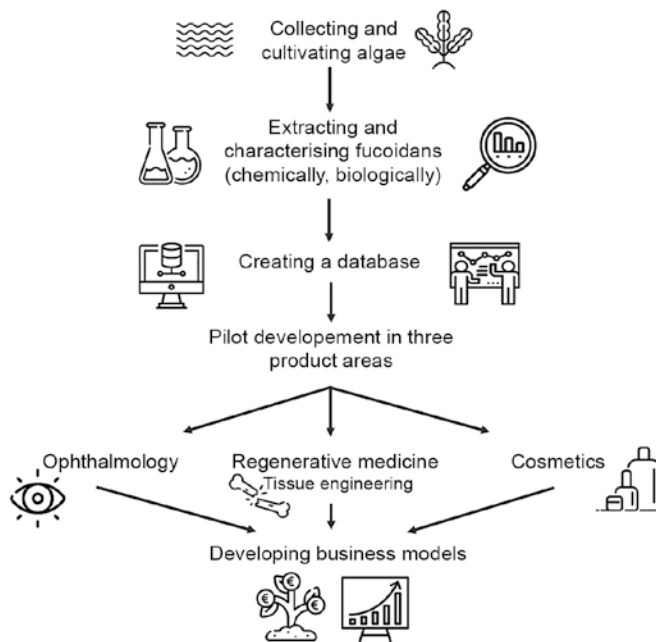
There are fucoidans with various bioactive functions in brown algae. Fucoidans must be available in high reproducible quality and sufficient quantity for targeted use in medicine and cosmetics.

Since the modes of action of the fucoidans vary greatly, several algae species from different regions that are harvested at different times are investigated and characterised in the project - both chemically and biologically.

## Database

All test results flow into a database. On the basis of this, the scientists select the most promising candidates to test their applicability.

## The process chain at FucoSan



## Pilot applications

On the basis of the database, the scientists select the most suitable fucoidans and test them for their suitability in the fields of ophthalmology (age-related macular degeneration), regenerative medicine (tissue engineering) and cosmetics.

### Ophthalmology

Fucoidans can inhibit VEGF and thus could potentially be used in the treatment of age-related macular degeneration, a widespread eye disease that is a major cause of blindness in Germany and Denmark.

### Bone regeneration

Fucoidans are also valued for their positive influence on inflammation, vascular supply and tissue regeneration. With their antimicrobial properties, infections in the bone could potentially be treated.

### Cosmetics

The antioxidant effect of fucoidans counteracts skin aging. Therefore, the prototype of a natural anti-aging skin care product containing fucoidans as an active ingredient will be developed in the pilot run.



### Business models

FucoSan creates a value chain: from the processes for extracting the algae to the processing of the fucoidans for various applications until market exploration and the development of business models for commercial utilisation.

## Project partners

- Kiel University
  - Pharmaceutical Biology
  - Technology Management

CRM – Coastal Research & Management GbR

GEOMAR Helmholtz Centre for Ocean Research Kiel

OceanBASIS GmbH

- University of Southern Denmark
  - Department of Chemical Engineering, Biotechnology and Environmental Technology
  - Mads Clausen Institute

- Technical University of Denmark
  - Department of Chemical and Biochemical Engineering

- Odense University Hospital
  - Orthopaedic Research Unit

- University Medical Centre Schleswig-Holstein, Campus Kiel
  - Department of Ophthalmology
  - Department of Orthopaedics and Trauma Surgery

## Network partners

- Biopeople–Denmark's Life Science Cluster
- Bundesverband Aquakultur e.V.
- Dr. Willmar Schwabe GmbH & Co. KG
- Fraunhofer Research Institution for Marine Biotechnology and Cell Technology
- Life Science Nord Management GmbH
- Roskilde University
- SUBMARINER Network for Blue Growth EEIG
- The European Society for Marine Biotechnology

