Preface

Marine invertebrates like sponges and sponge-associated microorganisms are some of the richest sources of novel bioactive molecules and lead compounds for therapeutical and biotechnological applications. However, the sustainable exploitation of marine natural products is limited due to the supply problem. The only likely way to tackle this problem is to isolate and express the genes encoding the enzymes/proteins involved in biosynthesis of these products to obtain the active molecules in sufficient amounts. The aim of this book is to describe new approaches combining the present knowledge in marine genomics and advanced natural products chemistry for the sustainable production of novel secondary metabolites (lead compounds), as well as pharmacologically active peptides/proteins, with antimicrobial, neuroprotective, anti-osteoporotic, anti-protozoan/anti-plasmodial, anti-ageing and immune-modulating activities, using molecular-biology-based approaches and advanced chemical techniques, to obtain and to select candidate compounds for pre-clinical and clinical studies. The authors of this book include European or worldwide leaders in marine genomics and marine natural product chemistry/structure elucidation, as well as leading researchers from high-tech enterprises with special interest in biotechnology and bringing marine biotechnology products to the market. This book also comprises chapters describing the discovery and sustainable exploitation of molecules from hitherto unexploited extreme marine environments, advanced biosynthetic prediction techniques and methods in computer-aided drug discovery, combinatorial biosynthesis methods, as well as strategies in drug discovery and development of marine-derived compounds of biomedical and biotechnological interest. This book also summarizes main results of the European Union Framework Programme FP7 project "BlueGenics—From gene to bioactive product: Exploiting marine genomics for an innovative and sustainable European blue biotechnology industry" (project No. 311848; 2012–2016); Fig. 1. Our intention is to demonstrate that the application of innovative

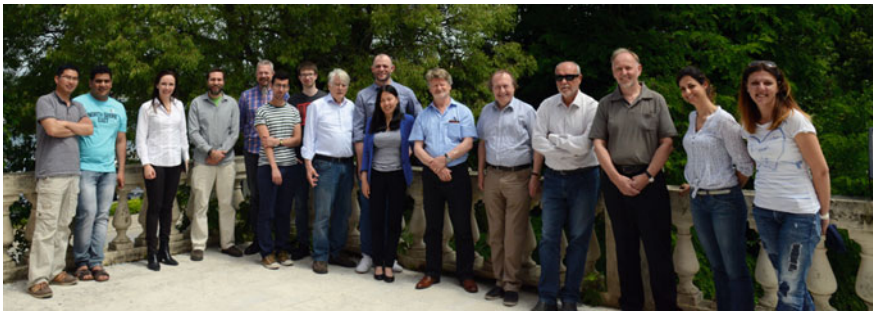


Fig. 1 Group photo of the European Union FP7 project "BlueGenics" team during the summer school 2016 in Rovinj, Croatia

molecular biological approaches is the only way to sustainably exploit the enormous economic potential of the marine molecular biodiversity—for the future of blue biotechnology industry and human benefit.

Mainz, Germany

Werner E.G. Müller
Heinz C. Schröder
Xiaohong Wang



http://www.springer.com/978-3-319-51282-2

Blue Biotechnology
From Gene to Bioactive Product
Müller, W.E.G.; Schröder, H.C.; Wang, X. (Eds.)
2017, XI, 314 p. 176 illus., 72 illus. in color., Hardcover
ISBN: 978-3-319-51282-2