

## **Applications for zoosporic parasites in aquatic systems**

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**Summary:** Zoosporic parasites (i.e. fungal and fungal-like aquatic microorganisms) constitute important drivers of natural populations, causing severe mortality of host. Economic impacts of parasitic diseases are notable in microalgae biotech industry, affecting production of food ingredients and supplements, bioactive medicinal and biofuels. While scientific research on this topic is gaining traction by increasing studies elucidating the functional role of zoosporic parasites in natural ecosystems, we are currently lacking integrated and interdisciplinary efforts for effectively detecting and controlling parasites in the microalgae industry. To fill this gap we propose to establish an innovative, dynamic European network connecting scientists, industries and stakeholders to optimize information exchange, equalize access to resources and to develop a joint research agenda. ParAqua aims at compiling and making available all information on the occurrence of zoosporic parasites and their relationship with hosts, elucidate drivers and evaluate impacts of parasitism in natural and man-made aquatic environments. We aim to implement new tools for monitoring and prevention of infections, and to create protocols and a Decision Support Tool for detecting and controlling parasites in the microalgae biotech production. Applied knowledge on zoosporic parasites can feed-back from industry to ecology, and we therefore will explore whether the developed tools can be applied for monitoring lakes and reservoirs. Short-Term Scientific Missions and Training Schools will be organised specifically for early-stage scientists and managers – with a specific focus on ITC – with the aim to share and integrate both scientific and applied expertise and increase exchange between basic and applied researchers and stakeholders.

**Cost Action CA18201**

## **An integrated approach to conservation of threatened plants for the 21st Century (ConservePlants)**

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Even though plants represent an essential part of our lives offering exploitational, supporting and cultural services, we know very little about the biology of the rarest and most threatened plant species, and even less about their conservation status. Rapid changes in the environment and climate, today more pronounced than ever, affect their fitness and distribution causing rapid species declines, sometimes even before they had been discovered. Despite the high goals set by conservationists to protect native plants from further degradation and extinction, the initiatives for the conservation of threatened species in Europe are scattered and have not yielded the desired results. The main aim of this Action is to improve plant conservation in Europe through the establishment of a network of scientists and other stakeholders who deal with different aspects of plant conservation, from plant taxonomy, ecology, conservation genetics, conservation physiology and reproductive biology to protected area's managers, not forgetting social scientists, who are crucial when dealing with the general public.

## **Networking towards clinical application of antisense-mediated exon skipping**

**Participants from University of Belgrade – Faculty of Biology: Dušanka Savić Pavićević, Associate Professor**

This COST Action aims to advance the development of antisense-mediated exon skipping for rare diseases, focusing on Duchenne muscular dystrophy for which this approach is currently assessed in phase 3 clinical trials. Several challenges hamper its development to wide clinical application: 1) There is no standardized protocol for important biological outcome measures, such as dystrophin restoration. 2) The approach is mutation specific; development for patient subgroups is challenging as most mutations are rare. 3) Fragmentation: several European groups work on preclinical optimization. 4) There is therapeutic misconception amongst patients and unrealistic expectations.

This COST Action will address the described issues through 1) meetings and training to standardize outcome measures, 2) meetings with regulatory authorities to discuss alternatives to develop this approach for small patients groups, 3) networking workshops where unpublished data are shared confidentially between Parties to foster synergistic work and avoid duplication, 4) training of young scientists in unbiased and clear communication to patients.

Networking is crucial for research in the orphan disease field and this model is applicable to other rare diseases for which exon skipping is currently in preclinical development. Groups involved are anticipated to join the Action when their research moves towards the clinical trial phase.

**Sustainable pollination in Europe - joint research on bees and other pollinators  
(SUPER-B)**

**Participants from University of Belgrade – Faculty of Biology: Ljubiša Stanisavljević,  
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SUPER-B will bring together scientific and societal communities involved in the conservation and sustainable management of ecosystem services mediated by pollinators. >70% of our crops need insects for optimal pollination; these include many fruits, nuts, oil crops, fibres and vegetables with some producing no yield without insect pollination. The direct economic value of crop pollination by insects in the EU is >14 billion euro annually. Moreover, >80% of wild plant species benefit from animal pollinators for fruit and seed production, making pollination a key service for ecosystem and biodiversity maintenance. SUPER-B will combine scientific evidence (existing and new knowledge) and social feedback for developing conservation strategies for pollinators. Specifically, the Action will (1) identify the role of insect pollination in agriculture and other ecosystems; (2) clarify best practices for mitigation of pollination loss, and (3) compare and contrast important drivers of pollinator loss (wild and managed species). SUPER-B will contribute towards maintaining natural ecosystems and achieving sustainable use of pollinators in agricultural production. Its results are relevant to all European countries and will be disseminated to a wide community of beneficiaries (scientists, farmers, beekeepers, industry, policy-makers, NGOs and the public).

(Descriptions are provided by the Actions directly via e-COST.)