

COST Action no. FA0804

Molecular Farming – plants as a production platform for high value proteins

2008 | 2013

Objectives

- To co-ordinate efforts in **Molecular Farming (MF)**, explicitly focusing on the key barriers that hinder rapid development and commercialization of products
- To ensure efficient establishment of a pipeline of second and third generation products to sustain the industry for the next two decades
- To broadly enhance awareness of the present EU regulatory burden on transgenic crops and specifically MF.

Main Achievements

- Thirteen successful workshops and WG meetings including the final conference were organized and 19 STSMs intended for training and education have taken place. The Action also took part in two trans-Action workshops.
- The Road Map of MF demonstrated promising future trends, verified the availability of a rich toolbox and showed a clear orientation towards products and production systems
- A MF Protein Expression database has been formulated and is fully operational <http://mped.ab.wur.nl/>
- As a dissemination effort, a leaflet on MF was made and updated; an article was published in Research Media Innovation International; and a Compendium entitled "COST guide to Molecular Farming" was published and distributed.
- Active interaction with EPSO and European stakeholders
- The ultimate outcome of the Action has been a sustainable European plant MF community with a clear framework for regulatory, bio-safety and IP issues as well as a concrete vision on how MF might meet industrial requirements. Establishment of the International Society for Molecular Farming is in progress.

www.cost.eu/fa**Food and Agriculture (FA)**

Participating countries

AT, BE, BG, CH, CZ, DE, DK, GR,
EE, ES, FI, FR, IL, IS, IT, LT, NL,
NO, PL, PT, SI, SE, UK

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Working Group activities

Working Group 1: Strategic development of MF

- WP1 was divided into four focus groups: Regulatory framework, Public perception/stakeholder interactions, Developing country aspects and IP licensing
- Current EU situation has been compared to the situation in the US and Action members being part of EFSA's GMO panel brought MF under the attention of the EU regulators. There have also been activities in educating school teachers and students on MF in the Netherlands, India and Uganda.
- A major success has been increased visibility of our Action through refreshing the Action website and publishing the updated leaflet - **Molecular Farming: a field of opportunity**
- The final outcome of all WGs has been summarised in the special issue of Current Pharmaceutical Design in which 16 peer reviewed papers on MF were published with explicit acknowledgements to the Action.

Working Group 2: Production systems and process development

- The aim of WG2 was to produce a critical evaluation of all current systems for the cost-effective production of valuable recombinant proteins in plants and plant cells
- WG2 highlighted new and attractive options for moving from the R&D phase to the clinic and to create market opportunities for SMEs and other corporate entities interested in the field of MF
- A survey was carried out among the participants to identify currently used production and down-stream platforms

Working Group 3: Target molecules – need and feasibility

- The aim of WG3 was to identify which molecules are promising candidates to produce from an industrial, clinical and academic point of view, and where industry, the clinic and academia are congruent in their opinion on producing target molecules through MF, where they diverge and why
- WG3 together with WG2 created an interactive database based on an inventory and literature survey to summarize the state-of-the-art in MF

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