**HORIZON 2020**

**PARTNER SEARCH**

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| **Call Information** | |
| **Call title** | EIT-Food-Food4Future - Sustainable Supply Chain from Resources to Consumers |
| **Call identifier** | EIT KICs Call 2016 |
| **Funding scheme** |  |
| **Deadline** | 14 July 2016 17:00:00 |
| **Partner search deadline** | N/A |

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| **Project Information** | |
| **Project title** | Specific production of secondary metabolites by editing genomes with CRISPR/Cas9 in microalgae. |
| **Abstract of the project** | Secondary metabolites are organic compounds that are not essential for normal development, growth and reproduction of plants/or algae. However, they play a significant role in the adaptation of plants to the environment and in overcoming stress conditions. Currently they are also attracting in the human diet as protective dietary constituents in long-term point of view. They are unique sources for food additives, flavour and fragrance ingredients and mainly as potential candidates for drug compounds that can have impacts on the incidence of cancer and chronic diseases. Due to their differently and specifically distribution among taxonomic groups within the plant and algae kingdom and structural complexity are very difficult to chemically synthesize in adequate yields. Therefore, there is a possibility targeted genome editing to produce specific compounds. The CRISPR/Cas9 system gives researchers the ability to precise control of gene expression. This system has been successfully applied in model plants *Arabidopis thaliana*, *Nicotiana tabacum* and also in crops such as wheat, maize, rice and tomato, however, remains challenging in microalgae.  The main aim of this project is to develop CRISPR/Cas9 method in microalgae with focusing to produce specific secondary compounds. Microalgae have already begun to show promise in the human nutrition but metabolomic analysis of nutrient and drug in the interesting microalgae and their targeted regulation is still missing. This implies that there is a big potential for improving and establishing a new generation of functional food.  Our laboratory has extensive experience with modern analytical facilities (HRMS, DESI, DART, AP MALDI, LC MS/MS, 2D UHPLC, HPTLC, SFE and SFC - supercritical fluid extraction and chromatography) and methods for determination of secondary metabolites, molecular biology, cultivation of plant cell culture and microalgae, SEM and TEM microscope, electrochemical microarray and capillary chip electrophoresis.  We are looking for the laboratory group primary focused on small RNAs biology, bioinformatics and with experience in CRISPR/Cas9 method. |
| **Further information** | TRL of our sub parts is 1.  For more, please, see http://af.mendelu.cz/239 |
| **Proposal development stage** | N/A |
| **Requested funding** | App. 400 000 Euro |

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| **Proposer** | |
| **Type of organization** | University |
| **Role in the project** | Partner |
| **Previous FP experience** |  |

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| **Target Partner(s)** | |
| **Type of organization** | SMEs, Universities, Research Organization |
| **Required skills and expertise** | * Integration * Facility to work with CRISP/Cas9, RNAi and GMO. * Bioinformatics experience |
| **Role in the project** | * We are looking to be partner |
| **Preferred countries** | N/A |
| **Keywords** | Bioengineering, functional food, secondary metabolites, small RNAs, CRISPR/Cas9, GMO, Algae |

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