

PROPOSAL AT A GLANCE

PROPOSAL NAME:	
<i>Engineering plastids to improve terpenoid biosynthesis in microalgae and plants</i>	
GRANT SCHEME	FP7 CAPACITIES –RESEARCH FOR THE BENEFIT OF SMES
TOPIC	
PARTNER SEARCH EXPIRES	1 NOV 2012
CALL DEADLINE	15 NOV 2012
GENERAL OBJECTIVES OF THE PROJECT	
<p>This project aims to improve native terpenoid biosynthesis in microalgae and plants. Beta-carotene and xanthophylls are produced in microalgae and plant plastids from isopentenyl pyrophosphate (IPP) which is in turn synthesized through the deoxy- xylulose phosphate pathway (DXP). We aim to introduce, via plastid transformation, new metabolic pathways as well as heterologous engineered enzymes to stimulate IPP and terpenoid biosynthesis. Plastid-based biotechnology has not been explored as a platform for terpenoid production and our company wishes to employ plastid transformation vectors developed in house for tobacco and <i>Chlorella</i> transformation as a new and promising approach. Our methods allow us to overexpress enzymes in plastids to very high levels (Patent application P200802288 in Spain).</p>	
SPECIFIC OBJECTIVES OF THE PROJECT AND RESEARCH CHALLENGES	
<p>Production of natural compounds in plastids has several advantages compared with bacteria. First, genetically modified microalgae are considered by the legislative directives as type 1 organisms with low or no risk associated to human health and environment. Second, plastids are the main natural source for beta-carotenes and other terpenes. Third, expression in plastids overcomes regulatory constraints of nuclear genes. A second partner will be an end user contracting an RTD that will optimize terpene extraction procedures with supercritical fluids.</p>	
KEYWORDS:	
PARTNER PROFILE SOUGHT	
<p>SMEs culturing microalgae from UK, France, Finland, Germany, Denmark and any other European country except Spain SMEs that screen microalgal strains for extraction of nutraceuticals, cosmetics, antioxidants etc. SMEs experienced in protein engineering with the possibility to add a RTD partner.</p>	
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CONTACT INFORMATION	
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