



**INFORMAL GROUP OF R&D LIAISON OFFICES (IGLO)**

**PARTNER SEARCH FORM**

**AREA OF INTEREST:**

**DATE OF PUBLICATION OF THIS FORM: 04/08/2011**

**ANSWERS EXPECTED BEFORE: 20/10/2011**

GENERAL INFORMATION	
<b>NAME OF ORGANISATION*: ENEA</b>	
<b>TYPE OF ORGANISATION*:</b>	
<input checked="" type="checkbox"/> Public body (Research organisation/university/lab) <input type="checkbox"/> SME/ SME association <input type="checkbox"/> Other private actor <input type="checkbox"/> Not for profit organization <input type="checkbox"/> Regional body/agency <input type="checkbox"/> Other (specify)	
CONTACT PERSON	
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TYPE OF PARTNER SEARCH*:	
<input checked="" type="checkbox"/> <b>FP7 SPECIFIC CALL</b> <input type="checkbox"/> <b>NO SPECIFIC CALL/EXPRESSION OF INTEREST (ONLY IF RELEVANT)</b>	
CONSORTIUM*	POSITION WITHIN CONSORTIUM*
<input type="checkbox"/> Create a new consortium <input checked="" type="checkbox"/> Join an existing consortium	<input type="checkbox"/> As a Coordinator <input checked="" type="checkbox"/> As a Partner
IF FP7 RELEVANT CALL: AREA OF INTEREST	
COOPERATION	CAPACITIES
<input type="checkbox"/> 1 – Health <input checked="" type="checkbox"/> 2 - Food, agriculture, fisheries and biotechnologies <input type="checkbox"/> 3 – ICT <input type="checkbox"/> 4 – NMP <input type="checkbox"/> 5 – Energy <input type="checkbox"/> 6 – Environment (including climate change) <input type="checkbox"/> 7 – Transports (including aeronautics) <input type="checkbox"/> 8 – SSH <input type="checkbox"/> 9 – Space <input type="checkbox"/> 10 – Security	<input type="checkbox"/> Research infrastructures <input type="checkbox"/> Research for the profit of SMEs <input type="checkbox"/> Regions of knowledge <input type="checkbox"/> Research potential <input type="checkbox"/> Science in society <input type="checkbox"/> Support to the coherent development of research policies <input type="checkbox"/> International cooperation
PEOPLE	IDEAS
<input type="checkbox"/> Initial Training Networks (ITN) <input type="checkbox"/> Intra-European Fellowships (IEF) <input type="checkbox"/> European Reintegration Grants (ERG) <input type="checkbox"/> Cofunding (COFUND) <input type="checkbox"/> Industry-Academia Partnerships and Pathways (IAPP) <input type="checkbox"/> International Outgoing Fellowships (IOF) <input type="checkbox"/> International Incoming Fellowships (IIF) <input type="checkbox"/> International Reintegration Grant (ERG) <input type="checkbox"/> Marie Curie "Researchers' Night" <input type="checkbox"/> Marie Curie Awards	<input type="checkbox"/> Starting Independent research grant <input type="checkbox"/> Advanced Investigator grants
<input type="checkbox"/> <b>EURATOM</b>	<input type="checkbox"/> <b>JRC</b>

\* Compulsory



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CALL DETAILS		
<b>CALL IDENTIFICATION (according to WP):</b> FP7-KBBE-2012-6-singlestage	<b>DATE OF PUBLICATION:</b> 20-07-2011	<b>CLOSURE DATE:</b> 15-11-2011
PROJECT INFORMATION		
<b>ACRONYME &amp; TITLE:</b> <i>Insects as source of food cryoprotectants</i>		
<b>SUMMARY*:</b> Freezing represents the most diffuse practice to store food, slowing down decomposition processes. The critical aspect of the cryotechnologies is the preservation of food texture integrity during freezing and thawing, as well as during storage. The control of temperature is fundamental, but the addition of cryoprotectants is often required to inhibit recrystallization, thus reducing the loss of nutrients and the microbial growth.  The study of the extraordinary capacity of some insect species to survive in extremely cold environments (i.e. icy waters, polar and alpine soils, glaciers) highlights a series of molecular adaptative mechanisms, the most interesting of which is the accumulation of antifreeze proteins (AFPs) that adsorb ice crystals and inhibit their growth. AFPs have been shown to be effective in the "vitrification" process, which is the ultrarapid cooling in the presence of cryoprotectants to avoid ice formation in cells and tissues. Applicative potential of the AFPs in processes of controlled freezing are reported in different biotechnological fields, from medicine to food. In particular, AFPs have been shown to be effective in the preservation of nutritional properties of frozen vegetables and meats and in the inhibition of ice crystal formation in dessert dough. The most remarkable advantages in the potential use of AFPs as additives in food freezing, compared to other cryoprotectants, are the high activity at low concentration and the reduced risk of toxicity and allergenicity, since these proteins are normally present in the diet (EFSA scientific opinion: EFSA-Q-2008-073). Among AFPs, described also in fish and plants, those from insects are still poorly characterized, in spite of the more interesting applicative potential due to their biological activity 10-30 folds higher compared to AFPs from other organisms.  We propose the isolation and the characterization of AFPs from cold adapted insects, choosing as animal model Diptera <i>Chironomidae</i> (non-biting midges) living in cold waters of alpine and polar regions. Our specific knowledge of the biology of these cold resistant insects, combined with our expertise on insect biotechnology, expression systems, proteomics, molecular biology, protein engineering, structural and functional biochemistry, immunology, allow us to propose the production in heterologous systems of well-characterized insect AFPs of high interest in food preservation processes.		
<b>KEYWORDS:</b> antifreeze proteins, food freezing, cryoprotectants, cold adaptation, insect biotechnology		
<b>TYPE OF PROJECT Funding scheme :</b> KBBE.2012.2.3-05 Insects as novel sources of proteins — SICA		
<b>PARTNERS ALREADY INVOLVED (Contact Name, Name of organization, e-mail address):</b> 1) Angiola DESIDERIO, ENEA – Rome - Italy, angiola.desiderio@enea.it 2) Valeria LENCIONI, Science Museum – Trento – Italy, lencioni@mtsn.tn.it		
PARTNER SOUGHT		
<b>COUNTRY (IES) (if relevant):</b> Partners from Member States or Associated Countries and from ICPC		
<b>EXPERTISE REQUESTED*:</b> Food processing and freezing		
<b>ROLE:</b> <input checked="" type="checkbox"/> Technology development <input type="checkbox"/> Research <input type="checkbox"/> Training <input type="checkbox"/> Dissemination <input type="checkbox"/> Demonstration <input type="checkbox"/> Other (specify): .....		
<b>ORGANISATION TYPE:</b> <input type="checkbox"/> Public body (research organisation/university/lab) <input type="checkbox"/> SME/ SME association <input type="checkbox"/> Other private actor  <input type="checkbox"/> Not for profit organisation <input type="checkbox"/> Regional body/agency <input type="checkbox"/> Other (specify)  <input checked="" type="checkbox"/> Any		
<b>HOW MANY PARTNERS ARE REQUIRED?</b> The call requires a minimal partnership composed by three participants from different Member States or Associated Countries and three from different ICPC.		

\* Compulsory