

# BIOTECH FOR BUSINESS



## FP7 SUCCESS FOR SHANNON ABC

Two FP7 (Seventh EU Framework Programme) projects being co-ordinated at Shannon ABC host Institutes, the Institute of Technology, Tralee (ITT) and Limerick Institute of Technology (LIT) commenced in September. The Framework Programmes are open to EU public and private entities of all sizes and incorporate provision for the participation of non-EU countries. Participation is based upon partnerships with different EU countries and offers valuable opportunities for Ireland's small and medium enterprises (SMEs), multinational corporations (MNCs), healthcare professionals and academic researchers to participate in high-quality research collaborations with their European counterparts, with the support of EU funding. The two project areas are in the 'Knowledge for Bio-Based Economy' (KBBE) and for 'Benefit of SME' sections.



*Dr Joanna Tierney*



*Dr Daniel Walsh*



*Dr Siobhan Moane*



*Dr Patrick Murray*

The SME project title is 'Development of a Rapid Cellular Characterisation Technology for use in the Bioprocessing Industry (PM-CELLS)' and is being delivered by researchers in ITT, led by Dr. Joanna Tierney. Dr Tierney is the co-ordinator of this project and brings her extensive expertise in the use of cellular characterisation technology to this project, as well as considerable experience in the life sciences sector.

The PM-CELL project is worth €1.5 million and seeks to develop a predictive assay designed for manufacturing processes of therapeutic monoclonal antibodies synthesised by mammalian cell lines. See page 2 for more details.

The KBBE project, 'Sustainable Production of Biologically Active Molecules of Marine Based Origin (BAMMBO)', is being delivered by researchers in LIT. The co-ordination team consists of Dr Siobhan Moane, Dr Daniel Walsh and Dr Patrick Murray and they are being supported in an administrative capability by Ms Kathleen Leamy. The background and expertise of the co-ordination team, as well as the capabilities of Shannon ABC were key to FP7 funding being awarded.

The commercial skills of Shannon ABC, together with a track record in bioactive molecules will provide unique guidance for the BAMMBO project. The BAMMBO project is worth €4.2 million and will investigate marine organisms as a source for bioactive molecules. See page 3 for more details.

## DIARY DATES

### ENTERPRISE IRELAND INNOVATION VOUCHERS

Results to be issued Mid-November

### FP7 KBBE CALL

Closes 15th November 2011

### FP7 SME CALL

Closes 6th December 2011

### IRCSET POSTDOC CALL

Closes 7th December 2011

# DEVELOPMENT OF A RAPID CELLULAR CHARACTERISATION TECHNOLOGY FOR USE IN THE BIOPROCESSING INDUSTRY (PM-CELLS)

The PM-CELL consortium involves eight European partners of four SMEs and four RTD (Research and Technological Development) performers. The RTD performers are the Institute of Technology Tralee (Ireland), University of Sheffield (UK), University of Limerick (Ireland), Veterinary Laboratory Agency (UK). The SMEs include Technopath (Ireland), IUL Instruments GmbH (Germany), Dorte Egelund ApS (Denmark) and Euformatics Oy (Finland). The project idea, conceived by the SME Technopath, addresses the issue of the real requirement and strong market demand for rapid characterisation testing methods.

The annual global biopharmaceutical market is currently valued at \$50 billion (€37.4 billion), projected to reach \$70 billion (€52.4 billion) by the end of the decade. Biopharmaceuticals, consisting of monoclonal antibodies and recombinant proteins have been established as innovative and effective treatments for a range of diseases and conditions, including cancer, autoimmune disease, viral infections, infertility and many others and this is why they are regarded as extremely high-value products. Biopharmaceuticals are derived from living sources including bacteria, yeast and mammalian cells with the majority (over

60%) produced in mammalian cells as they allow for the correct processing and formation of the product which cannot be achieved in other eukaryotic or bacterial hosts.

The demand for cell-derived biopharmaceutical products is increasing. This demand is caused not only by the fact that there are an estimated 600 biopharmaceuticals currently in the therapeutic pipeline but also because patent expiry on many big-selling popular branded products is giving way to a biosimilar market. There is also the constant drive to reduce cost to the patient and on the horizon is the advent of stem cell therapy products, expected to revolutionise many treatment options. Dr. Tierney sees these demands as crucial: 'As these factors are steering the development of high-yielding mammalian cell culture processes, the development of more efficient methods of cell line characterisation technologies in parallel is paramount. This is the market opportunity that the PM-CELL product responds to.'

For more information of Enterprise Ireland supports for SMEs who wish to be involved in FP7 Please click here: <http://goo.gl/fjxtP>



## AUTOMATION FOR TIME GENERATION

**- Do you want your staff to be productive on higher value projects?**

As part of Shannon ABC's extraction and characterisation suite we offer the contract usage of several pieces of high tech equipment to companies and organisations. One of these is the Biomek Automated Work Station.

The work station is an aseptic working environment that can be used to automate simple liquid handling tasks such as pipetting, dilutions, dispensing and is also capable of complex sequential processes. The Biomek Automated Work Station is provided with a dedicated technician and flexible pricing structure. Work smart – free up staff time to work on higher value processes. For more information please contact: Dr. Tim Yeomans e: [tim.yeomans@staff.ittralee.ie](mailto:tim.yeomans@staff.ittralee.ie)



# SUSTAINABLE PRODUCTION OF BIOLOGICALLY ACTIVE MOLECULES OF MARINE BASED ORIGIN (BAMMBO)

The BAMMBO consortium is made up of a multidisciplinary consortium of specialist research Scientists and SME industrial partners, consisting of 8 RTD performers and 2 SMEs. The partners encompass a range of countries including France, Ireland, Russia, Italy, Spain, Brazil, Portugal and Belgium.

BAMMBO will provide innovative solutions to overcome existing bottle-necks associated with culturing marine organisms in order to sustainably produce high yields of value-added products for the pharmaceutical, cosmetic and industrial sectors. BAMMBO will screen and identify target marine organisms (e.g. bacteria, fungi, sponges, microalgae, macroalgae and yeasts) from diverse global locations for potential as sustainable producers of high-added value molecules (HVAB's). The project will apply analytical methods for the extraction, purification and enrichment of targeted bioactive compounds. A detailed life cycle analysis of the production pathways developed in the project will be undertaken to fully evaluate the sustainability of production of biologically active products from marine organisms. BAMMBO will exploit knowledge and technologies developed during the project and effectively manage their transfer to relevant stakeholders in industry and the research community, as well as to policy-makers.

As well as leading the project management and scientific co-ordination of the project, Shannon ABC are also leading two further work packages – Extraction and Purification (WP4) and



Dissemination (WP8). Receipt of this European funding has resulted in the recruitment of two postdoctoral scientists to Shannon ABC – Dr Tanya Beletskaya and Dr Catherine Collins.

Their extensive experience in the areas of molecular biology, microbiology and biochemistry will further enhance the scientific capabilities of Shannon ABC.

In adhering to the European Strategy for Marine and Maritime Research this three year project will encourage capacity-building, integration and synergies across relevant marine sectors. Innovative technologies developed in the project will be demonstrated with the involvement of industry partners, and the results will be of interest not only to companies directly involved in the marine sector, but to other large scale industry players such as pharmaceutical companies with interest in added-value bioactive compounds.



## LAUNCH OF NEW SHANNON ABC WEBSITE

The latter stages of 2011 sees the launch of the new website for Shannon ABC. Our ethos and primary goals remain as commercially focussed as ever and the new format and content of [www.shannonabc.ie](http://www.shannonabc.ie) are intended to reflect this.

The website will be an evolving reflection of the vision and mission of Shannon ABC where you can keep up to date with the newsletters, services, FP7 collaborations and other activities of Shannon ABC.

## Industry Partners



### CONTACT SHANNON ABC:

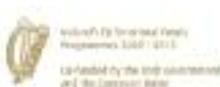
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# Case Studies

## Impact of Extracts of Marine Origin for Plant Protection

### THE COMPANY

Brandon Products is a leading biotechnology company that develops and commercialises products from marine raw materials. The resulting products are utilised in both plant and animal protection.

### THE QUESTION

Brandon Products wished to research and investigate the impact of various extracts of marine origin on plant protection, particularly against Fusarium wilt. Fusarium wilt is caused by a fungal pathogen – *Fusarium oxysporum* – that produces effects such as wilting, chlorosis, necrosis, premature leaf drop, browning of the vascular system, stunting, and damping-off. Marine raw materials have naturally occurring self-defence constituents and mechanisms that offer potential for use as bio protectants and are thus ideal candidates for 'bio-prospecting'.

### SOLUTION THROUGH SHANNON ABC

An extensive literature search was conducted into published literature on various marine extracts and methods. Following from this a number of extracts were developed and refined. The resulting extracts were screened for plant protectant ability with the most potent extracts being selected for further investigation and trialling. Controlled testing of the extracts on important crops were carried out over an eleven month period with significant outcomes that the company plans to continue to develop. In addition to identifying which extracts worked best the study identified the application methods, rates and timing to achieve the best outcomes.

This is a significant outcome to a project that will add value to Brandon Product's existing product line. The data generated by Shannon ABC, in the form of hard scientific facts, is now consistently used by the company as proof of the efficacy of their products. This 'academic marketing' approach has been used by some of industry's biggest names and is now also reaping dividends for Brandon Products with sales being won in key international markets, a direct result of the collaboration with Shannon ABC.

The positive impact of this collaboration has also resulted in further applied research and development projects. This includes a current project which has received funding from the Irish Research Council for Science, Engineering and Technology (IRCSET).