

NATURAL PRODUCTS

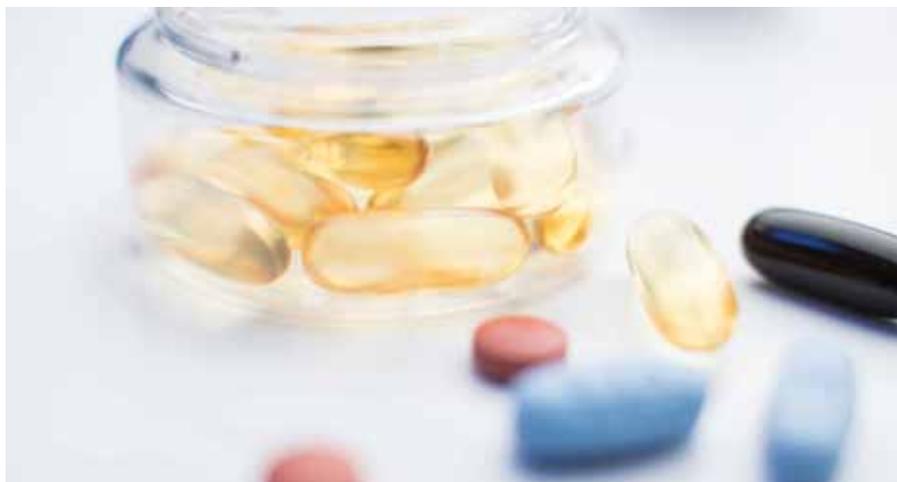
The Highlands and Islands
of Scotland, where life
science comes naturally





There is a growing global market in the use of natural products in pharmaceuticals, nutraceuticals and cosmeceuticals in response to increasing consumer awareness and interest in health and wellness and the benefits of natural ingredients. The Highlands and Islands are emerging as a sought after location for investors and researchers drawn by the rich and diverse terrestrial and marine flora and fauna as a source of raw materials for natural products.

This growing cluster includes innovative enterprises, excellent facilities and locations, world-class research, a skilled talent pool, and strong support for business from Highlands and Islands Enterprise (HIE) and the Scottish Government. The Highlands and Islands' international reputation for pristine environments and quality produce help to drive growth of its luxury food and drinks markets and provide a similarly strong platform for the sale of products containing naturally sourced ingredients.



A GROWING CLUSTER OF ACTIVITY

Natural products companies in the Highlands and Islands include BASF Pharma, the world's largest chemicals company. In 2012 BASF acquired then expanded a plant on the Isle of Lewis making commercial-scale quantities of highly concentrated omega-3 and omega-6 fatty acids from fish oil for the pharmaceutical, nutraceutical and food sectors. An Inverness based subsidiary of US global group Technology Crops International (TCI), specialises in research, development and commercialisation of novel plant-sourced ingredients for applications including, among others, skin and hair care formulations, cosmetics and natural perfumes. With HIE's assistance, the company is exploring the potential of bog myrtle for possible products.

GlycoMar, an Oban based firm screening compounds from marine micro-organisms to identify candidates for drug development in partnership with pharmaceuticals companies, also has potential interests in marine-sourced functional ingredients for personal care, food and drinks markets.

Seaweed is an important marine resource in the Highlands and Islands. It has a huge untapped biomass of Laminarian seaweed that offers considerable potential for a variety of applications. A range of species have been exploited commercially for centuries, a tradition that continues in more sophisticated ways.

The Hebridean Seaweed Company Ltd, Isle of Lewis, processes raw seaweed into high quality, environmentally friendly organic seaweed meal for use in animal feed supplements, soil fertiliser, alginate, cosmetics and nutraceuticals. Bòd Ayre Ltd, Shetland, harvests seaweed by hand from some of the cleanest, clearest waters in the world to produce 100 percent certified organic and natural seaweed fertilisers, plant food, animal feeds, and edibles.

There are initiatives underway to culture macro-algae both for bio-fuels and feedstock supplementation for coastal anaerobic digestion facilities. Technologies based

on single-celled micro-algae are also merging in the business arena. With support from HIE and Scottish Development International (SDI), Xanthella Ltd in Oban are manufacturing and exporting patented photo-bioreactors. These can be used to culture micro-algae for refining into bio-fuels and other valuable products such as Carotenoid pigments. Xanthella's bio-reactors are of significant interest to research teams and commercial customers.

The region has also witnessed steady growth in the number of craft businesses across the Highlands and Islands using natural ingredients in luxury toiletries and cosmetics. Examples include the Isle of Skye Soap Company, the Hebridean Soap Company and Arran Aromatics.



Malin House, European Marine Science Park, Argyll.

A UNIQUE ENVIRONMENT TO DO BUSINESS

There is a wide range of state of the art business locations throughout the Highlands and Islands, many of them available through HIE and its partners in areas including, among others, Inverness, Forres, Oban, Shetland, Orkney and the Western Isles. Parts of both the Inverness Campus and the Enterprise Park Forres, 28 miles West of Inverness, benefit from Enterprise Area status for life sciences companies. This offers added incentives including rates relief of up to £275,000 per business, simplified planning protocols and additional support for training and skills.

GlycoMar is a tenant of the European Centre for Marine Biotechnology operated by the internationally recognised Scottish Association for Marine Science (SAMS). SAMS is located at Dunstaffnage in Argyll alongside the newly completed European Marine Science Park, a multi-million pound investment by HIE. Malin House, the £7.5m first phase of the science park opened in 2012 to provide up to 20,000 sq ft of fully flexible laboratory and office space and incorporates marine science, research and development, education and commercial activity.

The combination of the European Marine Science Park, SAMS' marine science expertise, and wider academic links is expected to anchor a growing cluster of business and research organisations based around natural products. Xanthea and Sustainable Project Partners Limited (SPP) are among users of the Oban based Marine Resource Centre, a multi-tenanted industrial development with deep water access, freshwater supply and a range of facilities and infrastructure.



Micro-algae culture, Scottish Association for Marine Science

RESEARCH

Across the Highlands and Islands a number of institutions are active in research and development with applications in natural products. They include the University of the Highlands and Islands (UHI), SAMS, and the Centre for Health Science, Inverness. The Centre for Health Science is a leading location for diabetes and cardiovascular health research into active compounds in seaweed for inclusion in nutraceuticals to counter Type II diabetes. Collaborating with a wide range of Scottish universities including UHI, the Centre for Health Science engages the public, private and academic sectors in excellence in health science and biotechnology. The centre also has one of only five clinical trials facilities in Scotland, which offers dedicated staff, overnight studies and access to patient and clinical data.

Discussions within the business and academic cluster are underway to create a Scottish Natural Actives Programme (SNAP) through which academia would offer expertise to support companies developing products incorporating natural compounds. Suggested roles for SNAP include assessing the potential for extracting and refining more natural products from Highlands and Islands flora and fauna.

Scotland already offers a powerful research asset in the shape of libraries of natural products. These include: Europe's largest culture collection of algae and protozoa held at SAMS; Flora Celtica at the Royal Botanic Gardens, Edinburgh; the Natural Product Library at Strathclyde University, Glasgow; the Scottish Crop Research Institute plant

collections near Dundee; and the Aberdeen based National Collection of Industrial, Marine and Food Bacteria, the UK's largest reference collection of industrially and environmentally valuable microorganisms.

Business located in the Highlands and Islands can also access the wider pool of Scotland's research excellence through the Marine Alliance for Science and Technology for Scotland (MASTS). This pooling of marine research talent has a constituency of some 700 researchers with the management of resources consisting of over £66 million annually.



GlycoMar, Argyll

SKILLS

The Highlands and Islands is home to more than 80 organisations active within the life sciences sector and represents a large talent pool. More than 625 organisations and 31,000 employees in Scotland's life sciences industry create a wider pool.

The Highlands and Islands are served by a first-rate education system producing large numbers of high achievers at primary, secondary, further and higher education. University-level education is provided by UHI, a network of 14 colleges and research institutions and an associated network of 50 outreach learning centres, distributed throughout the region, providing local access to more than 7,500 students. SAMS, which is a partner institution of UHI, is at the forefront of marine science education. Among the latest additions to its syllabus is a Master's Degree in Algal Biotechnology, starting in autumn 2014.

ONE HOUR FROM MAJOR UK CITIES

The Highlands and Islands is well connected and accessible with daily flights from Inverness Airport to all major UK centres as well as international connections with Amsterdam and beyond. Inverness is therefore little more than an hour from London, Manchester, Birmingham, Bristol and Belfast. The current rollout of superfast, or next generation broadband, will further enhance the region's high speed digital connectivity, an essential part of Scotland's 21st Century infrastructure.

BUSINESS SUPPORT

Highlands and Islands Enterprise (HIE) is the Scottish Government's economic and community development agency for the north and west of Scotland. HIE generates sustainable economic growth by providing intensive support to business and communities and working with investors to assess new business opportunities.

HIE can provide assistance to find property to meet a company's needs and assist in recruiting and training new staff. Growth organisations located in the area can also benefit from on-going assistance via the HIE account management programme and be eligible for support including research and development grants of up to 70 percent, financial packages, business mentoring and advice, skills development programmes, new product development initiatives, international trade and marketing activities.





LERWICK

FOR FURTHER INFORMATION CONTACT

Donald Fowler

Senior Development Manager – Life Sciences

Highlands and Islands Enterprise

The Enterprise Centre
Kilmory Industrial Estate
Lochgilphead
Argyll
PA31 8SH
Scotland

T +44 (0)1546 605405

E donald.fowler@hient.co.uk

www.hie.co.uk/lifesciences



Highlands and Islands Enterprise
Iomairt na Gàidhealtachd 's nan Eilean