Power of biology:
Directory of UK engineering biology companies

GREAT
BRITAIN & NORTHERN IRELAND

Introduction

In its simplest form, engineering biology, or synthetic biology, is designing or redesigning cells and their components of living cells to do new and useful things. It is a multidisciplinary field that brings together expertise across engineering, biology and programming to create tools, processes, products and organisms that are cleaner, greener, more efficient and potentially more diverse.

Engineering biology has the potential to impact every aspect of our lives and offers solutions to many of the real-world challenges that we face today. As an enabling technology, the applications of engineering biology are vast. It could revolutionise healthcare, industry, and agriculture to help us reach Net Zero goals, and could be further leveraged with other innovative technologies such as data and artificial intelligence (AI).

In healthcare, engineering biology has been used as a toolkit to diagnose and fight diseases, develop personalised medicines and has opened the door to the huge potential of genetic medicines. It has even played a central role in the global fight against the COVID-19 pandemic, as the use of DNA and mRNA-based vaccine technologies have boosted the speed at which we can research, develop and produce vaccines.

This directory of UK engineering biology companies was produced by BIA in partnership with the Department for International Trade (DIT), to showcase the diversity of businesses working in this emerging and exciting sector.

The companies listed on the following pages are organised into three main application areas:

Engineering biology for healthcare

Engineering biology for industry

Engineering biology for agriculture

The directory is meant to be illustrative, not exhaustive, and inclusion in the directory does not imply government endorsement of the companies or their solutions.

For more information on how to connect with UK companies working in engineering biology, please contact: lifescience@trade.gov.uk

For all other enquiries, please visit: www.great.gov.uk/international/contact

Engineering biology for health

Adrestia Therapeutics

adrestia.com
info@adrestia.com

Adrestia are leaders in synthetic rescue, an approach that decodes the complexity of genetic networks to reveal new ways to treat diseases. Synthetic rescue offers a fresh approach: rather than targeting the causative mutation, a synthetic rescue drug modulates a related pathway, correcting the effects of the disease mutation and 'rescuing' cells from disease. Adrestia's platform includes multiple components, collectively designed to mine the entire human genome for genes that modify disease phenotypes. These insights are married with human genetic datasets to provide robust validation of new druggable targets and build an ever-growing synthetic rescue 'atlas' of the human genome.

AskBio

askbio.com
askbio.com/ask-anything-faqs

AskBio are on a never-ending quest to advance genetic technology to ultimately erase genetic disease. Using life-saving adeno-associated virus (AAV) vectors to deliver corrected genes, our clinical pipeline covers a broad range of central nervous system, neuromuscular, metabolic and cardiovascular disorders.

Basecamp Research

basecamp-research.com
explore@basecamp-research.com

Basecamp Research are building the most diverse dataset of labelled genomes from around the world, as a platform for machine learning (ML)-driven protein design, to share environmental genomic data with biotechnology innovators. They are a team united by a belief that nature has already designed the solutions to our planet's greatest challenges.

Engineering biology for health

Biocleave Ltd

biocleave.com
info@biocleave.com

Biocleave makes biological reagents accessible for pioneering life science applications. Their proprietary technology, coupled with the unique characteristics of clostridia, allows them to overcome the typical protein expression challenges of production host toxicity and costly development cycles.

Bio Rad

bio-rad.com
UK_contact@bio-rad.com

Founded in 1952, Bio-Rad serves life science research and clinical diagnostics customers worldwide through its global network of operations. Throughout its existence, Bio-Rad had built long-lasting customer relationships that advance the company's research and development efforts and support the introduction of innovative products and solutions that accelerate the discovery process and improve healthcare.

Bit.bio

bit.bio
info@bit.bio

bit.bio uses its opti-ox™ technology to reprogram human stem cells into functional human cells for research, drug discovery and cell therapy. Their breakthrough technology combines synthetic and stem cell biology, offering limitless possibilities and increased global sustainability. Enabling a new generation of cell therapies, providing the best human cells for research and drug discovery, and allowing the control of advanced synthetic biology circuits for biomanufacturing.

Engineering biology for health

Bitrobius

bitrobius.com
bitrobius.com/index

Bitrobius Genetics is developing the revolutionary Gentrafix™ platform for gene and cancer therapy, DNA vaccination and protein production. Their aim is to solve the major problem with gene therapy: the inability of therapeutic genes to reach most of the cells in an affected organ or tissue.

Camena Bioscience

camenabio.com
info@camenabio.com

Camena Bioscience is a synthetic biology company that has engineered new nucleic acid synthesis technology, which improves the quality and speed of synthesis. This multi-enzymatic technology offers increased accuracy over existing phosphoramidite synthesis methods and unlocks access to complex gene sequences.

Carbometrics

carbometrics.com
info@carbometrics.com

Carbometrics' mission is to help people with diabetes to live more normal and longer lives. Their principle technology is the world's most selective Glucose Binding Molecule (GBM) which is supported by over 20 years of cutting-edge research pioneered by Professor Anthony Davis' group at the University of Bristol, UK. Carbometrics was spun-out after the founders sold their first company Ziylo to Novo Nordisk. With Carbometrics' support, Novo Nordisk is using the GBM technology to develop a cutting-edge insulin – Glucose Sensitive Insulin (GSI). Alongside their goal to support this highly innovative project, Carbometrics' goal is to exploit the GBM technology further by developing it to create highly robust and accurate glucose sensing platform that can be used to create market-leading Continuous Glucose Monitoring (CGM) sensors.

Engineering biology for health

Causeway Sensors

causewaysensors.com
contact@causewaysensors.com

Causeway Sensors' novel nanosensor platform can integrate directly into bioreactors, accelerating the process of getting new drugs to market by giving critical data at currently inaccessible points in the drug development process.

CC Bio

bio-rad.com
UK_contact@bio-rad.com

CC Bio is harnessing the power of synthetic biology to engineer and edit the microbiome with surgical precision. Their goal is to eliminate microbiome-based disease in a potent, specific and prophylactic fashion, harmonising the relationship between eukaryotic and microbial cells. By considering the lifestyle needs of patients, and understanding each microbiome-based disease holistically, they are elevating this fundamental aspect of human health out of the antibiotic era, putting power back in the hands of the consumer.

Cellesce Ltd

cellesce.com
cellesce.com/contact

Cellesce Ltd is a biochemical engineering company that specialises in the development, scale up and manufacture of patient-derived organoids (PDOs). PDOs are self-organising cell structures that mimic the tissue or organ from which they are derived – they are often termed 'mini-organs'. PDOs provide a step-change improvement in the ability to screen drugs in models that are predictive of patient responses to those drugs, providing better data today and better drugs tomorrow.

Engineering biology for health

Chain Biotechnology Ltd

chainbiotech.com
info@chainbiotech.com

CHAIN Biotechnology develops oral vaccines and immuno-therapies targeting the lower gastrointestinal tract. CHAIN uses a highly effective Clostridium strain engineered to deliver therapeutic modality whilst also secreting metabolites that play key roles in gut and immune system homeostasis.

Crescendo Biologics

crescendobiologics.com
info@crescendobiologics.com

Crescendo Biologics is focused on novel T cell enhancing therapeutics in immuno-oncology. Crescendo's own pipeline is focused on immuno-oncology applications, however Crescendo is also able to partner in a number of technology applications and different disease areas.

CytoSeek

cytoseek.uk
info@cytoseek.uk

CytoSeek's mission is to use Artificial Membrane-Binding Protein technology to deliver the potential of the next generation of cell therapies, with a focus on treating solid tumours. Their current generation of AMBPs are designed to enhance homing/ retention, hypoxia-resistance, and immune function of therapeutic cells.

Engineering biology for health

DefiniGEN

DefiniGEN are a University of Cambridge supported company whose mission is to develop, produce and commercialize highly-predictive human cell disease models to improve the safety and efficacy process of testing drugs, which will help accelerate research during the candidate drug selection process, improve attrition and ultimately reduce costs. OptiDIFF their proprietary core technology is a world-leading production platform developed at the University of Cambridge for the generation of iPS cells, and their differentiation into commercially prioritized cell types, including liver, pancreas and intestinal cells.

definigen.com
info@definigen.com

Demuris

Demuris is unlocking the unexplored, complex, bioactive chemistry found in nature. Their platform is revolutionizing the natural product drug pipeline, from discovery to the clinic. The Demuris ACCESS system and other proprietary genomic methods enables the company to revolutionise the discovery of novel 'natural product' (NP) molecules and manipulate them to turn them into drugs. Demuris also owns one of the world's most valuable collections of actinomycete bacteria – probably the richest source of NP-based drugs. This collection has already provided a wide range of drug discovery projects, as well as underpinning a powerful Synthetic Biology tool box for making new and improved NP analogues for drug development.

demuris.co.uk
enquiries@demuris.co.uk

Engineering biology for health

Desktop Genetics

synbicite.com/collaborationPartners/desktop-genetics

Desktop Genetics is a UK-based biotechnology company building software tools for genome engineering, synthetic biology and cell line engineering. Desktop Genetics collaborates with the CRISPR community to design new genomics libraries and advance what's possible with CRISPR-Cas9 genome engineering. They use real-world lab data to fuel their machine learning pipeline and continuously improve the predictive accuracy of their platform.

Dr. Reddy's

drreddys.com
shares@drreddys.com

Established in 1984, Dr. Reddy's Laboratories (NYSE: RDY) is an emerging global pharmaceutical company. Dr. Reddy's conducts NCE research in the areas of metabolic disorders, cardiovascular indications, anti-infectives and inflammation.

Emergex Vaccines

Emergex Vaccines is a clinical stage, privately-held, biotechnology company focused on addressing some of the world's most immediate health threats, including viral diseases and intra-cellular bacterial infections. Emergex is developing a pipeline of innovative CD8+ T-Cell Adaptive Vaccines that have the potential to deliver fast, broad and long lasting immunity to reduce serious illness associated with infectious diseases. Emergex's vaccines are entirely synthetic, which means that they do not require biological steps to be manufactured, and in turn do not introduce live viruses, RNA or DNA into people. An added benefit is that synthetic vaccines can be stored at ambient temperature, avoiding the need for refrigeration or freezing and making vaccination much more convenient all around the world. Their T-Cell vaccine candidates have also been designed to be delivered trans-dermally, avoiding the need for traditional needles and intra-muscular injections.

emergexvaccines.com
info@emergexvaccines.com

ETAL Skincare

ETAL is a skincare brand with a difference. Their mission is to build awesome skincare products with scientific integrity. The ETAL team met on the MSc Technology Entrepreneurship course at University College London last year, and started exploring different uses for natural antioxidants in skincare before founding the company in 2015 and starting work on their first niche product: the world's first stretch mark solution built specifically for men. ETAL are now focused on launching Scar Stretch Protect.

Engineering biology for health

Evonetix

evonetix.com
info@evonetix.com

Evonetix is developing a radical approach to gene synthesis. Their desktop DNA synthesis platform will provide the ability to synthesise DNA at unprecedented accuracy, scale and speed, accelerating scientists' ability to use biology on a scale not currently possible.

Fujifilm Diosynth Biotechnologies

fujifilmdiosynth.com/cell-culture/cell-line-development
fujifilmdiosynth.com/contact-us

FUJIFILM Diosynth Biotechnologies offers industry-leading cGMP contract manufacturing services for recombinant proteins, vaccines, and monoclonal antibodies. FUJIFILM Diosynth Biotechnologies has a long track record in enabling customers to improve the cost-effectiveness and profitability of new therapies by providing fast-track progress into and through their clinical development program, validation, and commercialisation. This is backed by strong technical expertise and first-class manufacturing facilities. They offer an extensive breadth of process development and cGMP drug manufacturing experience to meet your needs at every stage of your product lifecycle from efficient protein expression, process design and cGMP manufacture through to process validation and commercial production.

Generon

generon.co.uk
info@generon.co.uk

Generon produce tools for structural biology, immunology, cell biology, molecular biology and biochemistry such as stains, antibody delivery reagents, MHC Tetramers and ultrafiltration products.

Engineering biology for health

GSK

gsk.com/en-gb/home
GSK.Investor-Relations@gsk.com

GSK are a science-led global healthcare company. They research and develop a broad range of innovative products in three primary areas of Pharmaceuticals, Vaccines and Consumer Healthcare. GSK's vaccines business is one of the largest in the world, producing paediatric and adult vaccines against a range of infectious diseases. In 2014, they distributed more than 800 million doses to 170 countries, of which over 80% were supplied to developing countries. They also have a significant global presence with commercial operations in more than 150 countries, a network of 84 manufacturing sites in 36 countries and large R&D centres in the UK, USA, Spain, Belgium and China.

GyreOx Therapeutics

gyreox.com
info@gyreox.com

GyreOx's proprietary discovery platform creates unique Gyrocycle™ highly modified macrocyclic peptides, which combine the target-engagement power of biologics with the cell-entry ability of small molecules.

The Company is focused on creating novel medicines addressing complex intra-cellular targets in a wide range of diseases. Its proprietary platform technology is based on a combination of chemistry and synthetic biology deploying a set of rationally engineered enzymes.

Engineering biology for health

Iksuda Therapeutics

iksuda.com
info@iksuda.com

Iksuda Therapeutics is creating next-generation, class-leading ADCs which target difficult-to-treat cancers, including those that are resistant or refractory to current therapies. ADCs represent a powerful addition to cancer treatment, with a mechanism that permits the delivery of potent cytotoxic agents directly to cancer cells using monoclonal antibodies that target tumour-specific antigens. This selective approach to delivery of tumour killing payloads results in superior efficacy and fewer side effects for patients.

Imophoron

imophoron.com
contact@imophoron.com

Imophoron is changing the way we make vaccines, to provide the world with the next-generation of therapeutics for unmet medical needs and future threats. Imophoron is a pre-clinical stage company with a novel vaccine platform called ADDomer. ADDomer is a patented technology for creating highly immunogenic vaccine candidates and is multimeric protein-based, self-assembling nanoparticle scaffold. Proof of concept data for two highly infectious diseases demonstrate potential to prevent disease and transmission.

Engineering biology for health

Ingenza Ltd

Ingenza is a biotechnology company specialising in the design, development and manufacture of diverse, high-value industrial products and therapeutic-proteins. They exploit synergies between synthetic and evolutionary biology, providing next generation microbial and mammalian manufacturing platforms. Ingenza engineers biological systems to make everything from enzymes to therapeutics to sustainable materials. Ingenza's understanding of nature, combined with their engineering biology toolbox, allows their customers to advance and deliver products addressing key challenges in human health and the global environment.

ingenza.com
sarah.scott@ingenza.com

LabGenius

LabGenius has developed EVA - an autonomous AI-driven evolution engine for the design and discovery of high-value proteins. The company uses its platform technology to develop new products in partnership with world-leading multinationals. LabGenius is based in Central London and run by a passionate team of synthetic biologists, data scientists and engineers. LabGenius engineers proteins with both enhanced and entirely novel functionality. The technology underpinning this capability integrates machine learning, gene synthesis and robotic automation.

labgeni.us

Engineering biology for health

Leaf Expression Systems

leafexpressionsystems.com
info@leafexpressionsystems.com

Leaf Expression Systems are experts in the expression and production of proteins, including antibodies and allergens, enzymes and vaccines. Their protein production services use our plant-based transient expression technology and as a result, delivers rapid, scalable production of quality products that are competitive to produce.

LIFNano Therapeutics

lifnano.com
lifnano.com/contact

LIF, short for Leukaemia Inhibitory Factor, is a small blood-borne protein functioning to repair damaged tissues throughout the body, including damaged neurons in the central nervous system, making it a highly attractive treatment for neurodegenerative diseases. LIFNanoRx's ground-breaking technology means that - for the first time - LIF can be delivered in a controlled and targeted manner for therapy. By packaging measured amounts of LIF into tiny "nano" particles, molecular engineering ensures that the particles home to sites of need using a unique particle coating of target-specific antibody. This antibody coating can be designed to pass the particles through the blood-brain-barrier before releasing their cargo of LIF.

Mancheseter BIOGEL

manchesterbiogel.com
info@manchesterbiogel.com

Manchester BIOGEL (MBG), is a leader in the design and manufacture of peptide hydrogels that are redefining cell culture for life sciences. They provide reproducible, chemically defined peptide hydrogels to meet your cells' needs. Their products are supplied ready to use and specifically designed for use in 2D and 3D cell culture, bioprinting, tissue regeneration and drug discovery.

Metrion Biosciences

metrionbiosciences.com
info@metrionbiosciences.com

Metrion Biosciences is a specialist ion channel contract research organisation providing drug discovery services to pharmaceutical and bioscience customers worldwide. They provide a range of exceptional ion channel electrophysiology expertise and services. These services include high-quality, cost-effective compound screening assays, detailed characterisation of lead compounds in human cells and native tissue, as well as confirmation of efficacy in stem cell and other phenotypic models.

Micregen

micregen.com
info@micregen.com

Micregen has a unique understanding of how stem cells can be manipulated to produce potent stem cell secretions, known as Secretomix. Secretomix, as a new class of patent protected products are anticipated to deliver novel regenerative therapeutic approaches which are allogeneic, scalable and have application across a wide range of diseases. Secretomix facilitate cell repair, reduce inflammation, reduce scarring, improve blood flow and generate a pro-regenerative microenvironment across a wide range of organs and tissue types. Micregen believe that their innovative approach has the potential to change the way that multiple critical and chronic problems are managed.

Engineering biology for health

Nuclera

nuclera.com
hello@nuclera.com

Nuclera's eProtein synthesis bio-ink empowers scientists to perform protein discovery in 24hrs. Their bio-inks enable users to screen and print proteins through a diverse range of nature's biofactories (organisms) and find the best expression system for their unique needs. Their unique eProtein synthesis bioinks are whole cell extracts - cell free protein synthesis systems that benefit from the complex bio machinery present in cells without the need for specialised equipment. Using eProtein synthesis bio-ink significantly reduces hands-on time. It enables the production of 'difficult' proteins such as transmembrane or toxic proteins and can increase yields of functional, soluble protein.

Ochre Bio

ochre-bio.com
contact@ochre-bio.com

Ochre Bio develops RNA therapies for chronic liver diseases. Ochre Bio's approach is firmly rooted in computational and systems-driven learning. Ochre Bio brings an extra dimension to drug development data, called deep phenotyping, this studies how genes and cells talk to each other and how this changes with disease. By using machine learning to integrate genomics with physiology in 100% human models, they hope to decode the complexity of the liver for better drug discovery.

Engineering biology for health

Oxitec

oxitec.com/en/home
info@oxitec.com

Oxitec is the leading developer of biological solutions to control pests that transmit disease, destroy crops and harm livestock. They seek to democratize the fight against these insects by making their technologies accessible to a broad and diverse range of stakeholders, including those who are underrepresented.

OxSyBio

OxSyBio, are developing 3D printing techniques to produce a range of tissue-like and functional tissues for medical research and clinical applications. Their vision is to ultimately produce tissues that can be used in the clinic for organ repair or replacement.

Phenotypeca

phenotypeca.com
info@phenotypeca.com

Phenotypeca is a yeast Biofoundry business. They have the world's largest collection of yeast strains engineered for industrial recombinant protein production, comprising up to a billion genetically distinct strains. Phenotypeca will create and own yeast synthetic biology solutions to make any recombinant protein, but initially vaccines, diagnostics and therapeutic proteins. Their mission is to make life-saving medicines more affordable and accessible to all of those who need them.

Engineering biology for health

Prokarium Ltd

prokarium.com
info@prokarium.com

Prokarium is a biopharmaceutical company pioneering the field of microbial immunotherapy, focusing on transforming the treatment paradigm in bladder cancer. They build on the natural ability of our bacterial strains to seek out and colonise solid tumours. They have developed attenuated strains capable of targeting tumours without causing pathology in normal tissues. These strains are also capable of delivering specific immunostimulatory cargo aimed at activating the patient's immune system to destroy tumours.

Pulse Medical Technologies

Pulse Medical Technologies is a company that is developing novel dressings for improved wound healing. Pulse Medical Technologies is part of a European Project (AMETHYST) to develop and characterise smart dressing materials exploiting printed electronics to control the cell biology and bacterial loading of the wound. The prototype of this innovative research is being taken forward to market and clinical testing of this medical engineering device. Pulse medical believe that synthetic biology has a lot of potential for the development of regenerative medicine products.

Engineering biology for health

Rosa Biotech

rosabio.tech
info@rosabio.tech

Rosa Biotech aims to provide patients and clinicians with the benefits of early diagnosis of a broad spectrum of diseases by combining the power of protein design and machine learning. Rosa's multidisciplinary team has demonstrated that its innovative sensing platform, Pandra, can detect life-threatening diseases with high accuracy in patient samples. They are currently collaborating with scientists, clinicians and industry to further develop and validate Pandra, and bring our first tests into the clinic.

Sixfold Bioscience

sixfold.bio
sixfold.bio/contact

Sixfold were founded to tackle the biggest challenge in RNA therapeutics: how to safely deliver RNA to diseased cells. They are an inclusive, diverse and highly motivated team of engineers, builders, scientists and operators redefining the future of RNA.

Sphere Fluidics Ltd

spherefluidics.com
info@spherefluidics.com

Sphere Fluidics combine their knowledge and resources to help their customers find rare and valuable biological variants, while helping them to save time, reduce costs and stay a step ahead of the competition. Their novel single cell analysis systems offer the rapid screening and characterisation of single cells. These systems are underpinned by their patented picodroplet technology, specifically designed to increase their customers chances of finding that rare 'one-in-a-billion' molecule or cell that could be an industry blockbuster.

Engineering biology for health

Synthace

synthace.com
hello@synthace.com

Synthace is a software company enabling life science, the way it should be done. Delivering a life sciences R&D cloud to scientists who want to innovate faster, the Synthace platform seamlessly automates experimentation and insight sharing so that scientists can focus on asking the most impactful questions and unlock the true potential of biology.

Theolytics

theolytics.com
enquiries@theolytics.com

Pulse Medical Technologies is a company that is developing novel dressings for improved wound healing. Pulse Medical Technologies is part of a European Project (AMETHYST) to develop and characterise smart dressing materials exploiting printed electronics to control the cell biology and bacterial loading of the wound. The prototype of this innovative research is being taken forward to market and clinical testing of this medical engineering device. Pulse medical believe that synthetic biology has a lot of potential for the development of regenerative medicine products.

Touchlight Genetics Ltd

touchlight.com
touchlight.com/contact

Touchlight Genetics is a UK based DNA technology company. Touchlight have developed a novel, synthetic DNA vector (dbDNA™) and enzymatic manufacturing process, which enables us to produce DNA at unprecedented speed, scale and purity. Using their patented enzymatic DNA production platform, they are supporting partners that are advancing genetic medicine.

Visbion Ltd

visbion.com
visbion.com/contact/general

Visbion is a world leader in medical imaging software providing Dicom, Picture Archive and Communications Systems (PACS) solutions to the healthcare, veterinary and life sciences markets. They work closely with their customers to provide competitive solutions that meet their specific needs today and in the future. Reliability, flexibility and first class service are part of the fabric of Visbion's product offerings.

Engineering biology for industry

Agilent

agilent.com
agilent.com/en/contact-us/page

Agilent is a leader in life sciences, diagnostics and applied chemical markets. The company provides laboratories worldwide with instruments, services, consumables, applications and expertise, enabling customers to gain the insights they seek. Agilent's expertise and trusted collaboration give them the highest confidence in our solutions.

Airlite

airlite.com/en
airlite.com/en/about

Airlite have created a paint with the lowest environmental impact in the whole sector, that allows you to sanitise the walls from bacteria and viruses and eliminate toxic substances from the air we breathe. Airlite is a technology inserted inside a 100% mineral paint capable of purifying the air in a completely natural way, this technology copies nature to produce air purifying ions at the painted surface.

Bento Bioworks

bento.bio
sales@bento.bio

Bento Bioworks believe the world is ready for personal biotechnology tools. Their mission is making great products that enable everyone to work with biology as a material and a technology. Safely, conveniently and creatively. Bento Bioworks make tools for scientists, pioneers, learners, artists and makers.

Biome bioplastics

biomebioplastics.com
info@biomebioplastics.co.uk

Biome Bioplastics is one of the UK's leading developers of intelligent, natural plastics. Bioplastics are made partly or wholly from sustainable plant sources and are often biodegradable, composting at the end of their useful life. Their mission is to produce bioplastics that can challenge the dominance of oil-based polymers, and ultimately replace them completely.

The Biorenewables Development Centre

biorenewables.org
biorenewables@york.ac.uk

The Biorenewables Development Centre (BDC) is developing ways of converting plants and wastes into products. The BDC is an open-access R&D biorefinery centre, working at the interface between academia and industry to scale-up and commercialise bio-based products and processes. They bridge the gap between laboratory development and commercial manufacture.

BlueGene Technologies Ltd

BlueGene Technologies Ltd is a Biotechnology start-up based at the Imperial College Incubator. Applying synthetic biology, bioinformatics and advanced molecular biology know-how, BlueGene's speciality is developing unique microbial strains and technologies for bio-conversions of low-cost starting compounds to high-value chemicals and the production of novel chiral precursors for use in organic syntheses. BlueGene's vision is to replace existing bulk industrial chemical production methods with efficient, environmentally safe bio-conversions that avoid the use of toxic chemicals, prevent formation of unwanted side-products and reduce waste.

Engineering biology for industry

CelluComp

cellucomp.com
enquiries@cellucomp.com

CelluComp are working to develop and commercialise Curran®, a material developed from the extraction of nanocellulose fibres of root vegetables, primarily from sugar beet pulp (a by-product of the sugar industry). Curran® offers exceptional mechanical properties compared to other fibre reinforcements at an affordable price. Curran® has the capability to enhance products in sporting goods, construction, paints, automobile, marine and many more potential applications.

Celtic Renewables

celtic-renewables.com

Celtic Renewables aims to re-establish, at a global scale, the Acetone-Butanol-Ethanol (ABE) fermentation process, utilising local low value materials to produce low-carbon, high-value sustainable products. The company will continue to innovate, enhance and optimise their patented technology in terms of science, engineering and manufacturing excellence, to develop world leading biorefineries in key locations that will grow local economies and shareholder value.

Croda

croda.com/en-gb
croda.com/en-gb/contact-us

Croda focus on developing and delivering innovative, sustainable ingredients that our customers can build on. They are the name behind the high-performance ingredients and technologies in some of the biggest, most successful brands in the world. They are built on a foundation of turning renewable raw materials into innovative ingredients. They harness innovation to create market-leading products and ensuring that we have a positive effect on our environment and society.

CyanoCapture

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CyanoCapture aims to provide affordable, long term carbon capture on an industrial scale by harnessing genetically modified cyanobacteria. They envision a solution to be at the centre of the global roadmap towards achieving 'Net Zero' by 2050. CyanoCapture provides point-source carbon capture to power stations, cement factories and other emission sites. The CCS technology costs industries less to capture each tonne of CO2 than the cost which would otherwise be paid in emission tax. CyanoCapture buries its excess biomass and bioproduct deep underground in approved geological facilities - qualifying us as true CCS. A 750m x 600m area CyanoCapture installation is estimated to be able to capture 0.10-0.15 million tonnes of CO2 each year for the adjacent power plant, saving up to 5.2 million Euros in tax.

CyBio

analytik-jena.com/products/liquid-handling-automation/lab-automation
info@analyik-jena.com

CyBio AG, through its subsidiaries, engages in the development, manufacture, and marketing of laboratory systems and equipment, and related software. The company's products are used in drug discovery, plate production, genomics, and proteomics. The company operates in the United States, Europe, and Asia.

Engineering biology for industry

C3 Biotech

The fuels of today can be the fuels of tomorrow. Like it or not, carbon-based fuels are the only way to supply a great many of our global energy needs. C3 BIOTECH is pioneering solutions that enable global markets to continue using conventional carbon-based fuels through effective carbon management without increasing the net amount of CO2 emitted into our environment, thereby meeting net zero carbon targets. C3 BIOTECH is engineering biology to bio-manufacture hydrocarbon fuels from major industrial wastes including CO2. These can then drop into existing supply chains as sustainable replacement fuels.

c3biotech.com
corporate@c3biotech.com

Deep Branch

Harnessing the power of microbes, Deep Branch's proprietary CO^2-to-protein platform converts clean carbon dioxide and hydrogen into high-quality ingredients to support a more sustainable food system. Proton™, a single-cell protein, is optimised for animal nutrition. It is not just environmentally-friendly, but also provides a continuous supply of a price-stable, price-competitive and nutritionally optimal macro ingredient. Proton™ offers a 90% saving on carbon footprint.

deepbranch.com
kyra@deepbranch.com

Engineering biology for industry

FabricNano

fabricnano.com
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A revolutionary new cell-free approach to producing chemicals with the goal of replacing all fermented and petrochemical products in the world with biomanufactured alternatives. The team at FabricNano is developing a first-of-its-kind, DNA-based flow reactor to unlock the future of biochemistry. The use of DNA as a scaffold allows high spatial precision, while the ability of enzymes to attach anywhere along a string of DNA provides deep flexibility.

Greenergy

greenergy.com
mail@greenergy.com

As Europe's largest manufacturer of waste-based biodiesel, renewables are integral to Greenenergy's core strategy. Their global supply chains give them flexibility to source the lowest-cost feedstocks and produce renewable fuels in the most efficient way, ensuring reliable supply to their marketing-leading customers.

Helistrat

Helistrat are a UK based contract management partner delivering sustainable environments for waste management. They strive to deliver an innovative approach to waste management and facilities that is agile enough for the demands of a successful corporate organisation. They are focused on helping you to deliver measurable operational and financial benefits while meeting exacting environmental and legislative standards.

Engineering biology for industry

HydRegen

hydregenoxford.com
hydregenoxford.com/contact

HydRegen are developing bio-based manufacturing technologies, primarily for the fine chemicals and pharmaceutical sectors, that provide advantages at both early and late stages of synthesis and process design. Their biotechnologies centre on improving the use of NADH-dependent redox biocatalysts by powering these enzymes with hydrogen gas, to mimic metal catalysed hydrogenations which benefit from up to 100% atom efficiency, providing excellent resource efficiency.

Industrial Microbes

imicrobes.com
info@imicrobes.com

Gas fermentation is an advanced technology in which microorganisms convert inexpensive or waste greenhouse gases into new materials. Unlike traditional chemical manufacturing, gas fermentation produces only harmless byproducts and can be powered by renewable energy. iMicrobes is a growing synthetic biology startup backed by Y Combinator. Their mission is to use raw materials and recycle waste for chemical production, polymers, agriculture and space exploration. iMicrobes' microbial platform is covered by multiple patent families in countries around the world.

The John Innes Centre

jic.ac.uk
comms@jic.ac.uk

The John Innes Centre is an independent, international centre of excellence in plant science, genetics and microbiology. Their research aims to address global challenges and our knowledge of plants and microbes is used to answer fundamental questions, as well as having a significant impact on industrial biotechnology, society and global development.

Lonza Group Ltd

lonza.com
lonza.com/contact

As a worldwide leader supplying the pharmaceutical and biotechnology industries with biopharmaceuticals, Lonza furnishes different markets with state-of-the-art products, services, and research. Their customers range from professionals within the pharmaceutical, biotechnology, academic, and government research industries to manufacturers of consumer and health products, distributors, formulators, and service companies.

Oil Plus

Water quality and other production chemistry issues can diminish system efficiency if left unchecked — and experience is essential when it comes to testing and treatment. Souring may affect the materials of construction; scaling and other production chemistry issues may affect layout or require chemical dosing and, if water is to be injected, the rock injectivity will determine filtration requirements. As a world-leading independent consultancy in oilfield and gas field water management, their team can provide everything from on-site water testing and laboratory analysis to specialty monitoring equipment and topside separation solutions.

Engineering biology for industry

Oxford Biotrans

oxfordbiotrans.com
info@oxfordbiotrans.com

Oxford Biotrans produces high-value chemicals using patented enzyme technology. This enzymatic process yields natural-grade products from natural feedstocks through an environmentally friendly process. This avoids the use of harsh reagents and conditions of many synthetic processes, thus producing less chemical waste and using less energy.

Oxford Molecular Biosensors

omb.co.uk
info@omb.co.uk

Oxford Molecular Biosensors is based on novel technology that can detect metals, organics and biological toxins at ultra-low concentrations. These can be deployed to monitor and manage the processing of industrial wastewater and environmental pollution, which combined with their expertise, can provide new and unique solutions to waste remediation.

Phycobloom

phycobloom.com
info@phycobloom.com

Using the power of synthetic biology, Phycobloom's algae will continually release oils into their surroundings. This makes the oil easier to collect without damaging the algae themselves. Genetic engineering allows Phycobloom's algae to produce much more oil in less time, at a far lower cost than existing options.

Engineering biology for industry

Polymateria

polymateria.com
info@polymateria.com

Polymateria provides a tailored biodegradable solution for conventional plastic packaging, aiming to stem the global plastic pollution endemic. Polymateria's revolutionary Biotransformation technology is a new approach to ensuring that plastic, which has escaped refuse streams, can be fully biodegradable in the natural environment.

Puraffinity

puraffinity.com
info@puraffinity.com

Puraffinity specialises in designing and manufacturing novel materials for environmental benefit. They combine chemistry and material engineering to architect molecular structures that exhibit a high affinity towards target compounds and bind them effectively. Focusing initially on PFAS removal, Puraffinity has developed an innovative absorbent media, allowing an easily deployable, highly cost effective solution that selectively captures contaminants.

Riffyn

riffyn.com

Riffyn provides visual tools to help laboratory researchers design, analyse and collaborate on experiments with uncompromising quality and surprising ease. Riffyn is cloud software that supports the full design and learning cycle inherent to scientific discovery. Riffyn improves experimental reproducibility in life science, chemical and materials R&D, smooths scale-up to clinics or manufacturing, and simplifies tech transfer among collaborators and organisations.

Engineering biology for industry

Scindo

scindo.bio
info@scindo.bio

Scindo is creating a novel biological platform to turn low-value plastic landfill waste into high-value molecules. The company is a cleantech start-up harnessing the power of enzymes to recycle the unrecyclables, targeting plastics that cannot be efficiently recycled with current methodologies.

Shellworks

theshellworks.com
hello@theshellworks.com

Shellworks believe there is a better way to package products, creating truly sustainable alternatives to plastic packaging. After two years of experimentation and testing, they are launching Vivomer, a completely vegan and compostable material, made with help from microbes. Vivomer is designed to degrade in any natural environment without leaving behind harmful microplastics.

Tensei

tensei.co.uk
info@tensei.co.uk

Tensei are specialists in material innovations that help protect the planet. They utilise alternative natural fibres, such as utilising agricultural waste crops, to engineer the next generation of materials. They are a specialist team of fibre technologists, biochemists and process engineers, able to create formulations using plant fibres to match existing specifications or create whole new materials to explicit performance capabilities.

Thermo Fisher Scientific Inc.

thermofisher.com/uk/en/home.html
investorrelations@thermofisher.com

Thermo Fisher Scientific Inc. is a group of 5 companies (Thermo Scientific, Applied Biosystems, Invitrogen, Fisher Scientific and Unity Lab Services) and is the world leader in serving science, with revenues of $17 billion and approximately 50,000 employees in 50 countries. Thermo Fisher Inc. enables their customers to make the world healthier, cleaner and safer, helping them accelerate life sciences research, solve complex analytical challenges, improve patient diagnostics and increase laboratory productivity. They offer a combination of innovative technologies, purchasing convenience and comprehensive support.

Engineering biology for agriculture

Algenuity

algenuity.com
info@algenuity.com

Algenuity serves the algal biotech industry at a foundational part of the value chain. Algenuity researches, develops, manufactures and provides labscale photobioreactors to optimize growth parameters and algal genome modification services to increase desired traits and to harness microalgal strains as synthetic biology chassis organisms.

APS Biocontrol Ltd

apsbiocontrol.com
hello@apsbiocontrol.com

APS Biocontrol Ltd. develops biocontrol solutions for the management of bacterial diseases and other microbial contaminants in agriculture and food processing. APS' patented Biolyse technology (based on naturally-occurring antimicrobials; bacteriophage) provides safe, effective and environmentally-sustainable replacements to synthetic chemicals.

Arcitekbio

arcitekbio.co.uk
arcitekbio.co.uk/contact

ARCITEKBio is a cleantech business whose bio-manufacturing platform allows C5 sugar waste/processed streams to be converted into xylitol, the world's leading sugar substitute. EcoXyl, with a highly efficient biomanufacturing process, offers a disruptive solution into this large and evolving market. Their IP protected bio-manufacturing platform offers a high yield, low cost and environmentally sustainable solution for the $1bn xylitol market.

Engineering biology for agriculture

Axitan

Axitan aims to facilitate a cost effective transition away from conventional antibiotics within the animal agriculture industry. They aim to tackle some of the industries main challenges by applying cutting edge algal biotechnology to deliver innovative products that support production, focusing on improving yield, quality and profitability. The single-celled green alga Chlamydomonas reinhardtii is highly nutritious. It is rich in proteins, lipids, carbohydrates, pigments, vitamins and minerals. It is also free from endotoxins, viral, and prion contaminants compared to other production hosts. It therefore is the ideal platform to produce, naturally encapsulate, and deliver useful recombinant proteins. Axitan's green powder is also temperature-stable, helping to alleviate product lifetime and storage concerns. This simple 'drop-in' solution can be added directly into animal feed. No additional infrastructure or training is needed.

axitan.com
info@axitan.com

Better Dairy

Building the future of food, starting with dairy. Dairy production is currently hugely unsustainable and also highly inefficient. At Better Dairy, precision fermentation is being used to produce the same foods that customers enjoy without the use of animals.

betterdairy.co.uk
info@betterdairy.co.uk

Engineering biology for agriculture

Better Origin

betterorigin.co.uk
contact@betterorigin.co.uk

Better Origin X1 is an AI-powered insect farm that combines insects' power to upcycle nutrients with cutting-edge technology. The X1 is an insetting machine. It mitigates food waste emissions and produces carbon neutral protein, resulting in a more secure food system. Better Origin provides nutritious protein, using a fraction of the resources needed by conventional feeds as well as a decreased need for antibiotics.

2Blades Foundation

2blades.org
info@2blades.org

2Blades are pursuing a better understanding of plant pathogens and the best solutions to the diseases they cause. The insights they find provide new strategies for keeping plants healthy. They seek to get these healthier plants into the hands of farmers all over the world, so that farmers can stop losing crops to disease and can grow more efficiently with less need for crop protection chemicals.

Calysta

calysta.com
info@calysta.com

People worldwide want plentiful, sustainable food. Calysta is the world-leader in creating novel protein ingredients to improve worldwide food security. Calysta nutrition develops and commercialises FeedKind® protein, a sustainable, traceable alternative feed ingredient for fish, livestock and pet nutritional products.

Engineering biology for agriculture

Corteva

corteva.com
cortevauk@corteva.com

Corteva Agriscience brings the world's most recognised and premium agricultural solutions, featuring award-winning Crop Protection products Pioneer® and Brevant™ Seeds. They provide agronomic support and services to increase farmer productivity and profitability. Their goal is to enrich the lives of those who produce and those who consume, ensuring progress for generations to come.

Enough

enough-food.com
info@enough-food.com

As the world's population increases and the demand for protein grows, Enough's goal is to "Make Protein Sustainable". ENOUGH uses the natural process of fermentation. By feeding their fungi the naturally-occurring sugars in grains, this grows into a complete food, ABUNDA mycoprotein. The simplicity of their process means ABUNDA is highly scalable to meet future demands. ABUNDA is a sustainable protein relevant to multiple categories and product applications. ABUNDA mycoprotein is a fermented food ingredient, rich in protein and fibre. With 9 essential amino acids, zinc and iron, ABUNDA is highly nutritious. The fibrous nature of the product gives an outstanding meaty texture, naturally.

Engineering biology for agriculture

Extracellular

extracellular.com
info@extracellular.com

Extracellular is the first dedicated manufacturing partner to support cellular agriculture. They are focused on developing sustainable solutions to non-GMP industrial biotech, through the development, scale-up and manufacture of cultured meat products.

Green Bioactives

green-bioactives.com
info@greenbioactives.com

Green Bioactives is an innovative start-up from the University of Edinburgh transforming the discovery, development and biomanufacturer of safe, sustainable, plant biomolecules. Green Bioactives utilizes a next-generation plant cell-based biomanufacturing platform to produce sustainable sources of biomolecules and cell extracts for the cosmetic, pharmaceutical, food and agricultural markets.

HigherSteaks

highersteaks.com
highersteaks.com/contact-us

HigherSteaks is about providing you with that juicy, tender and delicious meat you love but without harming our health, planet and animals. Using state-of-the-art cell culture techniques, they take a small sample of cells from an animal. They then expand these cells by feeding them a rich and animal free growth media. When the cells have grown, they guide them to become muscle, fat and other types of tissue in order to form the desired meat product.

Engineering biology for agriculture

Hockley International

hockley.co.uk/about-hockley
hockley.co.uk/contact-us

Hockley International limited is a privately owned, UK-based company with over 30 years' experience in the manufacture, formulation, packaging and exporting of agricultural, environmental health, industrial and veterinary products. Their products safeguard the health of crops, people and animals everywhere. Their mission has traditionally been to produce quality products, and as they have grown over the years, so has their mission, to provide protection and reliability on a worldwide scale.

Magellan Life Sciences

magellanlifesciences.com

Magellan Life Sciences is a synthetic biology company that discovers and develops plant inspired proteins for commercial applications in Food and Beverage industries.Magellan's proprietary protein production platform XSeed® bridges the gap from R&D to consumer markets by allowing for economically viable industrial scale production of unique natural proteins.

Meatable

meatable.com
information@meatable.com

Meatable makes 100% real, delicious, guilt-free meat that increases food security without compromising the culinary experience of eating tasty, real meat. They want to satisfy the world's appetite for meat without harming people, animals or the planet. First, they take a sample from an unharmed cow or pig, then they replicate the natural process of fat and muscle growth and mix the two elements together to produce meat. A new natural process.

Engineering biology for agriculture

MiAlgae

mialgae.com
info@mialgae.com

MiAlgae aim to eliminate reliance on wild caught fish as a source of Omega-3 by harnessing the potential of microalgae as a sustainable and rich alternative source. The innovative process uses co-products from the whisky industry which are highly nutritious for algae. This ready made, human grade growth media enables MiAlgae to keep costs down.

MOA Technology

moa-technology.com
contact@moa-technology.com

MOA Technology harnesses the principles of natural selection to accelerate the discovery of new modes of action for better, safer herbicides so farmers can continue to feed the world. Herbicides with new modes of action (MOAs) can break resistance and improve safety and sustainability. By having science and technology work with nature, MOA Technology are able to effectively screen more compounds than the entire industry combined, giving them an unprecedented head start towards sustainable crop protection.

Multus

multus.media
info@multus.media

At Multus, they are developing the key ingredient, the growth media, to make cultivated meat affordable and profitable. Multus uses a proprietary machine learning platform to optimise a variety of growth factor proteins to meet the requirements for growing different animal cell types and tissues at scale. Taking a statistical and data-led approach they design animal-free growth media for the cultivated meat industry.

Nandi Proteins

Nandi Proteins is helping address major issues facing food companies under pressure to tackle social, health and environmental concerns with processed foods – such as obesity and the importance of proteins within diets. We are actively working on improving the functionality of whey protein, collagen and a growing number of plant proteins. Nandi Proteins have developed ingredients to replace emulsifiers, remove fat and replace egg white. Their pipeline includes activities to replace ingredients such as methylcellulose and xanthan gum that food producers are keen to remove from their products.

nandiproteins.com
info@nandiproteins.com

NGBiogas

NGB began life in 2009 as a project to develop a high-output, modular AD (Anaerobic Digestion) plant by combining factory automation technology with advances in microbial monitoring and management techniques. NGB's in-house developed processes and systems have been brought together in a manufacturing facility that is now rolling out commercially available, production run AD systems, primarily aimed at small-to medium-sized farms under the brand name Archemax®.

Engineering biology for agriculture

Phytoform Labs

phytoformlabs.com
phytoformlabs.com/get-in-touch

Phytoform Labs are driven by a common goal to minimise the damaging impact of agriculture on the environment. Their work focuses on getting sustainable crops into the field in a way that improves productivity today and reduces our footprint for tomorrow. Phytoform are making agriculture sustainable and unlocking the genetic potential of plants.

Roslin Tech

roslintech.com
info@roslintech.com

Roslin Tech applies new biotechnologies to accelerate the transition to a more sustainable food system. They are using a unique technology to take cells from an animal and reprogramme them become pluripotent stem cells. Their cells can self-renew forever and differentiate into any tissue, such as muscle and fat. Additionally, they don't need animal products to grow the cells, with no foetal bovine serum (FBS) used in their media.

ScotBio

scotbio.com
scotbio.com/contact

ScotBio are a biotechnology company producing everyday all-natural ingredients and colourants. They make our products from Spirulina, meaning they are toxin-free and traceable. Their unique, controlled production methods mean we can scale our output to meet any demand. Thanks to their patented indoor GMP production process, they're meeting unparalleled standards of purity, safety and consistency.

Engineering biology for agriculture

Suttera

suterra.com
suterra.com/contact-us

Suterra is the leading provider of biorational products for agricultural crop protection and commercial pest control. Suterra's flagship line of CheckMate® agricultural products utilises pheromones to disrupt the mating behaviour of harmful pests. Compared to traditional insecticides, CheckMate® products offer little-to-no toxicity, leave no harmful residues, do not contaminate ground water and do not disrupt beneficial insect populations.

Tropic Bioscience

tropicbioscience.com
info@tropicbioscience.com

Tropic Bioscience develops high-performing commercial varieties of tropical crops which promote cultivation efficiencies, enhance consumer health, and improve sustainable environmental practices, using cutting edge genetic editing technologies. They are focusing on innovation in agricultural production to meet nutritional demands and to support development of growing local communities.

Engineering biology for agriculture

ZuvaSyntha

ZuvaSyntha is an industrial biotechnology developing proprietary routes to key commodity platform chemicals and biofuels from renewable raw materials. ZuvaSyntha's scientific team has decades of industrial experience and know-how, with expertise in metabolic pathway engineering and fermentation, biocatalysis process development, production of API and agrochemical metabolites and natural product development. Other capabilities include enzyme development and production, protein production, analytical method development and classical strain development of microbes.

GREAT
BRITAIN & NORTHERN IRELAND

Department for International Trade

The UK's Department for International Trade (DIT) helps businesses export, drives inward and outward investment, negotiates market access and trade deals, and champions free trade.

We are an international economic department, responsible for:

- supporting and encouraging UK businesses to drive sustainable international growth
- ensuring the UK remains a leading destination for international investment
- opening markets, moulding the trade environment with new and existing partners which is free and fair
- using trade and investment to underpin the government's agenda for a Global Britain and its ambitions for prosperity, stability and security worldwide.

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