



ROLE PROFILE

Job Title: Research Associate/Fellow – Synthetic Biologist / Metabolic Engineer

School/Department: School of Life Sciences – SBRC

Job Family and Level: Research & Teaching Level 4

Contract Status: Fixed term 31st January 2020

Hours of Work: Full time, 36.25 hours per week

Location: Synthetic Biology Research Centre (SBRC)

Reporting to: SBRC Director and/or delegated Line Manager

Job Outline:

The Synthetic Biology Research Centre (SBRC) at the University of Nottingham is seeking creative and motivated metabolic engineering scientists and/or synthetic biologists to work on developing gas-fermenting microbial chassis for sustainable bioproduction of chemicals and fuels.

SBRC Nottingham, established by BBSRC/EPSRC with more than £14 million funding, is working at the frontiers of UK academic and industrial research with the aim to accelerate the application of Engineering and Synthetic Biology technologies to directly capture carbon by exploiting the ability of autotrophic bacteria to fix C1-gases (carbon dioxide, carbon monoxide or methane) and convert them into platform chemicals such as hydrocarbons (e.g. ethylene and isoprene), carboxylic acids (e.g. 3-hydroxypropionic acid) and others. The gas-fermenting aerobic and anaerobic bacterial chassis are being used as primary engineering platforms.

We seek candidates to work on either anaerobic (acetogens, e.g., *Clostridium autoethanogenum*) or the aerobic autotrophic chassis *Cupriavidus necator* (*Ralstonia eutropha*). You should hold a PhD (pending or awarded) in a discipline relevant to microbial strain engineering or synthetic biology. Past experience in metabolic engineering or/and synthetic biology of microbial species is essential. A knowledge of advanced genome editing, high-throughput -omics techniques and/or metabolic pathway analysis would be desirable.

Main Responsibilities		% time per year
1	To plan and conduct research, towards SBRC objectives and for own and/or collaborative research. Specifically, using recognised approaches, methodologies and techniques within synthetic biology and metabolic engineering to (i) develop and use advanced genetic engineering tools and (ii) engineer microbial chassis. Where appropriate facilitate this research using high-throughput experimentation systems. (Ensuring all research undertaken conforms to Responsible Research Innovation (RRI) practices as defined by the SBRC Core Management Team).	40
2	To contribute to the preparation of internal and external written reports and presentations to the sponsors	20
3	To assist with the preparation of proposals and applications to both external and/or internal bodies for funding, contractual or accreditation purposes.	20
4	To contribute to writing up research findings for publication in leading journals.	10
5	To analyse and illuminate data, interpret reports, evaluate and criticise texts and bring new insights to research area.	5
6	To build a network of contacts and engage in activities to facilitate: <ul style="list-style-type: none"> the development of knowledge and understanding and to form relationships for future collaborations; providing guidance as required to support staff and students; 	5

	<ul style="list-style-type: none"> • collaboration with academic colleagues on areas of shared interest; • contributing to organising research resources and facilities, laboratories and workshops as appropriate; • playing an active role in outreach activities designed to promote public engagement in the science being undertaken within the SBRC, 	
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Knowledge, Skills, Qualifications & Experience

	Essential	Desirable
Qualifications/ Education	<ul style="list-style-type: none"> • PhD or equivalent (pending or awarded) in a discipline relevant to Synthetic Biology or microbial Metabolic Engineering. 	
Skills/Training	<ul style="list-style-type: none"> • Strong background and expertise in microbial genetics and/or physiology • Excellent oral and written communication skills, including the ability to communicate with clarity on complex information. • Evidence of sufficient breadth or depth of research methodologies and techniques to work in Synthetic Biology. • Developing research skills, with the ability to creatively apply relevant research approaches, models, techniques and methods. • Ability to contribute to method improvement. • Analytical ability to facilitate conceptual thinking, innovation and creativity. • Ability to build relationships and collaborate with others, internally and externally. 	<ul style="list-style-type: none"> • Knowledge of key concepts of: <ul style="list-style-type: none"> - metabolic networks and gene regulation - genetic modification - Responsible Research and Innovation (RRI) • Application and use of microbial fermentation • Ability to assess and organise resource requirements and deploy effectively. • Ability to foster a research culture and commitment to learn in others. • High analytical ability to analyse and illuminate data, interpret reports, evaluate and criticise texts and bring new insights.
Experience	<ul style="list-style-type: none"> • Experience of metabolic engineering through the use of bio-parts, <i>in-silico</i> design and analytics • Research experience in the modification/ exploitation of a microbial process or attribute for the purpose of strain engineering. • Ability to develop and apply new concepts and methods. • Working in a similar research environment. 	<ul style="list-style-type: none"> • Interaction with computational/ mathematical modellers and/or bioinformaticians. • Track record in academic publication • Supervising or helping with the supervision of research students.