Job title
Research Associate/Fellow in Synthetic Biology

Job family and level
Research and Teaching Level 4 Training Grade/Level 4

School/Department
Faculty of Engineering – Sustainable Process Technologies Group

Location
Faculty of Engineering

Purpose of role
Work collaboratively with Lucite and Ingenza to develop a bio-manufacturing process for methyl methacrylate, the monomer used to manufacture Perspex and a wide range of other materials, using metabolically engineered microorganisms. Your role will be to develop production strains, together with lab-scale fed-batch and continuous fermentations to produce methyl methacrylate precursors, building on established fermentation processes. You will use synthetic biology to develop genetically stable production strains. Towards the end of your project, you will work with biochemical engineers at Nottingham and Lucite, assisting them to design pilot scale manufacturing processes.

Main responsibilities
(Primary accountabilities and responsibilities expected to fulfil the role)  

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<th>% time per year</th>
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<tr>
<td>1</td>
<td>Develop production strains, together with lab-scale fed-batch and continuous fermentations to produce methyl methacrylate precursors, building on established fermentation processes. You will use synthetic biology to develop genetically stable production strains. Towards the end of your project, you will work with biochemical engineers at Nottingham and Lucite, assisting them to design pilot scale manufacturing processes.</td>
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<td>2</td>
<td>Produce written progress reports and presentations; informal reports on a monthly basis and formal oral and written reports every 3 months. Prepare conference presentations and journal publications. Attend project meetings and conferences. Liaise with Finance Department to monitor and report project expenditure, and produce financial forecasts.</td>
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<td>Use scientific literature to develop research plans and interpret findings.</td>
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<td>Liaise with other members of the project team to ensure effective collaboration, and communicate important findings to project stakeholders by telephone or email when appropriate.</td>
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<td>5</td>
<td>Assist in supporting PhD students, good laboratory practice and safe working within the laboratory.</td>
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### Person specification

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<th>Essential</th>
<th>Desirable</th>
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#### Skills

- Strong verbal and written communication skills
- Skills in bioreactor technology
- Competent in analysis of microbial cultures, using techniques such as HPLC and GC GCMS, and NIR
- Able to work collaboratively in a multidisciplinary team
- Literature searching using relevant databases and use of bibliographic software
- Interpretation of scientific literature

#### Knowledge and experience

- Strong understanding of microbial biochemistry
- Experience in molecular/synthetic biology
- Understanding of industrial biotechnology for chemicals manufacturing
- Understanding of microbial growth kinetics
- Knowledge, understanding and skills in microbiology, including aseptic technique, growth and analysis of microbial cultures, experimental design and statistics, data analysis using relevant software
- Use of appropriate software to prepare reports and presentations, including chemical drawing software
- Evidence of contributing to team work
- Research at PhD level
- Publications in peer reviewed journals and presentations at international conferences
- Experience of interdisciplinary research

#### Qualifications, certification and training (relevant to role)

- Equivalent to UK first or upper second BSc or BEng (or MSc with Distinction) in Biotechnology, Microbiology, Biochemistry, Synthetic Biology or a related discipline
- PhD (or near completion) in Biotechnology, Microbiology, Synthetic Biology or a related discipline

- Experience in industrial biotechnology
- Experience of collaborating with other academic groups
- Experience of collaborating with industry
- Experience of bioreactor technology, preferably continuous or fed-batch culture

The University strongly endorses Athena SWAN principles, with commitment from all levels of the organisation in furthering women’s careers. It is our mission to ensure equal opportunity, best working practices and fair policies for all.
Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University’s strategy, vision and values. The following are essential to the role:

**Valuing people**  
Is always equitable and fair and works with integrity. Proactively looks for ways to develop the team and is comfortable providing clarity by explaining the rationale behind decisions.

**Taking ownership**  
Is highly self-aware, looking for ways to improve, both taking on board and offering constructive feedback. Inspires others to take accountability for their own areas.

**Forward thinking**  
Driven to question the status quo and explore new ideas, supporting the team to “lead the way” in terms of know-how and learning.

**Professional pride**  
Sets the bar high with quality systems and control measures in place. Demands high standards of others identifying and addressing any gaps to enhance the overall performance.

**Always inclusive**  
Ensures accessibility to the wider community, actively encouraging inclusion and seeking to involve others. Ensures others always consider the wider context when sharing information making full use of networks and connections.

Key relationships with others

- **Line manager**
  - Alex Conradie

- **Role holder**
  - Research Associate/Fellow

- **Key stakeholder relationships**
  - Colleagues
  - Students