Research Assistant
School of Natural and Computing Sciences

Closing date: 15 October 2019
Interview date: 20 November 2019
Reference number: NCS154R
Introduction

Fatty acid coenzyme As (acyl CoAs) play central roles in many basic pathways and are key intermediates of biochemical reactions (i.e. lipid/fatty acid metabolism and PKS biosynthesis). Increasing evidence suggests the important roles of acyl-CoA-related enzymes in human metabolic diseases. Acyl CoAs are also the important precursors for microbial production of fatty acid derived chemicals. Enhanced acyl CoA production in engineered microbes is often associated with increased production of fatty acid derived chemicals. Yet there does not have any convenient way of quantifying or monitoring the presence of acyl CoA intermediates. In this project, we will use enzymatic methods to develop a new bioanalytical method of acyl-CoA measurement which may be applied as potential treatments for a range of diseases (e.g. microbial infection, cancer). The biosynthetic enzymes are derived from a soil actinomycete bacterium. The key aim of the project is to explore the catalytic capacity of these enzymes by measuring the kinetic data and to probe the amino acid residues in the active sites of the enzymes using site-directed mutagenesis. The knowledge generated here will enable us to generate the compounds of interest by combining these enzymes. Another aim of the project is to discover more enzyme homologues with better kinetics and substrate tolerance from the database. At the end, we anticipate having a user-friendly kit for testing acyl-CoA concentrations against a number of disease models and engineered microbes.

Further information can be obtained in the available article at:

Job description

Main purpose of the role:

A position is available for an independent and highly motivated individual to work for a maternity cover in Department of Chemistry, School of Natural and Computing Sciences. This post is part of a project entitled “Understanding carbazole biosynthetic enzymes: potential for a versatile assay of acyl CoAs” funded by the Biotechnology and Biological Sciences Research Council.

You will become part of a multidisciplinary, multinational team and be responsible for investigating biosynthetic enzymes used to carry out chemical transformations towards the synthesis of carbazole alkaloids for potential acyl CoA measurement. Experience is essential in Streptomyces genetics, microbiological techniques, protein expression in E coli and Streptomyces, and protein purification. Experience is desirable in the following areas: fermentation technologies, chemical synthesis, downstream processing techniques to obtain purified compounds and an awareness of analytical techniques to identify small molecules. Training will also be provided to enable the successful candidate to extend and complement her or his existing skills.

The successful candidate should start the post on 10 January 2020 till 31 July, 2020.

Key responsibilities:

Research Assistant

- Responsible for detailed planning and execution of a clear and achievable research program.
- Generate and analyse data in preparation for reports and publication.
- Take a leading role in the drafting of papers and in the presentation of results.
- Keep up-to-date with the current and relevant literature and methodologies in order to gain an expert working knowledge of the topic under study.
- Participate in meetings and help drive existing, and identify future, external collaborations.
- Maintain contact with the industrial partner.
- Help with maintaining risk assessments and overall organisation of the laboratory.

At a glance

<table>
<thead>
<tr>
<th>Salary</th>
<th>£28,332 - £30,046 per annum</th>
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<tbody>
<tr>
<td>Hours of work</td>
<td>Full time</td>
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<tr>
<td>Contract type</td>
<td>Available until July 2020</td>
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Candidate background

The successful candidate will have a PhD (or equivalent, or near completion of PhD) in organic chemistry, microbiology, biochemistry, molecular biology or related subjects.

Terms of appointment

Salary will be at the appropriate point on the Grade 5 salary scale (£28,332 - £30,046 pro rata per annum).

As this post is to cover a period of maternity leave it is available until 31 July 2020.

Any appointment will be made subject to satisfactory references and a 6 month probation period.

For further information on various staff benefits and policies please visit www.abdn.ac.uk/staffnet/working-here

This post does not meet the minimum requirements as issued by UK Visas & Immigration (UKVI) to qualify for an employer-sponsored visa. We are therefore unable to consider applications from candidates for this post who require sponsorship to work in the UK.
# Person specification

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<tr>
<th>Education/Qualifications</th>
<th>Essential</th>
<th>Desirable</th>
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<tbody>
<tr>
<td>Academic, technical and professional education and training</td>
<td>MSc (or near completion of PhD) in Biochemistry, Organic chemistry, Molecular Biology, Microbiology or related subject</td>
<td>Chemical synthesis</td>
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<td>Work and Other relevant experience (including training)</td>
<td>Protein purification in E coli and streptomycyes</td>
<td>Experience of working with alkaloids from bacterial origin.</td>
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<td>eg Specialist knowledge, levels of experience, supervisory experience, research</td>
<td>Molecular biological techniques, Streptomycyes genetics, cloning site directed mutagenesis, gels etc.</td>
<td>Downstream processing to obtain purified compounds – e.g. use of solid phase extraction, HPLC.</td>
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<td>Familiar with microbiological techniques and small scale fermentation.</td>
<td>Awareness of analytical techniques to identify small molecules.</td>
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<td>Paper and report writing skills</td>
<td>Experience of working as part of a diverse, multidisciplinary team.</td>
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<tr>
<th>Personal qualities and abilities</th>
<th>Essential</th>
<th>Desirable</th>
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<tr>
<td>eg initiative, leadership, ability to work on own or with others, communication skills</td>
<td>Excellent oral and written communication skills</td>
<td>Willing to travel to collaborating company to carry out research for several weeks.</td>
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<td>Ability to work independently on own initiative and in a team environment</td>
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<td>Excellent presentation skills</td>
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<td>Willingness to present work at international meetings</td>
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<td>Good organisational skills, and proven track record of working effectively with collaborating partners</td>
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<td>Demonstrable experience of carrying out high quality research</td>
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<td>Willingness to provide training for and to assist in the co-supervision of research projects of PhD and undergraduate students</td>
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<th>Other</th>
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<td>eg special circumstances (if any) appropriate to the role such as unsocial hours, travelling, Gaelic language requirements etc.</td>
<td>Willing to travel to collaborating company to carry out research for several weeks.</td>
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The University

Founded in 1495, Aberdeen is Scotland’s third oldest University and the fifth oldest in the UK. Ranked within the world top 160 in the Times Higher Education Rankings 2019 and named Scottish University of the Year in the Times and Sunday Times Good University Guide 2019. Aberdeen is ‘open to all and dedicated to the pursuit of truth in the service of others’.

Aberdeen is a broad based, research intensive University, which puts students at the head of everything it does. It has significant academic strengths and potential across a wide variety of disciplines. Outstanding in a wide range of discipline areas, Aberdeen has also been credited for its international reach and its commercialisation of research ideas into spin out companies.

The University has over 14,000 matriculated students and 3,600 staff representing 130 nationalities. We encourage bold thinking, creativity and innovation and we nurture ambition with many opportunities for professional and personal development in an inclusive learning environment which challenges, inspires and helps every individual to reach their full potential.

The University combines a distinguished heritage with a forward looking attitude. In the past few years, the University has encouraged creativity in its academic staff, broken new ground with an innovative curriculum, and developed state-of-the-art facilities including the new Sir Duncan Rice Library and the Aberdeen Sports Village and Aquatics Centre. In looking to the future, the University seeks to enhance its reputation as one of the world’s leading Universities by moving forward with ever more ground breaking research; ensuring students have an intellectual and social experience second to none; and capitalising upon the dual role as one of the major institutions of the north and as a cornerstone of regional economic and cultural life.
The city and the region

Aberdeen and Aberdeenshire

With a population of approximately 230,000, the city stands between the Rivers Dee and Don. This historic city has many architectural splendours and the use of its sparkling local granite has earned Aberdeen the name of the Silver City. Recognised as the oil capital of Europe, Aberdeen nevertheless retains its old-fashioned charm and character making it an attractive place in which to live.

Aberdeen enjoys excellent communication services with other European cities - e.g. flying time to London is just over one hour with regular daily flights. There are direct air links to London (City, Gatwick, Heathrow, and Luton), Manchester, Birmingham, Leeds, Southampton, Belfast and East Midlands within the U.K. There are also flights to international hub airports: Amsterdam (Schiphol), Paris (Charles De-Gaulle) and Frankfurt as well as flights to other European destinations. http://www.aberdeenairport.com Road and rail links are also well developed.

The Grampian Region which took its name from the Grampian Mountains has a population of approximately 545,000. It is made up of five districts – Aberdeen, Banff & Buchan, Gordon, Kincardine & Deeside and Moray. The city and the surrounding countryside provide a variety of urban, sea-side and country pursuits. Aberdeen has first class amenities including His Majesty’s Theatre, Music Hall, Art Gallery, the Aberdeen Exhibition Centre, Museums, and Beach Leisure centre. Within a short time, beach pursuits, equine activities, salmon, trout and sea fishing, hill-walking, mountaineering, golf, sailing, surfing and windsurfing can be reached. The city and the surrounding countryside are repeatedly given high ratings for quality of life in surveys.

Aberdeenshire is one of Scotland's most appealing regions. Royal Deeside and the Cairngorms National Park are within easy access of the city, and there are a variety of towns and villages scattered along the coastline.

Aberdeen and Aberdeenshire cater for a wide range of tastes in sporting and cultural activities.

To find out more about Aberdeen and Aberdeenshire go to www.visitabdn.com
How to apply

Online application forms are available at www.abdn.ac.uk/jobs

The closing date for receipt of applications is 15 October 2019

Should you wish to make an informal enquiry please contact
Dr Hai Deng.
01224 272953
h.deng@abdn.ac.uk

Please do not send application forms or CVs to Dr Deng

Please quote reference number NCS154R on all correspondence

The University pursues a policy of equal opportunities in the appointment and promotion of staff.