Role profile

<table>
<thead>
<tr>
<th>Job title</th>
<th>Research Associate/Fellow: RNA-therapeutics: Synthetic chemistry for delivery formulations</th>
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<tbody>
<tr>
<td>Job family and level</td>
<td>Research and Teaching Level 4 (Appointment will be Level 4 Career training grade where an appointment is made before PhD has been completed)</td>
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<tr>
<td>School/Department</td>
<td>School of Pharmacy</td>
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<td>Location</td>
<td>University Park Campus</td>
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Purpose of role

This RNA Therapeutics: Synthetic Chemistry for Delivery Formulations post is part of a team working on a new project “Biofoundry-in-A-Box: Modular microfactories for powering the global RNA production network” (‘R3 Project’) funded under the Wellcome LEAP R3 Programme. The objective of the R3 Programme is to develop manufacturable RNA therapies within previously unprecedented timescales. Within the “Biofoundry-in-A-Box”, led from King’s College London, a theme led by Professors Cameron Alexander and Snow Stolnik the University of Nottingham will investigate formulations for RNA therapeutics with applications in few identified disease conditions.

This post will be funded by Aqdot, a partner in the project consortium, and will be based at the School of Pharmacy at Nottingham. The work will be focus on design and synthesis of polymers that include supramolecular “guest” groups that complex strongly with Aqdot’s cucurbituril “host” molecules. The aim is to design “supramolecular polyplexes” which enhance RNA therapeutic efficacy while reducing toxicity of comparable non-supramolecular system. The vision is to provide safe, low-cost formulation and manufacturing capability globally.

The work will involve direct interactions with a formulation PDRA and a biological evaluation PDRA at Nottingham working on the same project, and the partner research groups of Professors Harris Makatsoris, Ben Forbes, Robin Ali and Mauro Giacca (King’s College London) and Prof Yvonne Perrie at Strathclyde. In addition, the scientist in this theme will collaborate with the wider grant team including Profs Robin Shattock, Cleo Kontoravdi, and Karen Polizzi (Imperial College London), and companies including Quotient, Aqdot and Centillion.

The post will be based across labs in the Boots Science Building and BDI.

Main responsibilities

(Primary accountabilities and responsibilities expected to fulfil the role)

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<tr>
<th>% time per year</th>
<th>Synthesis of materials for siRNA</th>
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- Design and synthesis of polymeric materials for RNA-therapeutic delivery formulations that enable exploitation of cucurbituril-based supramolecular chemistry.
- Proactively grow the collaborations within the R3 project to assist in developing supramolecular delivery systems from concept to scale-up. Focus on polymer design and synthesis and formulation performance.
- Contribute to regulatory activities required for the safe use of technology based on supramolecular chemistry.

### Outputs:

- Analyse and illuminate data, interpret reports, evaluate and criticise texts, and bring new insights to research area.
- Preparation of research reports by collecting, analysing, and summarising data; prepare and give presentations for both internal and external audience.
- Preparation of technical and other reports as required by the R3 project.
- Maintain awareness of IP opportunities that arise from supramolecular chemistry studies and prepare patent documents.

### Reporting on research

- Analyse and illuminate data, interpret reports, evaluate and criticise texts and bring new insights to research area.
- Contribute to internal meetings and work in conjunction with the research team to achieve objectives.
- Prepare research results for publication, critically evaluate relevant literature and offer new insights to the research area.
- Contribute to dissemination at scientific meetings, resulting in successful outputs.

### Research Team

- Work in conjunction with others in the research team and R3 project partners to achieve objectives and make an active contribution to the success of the team.
- Participate in the planning and execution of cell biology assays with partners at Nottingham and the wider “Biofoundry in a Box” consortium.
- Guide and mentor PhD and Graduate student members within the research group.
- Assist in the supervision of undergraduate and postgraduate student projects as appropriate.

### Laboratory / group activities

- Contribute to the undertaking of general laboratory duties such as ordering consumables/chemicals, maintenance of lab rotas, and facilities upkeep.
- Contribute to the activities and maintenance of key laboratory equipment, where appropriate.
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<th>Person specification</th>
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<td><strong>Skills/Training</strong></td>
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| ▪ Ability to work independently and as part of a team. Hands-on and entrepreneurial in style, comfortable with getting involved in all areas of the project.  
▪ Motivated by transforming science into societal benefits.  
▪ Effective communicator at all levels of the R3 Project.  
▪ Effective and proactive collaborator.  
▪ Able to enthuse and inspire colleagues and collaborators to meet the goals of critical projects in timely fashion.  
▪ Ability to work independently and as part of a team.  
▪ Excellent problem solving and organisational skills.  
▪ Competent in meeting administrative requirements necessary for grant participants.  
▪ Flexible, proactive and dedicated approach.  
▪ Excellent information technology and computing skills.  
▪ Strong analytical skills including the ability to analyse and interpret data; interpret reports; evaluate and criticise prior data; and ability to bring new insights.  |
| **Desirable** |
| Experience in one or more of the following:  
▪ Published work in relevant polymer / materials synthesis work.  |
| **Knowledge and experience** |
| ▪ Experience in polymer synthesis methods in relevant area  
▪ Interest in the chemistry-biology interface.  
▪ Evidence of working across chemistry/biology/pharmacy/medicine subject boundaries.  
▪ Present work effectively to a variety of professional and academic audiences at meetings and conferences.  
▪ Ability to write high quality reports and high impact papers for publication.  |
| **Qualifications, certification and training (relevant to role)** |
| ▪ A 1st or upper second class first degree in chemistry or related disciplines.  
▪ PhD submitted or awarded in chemistry or related disciplines.  
▪ Publications in relevant materials synthesis area.  
▪ Design of nucleic acid formulations based on polymeric materials.  
▪ Physicochemical characterisation techniques used in supramolecular and colloid chemistry.  
▪ Knowledge or experience of Intellectual Property relating to RNA delivery systems.  |
The University of Nottingham is focused on embedding equality, diversity and inclusion in all that we do. As part of this, we welcome a diverse population to join our work force and therefore encourage applicants from all communities, particularly those with protected characteristics under the Equality Act 2010.

The University is a signatory of the Declaration on Research Assessment (DORA). As such we commit to focus on the scientific content of publications (where requested or provided as part of the recruitment and selection process) as a basis for review of quality, and consideration of value and impact of research conducted, rather than any proxy measures such as Journal Impact Factor.

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 friendly, engaging and receptive, putting others at ease. Actively listens to others and goes out of way to ensure people feel valued, developed and supported.

**Taking ownership**  
Is clear on what needs to be done encouraging others to take ownership. Takes action when required, being mindful of important aspects such as Health & Safety, Equality, Diversity & Inclusion, and other considerations.

**Forward thinking**  
Drives the development, sharing and implementation of new ideas and improvements to support strategic objectives. Engages others in the improvement process.

**Professional pride**  
Is professional in approach and style, setting an example to others; strives to demonstrate excellence through development of self, others and effective working practices.

**Always inclusive**  
Builds effective working relationships, recognising and including the contribution of others; promotes inclusion and inclusive practices within own work area.
Key relationships with others

Line manager

Role holder

Key stakeholder relationships

Professor

Research Associate/Fellow

Colleagues

Students