



Job title	Research Associate/Fellow: Formulations for RNA- Therapeutics Delivery	Job family and level	Research and Teaching Level 4 (Appointment will be Level 4 Career training grade where an appointment is made before PhD has been completed)
School/ Department	School of Pharmacy	Location	University Park Campus

Purpose of role

This Formulations for RNA-Therapeutics Delivery post is part of a team working on an industry-academic collaborative project “Supramolecular RNA therapeutics (SMRTs) - developing tunable formulations with scale-independent manufacture” funded by InnovateUK under the “Innovative technologies for intracellular drug delivery” programme. The objective of the Supramolecular RNA therapeutics project is to develop manufacturable RNA therapies for Triple Negative Breast Cancers. The project is led at Nottingham by Professors Cameron Alexander and Snow Stolnik in Pharmacy, and Professors Alan McIntyre, Poulam Patel and Srinivasan Madhusudan in Medicine, and will investigate novel formulations for RNA therapeutics which can be personalised for Triple Negative Breast Cancer patients.

This post involves collaborations with the Cambridge spin-out companies Aqdot and Centillion, and will be focused on the design and synthesis of polymers that include supramolecular “guest” groups that complex strongly with Aqdot’s “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 formulations which can be manufactured rapidly and locally.

The work will involve direct interactions with the partner research groups at Aqdot and Centillion, with visits to their sites in Cambridge as necessary during the project.

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)	% time per year
1	Synthesis of materials for siRNA <ul style="list-style-type: none"> Design and synthesis of polymeric materials for RNA-therapeutic delivery formulations that enable exploitation of supramolecular chemistry. 	45%

	<ul style="list-style-type: none"> Proactively grow the collaborations within the InnovateUK 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. 	
2	<p>Outputs:</p> <ul style="list-style-type: none"> 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 InnovateUK project. Maintain awareness of IP opportunities that arise from supramolecular chemistry studies and prepare patent documents 	15%
3	<p>Reporting on research</p> <ul style="list-style-type: none"> 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. 	15%
4	<p>Research Team</p> <ul style="list-style-type: none"> Work in conjunction with others in the research team and InnovateUK 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 InnovateUK 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. 	10%
5	<p>Laboratory / group activities</p> <ul style="list-style-type: none"> 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. 	15%

Person specification

	Essential	Desirable
Skills/Training	<ul style="list-style-type: none"> ▪ 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. ▪ Experience in polymer synthesis by multi-component reactions or supramolecular systems ▪ Experience in nucleic acid formulation and characterisation via Dynamic Light Scattering and high content confocal microscopy ▪ Motivated by transforming science into societal benefits. ▪ Effective communicator at all levels of the InnovateUK Project. ▪ Effective and proactive collaborator. ▪ 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. 	<p>Experience in one or more of the following:</p> <ul style="list-style-type: none"> ▪ Published work in relevant polymer / materials synthesis work. ▪ Cell culture with multiple cell lines
Knowledge and experience	<ul style="list-style-type: none"> ▪ Interest in the chemistry-biology interface. ▪ Design of nucleic acid formulations based on polymeric materials. ▪ Strong analytical skills including the ability to analyse and interpret data; interpret reports; evaluate and criticise prior data; and ability to bring new insights. ▪ 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. 	<ul style="list-style-type: none"> ▪ Physicochemical characterisation techniques used in supramolecular and colloid chemistry.

Qualifications, certification and training (relevant to role)	<ul style="list-style-type: none"> ▪ A 1st or upper second class first degree in chemistry ▪ PhD submitted or awarded in chemistry or related disciplines. 	<ul style="list-style-type: none"> ▪ Knowledge or experience of Intellectual Property relating to RNA delivery systems
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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

