Royal Devon University Healthcare NHS Foundation Trust

# JOB DESCRIPTION

| JOB DETAILS | |
|---|---|
| **Job Title** | **Clinical Scientist - Bioinformatics** |
| **Reports to** | **Principal Clinical Scientist Team Lead** |
| **Band** | **7** |
| **Department/Directorate** | **Genomic Laboratory/Specialist Services** |

## JOB PURPOSE

Through the reconfiguration of Genomic Laboratory service provision in England, the NHS will provide Genomic testing through a single national testing network, consolidating and enhancing the existing laboratory provision. This will create a world-class resource for the NHS, underpin the future Genomic Medicine Service and support delivery of the Government's Life Sciences Strategy and broader research and innovation agenda, building upon the NHS contribution to the 100,000 Genomes Project. The South West Genomic Laboratory Hub (SWGLH) is a partnership arrangement between the Royal Devon University Healthcare NHS Foundation Trust and the North Bristol NHS Trust.

The post-holder will be expected to employ all the competencies required of a Health and Care Professions Council (HCPC) registered Clinical Scientist to assist in the provision of Molecular Genetic services for bioinformatics, data analysis, process management and management of departmental IT systems (including StarLIMS) to facilitate smooth running of the Genomics department.

## KEY RESULT AREAS/PRINCIPAL DUTIES AND RESPONSIBILITIES

- Processing and communication of complex data and information clearly and concisely to staff from multiple disciplines.
- Assist with the development and implementation of innovative approaches to enable the efficient processing and management of complex data.
- Apply programming, mathematical modelling and database construction knowledge and skills to meet the needs of the service.
- Contribute to all elements of NGS analysis software and database development, implementation and maintenance .
- Assist with the assessment and validation of applicable bioinformatic tools and resources applicable to medical genetics.
- Responsible for writing, updating and communicating Standard Operating Procedures relating to relating to procedures and processes involving the use of bioinformatics for diagnostic purposes.
- Responsible for rigorous record-keeping and strict adherence to quality standards, guidelines and policies.
- Provide specialist training to own or other disciplines, providing supervision where required and appropriate.
- Liaise with Trust IT staff and external LIMS provider(s).

## KEY WORKING RELATIONSHIPS

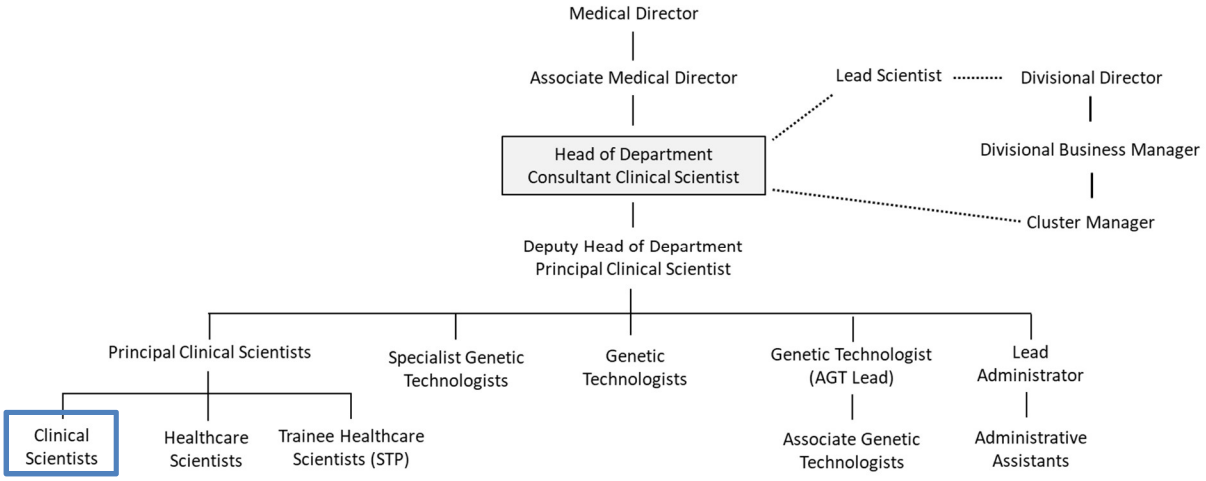
Areas of Responsibility: Clinical Scientists of this grade are personally responsible for their own work, working with a high degree of autonomy, subject to the supervision and direction of the

Principal Clinical Scientist Team Lead. The post holder is required to deal effectively with staff of all levels throughout the Trust and externally as and when they encounter on a day to day basis. This will include verbal, written and electronic media.

Of particular importance are working relationships with:

| Internal to the Trust | External to the Trust |
|---|---|
| • Clinical Scientists<br>• Healthcare Scientists<br>• Bioinformaticians<br>• Trainee Healthcare Scientists<br>• Genetic Technologists<br>• Associate Genetic Technologists<br>• Administrative Assistants<br>• Medical Staff<br>• Other Healthcare professionals<br>• Clinical research team members, Fellows and nurses | • Clinical Scientists<br>• Healthcare Scientists<br>• Bioinformaticians<br>• Trainee Healthcare Scientists<br>• Healthcare organisations<br>• Postdoctoral research fellows, PhD students and other trainees or students |

## ORGANISATIONAL CHART




## FREEDOM TO ACT

The post holder, under supervision, will manage own workload within areas of individual competency.

## COMMUNICATION/RELATIONSHIP SKILLS

Maintain the highest level of patient confidentiality and comply with section 60 of the Health and Social Care Act.

Recognise the importance of harmonious relationships and maintain an atmosphere conducive to this.

The post holder will frequently:

- Communicate complex data and information clearly and concisely to staff from multiple disciplines.
- Communicate with colleagues to understand the variation that can be found in the human genome.
- Develop and maintain working relationships with LIMS staff and LIMS leads in other regional genetics laboratories to enable complex troubleshooting and to further develop the system.
- Be responsible for the communication of developments in bioinformatics and LIMS issues to diagnostic and research staff working in the laboratory.
- Represent the Genomics department at regional and national meetings, providing professional input in a manner that can be interpreted and understood by all attendees.
- Communicate the results of their analyses to their clinical colleagues and ensure that what they have done is understood.
- Communicate with users and other laboratories (as appropriate) to request and receive sensitive and complex information necessary for accurate and timely reporting of results.
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## ANALYTICAL/JUDGEMENTAL SKILLS

Assist with the formulation, testing, problem solving, validation, organisation and implementation of innovative approaches that enable the efficient processing, analysis, storage, management and refinement of large amounts of complex data generated by Next Generation Sequencing (NGS) pipelines, and data within LIMS.

Make adjustments to ensure the outcomes meet the requirements of the users (e.g. to enable a clinician or clinical scientist to view and interpret relevant data at patient level).

Assist with the design, troubleshooting and documentation of procedures for analysing various sources of IT issues when an NGS pipeline (for example) is not working as it should

Assist with identifying how to use data innovatively but ethically to derive the most benefit for the patient (for example, to make new genetic diagnoses).

Responsible for using initiative and specialist knowledge of StarLIMS, bioinformatics, statistical analysis, data mining and programming, to make decisions on how to obtain required results within defined criteria and ensure timely delivery of high-quality information.

Excellent skills in programming, mathematical modelling, database construction and an in-depth understanding of how to apply these skills to clinical genomics.

Employ good practice in utilising project management and scientific software development methodologies to create robust, fast and efficient IT systems and processes that meet the needs of the service.

Contribute to the development, implementation, population, maintenance and utilisation of NGS analysis software and databases.

Assist with reviewing, validation and assessment of bioinformatic tools, and internet resources applicable to medical genetics, to annotate genomic data and aid in the interpretation of novel sequence variants.

Responsible for writing and maintaining accurate records of service improvements and their validation to comply with ISO15189 (UKAS) accreditation.

Abide by relevant codes of professional conduct (HCPC Standards of Proficiency).

## PLANNING/ORGANISATIONAL SKILLS

Responsible for planning own workload, prioritising tasks to meet the demands of the service.

Responsible for writing, updating and communicating Standard Operating Procedures relating to relating to LIMS, any other IT procedures and processes involving the use of bioinformatics for diagnostic purposes.

Responsible for detailed and rigorous record-keeping, including accurate recording of programming, pipelines, metadata associated with sequencing runs, and strict adherence to quality standards and guidelines.

Ensure compliance with all requirements of the Data Protection Act and any other relevant regulations for data protection.

Responsible for investigating methods for improved data storage and audit trail analysis for all processes.

Support Quality Co-Ordinator on quality management on NGS data analysis, storage, root-cause analysis, trouble-shooting, audit and managing incidents.
Take a proactive role in maintaining high quality standards to ensure maintenance of the laboratory UKAS accreditation status.

## PATIENT/CLIENT CARE

Provide specialist advice to relevant stakeholders regarding complex data and information.

To always work within clearly defined accountability framework.

To provide specialist competence developed through continual professional development, reflective practice and maintain a skills portfolio relevant to the service specification.

To undertake training to develop a range of knowledge and skills in order to deliver high quality technical interventions.

To report any untoward incidents or complaints to the appropriate Technical or Scientific Lead within the appropriate timescales.

To prevent adverse effects on health and wellbeing.

## POLICY/SERVICE DEVELOPMENT

Active involvement in writing, implementing, reviewing and updating Standard Operating Procedures, with input, to developing new protocols.

Active participation in both internal and external Quality Assurance schemes to ensure the highest standards of molecular genetic testing.

Take a lead role in audits and the quality management system; ensuring any required action plans are carried out.

Propose and Implement service developments and support specialist research within laboratory, under the direction of the Principal Clinical Scientist for Bioinformatics and the Head of Department.

To work to Trust Policies, Procedures and Standard Operating Procedures (SOP).

To contribute to and work within a safe working environment by adhering to statutory requirements, codes of practice, Health and Safety and COSHH regulations, protocols and policies of the laboratory.

## FINANCIAL/PHYSICAL RESOURCES

Support the efficient use of resources, including very expensive cloud storage and data processing solutions.

Ensure safe use of equipment by others.

## HUMAN RESOURCES

Train other staff, placement and work experience students, and visitors in relevant subject area.

Participate in supervision and appraisal process, identifying own areas of development, & undertaking relevant activities to meet objectives set in Personal Development Plan.

Keep a record of own training and development, maintain a portfolio, working to sustain acquired competencies for the post.

Undertake any training required in order to maintain competency including mandatory training, (i.e. Fire, Manual Handling).

Support the education of laboratory staff through the delivery of training sessions to genomic laboratory diagnostic and research staff at bi-monthly training sessions.

Demonstrate a professional and responsible manner at all times.

Take a flexible approach in supporting colleagues during times of caseload pressures.

## INFORMATION RESOURCES

Processing of extensive and complex data generated by Next Generation Sequencing (NGS) pipelines, and data within LIMS.

Responsible for providing day-to-day running and maintenance of LIMS and bioinformatics support for all activities relevant to the diagnostic molecular genetic testing process within the laboratory.

Initiate, develop, maintain and support interfaces for external IT systems and databases (such as MS Access databases) with LIMS (wherever possible).

Liaise with Trust IT staff to maintain up-to-date software on all departmental PCs and Molecular Genetics servers.

## RESEARCH AND DEVELOPMENT

Propose changes to working practices for own work area to improve and develop systems in terms of efficiency and quality, after liaising closely with colleagues implement developments in own area.

Participate in clinically relevant research & development, presenting the results in the literature and at meetings and at conferences to large groups of staff and members of the public, so that the innovations and improvements may become embedded in clinical practice.

Develop and design pipelines, databases and other innovations to enhance the quality and efficiency of bioinformatics and informatics in use in the laboratory.

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## PHYSICAL SKILLS

Prolonged periods of intense concentration, using IT equipment and working with high levels of accuracy.

Ability to work in an efficient manner to enable timely completion of tasks.

## PHYSICAL EFFORT

Using IT equipment on a daily basis.

## MENTAL EFFORT

Frequent requirement to concentrate for long periods processing complex information.

Frequent interruptions to work patterns, with requirement to shift focus quickly in response to frequent urgent incoming requests from internal and external colleagues.

Frequent need to complete work to tight timescales.

## EMOTIONAL EFFORT

Ability to cope with distressing clinical information provided with patient referrals occasionally.

Ability to cope and deal with areas of conflict, rarely.

## WORKING CONDITIONS

Frequent daily contact with visual display unit (VDU)

## OTHER RESPONSIBILITIES

Take part in regular performance appraisal.

Undertake any training required in order to maintain competency including mandatory training, e.g. Manual Handling

Contribute to and work within a safe working environment

You are expected to comply with Trust Infection Control Policies and conduct him/herself at all times in such a manner as to minimise the risk of healthcare associated infection

As an employee of the Trust, it is a contractual duty that you abide by any relevant code of professional conduct and/or practice applicable to you. A breach of this requirement may result in action being taken against you (in accordance with the Trust's disciplinary policy) up to and including dismissal.

You must also take responsibility for your workplace health and wellbeing:

- When required, gain support from Occupational Health, Human Resources or other sources.

- Familiarise yourself with the health and wellbeing support available from policies and/or Occupational Health.
- Follow the Trust's health and wellbeing vision of healthy body, healthy mind, healthy you.
- Undertake a Display Screen Equipment assessment (DES) if appropriate to role.

## GENERAL

This is a description of the job as it is now. We periodically examine employees' job descriptions and update them to ensure that they reflect the job as it is then being performed, or to incorporate any changes being proposed. This procedure is conducted by the manager in consultation with the jobholder. You will, therefore, be expected to participate fully in such discussions. We aim to reach agreement on reasonable changes, but if agreement is not possible, we reserve the right to insist on changes to your job description after consultation with you.

Everyone within the Trust has a responsibility for, and is committed to, safeguarding and promoting the welfare of vulnerable adults, children and young people and for ensuring that they are protected from harm, ensuring that the Trusts Child Protection and Safeguarding Adult policies and procedures are promoted and adhered to by all members of staff.

Northern Devon Healthcare NHS Trust and the Royal Devon and Exeter NHS Foundation Trust continue to develop our long standing partnership with a view to becoming a single integrated organisation across Eastern and Northern Devon. Working together gives us the opportunity to offer unique and varied careers across our services combining the RD&E's track record of excellence in research, teaching and links to the university with NDHT's innovation and adaptability.

# PERSON SPECIFICATION

| Job Title | Clinical Scientist (Bioinformatics) |
|---|---|

| Requirements | Essential | Desirable |
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| **QUALIFICATION/ SPECIAL TRAINING** | | |
| BSc Hons or equivalent qualification in a Bioinformatics, Computer Science or Health Informatics discipline, or a relevant biological discipline with demonstrated abilities in informatics and computing (first or second class) | ✓ | |
| MSc, PhD degree or equivalent in a relevant subject | ✓ | |
| HCPC registration as a Clinical Scientist | ✓ | |
| **KNOWLEDGE/SKILLS** | | |
| Knowledge of Next Generation Sequencing approaches and statistical techniques used in manipulation of large data analysis | ✓ | |
| Knowledge of bioinformatic tools, resources and techniques applied to medical genetics | ✓ | |
| Proven experience of working in UNIX/LINUX and BASH scripting | ✓ | |
| Good programming skills in a modern object orientated scripting language (such as Python, Ruby, Scala, PERL etc) suitable for pipeline development and *ad hoc* scripting | ✓ | |
| Experience in LINUX administration | ✓ | |
| Programming skills in a language suitable for statistical analysis (for example R) | | ✓ |
| Extensive knowledge of SQL database design, development and administration | ✓ | |
| Knowledge and experience of developing and maintaining Laboratory Information Management (LIM) Systems (for example StarLIMS) | | ✓ |
| Excellent IT skills | ✓ | |
| **EXPERIENCE** | | |
| Experience of developing and implementing bioinformatic tools and resources | | ✓ |
| Experience in IT, applications, developments, processes and organisation | | ✓ |
| Experience of molecular genetics, diagnostic genomics services or similar | | ✓ |
| Proven experience of successful project management | | ✓ |
| **PERSONAL ATTRIBUTES** | | |
| Friendly, trustworthy and ability to work as a team member | ✓ | |
| Self-motivated with a proactive approach to work | ✓ | |
| Excellent communication skills (ability to write clear and concise e-mails, presentations and phone conversations) | ✓ | |
| **OTHER REQUIRMENTS** | | |
| Positive commitment to uphold diversity and equality policies approved by the Trust | ✓ | |
| Flexibility in approach towards working hours | ✓ | |
| Ability to travel to other locations as required. | ✓ | - |

| WORKING CONDITIONS/HAZARDS | | FREQUENCY (Rare/ Occasional/ Moderate/ Frequent) R | O | M | F |
|---|---|---|---|---|---|
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| **Hazards/ Risks requiring Immunisation Screening** | | | | | |
| Laboratory specimens | N | | | | |
| Contact with patients | N | | | | |
| Exposure Prone Procedures | N | | | | |
| Blood/body fluids | N | | | | |
| Laboratory specimens | N | | | | |
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| **Hazard/Risks requiring Respiratory Health Surveillance** | | | | | |
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| Solvents (e.g. toluene, xylene, white spirit, acetone, formaldehyde and ethyl acetate) | N | | | | |
| Respiratory sensitisers (e.g isocyanates) | N | | | | |
| Chlorine based cleaning solutions (e.g. Chlorclean, Actichlor, Tristel) | N | | | | |
| Animals | N | | | | |
| Cytotoxic drugs | N | | | | |
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| **Risks requiring Other Health Surveillance** | | | | | |
| Radiation (>6mSv) | N | | | | |
| Laser (Class 3R, 3B, 4) | N | | | | |
| Dusty environment (>4mg/m3) | N | | | | |
| Noise (over 80dBA) | N | | | | |
| Hand held vibration tools (=>2.5 m/s2) | N | | | | |
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| **Other General Hazards/ Risks** | | | | | |
| VDU use ( > 1 hour daily) | Y | | | | X |
| Heavy manual handling (>10kg) | N | | | | |
| Driving | Y | X | | | |
| Food handling | N | | | | |
| Night working | N | | | | |
| Electrical work | N | | | | |
| Physical Effort | N | | | | |
| Mental Effort | Y | | | | X |
| Emotional Effort | Y | X | | | |
| Working in isolation | N | | | | |
| Challenging behaviour | Y | X | | | |