Genomics

Genes are instructions which tell the body how to make all the proteins it needs to survive and grow. Genomics [1] is the study of genes and how alterations can lead to changes in how proteins function or are produced by cells.

As a healthcare scientist working in genomics [1], you'll be examining samples of patients' nucleic acid (DNA [2] or RNA (Ribonucleic acid)) to identify genetic and genomic alterations that may be responsible for inherited and acquired diseases or conditions, such as cystic fibrosis or cancer.

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Overview

DNA [2] (deoxyribonucleic acid), is the hereditary material in humans and almost all other organisms. Nearly every cell in a person's body has the same DNA [2].

Working in genomics [1], you would not only identify alterations in genes but could also predict the likelihood of them being passed on to the next generation.

Working life

You would use chemical examination of cellular DNA [2] to define genetic abnormalities and the majority of your work would revolve around three main categories:

- prenatal diagnosis - examining cells for possible anomalies in the foetus, usually in families where single gene disorders have been identified by DNA [2] analysis.
- carrier testing and risk assessment for identifying presymptomatic individuals at risk from single gene disorders.
- confirmation of diagnosis in both inherited and acquired conditions.

As a healthcare scientist working in genomics [1], you'd rarely have direct patient contact yourself, but you

would be very aware of the impact that your research and examinations have on patients.

"One of the great things about my role is the amount of training opportunities that are available."

Examining samples of patients' DNA to identify genomic alterations that may be responsible for inherited diseases or conditions

Ronnie Wright, clinical scientist in genetics [5]

Read Ronnie's story [6]

Who would I work with?

You would work as part of a multidisciplinary team that includes doctors specialising in genetics [5] and genomics [1], healthcare science staff specialising in bioinformatics genomics [7], specialist nurses [8] and genomic counsellors [9].

Want to learn more?

- Find out more about the entry requirements, skills and interests required to enter a career in genomics [10]
- Find out more about the training you'll receive for a career in genomics [11]

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  Pay and conditions

  Most jobs in the NHS are covered by the Agenda for Change (AfC) [12] pay scales. This pay system covers all staff except doctors, dentists and the most senior managers. If you work in healthcare science, specialising in genetics [5] or genomics [1], your salary will typically be between AfC [13] bands 5 and 9, depending on your precise role and level of responsibility. As a healthcare science practitioner, you'd usually start on band 5, with opportunities to progress to more senior positions. Trainee clinical scientists train at band 6 level, and qualified clinical scientists are generally appointed at band 7. With experience and further qualifications, including Higher Specialist Scientist Training [14], you could apply for posts up to band 9.

  NHS staff will usually work a standard 37.5 hours per week. They may work a shift pattern.

  Terms and conditions of service can vary for employers outside the NHS.

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  Where the role can lead

With further training or experience or both, you may be able to develop your career further and apply for vacancies in areas such as further specialisation, management, research, or teaching.

Healthcare science staff often work at the forefront of research and innovation, so that patients are continually receiving the very best healthcare. For example, in genetics [5], you could be involved in the Human Genome Project [15] - a project that aims to gain a better understanding of how certain traits and characteristics are passed on from parents to children.

Read more about genomics in healthcare [16].

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Job market and vacancies

Genetics [5] is an expanding area of healthcare science. Human Genome Project [15] is one example of how opportunities are being created to understand more about our genetic make-up and to predict how our health may change in the future. It can be advantageous to have gained some experience of working in a relevant environment before applying for a place on a course or job vacancy. You should always check with the course provider or employer to see what sort of experience is preferred or required.

In November 2018, there were 6,123 clinical scientists registered with the Health and Care Professions Council [17].

The NHS Scientist Training Programme (STP) [18] and Higher Specialist Scientist Training (HSST) [14] attract many more applicants than there are places and so there is considerable competition for places.

Finding and applying for jobs

When you're looking for job or apprenticeship vacancies, there are a number of sources you can use, depending on the type of work you're seeking.

Check vacancies carefully to be sure you can meet the requirements of the person specification before applying and to find out what the application process is. You may need to apply online or send a CV for example.

For the NHS Scientist Training Programme (STP) [19] and Higher Specialist Scientist Training (HSST) [14], there is an annual recruitment cycle. Applications usually open in early January for the intake in the following autumn and should be made through the National School of Healthcare Science website [20], where you can also find information about the programme and the recruitment process.

Key sources relevant to vacancies in the health sector:

- Vacancies in organisations delivering NHS healthcare can be found on the NHS Jobs website [21]
- Vacancies in local government can be found on the Local Government Jobs website [22] and the Jobs Go Public website [23]

As well as these sources, you may find suitable vacancies in the health sector by contacting local employers directly, searching in local newspapers and by using the Universal Jobmatch tool [24].

Find out more about applications and interviews [25].

Volunteering is an excellent way of gaining experience (especially if you don't have enough for a specific paid job you're interested in) and also seeing whether you're suited to a particular type of work. It's also a great way to boost your confidence and you can give something back to the community.

Find out more about volunteering and gaining experience [26].

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   Further information

For further information about working and training in genetics [5] and genomics [1], please contact:

- Academy for Healthcare Science (AHCS) [27]
- Clinical Genetics Society [28]
- Health and Care Professions Council [29]
- National School of Healthcare Science [20]
- UCAS [30]

Other roles that may interest you

- Adult nurse [31]
- Clinical bioinformatics (genomics) [32]
- Genomic counselling [33]
- Counsellor [34]

Source URL: https://www.healthcareers.nhs.uk/explore-roles/healthcare-science/roles-healthcare-science/life-sciences/genomics?career=ahp&page=1

Links
[1] https://www.healthcareers.nhs.uk/glossary#Genomics [2] https://www.healthcareers.nhs.uk/glossary#DNA [3] https://www.healthcareers.nhs.uk/privacy-and-cookies/#CookieDeclarationChangeConsentChange [4] https://www.youtube.com/NHSCareers [5] https://www.healthcareers.nhs.uk/glossary#Genetics [6] https://www.healthcareers.nhs.uk/explore-roles/life-sciences/genomics/real-life-story-ronnie-wright [7] https://www.healthcareers.nhs.uk/explore-roles/informatics/bioinformatics-genomics [8] https://www.healthcareers.nhs.uk/explore-roles/nursing [9] https://www.healthcareers.nhs.uk/explore-roles/life-sciences/genomic-counselling [10] https://www.healthcareers.nhs.uk/explore-roles/life-sciences/genetics/entry-requirements-skills-and-interests [11] https://www.healthcareers.nhs.uk/explore-roles/life-sciences/genetics/training-development-and-registration [12] https://www.healthcareers.nhs.uk/about/careers-nhs/nhs-pay-and-benefits/agenda-change-pay-rates [13] https://www.healthcareers.nhs.uk/glossary#AfC [14] https://www.healthcareers.nhs.uk/i-am/working-health/nhs-higher-specialist-scientific-training [15] https://www.healthcareers.nhs.uk/glossary#Human_Genome_Project [16] http://hee.nhs.uk/work-programmes/genomics/ [17] http://www.hcpc-uk.org [18] https://www.healthcareers.nhs.uk/i-am/considering-university/not-studying-health-related-degree/nhs-scientist-training-programme

[19] https://www.healthcareers.nhs.uk/i-am/considering-or-university/not-studying-health-related-degree/nhs-scientist-training-programme [20] http://www.nshcs.hee.nhs.uk/ [21] http://www.jobs.nhs.uk [22] http://www.lgjobs.com/ [23] http://www.jobsgopublic.com/ [24] https://www.gov.uk/jobsearch [25] https://www.healthcareers.nhs.uk/career-planning/offering-career-support/training-and-teaching-resources-young-people/application [26] https://www.healthcareers.nhs.uk/i-am/secondary-school-or-fe-college/gaining-experience [27] http://www.ahcs.ac.uk [28] http://www.clingensoc.org/ [29] http://www.hcpc-uk.org/ [30] http://www.ucas.com [31] https://www.healthcareers.nhs.uk/explore-roles/nursing/roles-nursing/adult-nurse [32] https://www.healthcareers.nhs.uk/explore-roles/healthcare-science/roles-healthcare-science/clinical-bioinformatics/clinical-bioinformatics-genomics [33] https://www.healthcareers.nhs.uk/explore-roles/healthcare-science/roles-healthcare-science/life-sciences/genomic-counselling [34] https://www.healthcareers.nhs.uk/explore-roles/psychological-therapies/roles/counsellor