

Cytogenetics, molecular genetics and embryology & andrology

Join the team and make a difference

The work done in **cytogenetics and molecular genetics** is designed to help diagnose genetic disorders, as well as assessing the likelihood of their being passed on to a patient's children and identifying them in newborn babies. **Cytogenetics** also involves diagnosing and assessing the effect of leukaemia and other cancers. **Embryologists and andrologists** specialise in helping people who cannot have children.

What will you do?

In **cytogenetics**, you will be responsible for identifying abnormalities by studying and reporting on the chromosomes from patients' cell samples.

You will interpret and report on the results of the chromosome analysis and you will then liaise with the clinicians to help them make an accurate diagnosis of genetic conditions. Results can take from a few days to up to four weeks, depending on the type of test and urgency of referral. If information is needed quickly, you may need to fast-track tests to enable clinical decisions to be made.

You will contribute to diagnosis during pregnancy, paediatric and family investigations and cancer identification. You will need to keep up with the latest theory and techniques and will be involved in developing new ones.

Molecular geneticists look for genetic abnormalities in a patient's DNA, and you will report and interpret the results of genetic analyses. You will also be expected



to predict the likelihood of certain conditions being passed on to the next generation, helping parents make an informed decision about having children.

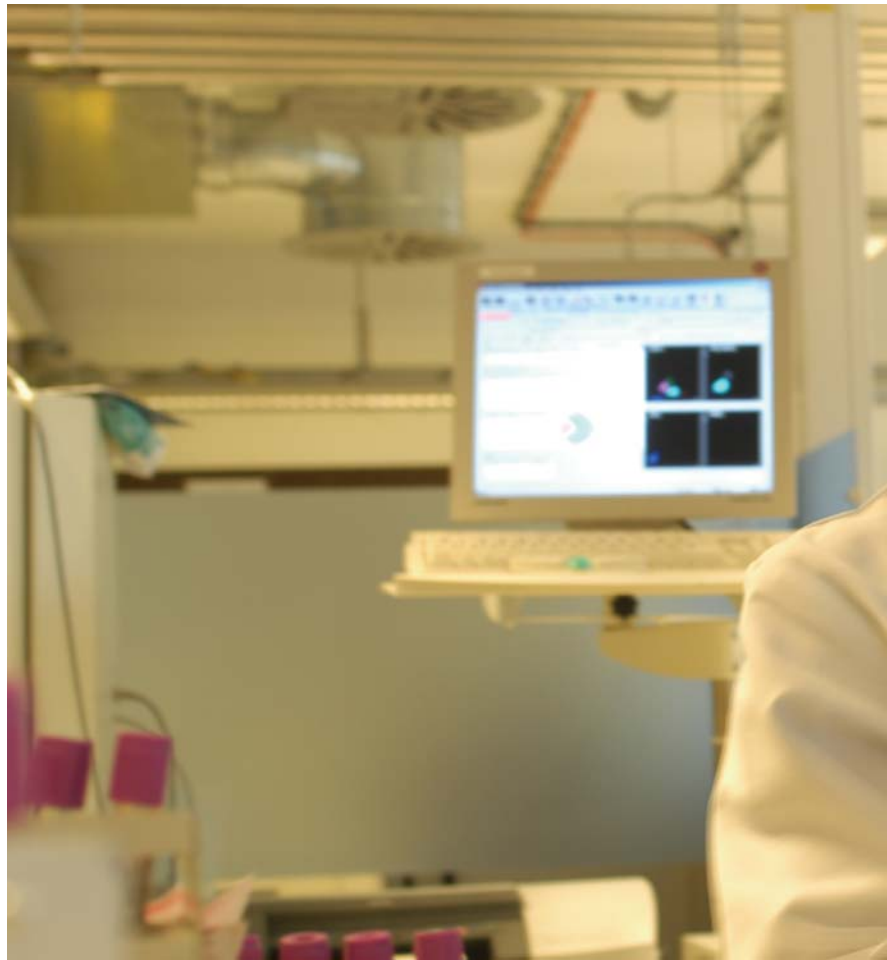
You will work as part of a team. Some scientists also have a lot of interaction with other clinicians – before they carry out tests, to confirm and advise on which ones are necessary, and afterwards to help explain the results.

Scientists keep up with the latest theory and techniques, and will be involved in developing new ones

Many of the tests in these two areas are computerised, with the reports being stored on the hospital's computer system. So, working as a scientist at any level, you'll need to be comfortable using computers.

The work in **embryology** involves more patient contact. In this area you will be helping patients who cannot have children. As an embryologist, you will collect eggs from patients and fertilise them using techniques such as in-vitro fertilisation (IVF). In **andrology** the focus is on helping men who cannot father children. You will prepare, examine and analyse semen samples to identify problems. You'll also report back on your findings to obstetricians and other clinicians.

If you really want your work to make a difference to people's lives, this is one of the most fulfilling areas of healthcare science. You will be helping people who want to start a family to realise their dream, and increasing their chances of giving birth to healthy children.



Where will you work?

As all these areas involve a large amount of benchwork, you will be based in a hospital laboratory.

In cytogenetics and molecular genetics, there is very little direct patient contact. However, scientists will occasionally be called into consultations, to help explain complex tests and their results to patients.

Embryology and andrology offer more scope for working outside the laboratory, and dealing directly with patients.

What skills and qualities will you need?

- good pattern recognition – abnormalities are not always immediately obvious, so you will need a keen eye for detail when examining samples
- excellent hand-eye co-ordination – this is crucial when preparing samples, if they are spoiled in any way this might affect the analysis
- good concentration – you will spend long periods examining samples under a microscope
- IT skills – many tests are now automated, and will be stored on a computer system
- tact and sensitivity – if you are dealing with patients who are trying to have children
- communication skills – scientists will regularly speak to clinicians about the test and their findings



What entry routes are available?

You will need a first-class or upper second-class degree in genetics, a biological science or another science degree with a strong genetic component to be eligible to join the NHS Clinical Scientists Training Scheme. This is a four-year programme of in-depth training, during which you will be paid whilst undertaking the clinical elements of your training. Some employers may also pay your tuition fees and offer financial support while you undertake theoretical academic elements of your training. This will usually lead to an MSc or specialist postgraduate diploma, and give you the opportunity to work at the forefront of research and knowledge as a clinical scientist registered with the Health Professions Council. For more information, visit www.nhsclinicalscientists.info

With GCSEs or an equivalent NVQ and/or previous work experience, it is often possible to start work as a trainee or assistant in healthcare science, combining on-the-job training with study so that you learn as you earn. For more information, see the *Clinical support worker* factsheet.

Some employers also offer apprenticeships, which involve a two-year training programme that gives you experience of different jobs within healthcare science.

For more information on the range of opportunities available in healthcare science, please visit www.nhs Careers NHS UK/list/qualifications. This gives more specific details about what qualifications are necessary for each role.

You can search for current vacancies and download job descriptions at www.jobs.nhs.uk

How can you develop your career?

There are excellent career prospects, that include openings for research, management and education – in fact, you will be encouraged to study, perhaps for an MSc or PhD. You will be encouraged to continually expand your knowledge as advances are made, contributing to the growth of the role and you may even carry out related specialised work.

With training, responsibility and experience, you could reach the highest level in the profession, attaining consultant status, at which level you are likely to be in charge of a large department or making a significant contribution to your area of expertise.

Find out more about what training is open to you and how you can develop your career, at www.nhs Careers NHS UK/list/training

As well as moving to more senior and specialised roles within this area, you will also have the chance to take on additional responsibilities and progress within the organisation as part of the Career Framework. For more information about this initiative, please see the *Careers in healthcare science* booklet.

Pay

The national pay system in the NHS is called Agenda for Change (AfC). This applies to all healthcare science staff except the most senior managers. These are examples of roles and the AfC bands at which they may be paid: healthcare science support worker (Band 2); healthcare science assistant (Band 4); healthcare science practitioner (Band 5); healthcare science specialist (Band 6); healthcare science advanced (Band 7); healthcare science consultant (Band 8a-c). For more information, visit

www.nhscareers.nhs.uk/list/payandbenefits

To find out more about careers in this area of healthcare science, please go to

www.nhscareers.nhs.uk/list/working

For more information on the professional bodies relevant to healthcare science, visit

www.nhscareers.nhs.uk/list/contacts

