

Immunology, histocompatibility & immunogenetics and tissue banking

Join the team and make a difference

The work done in immunogenetics and histocompatibility looks at people's genetic make-up and how this affects their immune system. It plays a vital role in the understanding and management of conditions that attack the immune system, and is an essential part of the preparation for transplant surgery.

What will you do?

Clinical immunologists research and investigate the immune system and its role in autoimmune diseases, infectious diseases, allergies, tumour growth, tissue grafts and organ transplants, by carrying out a series of primarily laboratory-based tests on blood samples. The work they do leads to more effective diagnosis of these conditions and may lead to more effective treatments for diseases like AIDS and leukaemia, as well as allergies and asthma.

There is great variety in the work, both in terms of the type of tests and the techniques used. The tests may involve looking at samples in a microscope. Equally, much of the work is automated, but some procedures still rely on specialist manual skills. The tests also vary in complexity and some can be completed within a few hours, while others might take up to a week.

There may be times when you carry out tests alone, but the majority of the time you will work as part of a team. You will also come into frequent contact with clinicians and other healthcare professionals, advising them on which tests need to be run, as well as sharing results and explaining what they



mean. You won't often see patients directly, although you may occasionally take blood from patients yourself. You might also sit in when clinicians meet with patients and help to explain the tests.

In **histocompatibility and immunogenetics**, you will be responsible for finding the best match between an organ donor and someone having transplant surgery. This is an increasingly common type of procedure that saves lives on a daily basis, and you would be making a hugely important contribution to the process.

You will ensure the organ, tissue or bone marrow from the donor is compatible with that of the person who needs the treatment. This is done by taking blood samples from both people and carrying out a series of

procedures, known as tissue typing. In some ways, this is similar to taking someone's fingerprint. Everyone's immune system and genetic make up is unique.

Another key part of your work will be to manage a register of patients needing a transplant and their specific immunogenetic characteristics. This means you can quickly identify a suitable donor when one comes in.

You will be expected to advise surgeons and physicians on the best match for each patient, which is vital if they are to carry out their work successfully.

Working in **tissue banking**, you will act as the key link between tissue donors and recipients. This is another vital part of the transplant process and potentially a very rewarding one. You will ensure the wishes of people who want to donate their tissue are fulfilled, and find potentially life-saving material for those who need it.

Your work will vary from retrieving the tissue from the donor, then processing and preparing it for further use, through to advising surgeons and physicians on which samples to use. You might also work in a mortuary, taking samples from donors who have died. In this instance, you would come into regular contact with pathologists and anatomical pathology technologists, as well as relatives of the donor.

What entry routes are available?

To work as a biomedical scientist you'll need a biomedical science degree approved by the Health Professions Council before applying for a post as a trainee biomedical scientist. After joining the NHS, you will receive training in the relevant areas. The training will take up to two years and will enable you to register with the Health Professions Council.



If you have a first-class or upper second-class degree in a relevant subject, you may be eligible to join the NHS Clinical Scientists Training Scheme. This is a four-year programme of in-depth training in a specialist area, 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.

There are no specific qualifications needed for someone working in tissue banking, but there is a range of on-the-job training available, depending on the type of role you are looking to move into.

For more information on the range of opportunities available in healthcare science, please visit www.nhscareers.nhs.uk/list/qualifications. This gives more specific details about which qualifications are necessary for each role. You can search for current vacancies and download job descriptions at www.jobs.nhs.uk

Where will you work?	What skills and qualities will you need?
<p>In immunology you would be based mainly in a laboratory, and would normally work standard office hours.</p>	<ul style="list-style-type: none"> • an interest in human biology
<p>In histocompatibility & immunogenetics you would be based in a histocompatibility, genetics or transplant department of a hospital, or alternatively in a blood transfusion centre.</p>	<ul style="list-style-type: none"> • attention to detail
<p>If you are involved in tissue banking, you could work in either a hospital, a specialised laboratory or a mortuary.</p>	<ul style="list-style-type: none"> • good communication skills – you must be able to clearly explain the results of your tests and their implications
	<ul style="list-style-type: none"> • excellent hand-eye co-ordination – much of the work is manual and requires great concentration
	<ul style="list-style-type: none"> • good concentration – you may spend long periods examining samples in a microscope
	<ul style="list-style-type: none"> • IT skills – as with many areas of healthcare science, many tests are now automated
	<ul style="list-style-type: none"> • speed and accuracy – results will often be needed quickly, but must always be accurate
	<ul style="list-style-type: none"> • ability to work on your own, and as part of a team
	<ul style="list-style-type: none"> • tact and sensitivity, especially if dealing with bereaved relatives

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 attain 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.nhscareers.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