

What happens at the Institute of Genetic Medicine?

The International Centre for Life is an innovative science village in the heart of Newcastle upon Tyne where a range of people work; researchers, clinicians, educationalists and business people, all of whom are promoting the advancement of science.

Newcastle University is a key partner at Life. Since 2000, the research work it undertakes at Life has expanded considerably and gained an international reputation.

Newcastle University's Institute of Genetic Medicine (IGM) is located at Life, where it occupies a large proportion of laboratory and office space which has been custom-fitted for its research requirements.

Overview:

The aim of the IGM is to ***'harness genetic developmental and cell biology and to understand and treat human disease by developing and implementing new therapies.'***

Highlights:

The IGM is regularly in the news headlines. Some areas of work which you may have heard of include:

- **The 100,000 Genomes Project**

The Institute of Genetic Medicine is one of only three sites in NHS England's 100,000 Genomes Project which is a pilot study to sequence whole human genomes of patients within NHS hospitals for the benefit of all patients across the country.

- **Mitochondrial replacement therapies**

In early 2015, IVF-based mitochondrial replacement therapies pioneered at the IGM received overwhelming support in both Houses of Parliament meaning that the treatment could be used as early as next year to enable children to be born free of mitochondrial diseases such as muscular dystrophy.

- **The John Walton Muscular Dystrophy Research Centre**

In 2014, Newcastle University launched the John Walton Muscular Dystrophy Research Centre which represents the culmination of more than 50 years of excellence in muscular dystrophy research and care at the University and in the Newcastle Hospitals. The new research centre will help to improve the IGM's cutting-edge work to better understand muscle disease, so improving

care and treatment for patients.

Main research areas at the IGM:

There are seven main fields of research at the IGM with around 150 research staff and post graduate students collaborating across the groups. Several staff hold senior positions both nationally and internationally on world-leading programmes investigating rare disease diagnosis and treatment. Today, the IGM is highly regarded across the world as a leader in the field of genetic research.

- Cardiovascular Development, Ageing and Repair and Regeneration
- Complex Disease and Quantitative Genetics
- Developmental Genetics and Gene Expression
- Endocrine and Renal Genetics
- Neurological and Neuromuscular Genetics
- Stem Biology and cellular therapy

Clinical work

The Institute of Genetic Medicine (IGM) works closely with the NHS Northern Genetics Service, (NGS), which is also based at Life. NGS provides clinical and laboratory genetic services to the three million+ people living in Tyne and Wear, Cumbria, Northumberland, County Durham and Cleveland from its base at the Institute of Genetic Medicine and a satellite unit at the James Cook University Hospital in Middlesbrough.

The main purpose of the NGS is to provide comprehensive and fully integrated clinical and laboratory services that help reduce death rates associated with genetic disease. The service aims to provide patients and other health professionals with the information necessary to help decision-making by individuals and families who have, or are at risk of, heritable disease.