

# Institute of Developmental & Regenerative Medicine

Repairing the body from within

## Background

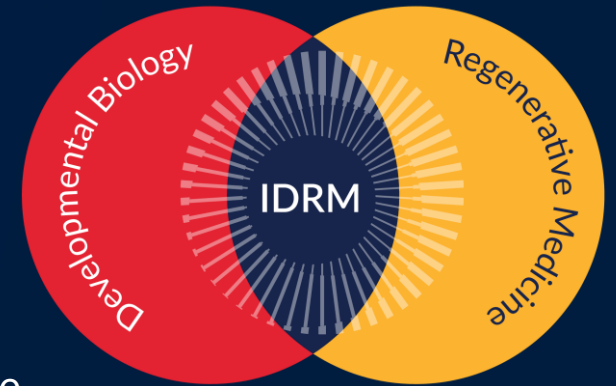
Two thirds of all deaths worldwide are due to non-communicable diseases, many affecting the cardiovascular, neurological and immune systems. Current therapies are often non-curative.

IDRM seeks a better understanding of normal development and healthy ageing — and how this goes wrong in disease — to inform therapeutic strategies that replace and restore damaged tissues.



## Our vision

We seek to understand how tissues and organs are formed during normal development to inform on strategies to repair and regenerate the same tissues and organs when injured or diseased.



## Our mission

Our mission is to establish world-leading interdisciplinary research programmes across cardiovascular science, neuroscience and immunology; culminating in new treatments for birth defects and acquired disease.



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# Why the IDRMM is unique

## Key objectives

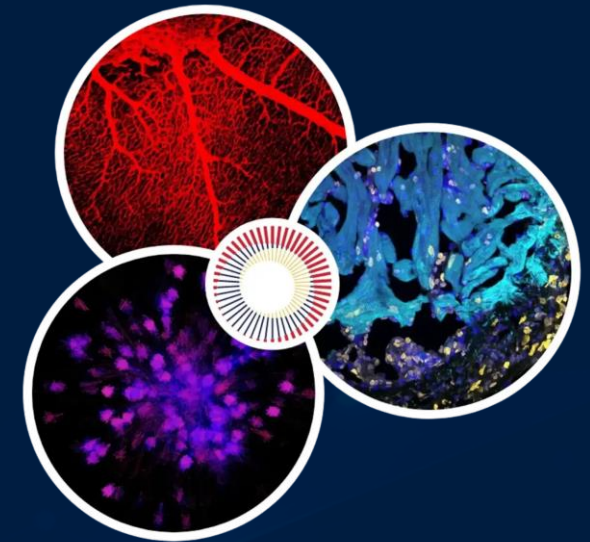
- Revolutionise treatment of cardiovascular, neurological and immune-mediated diseases
- Exploit the plasticity of resident cell types
- Reawaken intrinsic repair mechanisms
- Translate discovery science into therapeutic intervention

## MRC Centres of Research Excellence

The IDRMM is part of two Medical Research Council Centres of Research Excellence (MRC CoRE), each funded at up to £50 million over 14 years, focused on developing transformative advanced therapeutics for currently untreatable diseases.

## Core competencies

- Physical merger of developmental biology and regenerative medicine
- Integration of cardiology, neuroscience and immunology
- Advanced imaging, -omics, synthetic and computational biology
- Machine learning, AI and mathematical modelling
- Close clinical collaboration ensuring translation to patient benefit



# MRC CoRE in Therapeutic Genomics

## Background

There are over 4,500 rare single-gene disorders affecting 2.5 million people in the UK and approximately 500 million globally.

The process of developing genetic therapies remains slow and costly.

The CoRE will transform the diagnosis and treatment of rare genetic diseases and enable the scalable development of genome-targeted therapies.

## Academic partners



## Industry and strategic partners



## Platforms and technologies

- Integration of genomic screens
- CRISPR genome editing
- Antisense oligonucleotides (ASOs)
- Artificial intelligence-enabled therapy design
- Genome-led, patient-centred, data-driven therapeutic development



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MRC Centre of Research  
Excellence in Therapeutic  
Genomics

# MRC/BHF CoRE in Advanced Cardiac Therapies

## Background

Heart failure affects up to 3% of the global population (over 65 million people worldwide).

Current therapies are not curative and offer only incremental benefit.

The CoRE will increase knowledge in cardiac regenerative biology and translate this knowledge into therapeutic products to treat heart attack and heart failure.

## Academic partners



THE UNIVERSITY  
of EDINBURGH

**KING'S**  
College  
LONDON

## Industry and strategic partners

AstraZeneca



AskBio™

BATAVIA  
biosciences



SYNCONA

## Platforms and technologies

- Nucleic acid-based therapies, including mRNA and regulatory RNAs
- Viral and non-viral delivery systems for therapeutic DNA and RNA
- Regenerative biology of cardiomyocytes and vascular cells



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MRC/BHF Centre of Research Excellence  
in Advanced Cardiac Therapies



Medical  
Research  
Council



British Heart  
Foundation

# Industry engagement and partnership model

## Discovery through partnership

The IDRMM works with industry through structured collaborations that support discovery, translational development and therapeutic innovation.

## Entrepreneurial track record

Several IDRMM Principal Investigators have founded and led biotechnology companies, demonstrating a strong culture of translation and venture creation.











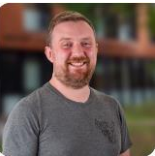






## How we work with industry

- Industry-funded research projects
- Collaborative research programmes
- Joint funding applications and co-development activity
- Access to Institute equipment and Small Research Facilities (SRFs)
- Academic placements or sabbaticals within industry
- Industry secondees or visiting staff within the Institute
- Structured knowledge exchange linked to partnerships



# Our research groups

The research groups of the IDRM work across three themes - cardiovascular science, neuroscience, and immunology.

 <p>De Val Group Cardiology</p>	 <p>Gupta Group Neurology</p>	 <p>Stone Group Cardiology</p>	 <p>Holländer Group Immunology</p>	 <p>Kalisch-Smith Group Cardiology</p>
 <p>Mommersteeg Group Cardiology</p>	 <p>Riley Group Cardiology</p>	 <p>Rinaldi Group Neurology</p>	 <p>Roberts Group Neurology</p>	 <p>Sanders Group Neurology</p>
 <p>Simões Group Cardiology</p>	 <p>Smart Group Cardiology</p>	 <p>Srinivas Group Cardiology</p>	 <p>Stathopoulou Group Cardiology</p>	 <p>Wood Group Neurology</p>

