

Cardiovascular, Respiratory and Neurological Sciences



Degenerative diseases of the heart are burdens that touch everyone's life. We are discovering key processes underlying damage to the circulatory system as well as the organ itself, and developing interventions to block their progress or regenerate healthy tissue.

Cardiovascular research encompasses studies from the molecular and signalling pathways regulating behaviour of cells of the vasculature, to the functioning of the heart and vessels in animals, to the pathophysiology of heart failure, heart attacks and atrial fibrillation, to the impact of cardiovascular diseases on public health. All of this is brought together through the **Centre for Cardiovascular Sciences**.
</research/activity/mds/centres/cardiovascular/index.aspx>

We are developing ways to inhibit vascular thrombosis and inflammation, optimise blood flow, improve management of those with heart disease, and test the effects of large-scale interventions on the region's health.

Translational neuroscience research in the College brings together world-class clinical and experimental scientists with expertise in diverse aspects of neurobiology, as well as cross-College links with engineers and psychologists.

From molecular and cellular aspects, to the brain as a whole, through the extensive network of neural connections across the body, our aim is to understand how these biological underpinnings interact with psychological and social factors to cause the neurological and psychiatric disorders associated with neurotrauma and other neurodegenerative conditions.

Clinical researchers at the new Queen Elizabeth Hospital Birmingham and National Centre for Mental Health that adjoin the Medical School are facilitating our focus on translational neuroscience. Together with trauma specialists, neurologists, neurosurgeons, neuro-ophthalmologists, psychologists and psychiatrists at the new NIHR Surgical Reconstruction and Microbiology Research Centre at the Queen Elizabeth Hospital are allowing us to applying insights gained through fundamental research to develop novel pharmacological and cellular therapies for acute and chronic neurodegenerative and psychiatric disease.

Research Themes

- **Clinical and Integrated Cardiovascular Sciences (CICS)**
</research/activity/mds/domains/cardio-resp-neuro/clinical-integrated-cardiovascular-science/index.aspx>
- **Clinical Respiratory Science** [\(/research/activity/mds/domains/cardio-resp-neuro/clinical-respiratory-science/index.aspx\)](/research/activity/mds/domains/cardio-resp-neuro/clinical-respiratory-science/index.aspx)
- **Neurotrauma** [\(/research/activity/mds/domains/cardio-resp-neuro/neurotrauma/index.aspx\)](/research/activity/mds/domains/cardio-resp-neuro/neurotrauma/index.aspx)
- **Neurodegenerative Diseases** [\(/research/activity/mds/domains/cardio-resp-neuro/neurodegenerative-diseases/index.aspx\)](/research/activity/mds/domains/cardio-resp-neuro/neurodegenerative-diseases/index.aspx)
- **Vascular Inflammation, Thrombosis & Angiogenesis (VITA)**
</research/activity/mds/domains/cardio-resp-neuro/vascular-inflammation/index.aspx>