

Healthcare Gateway

Facilities to study cardiovascular disease therapies

Partners

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Overview

New life-saving treatments for arterial disease are being tested at one of the few large-animal research facilities in the country. Licenced and carefully regulated by the Home Office, and based in the University, the Department of Infection, Immunity & Cardiovascular Disease uses the facility for studies that investigate the effects and safety of potential therapies.

Current research

Along with the animals for experiments, equipment in the facility includes ultrasound and x-ray. Pigs are used for a range of cardiovascular research because they are similar to humans in anatomy, physiology and size. The therapies tested are directly transferable to people.

Close links with the adjoining Sheffield Teaching Hospitals NHS Trust and the expertise of other departments in the University supports the research. Through the Insigneo virtual institute for in silico medicine, for example, physicists and engineers are designing computer models that assess how patients will respond to treatment. In another area, work with chemists is developing a coating for stents that releases a tiny amount of carbon monoxide beneficial to blood vessels.

In one current study, the facility is working with Bradford coronary stent manufacturer Arterius to develop a biodegradable stent (also known as a vascular scaffold). This new technology could replace traditional permanent metal stents, dissolving in six to twelve months once the artery has widened and no longer needs support. Other work uses an animal model to investigate potential treatments for pulmonary artery hypertension, a severe disease affecting the lungs that has a significant impact on quality of life and life expectancy.

New manufacturing technology

Animal studies are just the initial stage of developing effective therapies. Once safety has been proved in the lab, researchers will draft a proposal for testing in humans. These clinical trials can easily be coordinated through the Clinical Research Facility, which brings together the resources of the University and the Trust. Recruiting keen and motivated patients for trials is not difficult, and ethical approval is so efficient these days that new treatments can become routinely available within a few years.

University researcher and Sheffield Teaching Hospitals NHS Trust clinician Professor Julian Gunn elaborates: "If there's a technology out there that someone thinks is potentially beneficial to patients, we can offer a one-stop shop where we can look into its feasibility. We link the basic science with translational clinical trials, so we can move from bench to bedside fairly effortlessly. A company doesn't have patients and a hospital doesn't have the basic science, but we cover both."

"Sheffield has a huge amount to offer between the University departments' research and the hospital right next door. I find it very rewarding that I can do these experiments and the same week go back to my patients and tell them that there's some help around the corner."

Contact the Healthcare Gateway

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