The University Of Queensland
AUSTRALIA

CREATE CHANGE

Biomedical Sciences

Integrated Physiology Facility (IPF)

The IPF consists of 130m^2 of PC2 laboratory space and contains a variety of rodent (mouse and rat) holding, as well as surgical and physiological testing equipment such as the Phenomaster, a dedicated small animal surgery suite, ultrahigh resolution ultrasound and an isolated heart perfusion system (Langendorff).

Services

Ultrahigh resolution echocardiography (Vevo 3100) for detailed assessment of systolic and diastolic function in normal mice as well as in models of altered function (i.e., myocardial infarction, transverse and abdominal aortic constriction, angiotensin-infusion, exercise). Integration of ECG analysis with cardiac function as well as pressure-volume loop analysis (using Millar catheters). Examination of cardiac function in developing mice in utero.

Ultrahigh resolution ultrasound (Vevo 3100) for early determination of pregnancy, measurement of blood flow and organ development in utero and image-guided embryo injection.

Langendorff isolated heart for assessment of acute changes in systolic and diastolic dysfunction, drug effects on cardiac function (inotropic/lusitropic, chronotropic) and on vascular function (vasodilatation/vasoconstriction, reactive hyperemia). Examination of acute outcomes from ischemia-reperfusion injury, including assessment of protein efflux from hearts (lactate dehydrogenase, troponin etc).

Phenomaster and NMR analyser for assessment of body composition (fat, lean mass, etc.) and detailed, non-invasive, continuous, real time assessment of metabolism, behaviour and physiology.

Virus-based or drug delivery in vivo. Expertise in intravenous and intracerebroventricular injection available. Assistance with viral vector design and production (Adenovirus and Adeno-Associated Virus) and models of gene deletion (e.g., cell/tissue specific expression of iCre for Cre-lox models of gene knockdown). Pharmacokinetics (PK) of drug treatments.

Implantable telemetry probes for continuous assessment of blood pressure, blood glucose and activity.

Surgical services include, but are not limited to: myocardial infarction (neonate, adult); ischemia-reperfusion (heart, gut, hind limb etc.); transverse aortic banding (TAC) and abdominal aortic (AAC) banding; Adrenalectomy, nephrectomy; Alzet minipump drug administration (e.g., pressor and subpressor angiotensin II-induced hypertrophy); Millar catheter assessment of aortic pressure and ventricular pressure; catheterization of carotid artery, jugular vein and thoracic lymph duct of rats and mice for PK studies in isolated metabolism cages (up to 7 days sampling time)

UQ's School of Biomedical Sciences

The University of Queensland's School of Biomedical Sciences is making ground-breaking advances in modern medical science and providing students with the theoretical and practical skills for an exciting career in academia and industry.

Our innovative research encompasses the research spectrum from basic discovery through translational pathways to medical solutions, including:

- Investigation of cellular processes such as protein trafficking, cell signalling and organelle function.
- Study of how the dysregulation of bodily processes can cause serious human disorders such as infertility, Alzheimer's disease and autism.
- Musculoskeletal and neuromotor analyses to improve whole-body movement performance.
- Novel approaches to heal conditions such as spinal injury, motor neuron disease and cancer.

Contact

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