

A Valuable Research Partner

The Department of Experimental Surgery Singapore General Hospital

Singapore General Hospital's Department of Experimental Surgery (DES) is currently the only large animal research facility in Singapore that has the facilities and capacity to carry out meaningful large animal research in Singapore and perhaps in the region. With its additional facilities in Sembawang, Singapore, its capacity exceeds that of its closest rival in Singapore by about 10 folds. While there are veterinary research facilities in our neighbouring countries, these are not for medical research and have completely a different range of research activities.

DES also has the only dedicated primate research and breeding facilities in Singapore. It was founded twenty years ago but has expanded exponentially over the last five years. It has a comprehensive range of facilities in terms of both equipment and staff expertise, for both in-vivo and in-vitro research activities under one roof and is especially strong with respect to large animal in-vivo research. Recently it has acquired equipment for rodent Positron Emission Tomography and has access to a cyclotron for specialised radioisotopes.

DES research activities are broad-based. It is involved in the creation of novel animal models that can be exploited for pre-clinical testing (e.g. breeding of high value animal models). DES has already successfully bred tree shrews in captivity and has created a novel biliary stricture model in pigs, which will be immensely useful to preclinical studies of biliary stents. In addition, it has recently commissioned an Animal BSL2/3 facility suitable for non-human primates with which investigational new drugs on infectious diseases may be carried out. It is also engaged in creating a centre for cadaveric (anatomical and non-anatomic) research and the creation of arthropometric databases on the different ethnic groups in the region. Such databases are now scarce and are of great value to industry involved in the creation of prostheses aimed at the Asian market. DES also acts as a pre-clinical and ADMET research centre to industry. Collaborative partners include collaboration with PsiOncology, Biosensors and Insign, and it is over subscribed for contract research services with many biotech companies.

In comparison with many other institutions that use animals in research, DES is capable of carrying out complex surgical and interventional research in large animal models such as pigs,

sheep and non-human primates (full set of instruments and staff familiar with surgical operations including microsurgery, liver and kidney transplants). A full range of dedicated imaging equipment is available to researchers ranging from ultrasonography machine, to angiographic C-arm to a gamma camera, and recently a micro-PET scan.

In Singapore, DES has an established niche in surgical and biomechanical research facilities and expertise. Its close physical and professional proximity to high throughput medical institutions on the Outram Campus including the Singapore General Hospital, the National Cancer Centre, the National Heart Centre and the Singapore National Eye Centre, is one of its greatest strengths. The Singapore General Hospital for example carries out more than 60,000 surgeries and accommodates half-a-million outpatient consultations a year. DES taps on the large number of high-calibre clinical specialists available in these institutions for the professional expertise so essential for preclinical testing and design. The high patient throughput in these institutions also allows investigational products to rapidly move into early phase clinical trials in a seamless manner.

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