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Media Release

BREAKTHROUGH IN NHC STEM CELL RESEARCH

Heart muscle-like cells developed from adult stem cells in NHC's in-house research laboratories have been shown to interact with and improve the function of a failing heart in animal studies

Singapore, 2 September 2008 – Stem cell researchers and clinicians at the National Heart Centre (NHC) Singapore have made an important breakthrough in their research. Studies have revealed that heart muscle-like cells generated from an adult's own stem cells using a NHC's patented method, have contributed to increasing the pumping force of the heart. Data from the study will be presented at the upcoming European Society of Cardiology (ESC) Congress 2008 in Munich, Germany.

The study, the first in the world, shows that human adult stem cells that are converted into heart-like cells before transplant, are better than transplanting whole stem cells directly, which is the most widely used form of cell therapy for heart failure today.

Many patients with heart attack sustain irreversible injury to the heart leading to heart failure and symptoms of breathlessness. For patients with severely damaged hearts, whole organ heart transplant is sometimes the only hope, but the challenge lies in finding a donor.

A potential benefit of this study is that through the processes developed by NHC, a patient with heart failure can potentially harvest his own stem cells, processed them in a lab over a few weeks to optimise them and then transplant his own converted heart-like cells back into the heart to help 'repair' or 'heal' the heart. This may alleviate his symptoms and delay the need for a whole organ transplant.

Since the process is using a patient's own cells (autologous), immunosuppressants to prevent rejection will not be needed.

The study, in its sixth year, has studied the stem cells of a total of 43 patients undergoing bypass surgery with a patent filed for the isolation and expansion of the heart-like cells. Besides improving the pumping action of the heart, researchers have found that these cells

are 'smarter' and able to move themselves into areas of the heart that need them most. These heart-like cells also aid in preventing swelling of the heart, a detrimental and often irreversible process making symptoms more difficult to treat.

"It is an exciting time for NHC as our own scientists, working with clinicians, bring their own research, validated and tested, to benefit our patients." said Dr Philip Wong, Director of NHC's R & D Unit and Senior Consultant, Department of Cardiology.

The cell therapy research program is in its final translational phase and clinicians have been optimising a non-surgical method of delivering such cells.

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About the National Heart Centre Singapore

The National Heart Centre (NHC) Singapore is a 185-bed national and regional referral centre for cardiovascular diseases. A one-stop facility with the largest heart specialists group in Singapore, NHC treats complex cases and sees the highest volume of heart patients locally.

Each year, we handle over 90,000 outpatient consultations, 6000 interventional and surgical procedures and 9000 inpatients. Our outcomes for heart attack treatment, balloon angioplasty and bypass surgery have been shown to be equivalent to international standards.

NHC is the first heart centre outside USA and in Asia to receive the prestigious Joint Commission International (JCI) since 2005, which is an assurance for safe and quality patient care for our patients.