

## 1. Course Lecturers CV

*Dr. Steve Oh*



Dr. Steve Oh Kah Weng is a Senior Scientist & Associate Director at the Bioprocessing Technology Institute (BTI) specialising in embryonic stem cell and fermentation research. Together with Dr. Andre Choo, they started the Stem

Cell Group at BTI in 2001 focusing on human embryonic stem cell research. His area of interest include the development of serum free and feeder free cultures, understanding the signalling pathways of hESC, development of new tools for monitoring hESC and the identification of teratomas and methods for the expansion of hESC. He is a frequent invited speaker at local and international meetings and a member of several scientific societies.

*Dr Andre Choo*



Dr Andre Choo obtained his PhD in 2001 focusing on the molecular engineering of antibody fragments and immunotoxins. He was also involved in the identification and characterization of a monoclonal antibody that induced apoptosis of kappa-

myelomas. This work has resulted in the filing of a patent For its novel application and the setting up of a spin-off company to develop the product as a therapeutic antibody. Moving back to Singapore, he has been actively involved in developing defined culture platforms for the scale-up of human embryonic stem cells (hESC). This included the derivation of immortal feeders that support hESC expansion. More recently, his group has also raised a panel of monoclonal antibodies to hESC surface markers which has applications for characterization and isolation of undifferentiated hESC.

## REGISTRATION - 2 Easy Ways to Register!!

MAIL or FAX to:



Professional Activities Centre  
Faculty of Engineering  
National University of Singapore  
9 Engineering Drive 1  
Blk EA #05-34 Singapore 117576  
Fax: (65) 6874 5097

**Enquiries:** Please contact Anna Robinson for more information at Tel: (65) 6516 5113 or e-mail: [engannar@nus.edu.sg](mailto:engannar@nus.edu.sg)

**Fee :** Singapore participants:  
SGD 400.00 + SGD20.00 ( 5% GST)  
Overseas participants SGD 400.00 (GST exempted)

**Payment :** Payment is required prior to the course. Crossed cheques should be made payable to "National University of Singapore" and mailed together with the registration form to the mentioned address.

**Discount :** Maximum of 10% discount is applicable to:

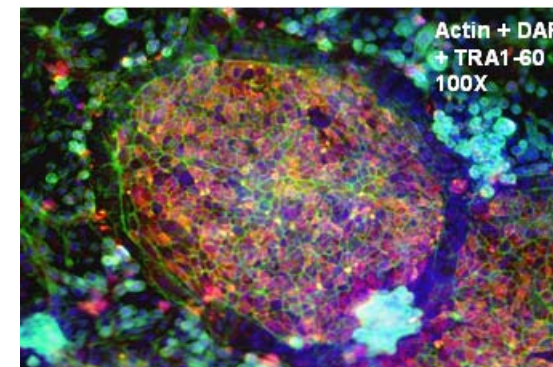
- Employees of the NUS Technology Associates registered with INTRO (Industry and Technology Relations Office);
- NUS Alumni
- Organisations / Companies sending three or more participants.

### **Refunds and Cancellations :**

A 50% refund will be made for withdrawals (received in writing) ten working days before the commencement of the course. No refunds will be made thereafter. However, a replacement will be accepted upon prior arrangement at no extra cost. Please inform us of the changes, if any, by fax. The Professional Activities Centre reserves the right to cancel the course and fully refund the participants, should unforeseen circumstances warrant it. Every effort will be made to inform participants of any changes.

**Website :** <http://www.eng.nus.edu.sg/PACentre>

# HUMAN EMBRYONIC STEM CELLS



by  
*Dr. Steve Oh & Dr. Andre Choo*  
**BIOPROCESSING TECHNOLOGY  
INSTITUTE**

**DATE : 8 DECEMBER 2006\***  
**TIME : 9.00AM – 5.00PM**  
**VENUE : N U S**

*\*Pls note change of date from 6 Dec to 8 Dec 2006*

**Organised by:**  
Professional Activities Centre  
National University of Singapore  
Faculty of Engineering

## 2. Course Objective:

To provide participants with an overview of the current state of the science of human embryonic stem cells and their potential applications in regenerative medicine. Stem cell research is at a nascent stage of development with many hurdles to overcome. We will present to the audience some of the issues that have to be addressed before human embryonic stem cells can be brought into clinical applications. Topics that will be covered include:- Ethics of stem cells, pluripotency, culture methods, characterisation, monitoring tools such as imaging, expansion in bioreactors, and differentiation strategies.

## 3. Course Outline

**Ethics** - What are the pros and cons of using human embryonic stem cells (hESC) vs. adult stem cells?

**Pluripotency** - What are the signalling pathways which play a part in maintaining stem cell pluripotency? FGF and BMP pathways

**Culture methods** - Description of the different culture methods e.g. on feeders and feeder free conditions with and without serum. Serum free alternatives such as noggin, FGF, Wnt3a supplements.

**Characterisation** - Includes the use of flow cytometry and immunocytochemistry for characterising hESC and identification of differentiated tissues in teratomas.

**New monitoring tools** - Imaging and identifying stem cell morphology and cell numbers

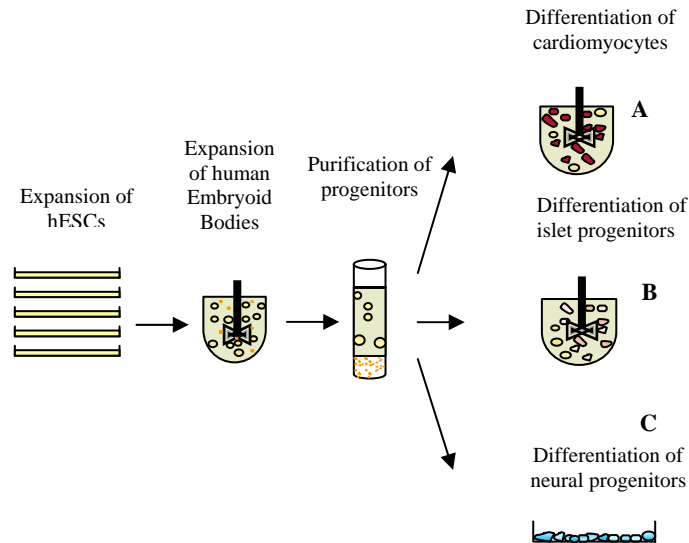
**Expansion** - Methods of producing and scale up of hESC in different culture platforms such as plastic, membranes, beads and bioreactors.

**Differentiation** - Strategies to form neural, cardiomyocytes and pancreatic islet cells from hESC.

## 4. Target Audience

Persons interested in stem cells research, development and production, students, researchers, engineers, technicians, lab officers.

## Future Bioprocesses for Cell Therapy



## REGISTRATION FORM Human Embryonic Stem Cells 8 December 2006

*Course Fee: SGD400.00 + SGD20.00(5% GST)*

**Overseas participants SGD400.00 (GST exempted)**

Name of Participant: Dr/Mr/Mrs/Ms:

(Attach your name card, if any)

Designation:

Name of Organisation:

Address:

Contact Person:

Email:

Tel No (O):

Fax No:

\*\*Dietary Preference: Chinese / Vegetarian

NUS Alumni Membership (if any) # \_\_\_\_\_

**Payment mode:**

Cheque / Bank draft No. : \_\_\_\_\_

VISA / MSTR : \_\_\_\_\_

Expiry Date : \_\_\_\_\_ Amount (S\$) : \_\_\_\_\_

Signature : \_\_\_\_\_

Payable to "National University of Singapore"

Closing Date : Please send in your registration form together with your payment by **24 Nov 2006**

Authorised Signature /  
Company Stamp

Mailing address: Professional Activities Centre  
Faculty of Engineering,  
National University of Singapore,  
9 Engineering Drive 1,  
Singapore 117576

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