



STEM CELL SOCIETY
SINGAPORE

STEM CELL CLUB

Thursday 15 April 2010 • Breakthrough Theatre, Matrix Building Level 4,
30 Biopolis Street, Singapore 138671



PROGRAMME

11.00 - 12.00pm

Dr Fred Koller, Ph.D.

Co-Founder and Chief Technology Officer of Cyntellect, San Diego, CA

“Automated Stem Cell Colony Propagation and Purification”

Rapid imaging & analysis coupled with laser processing

12.00pm

Network Social

Provided by Research Instruments Pte Ltd

Hosted by

Dr Steve Oh

Principal Scientist, Bioprocessing Technology Institute

SPEAKER

Dr Fred Koller, Ph.D.

Automated Stem Cell Colony Propagation and Purification



Abstract

Derivation and propagation of human embryonic and induced pluripotent stem cell (hESC/hiPSC) lines are common tasks, yet typical procedures and results vary widely. Manual methods are preferred as they give more consistent cultures, but enzymatic methods are more widely used due to scalability at the expense of reproducibility. To address these challenges, Cytellect has developed innovative stem cell applications on the LEAP™ Cell Processing Work station. LEAP selects undifferentiated stem cell colonies to be automatically sectioned into sub-colonies of defined size by rapid laser cutting, resulting in more uniform stem cell cultures than current methods. Further, laser sectioning of confluent hESC/hiPSC cultures results in direct generation of uniformly-sized EB populations which are more proliferative and hold greater differentiation potential than typical heterogeneous EB cultures. Finally, direct analysis and purification of intact colonies with desirable characteristics can be performed using LEAP's rapid imaging coupled with laser-based cell purification, all within closed well plates.

These novel applications provide automated, reproducible, sterile closed-system methods to support hESC/hiPSC culture operations, and significantly improve the efficiency of stem cell differentiation for generation of specialized cell types for cell-based screening and therapeutics.

Biography

Fred Koller, Ph.D., is the Company's Co-Founder and Chief Technology Officer, and is a member of its Board of Directors. Dr. Koller was co-inventor of the Company's technology, and since establishing operations in 1999 has assumed various executive management roles. Prior to forming Cytellect, Dr. Koller served in various management roles at Advanced Tissue Sciences, Aastrom Biosciences and Baxter International, in each case being responsible for developing and/or commercializing novel proprietary products which utilized the unique capabilities of living human cells. Dr. Koller holds a Ph.D. degree in Biochemical Engineering and a B.S. degree in Chemical Engineering, both from Northwestern University. Dr. Koller is an elected fellow of the American Institute of Medical and Biomedical Engineers (AIMBE) and serves on advisory boards for Northwestern University and Purdue University.