SUNG-HWAN MOON

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Educations

2003 B.S., Konkuk University, Seoul, Korea
2005 M.S., CHA University, Seoul, Korea
2008 Ph.D., CHA University, Seoul, Korea

Professional Background

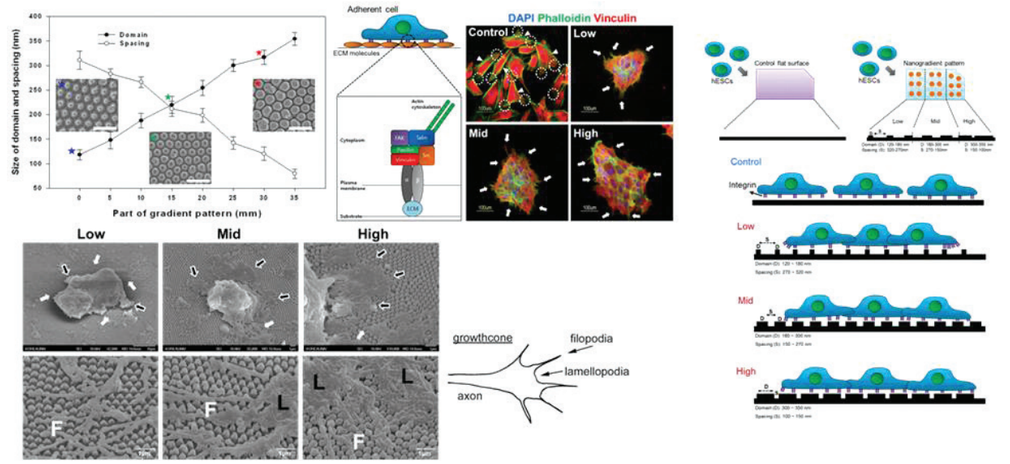
2013-Present Associate professor (research faculty): Konkuk University, Seoul, Korea
2012-2013 Research Professor: CHA University, Seoul, Korea
2009-2013 Manager: CHA Bio & Diostech, Seoul, Korea
2008-2009 Post-Doctoral: Emory University School of Medicine, GA, U.S.A
2008 Post-Doctoral: CHA University, Seoul, Korea
2005-2008 Senior Researcher: CHA Biotech, Seoul, Korea

Top 5 Publications

- Cho SJ, Kim SY, Jeong HC, Cheong H, Kim D, Park SJ, Choi JJ, Kim H, Chung HM, **Moon SH***, Cha HJ*. Repair of Ischemic Injury by Pluripotent Stem Cell Based Cell Therapy without Teratoma through Selective Photosensitivity. Stem Cell Reports. 2015 Dec 8;5(6):1067-80. (*co-correspondence)
- **Moon SH***, Ju J*, Park SJ*, Bae D, Chung HM, Lee SH. Optimizing human embryonic stem cells differentiation efficiency by screening size-tunable homogenous embryoid bodies. Biomaterials. 2014 Jul;35(23):5987-97. (*co-first)
- **Moon SH***, Kang SW*, Park SJ, Bae D, Kim SJ, Lee HA, Kim KS, Hong KS, Kim JS, Do JT, Byun KH, Chung HM. The use of aggregates of purified cardiomyocytes derived from human ESCs for functional engraftment after myocardial infarction. Biomaterials. 2013 May34(16):4013-26. (*co-first)
- **Moon SH***, Kim JS*, Park SJ, Lee HJ, Do JT, Chung HM. A system for treating ischemic disease using human embryonic stem cell-derived endothelial cells without direct incorporation. Biomaterials. 2011; 32:6445-6455. (*co-first)
- Cho SW*, **Moon SH***, Lee SH*, Kang SW, Kim J, Lim JM, Kim HS, Kim BS, Chung HM. Improvement of postnatal neovascularization by human embryonic stem cell-derived endothelial-like cell transplantation in a mouse model of hindlimb ischemia. Circulation. 2007;116:2409-2419. (*co-first)

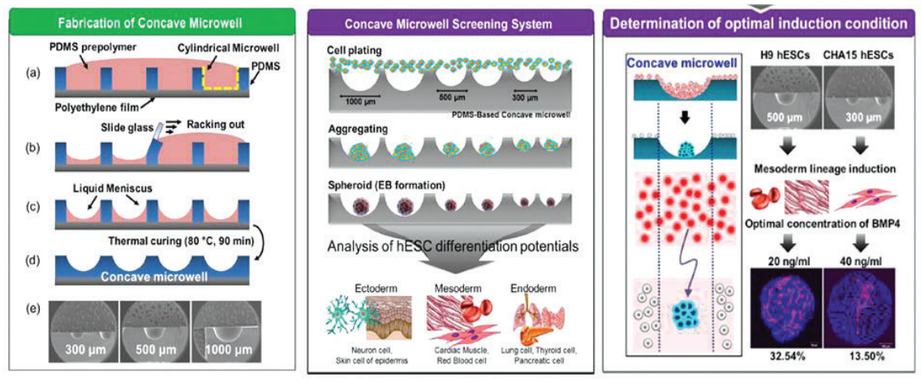
RESEARCH INTERESTS

1. Nanotopographical Control of hPSC Maintenance in Geeder-free Conditions



Emerging evidence has indicated that surface nanotopography is an important physical parameter within the stem cell niche for regulating cell fate and behavior in various types of stem cells. Recently, we demonstrated a feasible approach for screening the optimal nanotopographical cues to maintain undifferentiated human pluripotent stem cells (hPSCs) in feeder-free conditions. This provides a platform for further investigations into developing feeder-free hPSC culture systems for the purpose of regenerative medicine.

2. Control of hPSC Differentiation in a Size-tunable Concave Microwell System



We fabricated size-tunable concave microwells to control the physical environment, thereby regulating the size of embryoid bodies (EBs) that form from single hPSCs. When defined numbers of single hPSCs were forced to aggregate, they formed uniformly-sized EBs with high fidelity. The size of the EBs was controlled using concave microwells of different diameters. Ultimately, these concave microwells could be used to screen different EB sizes in order to optimize differentiation conditions for specific hESC lines.