

Dear Faculty, IGERT Fellows, IGERT Associates and Students,

You are cordially invited to attend a Seminar presented by Giovanna Pozuelos. Please plan to attend.

Giovanna Pozuelos

IGERT Fellow

Date: Friday, November 20th, 2015

Location: Chung 218 (VISLAB)

Time: 11:00am

Time-Lapse Analysis of Human Embryonic Stem Cells Reveals Multiple Bottlenecks Restricting Colony Formation and Their Relief upon Culture Adaptation

Abstract:

Using time-lapse imaging, we have identified a series of bottlenecks that restrict growth of early-passage human embryonic stem cells (hESCs) and that are relieved by karyotypically abnormal variants that are selected by prolonged culture. Only a minority of karyotypically normal cells divided after plating, and these were mainly cells in the later stages of cell cycle at the time of plating. Furthermore, the daughter cells showed a continued pattern of cell death after division, so that few formed long-term proliferating colonies. These colony-forming cells showed distinct patterns of cell movement. Increasing cell density enhanced cell movement facilitating cell:cell contact, which resulted in increased proportion of dividing cells and improved survival postplating of normal hESCs. In contrast, most of the karyotypically abnormal cells reentered the cell cycle on plating and gave rise to healthy progeny, without the need for cell:cell contacts and independent of their motility patterns.

