



TARA

Life Science Center of
Tsukuba Advanced Research Alliance

TARA Seminar

17:00~18:00, Wednesday, Sept. 7, 2016

Health and Medical Science Innovation Lab. Bldg.

Meeting Room on the 8th Floor

(健康医科学イノベーション棟8階講堂)

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Oxidative Metabolism and Cardiac Regeneration

酸素代謝と心臓再生

The adult mammalian heart is not capable of meaningful functional recovery after substantial loss of myocardium due to an inability of cell division in vast majority of cardiomyocytes. In contrast, some lower vertebrates and immature mammals are capable of full cardiac regeneration through proliferation of pre-existing cardiomyocytes. Therefore, there has been an intense interest in understanding the mechanisms of cardiomyocyte cell cycle regulation, and what distinguishes proliferative cardiomyocyte from terminally-differentiated non-proliferative cardiomyocytes. We have recently demonstrated that a metabolic switch that takes place immediately after birth from glycolysis to oxidative phosphorylation causes cell cycle arrest in mammalian cardiomyocytes through mitochondrial ROS generation (1). In addition, we identified a rare population of cycling cardiomyocytes that are hypoxic and therefore protected from highly oxidative mitochondrial ROS in the adult heart (2). Based on these findings, we propose that oxidative metabolism and redox regulation may hold a key for cardiac regeneration through the induction of cardiomyocyte cell cycle re-entry. References: (1) Cell 157, 565-579 (2014), (2) Nature 523, 226-230 (2015)

*** This seminar will be given in English. ***

Organizer; Prof. Hiromi Yanagisawa, <hkyanagisawa @ tara.tsukuba.ac.jp>

【筑波分子医学協会 (TSMM)】HP <http://www.md.tsukuba.ac.jp/public/tsmm/>

共催：第426回 つくば分子生命科学セミナー

The 426th TSMM Seminar

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