Stem cell Biology

1. Staffs and Students (April 2009)

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2. Purpose of Education

Stem cell systems play fundamental roles in tissue turnover and homeostasis. Our goal is to understand the mechanisms of tissue homeostasis driven by stem cell systems and to apply the knowledge to better understand the mechanisms underlying the tissue decline, cancer development and other diseases associated with ageing. We further aim to apply those knowledges gained to regenerative medicine, treatment of cancer and other age-associated diseases.

3. Research Subjects

1) Identification of stem cells in the skin.
2) Mechanisms of stem cell maintenance
3) Mechanisms for MSC ageing and quality control of stem cell pools.
4) Mechanisms of tissu ageing
5) Mechanisms of cancer development in stem cell systems.

4. Publications

Original articles

1. Nishimura EK., Suzuki M, Igras V, Du J, Lonning S, Miyachi Y, Roes J, Beerman F, Fisher DE. Key roles for Transforming growth factor β in melanocyte stem cell maintenance. Cell Stem Cell, 5;6(2):130-40, 2010
2. Miura M, Ueda A, Takao Y, Nishimura EK, Koide H, Yokota T. A stem cell-derived gene (Sddr) negatively regulates differentiation of embryonic stem cells. Int J Dev Biol. 54(1):33-9, 2010
3. Inomata K, Aoto T, Binh NT, Okamoto N, Tanimura S, Wakayama T, Iseki S, Hara E, Masunaga T, Shimizu H, Nishimura EK. Genotoxic stress abrogates renewal of melanocyte stem cells by triggering their differentiation. Cell. 137(6):1088-99, 2009