

## Regenerative Medicine and Stem Cell Biology

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### Major Scientific Interests of the Group

- 1) Identification and analysis of functional human adult stem cells for therapy
- 2) Hypoxic responses in stem cell and tumor development
- 3) Studying the relation between human adult stem cells and cancer cells

### Projects for Regular Students in Doctoral or Master's Programs

- 1) Effects of diseases and aging on the functions of human adult stem cells
- 2) Functional analysis of human adult stem cell-derived microvesicles
- 3) Studying the regulation of beige adipogenesis in human mesenchymal stem cells
- 4) The roles of hypoxic inducible factors (HIFs) in stem cell and cancers
- 5) The roles of human mesenchymal stem cells in cancer development

### Study Programs for Short Stay Students (one week – one trimester)

- 1) Effects of diseases and aging on human adult stem cells
- 2) Human adult stem cell-derived microvesicles for non-cell therapy
- 3) Interaction between human mesenchymal stem cells and cancer cells

### Selected Publications

- 1) Carolina E, Kato T, Khanh VC, Moriguchi K, Yamashita T, Takeuchi K, Hamada H, **Ohneda O**. Glucocorticoid Impaired the Wound Healing Ability of Endothelial Progenitor Cells by Reducing the Expression of CXCR4 in the PGE2 Pathway. *Front Med (Lausanne)*. 2018 Sep 28;5:276.
- 2) Kato T, Khanh VC, Sato K, Kimura K, Yamashita T, Sugaya H, Yoshioka T, Mishima H, **Ohneda O**. Elevated Expression of Dkk-1 by Glucocorticoid Treatment Impairs Bone Regenerative Capacity of Adipose Tissue-Derived Mesenchymal Stem Cells. *Stem Cells Dev*. 2018 Jan 15;27(2):85-99.
- 3) Khanh VC, Ohneda K, Kato T, Yamashita T, Sato F, Tachi K, **Ohneda O**. Uremic Toxins Affect the Imbalance of Redox State and Overexpression of Prolyl Hydroxylase 2 in Human Adipose Tissue-Derived Mesenchymal Stem Cells Involved in Wound Healing. *Stem Cells Dev*. 2017 Jul 1;26(13):948-963.
- 4) Shiraishi A, Tachi K, Essid N, Tsuboi I, Nagano M, Kato T, Yamashita T, Bando H, Hara H, **Ohneda O**. Hypoxia promotes the phenotypic change of aldehyde dehydrogenase activity of breast cancer stem cells. *Cancer Sci*. 2017 Mar; 108(3): 362–372.
- 5) Trinh NT, Yamashita T, Ohneda K, Kimura K, Salazar G, Sato F, **Ohneda O**. Increased expression of EGR-1 in diabetic human adipose tissue-derived mesenchymal stem cells reduces their wound healing capacity. *Stem Cells Dev*. 2016 May 15; 25(10): 760–773.
- 6) Tsuboi I, Yamashita T, Nagano M, Kimura K, To'a Salazar G, **Ohneda O**. Impaired expression of HIF-2 $\alpha$  induces compensatory expression of HIF-1 $\alpha$  for the recovery from anemia. *J Cell Physiol*. 2015 Jul;230(7):1534-48.