第 554 回 難研セミナー
第 127 回 難治疾患共同研究拠点セミナー

下記により難研セミナーを開催しますので、多数御来聴下さい。

記

日　時： H28 年 11 月 17 日（木）17:30～ 19:00
場　所： M&D タワー共用セミナー室 11

演　者： Prof. Yann Barrandon（スイス連邦工科大学ローザンヌ校）

演　題： **Crossing Fate Boundaries: From Thymus to Skin**

要　旨： Targeting the niche to manipulate the fate of adult stem cells is of great interest for regenerative medicine. We have demonstrated that the ocular surface (cornea and conjunctiva), the oral cavity, the oesophagus, the vagina and the thymus of the rat contain adult epithelial stem cells that can increase their lineage capabilities in response to a permissive microenvironment. Multilineage priming and reprogramming can account for this increase in lineage potency. Among these tissues, thymus is particularly interesting because it develops from the endoderm of the third pharyngeal pouch and provides an appropriate microenvironment for T-cells development. Nevertheless, thymus contains TP63 positive epithelial cells (TECs) that are an important component of the thymic microenvironment and that are organized in a tridimensional sponge-like network that is unique among epithelia. We have previously demonstrated that the thymus of the rat contains clonogenic epithelial cells that increase in potency in response to a change of their microenvironment (the niche) and can function as *bona fide* multipotent hair follicle stem cells in response to an inductive skin microenvironment (Bonfanti et al., Nature 2010). We have now demonstrated human thymus contains clonogenic epithelial cells with extensive growth capacities that express keratins (e.g. KRT5 and KRT14) and transcription factors (e.g. TP63) normally observed in basal cells of stratified epithelia. We have demonstrated that these clonogenic hTECs are lineage related by single cell analysis and that each hTEC sub-population has a specific molecular signature by genome-wide expression analysis, including the expression of genes involved in squamous differentiation. Furthermore, clonogenic hTECs differentially express transcriptions factors and miRNAs that are implicated in epithelial mesenchymal transition (EMT), suggesting that maintenance of the tridimensional epithelial network of thymus requires a fine-tuning between stratification and EMT.

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The 554th Medical Research Institute Seminar
The 127th Joint Usage/Research Program of Medical Research Institute Seminar

Date: November 17th, 2016, 17:30-19:00

Venue: Seminar room 11, M&D Tower

Lecturer: Prof. Yann Barrandon (Ecole Polytechnique Fédérale de Lausanne)

Title: Crossing Fate Boundaries: From Thymus to Skin

Summary: Targeting the niche to manipulate the fate of adult stem cells is of great interest for regenerative medicine. We have demonstrated that the ocular surface (cornea and conjunctiva), the oral cavity, the oesophagus, the vagina and the thymus of the rat contain adult epithelial stem cells that can increase their lineage capabilities in response to a permissive microenvironment. Multilineage priming and reprogramming can account for this increase in lineage potency. Among these tissues, thymus is particularly interesting because it develops from the endoderm of the third pharyngeal pouch and provides an appropriate microenvironment for T-cells development. Nevertheless, thymus contains TP63 positive epithelial cells (TECs) that are an important component of the thymic microenvironment and that are organized in a tridimensional sponge-like network that is unique among epithelia. We have previously demonstrated that the thymus of the rat contains clonogenic epithelial cells that increase in potency in response to a change of their microenvironment (the niche) and can function as *bona fide* multipotent hair follicle stem cells in response to an inductive skin microenvironment (Bonfanti et al., Nature 2010). We have now demonstrated human thymus contains clonogenic epithelial cells with extensive growth capacities that express keratins (e.g. KRT5 and KRT14) and transcription factors (e.g. TP63) normally observed in basal cells of stratified epithelia. We have demonstrated that these clonogenic hTECs are lineage related by single cell analysis and that each hTEC sub-population has a specific molecular signature by genome-wide expression analysis, including the expression of genes involved in squamous differentiation. Furthermore, clonogenic hTECs differentially express transcriptions factors and miRNAs that are implicated in epithelial mesenchymal transition (EMT), suggesting that maintenance of the tridimensional epithelial network of thymus requires a fine-tuning between stratification and EMT.

Organizers: Department of Stem Cell Biology / Emi K. Nishimura (4651)
Co-organizer: Department of Biodefence Research / Toshiaki Ohteki (4746)