

Project number 3

Investigation of pathways of chronic lung allograft dysfunction in two mouse models of lung transplantation

[1] Research group

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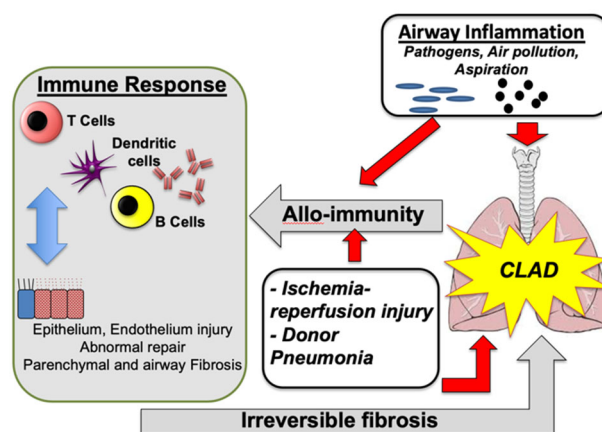
Expenditure report of research funds :

Consumables 150,000YEN

[2] Research setup

Chronic lung allograft dysfunction (CLAD) limits long term survival after lung transplantation. The purpose of this research is to investigate the mechanism of CLAD from the aspects of interplay between innate and adaptive immunities.

We had several online meetings in 2020 for this project.



[3] Research outcomes

(3 – 1) Results

The first project which had been published was mouse lung transplantation model with extended lung preservation. We revealed that prolonged storage resulted in enhanced CLAD-like pathologies in mouse lung transplantation model. The phenomena are observed in human lung transplantation. Furthermore, we found that B cells have important role in the mechanism. We also worked on another innate immune stimuli dependent mouse lung transplantation model for CLAD. In this model, airway inflammation after lung transplantation resulted in airway centered fibrosis. In addition, IL-17A-IL-17RA signaling is a key for the development of CLAD-like pathology in this model.

We had performed another 3 experiments and have been working on writing paper via web meeting.

(3 – 2) **Future perspectives**

After publishment of previous works, we will work on followings;

- 1) Further characterize innate immunity dependent mechanisms of CLAD.
- 2) Prove our findings by using database and samples obtained at clinical lung transplantation.

[4] **List of Papers**

We had published a paper generated from this joint project. We are preparing 4 other papers.

(1) Watanabe T, Martinu T, Horie M, Chruscinski A, Guan Z, Joe B, Bai K, Hwang D, Liu M, Keshavjee S, Juvet CS. A B Cell-Dependent Pathway Drives Chronic Lung Allograft Rejection After Ischemia-Reperfusion Injury in Mice. Am J Transplant. 2019 Dec;19(12):3377-3389.