

京都大学若手人材海外派遣事業 ジョン万プログラム
研究者派遣プログラム

英文報告書

提出日：平成25年 9月18日

1. 渡航者 (日本語)			
氏名	天満 敬	採択年度	平成25年度
部局	薬学研究科	電話	
職名	助教	メール	
研究課題名	ポジトロン断層撮像法 (PET) による非侵襲的生体イメージングと画像解析に関する研究		
海外渡航期間	平成25年 5月27日～ 平成25年 9月 8日		
渡航先 (英語表記)	国名：Finland 大学等研究機関名：Turku University 研究室名等：Turku PET Centre 受入研究者名：Juhani Knuuti		
2. 渡航の報告 (英文)			
<p>渡航先の研究環境、研究者との交流、研究発表の状況等、渡航中の滞在経験について英語 (500～1000語) で記述して下さい。受入研究者と撮影した写真や研究発表で用いた図等について、可能な範囲で別添として提出して下さい。ページ数については増加してもかまいません。 この報告は、ジョン万プログラムの成果として、京都大学ホームページ (英文) などに掲載されることがあります。</p>			
<p>I stayed in Turku PET Centre, Finland from May 28th to Sep 6th 2013 (Fig. 1 and Fig. 2). I belonged to PET/MRI research team (Fig. 3) and was mainly engaged in research on the development of <i>in vivo</i> MR imaging methods for small animals with clinical 3.0-T PET/MRI system (Philips Ingenuity TF PET/MRI scanner) that is use for daily medical practice in Turku PET Centre. The animal coils (rat and mouse brain coils, rat and mouse whole body coils and a surface coil) were procured with an aim of using the scanner for studying small animal models in the first place, and the coils were tested with phantoms/animal models using preliminary sequences which was developed with referring to clinical sequences. These sequences were further optimized with an aim of improving the image quality. The results were presented in a scientific seminar held at the end of August (Fig. 4 and Fig. 5) and well appreciated by the audience. In addition, we also received some positive feedback that could be incorporated into the project. MRI provides a variety of anatomical and functional information useful for PET data analysis so that PET is going to be replaced with PET/MRI even in small animal research field. In Kyoto University, I have researched on the development of PET/SPECT imaging probes for detecting diseases such as cancers, atherosclerosis and inflammation since the beginning of the master course. Thus, what I learned about the usefulness of MRI which can be combined with PET through the research experience in Turku (Fig. 6) will be helpful for my future research on the development of molecular probes in Kyoto University. In addition, since there are skillful physicists and mathematicians in the research team, I could learn mathematical way of thinking to solve</p>			

problems in PET/MRI in weekly scientific meetings during the stay. I hardly had any experiences to communicate with such physicists and mathematicians in Kyoto University, so that this was also good opportunity for letting me to be concerned about mathematics and modeling analysis.



Fig. 1
At the entrance of Turku PET Centre



Fig. 2 Turku railway station



Fig. 3 Dr Mika Teräs, Imaging Laboratory Manager

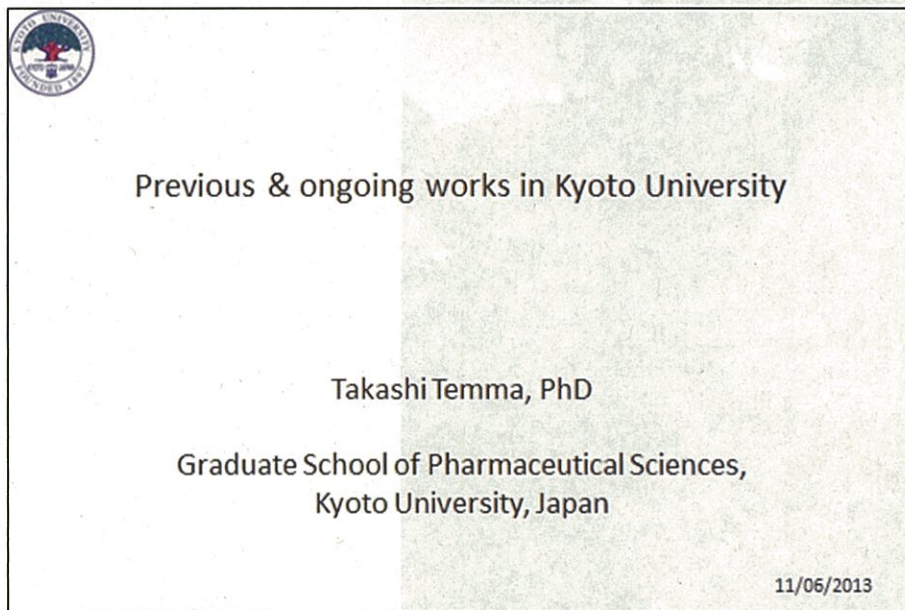


Fig. 4 Presentation slide at the seminar (Jun 11th)

**Present results on small animal coil tests
with the human PET/MRI scanner**

**Takashi Temma
Karthik Chary**

26/08/2013



Turku PET Centre

University of Turku • Åbo Akademi University • Turku University Hospital

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Fig. 5 Presentation slide at the seminar (Aug 26th)

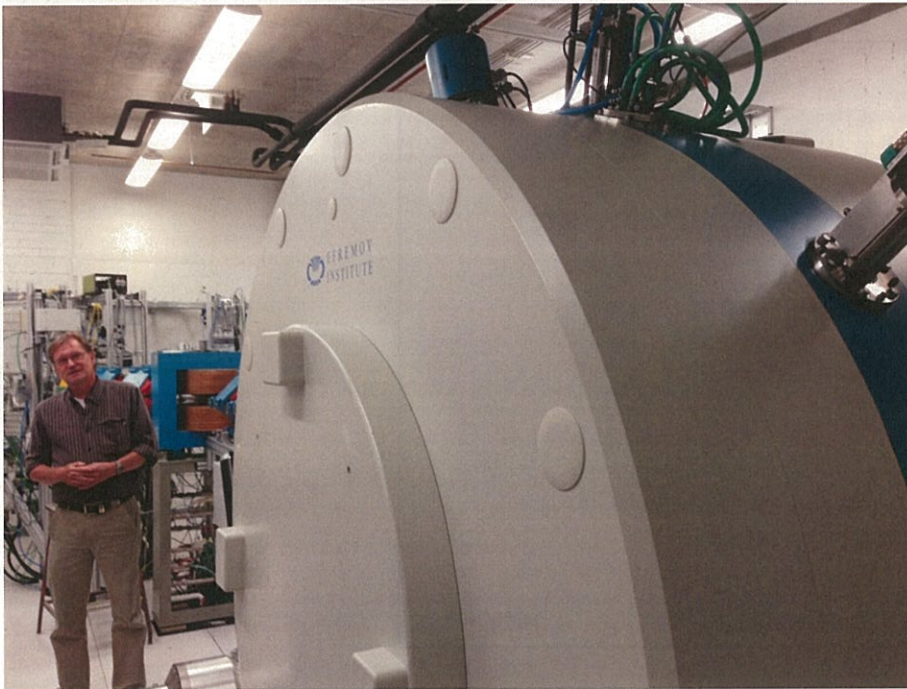


Fig. 6 Cyclotron in Turku PET Centre

I think that Finland is the best place to stay during summer. It was nice and cool weather with long daylight and I even thought I did not want to come back to Japan. On the first day in Turku, I was surprised to see it was bright outside even after midnight. Through the daily communication with people in the institutional coffee room, restaurants and shops in the city, I think that it seems to be true that Finnish people are shy but very kind to others. Even when I was in a trouble to find

appropriate lines in a particular case, they always waited for me with patience or actually helped me to do somehow. In addition, aside from research, I could have some great experiences, such as a special combo of Finnish traditional sauna and swimming in cold lake and sea, and nice barbeques with beautiful scenery at a tiny rock island we had headed into with an old steamship (Fig. 7), thanks to Turku people. Besides, it was also nice experience for me to know how great Japan is and what are problems to be solved in future in Japan through having daily conversations with others who have different viewpoint in each one of situations.



Fig. 7 Old steamship (UKKOPEKKA) on the shore of small island

This was only 3-month visit but brought me a lot of harvests. Finally, I would like to express my appreciation for the kind support I have received from people in Turku, colleagues and students in my laboratory, friends, parents, and organizers and people working in the John Mung Program.