

京都大学若手人材海外派遣事業 スーパー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 27 年 3 月 12 日

1. 渡航者 (日本語)			
氏名	木村 亮	採択年度	平成 26 年度
部局	医学研究科	電話	
職名	助教	メール	
研究課題名	ウィリアムズ症候群の統合遺伝子ネットワーク解析		
海外渡航期間	平成 26 年 5 月 13 日～ 平成 26 年 12 月 2 日		
渡航先 (英語表記)	国名：The United States of America (USA) 大学等研究機関名：University of California, Los Angeles (UCLA) 研究室名等：David Geffen School of Medicine, Department of Psychiatry 受入研究者名：Daniel Geschwind		
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。</p>			
<p>I am most grateful to the sponsorship of the Jong Mung Program for the rare opportunity to further my research endeavors in the U.S. I have continued my current research at the University of California, Los Angeles (UCLA) for 6.5 months, from May 13th to December 1st, 2014. UCLA is located in West Los Angeles and very close to Beverly Hills and Santa Monica. This area is a lively, safe, and flourishing neighborhood.</p>			
<p>I belonged to the David Geffen School of Medicine at UCLA, Department of Psychiatry and Behavioral Sciences. My host researcher was Professor Daniel Geschwind, one of the leading medical researchers in the world specializing in autism. He is the director at the Center for Autism Research and Treatment (CART). His laboratory focuses on integrating basic neurobiology, genetics, and genomics with translational studies of human diseases. In his laboratory, there are on average 30 people on staff including postdoc researchers, graduate students, visiting researchers, and laboratory assistants. They are of different ages, ethnicities, and expertise, and are very friendly, not to mention highly motivated. They use advanced techniques, e.g., utilizing computational and bioinformatics methods. Prof. Geschwind and his team discuss their research data not only during weekly meetings, but also meet individually on a frequent basis, even though he is always extremely busy in and outside the university.</p>			

My research focuses on translational studies for Autism (ASD) and Williams syndrome (WS). WS is a rare genetic disorder caused by the spontaneous deletion of 26-28 genes on chromosome 7. Patients with WS are often overfriendly and have high levels of empathy. In this aspect, WS seems to be the opposite of ASD. The primary cause of WS is well understood, but we have yet to determine the molecular basis of different and variable phenotypes. I would like to elucidate those mysteries using transcriptome and network analysis.

At the laboratory, I analyzed my data using R programming language (R), though I did not have the necessary expertise at first. Fortunately, there were many opportunities to learn about data analysis and programming at UCLA. I acquired the knowledge and skills for using computational methods to analyze genetic data through attending workshops focusing on data analysis. Also, many of my fellow lab members gave me a lot of good advice and shared with me useful information. For example, they were kind enough to help me when I struggled with writing code. In the end, I was successful in applying gene expression data I brought from Japan to Weighted Gene Co-Expression Network Analysis (WGCNA). WGCNA is an effective approach to identifying highly interconnected modules in large-scale networks. I could identify gene modules that are tightly correlated across my data sets using this approach.

Additionally, I was able to attend the monthly developmental neurogenetics clinical case conferences. Pediatricians, child psychiatrists, and clinical geneticists were in attendance and discussed difficult and/or rare cases. I was surprised that they normally used next generation sequencing and microarray to examine patients. Through these conferences, I learned methods of process and assessment of diagnosis for patients with developmental disorder.

I enjoyed a meaningful time at the David Geffen School of Medicine at UCLA in Los Angeles, immersing myself in using fresh and exciting approaches to research and clinical assessments. I have no doubt this invaluable experience will contribute greatly to my future research work. I extend my gratitude to Kyoto University for entrusting me with the opportunity to participate in the Jong Mung Program. Finally, I express my deepest appreciation for the unending support I received from everyone at UCLA and Kyoto University to successfully completing this project.

※ご提出いただいた報告書は、電話番号、メールアドレスを除いて、「京都大学若手人材海外派遣事業 ジョン万プログラム」公式ホームページ（<http://www.john-man.rp.kyoto-u.ac.jp/researcher/index.html>）に掲載させていただきますので、あらかじめご了承ください。