ID No.	K2014	
Project Title	Unbiased evaluation of CRISPR-Cas3 mediated genome editing in	
	cells	
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Report		

The purpose of this study is to develop a new off-target evaluation method for CRISPR-Cas3 in human cells to demonstrate CRISPR-Cas3 as a safe gene-editing tool. DISCOVER-seq, which the applicant has developed so far, can evaluate and quantify the effect of CRISPR-Cas9 on off-target cleavages in the entire genome for genome editing. In this year, we applied the strategy to CRISPR-Cas3 expressing human cells for elucidate the on/off-target specificity and patterns by CRISPR-Cas3 via Chip-qPCR and Chip-seq. Furthermore, highly active CRISPR-Cas3 protein complex could be produced by Dr. Takeshita at RIKEN Institute. We are trying to use this protein complex for DISCOVER-seq of Cas3 in this joint research.

Due to the prevalence of COVID-19, the travel to Japan is still very difficult. Instead of visiting IMSUT, we held online meetings with project members to communicate several problems for sampling and analyzing NGS data and the future plan constantly. To ensure our project progressing smoothly, we will continue the regular meeting to exchange information and the visits for technology supports will be started after the outbreak of COVID-19.