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Project Title	Molecular mechanisms underlying DNA methylation replication	
Principal Investigator	Heinrich Leonhardt	(Prof./LMU München)
Project Members IMSUT Host Researcher	Makoto Nakanishi	(Prof./IMSUT)
Members	Chris. Mulholland Arita Kyohei Yasushi Saeki Atsuya Nishiyama WU YINJIE	(PhD. Student/LMU München) (Associate Prof./Yokohama City Univ.) (Associate Director,/Tokyo Metropolitan Inst.) (Associate Prof./IMSUT) (PhD Student/IMSUT)
Report		

The joint research group investigated the mechanism of faithful DNA methylation maintenance and successfully demonstrated that PAF15, a novel DNMT1 interacting protein, promotes DNMT1 recruitment to sites of DNA methylation. The research group also showed that two lysine residues of PAF15 undergo monoubiquitination by UHRF1 to facilitate DNMT1 chromatin localization. We also uncover a novel pathway by which TET enzymes establish global DNA hypomethylation in naïve ES cells via the activation of Dppa3. We demonstrate that DPPA3 causes genome-wide passive demethylation by directly inhibiting UHRF1 and DNMT1 mediated maintenance DNA methylation.