Title	Screening candidate genes required for CENP-A localization in Caenorhabditis elegans one-cell embryos
Author(s)	Lee, CHB; Yuen, KWY
Citation	The 5th East Asia C. elegans Meeting, Taipei, Taiwan, 27-30 June 2012. In Program Book, 2012, p. 99
Issued Date	2012
URL	http://hdl.handle.net/10722/160838
Rights	Creative Commons: Attribution 3.0 Hong Kong License

P-22

Screening candidate genes required for CENP-A localization in *Caenorhabditis elegans* one-cell embryos

(O)Bernard Lee, Karen Yuen

School of Biological Sciences, Faculty of Science, The University of Hong Kong

Centromere is the specialized chromosomal region where the assembly of a large protein complex called the kinetochore takes place. The kinetochore functions in mediating the attachment of spindle fibres to sister chromatids during cell division. Successful formation of a complete kinetochore ensures proper spindle attachment, equal segregation of sister chromatids and hence faithful transmission of genetic information to daughter cells. Being an epigenetic marker of functional centromere, a histone H3 variant CENP-A^{HCP-3} forms the structural foundation of kinetochore. Without CENP-A^{HCP-3}, kinetochore proteins cannot build on centromere, which may result in spindle attachment defects and sister chromatids missegregation. In this study, we screened for factors that affect the localization of CENP-A^{HCP-3} to centromeric chromatin using *Caenorhabditis elegans* one-cell embryos. Functional microscopy assay showed that *lin-53* RNAi caused a partial reduction in CENP-A^{HCP-3} localization to centromere, suggesting LIN-53 might be upstream of CENP-A^{HCP-3} in centromeric chromatin assembly, although the exact role of LIN-53 in CENP-A^{HCP-3} localization is yet to be discovered. In addition, we speculated LIN-53 might also have a role in remodeling mitotic chromatin structure during prophase. Further screening and characterization of the candidate genes will help uncover the molecular mechanisms involved in centromere establishment and propagation, the key knowledge that can unleash the potency of constructing artificial chromosomes with stable centromere function for use in gene therapy.