

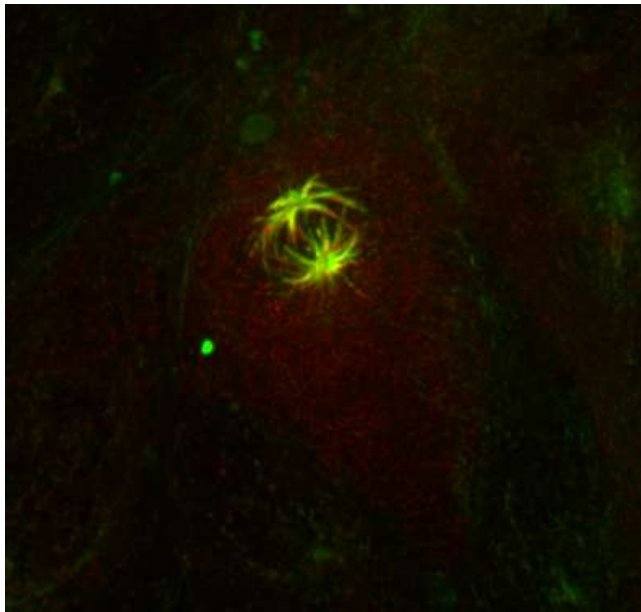


# INSTITUTE FOR CELLULAR ENGINEERING

## Using Bacterial Artificial Chromosomes to Image Motor Proteins at Endogenous Levels During Mitosis

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Eg5 localized to the spindle in a metaphase LLCPK- $\alpha$  stained with Eg5 antibody (red) and tubulin antibody (green). Stained and Imaged by Kaitlin Brooke

Eg5 is a homotetrameric kinesin that slides antiparallel microtubules past each other in the mitotic spindle. Eg5 walks towards the plus end of microtubules, while dynein walks in the opposite direction towards the minus end. The dynein-dynactin complex interacts with Eg5 directly, carrying Eg5 to the spindle poles in mitotic *Xenopus laevis* egg extract. We hope to investigate the complicated interaction between dynein-dynactin and Eg5 by imaging the proteins under endogenous conditions in live cells. In order to accomplish this, we will utilize Bacterial Artificial Chromosome technology. These large vectors allow us to express the whole genomic sequence of the protein, including the endogenous promotor and regulatory sequences, as well as a LAP tag with a GFP for fluorescence microscopy