Physical and genetic interactions between Chfr and Ubc13 in the mitotic checkpoint.
Hanna Dworaczek, Layne Myhre, Parker L. Andersen, landon Pastushok, Lindsay Newton, Wei Xiao.

CHFR (*ch*eckpoint with *f*orkhead-associated and *R*ING finger domains) is a tumor suppressor gene, which is frequently inactivated in cancer cells. Induced by mitotic stress in the form of microtubule damage, the Chfr checkpoint pathway delays entry into mitosis, thereby guarding cells from chromosome mis-segregation and genetic instability. In spite of its potential significance to cancer research, the molecular mechanism by which Chfr functions remains unclear. It has been suggested that Chfr may function with the Ubc13-Mms2 ubiquitination complex in order to generate K63-linked polyubiquitin chains, which are involved in signaling the presence of cellular styress. Here we investigate the possible role of Ubc13 in the Chfr checkpoint pathway. By Western blot analysis, we demonstrate that Chfr protein levels remain stable. Furthermore, by using the yeast-two hybrid assay, coimmunoprecipitation, RNA interference, immunocytochemistry, and the mitotic index assay, we demonstrate physical and functional interactions between Ubc13 and Chfr in vitro and in vivo. These observations suggest a role for the Ubc13-Mms2 protein complex in the mitotic Chfr checkpoint pathway.