

## SUPPLEMENTAL FIGURE LEGENDS

**Supplemental Figure 1 and 2.** Multiple sequence alignments of SWI5 or MEI5 homologues from different organisms. Conserved coiled-coil motifs (CC) are indicated. The accession numbers of SWI5 orthologs are: NP\_001035100.1 for *Homo sapiens*, XP\_001144446.1 for *Pan troglodytes*, NP\_780399.1 for *Mus musculus*, XP\_575112.2 for *Rattus norvegicus*, XP\_002663552.1 for *Danio rerio*, NP\_001107337.1 for *Xenopus (Silurana) tropicalis*, NP\_595453.1 for *Schizosaccharomyces pombe*, and NP\_011947.2 for *Saccharomyces cerevisiae*. The accession numbers of MEI5 orthologs are: NP\_660290.3 for *Homo sapiens*, XP\_001135759.1 for *Pan troglodytes*, NP\_080653.2 for *Mus musculus*, NP\_001041321.1 for *Rattus norvegicus*, NP\_001076329.1 for *Danio rerio*, XP\_002936845.1 for *Xenopus (Silurana) tropicalis*, NP\_595668.1 for *Schizosaccharomyces pombe*, and NP\_015204.1 for *Saccharomyces cerevisiae*.

**Supplemental Figure 3.** Downregulation of SWI5 or MEI5 in U2OS cells greatly impaired IR-induced RAD51 foci formation without affecting RPA foci formation. Immunostaining was performed 6 hours after cells were treated with IR using the antibodies as indicated.