

### **Descriptions of Additional Files**

File Name: Supplementary Movie 1

Descriptions: Mfd-YPet associates stably with the nucleoid. Rapid acquisition imaging (collected at 10 fps) of mfd-yPet cells (HH024) with 514-nm illumination. Scale bar represents 2  $\mu\text{m}$ .

File Name: Supplementary Movie 2

Descriptions: Mfd(L499R)-YPet exhibits transient binding. Rapid acquisition imaging (collected at 10 fps) of  $\Delta\text{mfd}$  cells expressing Mfd(L499R)-YPet (HH296) with 514-nm illumination. Scale bar represents 2  $\mu\text{m}$ .