Title: Supplementary Movie 1

Description: 10-sec film of TOP1 HaloTag single-molecules in U2OS treated DMSO

in HCT116 cells.

Title: Supplementary Movie 2

Description: 10-sec film of TOP1 HaloTag single-molecules in U2OS after 2-h

treatment of SN38 in HCT116

cells.

Title: Supplementary Movie 3

Description: 10-sec film of TOP1 HaloTag single-molecules in U2OS after 2-h

treatment of SN38 + PEV in

HCT116 cells.

Title: Supplementary Movie 4

Description: 10-sec film of TOP1 HaloTag single-molecules in U2OS after 2-h

treatment of SN38 + TAK243

in HCT116 cells.

Title: Supplementary Movie 5

Description: 10-sec film of TOP1 HaloTag single-molecules in U2OS after 2-h

treatment of SN38 + BTZ in

HCT116 cells.

Title: Supplementary Movie 6

Description: 10-sec film of TOP1 HaloTag single-molecules in U2OS after 2-h

treatment of SN38 + PEV + TAK243 in HCT116 cells.

Title: Supplementary Movie 7

Description: 10-sec film of TOP1 HaloTag single-molecules in U2OS after 2-h

treatment of SN38 + PEV +

BTZ in HCT116 cells.

Title: Supplementary Movie 8

Description: 10-sec film of TOP1 HaloTag single-molecules in U2OS after 2-h

treatment of SN38 + PEV + TAK243 + BTZ in HCT116 cells

Title: Supplementary Data 1

Description: MIPE5.0 single-agent screen in HCT116 cells.

Title: Supplementary Data 2

Description: PEV Vs. all combination screen in HCT116 cells.

Title: Supplementary Data 3

Description: RNA-seq of CRC PDO #1, #2 and #3.

Title: Supplementary Data 4 Description: Toxicological studies of mice treated with irinotecan and PEV.

Title: Supplementary Data 5 Description: Proteomic analysis of His6-TOP1 interactome in HCT116 cells.