

## **Description of additional supplementary files**

Title: Supplementary Movie 1

Description: U-ExM of PfPPP8-smV5<sup>Tet</sup>; PfCINCH-smMyc parasites stained with anti-V5 (green), anti-Myc (magenta) and NHS-ester AF405. 0.15  $\mu$ m Z-stacks; PfPPP8-sufficient. Corresponds with Fig. 2d.

Title: Supplementary Movie 2

Description: U-ExM of PfPPP8-smV5<sup>Tet</sup>; PfCINCH-smMyc parasites stained with anti-V5 (green), anti-Myc (magenta) and NHS-ester AF405. 0.15  $\mu$ m Z-stacks; PfPPP8-deficient. Corresponds with Fig. 2d.

Title: Supplementary Movie 3

Description: 3-Dimensional rendering of time-lapse microscopy of PfPPP8-smV5<sup>Tet</sup>; PfBLEB-HaloTag parasites. PfBLEB is visible in magenta; parasites were treated with AF647 HaloTag ligand under PfPPP8-sufficient conditions. Corresponds with Fig. 3c-d.

Title: Supplementary Movie 4

Description: 3-Dimensional rendering of time-lapse microscopy of PfPPP8-smV5<sup>Tet</sup>; PfBLEB-HaloTag parasites. PfBLEB is visible in magenta; parasites were treated with AF647 HaloTag ligand under PfPPP8-deficient conditions. Images were taken every 20 minutes. Corresponds with Fig. 3c-d.

Title: Supplementary Movie 5

Description: 3-Dimensional rendering of time-lapse microscopy of PfPPP8-smV5<sup>Tet</sup>; PfBLEB-HaloTag parasites. PfBLEB is visible in magenta; parasites were treated with AF647 HaloTag ligand under PfPPP8-sufficient conditions (additional replicate). Images were taken every 20 minutes. Corresponds with Supplementary Fig. 5d-e.

Title: Supplementary Movie 6

Description: 3-Dimensional rendering of time-lapse microscopy of PfPPP8-smV5<sup>Tet</sup>; PfBLEB-HaloTag parasites. PfBLEB is visible in magenta; parasites were treated with AF647 HaloTag ligand under PfPPP8-deficient conditions (additional replicate). Images were taken every 20 minutes. Corresponds with Supplementary Fig. 5c.

Title: Supplementary Movie 7.

Description: 3-Dimensional rendering of time-lapse microscopy of PfCINCH-mNeonGreen; PfPPP8-mCherry parasites. PfCINCH is visible in green, PfPPP8 is visible in magenta. An early schizont (starts imaging ~40 hpi) is adjacent to an older schizont (start imaging ~46 hpi); as the basal complex of the latter shrinks and contracts, that of the former is built. Images were taken every 20 minutes. Corresponds with Fig. 6c-d.

Title: Supplementary Movie 8.

Description: 3-Dimensional rendering of time-lapse microscopy of an older PfcINCH-mNeonGreen; PfPPP8-mCherry schizont (additional replicate). PfcINCH is visible in green, PfPPP8 is visible in magenta. This parasite starts imaging ~46 hpi; the basal complex shrinks and contracts. Images were taken every 20 minutes. Corresponds with Supplementary Fig. 11a-b.

Title Supplementary Movie 9.

Description: 3-Dimensional rendering of time-lapse microscopy of a younger PfcINCH-mNeonGreen; PfPPP8-mCherry schizont (additional replicate). PfcINCH is visible in green, PfPPP8 is visible in magenta. This parasite starts imaging ~40 hpi; the basal complex is being constructed and expanding. Images were taken every 20 minutes. Corresponds with Supplementary Fig. 11a-b.

Title: Supplementary Movie 10 (older PfcINCH-mScarlet; PfPPP8-mNeongreen schizont)

Description: 3-Dimensional rendering of time lapse microscopy of a more mature PfcINCH-mScarlet; PfPPP8-mNeonGreen schizont. PfcINCH is visible in magenta, PfPPP8 is visible in magenta. This parasite starts imaging ~ 46 hpi; the basal complex shrinks and contracts. Images were taken every 20 minutes. Corresponds with Supplementary Fig. 12c.

Title: Supplementary Movie 11 (younger PfcINCH-mScarlet; PfPPP8-mNeongreen schizont)

Description: 3-Dimensional rendering of time lapse microscopy of a younger PfcINCH-mScarlet; PfPPP8-mNeonGreen schizont. PfcINCH is visible in magenta, PfPPP8 is visible in magenta. This parasite starts imaging ~ 40 hpi; the basal complex is being constructed and expanding, then shrinks and contracts. Images were taken every 20 minutes. Corresponds with Supplementary Fig. 12e.