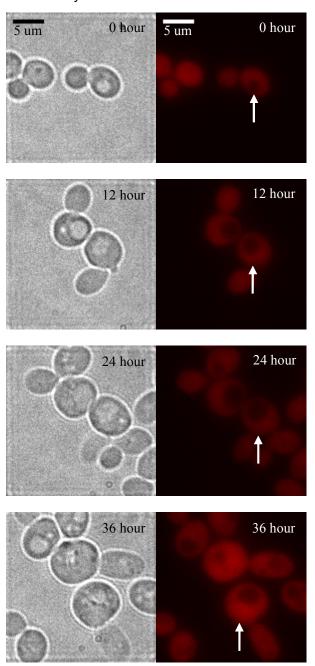
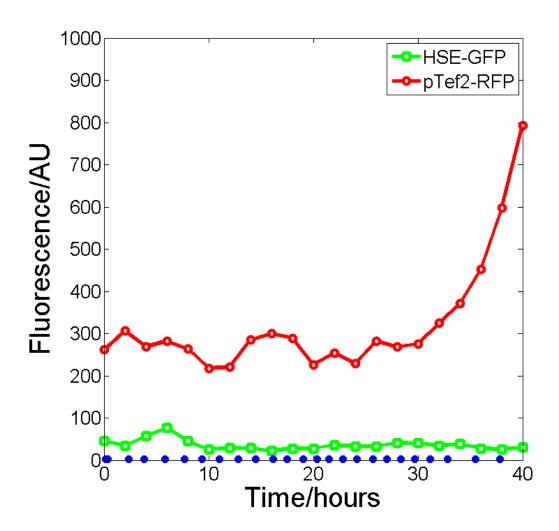
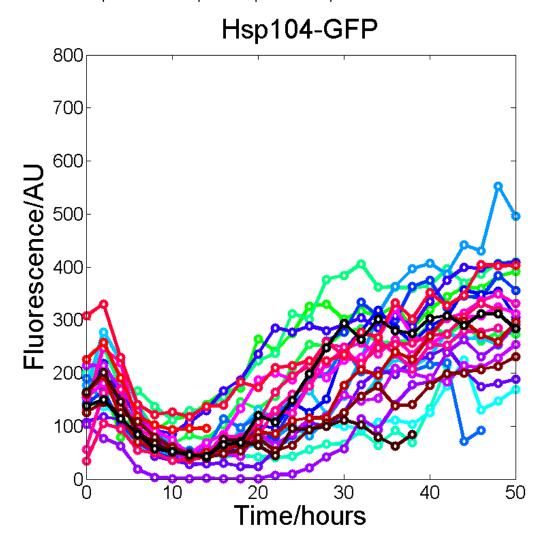
**Fig S3a** The image series tracking a single mother cell. At 0 hour, 12 hour, and 24 hour, pTef2-RFP intensity of a mother cell indicated by the arrow keeps flat but is increased dramatically at 36 hour.



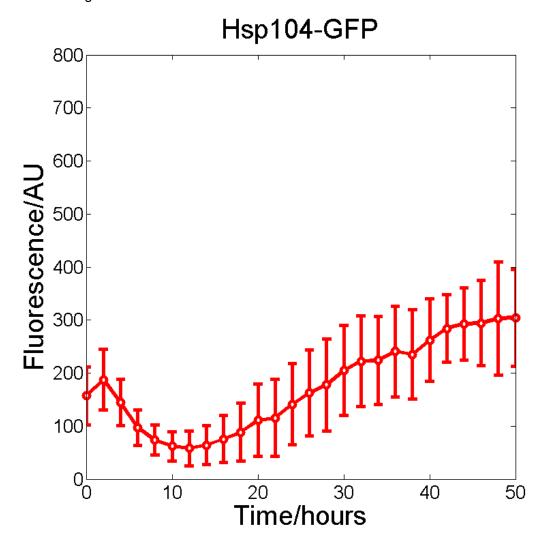
**Fig S3b** While pTef2-RFP intensity generally remains flat before 30 hours and begins to increase steadily starting from ~10 hours before cell death, the intensity of HSE-GFP reporter (see Methods) remains flat from birth to death in most of the cell. The blue dots indicate the budding events of the single mother cell.



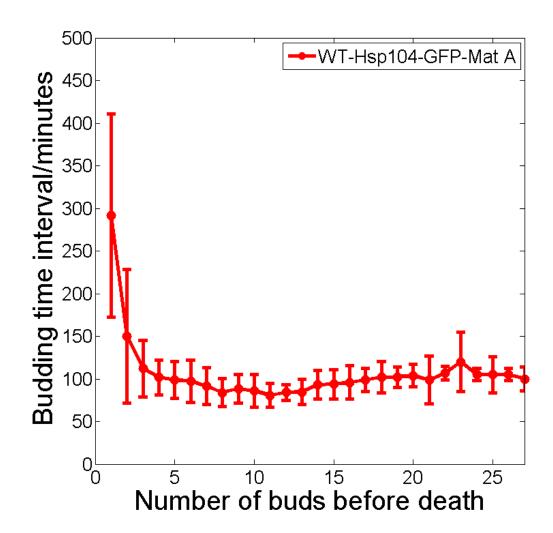
**Fig S3c** Expression level of Hsp104-GFP as a function of time in single cells. Each colored line represents the expression profile of Hsp104-GFP in one mother cell.



**Fig S3d** mean and standard deviation of Hsp104-GFP level calculated from the cells shown in Fig. S3a.



**Fig S3e** Mean and standard deviation of the budding time interval versus the number of buds before death for cells analyzed in Fig. S3a.



**Fig S3f** Hsp104-GFP level at 12 hour after initial loading negatively correlates with the lifespan of individual cells (correlation coefficient=-0.79, P value=3.9x10<sup>-6</sup>).

