

Table S2: Light power of transmitted light source

pE-100 LED	Power [mW cm ⁻²]
2%	0.64
5%	2.02
10%	4.12
20%	7.86
30%	11.16
40%	14.11
50%	16.23
60%	18.64
70%	20.86
80%	22.83
90%	24.68
100%	26.71

Light power at the sample plane of "pE-100 LED" brightfield lightsource. A light intensity setting of 2% was used for brightfield imaging of the yeast cells.

Three brightfield images with 200 ms exposure time were aquired at each timepoint. Taking into account an additional exposure time of 200 ms due to hardware delays, brightfield illumination amounted to light doses of maximum 18 mJ cm⁻² h⁻¹ at imaging intervals of 2.5 minutes. The light dose delivered by brightfield illumination is ~50fold lower than the lowest light dose delivered by fluorescence excitation light in all experiments (0.89 J cm⁻² h⁻¹). The spectrum of the brightfield illumination can be found in Figure S5.