

### Electronic supplementary information

#### Microfluidic platform for monitoring *Saccharomyces cerevisiae* mutation accumulation assay

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#### 1- Sequential colonisation of the chambers

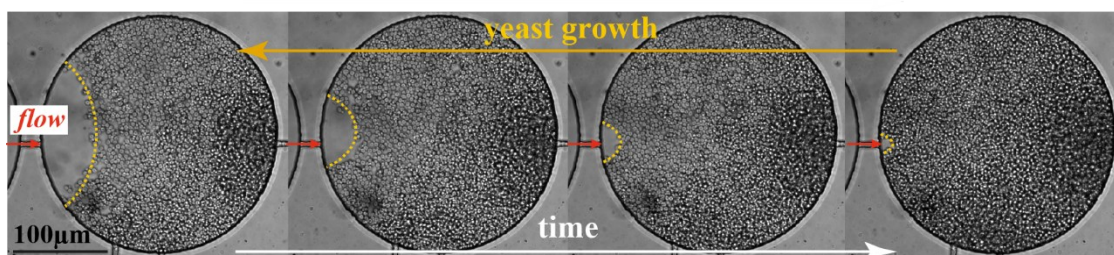


Figure S1. Sequential colonisation of the chambers. From left to right. The yeasts grow but do not move on to the next chamber until the space is completely filled due to the weak flow that prevents passage by simple diffusion.

#### 2- Non-sequential colonisation of the chambers

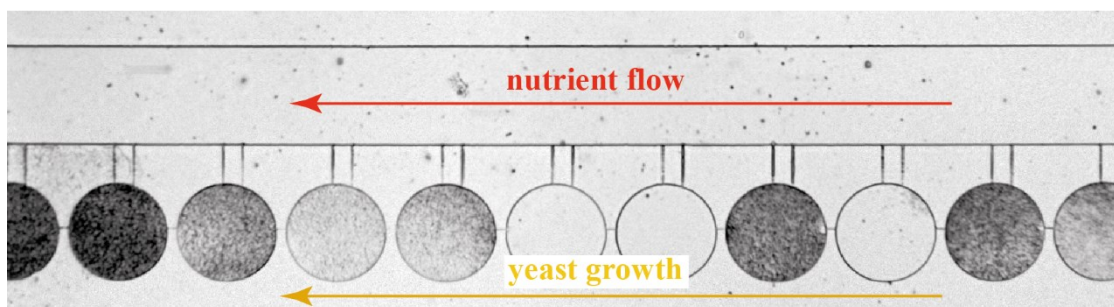


Figure S2. Non-sequential colonisation of the chambers when nutrient flow and yeast growth are in the same direction.

#### 3- Generation time of the wild-type strain

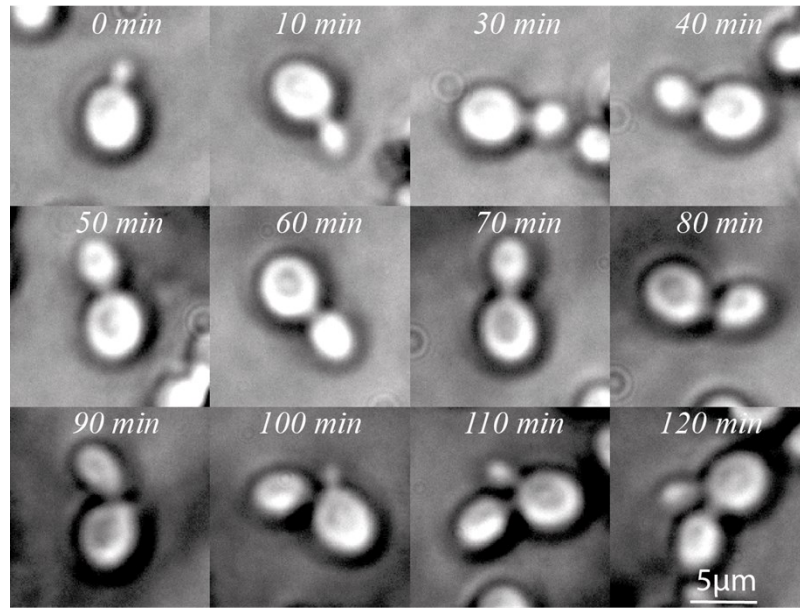


Figure S3. Monitoring of yeast budding time inside the microfluidic chamber.

#### 4- Genomic mutation accumulation experiments

Supplementary Table S1. Number of mapped and unique reads in genomic MA experiments

Sample	Genotype	Passage	Bottleneck	Sequenced reads	Mapped reads	% mapped reads	Unique reads	% unique reads
base_series1_YPH_B0	WT	Manual	0	31230266	27493880	88.04%	26631944	96.86%
classical_series1_YPH_B50	WT	Manual	50	29138434	24725654	84.86%	23094298	93.40%
classical_series2_YPH_B50	WT	Manual	50	23533304	20081674	85.33%	19215568	95.69%
classical_series2_YPH_B100	WT	Manual	100	20883446	17606426	84.31%	16848804	95.70%
classical_series1_YPH_B150	WT	Manual	150	25028582	21243502	84.88%	20179962	94.99%
base_series1_UNG1_B0	<i>ung1Δ</i>	Manual	0	47072948	40339044	85.69%	38567376	95.61%
classical_series1_UNG1D_B50	<i>ung1Δ</i>	Manual	50	24852636	20558552	82.72%	19125694	93.03%
classical_series1_UNG1D_B100	<i>ung1Δ</i>	Manual	100	24995042	20720080	82.90%	19715038	95.15%
microfluidic_series2_YPH_B50	WT	Microfluidics	50	22564074	19257704	85.35%	18361968	95.35%
microfluidic_series4_YPH_B50	WT	Microfluidics	50	24749996	21298216	86.05%	20253602	95.10%
microfluidic_series3_YPH_B100	WT	Microfluidics	50	22520754	19526708	86.71%	18663478	95.58%
microfluidic_series1_YPH_B100	WT	Microfluidics	100	22891176	19852134	86.72%	19021606	95.82%
microfluidic_series2_YPH_B100	WT	Microfluidics	100	20335664	16626802	81.76%	15544548	93.49%
microfluidic_series4_YPH_B100	WT	Microfluidics	100	25007680	21760306	87.01%	20752540	95.37%
microfluidic_series3_YPH_B50	WT	Microfluidics	100	24077992	21090592	87.59%	20119910	95.40%
microfluidic_series2_YPH_B150	WT	Microfluidics	150	26049344	22208094	85.25%	21195206	95.44%
microfluidic_series4_YPH_B150	WT	Microfluidics	150	33170468	29010288	87.46%	28030692	96.62%

microfluidic_series5_UNG1D_B50	<i>ung1Δ</i>	Microfluidic s	50	29555802	25157800	85.12%	2437325 4	96.88 %
microfluidic_series5_UNG1D_B10 0	<i>ung1Δ</i>	Microfluidic s	100	28706734	24470540	85.24%	2355967 0	96.28 %
microfluidic_series5_UNG1D_B15 0	<i>ung1Δ</i>	Microfluidic s	150	34053886	28324524	83.18%	2747460 2	97.00 %