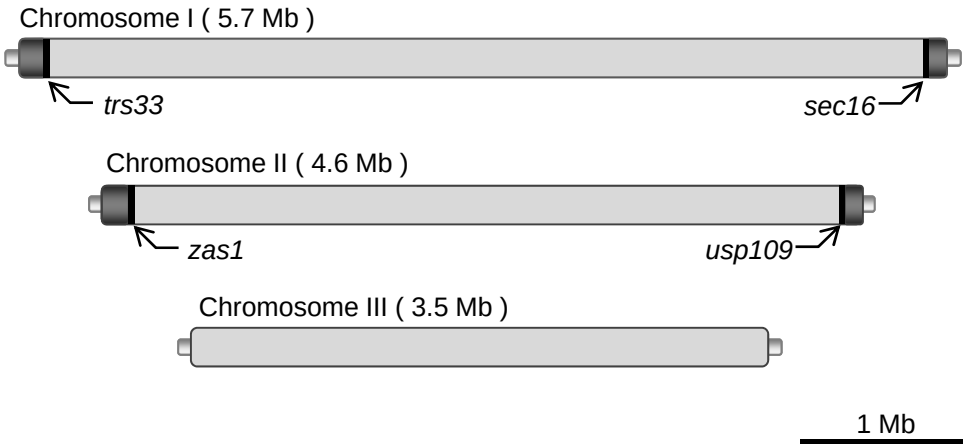
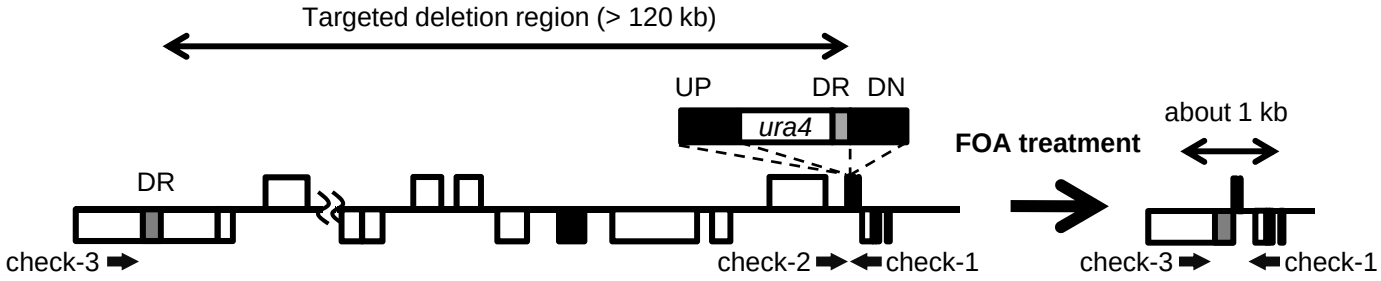
Supplementary Figures

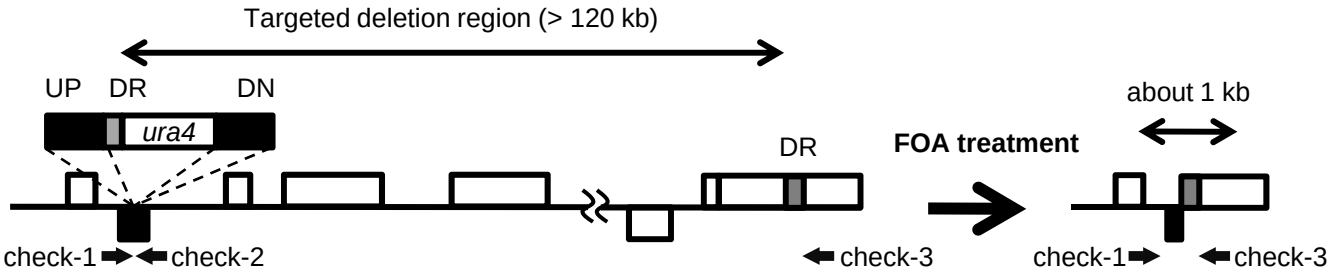


Supplementary Figure S1. Schematic diagram of deletion regions in the *S. pombe* chromosome. Three thick bars: three chromosomes; thin bars at chromosome ends represent telomeric regions; essential genes are indicated with arrows; dark gray boxes at chromosome ends represent deletion regions.

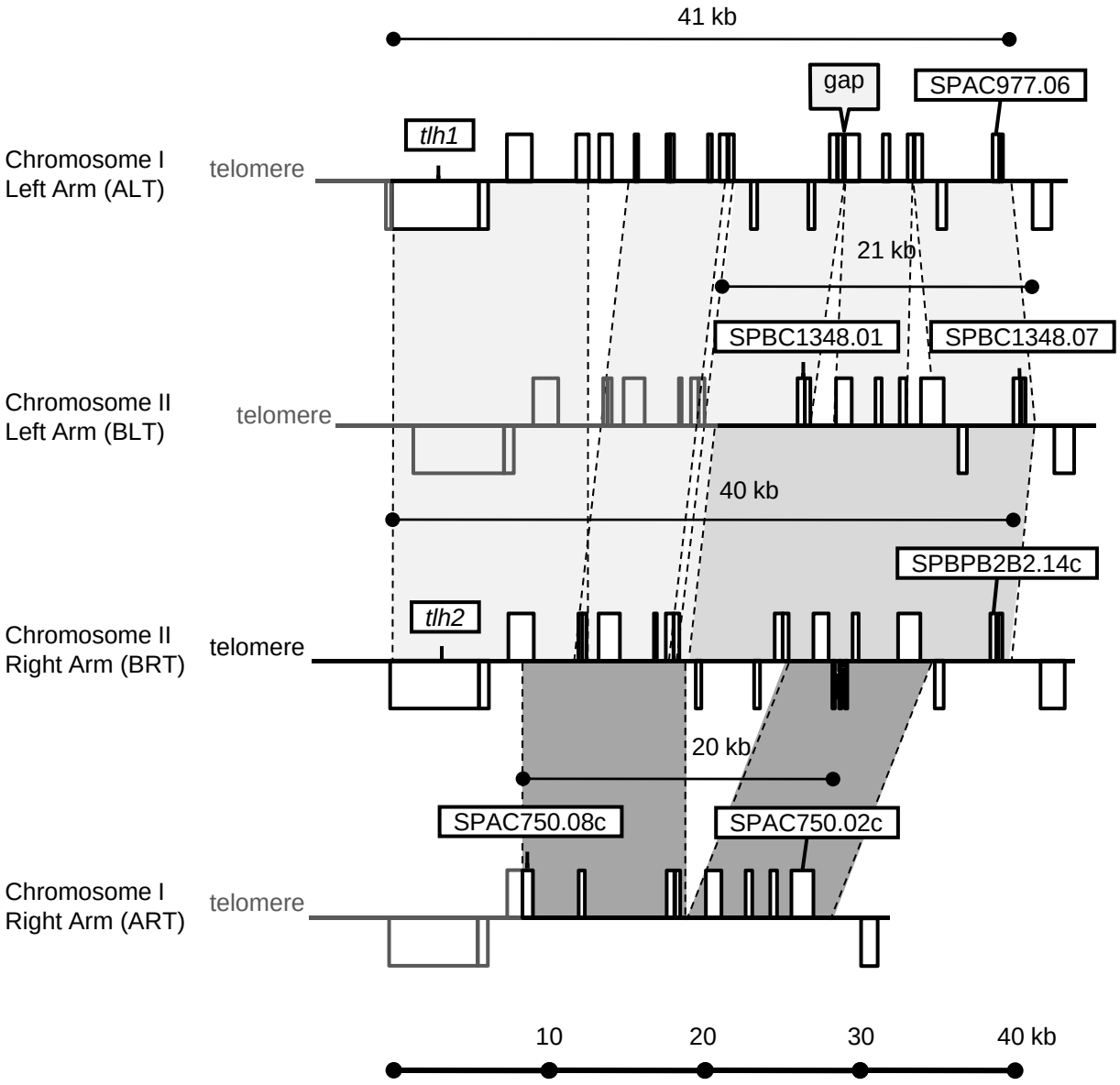
A. Left arm deletion



B. Right arm deletion

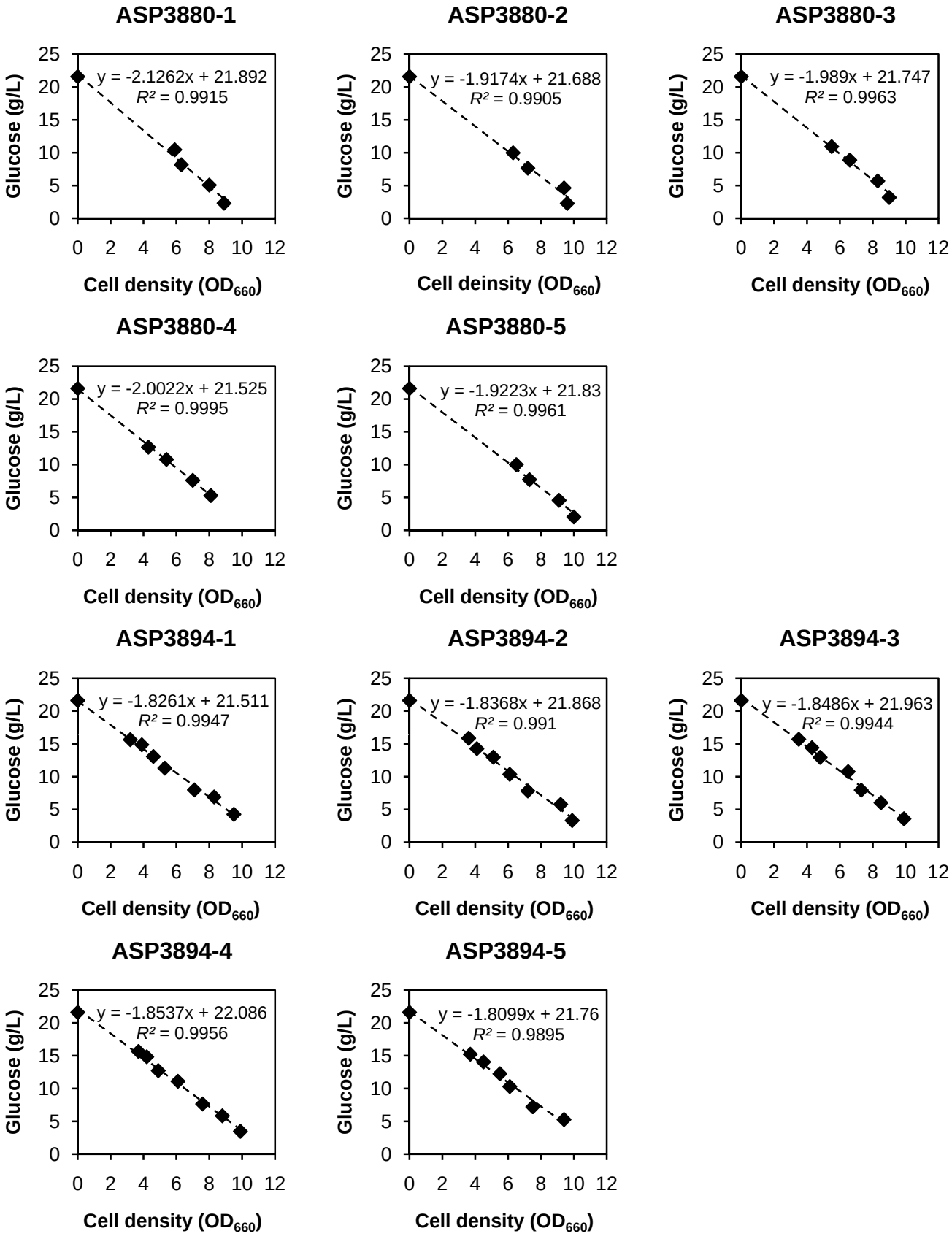


Supplementary Figure S2. Schematic diagrams of the Latour system for large-scale chromosomal deletion. The Latour fragment consists of four regions: UP (upstream region) and DN (downstream region) are required for homologous recombination; DR (direct repeat) is required for loop-out deletion; *ura4* is a selection marker. Insertion of a Latour fragment and deletion of a target chromosomal region were confirmed by colony PCR using the primer pairs, check-1/check-2 or check1/check-3. The primer sequences used for the Latour system are shown in Supplementary Table S1.

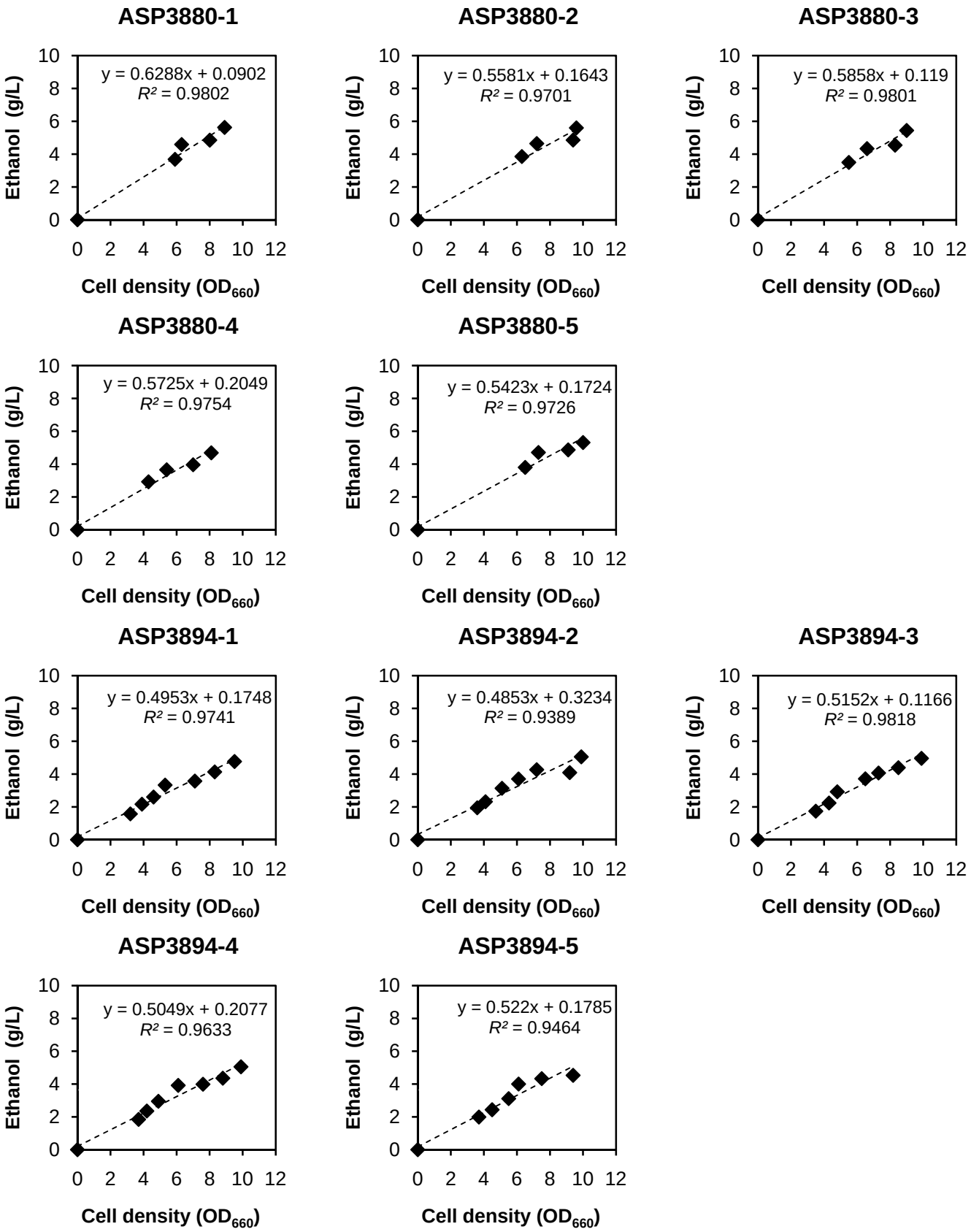


Supplementary Figure S3. Schematic diagram of the highly homologous regions at the termini of chromosomes I and II.

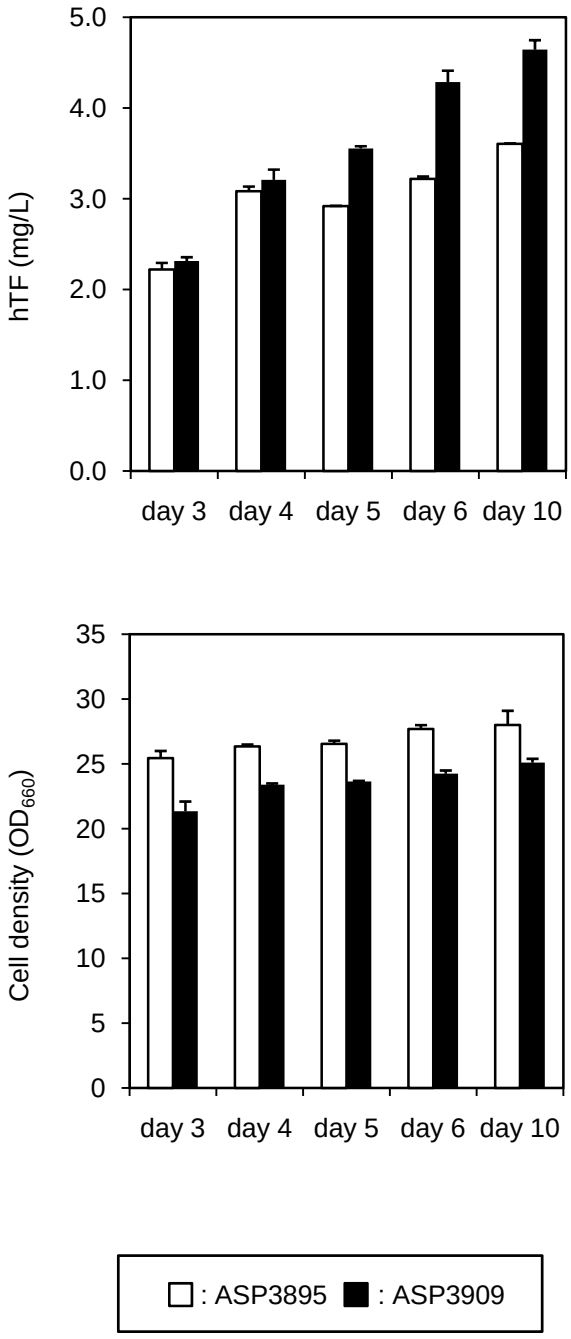
The sequence regions indicated by a black line have been sequenced by the *S. pombe* genome project. The sequence regions indicated by gray lines are undetermined sequence regions and are estimated from the right arm of chromosome II, which has been sequenced to the telomere repeat region. The gray zones extending to the right arm of chromosome II from the known sequence region on the other termini of chromosomes are more than 98% homologous.



Supplementary Figure S4-1. Linear approximation of glucose consumption during logarithmic phase. Each five independent cultures of ASP3880 and ASP3894 were grown in EMM medium at 32°C. The linear approximation and R^2 value were calculated from the scatter diagrams showing the glucose concentration of different cell density (OD_{660}).



Supplementary Figure S4-2. Linear approximation of ethanol production during logarithmic phase. The analysis method is the same as that of Supplementary Figure S4-1.



Supplementary Figure S5. Secreted human transferrin (hTF) concentration and cell density OD_{660}. Human transferrin-producing *S. pombe* was grown for 3 – 10 days at 32°C in buffering YPD medium (pH 6.0, 0.3 M MES). Secreted hTF concentration in two independent culture (n=2) was determined using a Human Transferrin ELISA Quantitation Kit (Bethyl Laboratories, Montgomery, TX, USA) according to the manufacturer's instructions. ASP3895 and ASP3909 were derived from ARC001 and IGF742, respectively, by integration of hTF expression cassette between *leu1* and *top2* on chromosome II.