



**FIG S3** Measurement of the translation elongation rates of wild-type and suppressor cells. (A) Growth curves of strains in different MOPS media. The growth rates of MG1655Δ*lacZ*, MY1506Δ*lacZ*Δ*cat* and MY1512Δ*lacZ*Δ*cat* grown in Glucose + cAA medium were approximately 1.0 h<sup>-1</sup>, 0.2 h<sup>-1</sup> and 0.2 h<sup>-1</sup>, respectively. The growth rate of MG1655Δ*lacZ* grown in Sorbitol + NH<sub>4</sub>Cl medium was approximately 0.2 h<sup>-1</sup>(Table S1A). Solid curves are the mean of three independent biological replicates, and the error bars represent the SEM values. (B) Calibration of the time cost of initiation steps ( $T_{init}$ ) by measuring the induction kinetics of the empty *LacZ* $\alpha$  fragment. (C) The induction curves of the *LacZ* $\alpha$ -fused protein MsbA-*LacZ* $\alpha$ . (D) Schleich plots of the MsbA-*LacZ* $\alpha$  protein plotted against the induction time. Schleich plots were repeated for three times, and one typical result shown here.

