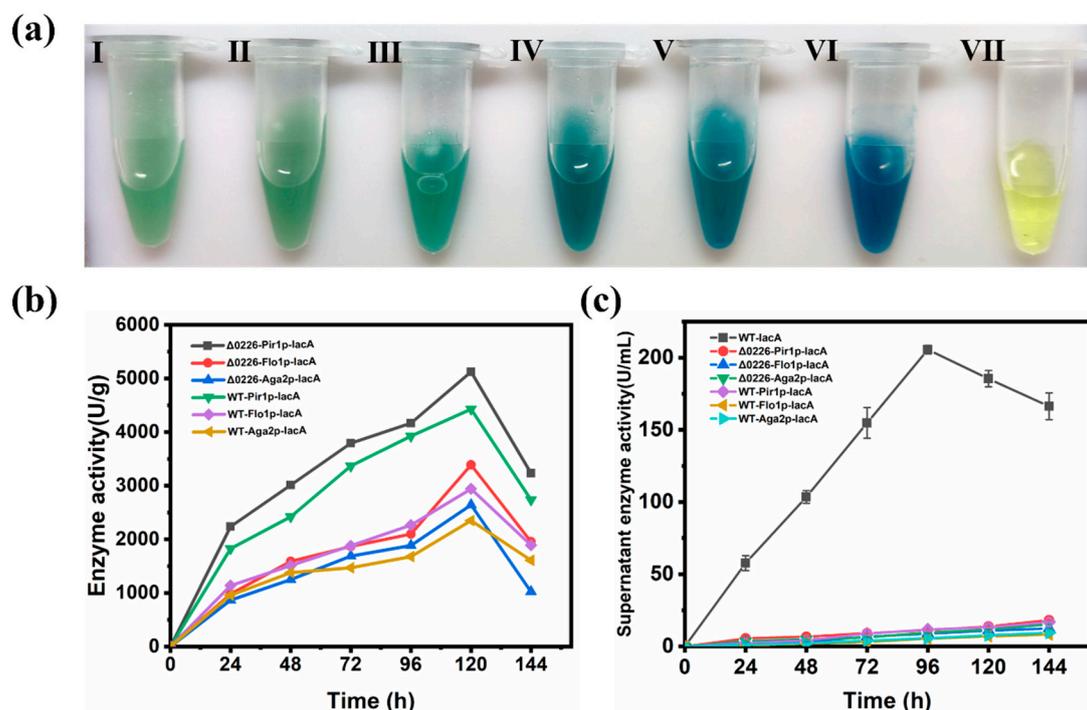


## Supplemental Figures



**Figure S1** Expression of enzymes from six surface-displayed engineered strains.

(a) I: WT - Aga2p-lacA, II:  $\Delta$ 0226-Aga2p-lacA, III: WT-Flo1p-lacA, IV:  $\Delta$ 0226-Flo1p-lacA, V: WT-Pir1p-lacA, VI:  $\Delta$ 0226-Pir1p-lacA, VII: control. the darker the color is, the better the expression of  $\beta$ -galactosidase. The enzyme activity of  $\Delta$ 0226-Pir1p-lacA,  $\Delta$ 0226-Flo1p-lacA,  $\Delta$ 0226-Aga2p-lacA, WT-Pir1p-lacA, WT-Flo1p-lacA, and WT-Aga2p-lacA in (b) cell precipitates and (c) supernatant, respectively. The enzymatic activity of  $\Delta$ 0226-Pir1p/ Flo1p / Aga2p -lacA was higher than that of WT-Pir1p/ Flo1p / Aga2p -lacA, indicating that knockout of  $\Delta$ 0226 strain could increase the efficiency of surface display and allow more anchoring proteins to be anchored to the cell wall of *P. pastoris*.