

Figure S1. The <sup>1</sup>H-NMR data of various possible polysaccharide substrates reacted with rAly16-1. (+), treated with the enzyme rAly16-1. (-), the control group treated with the inactivated enzyme. <sup>1</sup>H-absorbances among products at 5.6 ~ 5.7 ppm suggested the similar degradation via the  $\beta$ -elimination mechanism as a lyase.

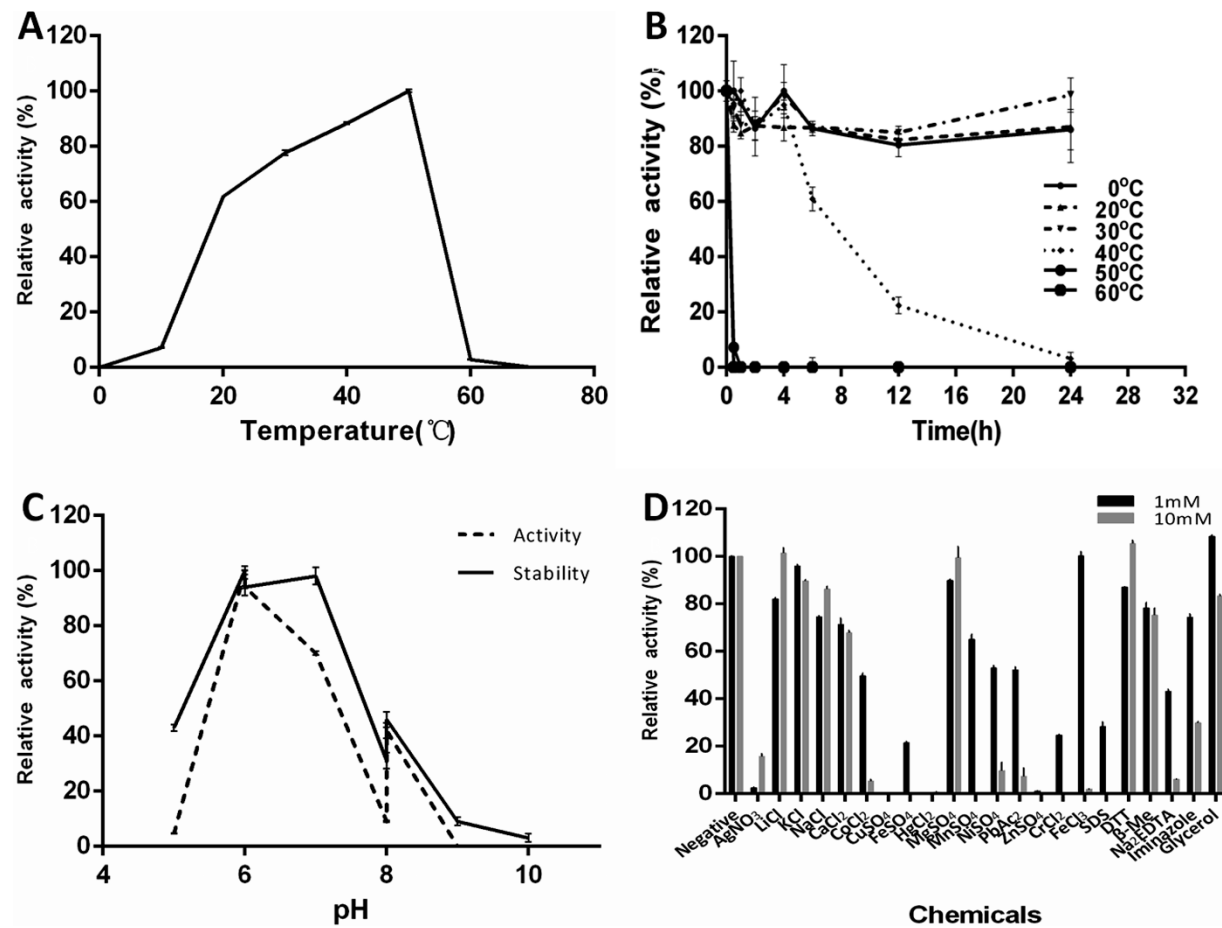


Figure S2. Biochemical Characteristics of the enzyme rAly16-1. A, optimal temperature. B, thermostability. C, effects of different pH values on the stability. D, effects of various compounds on enzyme activities. Error bars represent the mean values of triplicates  $\pm$  SDs.