

Supplementary information

Picoliter Enzyme Reactor on Nanofluidic Device Exceeding Bulk Reaction Rate

Koki Yamamoto¹, Kyojiro Morikawa^{2,*}, Hiroyuki Imanaka³, Koreyoshi Imamura³, and
Takehiko Kitamori^{1,2,*}

1 Department of Bioengineering, School of Engineering, The University of Tokyo, 7-3-1 Hongo, Bunkyo, Tokyo 113-8656, Japan

2 Department of Applied Chemistry, School of Engineering, The University of Tokyo, 7-3-1 Hongo, Bunkyo, Tokyo 113-8656, Japan

3 Division of Chemistry and Biochemistry, Graduate School of Natural Science and Technology, Okayama University, 3-1-1 Tsushima-Naka, Kita-Ku, Okayama 700-8530, Japan.

Corresponding authors

* To whom correspondence should be addressed:

Kyojiro Morikawa: morikawa@icl.t.u-tokyo.ac.jp

Takehiko Kitamori: kitamori@icl.t.u-tokyo.ac.jp

Figure S1.

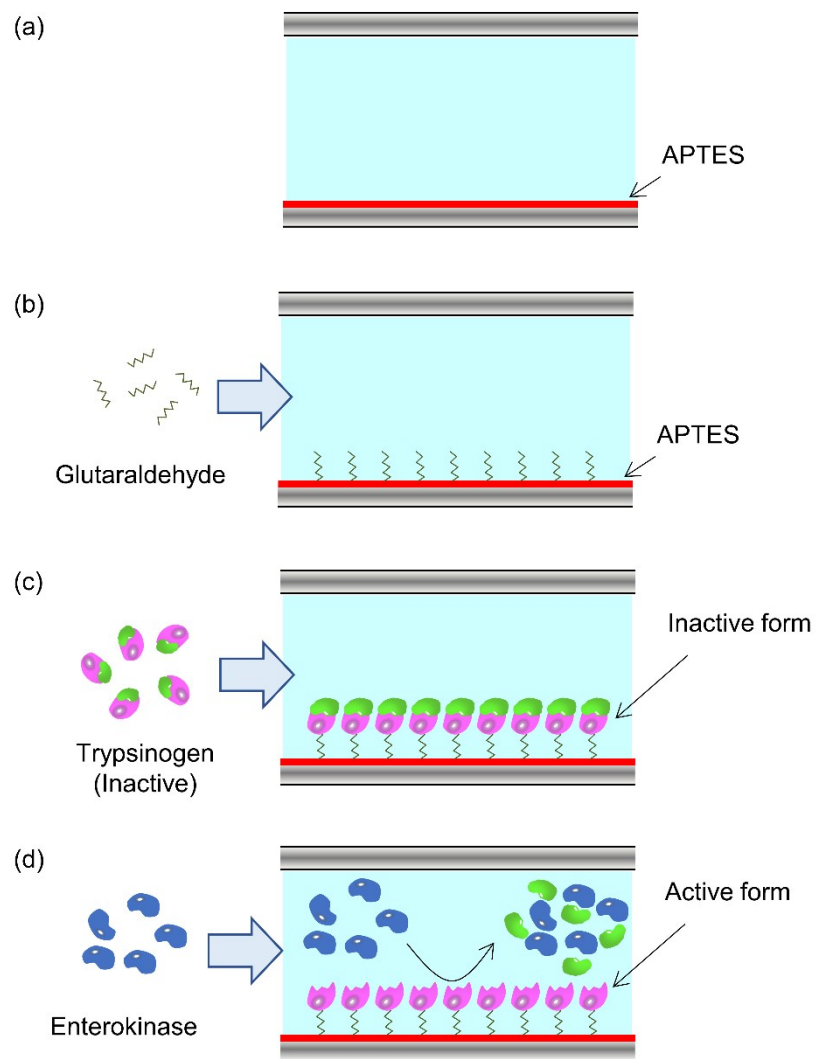


Figure S1. Summary of trypsinogen immobilization process.

Figure S2.

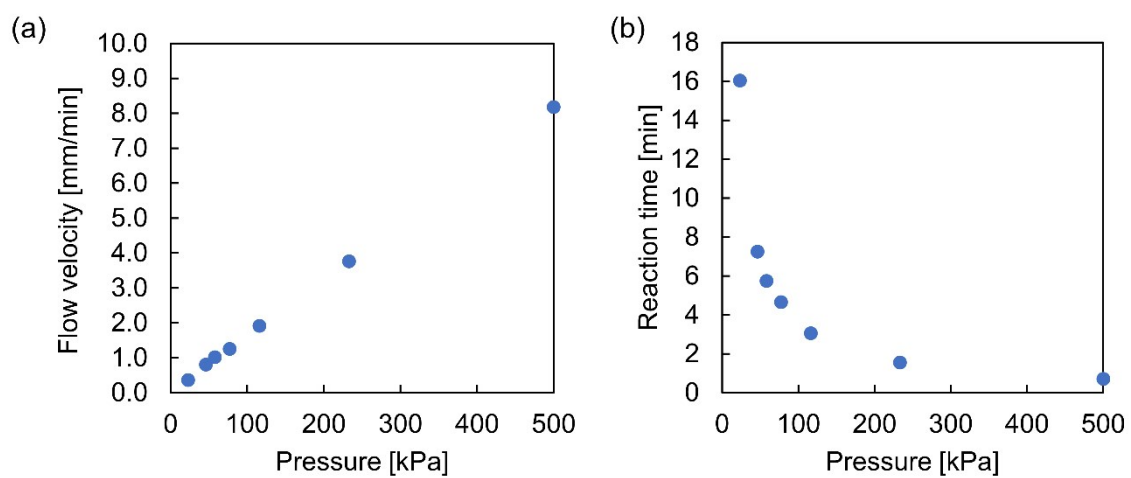


Figure S2. (a) measured flow velocity with different applied pressure. (b) reaction time with different applied pressure determined by (a).

Figure S3.

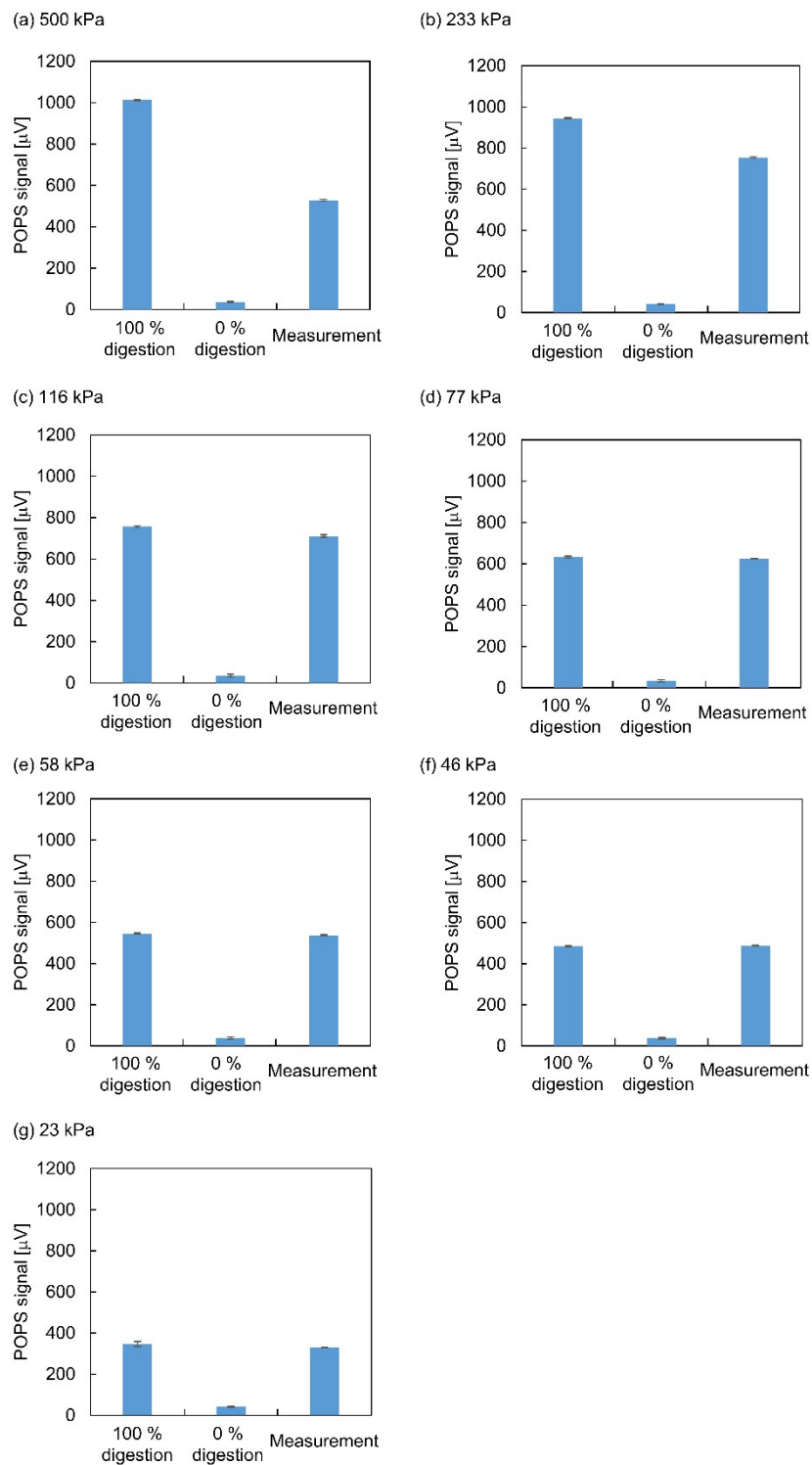


Figure S3. Calibration of POPS signals to tryptic hydrolysis rate in different applied pressure (a)-(g) from the signals of 100% digestion and 0% digestion.