Supporting Information

Label-free monitoring of crystalline chitin hydrolysis by chitinase based on Raman spectroscopy

Jun Ando^{1,2,3}[†], Hiroyuki Kawagoe¹[†], Akihiko Nakamura^{2,3,4}, Ryota Iino^{2,3}, Katsumasa Fujita^{1,5,6}*

¹Department of Applied Physics, Osaka University, 2-1 Yamadaoka, Suita, Osaka 565-0871, Japan

²Institute for Molecular Science, National Institutes of Natural Sciences, 5-1 Higashiyama, Myodaiji, Okazaki, Aichi 444-8787, Japan

³Department of Functional Molecular Science, School of Physical Sciences, SOKENDAI (The Graduate University for Advanced Studies), Hayama, Kanagawa 240-0193, Japan

⁴Department of Applied Life Sciences, Shizuoka University, Shizuoka, Shizuoka 422-8529, Japan

⁵Advanced Photonics and Biosensing Open Innovation Laboratory, AIST-Osaka University, Osaka University, 2-1 Yamadaoka, Suita, Osaka 565-0871, Japan

⁶Institute for Open and Transdisciplinary Research Initiatives, Osaka University, 2-1 Yamadaoka, Suita, Osaka 565-0871, Japan

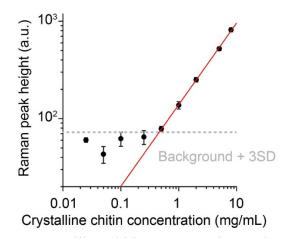


Fig. S1 Relationship between crystalline chitin concentration and Raman peak height at 2995 cm⁻¹. The peak height was calculated by subtracting the Raman intensity of 3026 cm⁻¹ from that of 2995 cm⁻¹. The red line represents a linear fit applied to the dataset of crystalline chitin concentrations from 0.5 to 8.0 mg/mL. Error bars represent SD (n=3). The gray dotted line represents a level of background signal plus three times SD of the background.

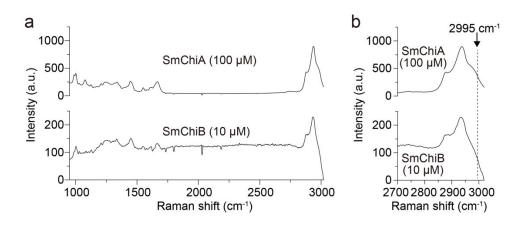


Fig. S2 Raman spectra of SmChiA and SmChiB at a spectral range between (a) 950 and 3020 cm⁻¹, and (b) 2700 and 3020 cm⁻¹. The vertical axis of the SmChiB spectrum was magnified 5 times compared to that of SmChiA. The concentrations of SmChiA and SmChiB were 100 μ M and 10 μ M, respectively.