

Showcasing work from the group of Professor Ryota lino from the Okazaki Institute for Integrative Bioscience, Institute for Molecular Science, Okazaki Aichi, Japan.

Rate constants, processivity, and productive binding ratio of chitinase A revealed by single-molecule analysis

This work revealed kinetic parameters, processivity, and low productive binding ratio of a linear molecular motor chitinase A using single-molecule fluorescence imaging. In particular, the apparent inconsistency between high velocity of movement and biochemically determined low catalytic constant is explained by a low ratio of moving (productive) enzymes on the crystalline chitin surface. Our results highlight the importance of single-molecule analysis in understanding the complex mechanism of heterogeneous reactions catalyzed by enzymes acting on a solid–liquid interface.



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