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The possibility that the mutant and wild type enzymes have different catalytic activity cannot be ruled out based on the observation. The two variants may respond differently to positive or negative regulators. The activities of the free enzymes may be the same, but the mutation may change the affinity to regulatory proteins or the effect of regulator binding on catalytic activity (K_d , cooperativity n), K_{cat}^* may be changed).

Expressing protein and measuring activity within cells, in the presence of all potential ligands, and comparing mutant vs. wild type cell lines would show whether the mutation had any effect on catalysis.

2) The data show that mean rupture force increases with increasing loading rate. This can be explained by the probability of bond rupture:

$$p(\Delta t) = 1 - \exp(-k_r \Delta t)$$

Probability of rupture is larger over longer time increments. For higher load rates, force is applied in a shorter amount of time, so a greater force is required for a high rupture probability. According to Bell 1978, k_r increases exponentially with force, and rupture probability increases with k_r by the above equation.