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Extremophiles

Electronic Supplementary Material

Characterization of esterase activity from an *Acetomicrobium hydrogeniformans* enzyme with high structural stability in extreme conditions

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c)

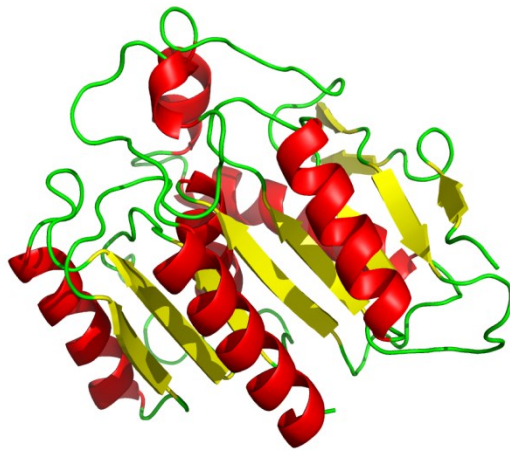


Figure S2 - Excitation polarization spectra of AhEst at 25°C (black) and 55°C (red).

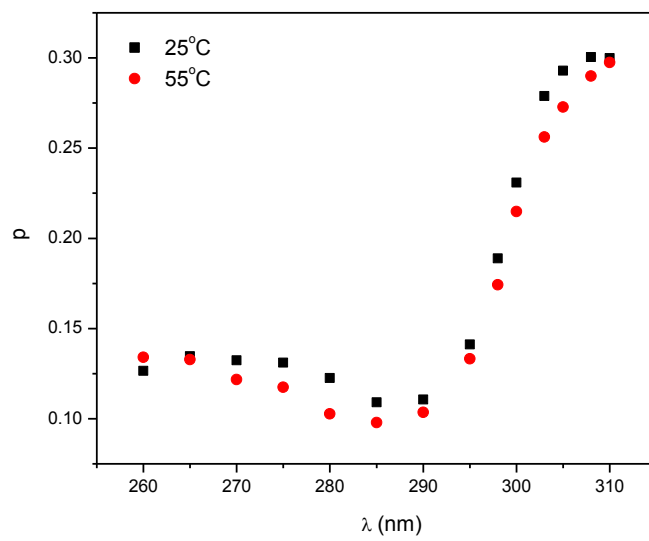
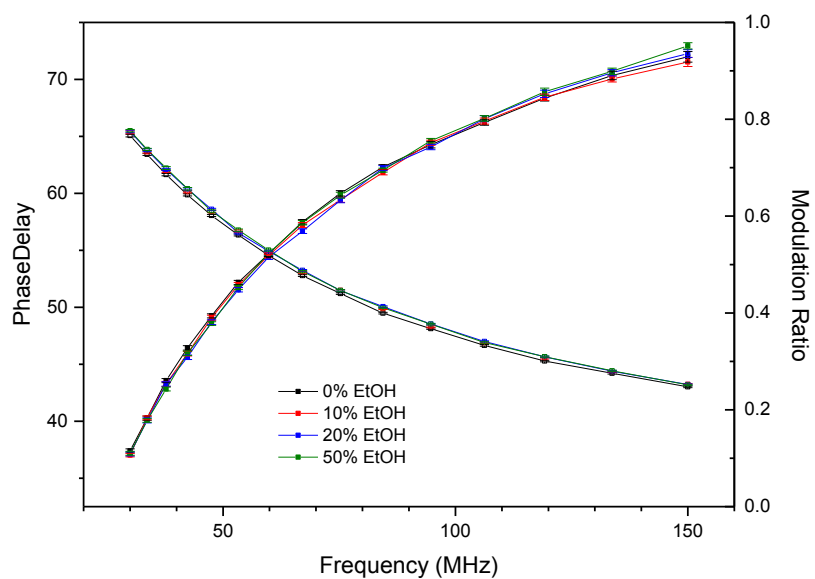


Figure S3 - Organic solvent tolerance of AhEst determined using time-resolved fluorescence. Frequency domain time-resolved fluorescence measurements of intensity decay of AhEst. Variation of phase (closed symbols) and modulation (open symbols) of Trp residue were monitored as a function of frequency (from 30 to 150 MHz), in PBS (black) and in the presence of 10-50% of a) ethanol or b) propanol. Error bars are shown to each measurement.

a)



b)

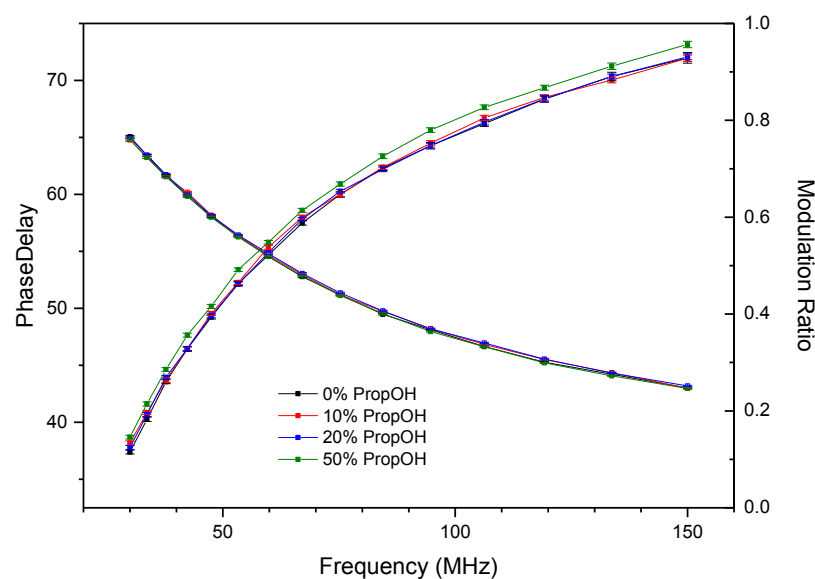


Table S1 – Excited state decay of AhEst with organic solvents.

Sample	τ_1 (ns)	τ_2 (ns)	f_1	f_2	χ^2
AhEst	4.9	1.7	0.84	0.16	0.56
+ EtOH					
<i>10%</i>	4.8	2.0	0.83	0.17	0.62
<i>20%</i>	4.9	2.1	0.79	0.21	0.82
<i>50%</i>	4.9	2.1	0.79	0.21	0.71
+ PropOH					
<i>10%</i>	4.7	1.6	0.88	0.12	0.84
<i>20%</i>	4.7	1.6	0.88	0.12	0.92
<i>50%</i>	4.8	1.7	0.89	0.11	0.39

Table S2 – Kinetic parameters of *p*-nitrophenyl acetate (*p*NA) hydrolysis of esterases from different organisms.

Organism	K_{cat}/K_m ($s^{-1} mM^{-1}$)	Reference
<i>Archaeoglobus fulgidus</i>	1600	Zhou et al. 2012
<i>Acetomicrobium hydrogeniformans</i>	501	-
<i>Klebsiella sp.</i>	310	Wu et al. 2006
<i>Rhodobacter sphaeroides</i>	230	Xiang et al. 2014
<i>Sulfolobus tokodaii</i>	160.7	Weia et al. 2013
<i>Ferroplasma acidiphilum</i>	53	Golyshina et al. 2006

Data available at BRENDA website.

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