

Supporting Information

Kinetic Results for Mutations of Conserved Residues H304 and R309 of Human Sulfite Oxidase Point to Mechanistic Complexities

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Table S1: Forward and reverse primers for the H304 and R309 hSO mutants. Wt hSO was used as the template.

Mutant	Primer	Primer Sequence
H304A H304A	forward reverse	ctgccacgtgac gcc ggcttcctgtg cacaggggaagcc ggc gtcacgtggcag
H304F H304F	forward reverse	ctgccacgtgact ttc ggcttcctgtg cacaggggaagcc gaag tcacgtggcag
H304E H304E	forward reverse	ctgccacgtgac gag ggcttcctgtg cacaggggaagcc ctc gtcacgtggcag
H304R H304R	forward reverse	ctgccacgtgac ggc ggcttcctgtg cacaggggaagcc ggc gtcacgtggcag
H304R/R309H H304R/R309H	forward reverse	ctgccacgtgac ggc ggcttcctgtg cat gtggtggttcctgga tccaggaaccaccac atg cacaggggaagcc ggc gtcacgtggcag
R309H R309H	forward reverse	tccctgtg cat gtggtggtt aaccaccac atg cacagggaa
R309K R309K	forward reverse	tccctgtg aaag tggtggtt aaccaccac ttt cacagggaa
R309E R309E	forward reverse	tccctgtg gaag tggtggtt aaccaccac ttc cacagggaa
R309M R309M	forward reverse	tccctgtg atg tggtggtt aaccaccac cat cacagggaa

Table S2: Molybdenum to iron ratios as determined by inductively coupled plasma.

hSO mutant	Mo/Fe
H304A	N/A
H304F	0.58
H304E	0.62
H304R	0.60
H304R/R309H	0.63
R309H	0.83
R309K	0.73
R309E	N/A
R309M	0.80

Table S3: Comparison of k_{cat} , k_{turnover} and k_{et} for wt and H304 and R309 mutants

hSO	k_{cat} (s ⁻¹) pH 7.6	k_{turnover} (s ⁻¹) ^a	k_{et} (s ⁻¹)	k_{et} pH
wt	27	13.5	310 (220)	7.4 (7.6)
H304A	60	30	110	7.4
H304F	95	47.5	120	7.4
H304E	60	30	205	7.4
H304R	110	55	210	7.4
H304R/R309H	100	50	105	7.4
R309H	90	45	100	7.6
R309K	90	45	130	7.6
R309E	126	63	67	7.6
R309M	105	52.5	90	7.6

^a $k_{\text{turnover}} = \frac{1}{2} k_{\text{cat}}$

Steady State Kinetics



