

System	Mean dG* (kcal/mol)	Mean dG0 (kcal/mol)
WT Human Sec	16.37 \pm 0.95 kcal/mol	-60.85 \pm 1.84 kcal/mol
WT Mouse Cys	20.72 \pm 1.07 kcal/mol	-55.43 \pm 1.77 kcal/mol
Mouse Sec C49U	15.75 \pm 0.71 kcal/mol	-64.42 \pm 1.86 kcal/mol
Mouse Cys F48Y	20.25 \pm 0.47 kcal/mol	-52.71 \pm 1.74 kcal/mol
Mouse Cys T52A	20.08 \pm 1.35 kcal/mol	-48.75 \pm 2.83 kcal/mol
Mouse Cys S47A	17.38 \pm 0.59 kcal/mol	-56.04 \pm 2.59 kcal/mol
Mouse Cys C99R	17.74 \pm 0.69 kcal/mol	-49.28 \pm 2.55 kcal/mol
Mouse Cys Q54T	20.30 \pm 1.04 kcal/mol	-56.15 \pm 1.82 kcal/mol
Mouse Cys H177Q	21.33 \pm 0.87 kcal/mol	-55.91 \pm 2.14 kcal/mol
Mouse Cys H144Q	22.42 \pm 1.15 kcal/mol	-56.18 \pm 2.28 kcal/mol
Mouse Cys T178A	21.87 \pm 1.52 kcal/mol	-58.78 \pm 2.46 kcal/mol
Mouse Cys G74A	20.78 \pm 0.42 kcal/mol	-54.45 \pm 2.28 kcal/mol
Mouse Cys D148E	20.55 \pm 0.42 kcal/mol	-53.58 \pm 2.43 kcal/mol
Mouse Cys G74A	20.78 \pm 0.42 kcal/mol	-54.45 \pm 2.28 kcal/mol
Mouse Cys S47AF48Y	20.92 \pm 0.89 kcal/mol	-54.16 \pm 2.16 kcal/mol
Mouse Cys S47AT52A	16.54 \pm 0.87 kcal/mol	-59.11 \pm 2.66 kcal/mol
Mouse Cys F48YT52A	23.45 \pm 0.79 kcal/mol	-35.90 \pm 2.83 kcal/mol
Human Cys U49C	19.34 \pm 1.05 kcal/mol	-49.99 \pm 2.73 kcal/mol
Human Sec Y48F	23.69 \pm 1.61 kcal/mol	-51.15 \pm 1.82 kcal/mol
Human Sec A52T	19.49 \pm 0.61 kcal/mol	-56.84 \pm 1.80 kcal/mol
Human Sec A47S	18.95 \pm 1.22 kcal/mol	-58.86 \pm 1.90 kcal/mol
Human Sec C99R	17.52 \pm 0.69 kcal/mol	-50.28 \pm 2.55 kcal/mol
Human Sec Q54T	19.18 \pm 1.04 kcal/mol	-58.15 \pm 1.82 kcal/mol
Human Sec Q177H	20.21 \pm 1.31 kcal/mol	-60.24 \pm 1.47 kcal/mol
Human Sec Q144H	18.57 \pm 0.44 kcal/mol	-57.97 \pm 1.31 kcal/mol
Human Sec A178T	17.18 \pm 0.51 kcal/mol	-60.77 \pm 1.62 kcal/mol
Human Sec A74G	13.42 \pm 0.92 kcal/mol	-67.47 \pm 1.50 kcal/mol
Human Sec E148D	18.78 \pm 0.40 kcal/mol	-55.11 \pm 1.53 kcal/mol

Table 1: Free energy changes in wild type and mutants at 10 Å distance with errors