



**Supplemental Figure 3.** The rise times during activation of GABA responses were measured from 10-90% (baseline to peak). The activation rates (1/rise time) are plotted against GABA concentration for each receptor type demonstrating that the rising rates saturate for each of the constructs (wild-type 10 mM GABA:  $1562 \pm 98$  s<sup>-1</sup>; D163A 10 mM GABA:  $1075 \pm 58$  s<sup>-1</sup>; R120A 30 mM GABA:  $813 \pm 33$  s<sup>-1</sup>; R120A/D163A 30 mM GABA:  $498 \pm 40$  s<sup>-1</sup>). Mutant cycle analysis of the rise rates yields a coupling energy of  $-0.07$  kcal/mol and indicates R120A and D163A have independent effects on rise rates.