$\widehat{\omega}_{x,y}$  estimated between  $\langle 2N_e \mathcal{P}_{fix}(x \rightarrow y) \rangle$  predicted between pairs of amino-acids pairs of amino-acids Fixation probabilities 8.0 0.7  $\langle \mathbf{g}_{\mathbf{x}}^{\mathsf{c}} \rangle_{0.9}^{\mathsf{c}}$ **Estimated** 0.4 ACDEFGHIKLMNPQRSTVWY ACDEFGHIKLMNPQRSTVWY 0.1  $y = 0.89x + 0.024 (r^2 = 0.81)$ 0.0 0.6 0.1 0.5 0.2 0.4 0.6 0.2 0.4 True  $\langle 2N_e \mathbb{P}_{fix}(x \rightarrow y) \rangle$