Supporting Information for:

Scaling of Rates of Vibrational Energy Transfer in Proteins with Equilibrium Dynamics and Entropy

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Scaling figures identifying specific residue pairs with all data points prior to smoothing

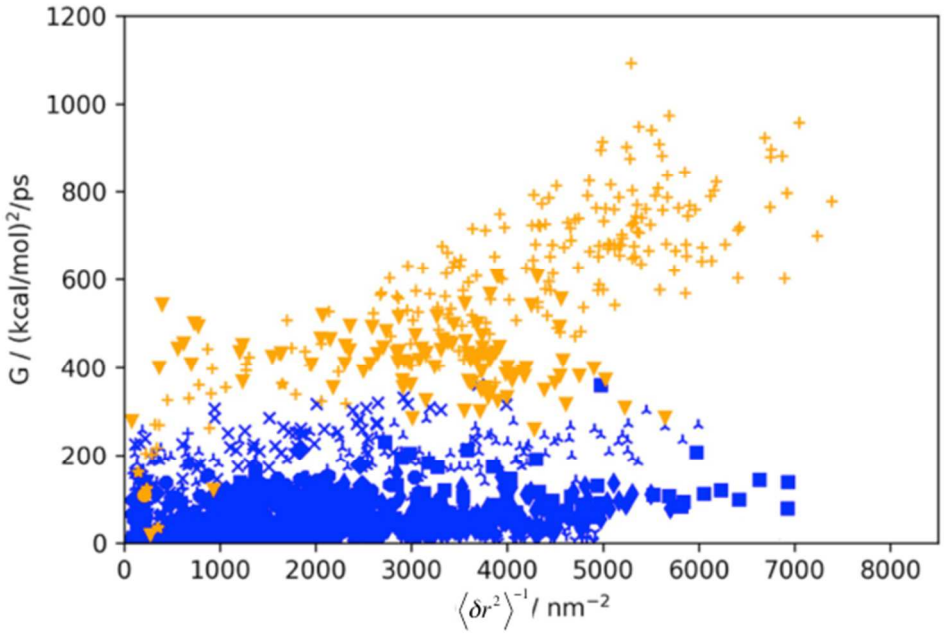

Figure S1. Polar contacts, G vs. $\langle \delta r^2 \rangle^{-1}$. For blue data points: (*) Val1-Lys133, (+) Leu2-Trp6, (o) Gln26-Met55, (∇) Gln26-Lys56, (Δ) Lys42-His97, (▪) Lys42-Gly153, (tristar-down) Ile75-Gly80, (tristar-up) His82-Asp141, (pentagon) Gln91-Lys96, (□) Ser92-His97, (small diamond) His93-Ile99, (x) Ile101-Arg139, (hexagon) Ile101-Gln152, (large diamond) Ile101-Gly153, (†) Leu104-Arg139, (octagon) Ser108-Arg139, (X) His116-Gln128, (δ) Tyr146-Tyr151, (γ) Tyr146-Gln152. For orange data points: (*) Gln91-Tyr151, (+) Lys98-Tyr151, (o) Ile99-Tyr146, (∇) Ile99-Tyr151, (Δ) Phe123-Gln128.

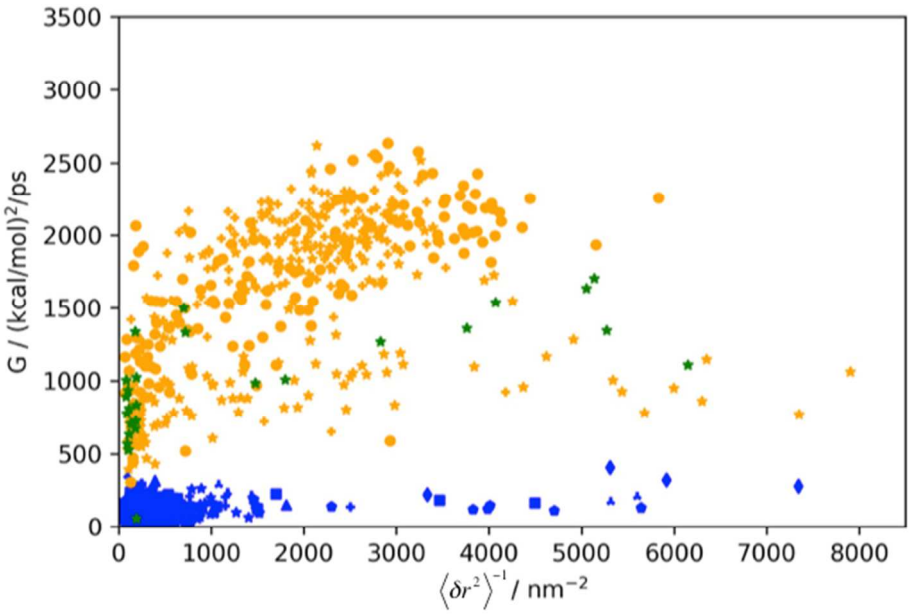

Figure S2. Charged contacts, G vs. $\langle \delta r^2 \rangle^{-1}$. For blue data points: (*) Glu4-Lys79, (+) Glu6-Lys133, (o) His12-Asp122, (∇) Lys16-His24, (Δ) Lys16-Asp122, (▪) Glu18-Lys77, (tristar-down) Lys34-Lys50, (tristar-up) Lys34-Glu52, (pentagon) Lys42-Lys98, (□) Lys78-Glu85, (small diamond) Glu83-Lys145. For orange data points: (*) Asp20-Arg118, (+) Asp27-Arg118, (o) Arg45-Asp60. For green data points: (*) Glu38-Tyr103.

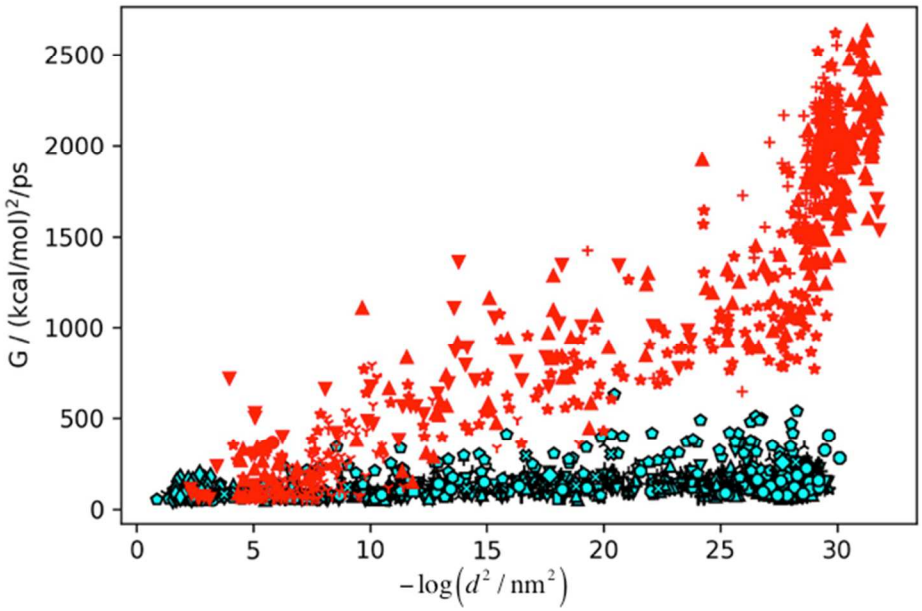

Figure S3. Charged contacts, G vs. $1/d^2$. For cyan data points: (*) Glu4-Lys79, (+) Glu6-Lys133, (o) His12-Asp122, (∇) Lys16-Asp122, (Δ) Glu18-Lys77, (▪) Asp27-Lys56, (tristar-down) Lys34-Lys50, (tristar-up) Lys34-Glu52, (pentagon) Glu41-Lys47, (□) Glu41-Lys50, (small diamond) Lys42-Lys98, (x) Asp44-Lys96, (hexagon) Asp44-Lys98, (large diamond) Lys78-Glu83, (†) Lys78-Glu85, (octagon) Glu83-Lys145, (X) Lys87-Glu148. For red data points: (*) Asp20-Arg118, (+) Asp27-Arg118, (o) Arg31-Glu109, (∇) Glu38-Tyr103, (Δ) Arg45-Asp60, (▪) Arg45-Lys96, (tristar-down) Glu105-Arg139.

Table S1:Hydrogen bond and polar contact curve assignment and contact location. (S) side chain, and (B) backbone.

Residue A	Residue B	Curve	Contact location
VAL1	LYS133	Blue	BS
LEU2	TRP7	Blue	BS
GLN26	MET55	Blue	SB
GLN26	LYS56	Blue	SB
LYS42	GLY153	Blue	SB
ILE75	GLY80	Blue	BB
GLN91	LYS96	Blue	SS
GLN91	TYR151	Orange	SS
SER92	HIS97	Blue	BB
HIS93	ILE99	Blue	BB
LYS98	TYR151	Orange	SB
ILE99	TYR146	Orange	BS
ILE99	TYR151	Orange	BS
ILE101	ARG139	Blue	BS
ILE101	GLN152	Blue	BB
ILE101	GLY153	Blue	BB
LEU104	ARG139	Blue	BS
SER108	ARG139	Blue	SS
HIS116	GLN128	Blue	SS
PHE123	GLN128	Orange	BS
TYR146	TYR151	Blue	BB

Table S2: Charged contact curve assignment and contact location. (S) side chain, and (B) backbone.

Residue A	Residue B	Curve	Contact location
GLU4	LYS79	Cyan	SS
GLU6	LYS133	Cyan	SS
HIS12	ASP122	Cyan	SS
LYS16	HIS24	Cyan	BS
LYS16	ASP122	Cyan	SS
GLU18	LYS77	Cyan	SS
ASP20	ARG118	Red	SS
ASP27	ARG118	Red	SS
LYS34	GLU52	Cyan	SS
GLU38	TYR103	Red	SS
LYS42	LYS98	Cyan	SB
ARG45	ASP60	Red	SS
LYS78	GLU85	Cyan	SS
HIS82	ASP141	Cyan	SS
GLU83	LYS145	Red	SS