Supporting Information

Specific and Non-Specific Interactions in Ultra-Weak Protein-Protein Associations Revealed by Solvent Paramagnetic Relaxation Enhancements

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Calculation of the Fractions of hGH present as Monomers and Dimers. The molar concentrations of the hGH monomer, [M], and dimer, [D], are determined by the dissociation constant of the hGH dimer, K_{D},

$$K_{\mathrm{D}} = \frac{[\mathrm{M}]^2}{[\mathrm{D}]} = 0.90\ \mathrm{mM} \qquad \text{where} \qquad [\mathrm{M}] + 2 \times [\mathrm{D}] = [\mathrm{M}]_{\mathrm{total}} \qquad (1)$$

that is

$$K_{\mathrm{D}} = \frac{[\mathrm{M}]^2}{1/2([\mathrm{M}]_{\mathrm{total}} - [\mathrm{M}])} = 0.9\ \mathrm{mM} \qquad \Longrightarrow \qquad [\mathrm{M}]^2 + 0.45[\mathrm{M}] - 0.45[\mathrm{M}]_{\mathrm{total}} = 0 \qquad (2)$$

From eqs 1 and 2, the following molar concentrations are obtained for $[\mathrm{M}]_{\mathrm{total}}$ = 0.180 mM, 0.310 mM, and 0.430 mM, respectively; [M] = 0.138 mM, 0.210 mM, and 0.269 mM, and [D] = 0.021 mM, 0.050 mM, and 0.081 mM. From these concentrations, the fraction of hGH molecules present as monomers, FM, and the fraction present as dimers, FD, are found to be 0.767 and 0.233 at [hGH] = 0.180 mM, 0.677 and 0.323 at [hGH] = 0.310 mM, and 0.626 and 0.374 at [hGH] = 0.430 mM.

Table S1. Chemical shifts of hGH backbone nuclei at pH 7.0 and 298 K

Res.	H^{N}/ppm	N^{H}/ppm	$\delta C_{\alpha}/ppm$	$\delta C_{\beta}/ppm$	$\delta C_{o}/ppm$
P2	-	-	63.40	31.77	176.7
T3	8.241	115.4	62.19	69.95	174.6
I4	8.325	126.4	58.63	38.60	-
P5	-	-	62.69	31.69	177.2
L6	8.869	124.9	58.10	41.08	178.7
S7	8.904	111.5	60.31	61.90	176.6
R8	7.049	122.7	58.16	29.67	178.3
L9	7.594	119.4	57.91	41.10	181.4
F10	8.488	118.2	63.48	38.53	177.7
D11	8.367	120.6	57.99	43.72	179.0
N12	8.205	117.2	55.84	38.06	177.6
A13	7.695	122.1	55.08	16.65	179.0
M14	8.974	116.8	56.79	29.41	179.5
L15	8.108	120.9	58.53	41.10	180.6
R16	7.343	118.2	59.26	31.45	178.3
A17	8.899	121.9	55.24	17.21	179.2
H18	8.985	116.5	59.35	-	177.2
R19	7.867	118.9	59.06	28.82	178.7
L20	8.054	119.6	58.27	41.62	178.0
H21	8.150	117.1	58.51	27.65	176.2
Q22	8.352	119.4	58.96	27.62	177.4
L23	8.343	119.1	54.97	47.36	180.5
A24	8.454	123.9	55.69	18.84	179.2
F25	8.911	119.0	61.91	38.76	177.8
D26	9.311	120.4	57.74	39.92	180.1
T27	8.638	116.5	67.45	-	176.9
Y28	8.195	123.3	62.80	37.41	175.9
Q29	8.152	117.5	58.93	28.22	178.0
E30	7.863	119.1	58.98	-	178.2
F31	8.500	121.6	61.10	35.22	177.0
E32	8.774	118.8	59.51	30.33	178.1
E33	7.864	115.3	58.44	29.42	178.7
A34	7.584	118.6	54.28	21.24	180.2
Y35	7.592	110.9	58.13	39.96	175.1
I36	7.308	119.6	54.99	35.25	173.8
P37	-	-	62.73	29.38	177.8
K38	8.637	122.0	60.41	31.76	178.1

Continued ...

Res.	H^{N}/ppm	N^{H}/ppm	$\delta C_{\alpha}/ppm$	$\delta C_{\beta}/ppm$	$\delta C_{o}/ppm$
E39	9.127	115.3	59.15	27.64	177.1
Q40	7.854	117.1	55.35	-	175.7
K41	-	-	58.48	32.46	175.7
Y42	8.155	120.6	55.56	38.74	173.9
P48	-	-	63.99	-	177.3
Q49	8.340	118.3	58.01	31.65	176.6
T50	7.855	112.7	62.42	69.10	174.6
S51	8.170	116.7	58.48	64.15	173.9
L52	7.981	123.4	55.82	42.66	177.4
C53	8.522	118.8	53.58	-	176.9
S55	-	-	59.24	-	176.2
E56	7.805	122.4	58.48	28.71	176.4
S57	7.406	111.3	59.59	63.61	174.4
I58	7.793	125.5	58.94	37.59	173.5
P59	-	-	63.02	29.96	174.4
T60	8.165	115.5	58.48	70.03	176.3
P61	-	-	62.75	31.76	177.3
S62	9.028	116.9	59.62	63.98	173.7
N63	7.458	115.3	51.94	39.80	176.1
E65	8.637	121.8	60.33	28.02	179.4
E66	8.570	118.1	58.76	29.99	179.7
T67	8.037	115.3	67.26	67.80	177.8
Q68	7.866	117.8	57.75	28.41	176.7
Q69	7.179	114.1	56.03	28.23	176.6
K70	7.501	118.1	53.73	33.02	176.6
S71	9.454	120.1	57.24	65.13	174.5
N72	9.170	119.3	56.11	-	177.5
L73	8.596	118.5	58.10	40.95	179.1
E74	7.947	118.9	59.70	28.95	178.6
L75	8.083	116.9	57.77	40.58	180.9
L76	8.425	120.1	58.12	41.71	177.4
R77	8.512	120.6	59.43	-	178.2
I78	8.354	118.3	62.87	-	177.4
S79	7.696	114.9	64.26	-	174.7
L80	8.705	121.6	58.04	-	178.0
L81	8.311	117.8	58.02	42.27	181.2
L82	8.461	122.3	58.67	41.19	178.6
I83	7.900	117.9	63.21	35.26	178.8
Q84	9.074	116.1	59.08	27.08	179.6

Continued ...

Res.	H^{N}/ppm	N^{H}/ppm	$\delta C_{\alpha}/ppm$	$\delta C_{\beta}/ppm$	$\delta C_{o}/ppm$
S85	8.187	114.3	61.25	67.30	176.2
W86	7.647	118.5	57.25	31.48	176.4
L87	7.241	120.2	59.51	40.02	177.4
E88	8.517	113.3	59.52	26.94	176.9
P89	-	-	-	-	178.0
V90	8.309	113.9	65.72	-	178.3
Q91	7.712	119.9	57.76	27.05	179.2
F92	7.774	119.3	59.43	37.49	177.1
L93	7.567	117.0	54.16	42.26	176.5
R94	7.351	121.1	60.97	29.82	178.6
S95	-	-	61.48	-	176.0
V96	7.244	122.7	65.24	30.26	179.1
F97	7.665	117.6	59.79	42.29	177.8
A98	8.172	118.6	54.55	18.82	178.6
N99	7.371	113.4	53.03	39.58	174.5
S100	7.394	115.6	57.86	64.25	176.1
Y103	-	-	60.52	-	177.6
G104	8.356	112.4	45.51	-	174.9
A105	7.867	123.1	53.77	18.25	178.2
S106	8.082	112.8	59.43	-	-
D107	-	-	54.72	-	176.1
S108	7.694	114.2	58.60	63.93	174.3
N109	8.515	121.4	52.73	-	176.6
D116	-	-	55.55	36.67	177.7
L117	8.218	123.0	57.28	40.00	177.4
E118	8.918	122.5	60.23	28.24	177.8
E119	7.781	117.7	59.16	28.24	179.7
G120	8.364	109.0	47.14	-	176.7
I121	9.032	122.6	66.19	36.95	178.0
Q122	8.368	120.1	60.29	27.92	179.8
T123	8.559	118.0	65.56	67.42	177.3
L124	7.941	123.3	58.36	41.68	178.2
M125	8.549	116.7	60.03	31.77	178.3
G126	7.715	103.81	46.98	-	176.3
R127	7.576	118.8	55.69	28.74	177.3
L128	7.731	119.0	55.05	40.59	176.4
E129	7.322	120.6	58.00	29.54	176.1
D130	7.875	124.1	53.46	41.28	177.5
G131	9.122	110.6	45.38	-	174.5

Continued ...

Res.	H^{N}/ppm	N^{H}/ppm	$\delta C_{\alpha}/ppm$	$\delta C_{\beta}/ppm$	$\delta C_{o}/ppm$
S132	8.117	117.7	57.39	62.59	172.6
T135	-	-	61.72	69.74	175.4
G136	8.496	110.2	44.99	-	174.3
F139	-	-	56.30	-	175.9
K140	7.876	120.3	60.15	37.57	175.8
Q141	7.665	121.3	55.65	29.62	174.5
T142	7.997	114.6	60.25	69.95	174.1
Y143	7.937	119.3	58.01	37.62	174.8
S144	8.279	117.0	58.57	64.28	173.5
K145	8.302	122.8	55.61	33.84	175.5
F146	8.252	123.4	56.83	39.56	174.3
D147	8.085	125.7	51.63	42.94	175.9
T148	7.942	116.2	62.71	69.20	174.8
N149	8.294	120.0	53.82	38.68	175.3
S150	7.820	115.3	58.86	64.11	174.2
N152	-	-	53.94	41.14	175.0
D153	8.423	119.9	54.75	39.98	175.8
D154	8.066	120.2	54.14	41.41	175.9
A155	8.438	126.9	55.03	17.80	179.0
L156	7.999	119.0	59.45	41.54	178.4
L157	7.845	117.6	57.17	40.08	180.8
K158	8.365	122.1	59.48	31.05	179.4
N159	8.245	119.3	55.71	37.05	176.6
Y160	8.466	120.9	58.46	-	177.3
G161	8.288	103.58	47.17	-	176.7
L162	8.161	122.6	57.77	42.69	179.1
L163	8.510	119.6	58.08	42.59	-
R167	-	-	60.13	-	177.2
K168	7.561	119.0	59.06	31.15	179.5
D169	8.76	120.8	57.23	38.71	178.3
M170	8.281	118.6	56.25	-	178.9
D171	7.570	120.1	56.85	41.30	178.6
K172	7.242	119.7	59.55	30.60	176.5
V173	7.751	116.9	67.40	30.56	178.0
T175	7.942	114.3	67.23	68.02	176.6
F176	8.704	120.8	57.92	36.42	178.3
L177	8.526	118.7	58.31	41.04	178.4
R178	8.067	119.1	58.55	28.83	178.6
I179	7.805	119.3	64.98	36.96	178.2

Continued ...

Res.	H^{N}/ppm	N^{H}/ppm	$\delta C_{\alpha}/ppm$	$\delta C_{\beta}/ppm$	$\delta C_{o}/ppm$
V180	7.767	118.6	66.57	30.45	178.5
Q181	8.752	123.7	59.62	27.50	177.4
C182	8.431	116.1	57.93	-	177.0
R183	7.901	116.3	58.57	-	178.2
S184	7.813	113.2	60.70	-	174.1
V185	7.936	120.0	61.41	31.15	175.7
E186	8.389	124.7	54.53	28.78	177.4
G187	8.578	111.2	-	-	174.5
S188	7.996	114.9	59.46	-	-
C189	-	-	-	-	174.6
G190	8.249	109.6	47.46	-	172.6
F191	7.426	124.0	55.77	40.35	180.1

Table S2. $R_{2\mathrm{exp}}$ rates of the backbone amide protons of hGH at pH 7.0 as function of hGH concentration

	[hGH] = 0.180 mM		[hGH] = 0.310 mM		[hGH] = 0.430 mM	
Residue	$R_{2\mathrm{exp}}/s^{-1}$	σ/s^{-1}	$R_{2\mathrm{exp}}/s^{-1}$	σ/s^{-1}	$R_{2\mathrm{exp}}/s^{-1}$	σ/s^{-1}
I4	98.6	3.4	118.4	3.7	118.9	4.2
R8	94.6	6.0	120.5	5.9	112.5	5.6
L9	75.2	3.8	92.2	2.4	99.4	1.8
F10	70.6	1.7	84.2	1.2	87.6	1.2
D11	68.1	1.7	77.6	1.8	90.9	2.1
N12	74.2	1.5	88.6	1.8	98.0	2.1
A13	57.8	1.4	72.1	1.2	79.0	1.4
M14	65.1	1.6	76.6	1.1	85.8	1.4
L15	65.0	3.6	85.2	2.1	99.7	3.1
R16	72.2	1.9	83.9	1.0	89.5	1.0
A17	58.0	1.5	70.3	1.1	78.1	1.5
H18	66.4	1.7	75.3	1.1	78.1	1.3
R19	68.1	1.8	77.5	0.8	83.8	0.9
L20	64.6	1.8	76.6	1.8	83.4	1.7
H21	66.8	2.1	75.1	1.1	85.0	1.0
L23	68.5	2.1	77.1	1.1	84.1	1.2
A24	58.0	2.5	65.9	1.0	71.6	1.3
F25	78.6	4.7	88.1	2.5	97.5	3.1
D26	69.2	2.2	82.2	1.8	88.6	2.2
T27	72.8	2.1	82.4	1.4	92.4	2.2
Y28	62.4	2.1	71.3	1.1	77.7	1.2
E30	68.5	2.7	80.3	1.0	87.5	1.0
F31	62.8	1.5	72.2	1.1	77.5	1.3
E32	59.8	1.5	69.1	1.2	74.7	1.2
E33	66.2	2.1	72.8	0.9	78.5	1.0
A34	75.9	2.2	86.8	1.1	93.5	1.2
Y35	92.3	4.1	111.3	3.3	121.0	4.1
I36	93.1	7.5	116.7	4.4	119.9	4.5
E39	104.5	5.1	111.8	4.1	107.8	3.6
L52	101.7	10.3	104.0	4.4	108.7	4.1
C53	62.6	1.3	71.0	0.9	75.1	0.8
E56	66.4	2.5	77.3	1.5	81.7	1.8
S57	76.8	1.8	92.1	1.3	88.7	1.1
I58	65.4	2.1	75.9	1.3	76.9	1.3

Continued ...

	[hGH] = 0.180 mM		[hGH] = 0.310 mM		[hGH] = 0.430 mM	
Residue	$R_{2\mathrm{exp}}/s^{-1}$	σ/s^{-1}	$R_{2\mathrm{exp}}/s^{-1}$	σ/s^{-1}	$R_{2\mathrm{exp}}/s^{-1}$	σ/s^{-1}
T60	79.5	3.0	88.1	1.7	84.2	1.8
S62	81.9	2.4	98.7	3.2	95.6	2.0
N63	99.7	4.9	111.7	4.3	120.6	4.7
E65	80.2	2.9	97.5	1.4	97.8	2.2
E66	64.0	1.1	76.0	0.6	79.9	0.8
T67	76.6	2.4	88.0	1.4	93.9	2.0
Q68	66.9	1.6	75.4	0.5	81.9	0.6
Q69	103.6	5.5	106.8	6.2	112.9	4.6
S71	105.9	17.1	133.6	9.7	131.1	9.5
L73	84.0	2.7	111.3	2.6	101.5	2.1
L75	56.4	1.0	64.2	0.7	70.1	1.0
L76	61.6	1.6	69.4	1.1	78.2	0.9
R77	52.6	1.4	58.5	0.6	65.7	0.9
S79	64.7	2.7	71.0	1.4	79.3	2.3
L80	55.2	1.3	63.4	0.8	70.6	1.0
L81	53.8	2.9	63.3	0.9	70.8	1.4
L82	50.7	1.2	56.9	0.8	63.7	0.9
I83	57.6	1.6	63.1	1.1	70.8	0.8
Q84	60.0	1.3	65.9	1.0	71.9	1.1
S85	80.7	2.4	86.0	2.0	94.7	2.2
W86	73.3	2.2	81.2	1.2	89.2	1.7
L87	74.4	1.8	86.8	1.3	90.4	1.3
E88	86.8	3.5	103.9	4.2	96.5	3.2
V90	62.5	2.4	75.4	1.8	81.6	2.3
Q91	83.7	3.2	100.0	2.3	99.6	2.4
F92	76.6	1.8	90.8	1.8	94.1	1.5
L93	66.1	1.7	79.1	1.2	81.6	1.4
R94	81.3	4.8	98.0	2.6	99.0	2.8
V96	79.1	2.9	89.7	2.0	91.4	2.1
F97	69.9	3.3	79.9	1.1	85.2	1.4
A98	77.3	1.4	88.1	1.2	94.1	1.1
N99	106.0	5.0	128.9	7.4	126.4	5.0
S100	93.5	4.3	98.4	2.5	105.7	3.1
G104	101.8	7.2	132.3	9.4	142.1	11.0
A105	89.5	2.3	100.3	2.0	98.1	2.0
S108	90.6	2.2	101.8	2.0	98.5	2.0

Continued ...

Residue	[hGH] = 0.180 mM		[hGH] = 0.310 mM		[hGH] = 0.430 mM	
	$R_{2\mathrm{exp}}/s^{-1}$	σ/s^{-1}	$R_{2\mathrm{exp}}/s^{-1}$	σ/s^{-1}	$R_{2\mathrm{exp}}/s^{-1}$	σ/s^{-1}
L117	67.5	1.7	75.2	1.0	81.1	1.4
E118	55.0	1.0	62.1	1.0	68.9	0.8
E119	62.1	1.5	69.6	0.8	76.3	0.8
G120	64.4	1.6	71.2	1.0	78.2	1.6
I121	51.4	0.9	61.5	0.6	67.8	0.8
Q122	62.7	1.1	71.0	0.8	78.8	1.0
T123	66.7	1.9	76.6	0.7	81.3	0.8
L124	64.8	1.3	74.9	1.6	81.3	1.4
M125	55.6	1.1	65.1	0.8	68.5	0.8
G126	68.7	2.8	83.4	2.4	85.2	2.4
R127	73.7	2.9	88.3	1.3	92.4	1.1
L128	80.1	2.1	93.6	2.0	95.8	1.7
E129	78.7	4.7	101.8	2.9	105.4	2.9
D130	65.0	3.0	76.1	1.5	74.0	1.2
G131	89.7	4.2	102.9	3.4	107.5	3.6
S132	69.3	1.6	84.2	1.0	81.1	1.1
G136	95.4	5.9	136.6	8.5	131.0	6.4
K140	91.1	4.2	108.5	2.3	108.8	2.7
Q141	112.6	9.8	128.5	8.4	127.8	7.2
T142	90.1	4.2	102.3	2.3	99.1	2.5
Y143	84.0	5.2	103.6	3.9	112.3	4.3
S144	87.6	3.1	100.9	2.8	101.2	2.4
K145	101.5	5.0	110.4	4.0	110.6	3.7
F146	77.8	2.2	82.7	1.5	83.3	1.3
D147	95.4	5.0	102.7	4.1	102.6	4.8
T148	83.1	3.5	91.4	1.7	92.3	2.6
N149	83.3	3.2	92.9	2.0	93.9	1.6
S150	91.5	5.2	100.9	3.0	100.3	2.8
D153	69.8	2.1	85.5	1.4	88.7	1.1
D154	69.3	1.3	80.4	1.0	78.0	1.3
A155	108.8	6.6	120.5	6.2	114.3	4.8
L156	98.6	4.5	110.2	4.1	110.0	2.4
L157	63.4	0.8	72.5	0.7	78.8	0.7
K158	73.5	3.1	81.1	2.2	85.9	2.3
N159	78.1	4.9	88.5	2.1	93.6	2.9
Y160	63.2	3.1	74.5	1.3	78.0	1.4

Continued ...

	[hGH] = 0.180 mM		[hGH] = 0.310 mM		[hGH] = 0.430 mM	
Residue	$R_{2\mathrm{exp}}/s^{-1}$	σ/s^{-1}	$R_{2\mathrm{exp}}/s^{-1}$	σ/s^{-1}	$R_{2\mathrm{exp}}/s^{-1}$	σ/s^{-1}
G161	77.6	4.8	88.9	3.6	100.8	4.3
L162	57.6	1.8	67.2	1.1	75.5	2.3
L163	66.5	1.8	71.4	1.1	76.9	1.3
K168	73.1	3.0	86.9	1.7	91.5	1.5
D169	67.9	2.1	75.2	1.7	83.1	1.5
M170	58.3	1.4	68.0	1.3	76.4	1.0
D171	67.7	4.0	85.7	2.0	87.6	2.3
K172	72.5	3.5	82.1	1.8	88.8	1.8
V173	52.4	1.3	60.1	0.7	65.1	0.9
T175	86.8	2.9	99.7	2.3	105.2	3.2
F176	63.0	1.1	73.2	0.8	79.9	0.9
L177	61.1	1.6	69.1	1.2	74.9	1.0
R178	66.1	2.2	77.1	1.7	85.6	1.4
I179	70.5	1.8	84.7	1.1	89.2	1.2
V180	58.5	1.8	71.6	1.4	78.6	1.6
Q181	60.5	1.4	69.9	1.0	77.6	1.4
C182	82.2	3.1	89.6	2.8	102.2	2.9
R183	88.7	4.3	101.1	3.1	104.2	2.9
S184	91.5	8.2	106.6	3.6	111.0	5.9
V185	85.9	5.8	105.9	2.7	116.7	3.8
F191	95.1	4.8	131.9	4.2	126.2	6.2

Table S3. R_{2d} rates of the backbone amide protons of hGH at pH 7.0 as function of hGH concentration

	[hGH] = 0.126 mM		[hGH] = 0.460 mM	
Residue	R_{2d}/s^{-1}	σ/s^{-1}	R_{2d}/s^{-1}	σ/s^{-1}
I4	29.2	0.6	40.5	0.9
R8	41.9	1.1	58.2	0.7
L9	39.3	1.2	54.2	0.5
F10	42.7	0.8	58.2	0.9
D11	43.7	1.1	60.7	1.4
N12	45.7	1.5	67.2	0.7
A13	37.2	0.9	54.6	1.0
M14	44.9	1.2	65.4	0.8
L15	41.9	1.5	68.2	1.1
R16	42.6	0.9	56.4	1.0
A17	40.4	1.4	60.3	0.7
H18	40.5	1.3	55.6	0.8
R19	42.8	0.6	57.6	0.7
L20	45.0	2.3	65.0	1.4
H21	44.4	1.2	57.4	0.6
L23	46.4	1.5	58.5	1.1
A24	38.4	1.7	51.5	0.7
F25	46.5	1.7	60.5	0.9
D26	41.4	1.0	56.3	1.0
T27	51.7	1.7	71.4	1.3
Y28	43.2	1.9	59.3	0.6
E30	43.7	1.4	56.1	0.5
F31	51.3	2.2	61.4	0.9
E32	43.4	1.2	56.6	0.7
E33	38.8	1.3	50.3	1.2
A34	42.4	0.9	57.1	0.9
Y35	50.8	1.8	67.8	1.3
I36	42.1	1.8	58.9	1.0
E39	48.3	1.3	61.6	0.6
L52	54.6	2.0	64.1	0.9
C53	43.8	0.6	57.3	0.7
E56	47.3	1.4	58.5	1.0
S57	35.9	1.5	42.2	2.5
I58	45.0	1.0	57.3	1.1

Continued ...

	[hGH] = 0.126 mM		[hGH] = 0.460 mM	
Residue	R_{2d}/s^{-1}	σ/s^{-1}	R_{2d}/s^{-1}	σ/s^{-1}
T60	26.9	0.7	33.6	0.7
S62	44.4	0.9	58.5	0.8
N63	53.3	2.3	62.8	1.2
E65	37.9	0.4	48.1	0.5
E66	37.0	0.7	49.4	0.5
T67	41.9	0.6	58.3	0.8
Q68	42.2	0.8	55.0	0.9
Q69	66.1	3.5	80.0	1.3
S71	57.8	2.8	70.8	1.3
L73	43.4	0.8	58.7	0.9
L75	39.2	1.0	51.9	1.1
L76	43.8	0.7	55.9	0.6
R77	37.9	1.0	52.0	1.0
S79	48.9	1.6	67.4	1.3
L80	46.1	1.6	58.8	0.9
L81	43.3	1.7	53.9	0.7
L82	39.5	1.5	51.6	1.0
I83	43.6	1.3	55.0	1.0
Q84	39.1	1.1	53.5	0.7
S85	50.7	1.7	64.1	1.2
W86	52.1	2.3	70.7	1.0
L87	45.3	1.1	57.3	0.9
E88	47.1	1.7	56.6	1.3
V90	45.5	1.9	56.8	1.5
Q91	47.2	1.1	57.5	1.4
F92	45.9	1.4	58.5	0.8
L93	43.0	1.2	55.9	0.6
R94	47.4	1.6	61.1	1.1
V96	41.6	1.4	54.7	0.6
F97	46.5	2.1	59.1	1.2
A98	48.2	0.5	62.6	0.3
N99	61.1	1.6	75.0	1.8
S100	55.7	1.7	67.7	1.9
G104	39.0	1.2	51.8	0.5
A105	40.0	0.7	54.3	0.6
S108	39.6	0.9	56.8	1.3

Continued ...

	[hGH] = 0.126 mM		[hGH] = 0.460 mM	
Residue	R_{2d}/s^{-1}	σ/s^{-1}	R_{2d}/s^{-1}	σ/s^{-1}
L117	49.1	1.7	62.9	1.1
E118	40.9	0.8	53.9	0.7
E119	38.7	1.0	52.0	0.9
G120	42.3	1.3	55.9	1.4
I121	39.9	0.9	53.4	0.7
Q122	45.2	1.2	58.4	1.0
T123	39.3	0.9	52.6	0.6
L124	43.2	1.2	58.1	1.1
M125	39.9	1.0	50.9	0.9
G126	39.9	2.7	52.5	1.8
R127	41.4	1.0	54.3	0.8
L128	42.4	0.6	54.1	1.1
E129	42.7	1.3	52.6	1.2
D130	28.9	0.5	38.2	0.3
G131	51.5	1.7	65.0	1.1
S132	29.5	0.6	38.5	0.6
G136	45.5	1.5	55.8	0.8
K140	48.2	1.5	62.9	1.1
Q141	74.4	4.5	95.4	3.4
T142	32.6	0.3	38.7	0.3
Y143	48.2	1.7	56.1	0.5
S144	40.3	1.0	49.5	0.7
K145	47.4	1.1	52.1	0.6
F146	42.6	0.9	51.1	0.7
D147	48.4	2.0	60.1	1.8
T148	40.9	0.7	48.4	0.7
N149	48.8	1.5	55.3	0.9
S150	58.9	2.4	63.8	1.1
D153	35.8	1.0	43.3	0.7
D154	29.2	0.4	34.2	0.7
A155	42.7	1.0	53.3	1.2
L156	33.2	0.6	43.1	0.8
L157	42.1	1.2	54.7	1.0
K158	41.8	2.4	54.5	1.0
N159	47.9	2.5	59.7	0.9
Y160	41.2	1.8	56.0	0.8

Continued ...

Residue	[hGH] = 0.126 mM		[hGH] = 0.460 mM	
	R_{2d}/s^{-1}	σ/s^{-1}	R_{2d}/s^{-1}	σ/s^{-1}
G161	49.9	2.6	62.2	1.8
L162	40.1	2.1	49.5	0.7
L163	55.2	1.4	66.4	1.5
K168	41.8	0.9	55.4	0.7
D169	58.3	2.2	68.3	1.5
M170	44.4	1.7	57.6	0.7
D171	46.3	3.1	59.0	1.2
K172	44.1	1.1	57.7	0.9
V173	38.3	1.1	50.7	0.7
T175	53.7	1.2	69.6	1.3
F176	44.8	1.1	58.5	0.7
L177	43.4	0.6	56.2	0.5
R178	43.0	1.1	57.8	0.7
I179	39.6	0.9	54.8	0.9
V180	40.3	1.5	59.5	0.7
Q181	40.3	1.3	57.6	0.7
C182	46.0	1.5	67.2	1.4
R183	45.3	1.5	67.8	1.3
S184	57.4	2.8	85.3	3.3
V185	45.5	0.9	67.5	1.6
F191	26.8	0.6	57.9	0.8

Table S4. R_{2p} rates of the backbone amide protons of hGH at pH 7.0 and the three experimental hGH concentrations

	[hGH] = 0.180 mM		[hGH] = 0.310 mM		[hGH] = 0.430 mM	
Residue	R_{2p}/s^{-1}	σ/s^{-1}	R_{2p}/s^{-1}	σ/s^{-1}	R_{2p}/s^{-1}	σ/s^{-1}
I4	67.5	3.4	82.9	3.7	79.3	4.3
R8	50.1	6.1	69.7	5.9	55.8	5.6
L9	33.5	3.9	44.6	2.5	46.5	1.9
F10	25.4	1.8	32.9	1.3	30.7	1.4
D11	21.6	1.9	24.6	2.0	31.7	2.5
N12	25.1	2.0	31.1	2.0	32.7	2.2
A13	17.7	1.6	25.4	1.4	26.0	1.7
M14	16.9	1.8	20.4	1.3	22.3	1.5
L15	18.8	3.8	28.8	2.3	33.8	3.3
R16	27.4	2.0	33.7	1.2	34.4	1.4
A17	14.4	1.9	19.0	1.3	19.7	1.7
H18	23.5	2.0	26.5	1.3	23.9	1.5
R19	22.9	1.9	26.6	0.9	27.5	1.1
L20	16.4	2.7	20.7	2.2	20.2	2.1
H21	20.3	2.3	23.5	1.3	28.8	1.2
L23	20.2	2.4	24.0	1.4	26.7	1.5
A24	17.5	2.9	20.3	1.4	21.2	1.4
F25	29.8	4.9	33.9	2.6	38.2	3.2
D26	25.4	2.4	32.6	1.9	33.7	2.3
T27	17.9	2.6	19.9	1.8	22.8	2.5
Y28	16.6	2.6	19.2	1.4	19.8	1.3
E30	22.7	2.9	29.7	1.2	32.4	1.1
F31	9.8	2.4	15.4	1.5	17.0	1.6
E32	14.2	1.9	18.4	1.3	19.2	1.4
E33	25.6	2.4	27.7	1.2	29.3	1.5
A34	31.1	2.3	36.4	1.3	37.8	1.4
Y35	38.7	4.3	51.1	3.4	54.7	4.2
I36	48.3	7.6	65.3	4.5	62.5	4.5
E39	54.1	5.2	56.2	4.2	47.4	3.6
L52	45.6	10.5	44.1	4.5	45.5	4.2
C53	16.6	1.4	19.7	1.0	19.0	1.0
E56	17.3	2.8	23.9	1.7	24.2	2.0
S57	39.9	2.3	52.7	2.0	47.1	2.5
I58	18.4	2.3	24.1	1.5	20.7	1.7

Continued ...

Residue	[hGH] = 0.180 mM		[hGH] = 0.310 mM		[hGH] = 0.430 mM	
	R_{2p}/s^{-1}	σ/s^{-1}	R_{2p}/s^{-1}	σ/s^{-1}	R_{2p}/s^{-1}	σ/s^{-1}
T60	51.6	3.0	57.5	1.7	51.2	1.9
S62	35.2	2.6	46.5	3.2	38.4	2.1
N63	44.9	5.3	53.1	4.5	58.6	4.8
E65	40.6	2.9	54.0	1.4	50.7	2.2
E66	24.9	1.3	32.1	0.8	31.6	0.9
T67	32.1	2.5	37.1	1.5	37.1	2.2
Q68	22.6	1.8	26.2	0.8	28.1	1.0
Q69	35.2	6.2	33.1	6.4	34.1	4.7
S71	46.0	17.3	68.6	9.8	61.4	9.6
L73	38.2	2.7	59.5	2.6	44.2	2.3
L75	15.2	1.3	18.0	1.0	19.3	1.4
L76	15.9	1.7	19.0	1.2	23.3	1.0
R77	12.5	1.6	12.9	1.0	15.0	1.3
S79	12.8	3.1	11.9	1.7	13.6	2.5
L80	7.1	1.9	10.3	1.2	13.0	1.3
L81	8.8	3.3	14.2	1.3	17.8	1.6
L82	9.2	1.7	10.7	1.2	13.2	1.3
I83	12.1	2.0	13.2	1.3	16.9	1.2
Q84	18.6	1.5	18.9	1.2	19.7	1.3
S85	27.8	2.9	27.9	2.2	31.8	2.4
W86	18.2	2.9	18.9	1.7	20.1	2.0
L87	27.1	2.0	34.9	1.5	34.2	1.6
E88	38.2	3.8	51.6	4.3	40.8	3.4
V90	15.2	2.9	23.6	2.1	25.8	2.7
Q91	34.8	3.4	47.1	2.4	43.1	2.7
F92	28.7	2.2	37.9	1.9	36.7	1.6
L93	21.0	2.0	29.0	1.3	26.8	1.5
R94	31.6	5.0	43.1	2.8	39.1	2.9
V96	35.3	3.2	40.9	2.1	37.9	2.2
F97	21.4	3.8	26.4	1.6	27.3	1.8
A98	26.8	1.5	31.9	1.2	32.8	1.1
N99	42.6	5.2	60.1	7.5	52.6	5.3
S100	35.9	4.5	36.1	2.8	39.2	3.6
G104	60.7	7.2	86.3	9.5	91.4	11.0
A105	47.2	2.4	52.4	2.0	45.1	2.1
S108	48.1	2.3	52.7	2.2	43.2	2.3

Continued ...

	[hGH] = 0.180 mM		[hGH] = 0.310 mM		[hGH] = 0.430 mM	
Residue	R_{2p}/s^{-1}	σ/s^{-1}	R_{2p}/s^{-1}	σ/s^{-1}	R_{2p}/s^{-1}	σ/s^{-1}
L117	16.2	2.2	18.5	1.4	19.4	1.7
E118	12.0	1.2	14.0	1.1	16.1	1.1
E119	21.2	1.7	23.6	1.0	25.5	1.2
G120	19.9	2.0	21.4	1.4	23.6	2.0
I121	9.3	1.2	14.1	0.8	15.6	1.0
Q122	15.3	1.5	18.5	1.1	21.6	1.4
T123	25.2	2.1	30.0	0.9	29.9	0.9
L124	19.2	1.7	23.6	1.8	24.6	1.7
M125	13.9	1.4	19.1	1.0	18.6	1.1
G126	26.8	3.6	36.6	2.9	33.8	2.9
R127	30.3	3.0	39.8	1.5	39.3	1.3
L128	35.8	2.2	44.8	2.1	42.7	2.0
E129	34.4	4.8	53.6	3.0	53.7	3.1
D130	34.6	3.0	42.1	1.5	36.7	1.2
G131	36.0	4.4	44.0	3.5	43.7	3.7
S132	38.3	1.6	49.8	1.1	43.4	1.2
G136	48.2	6.0	85.4	8.6	76.2	6.5
K140	40.5	4.4	52.2	2.5	47.2	2.8
Q141	34.8	10.5	42.5	8.9	34.3	7.9
T142	56.5	4.2	66.3	2.3	61.0	2.5
Y143	34.6	5.4	51.0	3.9	56.9	4.3
S144	45.9	3.2	55.5	2.9	52.5	2.5
K145	53.4	5.1	60.4	4.1	58.9	3.8
F146	33.9	2.3	35.4	1.6	33.0	1.5
D147	45.1	5.3	47.9	4.3	43.6	5.0
T148	40.9	3.5	46.4	1.8	44.5	2.7
N149	33.4	3.5	40.5	2.2	39.2	1.8
S150	31.8	5.6	39.3	3.3	36.9	3.0
D153	32.8	2.3	45.6	1.5	46.1	1.3
D154	39.3	1.4	48.4	1.1	44.3	1.5
A155	64.3	6.6	72.0	6.2	61.9	4.9
L156	63.8	4.5	71.6	4.1	67.8	2.6
L157	19.3	1.3	23.5	1.0	25.2	1.1
K158	29.7	3.7	32.3	2.5	32.6	2.5
N159	28.3	5.3	34.1	2.5	35.0	3.0
Y160	19.5	3.5	25.1	1.6	23.4	1.6

Continued ...

	[hGH] = 0.180 mM		[hGH] = 0.310 mM		[hGH] = 0.430 mM	
Residue	R_{2p}/s^{-1}	σ/s^{-1}	R_{2p}/s^{-1}	σ/s^{-1}	R_{2p}/s^{-1}	σ/s^{-1}
G161	25.8	5.3	32.2	3.9	39.7	4.6
L162	15.9	2.5	21.9	1.5	26.9	2.4
L163	9.5	2.2	10.0	1.5	11.5	1.9
K168	29.1	3.1	37.6	1.8	37.3	1.6
D169	8.0	2.8	11.4	2.1	15.7	2.1
M170	11.8	2.0	16.3	1.5	19.9	1.2
D171	19.3	4.7	32.4	2.6	29.7	2.6
K172	26.2	3.6	30.5	1.9	32.3	2.0
V173	12.1	1.6	14.9	0.9	15.5	1.2
T175	30.5	3.1	37.2	2.5	37.0	3.4
F176	16.0	1.5	20.9	1.0	22.6	1.1
L177	15.7	1.6	18.7	1.2	19.9	1.1
R178	20.7	2.4	25.9	1.8	29.2	1.5
I179	28.5	1.9	36.7	1.3	35.8	1.4
V180	15.1	2.2	20.8	1.6	20.9	1.7
Q181	17.4	1.8	20.0	1.2	21.5	1.5
C182	32.7	3.3	31.9	2.9	36.9	3.2
R183	39.8	4.5	43.4	3.3	38.4	3.2
S184	29.6	8.6	33.8	4.2	28.2	6.7
V185	36.8	5.9	48.3	2.9	51.1	4.0
F191	63.3	4.8	88.0	4.3	71.1	6.3

Table S5. The paramagnetic relaxation rates $R_{2p}(0)$ of the backbone amide protons of hGH at pH 7.0 and infinite hGH dilution, and the concentration dependence of the R_{2p} rates

	$R_{2p}(0)$		$\delta R_{2p}/\delta$[hGH]	
Residue	s^{-1}	σ/s^{-1}	$(s \times mM)^{-1}$	$\sigma/(s \times mM)^{-1}$
I4	60.2	13.2	54.1	43.2
R8	51.9	25.2	21.4	76.5
L9	28.8	7.9	42.9	21.4
F10	24.6	8.4	18.2	25.1
D11[1]	14.1	3.4	38.5	11.1
N12[1]	20.1	3.1	31.2	10.0
A13	12.9	5.5	34.0	17.2
M14[1]	13.4	1.3	21.4	3.9
L15[1]	9.5	4.2	58.9	12.8
R16	24.8	5.1	24.2	15.0
A17[1]	11.6	3.3	20.6	10.1
H18	25.2	5.1	-0.8	15.2
R19[1]	21.2	2.6	15.5	7.3
L20[1]	14.9	3.8	13.9	11.3
H21[1]	12.6	2.3	36.9	6.4
L23[1]	15.9	0.9	25.3	2.5
A24[1]	16.0	1.6	12.6	4.5
F25[1]	23.4	0.7	34.2	2.0
D26[1]	20.6	4.9	33.5	15.2
T27[1]	14.1	1.0	19.6	3.1
Y28[1]	15.5	1.7	10.6	4.9
E30[1]	19.2	3.8	31.6	10.5
F31[1]	6.2	3.3	26.4	9.5
E32[1]	11.7	2.8	18.5	8.2
E33[1]	23.2	0.4	14.2	1.2
A34[1]	28.1	3.5	23.7	10.0
Y35[1]	29.0	6.9	64.0	21.5
I36	47.9	18.2	40.1	51.8
E39	62.4	9.2	-31.5	26.3
L52[1]	43.4	2.7	4.1	7.4

Continued ...

	$R_{2p}(0)$		$\delta R_{2p}/\delta$[hGH]	
Residue	s^{-1}	σ/s^{-1}	$(s \times mM)^{-1}$	$\sigma/(s \times mM)^{-1}$
C53[1]	16.2	3.3	7.8	9.6
E56[1]	14.9	5.7	24.3	16.7
S57	37.2	14.6	32.8	46.3
I58	20.3	8.5	4.5	25.0
T60	58.0	11.8	-11.3	33.9
S62	35.7	12.1	10.3	35.3
N63[1]	35.5	1.8	54.8	5.5
E65	41.3	16.9	30.9	51.2
E66	23.5	7.1	21.8	20.8
T67[1]	30.0	4.5	19.3	13.9
Q68	19.6	1.4	20.2	4.1
Q69	35.3	2.3	-3.6	6.5
S71	51.2	27.9	32.3	78.6
L73	41.5	27.5	17.5	81.1
L75[1]	12.5	1.2	16.8	3.8
L76[1]	9.8	1.5	31.0	4.1
R77[1]	9.9	1.8	10.8	5.4
S79[1]	11.2	2.6	4.2	7.9
L80[1]	3.0	0.3	23.3	0.7
L81[1]	3.5	1.5	33.8	4.2
L82[1]	6.0	1.0	16.3	3.0
I83[1]	7.6	2.5	20.8	7.0
Q84[1]	17.6	0.5	4.8	1.5
S85[1]	23.9	3.4	16.8	10.2
W86[1]	16.4	0.6	8.3	1.7
L87	24.6	7.2	25.7	21.4
E88	40.1	16.4	8.1	48.8
V90[1]	9.0	5.2	42.3	15.8
Q91	33.8	14.3	28.4	42.8
F92	25.5	8.0	28.9	23.1
L93	20.3	9.1	19.3	27.0
R94	34.5	14.6	15.6	41.6

Continued ...

	$R_{2p}(0)$		$\delta R_{2p}/\delta$[hGH]	
Residue	s^{-1}	σ/s^{-1}	$(s \times mM)^{-1}$	$\sigma/(s \times mM)^{-1}$
V96	36.8	7.7	5.4	22.3
F97[1]	20.3	4.0	17.4	11.2
A98[1]	23.7	3.4	22.5	10.0
N99	37.5	14.1	41.2	43.6
S100[1]	32.5	2.8	14.1	8.4
G104[1]	38.4	12.2	133.7	42.3
A105	51.6	10.3	-10.2	30.9
S108	54.1	11.1	-19.4	34.3
L117[1]	14.4	1.2	12.4	3.6
E118[1]	9.0	0.1	16.5	0.4
E119[1]	18.3	0.3	17.0	0.8
G120[1]	17.1	0.8	14.5	2.4
I121[1]	5.8	2.8	24.3	8.6
Q122[1]	10.7	0.1	25.2	0.3
T123	25.6	4.7	11.2	13.1
L124[1]	15.7	2.2	22.0	7.0
M125	12.3	4.9	17.1	14.7
G126	25.1	10.4	24.9	30.8
R127	30.8	9.4	21.8	25.7
L128	33.0	8.3	26.6	25.0
E129	28.7	17.1	64.4	49.2
D130	42.4	12.2	-11.1	32.6
G131[1]	32.6	6.8	29.0	20.2
S132	41.1	16.1	12.5	47.4
G136	31.4	26.3	116.4	82.7
K140	43.9	16.0	13.8	46.2
Q141	39.6	12.9	-7.4	37.5
T142	61.8	14.7	3.1	42.1
Y143	21.5	8.6	86.3	25.4
S144	44.1	9.7	23.5	28.4
K145	51.9	6.9	18.9	20.1
F146	36.3	3.7	-6.4	10.4

Continued ...

	$R_{2p}(0)$		$\delta R_{2p}/\delta$[hGH]	
Residue	s^{-1}	σ/s^{-1}	$(s \times mM)^{-1}$	$\sigma/(s \times mM)^{-1}$
D147	47.7	6.0	-6.0	18.4
T148	41.7	7.3	10.5	22.1
N149[1]	33.5	7.4	15.3	20.5
S150[1]	33.4	9.1	10.6	25.4
D153	28.7	10.7	43.6	29.7
D154	37.8	11.0	22.5	34.8
A155	70.4	13.6	-15.1	39.1
L156	64.5	8.7	9.7	23.4
L157[1]	15.6	1.9	23.3	5.9
K158[1]	28.5	2.0	10.4	5.9
N159[1]	26.6	4.8	21.1	13.8
Y160	22.2	7.1	4.5	19.5
G161[1]	15.3	1.4	56.0	4.3
L162[1]	8.3	0.6	43.7	1.9
L163[1]	7.8	0.9	8.0	2.8
K168	28.0	8.1	23.8	22.2
D169[1]	2.0	1.1	31.6	3.1
M170[1]	6.2	0.5	32.1	1.4
D171	21.0	15.0	25.0	42.1
K172[1]	23.1	2.3	22.1	6.4
V173[1]	10.6	2.0	12.4	6.0
T175[1]	26.8	5.6	27.8	17.9
F176[1]	12.3	2.6	25.2	7.6
L177[1]	13.2	1.4	15.9	4.1
R178[1]	15.2	1.4	32.9	3.9
I179	26.7	8.2	24.7	24.0
V180[1]	12.8	4.7	20.9	13.9
Q181[1]	14.7	1.0	16.1	2.9
C182[1]	28.6	4.8	16.7	14.8
R183	43.8	7.5	-9.7	21.7
S184	35.1	10.1	-10.4	30.8
V185[1]	30.8	8.2	51.0	24.2

Continued ...

	$R_{2p}(0)$		$\delta R_{2p}/\delta$[hGH]	
Residue	s^{-1}	σ/s^{-1}	$(s \times mM)^{-1}$	$\sigma/(s \times mM)^{-1}$
F191[1]	60.3	33.2	53.8	109.5

[1] Positive slopes in the entire concentration range (Figure 6).

Unmarked residues have negative slope in the 0.310-0.420 mM range or negative average slope (Figure 5).

Table S6. Non-linear concentration dependence of the R_{2p} rates of the backbone amide protons of hGH at pH 7.0

Residue	Δ/s^{-1}	σ/s^{-1}	Δ/σ
I4[1]	9.26	4.62	2.01
R8[1]	16.65	5.92	2.81
L9[1]	4.38	2.51	1.75
F10[1]	4.76	1.30	3.66
D11	-2.30	2.00	-1.15
N12	2.07	1.96	1.06
A13[1]	3.32	1.38	2.40
M14	0.72	1.29	0.56
L15	2.17	2.30	0.95
R16[1]	2.72	1.24	2.19
A17	1.83	1.35	1.36
H18[1]	2.80	1.34	2.09
R19	1.27	0.90	1.41
L20	2.29	2.20	1.04
H21	-1.22	1.30	-0.94
L23	0.45	1.44	0.31
A24	0.80	1.36	0.59
F25	-0.33	2.62	-0.13
D26	2.89	1.89	1.53
T27	-0.54	1.80	-0.30
Y28	0.91	1.41	0.64
E30	1.96	1.21	1.62
F31	1.80	1.53	1.18
E32	1.59	1.35	1.17
E33	0.21	1.23	0.17
A34	1.80	1.29	1.39
Y35	4.05	3.43	1.18
I36[1]	9.60	4.51	2.13
E39[2]	5.51	4.18	1.32
L52	-1.39	4.54	-0.31
C53	1.91	1.04	1.84
E56	2.97	1.69	1.76
S57[1]	9.07	2.01	4.51
I58[1]	4.56	1.47	3.10
T60[1]	6.13	1.74	3.52

Continued ...

Residue	Δ/s^{-1}	σ/s^{-1}	Δ/σ
S62[1]	9.65	3.23	2.99
N63	1.11	4.48	0.25
E65[1]	8.16	1.41	5.79
E66[1]	3.71	0.77	4.82
T67	2.38	1.54	1.55
Q68	0.68	0.78	0.87
Q69[1]	-1.57	6.43	-0.24
S71[1]	14.61	9.82	1.49
L73[1]	18.19	2.64	6.89
L75	0.70	1.04	0.67
L76	-0.82	1.16	-0.71
R77	-0.92	0.98	-0.94
S79	-1.31	1.71	-0.77
L80	0.14	1.20	0.11
L81	0.72	1.27	0.57
L82	-0.56	1.16	-0.49
I83	-1.38	1.33	-1.04
Q84	-0.29	1.18	-0.25
S85	-1.98	2.22	-0.89
W86	-0.30	1.70	-0.18
L87[1]	4.09	1.47	2.78
E88[1]	12.05	4.34	2.78
V90	2.92	2.15	1.36
Q91[1]	8.05	2.44	3.30
F92[1]	5.05	1.94	2.61
L93[1]	4.97	1.32	3.76
R94[1]	7.56	2.80	2.70
V96[1]	4.24	2.14	1.98
F97	1.97	1.63	1.21
A98	2.02	1.19	1.70
N99[1]	12.32	7.50	1.64
S100	-1.47	2.80	-0.52
G104	9.60	9.46	1.01
A105[1]	6.36	2.05	3.10
S108[1]	7.14	2.19	3.26
L117	0.63	1.36	0.46
E118	-0.07	1.11	-0.06

Continued ...

Residue	Δ/s^{-1}	σ/s^{-1}	Δ/σ
E119	0.15	1.05	0.14
G120	-0.42	1.38	-0.30
I121	1.57	0.83	1.89
Q122	-0.05	1.08	-0.05
T123[1]	2.33	0.87	2.67
L124	1.54	1.75	0.88
M125[1]	2.78	1.01	2.75
G126[1]	6.14	2.88	2.13
R127[1]	4.83	1.48	3.26
L128[1]	5.39	2.06	2.62
E129[1]	9.21	3.05	3.02
D130[1]	6.41	1.54	4.16
G131	3.99	3.52	1.13
S132[1]	8.82	1.10	8.02
G136[1]	22.64	8.58	2.64
K140[1]	8.25	2.51	3.29
Q141[2]	7.92	8.87	0.89
T142[1]	7.54	2.27	3.32
Y143[1]	4.83	3.94	1.23
S144[1]	6.20	2.85	2.17
K145[1]	4.13	4.09	1.01
F146[2]	2.02	1.59	1.27
D147[2]	3.56	4.32	0.83
T148[1]	3.57	1.78	2.01
N149	4.05	2.17	1.87
S150	4.83	3.27	1.48
D153[1]	5.86	1.47	3.98
D154[1]	6.53	1.11	5.89
A155[2]	8.92	6.25	1.43
L156[1]	5.66	4.15	1.36
L157	1.13	1.00	1.13
K158	1.13	2.50	0.45
N159	2.36	2.46	0.96
Y160[1]	3.59	1.60	2.24
G161	-0.80	3.92	-0.20
L162	0.31	1.52	0.20
L163	-0.51	1.54	-0.33

Continued ...

Residue	Δ/s^{-1}	σ/s^{-1}	Δ/σ
K168[1]	4.30	1.83	2.35
D169	-0.62	2.11	-0.29
M170	0.29	1.53	0.19
D171[1]	7.72	2.57	3.00
K172	1.17	1.92	0.61
V173	1.04	0.94	1.10
T175	3.33	2.51	1.33
F176	1.41	1.00	1.41
L177	0.83	1.24	0.67
R178	0.81	1.81	0.45
I179[1]	4.43	1.26	3.52
V180	2.66	1.59	1.67
Q181	0.53	1.25	0.43
C182	-2.99	2.94	-1.02
R183[2]	4.32	3.30	1.31
S184[2]	4.93	4.25	1.16
V185	3.99	2.89	1.38
F191	20.66	4.27	4.84

[1] Negative slope in the 0.310-0.420 mM range (Figure 6).

[2] Negative average slope, see Table S6 (Figure 6).

Unmarked residues have positive slopes in the entire concentration range (Figure 5).

Table S7. Distances of closest approach for the amide protons in hGH[1]

Residue	d/nm
F1	NA
P2	-
T3	0.470
I4	0.581
P5	-
L6	0.470
S7	0.547
R8	0.650
L9	0.833
F10	0.923
D11	0.767
N12	0.749
A13	0.703
M14	0.721
L15	0.681
R16	0.749
A17	0.885
H18	0.706
R19	0.694
L20	0.860
H21	0.900
Q22	0.717
L23	0.890
A24	0.967
F25	0.781
D26	0.729
T27	0.793
Y28	0.907
Q29	0.795
E30	0.634
F31	0.809

Continued ...

Residue	d/nm
E32	0.891
E33	0.726
A34	0.684
Y35	0.687
I36	0.634
P37	-
K38	0.470
E39	0.503
Q40	0.715
K41	0.865
Y42	0.727
S43	0.592
F44	0.763
L45	0.731
Q46	0.606
N47	0.650
P48	-
Q49	0.506
T50	0.725
S51	0.707
L52	0.653
C53	0.697
F54	0.686
S55	0.801
E56	0.713
S57	0.630
I58	0.700
P59	-
T60	0.470
P61	-
S62	0.571
N63	0.698

Continued ...

Residue	d/nm
R64	0.470
E65	0.518
E66	0.693
T67	0.824
Q68	0.750
Q69	0.701
K70	0.639
S71	0.555
N72	0.492
L73	0.704
E74	0.834
L75	0.942
L76	1.091
R77	1.091
I78	1.132
S79	1.324
L80	1.152
L81	1.109
L82	1.250
I83	1.154
Q84	0.905
S85	0.972
W86	1.033
L87	0.828
E88	0.684
P89	-
V90	0.865
Q91	0.759
F92	0.713
L93	0.777
R94	0.635
S95	0.603

Continued ...

Residue	d/nm
V96	0.702
F97	0.840
A98	0.696
N99	0.690
S100	0.599
L101	0.617
V102	0.661
Y103	0.470
G104	0.470
A105	0.609
S106	0.760
D107	0.612
S108	0.574
N109	0.594
V110	0.800
Y111	0.727
D112	0.694
L113	0.726
L114	0.861
K115	0.710
D116	0.591
L117	0.804
E118	0.859
E119	0.700
G120	0.563
I121	0.794
Q122	0.756
T123	0.614
L124	0.798
M125	0.682
G126	0.570
R127	0.662

Continued ...

Residue	d/nm
L128	0.716
E129	0.470
D130	0.734
G131	0.470
S132	0.535
P133	-
R134	0.470
T135	0.654
G136	0.470
Q137	0.470
I138	0.664
F139	0.773
K140	0.698
Q141	0.470
T142	0.620
Y143	0.495
S144	0.801
K145	0.650
F146	0.538
D147	0.544
T148	0.714
N149	0.559
S150	0.470
H151	0.509
N152	0.605
D153	0.556
D154	0.680
A155	0.470
L156	0.489
L157	0.708
K158	0.850
N159	0.762

Continued ...

Residue	d/nm
Y160	0.912
G161	1.111
L162	1.048
L163	1.148
Y164	1.164
C165	1.118
F166	1.181
R167	1.016
K168	0.807
D169	0.896
M170	0.993
D171	0.806
K172	0.727
V173	0.931
E174	0.874
T175	0.670
F176	0.832
L177	0.930
R178	0.754
I179	0.702
V180	0.969
Q181	0.981
C182	0.775
R183	0.667
S184	0.724
V185	0.750
E186	0.470
G187	0.566
S188	0.651
C189	0.676
G190	0.604
F191	NA

[1] Calculated from the crystal structure of the monomer (see text).