



# Viewing LCA5\_MB\_107-211\_FFX1H-multi.table

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All-Atom Contacts	Clashscore, all atoms:	0.55		99 <sup>th</sup> percentile* (N=1784, all resolutions)
	Clashscore is the number of serious steric overlaps (> 0.4 Å) per 1000 atoms.			
Protein Geometry	Poor rotamers	4	4.04%	Goal: <1%
	Ramachandran outliers	0	0.00%	Goal: <0.05%
	Ramachandran favored	99	96.12%	Goal: >98%
	MolProbity score <sup>^</sup>	1.41		97 <sup>th</sup> percentile* (N=27675, 0Å - 99Å)
	Cβ deviations >0.25Å	1	0.95%	Goal: 0
	Bad backbone bonds:	0 / 892	0.00%	Goal: 0%
	Bad backbone angles:	4 / 1185	0.34%	Goal: <0.1%

In the two column results, the left column gives the raw count, right column gives the percentage.

\* 100<sup>th</sup> percentile is the best among structures of comparable resolution; 0<sup>th</sup> percentile is the worst. For clashscore the comparative set of structures was selected in 2004, for MolProbity score in 2006.

<sup>^</sup> MolProbity score combines the clashscore, rotamer, and Ramachandran evaluations into a single score, normalized to be on the same scale as X-ray resolution.

#	Alt Res	High B	Clash > 0.4Å	Ramachandran	Rotamer	Cβ deviation	Bond lengths	Bond angles
		Avg:	Clashscore:	Outliers: 0 of 103	Poor rotamers: 4 of 99	Outliers: 1 of 105	Outliers: 0 of 105	Outliers: 4 of 105
107	ALA	8.61	-	-	-	0.102Å	-	-
108	ARG	84.31	-	Favored (71.02%) General / -71.0,-34.1	47.5% ( <i>tpt85</i> ) chi angles: 182,65.3,192.1,92.6	0.128Å	-	-
109	LEU	62.92	-	Favored (85.12%) General / -62.0,-47.4	8.3% ( <i>mp</i> ) chi angles: 284.9,71	0.105Å	-	-
110	LEU	67.55	-	Favored (71.84%) General / -54.1,-45.8	37.5% ( <i>tp</i> ) chi angles: 186.5,58.8	0.078Å	-	-
				Favored	0.2%			

111	LYS	112.83	-	(70.32%) General / -61.9,-29.6 Favored	chi angles: 186.4,75.5,282.6,283.6	0.205Å	-	-
112	ILE	129.27	-	(18.52%) Isoleucine or valine / -80.3,-38.8 Favored	0.1% chi angles: 209.9,277.3	0.226Å	-	-
113	ASN	65.21	-	(77.86%) General / -68.3,-35.5 Favored	34.2% ( <i>m120</i> ) chi angles: 299.7,119.7	0.127Å	-	-
114	GLU	78.07	-	(82.11%) General / -66.5,-44.6 Favored	7.1% ( <i>pt-20</i> ) chi angles: 58.7,203.2,257.3	0.169Å	-	-
115	LEU	40.07	-	(76.12%) General / -61.0,-35.2 Favored	85.2% ( <i>mt</i> ) chi angles: 299.9,180.3	0.183Å	-	-
116	GLN	83.98	-	(54.56%) General / -77.0,-27.6 Favored	8.6% ( <i>tp60</i> ) chi angles: 185.5,60.2,100.7	0.093Å	-	-
117	ASN	74.22	-	(23.18%) General / -79.1,-43.9 Favored	6.1% ( <i>t30</i> ) chi angles: 193.4,89.3	0.065Å	-	-
118	GLU	71.35	-	(93.33%) General / -65.4,-40.5 Favored	4.6% ( <i>pt-20</i> ) chi angles: 78.5,204.8,52	0.161Å	-	-
119	VAL	88.98	-	(65.4%) Isoleucine or valine / -65.5,-33.7 Favored	33.5% ( <i>m</i> ) chi angles: 299.7	0.226Å	-	-
120	SER	67.3	-	(87.92%) General / -66.8,-40.5 Favored	55.6% ( <i>m</i> ) chi angles: 299.7	0.089Å	-	-
121	GLU	99.61	-	(82.25%) General / -67.3,-36.8 Favored	11.6% ( <i>tm-20</i> ) chi angles: 186.5,291.2,325.7	0.124Å	-	-
122	LEU	154.81	-	(51.8%) General / -54.1,-31.4 Favored	96.4% ( <i>mt</i> ) chi angles: 296.9,174.9 90.9% ( <i>mt-30</i> )	0.131Å	-	-

123	GLN	136.61	-	(15.66%) General / -70.2,-3.2	chi angles: 293.8,178,353.3	0.077Å	-	-
124	VAL	41.13	-	Favored (45.22%) Isoleucine or valine / -57.9,-33.1	31.4% ( <i>m</i> ) chi angles: 300.8	0.17Å	-	-
125	LYS	98.27	-	Favored (71.11%) General / -64.1,-30.0	31.6% ( <i>mmmt</i> ) chi angles: 294.3,300.2,294.9,173.2	0.16Å	-	-
126	LEU	86.24	-	Favored (96.58%) General / -63.2,-40.1	83.5% ( <i>mt</i> ) chi angles: 300.4,174.1	0.079Å	-	-

#	Alt	Res	High B	Clash > 0.4Å	Ramachandran	Rotamer	Cβ deviation	Bond lengths	Bond angles
Avg: 103.07				Clashscore: 0.55	Outliers: 0 of 103	Poor rotamers: 4 of 99	Outliers: 1 of 105	Outliers: 0 of 105	Outliers: 4 of 105
127	ALA	29.02	-	Favored (79.49%) General / -67.0,-35.2	-	0.097Å	-	-	
128	GLU	67.32	-	Favored (16.73%) General / -75.1,-50.3	1% chi angles: 175.4,284.2,284.6	0.096Å	-	-	
129	LEU	128.04	-	Favored (70.92%) General / -62.0,-30.4	47.6% (mt) chi angles: 299.4,165.5	0.137Å	-	-	
130	LEU	71.15	-	Favored (63.73%) General / -69.5,-23.8	28% (tp) chi angles: 190.3,64.8	0.081Å	-	-	
131	LYS	157.45	-	Favored (51.17%) General / -77.8,-30.2	55.2% (mttp) chi angles: 300.6,171.4,181.8,71.6	0.079Å	-	-	
132	GLU	43.43	-	Favored (44.86%) General / -77.7,-39.5	11.9% (tp10) chi angles: 182.2,38.7,31.4	0.177Å	-	-	
133	ASN	200.7	-	Favored (2.6%) General / -64.3,111.4	51.6% (t-20) chi angles: 193.1,350.5	0.028Å	-	-	
134	LYS	268.55	-	Favored (24.31%)	40.5% (mmtm) chi angles:	0.04Å	-	-	

			General / -86.7,115.7	302.4,293.9,176.8,276.3			
135	SER 130.23	-	Allowed (0.1%) General / -33.7,136.9	37% ( <i>t</i> ) chi angles: 182.2	0.031Å	-	-
136	LEU 154.71	-	Favored (65.59%) General / -57.4,-31.2	1.6% ( <i>tm?</i> ) chi angles: 201.8,280.8	0.073Å	-	-
137	LYS 74.5	-	Favored (72.68%) General / -62.0,-32.2	32.6% ( <i>mmmt</i> ) chi angles: 293.9,294.2,294.4,181.6	0.132Å	-	-
138	ARG 65.55	-	Favored (60.89%) General / -75.1,-30.4	49.3% ( <i>tpt85</i> ) chi angles: 183.3,64.8,191.3,88.3	0.13Å	-	-
139	LEU 50.03	-	Favored (96.89%) General / -64.2,-41.8	14.5% ( <i>tp</i> ) chi angles: 191.1,77.4	0.085Å	-	-
140	GLN 36.61	-	Favored (85.58%) General / -58.2,-42.1	57.9% ( <i>tt0</i> ) chi angles: 188,186.4,8.1	0.099Å	-	-
141	TYR 88.06	-	Favored (74.66%) General / -65.8,-32.9	66.4% ( <i>t80</i> ) chi angles: 187.2,71.8	0.16Å	-	-
142	ARG 131.81	-	Favored (55.3%) General / -76.8,-27.6	25.3% ( <i>ptt85</i> ) chi angles: 78.5,158.9,195.2,74.7	0.235Å	-	-
143	GLN 85.83	-	Favored (35.01%) General / -82.4,-23.0	31.6% ( <i>tp60</i> ) chi angles: 190.6,55.5,81.3	0.116Å	-	-
144	GLU 62.87	-	Favored (79.46%) General / -68.8,-40.4	6.4% ( <i>pt-20</i> ) chi angles: 82,192.7,59.3	0.119Å	-	-
145	LYS 83.06	-	Favored (61.5%) General / -75.2,-34.1	43.8% ( <i>mmtt</i> ) chi angles: 309.6,308.6,176.1,206.8	0.181Å	-	-
146	ALA 38.46	-	Favored (82.24%) General /	-	0.118Å	-	-

-67.7,-37.4									
#	Alt	Res	High B	Clash > 0.4Å	Ramachandran	Rotamer	Cβ deviation	Bond lengths	Bond angles
Avg: 103.07				Clashscore: 0.55	Outliers: 0 of 103	Poor rotamers: 4 of 99	Outliers: 1 of 105	Outliers: 0 of 105	Outliers: 4 of 105
147	LEU	97.11	-	Favored (95.09%) General / -62.9,-44.8	1.8% ( <i>tt</i> ) chi angles: 212.2,169.4	0.105Å	-	-	
148	ASN	103.11	-	Favored (60.36%) General / -75.4,-13.0	18.6% ( <i>p30</i> ) chi angles: 67,66.2	0.266Å	-	OUTLIER(S) worst is CA- CB-CG: 4.944 σ	
149	LYS	141.9	-	Favored (59.13%) General / -80.3,-13.5	27.7% ( <i>mmmt</i> ) chi angles: 291.2,306.5,306.6,177.9	0.188Å	-	-	
150	PHE	141.53	-	Favored (17.79%) General / -88.6,-33.0	83.7% ( <i>m-85</i> ) chi angles: 295.9,106.5	0.108Å	-	-	
151	GLU	36.65	-	Favored (93.06%) General / -63.8,-44.5	89.6% ( <i>mt-10</i> ) chi angles: 293.8,163.2,349	0.1Å	-	-	
152	ASP	99.63	-	Favored (68.83%) General / -72.3,-38.2	54% ( <i>p-10</i> ) chi angles: 61.4,354.8	0.248Å	-	OUTLIER(S) worst is CA- CB-CG: 6.005 σ	
153	ALA	31.93	-	Favored (83.25%) General / -57.1,-45.8	-	0.077Å	-	-	
154	GLU	103.22	-	Favored (72.66%) General / -69.1,-44.3	10.2% ( <i>tm-20</i> ) chi angles: 188.1,293.2,322.4	0.129Å	-	-	
155	ASN	37.84	-	Favored (68.47%) General / -54.4,-40.6	7.5% ( <i>m-80</i> ) chi angles: 266.8,270.5	0.122Å	-	-	
156	GLU	62.92	-	Favored (70.9%) General / -71.6,-38.5	53.2% ( <i>mm-40</i> ) chi angles: 280.2,304.6,322.6	0.169Å	-	-	
				Favored (70.91%)	6.7% ( <i>tt</i> )				

157	ILE	89.77	-	Isoleucine or valine / -67.2,-34.7	chi angles: 208,176.3	0.223Å	-	-
158	SER	70.92	-	Favored (67.03%) General / -66.3,-49.5	1.6% ( <i>t</i> ) chi angles: 207	0.057Å	-	-
159	GLN	111.92	-	Favored (78.4%) General / -66.0,-34.6	3.8% ( <i>pp0?</i> ) chi angles: 79.3,76.2,26.8	0.203Å	-	-
160	LEU	91.79	-	Favored (70.98%) General / -59.4,-51.2	5.9% ( <i>tt</i> ) chi angles: 195.9,166.6	0.054Å	-	-
161	ILE	84.48	-	Favored (76.3%) Isoleucine or valine / -71.0,-40.4	11.9% ( <i>tt</i> ) chi angles: 200,175.1	0.233Å	-	-
162	PHE	68.67	-	Favored (39.92%) General / -77.8,-40.6	73.7% ( <i>m-85</i> ) chi angles: 286.6,87	0.174Å	-	-
163	ARG	217.95	-	Favored (2.4%) General / -111.9,-174.1	94.1% ( <i>mtm-85</i> ) chi angles: 294.3,189.3,291.3,270.6	0.104Å	-	-
164	HIS	269.07	0.406Å NE2 with 165 ASN O	Favored (23.02%) General / -93.7,147.4	83.8% ( <i>t60</i> ) chi angles: 175.6,75.9	0.138Å	-	-
165	ASN	201.03	0.406Å O with 164 HIS NE2	Favored (3.21%) General / -123.4,-175.5	12.7% ( <i>m-80</i> ) chi angles: 312.8,275.2	0.089Å	-	-
166	ASN	78.75	-	Favored (13.65%) General / -96.9,-29.6	86.4% ( <i>m-20</i> ) chi angles: 296.3,335.1	0.083Å	-	OUTLIER(S) worst is C-N- CA: 5.267 σ
#	Alt Res	High B	Clash > 0.4Å	Ramachandran	Rotamer	Cβ deviation	Bond lengths	Bond angles
		Avg: 103.07	Clashscore: 0.55	Outliers: 0 of 103	Poor rotamers: 4 of 99	Outliers: 1 of 105	Outliers: 0 of 105	Outliers: 4 of 105
167	GLU	90.5	-	Favored (25.46%) General / -83.2,-35.4 Favored	21.5% ( <i>mp0</i> ) chi angles: 312.3,76.6,353.7	0.068Å	-	OUTLIER(S) worst is CB- CG-CD: 5.026 σ

168	ILE	137.62	-	(24.41%) Isoleucine or valine / -138.9,152.5	20.6% ( <i>tt</i> ) chi angles: 190.7,166.9	0.097Å	-	-
169	THR	221.78	-	Allowed (0.5%) General / -62.3,177.3	6.3% ( <i>t</i> ) chi angles: 195.2	0.186Å	-	-
170	ALA	203.33	-	Favored (49.75%) General / -71.2,145.3	-	0.044Å	-	-
171	LEU	152.86	-	Favored (23.3%) General / -84.0,-36.2	96.2% ( <i>mt</i> ) chi angles: 296.8,174.8	0.105Å	-	-
172	LYS	143.83	-	Allowed (0.14%) General / -97.9,-114.6	91% ( <i>mttt</i> ) chi angles: 296.4,170.7,180.9,168.5	0.165Å	-	-
173	GLU	100.92	-	Favored (84.72%) General / -67.2,-42.0	30.3% ( <i>mm-40</i> ) chi angles: 270.1,295.4,301.3	0.181Å	-	-
174	ARG	98.94	-	Favored (70.52%) General / -66.1,-30.1	66.2% ( <i>ttt180</i> ) chi angles: 193.8,185.1,170.7,177.6	0.23Å	-	-
175	LEU	119.45	-	Favored (25.52%) General / -81.0,-39.6	64.9% ( <i>tp</i> ) chi angles: 178.7,63.6	0.075Å	-	-
176	ARG	166.19	-	Favored (92.96%) General / -61.8,-39.8	20.2% ( <i>tpp85</i> ) chi angles: 180.2,60.7,66.9,75.8	0.141Å	-	-
177	LYS	82.5	-	Favored (57.44%) General / -76.4,-30.0	45.3% ( <i>mmtm</i> ) chi angles: 299.4,290.9,174.3,292.8	0.138Å	-	-
178	SER	42	-	Favored (7.99%) General / -72.3,-55.0	18% ( <i>p</i> ) chi angles: 81	0.176Å	-	-
179	GLN	83.92	-	Favored (3.62%) General / -41.4,-52.0	53.5% ( <i>tt0</i> ) chi angles: 181.6,189.2,33	0.036Å	-	-
				Favored	11.2% ( <i>tt0</i> )			

180	GLU	32.13	-	(85.95%) General / -64.3,-37.0 Favored	chi angles: 186.4,210.9,325.5	0.062Å	-	-
181	LYS	127.36	-	(27.57%) General / -84.4,-27.4 Favored	41.1% ( <i>mmtm</i> ) chi angles: 305,292.9,168.4,290.8	0.124Å	-	-
182	GLU	41.77	-	(88.56%) General / -66.7,-41.2 Allowed (0.7%)	23.9% ( <i>mt-10</i> ) chi angles: 291.3,148.2,26.1	0.039Å	-	-
183	ARG	192.05	-	(86.83%) General / -58.0,-45.3 Favored	8% ( <i>ptm-85</i> ) chi angles: 61.6,164.2,294.9,276.2	0.144Å	-	-
184	ALA	66.36	-	(86.83%) General / -58.0,-45.3 Favored (2%)	-	0.083Å	-	-
185	THR	254.91	-	(70.49%) General / -158.2,106.9 Favored	41.5% ( <i>p</i> ) chi angles: 54.3	0.062Å	-	-
186	GLU	107.08	-	(70.49%) General / -61.0,-30.7 Favored	22% ( <i>mp0</i> ) chi angles: 300.6,88.2,328.6	0.089Å	-	-

#	Alt	Res	High B	Clash > 0.4Å	Ramachandran	Rotamer	Cβ deviation	Bond lengths	Bond angles
Avg: 103.07				Clashscore: 0.55	Outliers: 0 of 103	Poor rotamers: 4 of 99	Outliers: 1 of 105	Outliers: 0 of 105	Outliers: 4 of 105
187	LYS	53.31	-		Favored (66.27%) General / -55.5,-36.0	63.8% ( <i>tttp</i> ) chi angles: 183.4,171.1,172.2,59.3	0.127Å	-	-
188	ARG	84.12	-		Favored (91.53%) General / -61.5,-39.6	39.6% ( <i>mmt180</i> ) chi angles: 291.1,294.9,179.8,181.7	0.178Å	-	-
189	VAL	82.48	-		Favored (39.83%) Isoleucine or valine / -74.0,-34.6	7.8% ( <i>p</i> ) chi angles: 73.8	0.211Å	-	-
190	LYS	116.9	-		Favored (89.09%) General / -64.7,-37.9	15% ( <i>ttmm</i> ) chi angles: 180.7,151.2,293.3,302.3	0.185Å	-	-
191	ASP	39.9	-		Favored (79.75%)	68.5% ( <i>m-20</i> ) chi angles: 298.7,346.6	0.12Å	-	-



			General / -68.9,-38.9				
			Favored (62.51%)	24.1% ( <i>p</i> )	0.131Å	-	-
192	THR 101.39	-	General / -74.8,-37.2	chi angles: 49.9			
			Favored (98.04%)	8.5% ( <i>pt-20</i> )	0.109Å	-	-
193	GLU 87.8	-	General / -61.8,-41.7	chi angles: 84.4,197,338.2			
			Favored (27.74%)	78.2% ( <i>p</i> )	0.164Å	-	-
194	SER 82.06	-	General / -80.4,-39.8	chi angles: 59.1			
			Favored (17.61%)	7% ( <i>tp10</i> )	0.102Å	-	-
195	GLU 83.24	-	General / -63.9,-56.1	chi angles: 163.9,54.9,265			
			Favored (41.24%)	3.1% ( <i>tm?</i> )	0.094Å	-	-
196	LEU 125.63	-	General / -59.4,-54.9	chi angles: 190.2,279.1			
			Favored (53.49%)	2.7% ( <i>t80</i> )	0.149Å	-	-
197	PHE 78.73	-	General / -76.3,-39.6	chi angles: 212.9,93.3			
			Favored (70.28%)	52.2% ( <i>ttt-85</i> )	0.136Å	-	-
198	ARG 84.22	-	General / -70.7,-32.9	chi angles: 193.4,184.9,166.7,286.4			
			Favored (60.09%)	0.6%	0.178Å	-	-
199	THR 110.02	-	General / -75.7,-11.9	chi angles: 214.8			
			Favored (25.01%)	12.6% ( <i>tptp</i> )	0.097Å	-	-
200	LYS 191.33	-	General / -86.0,-27.3	chi angles: 185.5,64.3,213.9,79.6			
			Favored (7.45%)	19.2% ( <i>p90</i> )	0.149Å	-	-
201	PHE 147.37	-	General / -115.7,-26.4	chi angles: 71.6,259.5			
			Favored (13.01%)	96.7% ( <i>p</i> )	0.082Å	-	-
202	SER 100.99	-	General / -80.5,173.0	chi angles: 66.4			
			Favored (2.41%)	6.3% ( <i>mp</i> )			

203	LEU	214.3	-	General / -74.9,90.9	chi angles: 292.2,80.3	0.079Å	-	-	
204	GLN	243.53	-	Favored (2.43%) General / -151.3,-166.1	0% chi angles: 230,300.3,261.9	0.12Å	-	-	
205	LYS	124.16	-	Favored (22.66%) General / -47.6,-42.0	34.3% ( <i>mtmm</i> ) chi angles: 299.5,174.7,294.8,288.8	0.093Å	-	-	
206	LEU	120.52	-	Favored (11.23%) General / -108.3,25.8	56.6% ( <i>mt</i> ) chi angles: 304.6,184.2	0.167Å	-	-	
#	Alt	Res	High B	Clash > 0.4Å	Ramachandran	Rotamer	Cβ deviation	Bond lengths	Bond angles
Avg: 103.07			Clashscore: 0.55	Outliers: 0 of 103	Poor rotamers: 4 of 99	Outliers: 1 of 105	Outliers: 0 of 105	Outliers: 4 of 105	
207	LYS	78.73	-	Favored (2.4%) General / -128.4,-30.1	45% ( <i>tptt</i> ) chi angles: 191.6,67.5,190.3,173.9	0.122Å	-	-	
208	GLU	85.9	-	Favored (65.07%) General / -68.5,-25.6	18.8% ( <i>mt-10</i> ) chi angles: 300.8,147,344.8	0.046Å	-	-	
209	ILE	81.24	-	Favored (9.35%) Isoleucine or valine / -95.0,-9.6	5.5% ( <i>tt</i> ) chi angles: 209.9,177.7	0.142Å	-	-	
210	SER	27.45	-	Favored (8.5%) General / -98.0,-40.3	91.2% ( <i>p</i> ) chi angles: 67.1	0.229Å	-	-	
211	GLU	52.65	-	-	1.3% ( <i>mp0</i> ) chi angles: 316.7,99.2,85.7	0.133Å	-	-	

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