WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB EM Validation Report ⓘ

Jan 12, 2025 – 12:19 AM JST

PDB ID	:	8YVU
EMDB ID	:	EMD-39614
Title	:	structure of Ige receptor
Authors	:	Chen, M.Y.; Su, Q.; Shi, Y.G.
Deposited on	:	2024-03-29
Resolution	:	3.90 Å(reported)

The following versions of software and data (see references ⓘ) were used in the production of this report:

EMDB validation analysis	:	FAILED
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	FAILED
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.90 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.
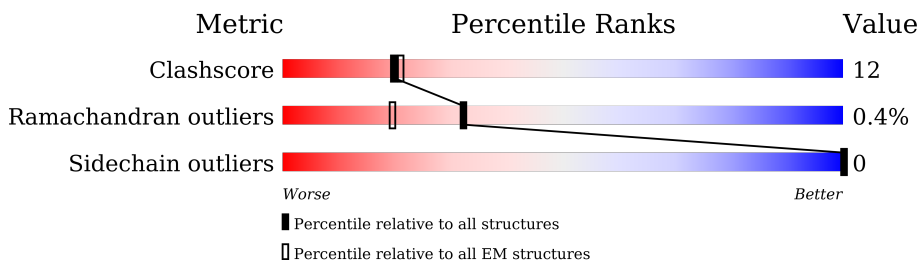
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5%

Mol	Chain	Length	Quality of chain
1	A	37	65% 35%
1	E	37	81% 19%
2	B	160	81% 19%
2	F	160	81% 19%
3	C	39	51% 23% 26%
3	D	39	77% 23%
3	G	39	46% 28% 26%
3	H	39	67% 31% •

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard

residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	CLR	F	301	-	-	X	-

2   Entry composition ⓘ

There are 4 unique types of molecules in this entry. The entry contains 4216 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called High affinity immunoglobulin epsilon receptor subunit alpha.

Mol	Chain	Residues	Atoms				AltConf	Trace
1	A	37	Total 311	C 218	N 45	O 48	0	0
1	E	37	Total 311	C 218	N 45	O 48	0	0

- Molecule 2 is a protein called High affinity immunoglobulin epsilon receptor subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	160	Total 1211	C 791	N 190	O 219	S 11	0	0
2	F	160	Total 1211	C 791	N 190	O 219	S 11	0	0

- Molecule 3 is a protein called High affinity immunoglobulin epsilon receptor subunit gamma.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	29	Total 239	C 163	N 38	O 36	S 2	0	0
3	D	39	Total 319	C 215	N 50	O 52	S 2	0	0
3	G	29	Total 239	C 163	N 38	O 36	S 2	0	0
3	H	39	Total 319	C 215	N 50	O 52	S 2	0	0

- Molecule 4 is CHOLESTEROL (three-letter code: CLR) (formula: $C_{27}H_{46}O$) (labeled as "Ligand of Interest" by depositor).
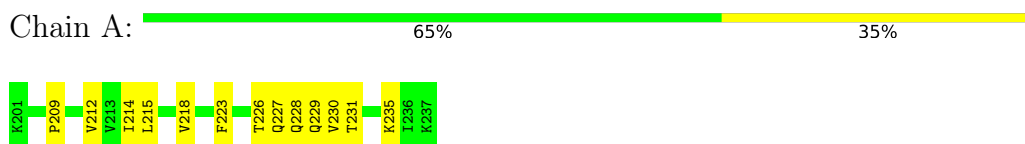
CLR
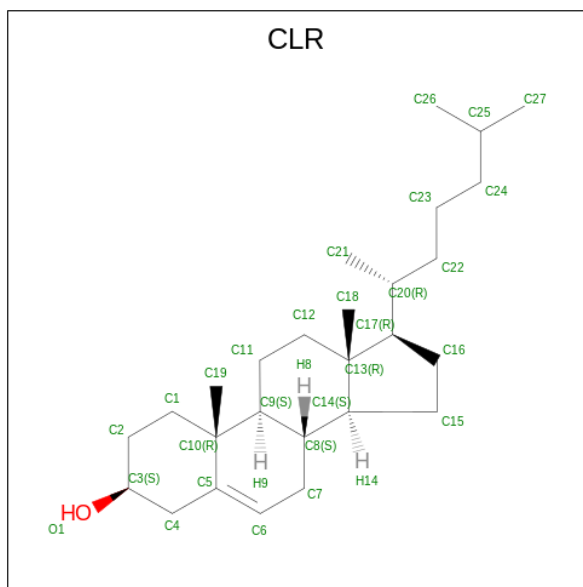
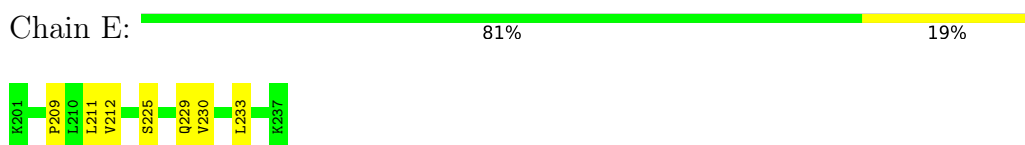| Mol	Chain	Residues	Atoms			AltConf
4	A	1	Total 28	C 27	O 1	0
4	F	1	Total 28	C 27	O 1	0

3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: High affinity immunoglobulin epsilon receptor subunit alpha

Chain A:

65%   35%

K201 P209 V212 V213 I214 L215 V218 F223 T226 Q227 Q228 Q229 V230 T231 K235 I236 K237

• Molecule 1: High affinity immunoglobulin epsilon receptor subunit alpha

Chain E:

81%   19%

K201 P209 L210 L211 V212 S225 Q229 V230 L233 K237

• Molecule 2: High affinity immunoglobulin epsilon receptor subunit beta

Chain B:

81%   19%

T49 L54 K55 K56 E57 Q58 E59 F60 V63 F75 I92 F96 G99 Y100 P101 F102 W103 G104 A105 I106 F107 M113 I117 A136 G144 I147 S155 L156 I159 H160 F168 E169 A175 T179 E180 I181 V182 V183 C202 L208

• Molecule 2: High affinity immunoglobulin epsilon receptor subunit beta

Chain F:

81%   19%

T49 L54 E57 F60 Q65 M70 I71 C74 R121 T135 I139 A140 G141 I145 T146 I147 L148 I149 I150 C164 F168 E169 T170 K171 C172 F173 M174 F177 S178 T179 E180 I181 V182 V183 L186 F187 L188 T189 I190 A196 C202 L208

• Molecule 3: High affinity immunoglobulin epsilon receptor subunit gamma

Chain C:

51%   23%   26%

PRO GLN LEU C25 Y26 I27 I31 L32 F33 L34 L39 L42 R45 L46 K47 A53 ALA ILE THR SER TYR GLU LYS

• Molecule 3: High affinity immunoglobulin epsilon receptor subunit gamma

Chain D:

77%   23%

P22 C25 Y26 D29 L39 C44 R45 L46 K47 I48 Q49 V50 R51 K60

• Molecule 3: High affinity immunoglobulin epsilon receptor subunit gamma

Chain G: 46% 28% 26%

PRO GLN LEU C25 Y26 L32 Y35 L39 Y43 C44 R45 L46 K47 I48 Q49 V50 A53 ALA ILE THR SER TYR GLU LYS

• Molecule 3: High affinity immunoglobulin epsilon receptor subunit gamma

Chain H: 67% 31% •

P22 C25 D29 L32 F33 I37 V38 L39 L42 Y43 C44 R45 L46 K47 I48 K52 A53 A54 I55 K60
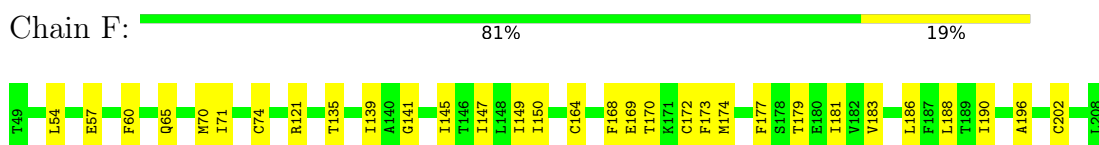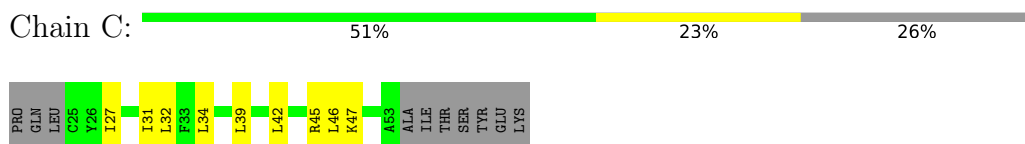
4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	170032	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	50	Depositor
Minimum defocus (nm)	-1200	Depositor
Maximum defocus (nm)	-2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOCONTINUUM (6k x 4k)	Depositor

5   Model quality   ⓘ

5.1   Standard geometry   ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: CLR

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#|Z|>5$	RMSZ	$\#|Z|>5$
1	A	0.26	0/319	0.48	0/433
1	E	0.26	0/319	0.44	0/433
2	B	0.25	0/1233	0.45	0/1665
2	F	0.25	0/1233	0.45	0/1665
3	C	0.24	0/242	0.54	0/326
3	D	0.27	0/324	0.52	0/437
3	G	0.25	0/242	0.58	0/326
3	H	0.25	0/324	0.49	0/437
All	All	0.25	0/4236	0.48	0/5722

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2   Too-close contacts   ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	311	0	336	13	0
1	E	311	0	336	18	0
2	B	1211	0	1249	21	0
2	F	1211	0	1249	27	0
3	C	239	0	268	9	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	D	319	0	351	7	0
3	G	239	0	268	9	0
3	H	319	0	351	12	0
4	A	28	0	46	6	0
4	F	28	0	46	25	0
All	All	4216	0	4500	106	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 12.

All (106) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:74:CYS:SG	4:F:301:CLR:H273	1.60	1.38
2:F:70:MET:HG2	4:F:301:CLR:C16	1.61	1.30
2:F:70:MET:CG	4:F:301:CLR:H162	1.65	1.27
1:E:211:LEU:HD11	4:F:301:CLR:C26	1.67	1.24
1:E:211:LEU:HD11	4:F:301:CLR:H261	1.31	1.10
1:E:211:LEU:CD1	4:F:301:CLR:H261	1.83	1.09
1:E:211:LEU:CD1	4:F:301:CLR:C26	2.36	1.04
2:F:74:CYS:SG	4:F:301:CLR:C27	2.50	0.98
1:E:211:LEU:CD1	4:F:301:CLR:H25	1.99	0.92
1:E:211:LEU:CD1	4:F:301:CLR:C25	2.47	0.91
2:F:74:CYS:HG	4:F:301:CLR:H273	1.29	0.89
1:E:211:LEU:HD12	4:F:301:CLR:H25	1.55	0.88
4:A:301:CLR:C19	2:B:63:VAL:HG13	2.10	0.82
3:C:46:LEU:HD22	3:D:46:LEU:HD21	1.63	0.81
1:A:229:GLN:HE22	3:D:51:ARG:HH12	1.31	0.78
4:A:301:CLR:H193	2:B:63:VAL:HG13	1.67	0.77
1:E:211:LEU:HD13	4:F:301:CLR:H261	1.68	0.75
1:E:211:LEU:HD11	4:F:301:CLR:H263	1.68	0.71
4:F:301:CLR:H212	4:F:301:CLR:H183	1.73	0.69
2:F:168:PHE:HB2	2:F:173:PHE:HA	1.75	0.68
1:A:230:VAL:HG22	3:D:50:VAL:HG21	1.76	0.68
2:B:156:LEU:O	2:B:160:HIS:HB2	1.94	0.66
1:A:214:ILE:HD11	4:A:301:CLR:H271	1.79	0.64
1:E:225:SER:O	1:E:229:GLN:HG2	1.97	0.64
3:G:46:LEU:HA	3:G:49:GLN:HE21	1.67	0.60
1:A:227:GLN:OE1	3:C:45:ARG:NH2	2.34	0.60
3:G:25:CYS:SG	3:G:26:TYR:N	2.74	0.60
2:B:75:PHE:HE1	2:B:181:ILE:HD12	1.67	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:70:MET:HG2	4:F:301:CLR:H162	0.72	0.57
1:E:209:PRO:HA	1:E:212:VAL:HG12	1.87	0.56
2:F:145:ILE:O	2:F:149:ILE:HG12	2.06	0.56
2:F:54:LEU:HD23	2:F:202:CYS:HB2	1.89	0.54
1:E:211:LEU:HD13	4:F:301:CLR:H271	1.88	0.54
1:A:209:PRO:HA	1:A:212:VAL:HG12	1.89	0.54
2:F:164:CYS:HB2	2:F:172:CYS:HB3	1.88	0.54
2:B:104:GLY:HA2	2:B:107:PHE:HB3	1.90	0.54
2:F:71:ILE:HG13	4:F:301:CLR:C26	2.38	0.53
3:H:33:PHE:O	3:H:37:ILE:HD12	2.09	0.52
3:D:26:TYR:HA	3:D:29:ASP:HB3	1.92	0.52
4:F:301:CLR:H212	4:F:301:CLR:H121	1.92	0.52
1:E:233:LEU:HD12	3:H:54:ALA:HB2	1.90	0.52
2:B:57:GLU:OE1	2:B:60:PHE:HB3	2.11	0.51
2:B:92:ILE:HD13	2:B:175:ALA:HA	1.94	0.50
2:B:155:SER:OG	2:B:179:THR:OG1	2.28	0.50
2:F:135:THR:O	2:F:139:ILE:HG12	2.13	0.48
2:B:75:PHE:CE1	2:B:181:ILE:HD12	2.48	0.48
1:A:227:GLN:HE21	1:A:231:THR:HG23	1.78	0.48
2:B:55:LYS:NZ	2:B:202:CYS:O	2.41	0.48
3:H:44:CYS:O	3:H:48:ILE:HD12	2.13	0.48
2:B:99:GLY:O	2:B:103:TRP:N	2.46	0.48
1:E:230:VAL:HG21	3:G:50:VAL:HG12	1.96	0.47
2:F:164:CYS:SG	2:F:170:THR:OG1	2.67	0.47
3:G:49:GLN:NE2	3:G:50:VAL:HG13	2.29	0.47
3:D:44:CYS:O	3:D:48:ILE:HG12	2.14	0.47
2:F:70:MET:CG	4:F:301:CLR:C16	2.50	0.47
3:G:32:LEU:HD22	3:H:32:LEU:HD21	1.98	0.46
2:B:144:GLY:HA2	2:B:147:ILE:HG12	1.96	0.46
2:F:121:ARG:HA	2:F:121:ARG:HD3	1.78	0.45
2:F:186:LEU:O	2:F:190:ILE:HG12	2.16	0.45
3:C:27:ILE:O	3:C:31:ILE:HG12	2.16	0.45
1:E:211:LEU:HD13	4:F:301:CLR:C25	2.42	0.45
2:B:96:PHE:CD2	2:B:101:PRO:HG2	2.52	0.45
1:A:235:LYS:HE2	3:H:55:ILE:HD11	1.99	0.45
4:F:301:CLR:H121	4:F:301:CLR:C21	2.47	0.45
3:G:35:TYR:O	3:G:39:LEU:HD23	2.18	0.44
2:B:54:LEU:HB3	2:B:202:CYS:SG	2.58	0.44
2:F:141:GLY:O	2:F:145:ILE:HG12	2.17	0.44
4:A:301:CLR:H212	4:A:301:CLR:H121	2.00	0.44
2:B:59:GLU:O	2:B:63:VAL:HG23	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:177:PHE:O	2:F:181:ILE:HG12	2.17	0.43
3:H:48:ILE:O	3:H:52:LYS:HG2	2.18	0.43
3:C:32:LEU:O	3:C:32:LEU:HD23	2.17	0.43
2:F:71:ILE:HG13	4:F:301:CLR:H263	2.00	0.43
3:H:52:LYS:HA	3:H:55:ILE:HG22	2.01	0.43
2:F:71:ILE:HG21	2:F:188:LEU:HD11	2.01	0.43
2:B:101:PRO:O	2:B:105:ALA:HB2	2.19	0.43
3:H:48:ILE:HG23	3:H:52:LYS:HE3	2.00	0.43
1:A:214:ILE:HD11	4:A:301:CLR:C27	2.46	0.43
2:B:179:THR:O	2:B:183:VAL:HG23	2.19	0.43
3:G:43:TYR:HE1	3:H:46:LEU:HD13	1.83	0.43
3:C:39:LEU:HD23	3:D:39:LEU:HD13	2.00	0.42
1:A:214:ILE:CD1	4:A:301:CLR:C27	2.97	0.42
1:E:211:LEU:HD13	4:F:301:CLR:C26	2.36	0.42
3:G:45:ARG:O	3:G:48:ILE:HG22	2.20	0.42
3:C:34:LEU:HD23	3:C:34:LEU:H	1.84	0.42
2:F:169:GLU:H	2:F:173:PHE:HB3	1.84	0.42
2:B:168:PHE:CE1	2:B:169:GLU:HG2	2.55	0.42
3:C:47:LYS:NZ	3:D:46:LEU:HD13	2.35	0.42
3:H:25:CYS:O	3:H:29:ASP:N	2.53	0.41
1:A:215:LEU:O	1:A:218:VAL:HG12	2.21	0.41
2:B:113:MET:O	2:B:117:ILE:HG12	2.20	0.41
2:F:65:GLN:HE21	2:F:196:ALA:HA	1.86	0.41
2:B:107:PHE:HZ	2:B:136:ALA:HB1	1.86	0.41
2:F:57:GLU:OE2	2:F:60:PHE:HB3	2.20	0.41
2:F:70:MET:HB2	2:F:70:MET:HE2	1.84	0.41
3:G:43:TYR:CZ	3:H:42:LEU:HD21	2.56	0.41
1:A:228:GLN:OE1	1:E:229:GLN:NE2	2.54	0.41
2:F:147:ILE:O	2:F:150:ILE:HG22	2.21	0.41
1:A:226:THR:O	1:A:230:VAL:HG23	2.21	0.40
2:F:179:THR:O	2:F:183:VAL:HG23	2.21	0.40
3:H:39:LEU:HD23	3:H:39:LEU:HA	1.95	0.40
1:A:223:PHE:CZ	3:C:42:LEU:HD23	2.56	0.40
2:F:174:MET:SD	2:F:174:MET:N	2.94	0.40
3:C:39:LEU:HD12	3:C:39:LEU:HA	1.93	0.40
1:E:211:LEU:HD13	4:F:301:CLR:C27	2.51	0.40
2:B:156:LEU:HA	2:B:159:ILE:HG22	2.03	0.40

There are no symmetry-related clashes.

5.3   Torsion angles ⓘ

5.3.1   Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	35/37 (95%)	33 (94%)	2 (6%)	0	100	100
1	E	35/37 (95%)	33 (94%)	2 (6%)	0	100	100
2	B	158/160 (99%)	149 (94%)	9 (6%)	0	100	100
2	F	158/160 (99%)	152 (96%)	6 (4%)	0	100	100
3	C	27/39 (69%)	27 (100%)	0	0	100	100
3	D	37/39 (95%)	35 (95%)	1 (3%)	1 (3%)	4	29
3	G	27/39 (69%)	27 (100%)	0	0	100	100
3	H	37/39 (95%)	35 (95%)	1 (3%)	1 (3%)	4	29
All	All	514/550 (94%)	491 (96%)	21 (4%)	2 (0%)	32	65

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	D	25	CYS
3	H	25	CYS

5.3.2   Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	35/35 (100%)	35 (100%)	0	100	100
1	E	35/35 (100%)	35 (100%)	0	100	100
2	B	134/134 (100%)	134 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	F	134/134 (100%)	134 (100%)	0	100	100
3	C	26/35 (74%)	26 (100%)	0	100	100
3	D	35/35 (100%)	35 (100%)	0	100	100
3	G	26/35 (74%)	26 (100%)	0	100	100
3	H	35/35 (100%)	35 (100%)	0	100	100
All	All	460/478 (96%)	460 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	229	GLN
1	E	228	GLN
3	G	49	GLN

5.3.3   RNA ⓘ

There are no RNA molecules in this entry.

5.4   Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

5.5   Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6   Ligand geometry ⓘ

2 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the

expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#|Z| > 2$	Counts	RMSZ	$\#|Z| > 2$
4	CLR	F	301	-	31,31,31	0.84	1 (3%)	48,48,48	1.26	6 (12%)
4	CLR	A	301	-	31,31,31	0.84	1 (3%)	48,48,48	1.21	6 (12%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	CLR	F	301	-	-	0/10/68/68	0/4/4/4
4	CLR	A	301	-	-	3/10/68/68	0/4/4/4

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	F	301	CLR	C13-C14	-2.11	1.51	1.55
4	A	301	CLR	C13-C14	-2.10	1.51	1.55

All (12) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	F	301	CLR	C13-C17-C20	-3.84	113.47	119.49
4	A	301	CLR	C13-C17-C20	-3.02	114.75	119.49
4	F	301	CLR	C13-C14-C8	-2.75	110.30	114.38
4	F	301	CLR	C11-C12-C13	-2.66	108.23	112.78
4	A	301	CLR	C11-C12-C13	-2.46	108.57	112.78
4	F	301	CLR	C17-C13-C14	2.37	102.88	100.07
4	F	301	CLR	C8-C7-C6	-2.33	109.38	112.73
4	A	301	CLR	C13-C14-C8	-2.26	111.04	114.38
4	F	301	CLR	C11-C9-C10	-2.16	110.23	113.08
4	A	301	CLR	C4-C5-C6	-2.04	117.66	120.61
4	A	301	CLR	C8-C7-C6	-2.03	109.82	112.73
4	A	301	CLR	C19-C10-C9	-2.01	109.29	111.68

There are no chirality outliers.

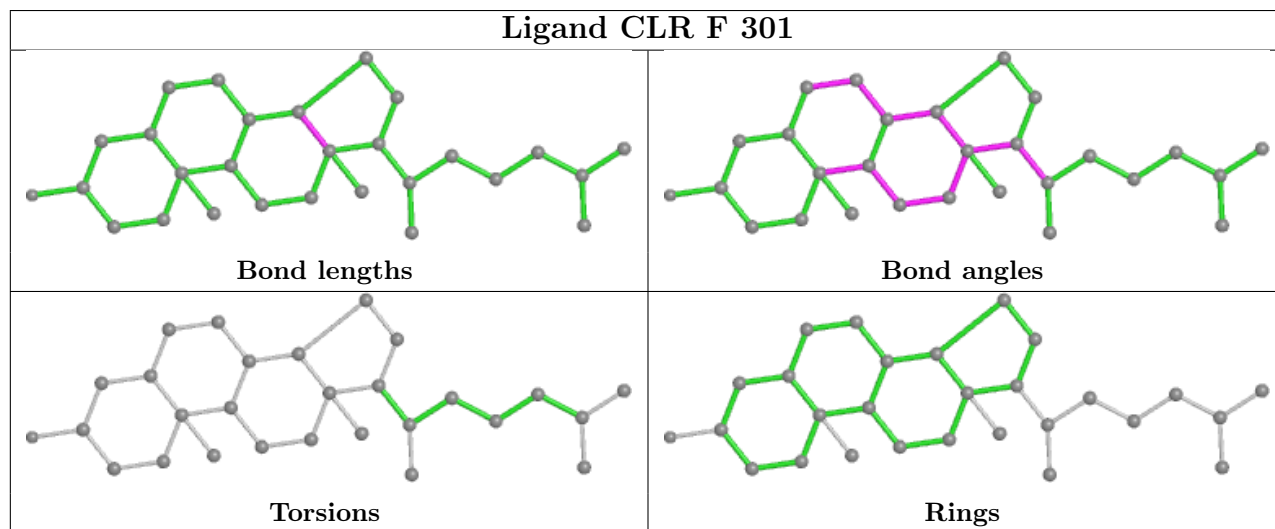All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	301	CLR	C21-C20-C22-C23
4	A	301	CLR	C17-C20-C22-C23
4	A	301	CLR	C13-C17-C20-C21

There are no ring outliers.

2 monomers are involved in 31 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	F	301	CLR	25	0
4	A	301	CLR	6	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand CLR F 301
Bond lengths   Bond angles
Torsions   Rings

Ligand CLR A 301

Bond lengths

Bond angles

Torsions

Rings
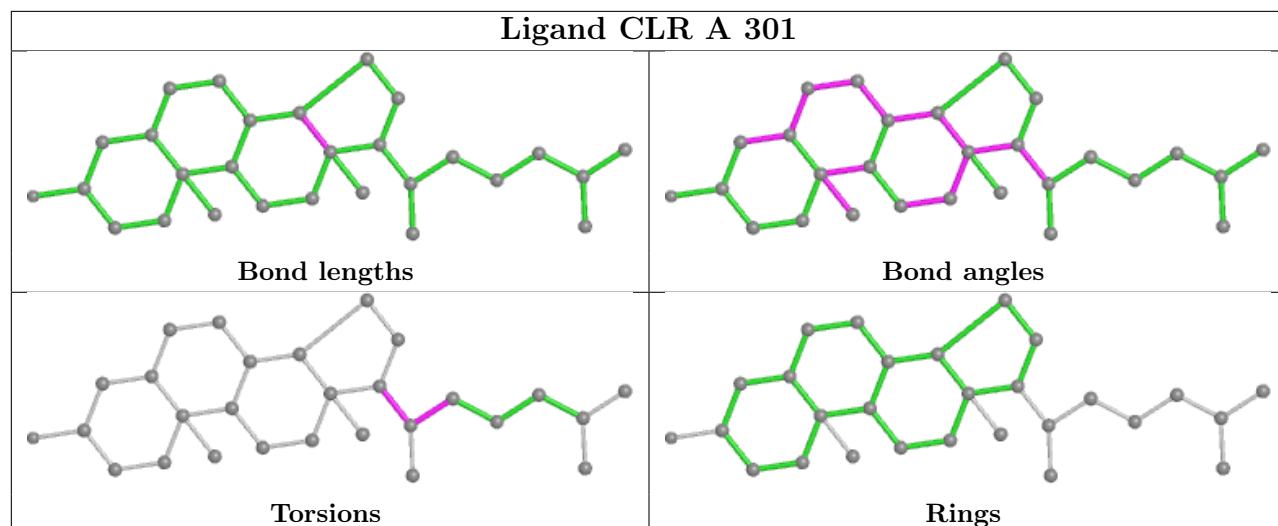
5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.