WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report ⓘ

Feb 4, 2024 – 07:36 AM EST

PDB ID	:	1OSV
Title	:	STRUCTURAL BASIS FOR BILE ACID BINDING AND ACTIVATION OF THE NUCLEAR RECEPTOR FXR
Authors	:	Mi, L.Z.; Devarakonda, S.; Harp, J.M.; Han, Q.; Pellicciari, R.; Willson, T.M.; Khorasanizadeh, S.; Rastinejad, F.
Deposited on	:	2003-03-20
Resolution	:	2.50 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

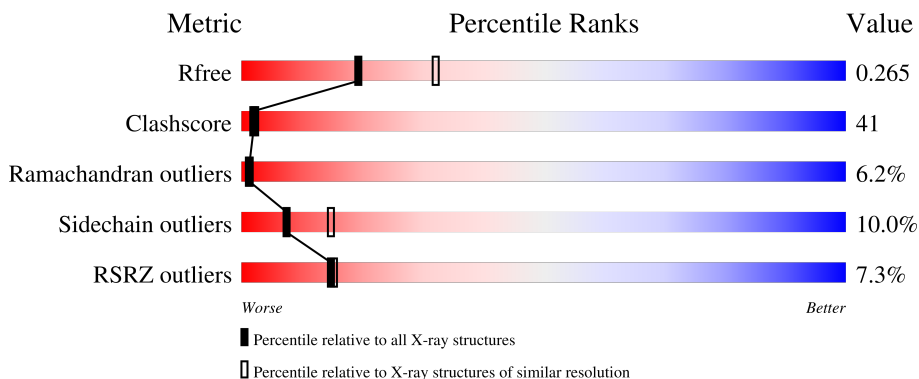|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1   Overall quality at a glance   ⓘ

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.50 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.
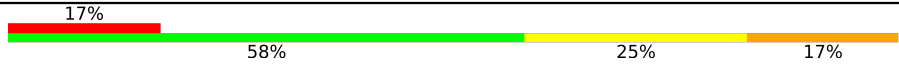
Metric	Percentile Ranks	Value
Rfree		0.265
Clashscore		41
Ramachandran outliers		6.2%
Sidechain outliers		10.0%
RSRZ outliers		7.3%

Worse   *Better*

■ Percentile relative to all X-ray structures
▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	4661 (2.50-2.50)
Clashscore	141614	5346 (2.50-2.50)
Ramachandran outliers	138981	5231 (2.50-2.50)
Sidechain outliers	138945	5233 (2.50-2.50)
RSRZ outliers	127900	4559 (2.50-2.50)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower 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% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	230	9% — 44% / 47% / 8%
1	B	230	5% — 43% / 46% / 9% ·
2	C	12	8% — 67% / 25% / 8%
2	D	12	8% — 25% / 50% / 25%

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Mol	Chain	Length	Quality of chain
2	E	12	

17%

58% 25% 17%

2 Entry composition ⓘ

There are 4 unique types of molecules in this entry. The entry contains 4265 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 Bile acid receptor.

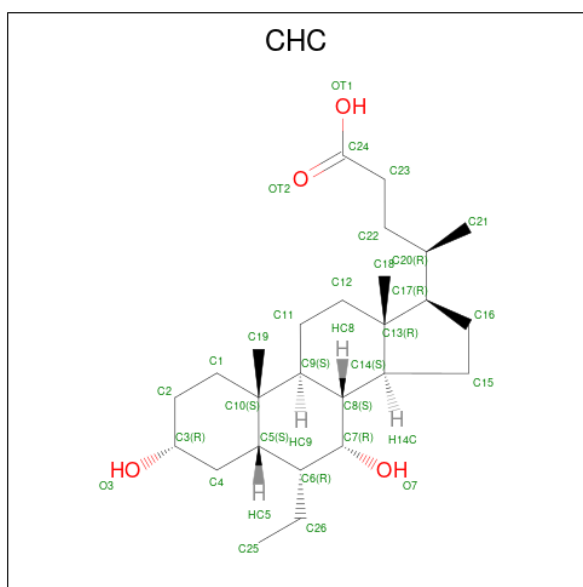| Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	229	Total	C	N	O	S	0	0	0
			1875	1201	311	352	11			
1	B	229	Total	C	N	O	S	0	0	0
			1875	1201	311	352	11			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	240	ALA	-	cloning artifact	UNP Q62735
B	240	ALA	-	cloning artifact	UNP Q62735

- Molecule 2 is a protein called Nuclear receptor coactivator 2.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	C	12	Total	C	N	O	0	0	0
			100	64	17	19			
2	D	12	Total	C	N	O	0	0	0
			103	65	17	21			
2	E	12	Total	C	N	O	0	0	0
			100	64	17	19			

- Molecule 3 is 6-ETHYL-CHENODEOXYCHOLIC ACID (three-letter code: CHC) (formula: $C_{26}H_{44}O_4$).

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total 30	C 26	O 4	0	0
3	B	1	Total 30	C 26	O 4	0	0

• Molecule 4 is water.

| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	68	Total 68	O 68	0	0
4	B	71	Total 71	O 71	0	0
4	C	3	Total 3	O 3	0	0
4	D	3	Total 3	O 3	0	0
4	E	7	Total 7	O 7	0	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 and electron density. 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. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). 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.
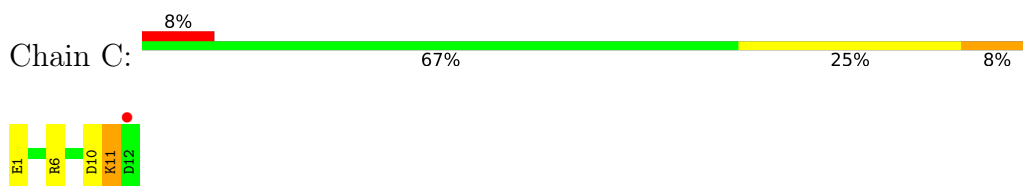
- Molecule 1: Bile acid receptor
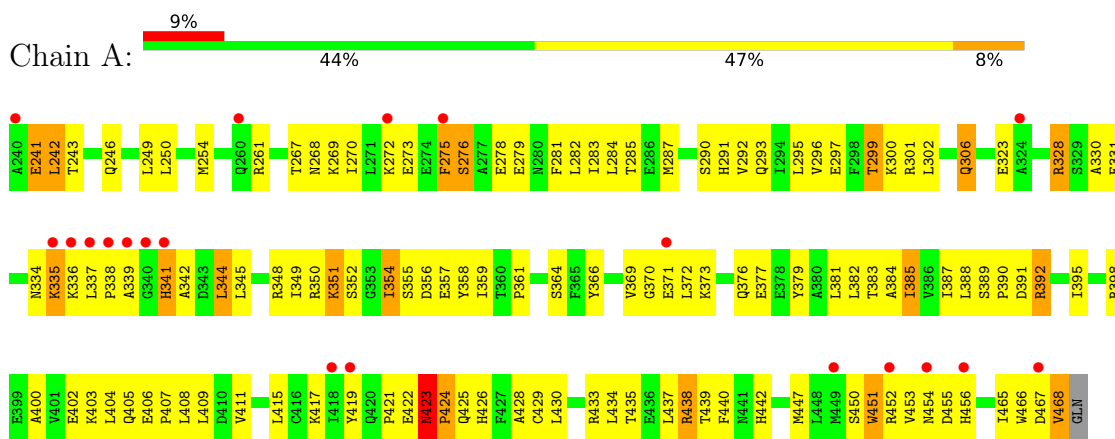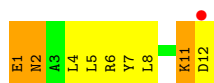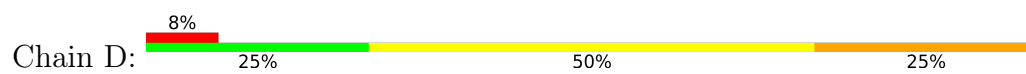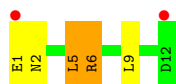

- Molecule 1: Bile acid receptor
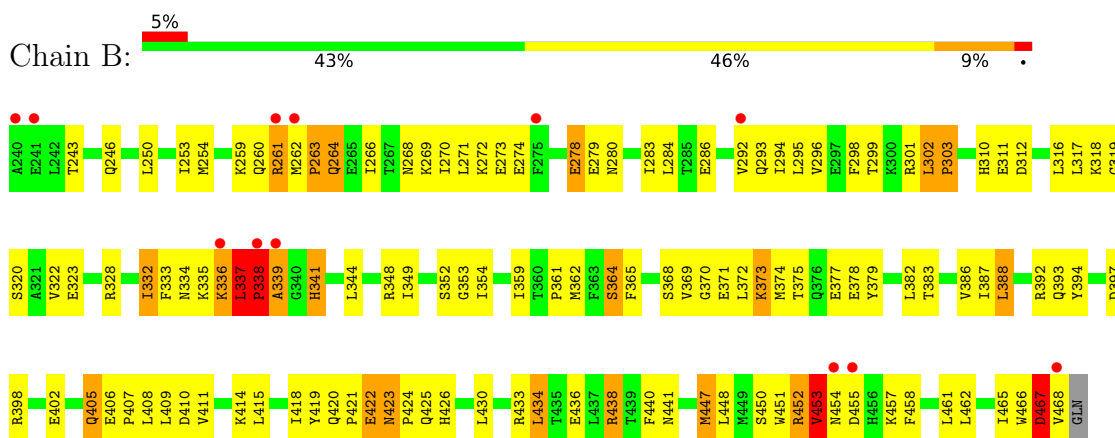
- Molecule 2: Nuclear receptor coactivator 2

- Molecule 2: Nuclear receptor coactivator 2

Chain D:

8%

25% 50% 25%

E1 N2 A3 L4 L5 R6 Y7 L8 K11 D12

• Molecule 2: Nuclear receptor coactivator 2

Chain E:

17%

58% 25% 17%

E1 N2 L5 R6 L9 D12

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α, β, γ	98.97Å 108.52Å 69.46Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.88 – 2.50 28.43 – 2.34	Depositor EDS
% Data completeness (in resolution range)	91.4 (19.88-2.50) 86.7 (28.43-2.34)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.04	Depositor
$< I/\sigma(I) >$ [1]	1.98 (at 2.34Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.242 , 0.276 0.235 , 0.265	Depositor DCC
R_{free} test set	1874 reflections (6.72%)	wwPDB-VP
Wilson B-factor (Å^2)	42.3	Xtriage
Anisotropy	0.710	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 52.7	EDS
L-test for twinning[2]	$< |L| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	4265	wwPDB-VP
Average B, all atoms (Å^2)	55.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.53% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5   Model quality ⓘ

5.1   Standard geometry ⓘ

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

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	0.41	0/1913	0.68	2/2584 (0.1%)
1	B	0.39	0/1913	0.65	0/2584
2	C	0.39	0/100	0.74	0/132
2	D	0.36	0/103	0.56	0/136
2	E	0.35	0/100	0.54	0/132
All	All	0.40	0/4129	0.66	2/5568 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	451	TRP	C-N-CA	-6.75	104.84	121.70
1	A	450	SER	C-N-CA	-6.68	105.00	121.70

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	1875	0	1879	149	0
1	B	1875	0	1879	177	0
2	C	100	0	104	3	0
2	D	103	0	106	14	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	E	100	0	104	11	0
3	A	30	0	43	0	0
3	B	30	0	43	2	0
4	A	68	0	0	11	0
4	B	71	0	0	7	0
4	C	3	0	0	0	0
4	D	3	0	0	0	0
4	E	7	0	0	0	0
All	All	4265	0	4158	341	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 41.

All (341) 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)
1:B:270:ILE:HG23	1:B:274:GLU:HG3	1.34	1.09
1:B:405:GLN:HE21	1:B:409:LEU:HD11	1.18	1.06
1:A:335:LYS:HE3	1:A:373:LYS:HA	1.41	0.99
1:A:402:GLU:HA	4:A:149:HOH:O	1.61	0.98
1:B:332:ILE:O	1:B:335:LYS:HB2	1.65	0.96
1:A:302:LEU:HD23	1:A:388:LEU:HD21	1.47	0.95
1:A:297:GLU:O	1:A:300:LYS:HG3	1.67	0.93
1:B:261:ARG:HA	1:B:261:ARG:HH11	1.32	0.91
1:A:355:SER:HB3	1:A:357:GLU:HG2	1.53	0.89
1:B:271:LEU:O	1:B:271:LEU:HD13	1.73	0.88
1:B:405:GLN:NE2	1:B:409:LEU:HD11	1.91	0.85
1:A:337:LEU:HB3	4:A:143:HOH:O	1.77	0.85
1:B:299:THR:HA	1:B:302:LEU:CD2	2.04	0.85
1:A:405:GLN:HB3	4:A:149:HOH:O	1.76	0.85
1:B:263:PRO:HD2	1:B:294:ILE:HD11	1.60	0.84
1:B:263:PRO:HD2	1:B:294:ILE:CD1	2.08	0.83
1:A:335:LYS:NZ	1:A:373:LYS:HG2	1.94	0.83
1:A:423:ASN:HB2	1:A:424:PRO:O	1.79	0.82
2:D:6:ARG:HB3	2:D:6:ARG:NH1	1.94	0.82
1:B:336:LYS:HG3	1:B:338:PRO:HD2	1.58	0.82
1:B:262:MET:HG3	1:B:268:ASN:HD21	1.42	0.82
1:B:299:THR:HG22	1:B:387:ILE:HD13	1.61	0.81
1:A:295:LEU:O	1:A:299:THR:HG23	1.80	0.81
1:A:423:ASN:HD22	1:A:424:PRO:HA	1.45	0.80
1:A:383:THR:O	1:A:387:ILE:HD12	1.82	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:452:ARG:CZ	1:B:453:VAL:H	1.96	0.79
1:A:423:ASN:ND2	1:A:424:PRO:HA	1.98	0.78
1:B:466:TRP:O	1:B:467:ASP:HB2	1.84	0.77
1:A:424:PRO:HG2	1:A:425:GLN:H	1.50	0.76
1:A:435:THR:HG23	4:A:98:HOH:O	1.85	0.76
1:B:374:MET:HE1	1:B:430:LEU:HD22	1.68	0.75
1:A:451:TRP:O	1:A:452:ARG:HD3	1.86	0.75
1:B:447:MET:HE3	1:B:451:TRP:CE3	2.21	0.75
1:B:262:MET:CG	1:B:268:ASN:HD21	1.99	0.75
1:A:389:SER:HB2	1:A:392:ARG:HH11	1.51	0.75
1:B:295:LEU:O	1:B:299:THR:HG23	1.87	0.75
1:A:377:GLU:HG2	4:A:63:HOH:O	1.86	0.75
1:A:283:ILE:CD1	1:A:348:ARG:HH21	2.00	0.74
1:A:389:SER:CB	1:A:392:ARG:HH11	2.00	0.74
1:A:330:ALA:HB1	1:A:369:VAL:HG21	1.68	0.74
1:B:293:GLN:HE22	2:E:5:LEU:HG	1.53	0.73
2:D:6:ARG:HB3	2:D:6:ARG:HH11	1.52	0.73
1:A:390:PRO:O	1:A:395:ILE:HD11	1.88	0.73
1:A:323:GLU:HG3	4:A:33:HOH:O	1.88	0.72
1:B:253:ILE:HD12	1:B:254:MET:N	2.04	0.72
1:A:351:LYS:HZ3	1:A:351:LYS:H	1.36	0.72
1:A:395:ILE:HD11	1:A:398:ARG:HG2	1.70	0.72
1:B:261:ARG:HD3	1:B:328:ARG:HH12	1.54	0.71
1:B:266:ILE:O	1:B:270:ILE:HG13	1.91	0.71
1:A:350:ARG:HD3	1:A:359:ILE:HD12	1.71	0.70
1:B:461:LEU:HD13	2:D:4:LEU:HD22	1.73	0.70
1:B:264:GLN:HG3	2:E:5:LEU:HD12	1.73	0.70
1:A:351:LYS:H	1:A:351:LYS:NZ	1.90	0.69
1:B:334:ASN:ND2	1:B:370:GLY:HA3	2.08	0.68
1:B:336:LYS:O	1:B:337:LEU:HB2	1.93	0.68
1:B:270:ILE:HG23	1:B:274:GLU:CG	2.18	0.68
2:E:6:ARG:HG3	2:E:6:ARG:HH11	1.59	0.68
1:A:465:ILE:HG13	1:A:466:TRP:N	2.09	0.68
1:A:422:GLU:CD	1:A:422:GLU:H	1.96	0.68
1:A:385:ILE:HD11	1:A:434:LEU:CD2	2.24	0.68
1:A:276:SER:HB2	1:A:279:GLU:HB3	1.75	0.67
1:B:270:ILE:HG22	1:B:283:ILE:HG12	1.75	0.67
1:B:374:MET:HE1	1:B:382:LEU:HD11	1.76	0.67
1:A:351:LYS:HZ3	1:A:351:LYS:N	1.92	0.66
1:A:400:ALA:O	1:A:404:LEU:HD13	1.95	0.66
1:A:424:PRO:C	1:A:426:HIS:H	1.98	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:292:VAL:HG21	1:A:465:ILE:HD13	1.77	0.66
1:B:263:PRO:O	1:B:264:GLN:HB2	1.95	0.66
1:A:381:LEU:O	1:A:385:ILE:HG23	1.96	0.65
1:B:262:MET:HB2	3:B:201:CHC:OT1	1.96	0.65
1:A:334:ASN:ND2	1:A:370:GLY:HA2	2.11	0.65
1:B:284:LEU:HD11	1:B:349:ILE:HA	1.77	0.65
1:A:270:ILE:HD11	1:A:341:HIS:HB2	1.78	0.65
1:A:300:LYS:NZ	1:A:301:ARG:HH11	1.94	0.64
1:B:320:SER:HA	1:B:392:ARG:NH2	2.12	0.64
1:A:292:VAL:HG21	1:A:465:ILE:CD1	2.28	0.63
1:B:264:GLN:HB2	4:B:115:HOH:O	1.98	0.63
1:B:422:GLU:CD	1:B:422:GLU:H	2.02	0.63
1:A:366:TYR:O	1:A:369:VAL:HG22	1.99	0.62
1:A:348:ARG:O	1:A:352:SER:HB3	1.98	0.62
1:B:299:THR:HA	1:B:302:LEU:HD23	1.80	0.62
1:B:457:LYS:N	1:B:457:LYS:HD2	2.14	0.62
1:A:335:LYS:HZ1	1:A:373:LYS:HG2	1.62	0.62
2:C:10:ASP:O	2:C:11:LYS:C	2.37	0.62
1:A:283:ILE:HD13	1:A:348:ARG:HH21	1.64	0.62
2:E:6:ARG:HG3	2:E:6:ARG:NH1	2.15	0.62
1:A:467:ASP:O	1:A:468:VAL:HG13	2.00	0.62
1:B:296:VAL:HG11	2:D:8:LEU:HB3	1.81	0.61
1:A:387:ILE:HG22	1:A:388:LEU:HD22	1.82	0.61
1:B:272:LYS:HG2	1:B:344:LEU:HD23	1.81	0.61
1:A:323:GLU:HB3	1:A:437:LEU:HD13	1.82	0.61
1:B:386:VAL:HG22	1:B:434:LEU:HD21	1.82	0.61
1:B:375:THR:OG1	1:B:377:GLU:HG2	2.01	0.61
1:A:344:LEU:N	1:A:344:LEU:HD23	2.15	0.61
1:A:306:GLN:HE21	1:A:306:GLN:N	1.97	0.61
1:B:407:PRO:O	1:B:411:VAL:HG23	2.01	0.61
1:B:457:LYS:HD2	1:B:457:LYS:H	1.66	0.61
1:A:356:ASP:HA	1:A:359:ILE:HG12	1.83	0.61
1:A:372:LEU:HD13	1:A:430:LEU:CD2	2.30	0.61
1:A:276:SER:HB2	1:A:279:GLU:CB	2.32	0.60
1:B:336:LYS:HE2	1:B:338:PRO:HB2	1.82	0.60
1:B:335:LYS:O	1:B:337:LEU:N	2.35	0.60
1:B:374:MET:CE	1:B:430:LEU:HD22	2.31	0.60
1:B:270:ILE:CG2	1:B:283:ILE:HG12	2.31	0.60
2:D:7:TYR:O	2:D:11:LYS:HB2	2.02	0.60
1:A:423:ASN:HB2	1:A:424:PRO:C	2.21	0.60
1:A:250:LEU:HD21	4:A:63:HOH:O	2.01	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:286:GLU:HG2	2:E:9:LEU:HD22	1.84	0.60
1:A:278:GLU:HB2	1:A:456:HIS:NE2	2.18	0.59
1:A:415:LEU:HG	1:A:419:TYR:CE2	2.38	0.59
1:B:243:THR:OG1	1:B:246:GLN:HG3	2.03	0.59
1:B:323:GLU:OE1	1:B:438:ARG:HG3	2.02	0.59
1:A:384:ALA:O	1:A:388:LEU:HD23	2.03	0.59
1:A:323:GLU:HB3	1:A:437:LEU:CD1	2.32	0.59
1:B:461:LEU:HD13	2:D:4:LEU:CD2	2.33	0.59
1:B:322:VAL:HG21	1:B:441:ASN:OD1	2.03	0.59
1:B:447:MET:HE1	1:B:448:LEU:HA	1.84	0.59
1:B:447:MET:HE2	1:B:451:TRP:HB2	1.85	0.59
1:B:452:ARG:NE	1:B:453:VAL:H	2.01	0.59
1:A:341:HIS:HA	1:A:344:LEU:HG	1.84	0.59
1:A:423:ASN:HB2	1:A:424:PRO:CA	2.31	0.58
1:B:318:LYS:HD2	2:D:2:ASN:ND2	2.18	0.58
1:B:447:MET:HE2	1:B:447:MET:O	2.03	0.58
1:B:261:ARG:HD3	1:B:328:ARG:NH1	2.19	0.58
1:A:372:LEU:HD13	1:A:430:LEU:HD23	1.85	0.58
1:A:351:LYS:NZ	1:A:351:LYS:N	2.51	0.58
1:B:466:TRP:O	1:B:467:ASP:CB	2.52	0.58
2:D:4:LEU:O	2:D:4:LEU:HD23	2.03	0.57
1:B:405:GLN:HE21	1:B:409:LEU:CD1	2.06	0.57
1:B:264:GLN:HE22	2:E:1:GLU:HB3	1.69	0.57
1:A:282:LEU:HA	1:A:285:THR:HG22	1.87	0.57
1:A:292:VAL:O	1:A:296:VAL:HG23	2.05	0.56
1:B:333:PHE:C	1:B:335:LYS:H	2.09	0.56
1:A:278:GLU:HB2	1:A:456:HIS:CD2	2.41	0.56
1:B:250:LEU:HD12	1:B:253:ILE:HD11	1.86	0.56
1:B:374:MET:CE	1:B:382:LEU:HD11	2.35	0.56
1:B:293:GLN:NE2	2:E:5:LEU:HG	2.19	0.56
1:A:241:GLU:O	1:A:242:LEU:HB2	2.06	0.56
1:B:319:GLY:O	1:B:392:ARG:NH2	2.38	0.56
1:A:438:ARG:HD2	4:A:41:HOH:O	2.07	0.55
1:B:434:LEU:O	1:B:438:ARG:HD2	2.06	0.55
1:A:241:GLU:O	1:A:242:LEU:CB	2.54	0.55
1:A:281:PHE:CG	1:A:453:VAL:HG21	2.40	0.55
1:B:397:ASP:HB3	4:B:20:HOH:O	2.06	0.55
1:A:335:LYS:HZ2	1:A:373:LYS:HG2	1.71	0.55
1:B:393:GLN:O	1:B:394:TYR:HB2	2.07	0.55
1:A:300:LYS:HZ2	1:A:301:ARG:HH11	1.55	0.54
1:A:389:SER:HB2	1:A:392:ARG:NH1	2.21	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:263:PRO:HD2	1:B:294:ILE:HD13	1.89	0.54
1:A:423:ASN:HD22	1:A:424:PRO:CA	2.18	0.54
1:B:447:MET:CE	1:B:451:TRP:HB2	2.37	0.54
1:A:300:LYS:O	1:A:306:GLN:NE2	2.37	0.54
1:B:332:ILE:O	1:B:335:LYS:CB	2.48	0.54
1:B:335:LYS:HG3	1:B:336:LYS:HG2	1.90	0.54
1:A:390:PRO:HG3	4:A:149:HOH:O	2.08	0.54
1:A:407:PRO:O	1:A:411:VAL:HG23	2.06	0.54
1:B:280:ASN:OD1	1:B:348:ARG:HD3	2.08	0.53
1:B:462:LEU:HD23	1:B:465:ILE:HD11	1.90	0.53
1:A:354:ILE:HD13	1:A:355:SER:N	2.23	0.53
1:B:354:ILE:HD11	1:B:359:ILE:HD11	1.89	0.53
1:B:334:ASN:CG	1:B:370:GLY:HA3	2.29	0.53
1:A:385:ILE:HD11	1:A:434:LEU:HD21	1.90	0.53
1:B:339:ALA:O	1:B:341:HIS:CD2	2.62	0.53
1:B:453:VAL:O	1:B:453:VAL:HG13	2.09	0.53
1:B:335:LYS:HE3	1:B:336:LYS:NZ	2.24	0.52
1:B:423:ASN:C	1:B:425:GLN:H	2.13	0.52
2:D:4:LEU:HD23	2:D:4:LEU:C	2.29	0.52
1:A:355:SER:CB	1:A:357:GLU:HG2	2.34	0.52
1:A:447:MET:SD	1:A:447:MET:C	2.87	0.52
1:B:338:PRO:O	1:B:339:ALA:CB	2.56	0.52
1:B:372:LEU:O	1:B:373:LYS:C	2.48	0.52
1:A:354:ILE:HG12	1:A:447:MET:CE	2.40	0.52
1:B:436:GLU:HB2	4:B:39:HOH:O	2.08	0.52
1:B:438:ARG:HH11	1:B:438:ARG:HG2	1.75	0.52
1:B:418:ILE:HG22	1:B:419:TYR:CD2	2.45	0.51
1:B:264:GLN:NE2	2:E:2:ASN:HB2	2.25	0.51
1:B:383:THR:O	1:B:387:ILE:HG13	2.10	0.51
1:B:336:LYS:O	1:B:337:LEU:CB	2.56	0.51
1:B:388:LEU:O	1:B:405:GLN:OE1	2.27	0.51
1:A:302:LEU:CD2	1:A:388:LEU:HD21	2.32	0.51
1:B:269:LYS:HB2	1:B:269:LYS:NZ	2.26	0.51
1:B:261:ARG:HB2	4:B:125:HOH:O	2.11	0.51
1:B:278:GLU:OE1	1:B:279:GLU:N	2.43	0.51
1:A:282:LEU:O	1:A:285:THR:HG22	2.10	0.51
1:B:335:LYS:C	1:B:337:LEU:N	2.63	0.51
1:A:243:THR:OG1	1:A:246:GLN:HG3	2.11	0.50
1:B:334:ASN:HD21	1:B:370:GLY:HA3	1.74	0.50
1:B:374:MET:HB2	1:B:379:TYR:CE1	2.46	0.50
1:B:278:GLU:O	1:B:278:GLU:HG2	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:339:ALA:HB1	1:B:341:HIS:CE1	2.47	0.50
1:B:452:ARG:HG3	1:B:452:ARG:HH11	1.76	0.50
1:A:389:SER:CB	1:A:392:ARG:NH1	2.72	0.49
1:B:318:LYS:NZ	2:D:2:ASN:HD21	2.10	0.49
1:A:395:ILE:CD1	1:A:398:ARG:HG2	2.39	0.49
1:B:292:VAL:O	1:B:295:LEU:N	2.45	0.49
1:B:299:THR:HA	1:B:302:LEU:HD22	1.89	0.49
1:A:354:ILE:HD12	1:A:359:ILE:HG23	1.95	0.49
1:B:338:PRO:O	1:B:339:ALA:HB3	2.12	0.49
1:B:352:SER:O	1:B:354:ILE:N	2.43	0.49
1:A:437:LEU:HD12	1:A:437:LEU:C	2.33	0.49
1:A:354:ILE:CD1	1:A:358:TYR:HB3	2.42	0.49
1:B:333:PHE:O	1:B:334:ASN:CB	2.59	0.49
1:B:365:PHE:O	1:B:369:VAL:HG23	2.13	0.49
1:A:424:PRO:HG2	1:A:425:GLN:N	2.24	0.49
1:B:392:ARG:HD2	4:B:43:HOH:O	2.12	0.49
1:A:287:MET:O	1:A:290:SER:HB3	2.13	0.48
1:B:259:LYS:HE3	1:B:301:ARG:CZ	2.43	0.48
1:A:372:LEU:HD21	1:A:429:CYS:SG	2.53	0.48
1:A:281:PHE:CD2	1:A:453:VAL:HG21	2.49	0.48
1:B:260:GLN:HB2	1:B:294:ILE:HG23	1.96	0.48
2:E:2:ASN:HB3	2:E:5:LEU:HB2	1.96	0.48
1:A:465:ILE:HG13	1:A:466:TRP:H	1.77	0.48
1:B:298:PHE:O	1:B:302:LEU:HD22	2.14	0.48
1:B:420:GLN:N	1:B:421:PRO:HD3	2.28	0.48
1:B:262:MET:HG3	1:B:268:ASN:ND2	2.21	0.48
1:A:437:LEU:HA	1:A:440:PHE:HD2	1.79	0.47
1:A:337:LEU:C	1:A:339:ALA:H	2.17	0.47
1:A:355:SER:C	1:A:357:GLU:H	2.16	0.47
1:A:424:PRO:C	1:A:426:HIS:N	2.67	0.47
1:A:275:PHE:O	1:A:279:GLU:HB3	2.14	0.47
1:B:447:MET:HE1	1:B:448:LEU:HD23	1.95	0.47
1:B:278:GLU:OE1	1:B:278:GLU:C	2.53	0.47
1:A:351:LYS:HA	1:A:351:LYS:HZ2	1.79	0.47
1:A:415:LEU:HG	1:A:419:TYR:HE2	1.79	0.47
1:B:261:ARG:N	1:B:263:PRO:HD3	2.29	0.47
1:B:337:LEU:O	1:B:338:PRO:C	2.52	0.47
1:B:320:SER:OG	1:B:386:VAL:HG12	2.15	0.46
1:B:447:MET:HE3	1:B:451:TRP:HE3	1.74	0.46
1:B:322:VAL:CG2	1:B:441:ASN:OD1	2.63	0.46
2:D:11:LYS:O	2:D:12:ASP:CG	2.53	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:437:LEU:HA	1:A:440:PHE:HB2	1.96	0.46
1:B:264:GLN:HE22	2:E:1:GLU:CB	2.26	0.46
1:B:312:ASP:O	1:B:316:LEU:HG	2.14	0.46
1:B:371:GLU:C	1:B:373:LYS:H	2.19	0.46
1:A:423:ASN:CB	1:A:424:PRO:CA	2.93	0.46
1:B:328:ARG:HE	3:B:201:CHC:C24	2.29	0.46
1:A:344:LEU:O	1:A:348:ARG:HG2	2.16	0.46
1:A:403:LYS:HE2	4:A:83:HOH:O	2.15	0.46
1:A:452:ARG:HD3	1:A:452:ARG:HA	1.69	0.46
1:A:331:GLU:HA	1:A:379:TYR:CZ	2.51	0.45
1:B:261:ARG:O	1:B:262:MET:C	2.54	0.45
1:A:388:LEU:HD22	1:A:388:LEU:N	2.31	0.45
1:B:254:MET:SD	1:B:377:GLU:HA	2.56	0.45
1:B:337:LEU:HB3	1:B:338:PRO:HD3	1.98	0.45
1:B:374:MET:CE	1:B:382:LEU:CD1	2.94	0.45
1:B:426:HIS:CE1	1:B:430:LEU:HD21	2.51	0.45
1:A:361:PRO:O	1:A:364:SER:HB3	2.17	0.45
1:B:426:HIS:O	1:B:430:LEU:HG	2.16	0.45
1:A:291:HIS:NE2	1:A:328:ARG:HG3	2.32	0.45
1:A:354:ILE:HD11	1:A:358:TYR:HB3	1.99	0.45
1:B:278:GLU:C	1:B:280:ASN:N	2.70	0.45
1:B:320:SER:OG	1:B:387:ILE:HA	2.17	0.45
1:B:374:MET:HA	1:B:378:GLU:OE2	2.17	0.45
1:B:362:MET:HE1	1:B:440:PHE:HB3	1.99	0.45
1:B:398:ARG:HH12	1:B:402:GLU:CD	2.21	0.45
1:A:447:MET:HA	4:A:126:HOH:O	2.15	0.44
1:B:450:SER:O	1:B:452:ARG:HG3	2.17	0.44
1:B:278:GLU:HG3	1:B:453:VAL:HG22	1.99	0.44
2:D:7:TYR:CZ	2:D:11:LYS:HG3	2.52	0.44
1:A:275:PHE:O	1:A:276:SER:HB2	2.17	0.44
1:B:262:MET:O	1:B:263:PRO:O	2.34	0.44
1:B:335:LYS:O	1:B:336:LYS:C	2.56	0.44
1:A:281:PHE:CD1	1:A:281:PHE:C	2.91	0.44
1:B:310:HIS:CE1	2:D:6:ARG:HD3	2.53	0.44
1:B:361:PRO:HA	1:B:364:SER:OG	2.17	0.44
1:A:241:GLU:H	1:A:241:GLU:CD	2.21	0.44
1:A:354:ILE:HD12	1:A:359:ILE:CG2	2.47	0.44
1:B:335:LYS:HE3	1:B:336:LYS:HZ2	1.82	0.44
2:C:6:ARG:HE	2:C:6:ARG:HB2	1.50	0.44
2:E:5:LEU:HD22	2:E:9:LEU:HG	1.99	0.44
1:B:319:GLY:C	1:B:392:ARG:HD3	2.37	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:453:VAL:HG23	1:A:453:VAL:O	2.17	0.44
1:B:388:LEU:HD23	1:B:408:LEU:CD1	2.48	0.44
1:A:282:LEU:CA	1:A:285:THR:HG22	2.48	0.43
1:B:320:SER:HB2	4:B:43:HOH:O	2.17	0.43
1:A:335:LYS:HA	1:A:335:LYS:HD3	1.75	0.43
1:B:319:GLY:HA3	1:B:392:ARG:HD3	1.99	0.43
1:B:268:ASN:O	1:B:271:LEU:HB3	2.18	0.43
1:B:269:LYS:NZ	1:B:269:LYS:CB	2.81	0.43
1:A:249:LEU:HD21	1:A:408:LEU:HD23	2.01	0.43
1:A:275:PHE:HB3	1:A:276:SER:H	1.46	0.43
1:B:320:SER:HA	1:B:392:ARG:HH22	1.82	0.43
1:A:290:SER:O	1:A:293:GLN:N	2.52	0.43
1:B:246:GLN:OE1	1:B:414:LYS:HD3	2.19	0.43
1:B:423:ASN:O	1:B:425:GLN:N	2.52	0.43
1:A:345:LEU:O	1:A:349:ILE:HG13	2.18	0.43
1:A:422:GLU:OE2	1:A:422:GLU:N	2.47	0.43
1:B:447:MET:HE2	1:B:447:MET:C	2.40	0.43
1:B:462:LEU:HA	1:B:465:ILE:HD11	2.01	0.43
1:A:254:MET:SD	1:A:377:GLU:HG3	2.59	0.42
1:B:261:ARG:HA	1:B:261:ARG:NH1	2.15	0.42
1:A:355:SER:C	1:A:357:GLU:N	2.72	0.42
1:A:391:ASP:HA	1:A:398:ARG:CZ	2.49	0.42
1:B:272:LYS:HD3	1:B:341:HIS:CD2	2.54	0.42
1:B:320:SER:CA	1:B:392:ARG:NH2	2.81	0.42
1:B:262:MET:N	1:B:263:PRO:CD	2.82	0.42
1:A:423:ASN:HD22	1:A:424:PRO:C	2.22	0.42
1:B:452:ARG:HG3	1:B:452:ARG:NH1	2.34	0.42
2:C:1:GLU:OE1	2:C:1:GLU:HA	2.20	0.42
1:A:417:LYS:O	1:A:421:PRO:HB3	2.19	0.42
1:B:322:VAL:HG23	1:B:323:GLU:N	2.35	0.42
2:D:1:GLU:O	2:D:1:GLU:HG2	2.19	0.42
1:B:393:GLN:HG2	1:B:394:TYR:CD2	2.54	0.42
1:A:389:SER:HA	1:A:390:PRO:HD3	1.87	0.42
1:B:368:SER:OG	1:B:433:ARG:NH2	2.49	0.42
1:A:302:LEU:HD23	1:A:388:LEU:CD2	2.33	0.42
1:A:425:GLN:O	1:A:428:ALA:N	2.53	0.42
1:B:250:LEU:O	1:B:253:ILE:HG13	2.19	0.42
1:A:272:LYS:C	1:A:273:GLU:O	2.56	0.42
1:A:391:ASP:HA	1:A:398:ARG:NH1	2.34	0.42
1:A:424:PRO:CG	1:A:425:GLN:N	2.83	0.42
1:B:333:PHE:C	1:B:335:LYS:N	2.72	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:311:GLU:N	1:B:311:GLU:CD	2.73	0.42
1:A:267:THR:C	1:A:269:LYS:H	2.22	0.41
1:B:392:ARG:HH11	1:B:438:ARG:NH2	2.18	0.41
1:B:377:GLU:OE1	1:B:419:TYR:HE1	2.03	0.41
1:A:334:ASN:HD22	1:A:335:LYS:HG2	1.86	0.41
1:A:439:THR:O	1:A:442:HIS:HB3	2.19	0.41
1:B:259:LYS:HD2	4:B:81:HOH:O	2.20	0.41
1:A:287:MET:O	1:A:290:SER:N	2.53	0.41
1:B:336:LYS:HG3	1:B:338:PRO:CD	2.41	0.41
1:B:292:VAL:CG1	1:B:461:LEU:HD21	2.51	0.41
1:B:262:MET:HG3	1:B:262:MET:O	2.20	0.41
1:B:406:GLU:N	1:B:407:PRO:HD2	2.36	0.41
1:A:282:LEU:HA	1:A:285:THR:CG2	2.50	0.41
1:A:385:ILE:HD11	1:A:434:LEU:HD22	2.01	0.41
1:A:267:THR:HG22	1:A:268:ASN:N	2.36	0.41
1:A:282:LEU:C	1:A:285:THR:HG22	2.41	0.41
1:A:297:GLU:HA	1:A:300:LYS:HG2	2.03	0.41
1:B:365:PHE:CD2	1:B:440:PHE:HE1	2.39	0.41
1:A:382:LEU:HD22	1:A:434:LEU:CD1	2.51	0.41
1:B:458:PHE:CD1	1:B:468:VAL:HG11	2.56	0.41
1:A:389:SER:OG	1:A:392:ARG:NH1	2.54	0.40
1:A:423:ASN:CB	1:A:424:PRO:HA	2.51	0.40
1:A:290:SER:O	1:A:291:HIS:C	2.59	0.40
1:B:354:ILE:CG1	1:B:359:ILE:HD11	2.52	0.40
1:B:465:ILE:H	1:B:465:ILE:HG13	1.62	0.40
1:B:299:THR:CG2	1:B:387:ILE:HD13	2.43	0.40
1:B:334:ASN:OD1	1:B:370:GLY:HA3	2.22	0.40
1:B:452:ARG:NH2	1:B:453:VAL:HA	2.36	0.40
1:A:350:ARG:CD	1:A:359:ILE:HD12	2.47	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 X-ray entries followed by that with respect to entries of similar resolution.

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	227/230 (99%)	188 (83%)	26 (12%)	13 (6%)	1	1
1	B	227/230 (99%)	192 (85%)	20 (9%)	15 (7%)	1	1
2	C	10/12 (83%)	9 (90%)	0	1 (10%)	0	0
2	D	10/12 (83%)	9 (90%)	0	1 (10%)	0	0
2	E	10/12 (83%)	9 (90%)	1 (10%)	0	100	100
All	All	484/496 (98%)	407 (84%)	47 (10%)	30 (6%)	1	1

All (30) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	275	PHE
1	A	335	LYS
1	A	336	LYS
1	A	423	ASN
1	A	424	PRO
1	B	337	LEU
2	D	11	LYS
1	A	241	GLU
1	A	242	LEU
1	A	342	ALA
1	B	303	PRO
1	B	336	LYS
1	B	373	LYS
1	B	453	VAL
1	B	467	ASP
1	A	261	ARG
1	A	454	ASN
1	A	455	ASP
1	B	338	PRO
1	B	454	ASN
1	B	455	ASP
1	A	276	SER
1	B	263	PRO
1	B	339	ALA
2	C	11	LYS
1	B	424	PRO
1	A	338	PRO
1	B	264	GLN
1	B	353	GLY
1	B	332	ILE

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 X-ray entries followed by that with respect to entries of similar resolution.

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	209/210 (100%)	191 (91%)	18 (9%)	10	20
1	B	209/210 (100%)	187 (90%)	22 (10%)	7	13
2	C	10/11 (91%)	10 (100%)	0	100	100
2	D	11/11 (100%)	8 (73%)	3 (27%)	0	0
2	E	10/11 (91%)	8 (80%)	2 (20%)	1	2
All	All	449/453 (99%)	404 (90%)	45 (10%)	7	15

All (45) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	284	LEU
1	A	299	THR
1	A	306	GLN
1	A	328	ARG
1	A	341	HIS
1	A	344	LEU
1	A	351	LYS
1	A	354	ILE
1	A	371	GLU
1	A	376	GLN
1	A	385	ILE
1	A	392	ARG
1	A	406	GLU
1	A	409	LEU
1	A	423	ASN
1	A	433	ARG
1	A	438	ARG
1	A	468	VAL
1	B	261	ARG
1	B	273	GLU
1	B	278	GLU
1	B	302	LEU
1	B	303	PRO

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Mol	Chain	Res	Type
1	B	317	LEU
1	B	337	LEU
1	B	338	PRO
1	B	341	HIS
1	B	364	SER
1	B	388	LEU
1	B	405	GLN
1	B	410	ASP
1	B	415	LEU
1	B	422	GLU
1	B	423	ASN
1	B	434	LEU
1	B	438	ARG
1	B	447	MET
1	B	452	ARG
1	B	453	VAL
1	B	467	ASP
2	D	1	GLU
2	D	2	ASN
2	D	5	LEU
2	E	5	LEU
2	E	6	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	264	GLN
1	A	293	GLN
1	A	306	GLN
1	A	310	HIS
1	A	376	GLN
1	A	423	ASN
1	A	425	GLN
1	A	443	HIS
1	A	454	ASN
1	B	264	GLN
1	B	268	ASN
1	B	293	GLN
1	B	313	GLN
1	B	341	HIS
1	B	376	GLN
1	B	405	GLN

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Mol	Chain	Res	Type
1	B	423	ASN
1	B	456	HIS
2	D	2	ASN

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 monosaccharides 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	$\#|Z| > 2$
3	CHC	A	202	-	33,33,33	3.57	20 (60%)	50,52,52	1.66	12 (24%)
3	CHC	B	201	-	33,33,33	3.50	20 (60%)	50,52,52	1.55	9 (18%)

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
3	CHC	A	202	-	-	2/11/76/76	0/4/4/4

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	CHC	B	201	-	-	2/11/76/76	0/4/4/4

All (40) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	202	CHC	C10-C9	7.05	1.69	1.56
3	A	202	CHC	C6-C7	6.95	1.60	1.53
3	B	201	CHC	C6-C7	6.89	1.60	1.53
3	B	201	CHC	C10-C9	6.89	1.68	1.56
3	A	202	CHC	C10-C5	6.21	1.67	1.56
3	B	201	CHC	C18-C13	6.15	1.65	1.54
3	B	201	CHC	C4-C5	6.10	1.63	1.53
3	B	201	CHC	C10-C5	5.93	1.67	1.56
3	A	202	CHC	C4-C5	5.91	1.63	1.53
3	A	202	CHC	C18-C13	5.91	1.64	1.54
3	B	201	CHC	C4-C3	5.50	1.62	1.51
3	A	202	CHC	C4-C3	5.07	1.61	1.51
3	A	202	CHC	C8-C9	4.86	1.63	1.53
3	B	201	CHC	C8-C9	4.79	1.63	1.53
3	A	202	CHC	C20-C17	4.29	1.61	1.54
3	A	202	CHC	C13-C17	4.25	1.63	1.55
3	B	201	CHC	C8-C7	4.05	1.58	1.53
3	B	201	CHC	C20-C17	3.94	1.61	1.54
3	B	201	CHC	C13-C17	3.92	1.62	1.55
3	A	202	CHC	C21-C20	3.80	1.62	1.53
3	A	202	CHC	C8-C7	3.73	1.58	1.53
3	A	202	CHC	C2-C3	3.61	1.60	1.51
3	A	202	CHC	C6-C5	3.53	1.60	1.53
3	A	202	CHC	C8-C14	3.53	1.60	1.53
3	B	201	CHC	C1-C10	3.48	1.60	1.54
3	B	201	CHC	C21-C20	3.43	1.61	1.53
3	B	201	CHC	C2-C3	3.39	1.59	1.51
3	A	202	CHC	C1-C10	3.05	1.59	1.54
3	B	201	CHC	C8-C14	2.99	1.59	1.53
3	A	202	CHC	C15-C14	2.82	1.60	1.54
3	A	202	CHC	C16-C17	2.80	1.60	1.54
3	B	201	CHC	C16-C17	2.80	1.60	1.54
3	B	201	CHC	C6-C5	2.79	1.58	1.53
3	B	201	CHC	C12-C13	2.42	1.58	1.54
3	A	202	CHC	C12-C11	2.41	1.58	1.53
3	A	202	CHC	C12-C13	2.41	1.58	1.54
3	B	201	CHC	C15-C14	2.38	1.59	1.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	202	CHC	O7-C7	2.31	1.48	1.43
3	B	201	CHC	C12-C11	2.22	1.58	1.53
3	B	201	CHC	O7-C7	2.15	1.48	1.43

All (21) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	201	CHC	C19-C10-C1	-4.46	101.08	108.26
3	A	202	CHC	C19-C10-C1	-4.19	101.50	108.26
3	A	202	CHC	C26-C6-C7	-3.61	103.82	112.10
3	A	202	CHC	C10-C9-C8	-3.28	108.30	111.82
3	A	202	CHC	C25-C26-C6	3.18	121.43	114.24
3	B	201	CHC	C26-C6-C7	-3.06	105.08	112.10
3	B	201	CHC	C25-C26-C6	2.96	120.93	114.24
3	B	201	CHC	C16-C15-C14	-2.90	99.38	105.13
3	A	202	CHC	C16-C15-C14	-2.89	99.41	105.13
3	A	202	CHC	C21-C20-C17	-2.81	108.62	112.92
3	B	201	CHC	C21-C20-C17	-2.69	108.81	112.92
3	B	201	CHC	C10-C9-C8	-2.59	109.04	111.82
3	B	201	CHC	C4-C5-C10	-2.55	109.01	112.12
3	A	202	CHC	C13-C17-C20	-2.47	115.61	119.49
3	B	201	CHC	C26-C6-C5	-2.37	109.39	113.40
3	A	202	CHC	C22-C23-C24	2.22	118.41	112.51
3	A	202	CHC	C26-C6-C5	-2.21	109.67	113.40
3	B	201	CHC	C10-C5-C6	-2.16	110.16	112.42
3	A	202	CHC	C4-C5-C10	-2.15	109.50	112.12
3	A	202	CHC	C15-C16-C17	2.10	109.30	105.13
3	A	202	CHC	C10-C5-C6	-2.10	110.21	112.42

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	202	CHC	C22-C23-C24-OT2
3	A	202	CHC	C22-C23-C24-OT1
3	B	201	CHC	C22-C23-C24-OT1
3	B	201	CHC	C22-C23-C24-OT2

There are no ring outliers.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	201	CHC	2	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 CHC A 202

Ligand CHC B 201

Bond lengths

Bond angles

Torsions

Rings
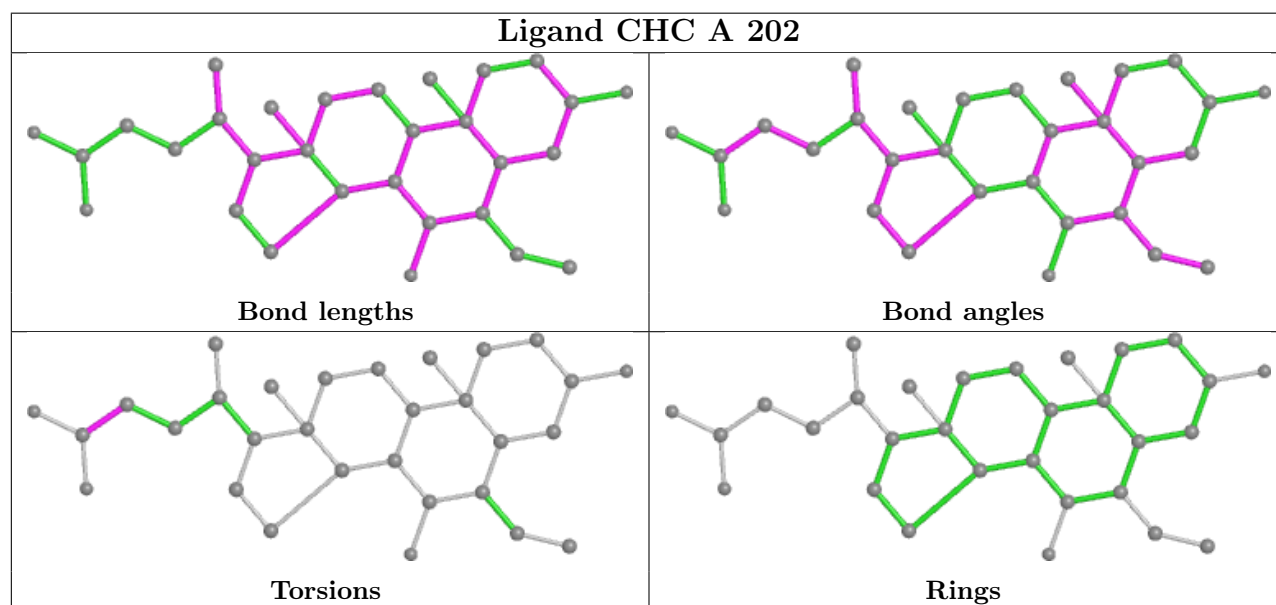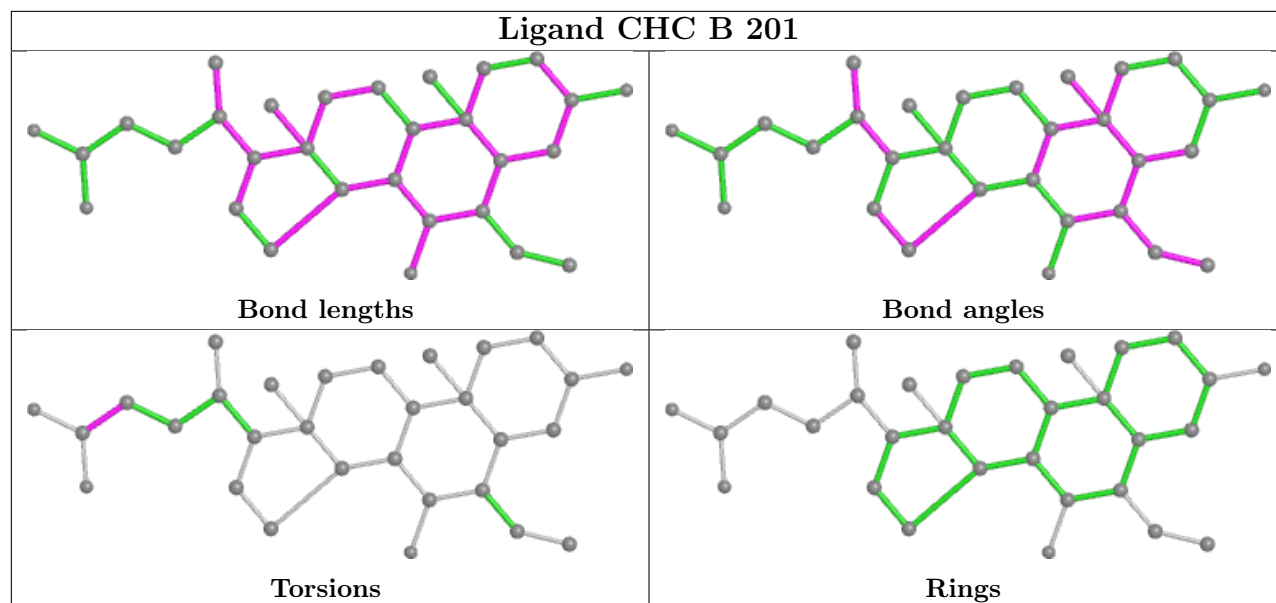
5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	229/230 (99%)	0.40	20 (8%)	10	10	24, 51, 111, 144	1 (0%)
1	B	229/230 (99%)	0.15	12 (5%)	27	29	23, 47, 89, 119	0
2	C	12/12 (100%)	-0.06	1 (8%)	11	11	37, 42, 80, 92	0
2	D	12/12 (100%)	-0.00	1 (8%)	11	11	36, 42, 62, 69	0
2	E	12/12 (100%)	0.46	2 (16%)	1	1	35, 50, 82, 92	0
All	All	494/496 (99%)	0.26	36 (7%)	15	15	23, 49, 97, 144	1 (0%)

All (36) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	340	GLY	10.1
1	A	240	ALA	9.6
1	A	335	LYS	7.5
1	B	240	ALA	6.2
1	A	339	ALA	6.0
1	B	261	ARG	5.8
1	A	341	HIS	5.4
1	A	338	PRO	4.8
1	B	455	ASP	4.8
1	A	272	LYS	4.2
1	A	336	LYS	4.2
2	E	12	ASP	4.1
1	A	260	GLN	4.1
1	A	275	PHE	3.9
1	A	419	TYR	3.9
1	A	452	ARG	3.4
1	B	454	ASN	3.3
1	B	468	VAL	3.2
1	B	339	ALA	3.1
2	C	12	ASP	3.0

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Mol	Chain	Res	Type	RSRZ
1	A	337	LEU	2.8
1	B	262	MET	2.7
2	E	1	GLU	2.7
1	B	338	PRO	2.7
1	A	449	MET	2.6
1	B	336	LYS	2.5
1	A	454	ASN	2.5
1	A	324	ALA	2.4
2	D	12	ASP	2.4
1	A	456	HIS	2.3
1	A	418	ILE	2.3
1	A	371	GLU	2.1
1	B	292	VAL	2.1
1	B	241	GLU	2.1
1	B	275	PHE	2.1
1	A	467	ASP	2.0

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

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

6.3   Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4   Ligands ⓘ

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

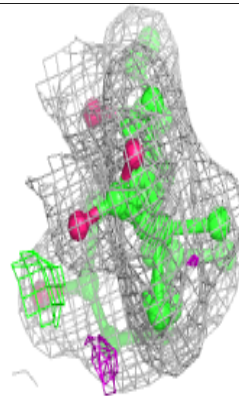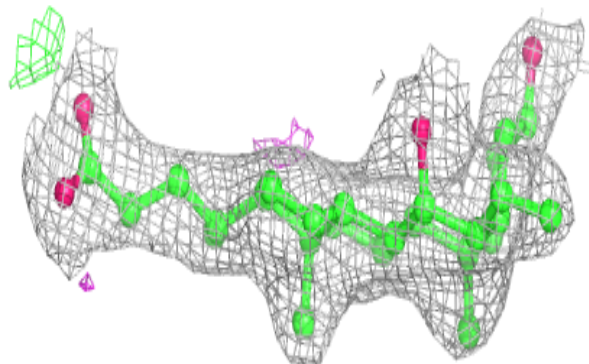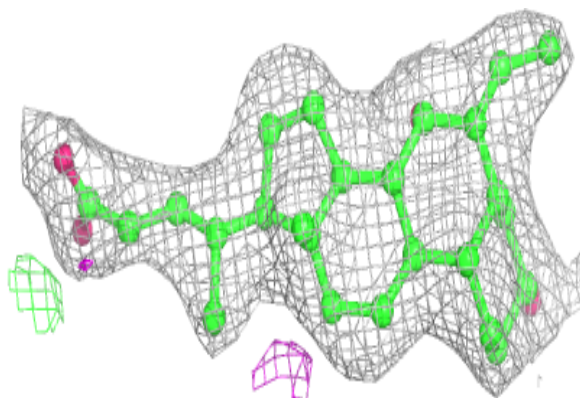| Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	CHC	A	202	30/30	0.92	0.24	35,42,48,49	0
3	CHC	B	201	30/30	0.92	0.22	29,32,52,55	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around CHC A 202:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
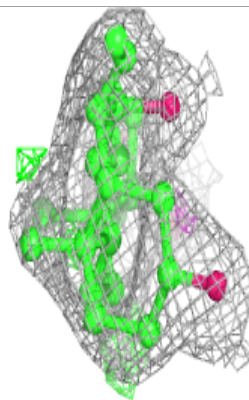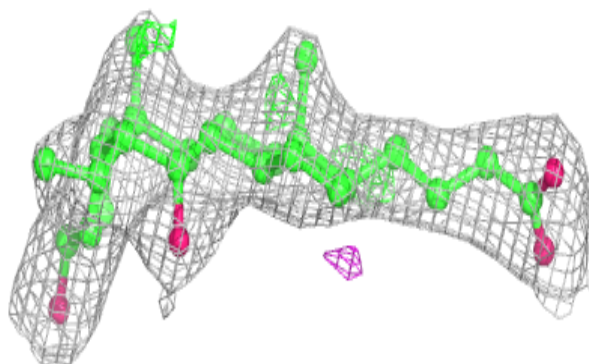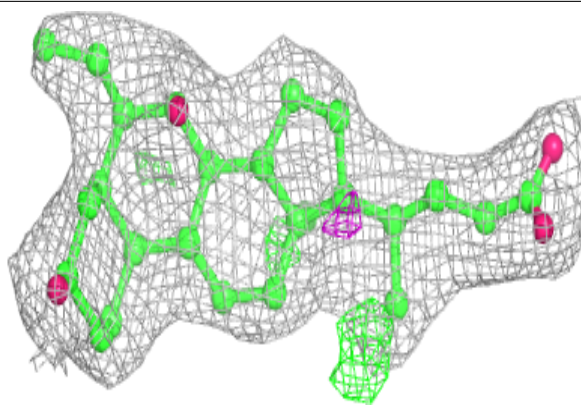
Electron density around CHC B 201:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)

6.5 Other polymers ⓘ

There are no such residues in this entry.