



Full wwPDB X-ray Structure Validation Report ⓘ

Sep 17, 2023 – 03:47 AM EDT

PDB ID : 4W2R
Title : Structure of Hs/AcPRC2 in complex with 5,8-dichloro-2-[(4-methoxy-6-methyl-2-oxo-1,2-dihydropyridin-3-yl)methyl]-7-[(R)-methoxy(oxetan-3-yl)methyl]-3,4-dihydroisoquinolin-1(2H)-one
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Deposited on : 2017-09-25
Resolution : 2.81 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)
Xtrriage (Phenix) : 1.13
EDS : 2.35.1
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) : 2.35.1

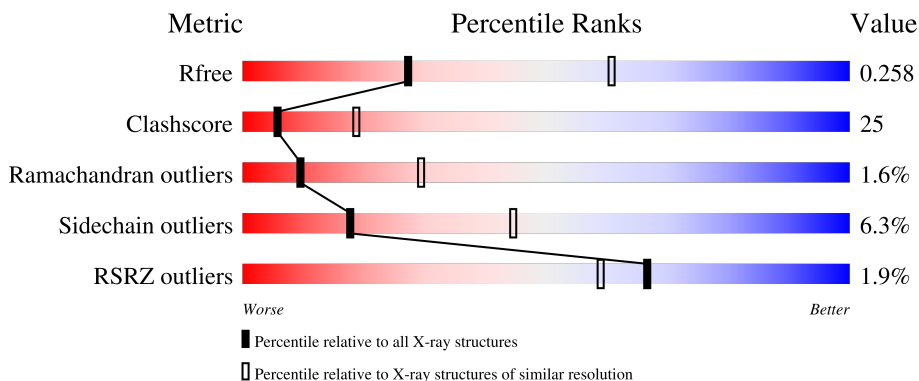
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.81 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.



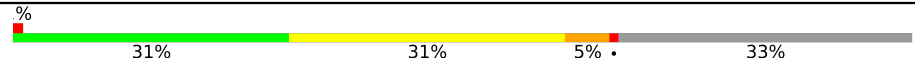
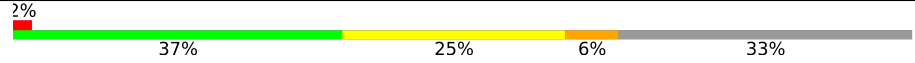
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3617 (2.84-2.80)
Clashscore	141614	4060 (2.84-2.80)
Ramachandran outliers	138981	3978 (2.84-2.80)
Sidechain outliers	138945	3980 (2.84-2.80)
RSRZ outliers	127900	3552 (2.84-2.80)

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 $\leq 5\%$. 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	643	
1	B	643	
2	E	362	
2	F	362	

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Mol	Chain	Length	Quality of chain
3	S	191	 <p>%</p> <p>31% 31% 5% 33%</p>
3	T	191	 <p>2%</p> <p>37% 25% 6% 33%</p>

2 Entry composition i

There are 5 unique types of molecules in this entry. The entry contains 15566 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 Enhancer of zeste 2 polycomb repressive complex 2 subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	463	3769	2365	678	688	38	0	0	0
1	B	465	3777	2368	679	692	38	0	0	0

There are 38 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	389	LEU	-	linker	UNP G1KPH4
A	390	GLY	-	linker	UNP G1KPH4
A	391	GLY	-	linker	UNP G1KPH4
A	392	GLY	-	linker	UNP G1KPH4
A	393	GLY	-	linker	UNP G1KPH4
A	394	SER	-	linker	UNP G1KPH4
A	395	GLY	-	linker	UNP G1KPH4
A	396	GLY	-	linker	UNP G1KPH4
A	397	GLY	-	linker	UNP G1KPH4
A	398	GLY	-	linker	UNP G1KPH4
A	399	SER	-	linker	UNP G1KPH4
A	400	GLY	-	linker	UNP G1KPH4
A	401	GLY	-	linker	UNP G1KPH4
A	402	GLY	-	linker	UNP G1KPH4
A	403	GLY	-	linker	UNP G1KPH4
A	404	SER	-	linker	UNP G1KPH4
A	405	ALA	-	linker	UNP G1KPH4
A	406	ALA	-	linker	UNP G1KPH4
A	407	ALA	-	linker	UNP G1KPH4
B	389	LEU	-	linker	UNP G1KPH4
B	390	GLY	-	linker	UNP G1KPH4
B	391	GLY	-	linker	UNP G1KPH4
B	392	GLY	-	linker	UNP G1KPH4
B	393	GLY	-	linker	UNP G1KPH4
B	394	SER	-	linker	UNP G1KPH4

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Chain	Residue	Modelled	Actual	Comment	Reference
B	395	GLY	-	linker	UNP G1KPH4
B	396	GLY	-	linker	UNP G1KPH4
B	397	GLY	-	linker	UNP G1KPH4
B	398	GLY	-	linker	UNP G1KPH4
B	399	SER	-	linker	UNP G1KPH4
B	400	GLY	-	linker	UNP G1KPH4
B	401	GLY	-	linker	UNP G1KPH4
B	402	GLY	-	linker	UNP G1KPH4
B	403	GLY	-	linker	UNP G1KPH4
B	404	SER	-	linker	UNP G1KPH4
B	405	ALA	-	linker	UNP G1KPH4
B	406	ALA	-	linker	UNP G1KPH4
B	407	ALA	-	linker	UNP G1KPH4

- Molecule 2 is a protein called Polycomb protein EED.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	E	358	Total 2898	C 1834	N 509	O 534	S 21	0	0	0
2	F	359	Total 2906	C 1840	N 510	O 535	S 21	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	66	MET	-	expression tag	UNP O75530
F	66	MET	-	expression tag	UNP O75530

- Molecule 3 is a protein called Polycomb protein SUZ12.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	S	128	Total 1070	C 675	N 185	O 198	S 12	0	0	0
3	T	128	Total 1070	C 675	N 185	O 198	S 12	0	0	0

There are 22 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
S	535	MET	-	expression tag	UNP Q15022
S	536	ASP	-	expression tag	UNP Q15022
S	537	TYR	-	expression tag	UNP Q15022

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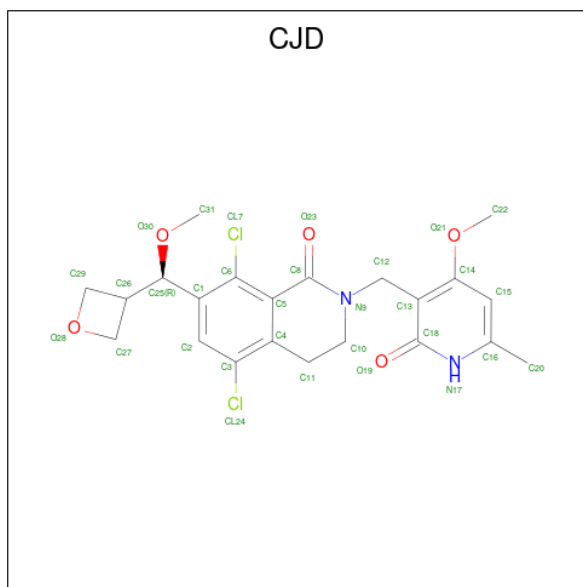
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Chain	Residue	Modelled	Actual	Comment	Reference
S	538	LYS	-	expression tag	UNP Q15022
S	539	ASP	-	expression tag	UNP Q15022
S	540	ASP	-	expression tag	UNP Q15022
S	541	ASP	-	expression tag	UNP Q15022
S	542	ASP	-	expression tag	UNP Q15022
S	543	LYS	-	expression tag	UNP Q15022
S	544	GLY	-	expression tag	UNP Q15022
S	583	ASP	SER	conflict	UNP Q15022
T	535	MET	-	expression tag	UNP Q15022
T	536	ASP	-	expression tag	UNP Q15022
T	537	TYR	-	expression tag	UNP Q15022
T	538	LYS	-	expression tag	UNP Q15022
T	539	ASP	-	expression tag	UNP Q15022
T	540	ASP	-	expression tag	UNP Q15022
T	541	ASP	-	expression tag	UNP Q15022
T	542	ASP	-	expression tag	UNP Q15022
T	543	LYS	-	expression tag	UNP Q15022
T	544	GLY	-	expression tag	UNP Q15022
T	583	ASP	SER	conflict	UNP Q15022

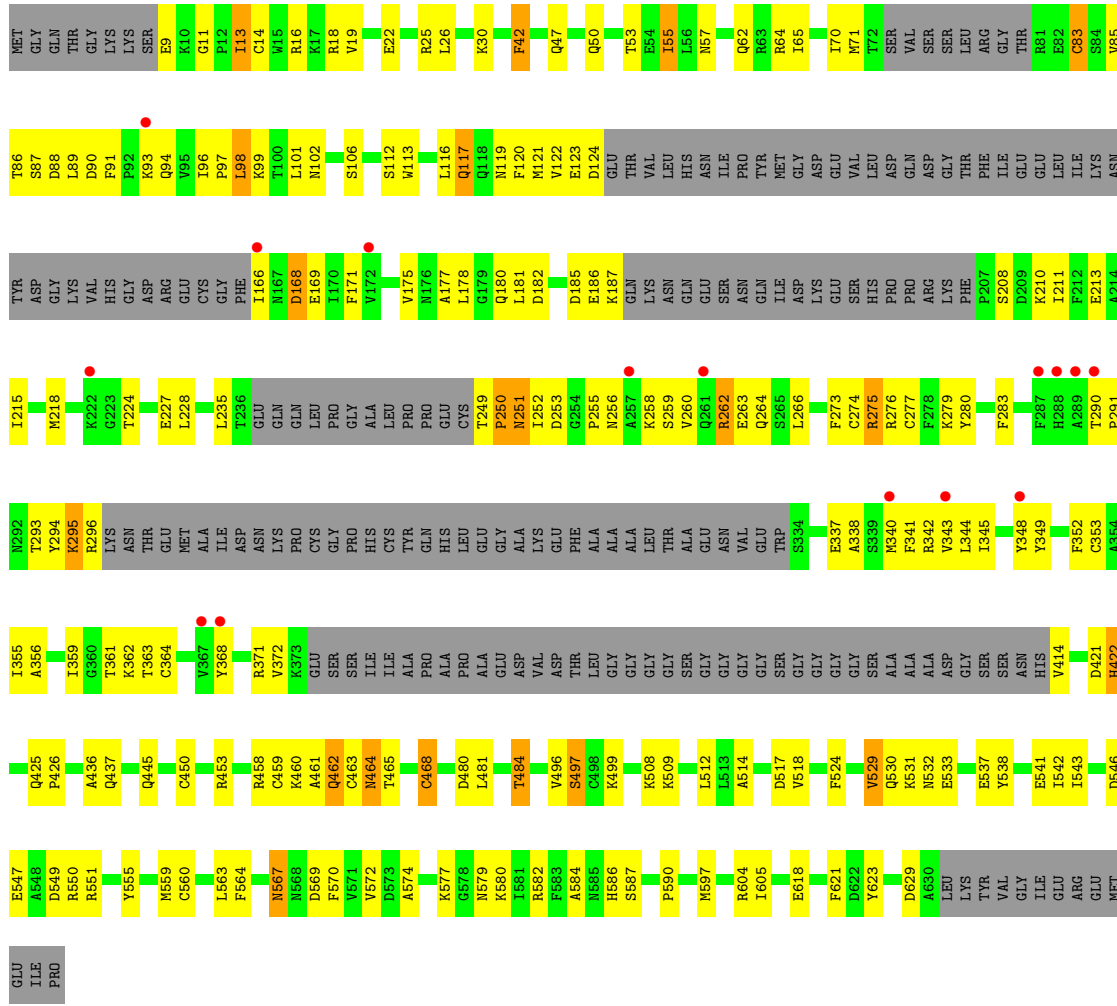
- Molecule 4 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	7	Total	Zn	0	0
			7	7		
4	B	7	Total	Zn	0	0
			7	7		

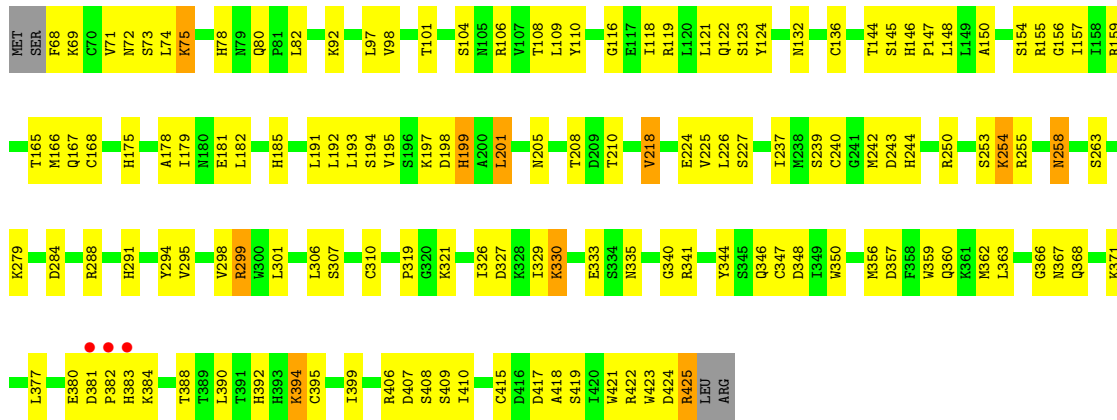
- Molecule 5 is 5,8-dichloro-2-[(4-methoxy-6-methyl-2-oxo-1,2-dihydropyridin-3-yl)methyl]-7-[(R)-methoxy(oxetan-3-yl)methyl]-3,4-dihydroisoquinolin-1(2H)-one (three-letter code: CJD) (formula: C₂₂H₂₄Cl₂N₂O₅).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
			Total	C	Cl	N			O
5	A	1	Total	C	Cl	N	O	0	0
			31	22	2	2	5		
5	B	1	Total	C	Cl	N	O	0	0
			31	22	2	2	5		

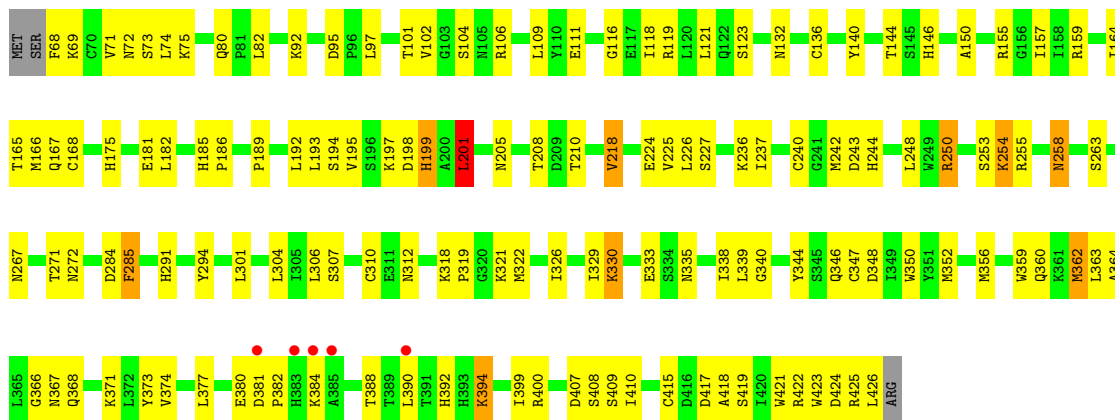


● Molecule 2: Polycomb protein EED

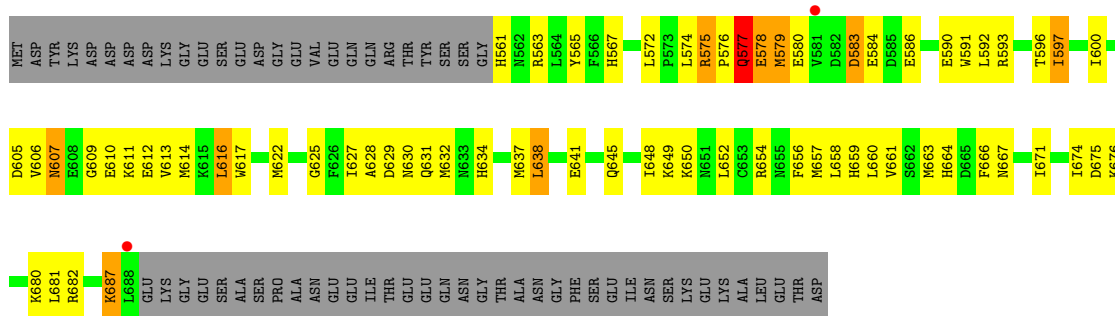
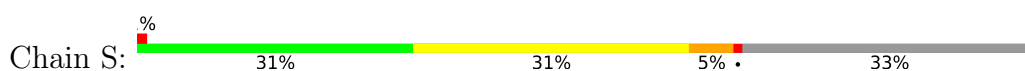


● Molecule 2: Polycomb protein EED

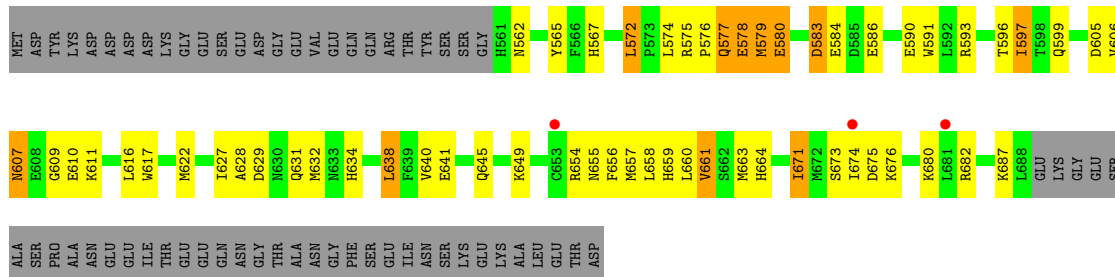




• Molecule 3: Polycomb protein SUZ12



• Molecule 3: Polycomb protein SUZ12



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	70.72Å 115.48Å 151.54Å 90.00° 102.40° 90.00°	Depositor
Resolution (Å)	148.01 – 2.81 148.00 – 2.81	Depositor EDS
% Data completeness (in resolution range)	99.8 (148.01-2.81) 99.8 (148.00-2.81)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.28 (at 2.82Å)	Xtrriage
Refinement program	CNS	Depositor
R, R_{free}	0.218 , 0.266 0.208 , 0.258	Depositor DCC
R_{free} test set	2944 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å ²)	74.6	Xtrriage
Anisotropy	0.394	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 54.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	0.020 for h,-k,-h-l	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	15566	wwPDB-VP
Average B, all atoms (Å ²)	72.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 11.37% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ 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: ZN, CJD

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	0/3850	0.52	0/5176
1	B	0.40	0/3856	0.53	0/5184
2	E	0.40	0/2972	0.57	0/4026
2	F	0.39	0/2980	0.58	1/4037 (0.0%)
3	S	0.39	0/1091	0.51	0/1464
3	T	0.40	0/1091	0.52	0/1464
All	All	0.40	0/15840	0.54	1/21351 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	2
1	B	0	1
3	T	0	1
All	All	0	4

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	201	LEU	CA-CB-CG	5.50	127.95	115.30

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	250	PRO	Peptide
1	A	559	MET	Peptide
1	B	559	MET	Peptide
3	T	577	GLN	Peptide

5.2 Too-close contacts [i](#)

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	3769	0	3657	203	0
1	B	3777	0	3673	185	0
2	E	2898	0	2812	159	0
2	F	2906	0	2823	149	0
3	S	1070	0	1052	83	0
3	T	1070	0	1052	78	0
4	A	7	0	0	0	0
4	B	7	0	0	0	0
5	A	31	0	0	0	0
5	B	31	0	0	0	0
All	All	15566	0	15069	777	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 25.

All (777) 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:E:165:THR:HG22	2:E:167:GLN:HG2	1.32	1.11
2:F:340:GLY:HA3	2:F:382:PRO:HG3	1.40	1.03
2:F:165:THR:HG22	2:F:167:GLN:HG2	1.40	1.02
2:E:340:GLY:HA3	2:E:382:PRO:HG3	1.45	0.96
1:A:96:ILE:HG12	1:A:97:PRO:HD2	1.43	0.96
1:B:458:ARG:HA	1:B:484:THR:HG21	1.47	0.94
2:F:272:ASN:HA	3:T:577:GLN:HG2	1.50	0.93
1:A:30:LYS:HE2	1:A:170:ILE:HG12	1.51	0.92
1:B:293:THR:HG22	1:B:445:GLN:NE2	1.86	0.91
1:A:293:THR:HG22	1:A:445:GLN:NE2	1.85	0.91

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:S:671:ILE:O	3:S:674:ILE:HG22	1.70	0.90
1:A:458:ARG:HA	1:A:484:THR:HG21	1.54	0.90
3:T:607:ASN:O	3:T:611:LYS:HG3	1.72	0.89
3:T:628:ALA:H	3:T:631:GLN:HE21	1.13	0.88
1:B:57:ASN:HD22	2:E:406:ARG:HH21	1.14	0.88
3:T:593:ARG:O	3:T:596:THR:HG22	1.73	0.88
2:E:326:ILE:HA	2:E:329:ILE:HD12	1.56	0.86
1:B:580:LYS:HE2	3:S:584:GLU:HG3	1.56	0.84
2:E:165:THR:CG2	2:E:167:GLN:HG2	2.07	0.84
2:E:291:HIS:HE1	2:E:307:SER:OG	1.60	0.84
2:F:326:ILE:HA	2:F:329:ILE:HD12	1.59	0.83
1:B:293:THR:HG22	1:B:445:GLN:HE21	1.42	0.83
1:A:290:THR:HB	1:A:293:THR:HG23	1.61	0.83
2:E:294:TYR:CZ	2:E:350:TRP:HB3	2.15	0.81
1:A:567:ASN:ND2	1:A:569:ASP:H	1.77	0.81
3:S:628:ALA:H	3:S:631:GLN:HE21	1.24	0.81
1:B:57:ASN:ND2	2:E:406:ARG:HH21	1.77	0.81
1:B:290:THR:HB	1:B:293:THR:HG23	1.60	0.81
3:S:682:ARG:HG2	3:S:682:ARG:HH11	1.45	0.81
1:A:567:ASN:HD22	1:A:569:ASP:H	1.29	0.80
2:E:392:HIS:CE1	2:E:394:LYS:HB2	2.16	0.80
1:A:99:LYS:HE3	2:F:166:MET:O	1.82	0.80
1:B:262:ARG:HB2	1:B:343:VAL:HA	1.63	0.80
2:E:367:ASN:HD22	2:E:371:LYS:HB2	1.46	0.80
1:A:251:ASN:HA	3:T:607:ASN:ND2	1.96	0.80
2:E:425:ARG:HH21	2:E:425:ARG:CG	1.94	0.80
1:A:355:ILE:O	1:A:359:ILE:HG13	1.83	0.79
1:B:177:ALA:O	1:B:180:GLN:HG2	1.83	0.79
2:E:330:LYS:N	2:E:330:LYS:HD3	1.96	0.79
2:E:330:LYS:HD3	2:E:330:LYS:H	1.47	0.79
1:B:96:ILE:HG12	1:B:97:PRO:HD2	1.65	0.79
1:B:280:TYR:OH	3:S:659:HIS:HD2	1.67	0.78
3:T:578:GLU:HB3	3:T:580:GLU:HG2	1.65	0.78
1:A:39:LYS:HD2	2:F:380:GLU:HB3	1.66	0.77
1:A:67:PRO:HG3	2:F:95:ASP:OD2	1.84	0.76
3:T:682:ARG:HG2	3:T:682:ARG:HH11	1.48	0.76
1:A:16:ARG:HD2	1:A:218:MET:CE	2.16	0.76
2:F:294:TYR:CZ	2:F:350:TRP:HB3	2.20	0.76
1:B:251:ASN:HA	3:S:607:ASN:ND2	2.01	0.75
2:E:330:LYS:HE2	2:E:333:GLU:OE1	1.87	0.75
3:S:607:ASN:HB2	3:S:610:GLU:HG2	1.67	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:85:VAL:HG11	2:E:74:LEU:HD23	1.69	0.75
3:S:593:ARG:O	3:S:596:THR:HG22	1.87	0.75
1:B:71:MET:HE2	2:E:123:SER:H	1.51	0.74
3:T:627:ILE:H	3:T:631:GLN:HE22	1.35	0.74
1:B:355:ILE:O	1:B:359:ILE:HG13	1.86	0.74
3:T:607:ASN:HB2	3:T:610:GLU:HG2	1.68	0.74
2:E:333:GLU:OE2	2:E:335:ASN:HB2	1.88	0.74
1:A:290:THR:HB	1:A:293:THR:CG2	2.18	0.73
2:F:197:LYS:HA	2:F:224:GLU:HG3	1.69	0.73
2:F:71:VAL:HG12	2:F:116:GLY:HA3	1.70	0.73
3:S:607:ASN:O	3:S:611:LYS:HG3	1.89	0.73
3:S:578:GLU:HG3	3:S:580:GLU:HG2	1.70	0.73
3:T:628:ALA:H	3:T:631:GLN:NE2	1.87	0.72
2:E:298:VAL:O	2:E:299:ARG:HD3	1.90	0.72
3:T:645:GLN:HE21	3:T:649:LYS:NZ	1.87	0.72
2:E:197:LYS:HA	2:E:224:GLU:HG3	1.71	0.72
1:B:290:THR:HB	1:B:293:THR:CG2	2.20	0.71
3:T:671:ILE:O	3:T:674:ILE:HG22	1.90	0.71
1:B:71:MET:HB3	1:B:96:ILE:HD11	1.70	0.71
2:F:82:LEU:HD13	2:F:101:THR:HG21	1.72	0.71
2:F:175:HIS:HE1	2:F:194:SER:OG	1.73	0.71
2:F:392:HIS:CE1	2:F:394:LYS:HB2	2.24	0.71
3:T:627:ILE:H	3:T:631:GLN:NE2	1.86	0.71
2:E:425:ARG:HH21	2:E:425:ARG:CB	2.03	0.71
1:B:30:LYS:HE2	1:B:169:GLU:OE2	1.91	0.70
2:F:330:LYS:H	2:F:330:LYS:HD3	1.56	0.70
2:F:330:LYS:HD3	2:F:330:LYS:N	2.07	0.70
1:A:275:ARG:HH11	1:A:275:ARG:HG2	1.56	0.70
1:B:11:GLY:O	1:B:14:CYS:HB3	1.92	0.70
2:E:425:ARG:HH21	2:E:425:ARG:HG2	1.55	0.69
1:B:567:ASN:ND2	1:B:570:PHE:H	1.90	0.69
1:B:57:ASN:HD22	2:E:406:ARG:NH2	1.88	0.69
2:E:208:THR:HG23	2:E:210:THR:OG1	1.92	0.69
2:E:319:PRO:HG2	2:E:329:ILE:HD13	1.74	0.69
1:A:555:TYR:HE2	1:A:563:LEU:HD11	1.58	0.69
2:E:250:ARG:HG3	2:E:284:ASP:CG	2.12	0.69
1:B:224:THR:HG22	1:B:227:GLU:HG3	1.75	0.68
1:B:425:GLN:HG2	1:B:426:PRO:HD2	1.75	0.68
1:A:262:ARG:HD2	1:A:343:VAL:HA	1.76	0.68
1:A:224:THR:HG22	1:A:227:GLU:HG3	1.75	0.68
3:S:607:ASN:HB2	3:S:610:GLU:H	1.56	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:293:THR:HG22	1:A:445:GLN:HE21	1.56	0.68
2:E:97:LEU:HD12	2:E:410:ILE:HD12	1.75	0.68
3:S:627:ILE:H	3:S:631:GLN:NE2	1.90	0.68
2:E:367:ASN:HB2	2:E:371:LYS:O	1.94	0.68
2:E:394:LYS:HB3	2:E:421:TRP:HH2	1.58	0.68
1:A:567:ASN:ND2	1:A:570:PHE:H	1.91	0.67
1:B:275:ARG:HG2	1:B:275:ARG:HH11	1.58	0.67
1:A:96:ILE:HG12	1:A:97:PRO:CD	2.21	0.67
1:B:567:ASN:HD22	1:B:567:ASN:C	1.97	0.67
2:E:71:VAL:HG12	2:E:116:GLY:HA3	1.75	0.67
2:E:175:HIS:HE1	2:E:194:SER:OG	1.76	0.67
3:S:575:ARG:HH11	3:S:575:ARG:CB	2.07	0.67
1:B:361:THR:O	1:B:362:LYS:HG2	1.94	0.67
2:E:144:THR:HG22	2:E:146:HIS:CD2	2.30	0.66
2:F:82:LEU:HD13	2:F:101:THR:CG2	2.25	0.66
2:F:253:SER:HB2	2:F:254:LYS:HE2	1.75	0.66
1:A:39:LYS:CD	2:F:380:GLU:HB3	2.24	0.66
1:A:30:LYS:O	1:A:34:ARG:HB3	1.95	0.66
1:A:39:LYS:CA	1:A:39:LYS:HE2	2.24	0.66
2:E:167:GLN:HA	2:E:167:GLN:OE1	1.95	0.66
3:S:617:TRP:HZ2	3:S:632:MET:HE1	1.60	0.66
1:A:177:ALA:O	1:A:180:GLN:HG2	1.95	0.66
1:B:524:PHE:CE1	1:B:618:GLU:HB2	2.30	0.66
3:S:659:HIS:CE1	3:S:663:MET:HE1	2.31	0.66
1:A:422:HIS:H	1:A:422:HIS:CD2	2.12	0.66
1:B:567:ASN:ND2	1:B:569:ASP:H	1.94	0.66
1:A:577:LYS:HE2	2:F:218:VAL:HG12	1.77	0.66
1:B:94:GLN:HE22	2:E:119:ARG:HA	1.60	0.65
2:F:218:VAL:HG11	3:T:591:TRP:CZ3	2.32	0.65
3:T:617:TRP:HZ2	3:T:632:MET:HE1	1.61	0.65
2:F:254:LYS:CD	2:F:254:LYS:H	2.09	0.65
3:S:628:ALA:H	3:S:631:GLN:NE2	1.94	0.65
3:T:660:LEU:HB3	3:T:674:ILE:HG13	1.78	0.65
1:A:422:HIS:H	1:A:422:HIS:HD2	1.45	0.65
2:F:140:TYR:CZ	2:F:189:PRO:HG3	2.32	0.64
2:F:250:ARG:HG3	2:F:284:ASP:CG	2.17	0.64
2:E:254:LYS:CD	2:E:254:LYS:H	2.09	0.64
1:A:171:PHE:O	1:A:175:VAL:HG23	1.96	0.64
1:B:249:THR:N	1:B:250:PRO:HD3	2.13	0.64
1:B:83:CYS:HB2	2:E:106:ARG:NH2	2.12	0.64
1:B:458:ARG:CA	1:B:484:THR:HG21	2.26	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:330:LYS:HE2	2:F:333:GLU:OE1	1.97	0.64
3:T:607:ASN:HB2	3:T:610:GLU:H	1.62	0.64
2:E:68:PHE:HA	2:E:424:ASP:O	1.97	0.64
1:A:531:LYS:HG2	1:A:532:ASN:ND2	2.13	0.63
1:A:9:GLU:N	1:A:210:LYS:HZ2	1.97	0.63
1:A:178:LEU:HD12	1:A:215:ILE:HD11	1.80	0.63
2:E:425:ARG:HG2	2:E:425:ARG:NH2	2.10	0.63
2:F:195:VAL:HG22	2:F:201:LEU:HD13	1.79	0.63
2:E:71:VAL:HG12	2:E:116:GLY:CA	2.29	0.63
1:A:64:ARG:HA	2:F:92:LYS:NZ	2.14	0.63
3:T:578:GLU:HG3	3:T:579:MET:N	2.12	0.63
3:T:578:GLU:HG3	3:T:579:MET:H	1.64	0.63
1:B:101:LEU:HD22	2:E:168:CYS:HB2	1.81	0.63
3:T:579:MET:N	3:T:579:MET:HE3	2.14	0.63
1:B:62:GLN:HE21	1:B:62:GLN:N	1.97	0.62
2:F:165:THR:CG2	2:F:167:GLN:HG2	2.23	0.62
2:F:346:GLN:O	2:F:368:GLN:HG2	1.98	0.62
2:F:144:THR:HG22	2:F:146:HIS:CD2	2.34	0.62
3:S:607:ASN:CB	3:S:610:GLU:HG2	2.27	0.62
1:A:41:MET:SD	2:F:318:LYS:HE3	2.40	0.62
1:B:275:ARG:HG2	1:B:275:ARG:NH1	2.13	0.62
2:E:195:VAL:HG22	2:E:201:LEU:HD13	1.81	0.62
1:A:67:PRO:HG3	2:F:95:ASP:CG	2.20	0.62
1:A:338:ALA:O	1:A:341:PHE:HB3	1.99	0.62
1:A:280:TYR:OH	3:T:659:HIS:HD2	1.82	0.62
2:F:425:ARG:HG2	2:F:426:LEU:H	1.64	0.62
1:B:53:THR:HG21	2:E:359:TRP:CE3	2.35	0.62
1:A:458:ARG:HA	1:A:484:THR:CG2	2.27	0.62
3:T:579:MET:H	3:T:579:MET:HE3	1.64	0.62
2:E:363:LEU:HB2	2:E:377:LEU:HD11	1.82	0.62
3:S:628:ALA:N	3:S:631:GLN:HE21	1.96	0.61
1:A:275:ARG:HG2	1:A:275:ARG:NH1	2.11	0.61
3:T:657:MET:O	3:T:661:VAL:HG12	2.00	0.61
1:A:86:THR:HG22	1:A:87:SER:N	2.14	0.61
2:F:291:HIS:HE1	2:F:307:SER:OG	1.84	0.61
2:E:69:LYS:O	2:E:71:VAL:HG23	2.00	0.61
1:A:262:ARG:HB2	1:A:343:VAL:HA	1.81	0.61
1:B:280:TYR:OH	3:S:659:HIS:CD2	2.53	0.61
2:F:68:PHE:HB2	2:F:390:LEU:HD11	1.83	0.61
1:A:422:HIS:CD2	1:A:422:HIS:N	2.69	0.61
1:A:512:LEU:O	1:A:523:ILE:HD12	2.01	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:118:ILE:HD11	2:F:422:ARG:HB2	1.83	0.60
2:F:333:GLU:OE2	2:F:335:ASN:HB2	2.01	0.60
1:A:39:LYS:CE	2:F:380:GLU:HB3	2.32	0.60
1:B:99:LYS:HE3	2:E:166:MET:O	2.01	0.60
2:F:254:LYS:H	2:F:254:LYS:HD3	1.66	0.60
3:T:628:ALA:N	3:T:631:GLN:HE21	1.94	0.60
3:T:606:VAL:CG1	3:T:610:GLU:HG3	2.32	0.60
1:B:89:LEU:HD22	2:E:72:ASN:HA	1.84	0.60
3:S:660:LEU:HB3	3:S:674:ILE:HG13	1.83	0.60
1:A:33:ARG:HG2	1:A:33:ARG:O	2.00	0.60
1:A:224:THR:O	1:A:228:LEU:HG	2.02	0.60
1:B:459:CYS:SG	1:B:468:CYS:HB2	2.42	0.60
1:A:84:SER:HB3	1:A:95:VAL:HG22	1.83	0.60
1:A:251:ASN:OD1	1:A:252:ILE:N	2.35	0.60
1:B:42:PHE:HD2	2:E:380:GLU:O	1.85	0.60
3:S:627:ILE:H	3:S:631:GLN:HE22	1.50	0.60
1:A:94:GLN:HE22	2:F:119:ARG:HA	1.68	0.59
1:A:290:THR:HG23	1:A:421:ASP:OD1	2.01	0.59
3:T:575:ARG:HB2	3:T:576:PRO:CD	2.32	0.59
2:F:415:CYS:HB2	2:F:417:ASP:OD1	2.03	0.59
3:T:676:LYS:O	3:T:680:LYS:HG2	2.02	0.59
1:A:567:ASN:HD22	1:A:567:ASN:C	2.06	0.59
1:B:555:TYR:HE2	1:B:563:LEU:HD11	1.68	0.59
2:F:319:PRO:HG2	2:F:329:ILE:HD13	1.85	0.59
1:A:16:ARG:HD2	1:A:218:MET:HE3	1.84	0.59
1:B:96:ILE:CG1	1:B:97:PRO:HD2	2.32	0.59
2:F:193:LEU:HD22	2:F:237:ILE:HD13	1.84	0.59
2:F:367:ASN:HB2	2:F:371:LYS:O	2.03	0.59
2:E:181:GLU:HG3	2:E:182:LEU:H	1.68	0.59
2:F:250:ARG:HG3	2:F:284:ASP:OD2	2.02	0.59
2:F:301:LEU:HD13	2:F:356:MET:CE	2.32	0.59
3:S:579:MET:HE2	3:S:579:MET:N	2.18	0.59
2:E:82:LEU:HD22	2:E:101:THR:CG2	2.33	0.58
2:F:226:LEU:HD11	2:F:242:MET:HG2	1.85	0.58
2:E:253:SER:HB2	2:E:254:LYS:HE2	1.85	0.58
1:A:537:GLU:OE1	1:A:604:ARG:HD2	2.03	0.58
1:A:177:ALA:O	1:A:181:LEU:HD13	2.03	0.58
1:B:538:TYR:HH	1:B:564:PHE:HE2	1.51	0.58
2:E:155:ARG:O	2:E:157:ILE:HG13	2.04	0.58
1:A:83:CYS:HB2	2:F:106:ARG:HH22	1.68	0.58
1:A:496:VAL:HG12	1:A:497:SER:N	2.19	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:193:LEU:HD22	2:E:237:ILE:HD13	1.86	0.58
1:A:464:ASN:ND2	1:A:464:ASN:H	2.02	0.58
1:B:338:ALA:O	1:B:341:PHE:HB3	2.03	0.58
3:S:612:GLU:OE2	3:S:650:LYS:HE2	2.02	0.58
3:T:645:GLN:HE21	3:T:649:LYS:HZ1	1.50	0.58
2:E:250:ARG:HG3	2:E:284:ASP:OD2	2.04	0.58
2:F:182:LEU:HG	2:F:192:LEU:HD11	1.84	0.58
2:F:208:THR:HG23	2:F:210:THR:OG1	2.03	0.58
1:A:255:PRO:HG2	1:A:256:ASN:OD1	2.03	0.58
1:A:565:ASN:ND2	1:A:629:ASP:HB2	2.18	0.58
2:F:167:GLN:OE1	2:F:167:GLN:HA	2.04	0.58
1:B:64:ARG:CB	2:E:92:LYS:HZ1	2.17	0.58
1:A:10:LYS:HZ1	1:A:18:ARG:NH2	2.02	0.57
1:A:572:VAL:HG11	1:A:605:ILE:HD12	1.85	0.57
2:F:294:TYR:OH	2:F:310:CYS:HB3	2.04	0.57
1:A:263:GLU:O	1:A:263:GLU:HG3	2.04	0.57
3:T:617:TRP:HZ2	3:T:632:MET:CE	2.17	0.57
1:B:290:THR:HG23	1:B:291:PRO:HD2	1.86	0.57
1:A:524:PHE:CE1	1:A:618:GLU:HB2	2.39	0.57
2:E:71:VAL:HG12	2:E:71:VAL:O	2.05	0.57
1:A:15:TRP:O	1:A:19:VAL:HG23	2.04	0.57
1:A:464:ASN:H	1:A:464:ASN:HD22	1.52	0.57
2:F:205:ASN:CG	2:F:208:THR:HG22	2.25	0.57
1:A:290:THR:CB	1:A:293:THR:HG23	2.33	0.57
2:F:68:PHE:HA	2:F:424:ASP:O	2.04	0.57
1:A:345:ILE:O	1:A:349:TYR:HA	2.04	0.56
1:B:450:CYS:HB3	1:B:453:ARG:HG3	1.86	0.56
3:T:567:HIS:NE2	3:T:574:LEU:HD13	2.20	0.56
3:T:664:HIS:CE1	3:T:671:ILE:HG12	2.40	0.56
1:B:259:SER:OG	1:B:342:ARG:NH2	2.37	0.56
1:B:422:HIS:CD2	1:B:422:HIS:H	2.23	0.56
2:E:425:ARG:HH21	2:E:425:ARG:HB3	1.70	0.56
1:A:30:LYS:HZ1	1:A:173:GLU:CD	2.09	0.56
1:A:579:ASN:O	1:A:582:ARG:HG2	2.05	0.56
1:B:537:GLU:OE1	1:B:604:ARG:HD2	2.06	0.56
1:A:531:LYS:HG2	1:A:532:ASN:HD22	1.71	0.56
1:A:10:LYS:HZ2	1:A:18:ARG:CZ	2.19	0.56
1:B:71:MET:CE	2:E:123:SER:H	2.18	0.56
1:B:168:ASP:HB3	1:B:235:LEU:CD1	2.36	0.56
1:B:251:ASN:OD1	1:B:252:ILE:N	2.38	0.56
2:F:195:VAL:HG13	2:F:225:VAL:CG1	2.36	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:62:GLN:N	1:B:62:GLN:NE2	2.53	0.56
1:B:590:PRO:HB3	1:B:621:PHE:HA	1.88	0.56
2:F:136:CYS:HA	2:F:150:ALA:O	2.05	0.56
2:E:415:CYS:HB2	2:E:417:ASP:OD1	2.06	0.56
2:E:205:ASN:CG	2:E:208:THR:HG22	2.26	0.56
2:F:301:LEU:HD13	2:F:356:MET:HE2	1.87	0.55
1:B:96:ILE:HG12	1:B:97:PRO:CD	2.33	0.55
1:B:579:ASN:O	1:B:582:ARG:HG2	2.06	0.55
2:E:201:LEU:N	2:E:201:LEU:HD23	2.20	0.55
2:E:254:LYS:H	2:E:254:LYS:HD3	1.70	0.55
3:S:575:ARG:HH11	3:S:575:ARG:HB3	1.70	0.55
1:A:85:VAL:HG11	2:F:74:LEU:HD23	1.86	0.55
1:B:86:THR:HG22	1:B:87:SER:N	2.20	0.55
1:A:541:GLU:OE1	1:A:551:ARG:NH2	2.39	0.55
2:F:72:ASN:OD1	2:F:73:SER:N	2.39	0.55
3:T:656:PHE:O	3:T:659:HIS:HB3	2.07	0.55
1:A:39:LYS:HE3	2:F:380:GLU:HB3	1.87	0.55
1:A:58:GLN:HA	1:A:61:LYS:HG3	1.89	0.55
2:F:321:LYS:HE2	2:F:335:ASN:ND2	2.22	0.55
1:A:368:TYR:O	1:A:372:VAL:HG23	2.06	0.55
3:T:575:ARG:HB2	3:T:576:PRO:HD2	1.88	0.55
3:S:656:PHE:O	3:S:659:HIS:HB3	2.06	0.55
1:A:16:ARG:HD2	1:A:218:MET:HE1	1.88	0.55
2:E:390:LEU:N	2:E:390:LEU:HD22	2.22	0.55
2:F:367:ASN:HD22	2:F:371:LYS:HB2	1.71	0.55
1:B:422:HIS:CD2	1:B:422:HIS:N	2.75	0.55
1:A:10:LYS:NZ	1:A:18:ARG:NH2	2.55	0.54
1:A:249:THR:N	1:A:250:PRO:HD3	2.20	0.54
1:A:363:THR:O	1:A:364:CYS:C	2.46	0.54
1:B:340:MET:HG3	1:B:344:LEU:HD12	1.89	0.54
2:F:227:SER:HB3	2:F:240:CYS:SG	2.48	0.54
1:A:371:ARG:HH11	1:A:371:ARG:HG2	1.73	0.54
1:A:590:PRO:HB3	1:A:621:PHE:HA	1.89	0.54
2:E:254:LYS:H	2:E:254:LYS:CE	2.21	0.54
1:B:64:ARG:HB3	2:E:92:LYS:HZ1	1.72	0.54
2:F:301:LEU:HA	2:F:360:GLN:HE22	1.72	0.54
2:E:68:PHE:HB2	2:E:390:LEU:HD11	1.88	0.54
2:F:272:ASN:O	3:T:577:GLN:HB3	2.08	0.54
1:A:182:ASP:O	1:A:185:ASP:HB2	2.07	0.54
1:A:210:LYS:O	1:A:213:GLU:HG2	2.08	0.54
2:F:236:LYS:HD2	2:F:248:LEU:HD11	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:344:TYR:HE1	2:F:347:CYS:HB3	1.73	0.54
2:F:425:ARG:O	2:F:426:LEU:HB3	2.07	0.54
1:A:509:LYS:HE2	1:A:533:GLU:OE2	2.06	0.54
1:B:70:ILE:HG13	1:B:71:MET:N	2.21	0.54
2:E:254:LYS:HE2	2:E:254:LYS:N	2.23	0.54
3:S:659:HIS:CE1	3:S:663:MET:CE	2.91	0.54
1:A:450:CYS:HB3	1:A:453:ARG:HG3	1.90	0.54
1:B:462:GLN:O	1:B:463:CYS:HB2	2.06	0.54
2:F:198:ASP:O	2:F:199:HIS:HB2	2.08	0.54
2:F:394:LYS:HB3	2:F:421:TRP:HH2	1.72	0.54
3:S:648:ILE:HG13	3:S:681:LEU:HD11	1.90	0.54
3:S:682:ARG:HG2	3:S:682:ARG:NH1	2.20	0.54
2:E:319:PRO:HG2	2:E:329:ILE:CD1	2.38	0.54
3:S:567:HIS:HD2	3:S:583:ASP:OD1	1.90	0.54
1:A:96:ILE:CG1	1:A:97:PRO:HD2	2.29	0.53
1:B:290:THR:CB	1:B:293:THR:HG23	2.36	0.53
2:E:224:GLU:HB3	2:E:242:MET:HG3	1.90	0.53
2:E:226:LEU:HD11	2:E:242:MET:HG2	1.89	0.53
1:B:480:ASP:O	1:B:481:LEU:HD23	2.08	0.53
2:E:136:CYS:HA	2:E:150:ALA:O	2.08	0.53
2:E:198:ASP:O	2:E:199:HIS:HB2	2.08	0.53
3:S:676:LYS:O	3:S:680:LYS:HG2	2.09	0.53
1:A:89:LEU:HD22	2:F:72:ASN:HA	1.90	0.53
1:B:47:GLN:HE21	1:B:50:GLN:NE2	2.07	0.53
1:B:277:CYS:O	1:B:279:LYS:HE2	2.08	0.53
3:T:607:ASN:CB	3:T:610:GLU:HG2	2.37	0.53
2:E:294:TYR:OH	2:E:310:CYS:HB3	2.08	0.53
3:T:593:ARG:HG2	3:T:622:MET:CE	2.38	0.53
3:T:682:ARG:HH11	3:T:682:ARG:CG	2.21	0.53
1:A:547:GLU:HG3	1:A:551:ARG:HD2	1.89	0.53
2:F:155:ARG:O	2:F:157:ILE:HG13	2.08	0.53
1:A:567:ASN:HD22	1:A:569:ASP:N	2.01	0.53
1:B:514:ALA:HB3	1:B:524:PHE:CE2	2.43	0.53
2:E:195:VAL:HG13	2:E:225:VAL:CG1	2.38	0.53
2:F:330:LYS:N	2:F:330:LYS:CD	2.71	0.53
1:A:39:LYS:HE2	1:A:39:LYS:HA	1.88	0.53
1:A:354:ALA:HA	1:A:357:ARG:NH1	2.24	0.53
1:B:124:ASP:HB3	1:B:550:ARG:HH21	1.74	0.53
1:B:517:ASP:OD2	3:S:563:ARG:NH2	2.42	0.53
3:S:666:PHE:O	3:S:667:ASN:HB2	2.08	0.53
1:B:363:THR:O	1:B:364:CYS:C	2.46	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:69:LYS:O	2:F:71:VAL:HG23	2.09	0.53
1:B:572:VAL:HG11	1:B:605:ILE:CD1	2.39	0.53
2:F:208:THR:HG21	2:F:263:SER:O	2.09	0.53
2:F:254:LYS:O	2:F:258:ASN:HB2	2.08	0.53
1:A:119:ASN:HD22	1:A:542:ILE:HD11	1.73	0.52
1:A:345:ILE:HG22	1:A:355:ILE:CD1	2.39	0.52
1:A:458:ARG:CA	1:A:484:THR:HG21	2.33	0.52
2:E:108:THR:C	2:E:109:LEU:HD12	2.29	0.52
2:E:195:VAL:HG13	2:E:225:VAL:HB	1.91	0.52
1:B:210:LYS:O	1:B:213:GLU:HG2	2.09	0.52
2:E:154:SER:HA	2:E:178:ALA:CB	2.38	0.52
2:E:197:LYS:HG3	2:E:224:GLU:CD	2.29	0.52
3:S:578:GLU:CG	3:S:580:GLU:HG2	2.39	0.52
3:S:645:GLN:HE21	3:S:649:LYS:NZ	2.08	0.52
1:B:42:PHE:CD2	2:E:380:GLU:O	2.62	0.52
1:B:119:ASN:HD22	1:B:542:ILE:HD11	1.75	0.52
1:B:368:TYR:O	1:B:372:VAL:HG23	2.09	0.52
2:E:394:LYS:HB3	2:E:421:TRP:CH2	2.41	0.52
1:A:83:CYS:HB2	2:F:106:ARG:NH2	2.24	0.52
2:F:92:LYS:HZ3	2:F:92:LYS:HB2	1.75	0.52
3:T:658:LEU:HA	3:T:661:VAL:CG1	2.40	0.52
1:B:458:ARG:HA	1:B:484:THR:CG2	2.30	0.52
1:B:224:THR:O	1:B:228:LEU:HG	2.10	0.52
2:E:301:LEU:HA	2:E:360:GLN:HE22	1.75	0.52
2:F:253:SER:HB2	2:F:254:LYS:CE	2.39	0.52
1:B:371:ARG:HG2	1:B:371:ARG:HH11	1.74	0.52
2:F:80:GLN:HG3	2:F:104:SER:HB2	1.92	0.52
1:B:171:PHE:O	1:B:175:VAL:HG23	2.09	0.51
1:B:574:ALA:O	1:B:582:ARG:NH1	2.42	0.51
1:B:547:GLU:HG3	1:B:551:ARG:HD2	1.93	0.51
1:B:509:LYS:HE2	1:B:533:GLU:OE2	2.10	0.51
1:B:224:THR:CG2	1:B:227:GLU:HG3	2.39	0.51
2:F:407:ASP:OD1	2:F:409:SER:HB3	2.11	0.51
3:T:596:THR:HG23	3:T:597:ILE:N	2.25	0.51
2:E:321:LYS:HE2	2:E:335:ASN:ND2	2.26	0.51
1:A:541:GLU:O	1:A:572:VAL:HA	2.11	0.51
1:B:531:LYS:HG2	1:B:532:ASN:ND2	2.26	0.51
2:E:104:SER:O	2:E:132:ASN:HA	2.10	0.51
2:E:330:LYS:N	2:E:330:LYS:CD	2.67	0.51
2:F:201:LEU:HD23	2:F:201:LEU:N	2.25	0.51
1:A:340:MET:HG3	1:A:344:LEU:HD12	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:572:VAL:HG11	1:A:605:ILE:CD1	2.40	0.51
1:A:87:SER:CB	1:A:91:PHE:HB2	2.41	0.51
2:E:346:GLN:O	2:E:368:GLN:HG2	2.11	0.51
3:S:657:MET:O	3:S:661:VAL:HG12	2.11	0.51
3:T:607:ASN:HB3	3:T:609:GLY:H	1.76	0.51
2:F:92:LYS:NZ	2:F:92:LYS:HB2	2.25	0.50
2:F:164:ILE:HG22	2:F:164:ILE:O	2.10	0.50
3:S:682:ARG:HH11	3:S:682:ARG:CG	2.20	0.50
3:T:593:ARG:O	3:T:597:ILE:HG23	2.11	0.50
1:A:34:ARG:NH2	2:F:338:ILE:O	2.45	0.50
1:B:224:THR:HG23	1:B:227:GLU:H	1.76	0.50
1:A:350:ASP:O	1:A:352:PHE:CD2	2.64	0.50
1:B:572:VAL:HG11	1:B:605:ILE:HD12	1.93	0.50
1:B:291:PRO:HA	1:B:294:TYR:CZ	2.46	0.50
1:B:464:ASN:H	1:B:464:ASN:ND2	2.09	0.50
1:B:168:ASP:HB3	1:B:235:LEU:HD11	1.94	0.50
2:E:82:LEU:HD13	2:E:101:THR:HG21	1.94	0.50
2:E:417:ASP:O	2:E:418:ALA:HB3	2.12	0.50
3:S:654:ARG:O	3:S:658:LEU:HD13	2.12	0.50
2:F:272:ASN:HA	3:T:577:GLN:CG	2.34	0.50
2:E:82:LEU:HD13	2:E:101:THR:CG2	2.42	0.50
3:S:577:GLN:O	3:S:578:GLU:HB3	2.12	0.50
1:B:263:GLU:HG3	1:B:263:GLU:O	2.12	0.50
2:E:253:SER:HB2	2:E:254:LYS:CE	2.42	0.50
3:S:610:GLU:O	3:S:614:MET:HG3	2.12	0.50
2:E:154:SER:HA	2:E:178:ALA:HB1	1.93	0.50
1:A:30:LYS:HD2	1:A:170:ILE:HD11	1.94	0.49
1:A:262:ARG:HG3	1:A:263:GLU:N	2.26	0.49
1:A:555:TYR:CE2	1:A:563:LEU:HD11	2.43	0.49
3:S:660:LEU:HD12	3:S:660:LEU:H	1.77	0.49
3:S:596:THR:O	3:S:600:ILE:HG12	2.12	0.49
1:B:178:LEU:HD13	1:B:211:ILE:HG23	1.93	0.49
2:E:74:LEU:O	2:E:419:SER:HA	2.12	0.49
2:F:71:VAL:HG12	2:F:116:GLY:CA	2.39	0.49
2:F:218:VAL:HG11	3:T:591:TRP:CE3	2.47	0.49
1:A:30:LYS:HG2	1:A:33:ARG:NH1	2.27	0.49
1:A:341:PHE:O	1:A:345:ILE:HG23	2.13	0.49
1:B:496:VAL:HG12	1:B:497:SER:N	2.27	0.49
1:B:577:LYS:HE2	2:E:218:VAL:HG12	1.94	0.49
2:E:301:LEU:HD13	2:E:356:MET:HE2	1.95	0.49
2:F:364:ALA:HA	2:F:373:TYR:O	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:567:ASN:HD21	1:A:570:PHE:H	1.61	0.49
1:B:117:GLN:CD	1:B:508:LYS:HZ3	2.16	0.49
3:S:637:MET:O	3:S:641:GLU:HG3	2.12	0.49
1:A:274:CYS:SG	1:A:276:ARG:HB2	2.52	0.49
1:A:353:CYS:O	1:A:356:ALA:HB3	2.12	0.49
1:A:554:VAL:HA	1:A:557:LYS:HE2	1.94	0.49
1:A:275:ARG:NH1	1:A:275:ARG:O	2.46	0.49
1:B:255:PRO:HG2	1:B:256:ASN:OD1	2.12	0.49
2:E:71:VAL:O	2:E:72:ASN:HB2	2.12	0.49
3:S:660:LEU:HD12	3:S:660:LEU:N	2.28	0.49
1:A:425:GLN:HE22	1:B:102:ASN:HB3	1.78	0.48
3:T:682:ARG:HG2	3:T:682:ARG:NH1	2.23	0.48
2:E:291:HIS:CE1	2:E:307:SER:OG	2.52	0.48
1:A:41:MET:CE	2:F:322:MET:SD	3.02	0.48
1:B:178:LEU:HD12	1:B:215:ILE:HD11	1.95	0.48
1:A:365:ARG:O	1:A:369:GLU:HG3	2.14	0.48
2:E:254:LYS:O	2:E:258:ASN:HB2	2.14	0.48
2:F:195:VAL:HG13	2:F:225:VAL:HB	1.95	0.48
1:A:122:VAL:HG22	1:A:543:ILE:HG22	1.96	0.48
1:B:22:GLU:O	1:B:26:LEU:HD23	2.13	0.48
2:F:407:ASP:O	2:F:408:SER:CB	2.61	0.48
1:A:586:HIS:CG	1:A:587:SER:N	2.82	0.48
2:F:321:LYS:HE2	2:F:335:ASN:HD21	1.77	0.48
1:B:530:GLN:O	1:B:531:LYS:C	2.52	0.48
2:E:301:LEU:HD13	2:E:356:MET:CE	2.44	0.48
2:E:306:LEU:HD13	2:E:363:LEU:CD1	2.43	0.48
3:S:617:TRP:HZ2	3:S:632:MET:CE	2.25	0.48
3:T:617:TRP:CZ2	3:T:663:MET:HE1	2.49	0.48
1:B:253:ASP:OD1	3:S:654:ARG:HB2	2.14	0.48
2:E:253:SER:HB2	2:E:254:LYS:NZ	2.29	0.48
2:F:381:ASP:HB3	2:F:382:PRO:HD2	1.96	0.48
3:T:593:ARG:HA	3:T:622:MET:HE1	1.96	0.48
3:T:655:ASN:HA	3:T:658:LEU:HD13	1.95	0.48
1:B:71:MET:CB	1:B:96:ILE:HD11	2.42	0.47
1:B:579:ASN:OD1	1:B:579:ASN:N	2.45	0.47
2:E:82:LEU:HD22	2:E:101:THR:HG22	1.95	0.47
2:E:121:LEU:O	2:E:122:GLN:HG2	2.14	0.47
2:F:363:LEU:HD23	2:F:364:ALA:N	2.29	0.47
1:A:101:LEU:HD22	2:F:168:CYS:HB2	1.96	0.47
1:B:584:ALA:O	1:B:623:TYR:OH	2.31	0.47
2:F:97:LEU:HD12	2:F:410:ILE:HD12	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:109:LEU:HD12	2:E:109:LEU:N	2.29	0.47
3:S:656:PHE:O	3:S:660:LEU:HD12	2.13	0.47
1:B:359:ILE:O	1:B:359:ILE:HG22	2.15	0.47
3:T:645:GLN:HE21	3:T:649:LYS:HZ3	1.60	0.47
3:T:661:VAL:HA	3:T:674:ILE:HD11	1.96	0.47
1:A:574:ALA:O	1:A:582:ARG:NH1	2.43	0.47
2:F:205:ASN:OD1	2:F:208:THR:HG22	2.14	0.47
2:F:285:PHE:CE2	2:F:319:PRO:HB3	2.50	0.47
3:S:664:HIS:CE1	3:S:671:ILE:HG12	2.50	0.47
1:A:41:MET:HE2	2:F:322:MET:SD	2.55	0.47
1:B:18:ARG:HD3	1:B:181:LEU:HD23	1.97	0.47
1:B:26:LEU:O	1:B:30:LYS:HG3	2.15	0.47
1:B:273:PHE:HB2	1:B:280:TYR:CE1	2.50	0.47
2:F:71:VAL:HG12	2:F:71:VAL:O	2.14	0.47
2:F:111:GLU:HB2	2:F:121:LEU:HD11	1.96	0.47
3:S:656:PHE:CZ	3:S:660:LEU:HD11	2.50	0.47
3:T:606:VAL:HG13	3:T:610:GLU:HG3	1.97	0.47
1:B:296:ARG:HD2	3:S:664:HIS:O	2.15	0.47
1:A:425:GLN:HE22	1:B:102:ASN:CB	2.27	0.46
2:F:195:VAL:CG1	2:F:225:VAL:HG12	2.45	0.46
1:A:34:ARG:O	1:A:34:ARG:HG3	2.12	0.46
3:S:607:ASN:HB3	3:S:609:GLY:H	1.80	0.46
1:A:58:GLN:O	1:A:62:GLN:HG2	2.15	0.46
1:A:70:ILE:CG1	1:A:71:MET:N	2.78	0.46
1:A:538:TYR:HH	1:A:564:PHE:HE2	1.64	0.46
1:B:83:CYS:HB2	2:E:106:ARG:HH22	1.80	0.46
1:B:85:VAL:HG13	2:E:75:LYS:O	2.15	0.46
1:B:345:ILE:O	1:B:349:TYR:HA	2.16	0.46
1:B:567:ASN:HD21	1:B:570:PHE:H	1.60	0.46
2:E:218:VAL:HG11	3:S:591:TRP:CZ3	2.51	0.46
3:S:606:VAL:CG1	3:S:610:GLU:HG3	2.46	0.46
3:S:612:GLU:OE1	3:S:612:GLU:HA	2.15	0.46
1:A:180:GLN:O	1:A:184:ARG:HG3	2.15	0.46
1:A:211:ILE:O	1:A:215:ILE:HG13	2.15	0.46
1:B:119:ASN:ND2	1:B:542:ILE:HD11	2.30	0.46
1:B:352:PHE:HA	1:B:355:ILE:HB	1.98	0.46
2:E:144:THR:HG22	2:E:146:HIS:NE2	2.29	0.46
2:F:198:ASP:O	2:F:199:HIS:CB	2.64	0.46
2:F:390:LEU:HB3	2:F:423:TRP:CH2	2.50	0.46
3:T:606:VAL:HG12	3:T:610:GLU:HG3	1.97	0.46
2:F:181:GLU:HG3	2:F:182:LEU:H	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:9:GLU:O	1:A:10:LYS:HB2	2.15	0.46
1:A:46:ARG:HG3	1:A:46:ARG:HH11	1.79	0.46
1:A:348:TYR:O	1:A:349:TYR:HB2	2.16	0.46
1:B:541:GLU:OE1	1:B:551:ARG:NH2	2.49	0.46
2:E:395:CYS:HA	2:E:421:TRP:CZ2	2.50	0.46
2:F:392:HIS:HE1	2:F:394:LYS:HB2	1.76	0.46
2:E:321:LYS:HE2	2:E:335:ASN:HD21	1.80	0.46
2:E:395:CYS:HB2	2:E:421:TRP:CE2	2.51	0.46
2:F:254:LYS:H	2:F:254:LYS:CE	2.28	0.46
3:T:674:ILE:HG12	3:T:674:ILE:O	2.15	0.46
1:A:464:ASN:HD22	1:A:464:ASN:N	2.11	0.46
1:A:182:ASP:OD2	1:A:208:SER:HB2	2.15	0.46
1:A:558:TYR:O	1:A:560:CYS:HB2	2.15	0.46
1:B:262:ARG:HG3	1:B:263:GLU:N	2.31	0.46
3:S:575:ARG:CB	3:S:575:ARG:NH1	2.77	0.46
1:B:461:ALA:O	1:B:462:GLN:HB2	2.16	0.46
2:F:104:SER:O	2:F:132:ASN:HA	2.15	0.46
2:F:254:LYS:HE2	2:F:254:LYS:N	2.31	0.46
1:B:64:ARG:HG2	2:E:92:LYS:NZ	2.31	0.45
1:B:275:ARG:HH11	1:B:275:ARG:CG	2.29	0.45
2:F:250:ARG:NH2	2:F:326:ILE:O	2.47	0.45
2:E:240:CYS:HB2	2:E:295:VAL:HB	1.99	0.45
2:E:279:LYS:HD3	2:E:279:LYS:N	2.31	0.45
1:A:113:TRP:CD1	1:A:582:ARG:NH2	2.85	0.45
1:B:291:PRO:HA	1:B:294:TYR:CE2	2.51	0.45
2:F:285:PHE:CZ	2:F:319:PRO:HB3	2.51	0.45
3:S:656:PHE:CE1	3:S:660:LEU:HD11	2.51	0.45
3:S:658:LEU:HA	3:S:661:VAL:CG1	2.47	0.45
1:A:224:THR:CG2	1:A:227:GLU:HG3	2.43	0.45
1:B:53:THR:CG2	2:E:359:TRP:CE3	3.00	0.45
1:B:120:PHE:O	1:B:541:GLU:HA	2.16	0.45
1:B:529:VAL:HG22	1:B:533:GLU:CD	2.36	0.45
2:E:118:ILE:HD11	2:E:422:ARG:HB2	1.98	0.45
2:E:208:THR:HG21	2:E:263:SER:O	2.17	0.45
3:S:645:GLN:HE21	3:S:649:LYS:HZ2	1.64	0.45
1:B:541:GLU:O	1:B:572:VAL:HA	2.17	0.45
2:E:250:ARG:NH2	2:E:327:ASP:HA	2.32	0.45
2:E:407:ASP:O	2:E:408:SER:CB	2.65	0.45
3:T:654:ARG:O	3:T:657:MET:HB3	2.16	0.45
1:A:461:ALA:O	1:A:462:GLN:HB2	2.17	0.45
1:B:341:PHE:O	1:B:345:ILE:HG23	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:254:LYS:H	2:E:254:LYS:HE2	1.81	0.45
2:E:330:LYS:H	2:E:330:LYS:CD	2.20	0.45
2:F:82:LEU:CD1	2:F:101:THR:HG21	2.45	0.45
3:S:675:ASP:OD1	3:S:676:LYS:N	2.50	0.45
3:T:628:ALA:HB3	3:T:631:GLN:HG3	1.98	0.45
1:A:30:LYS:HE2	1:A:170:ILE:CG1	2.35	0.45
1:A:46:ARG:HA	1:A:49:ILE:HG13	1.99	0.45
1:A:260:VAL:HG12	1:A:261:GLN:N	2.31	0.45
1:A:361:THR:O	1:A:362:LYS:HG2	2.17	0.45
1:A:504:GLN:HA	1:A:604:ARG:NH2	2.31	0.45
1:B:177:ALA:HA	1:B:180:GLN:OE1	2.15	0.45
1:B:342:ARG:HA	1:B:345:ILE:HG12	1.98	0.45
2:E:227:SER:HB3	2:E:240:CYS:SG	2.57	0.45
2:F:352:MET:HE3	2:F:352:MET:HB3	1.87	0.45
3:S:593:ARG:O	3:S:597:ILE:HG23	2.17	0.45
2:F:417:ASP:O	2:F:418:ALA:HB3	2.17	0.45
3:S:613:VAL:HG23	3:S:652:LEU:HD22	1.99	0.45
3:S:674:ILE:HG12	3:S:674:ILE:O	2.16	0.45
3:T:658:LEU:HD12	3:T:658:LEU:N	2.32	0.45
1:A:63:ARG:O	1:A:64:ARG:HD3	2.16	0.45
1:B:177:ALA:O	1:B:181:LEU:HD13	2.16	0.45
2:E:181:GLU:HG3	2:E:182:LEU:N	2.32	0.45
2:E:198:ASP:O	2:E:199:HIS:CB	2.65	0.45
2:F:165:THR:HG22	2:F:165:THR:O	2.17	0.45
3:T:659:HIS:CE1	3:T:663:MET:CE	3.00	0.45
3:T:673:SER:C	3:T:675:ASP:H	2.21	0.45
1:A:116:LEU:HG	1:A:118:GLN:O	2.17	0.44
1:B:538:TYR:OH	1:B:564:PHE:HE2	2.00	0.44
1:B:166:ILE:HG23	1:B:166:ILE:O	2.17	0.44
1:B:436:ALA:O	1:B:437:GLN:HB3	2.18	0.44
3:S:576:PRO:C	3:S:578:GLU:N	2.71	0.44
3:S:634:HIS:O	3:S:638:LEU:HB2	2.17	0.44
1:A:258:LYS:HB2	1:A:260:VAL:CG2	2.47	0.44
1:B:87:SER:CB	1:B:91:PHE:HB2	2.47	0.44
2:F:201:LEU:HD22	2:F:225:VAL:HG11	1.98	0.44
1:B:106:SER:HB3	2:E:157:ILE:HD11	1.99	0.44
2:F:306:LEU:HD13	2:F:363:LEU:CD1	2.48	0.44
1:A:26:LEU:O	1:A:29:LEU:HB3	2.18	0.44
1:A:333:TRP:HB2	1:A:370:PHE:HE2	1.83	0.44
1:B:83:CYS:HB3	1:B:98:LEU:HG	2.00	0.44
2:E:366:GLY:HA3	2:E:399:ILE:HB	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:46:ARG:HA	1:A:49:ILE:CG1	2.48	0.44
2:E:78:HIS:O	2:E:80:GLN:HG2	2.18	0.44
1:A:275:ARG:HH22	3:T:629:ASP:CG	2.21	0.44
1:A:283:PHE:HE1	3:T:599:GLN:OE1	2.00	0.44
1:A:350:ASP:O	1:A:352:PHE:N	2.46	0.44
1:A:425:GLN:OE1	1:B:102:ASN:ND2	2.51	0.44
1:A:531:LYS:HE2	1:A:532:ASN:HD21	1.82	0.44
1:B:101:LEU:HD13	2:E:159:ARG:HD3	1.99	0.44
2:F:312:ASN:HA	2:F:344:TYR:CE1	2.51	0.44
1:B:122:VAL:HG22	1:B:543:ILE:HG22	1.99	0.44
1:B:211:ILE:O	1:B:215:ILE:HG13	2.18	0.44
2:E:367:ASN:ND2	2:E:371:LYS:HB2	2.24	0.44
2:F:197:LYS:O	2:F:197:LYS:HG2	2.18	0.44
2:F:267:ASN:O	2:F:271:THR:HG22	2.17	0.44
1:A:70:ILE:HG12	1:A:71:MET:N	2.33	0.44
1:A:86:THR:CG2	1:A:87:SER:N	2.80	0.44
1:B:260:VAL:CG1	1:B:264:GLN:HE21	2.30	0.44
1:A:464:ASN:ND2	1:A:464:ASN:N	2.60	0.43
1:B:168:ASP:HB3	1:B:235:LEU:HD13	2.00	0.43
1:B:567:ASN:ND2	1:B:567:ASN:C	2.69	0.43
3:S:629:ASP:C	3:S:631:GLN:H	2.22	0.43
3:S:671:ILE:C	3:S:674:ILE:HG22	2.37	0.43
1:A:354:ALA:HA	1:A:357:ARG:HH12	1.83	0.43
1:A:425:GLN:NE2	1:B:102:ASN:HB3	2.34	0.43
1:B:283:PHE:CE2	3:S:592:LEU:HD22	2.53	0.43
2:E:344:TYR:HE1	2:E:347:CYS:HB3	1.82	0.43
1:A:124:ASP:HB3	1:A:550:ARG:HH21	1.83	0.43
1:B:258:LYS:HB2	1:B:260:VAL:CG2	2.47	0.43
1:B:266:LEU:HD11	1:B:343:VAL:HG13	2.00	0.43
2:F:362:MET:HE3	2:F:362:MET:HB3	1.78	0.43
3:S:593:ARG:HG2	3:S:622:MET:CE	2.48	0.43
1:A:351:ASN:OD1	1:A:353:CYS:HB2	2.19	0.43
1:B:290:THR:CG2	1:B:421:ASP:OD1	2.67	0.43
1:B:550:ARG:NH1	1:B:550:ARG:HG3	2.34	0.43
3:S:577:GLN:O	3:S:578:GLU:CB	2.67	0.43
1:B:348:TYR:O	1:B:349:TYR:HB2	2.18	0.43
2:E:201:LEU:CD2	2:E:225:VAL:HG11	2.49	0.43
2:F:243:ASP:O	2:F:244:HIS:HB2	2.18	0.43
2:F:304:LEU:HD22	2:F:339:LEU:HD11	2.00	0.43
3:T:640:VAL:O	3:T:641:GLU:C	2.56	0.43
1:A:13:ILE:O	1:A:17:LYS:HG3	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:S:661:VAL:HA	3:S:674:ILE:HD11	2.00	0.43
3:S:687:LYS:HD2	3:S:687:LYS:O	2.19	0.43
1:B:546:ASP:O	1:B:549:ASP:HB2	2.18	0.43
2:E:156:GLY:HA2	2:E:179:ILE:HG13	1.99	0.43
2:E:395:CYS:HB2	2:E:421:TRP:CZ2	2.54	0.43
1:A:33:ARG:O	1:A:37:GLU:HG3	2.18	0.43
1:A:352:PHE:HA	1:A:355:ILE:HB	2.00	0.43
1:A:580:LYS:HG3	3:T:584:GLU:OE1	2.19	0.43
1:B:65:ILE:N	1:B:65:ILE:HD12	2.33	0.43
2:E:243:ASP:O	2:E:244:HIS:HB2	2.17	0.43
2:F:254:LYS:HG2	2:F:255:ARG:N	2.33	0.43
3:S:575:ARG:NH1	3:S:575:ARG:HB2	2.34	0.43
3:S:616:LEU:HD12	3:S:616:LEU:HA	1.75	0.43
1:A:10:LYS:NZ	1:A:18:ARG:CZ	2.81	0.43
1:A:32:PHE:C	1:A:34:ARG:H	2.22	0.43
1:A:166:ILE:O	1:A:166:ILE:HG12	2.19	0.43
1:A:359:ILE:HG22	1:A:359:ILE:O	2.19	0.43
1:B:71:MET:HE3	2:E:123:SER:O	2.19	0.43
2:E:92:LYS:HZ3	2:E:92:LYS:HB2	1.84	0.43
2:F:390:LEU:N	2:F:390:LEU:HD22	2.33	0.43
1:A:567:ASN:ND2	1:A:569:ASP:N	2.56	0.42
1:B:464:ASN:H	1:B:464:ASN:HD22	1.67	0.42
2:F:144:THR:HG22	2:F:146:HIS:NE2	2.33	0.42
3:S:656:PHE:O	3:S:660:LEU:CD1	2.67	0.42
3:T:656:PHE:CZ	3:T:660:LEU:HD11	2.54	0.42
1:A:57:ASN:O	1:A:61:LYS:HG2	2.19	0.42
1:A:262:ARG:CD	1:A:343:VAL:HA	2.47	0.42
1:A:345:ILE:O	1:A:349:TYR:N	2.51	0.42
1:A:22:GLU:OE1	1:A:25:ARG:NH1	2.53	0.42
2:E:319:PRO:CG	2:E:329:ILE:HD13	2.45	0.42
2:E:381:ASP:HB3	2:E:382:PRO:HD2	2.00	0.42
3:T:596:THR:CG2	3:T:597:ILE:N	2.82	0.42
3:T:682:ARG:CG	3:T:682:ARG:NH1	2.80	0.42
1:A:290:THR:HG23	1:A:291:PRO:HD2	2.00	0.42
2:F:102:VAL:HG11	2:F:136:CYS:HB3	2.00	0.42
2:F:344:TYR:CE1	2:F:347:CYS:HB3	2.53	0.42
3:T:607:ASN:CB	3:T:609:GLY:H	2.32	0.42
3:T:659:HIS:CE1	3:T:663:MET:HE2	2.54	0.42
1:A:567:ASN:HD21	1:A:570:PHE:N	2.17	0.42
1:B:64:ARG:HG2	2:E:92:LYS:HZ1	1.84	0.42
2:E:392:HIS:HE1	2:E:394:LYS:HB2	1.76	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:175:HIS:CE1	2:F:194:SER:OG	2.63	0.42
3:S:577:GLN:OE1	3:S:577:GLN:N	2.52	0.42
3:T:572:LEU:HD12	3:T:572:LEU:HA	1.68	0.42
1:B:89:LEU:HD22	2:E:72:ASN:CA	2.48	0.42
2:E:97:LEU:CD1	2:E:410:ILE:HD12	2.48	0.42
2:F:294:TYR:CE1	2:F:350:TRP:CB	3.03	0.42
2:F:366:GLY:HA3	2:F:399:ILE:HB	2.01	0.42
1:B:295:LYS:HE3	1:B:295:LYS:HB2	1.78	0.42
2:E:381:ASP:HB3	2:E:383:HIS:ND1	2.33	0.42
3:S:575:ARG:HH11	3:S:575:ARG:HB2	1.83	0.42
3:T:654:ARG:O	3:T:658:LEU:CD1	2.68	0.42
1:A:113:TRP:CG	1:A:582:ARG:NH2	2.88	0.42
1:B:124:ASP:HB3	1:B:550:ARG:NH2	2.34	0.42
1:B:253:ASP:OD2	3:S:652:LEU:HA	2.20	0.42
1:B:275:ARG:NH1	1:B:275:ARG:O	2.53	0.42
1:B:567:ASN:HD21	1:B:570:PHE:N	2.18	0.42
2:E:185:HIS:HB2	2:E:191:LEU:HB2	2.02	0.42
2:E:205:ASN:OD1	2:E:208:THR:HG22	2.20	0.42
1:A:496:VAL:CG1	1:A:497:SER:N	2.83	0.42
1:A:512:LEU:HB3	3:T:565:TYR:CD1	2.54	0.42
1:B:55:ILE:HD13	1:B:55:ILE:N	2.33	0.42
2:F:363:LEU:HB2	2:F:377:LEU:HD11	2.02	0.42
3:S:625:GLY:O	3:S:627:ILE:HG23	2.20	0.42
3:T:577:GLN:OE1	3:T:577:GLN:N	2.53	0.42
3:T:675:ASP:OD1	3:T:676:LYS:N	2.52	0.42
1:A:68:VAL:HG11	2:F:109:LEU:HD23	2.02	0.42
1:B:99:LYS:O	2:E:124:TYR:HA	2.19	0.42
1:B:186:GLU:O	1:B:187:LYS:CG	2.67	0.42
2:E:195:VAL:HG13	2:E:225:VAL:CB	2.50	0.42
2:E:341:ARG:O	2:E:382:PRO:HB2	2.20	0.42
2:F:400:ARG:HA	2:F:400:ARG:HD3	1.85	0.42
1:B:274:CYS:SG	1:B:276:ARG:HB2	2.60	0.41
1:B:337:GLU:OE2	1:B:361:THR:OG1	2.31	0.41
2:E:73:SER:HB2	2:E:421:TRP:CE3	2.55	0.41
2:E:407:ASP:OD1	2:E:409:SER:HB3	2.20	0.41
3:T:658:LEU:HD12	3:T:658:LEU:H	1.85	0.41
1:A:529:VAL:HG11	1:A:609:ALA:HB2	2.03	0.41
2:E:319:PRO:O	2:E:329:ILE:HD11	2.20	0.41
3:S:600:ILE:O	3:S:611:LYS:HD2	2.19	0.41
3:T:567:HIS:HD2	3:T:583:ASP:OD1	2.03	0.41
1:A:32:PHE:C	1:A:34:ARG:N	2.73	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:290:THR:CG2	1:A:421:ASP:OD1	2.67	0.41
1:B:586:HIS:CG	1:B:587:SER:N	2.87	0.41
1:A:357:ARG:HH11	1:A:357:ARG:HB3	1.84	0.41
1:B:13:ILE:O	1:B:13:ILE:HG13	2.20	0.41
2:F:319:PRO:O	2:F:329:ILE:HD11	2.20	0.41
2:F:322:MET:HB2	2:F:322:MET:HE2	1.96	0.41
2:F:374:VAL:HG23	2:F:390:LEU:HD23	2.01	0.41
1:B:117:GLN:CD	1:B:508:LYS:NZ	2.74	0.41
2:E:147:PRO:O	2:E:148:LEU:HD23	2.21	0.41
3:S:645:GLN:HG2	3:S:649:LYS:NZ	2.35	0.41
1:B:182:ASP:O	1:B:185:ASP:HB2	2.20	0.41
1:B:353:CYS:O	1:B:356:ALA:HB3	2.20	0.41
1:A:358:LEU:HD21	3:T:675:ASP:HB3	2.02	0.41
1:A:618:GLU:HG2	1:A:620:PHE:CE2	2.55	0.41
2:E:144:THR:O	2:E:145:SER:HB2	2.20	0.41
2:E:193:LEU:CD2	2:E:237:ILE:HD13	2.49	0.41
2:F:74:LEU:O	2:F:419:SER:HA	2.20	0.41
2:F:195:VAL:CG1	2:F:225:VAL:CG1	2.99	0.41
3:S:645:GLN:CG	3:S:649:LYS:HZ2	2.34	0.41
1:A:47:GLN:O	1:A:51:GLU:HB2	2.20	0.41
1:A:101:LEU:HD13	2:F:159:ARG:HD3	2.01	0.41
1:A:114:SER:HA	1:A:115:PRO:HD3	1.84	0.41
1:B:16:ARG:HD2	1:B:218:MET:CE	2.51	0.41
1:B:113:TRP:CD1	1:B:582:ARG:NH2	2.89	0.41
1:B:295:LYS:NZ	1:B:295:LYS:HB3	2.35	0.41
1:B:499:LYS:HA	1:B:499:LYS:HD3	1.90	0.41
1:A:11:GLY:HA2	1:A:12:PRO:HD3	1.90	0.41
1:A:46:ARG:HG3	1:A:46:ARG:NH1	2.36	0.41
1:A:88:ASP:O	1:A:89:LEU:HD12	2.21	0.41
1:A:253:ASP:OD1	3:T:654:ARG:HD2	2.20	0.41
1:A:514:ALA:HB3	1:A:524:PHE:CE2	2.56	0.41
1:A:581:ILE:HD12	1:A:581:ILE:HA	1.88	0.41
1:B:464:ASN:HD22	1:B:465:THR:HG23	1.86	0.41
2:E:72:ASN:OD1	2:E:73:SER:N	2.54	0.41
2:E:97:LEU:HD12	2:E:410:ILE:CD1	2.48	0.41
3:T:634:HIS:O	3:T:638:LEU:HB2	2.21	0.41
3:T:638:LEU:HD23	3:T:638:LEU:HA	1.91	0.41
1:A:466:LYS:HB2	1:A:472:LEU:HD13	2.02	0.41
1:A:499:LYS:HA	1:A:499:LYS:HD3	1.86	0.41
1:B:361:THR:C	1:B:362:LYS:HG2	2.42	0.41
1:B:512:LEU:HB3	3:S:565:TYR:CD1	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:182:LEU:HG	2:E:192:LEU:HD11	2.03	0.41
2:E:294:TYR:O	2:E:294:TYR:CD1	2.74	0.41
2:F:185:HIS:HA	2:F:186:PRO:HD3	1.83	0.41
2:F:301:LEU:HD13	2:F:356:MET:HE1	2.00	0.41
1:A:98:LEU:HD23	2:F:123:SER:O	2.20	0.40
1:B:260:VAL:O	1:B:342:ARG:HD3	2.21	0.40
2:E:201:LEU:HD11	2:E:239:SER:HB3	2.03	0.40
2:F:319:PRO:HG2	2:F:329:ILE:CD1	2.50	0.40
1:A:71:MET:HG2	2:F:166:MET:SD	2.61	0.40
1:A:462:GLN:O	1:A:463:CYS:HB2	2.21	0.40
1:B:414:VAL:HG13	1:B:414:VAL:O	2.21	0.40
2:E:92:LYS:NZ	2:E:92:LYS:HB2	2.36	0.40
2:E:390:LEU:HD12	2:E:423:TRP:CZ3	2.56	0.40
2:F:254:LYS:HE2	2:F:254:LYS:H	1.86	0.40
3:S:658:LEU:O	3:S:661:VAL:HG13	2.21	0.40
3:T:584:GLU:C	3:T:586:GLU:H	2.25	0.40
1:A:249:THR:O	1:A:249:THR:HG23	2.20	0.40
1:B:71:MET:HB3	1:B:96:ILE:CD1	2.47	0.40
2:F:294:TYR:CE1	2:F:350:TRP:HB3	2.56	0.40
1:A:53:THR:HG21	2:F:359:TRP:CE3	2.57	0.40
1:A:425:GLN:HE22	1:B:102:ASN:CG	2.24	0.40
1:B:18:ARG:O	1:B:19:VAL:C	2.59	0.40
2:E:74:LEU:HD13	2:E:118:ILE:HD12	2.04	0.40
2:E:98:VAL:HG13	2:E:110:TYR:O	2.21	0.40
2:F:426:LEU:HD13	2:F:426:LEU:C	2.41	0.40
1:A:295:LYS:HE3	1:A:295:LYS:HB2	1.75	0.40
1:A:509:LYS:CE	1:A:533:GLU:OE2	2.68	0.40
1:B:249:THR:O	1:B:249:THR:HG23	2.22	0.40
3:S:617:TRP:CZ2	3:S:663:MET:HE1	2.56	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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	449/643 (70%)	396 (88%)	43 (10%)	10 (2%)	6	21
1	B	451/643 (70%)	408 (90%)	36 (8%)	7 (2%)	9	29
2	E	356/362 (98%)	335 (94%)	20 (6%)	1 (0%)	41	70
2	F	357/362 (99%)	335 (94%)	20 (6%)	2 (1%)	25	54
3	S	126/191 (66%)	109 (86%)	12 (10%)	5 (4%)	3	9
3	T	126/191 (66%)	108 (86%)	13 (10%)	5 (4%)	3	9
All	All	1865/2392 (78%)	1691 (91%)	144 (8%)	30 (2%)	9	29

All (30) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	S	605	ASP
3	S	607	ASN
3	T	578	GLU
3	T	605	ASP
1	A	10	LYS
1	A	251	ASN
3	S	578	GLU
3	T	562	ASN
3	T	607	ASN
1	A	208	SER
1	A	250	PRO
1	A	349	TYR
1	A	351	ASN
1	A	560	CYS
1	B	208	SER
1	B	250	PRO
1	B	251	ASN
1	B	462	GLN
3	S	577	GLN
3	S	630	ASN
3	T	580	GLU
1	A	459	CYS
1	A	462	GLN
1	B	560	CYS
2	F	285	PHE
1	A	167	ASN
2	E	199	HIS
2	F	199	HIS
1	B	497	SER
1	B	518	VAL

5.3.2 Protein sidechains [i](#)

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	418/560 (75%)	388 (93%)	30 (7%)	14	37
1	B	420/560 (75%)	392 (93%)	28 (7%)	16	41
2	E	321/325 (99%)	305 (95%)	16 (5%)	24	55
2	F	322/325 (99%)	310 (96%)	12 (4%)	34	66
3	S	122/175 (70%)	109 (89%)	13 (11%)	6	19
3	T	122/175 (70%)	112 (92%)	10 (8%)	11	31
All	All	1725/2120 (81%)	1616 (94%)	109 (6%)	18	44

All (109) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	24	MET
1	A	33	ARG
1	A	34	ARG
1	A	36	ASP
1	A	39	LYS
1	A	42	PHE
1	A	51	GLU
1	A	88	ASP
1	A	90	ASP
1	A	93	LYS
1	A	96	ILE
1	A	98	LEU
1	A	117	GLN
1	A	121	MET
1	A	123	GLU
1	A	168	ASP
1	A	262	ARG
1	A	272	LEU
1	A	275	ARG
1	A	295	LYS
1	A	296	ARG
1	A	422	HIS

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Mol	Chain	Res	Type
1	A	460	LYS
1	A	464	ASN
1	A	484	THR
1	A	529	VAL
1	A	561	SER
1	A	567	ASN
1	A	597	MET
1	A	629	ASP
1	B	9	GLU
1	B	13	ILE
1	B	25	ARG
1	B	42	PHE
1	B	55	ILE
1	B	83	CYS
1	B	88	ASP
1	B	90	ASP
1	B	93	LYS
1	B	98	LEU
1	B	112	SER
1	B	116	LEU
1	B	117	GLN
1	B	121	MET
1	B	123	GLU
1	B	168	ASP
1	B	262	ARG
1	B	275	ARG
1	B	295	LYS
1	B	422	HIS
1	B	460	LYS
1	B	464	ASN
1	B	468	CYS
1	B	484	THR
1	B	529	VAL
1	B	567	ASN
1	B	597	MET
1	B	629	ASP
2	E	75	LYS
2	E	201	LEU
2	E	218	VAL
2	E	254	LYS
2	E	255	ARG
2	E	258	ASN

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Mol	Chain	Res	Type
2	E	288	ARG
2	E	299	ARG
2	E	330	LYS
2	E	348	ASP
2	E	357	ASP
2	E	362	MET
2	E	384	LYS
2	E	388	THR
2	E	394	LYS
2	E	425	ARG
2	F	75	LYS
2	F	201	LEU
2	F	218	VAL
2	F	250	ARG
2	F	254	LYS
2	F	258	ASN
2	F	330	LYS
2	F	348	ASP
2	F	362	MET
2	F	384	LYS
2	F	388	THR
2	F	394	LYS
3	S	561	HIS
3	S	572	LEU
3	S	574	LEU
3	S	575	ARG
3	S	577	GLN
3	S	579	MET
3	S	583	ASP
3	S	586	GLU
3	S	590	GLU
3	S	597	ILE
3	S	616	LEU
3	S	638	LEU
3	S	687	LYS
3	T	572	LEU
3	T	579	MET
3	T	583	ASP
3	T	590	GLU
3	T	597	ILE
3	T	616	LEU
3	T	638	LEU

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Mol	Chain	Res	Type
3	T	661	VAL
3	T	671	ILE
3	T	687	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (60) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	43	ASN
1	A	94	GLN
1	A	117	GLN
1	A	264	GLN
1	A	416	ASN
1	A	422	HIS
1	A	425	GLN
1	A	429	ASN
1	A	445	GLN
1	A	464	ASN
1	A	504	GLN
1	A	532	ASN
1	A	545	GLN
1	A	567	ASN
1	A	603	HIS
1	B	43	ASN
1	B	50	GLN
1	B	57	ASN
1	B	58	GLN
1	B	62	GLN
1	B	66	GLN
1	B	94	GLN
1	B	102	ASN
1	B	117	GLN
1	B	264	GLN
1	B	418	GLN
1	B	422	HIS
1	B	429	ASN
1	B	445	GLN
1	B	464	ASN
1	B	504	GLN
1	B	530	GLN
1	B	532	ASN
1	B	545	GLN
1	B	567	ASN

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Mol	Chain	Res	Type
1	B	603	HIS
2	E	175	HIS
2	E	269	ASN
2	E	291	HIS
2	E	335	ASN
2	E	360	GLN
2	E	367	ASN
2	F	86	GLN
2	F	90	HIS
2	F	175	HIS
2	F	269	ASN
2	F	291	HIS
2	F	335	ASN
2	F	360	GLN
3	S	562	ASN
3	S	567	HIS
3	S	631	GLN
3	S	642	ASN
3	S	645	GLN
3	S	659	HIS
3	S	664	HIS
3	T	631	GLN
3	T	645	GLN
3	T	659	HIS
3	T	664	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry

Of 16 ligands modelled in this entry, 14 are monoatomic - leaving 2 for Mogul analysis.

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
5	CJD	A	708	-	33,34,34	1.71	7 (21%)	30,50,50	1.21	4 (13%)
5	CJD	B	708	-	33,34,34	1.73	9 (27%)	30,50,50	1.31	5 (16%)

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
5	CJD	A	708	-	-	2/14/35/35	0/4/4/4
5	CJD	B	708	-	-	1/14/35/35	0/4/4/4

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	708	CJD	C18-C13	4.89	1.52	1.44
5	B	708	CJD	C18-C13	4.27	1.51	1.44
5	B	708	CJD	O21-C14	3.66	1.42	1.35
5	A	708	CJD	C6-C1	3.26	1.43	1.39
5	A	708	CJD	O21-C14	3.18	1.41	1.35
5	B	708	CJD	C2-C1	3.06	1.44	1.39
5	B	708	CJD	C2-C3	2.94	1.43	1.38
5	A	708	CJD	C2-C1	2.87	1.44	1.39
5	A	708	CJD	C5-C4	2.82	1.45	1.40
5	B	708	CJD	C6-C1	2.72	1.43	1.39
5	B	708	CJD	C5-C6	2.62	1.45	1.39
5	A	708	CJD	C15-C14	2.62	1.49	1.41
5	B	708	CJD	C3-C4	2.48	1.43	1.39
5	B	708	CJD	C5-C4	2.44	1.45	1.40
5	B	708	CJD	C15-C14	2.41	1.48	1.41
5	A	708	CJD	C5-C8	2.17	1.52	1.47

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	708	CJD	C5-C6-C1	-3.00	120.13	123.01
5	B	708	CJD	C5-C6-C1	-2.99	120.14	123.01
5	B	708	CJD	C11-C10-N9	2.76	113.30	110.04
5	B	708	CJD	O23-C8-C5	-2.50	119.58	124.25
5	A	708	CJD	C11-C10-N9	2.49	112.97	110.04
5	A	708	CJD	O19-C18-C13	-2.33	121.70	124.54
5	B	708	CJD	C29-C26-C27	-2.25	85.21	99.82
5	B	708	CJD	O19-C18-C13	-2.24	121.80	124.54
5	A	708	CJD	C29-C26-C27	-2.22	85.39	99.82

There are no chirality outliers.

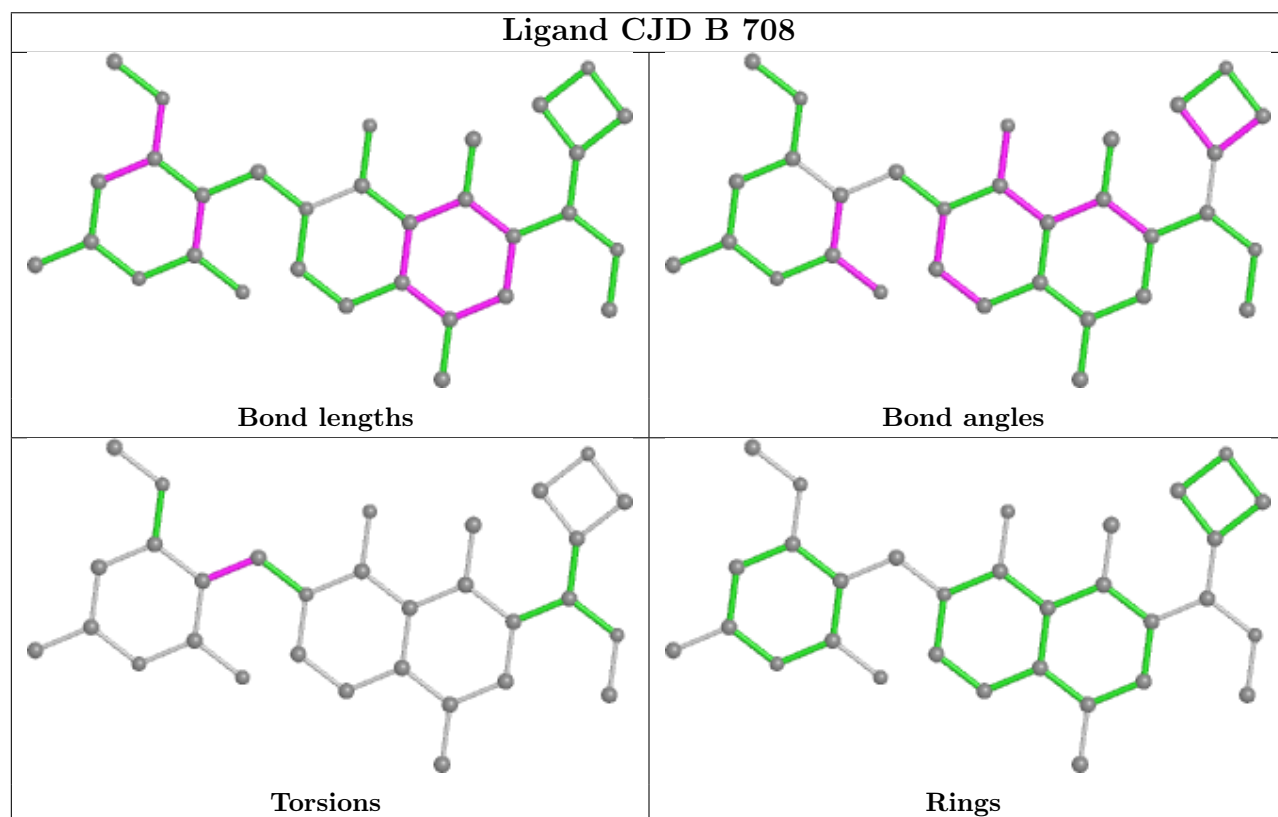
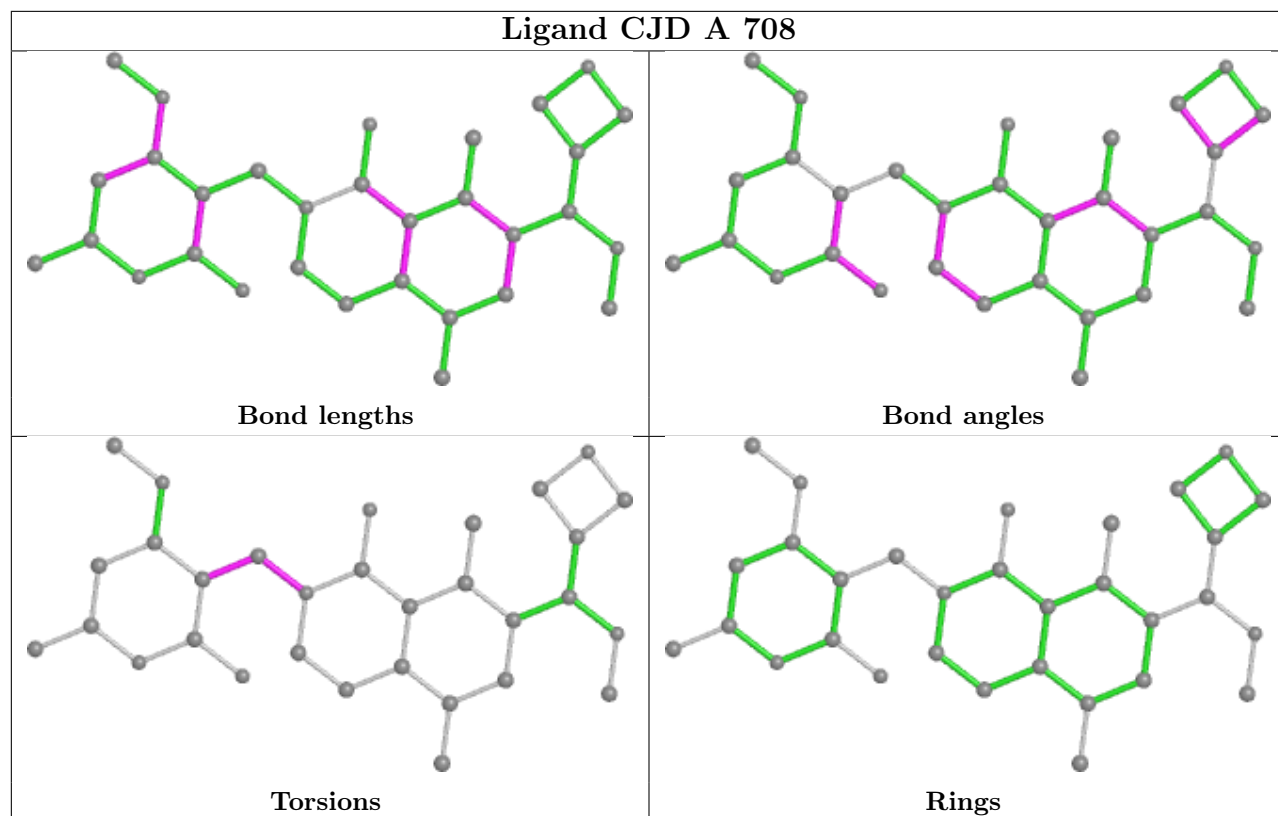
All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	708	CJD	C13-C12-N9-C8
5	A	708	CJD	N9-C12-C13-C14
5	B	708	CJD	N9-C12-C13-C14

There are no ring outliers.

No monomer is involved in short contacts.

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 than 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.



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

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	463/643 (72%)	0.20	9 (1%) 66 59	43, 74, 104, 121	0
1	B	465/643 (72%)	0.19	15 (3%) 47 37	42, 74, 106, 121	0
2	E	358/362 (98%)	0.15	3 (0%) 86 82	42, 63, 87, 122	0
2	F	359/362 (99%)	0.10	5 (1%) 75 69	45, 64, 87, 122	0
3	S	128/191 (67%)	0.23	2 (1%) 72 65	51, 79, 114, 120	0
3	T	128/191 (67%)	0.29	3 (2%) 60 50	47, 76, 113, 124	0
All	All	1901/2392 (79%)	0.18	37 (1%) 66 59	42, 69, 104, 124	0

All (37) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	E	383	HIS	5.9
1	B	367	VAL	4.1
2	F	385	ALA	3.6
1	A	166	ILE	3.5
2	F	383	HIS	3.4
2	F	381	ASP	3.3
1	B	289	ALA	3.3
3	T	674	ILE	3.3
1	A	71	MET	3.1
1	B	166	ILE	3.0
2	E	381	ASP	2.9
1	B	222	LYS	2.9
1	B	288	HIS	2.8
1	A	367	VAL	2.7
1	B	287	PHE	2.6
1	B	93	LYS	2.6
2	F	390	LEU	2.5
3	S	688	LEU	2.4
1	B	172	VAL	2.4

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Mol	Chain	Res	Type	RSRZ
1	A	424	ARG	2.4
3	T	653	CYS	2.4
1	A	33	ARG	2.3
1	A	368	TYR	2.3
2	F	384	LYS	2.3
1	B	257	ALA	2.3
3	S	581	VAL	2.2
1	B	340	MET	2.2
2	E	382	PRO	2.2
1	A	359	ILE	2.2
1	B	290	THR	2.2
1	A	489	ASP	2.1
3	T	681	LEU	2.1
1	B	343	VAL	2.1
1	B	261	GLN	2.1
1	B	348	TYR	2.1
1	B	368	TYR	2.1
1	A	340	MET	2.1

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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.

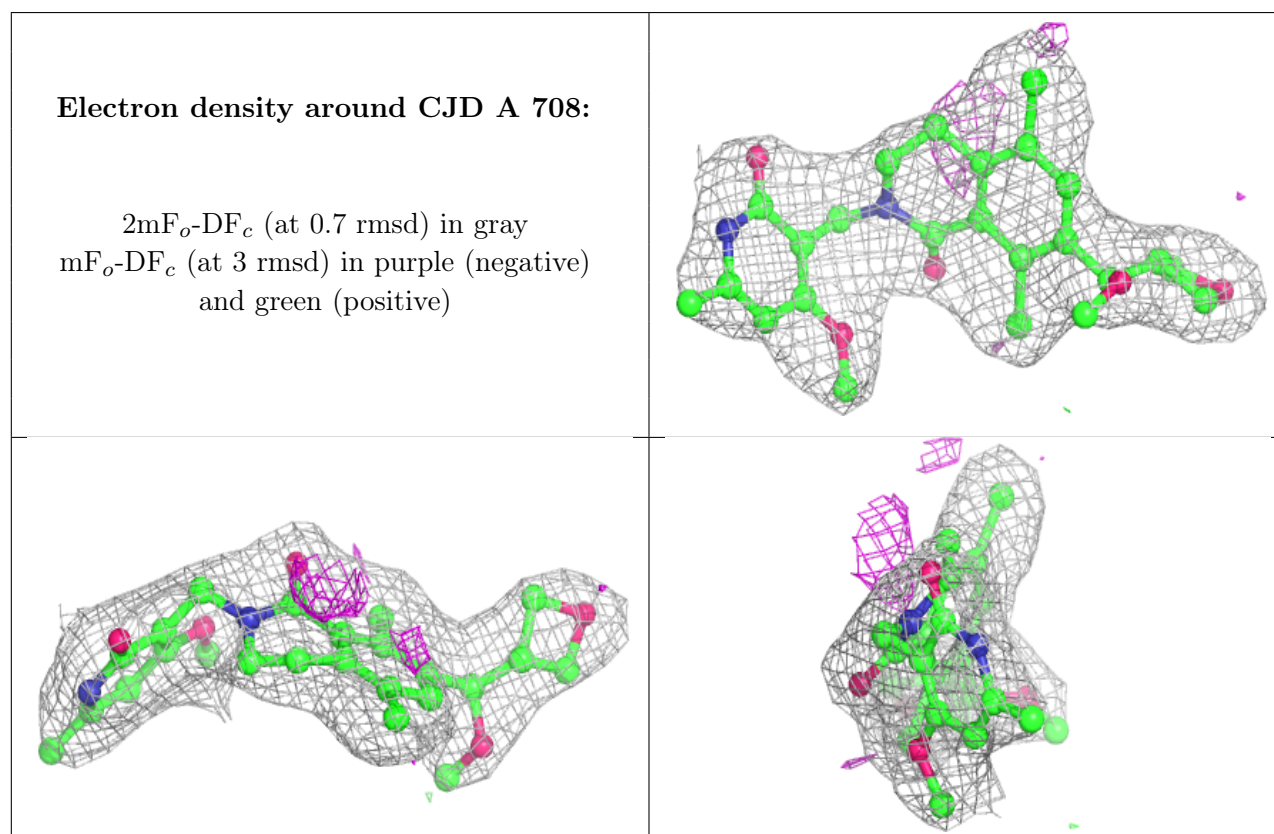
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	ZN	B	705	1/1	0.91	0.23	79,79,79,79	1
4	ZN	B	703	1/1	0.95	0.18	72,72,72,72	1
4	ZN	A	701	1/1	0.97	0.19	75,75,75,75	1
4	ZN	B	701	1/1	0.97	0.20	78,78,78,78	1
5	CJD	A	708	31/31	0.97	0.22	43,53,61,65	0

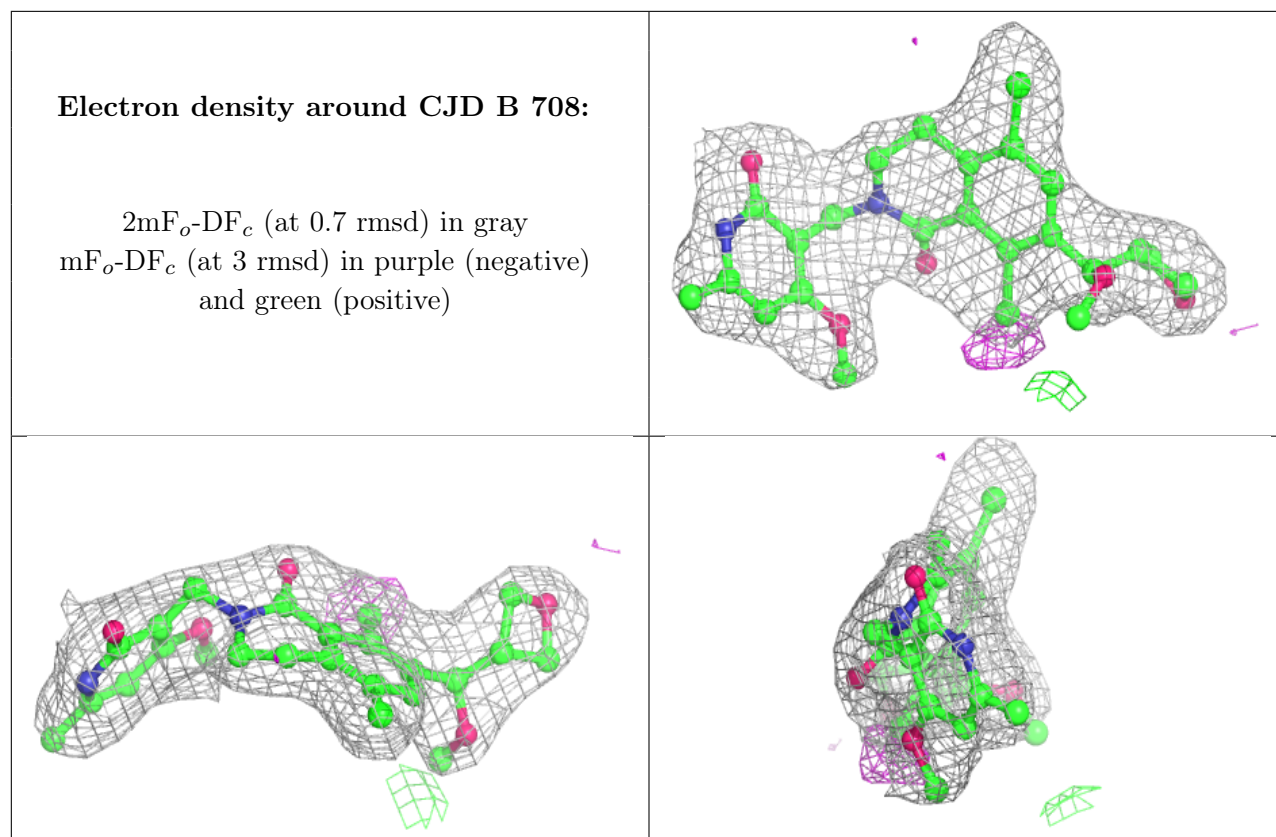
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
5	CJD	B	708	31/31	0.97	0.22	42,56,63,66	0
4	ZN	A	704	1/1	0.98	0.16	74,74,74,74	1
4	ZN	B	704	1/1	0.98	0.17	54,54,54,54	1
4	ZN	A	705	1/1	0.98	0.21	65,65,65,65	1
4	ZN	B	706	1/1	0.98	0.20	72,72,72,72	1
4	ZN	A	703	1/1	0.98	0.19	77,77,77,77	1
4	ZN	B	702	1/1	0.98	0.16	71,71,71,71	1
4	ZN	B	707	1/1	0.99	0.18	60,60,60,60	1
4	ZN	A	706	1/1	0.99	0.17	58,58,58,58	1
4	ZN	A	707	1/1	0.99	0.17	63,63,63,63	1
4	ZN	A	702	1/1	1.00	0.12	65,65,65,65	1

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.





6.5 Other polymers [i](#)

There are no such residues in this entry.