



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 07:03 AM UTC

PDB ID : 3CLQ / pdb_00003clq
Title : Crystal structure of a conserved protein of unknown function from *Enterococcus faecalis* V583
Authors : Tan, K.; Duggan, E.; Clancy, S.; Joachimiak, A.; Midwest Center for Structural Genomics (MCSG)
Deposited on : 2008-03-19
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 : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 2.0
EDS : 3.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

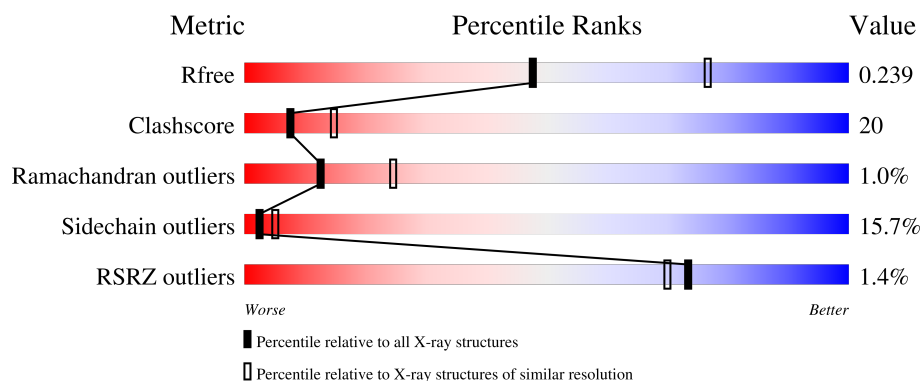
1 Overall quality at a glance

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	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	5829 (2.50-2.50)
Clashscore	190562	6492 (2.50-2.50)
Ramachandran outliers	187476	6378 (2.50-2.50)
Sidechain outliers	187428	6380 (2.50-2.50)
RSRZ outliers	180081	5833 (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 $\leq 5\%$. 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	421	 68% 25% 7%
1	B	421	 63% 28% 8% .
1	C	421	 61% 30% 10% 2%
1	D	421	 62% 29% 9% 3%

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 12653 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.

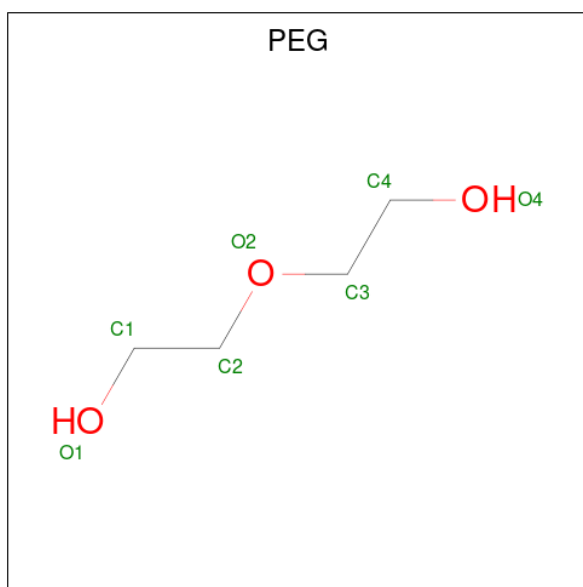
- Molecule 1 is a protein called Uncharacterized protein.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	420	Total	C	N	O	S	Se	0	0	0
			3143	1985	528	604	6	20			
1	B	421	Total	C	N	O	S	Se	0	0	0
			3149	1988	529	606	6	20			
1	C	421	Total	C	N	O	S	Se	0	0	0
			3149	1988	529	606	6	20			
1	D	419	Total	C	N	O	S	Se	0	0	0
			3135	1981	526	602	6	20			

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	54	SER	-	expression tag	UNP Q82ZN9
A	55	ASN	-	expression tag	UNP Q82ZN9
A	56	ALA	-	expression tag	UNP Q82ZN9
B	54	SER	-	expression tag	UNP Q82ZN9
B	55	ASN	-	expression tag	UNP Q82ZN9
B	56	ALA	-	expression tag	UNP Q82ZN9
C	54	SER	-	expression tag	UNP Q82ZN9
C	55	ASN	-	expression tag	UNP Q82ZN9
C	56	ALA	-	expression tag	UNP Q82ZN9
D	54	SER	-	expression tag	UNP Q82ZN9
D	55	ASN	-	expression tag	UNP Q82ZN9
D	56	ALA	-	expression tag	UNP Q82ZN9

- Molecule 2 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: C₄H₁₀O₃).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	B	1	Total	C	O	0	0
			7	4	3		
2	B	1	Total	C	O	0	0
			7	4	3		
2	C	1	Total	C	O	0	0
			7	4	3		
2	D	1	Total	C	O	0	0
			7	4	3		

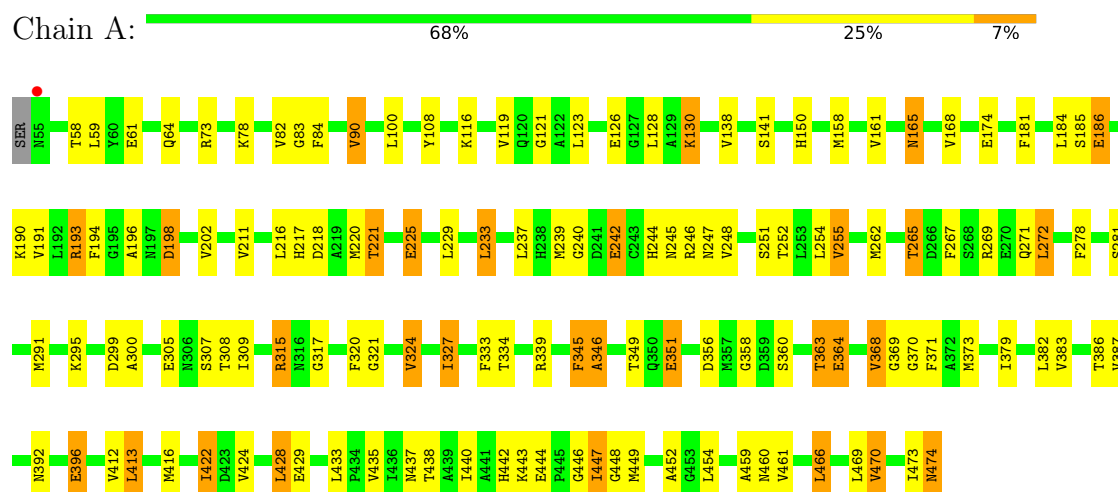
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	19	Total	O	0	0
			19	19		
3	B	9	Total	O	0	0
			9	9		
3	C	18	Total	O	0	0
			18	18		
3	D	3	Total	O	0	0
			3	3		

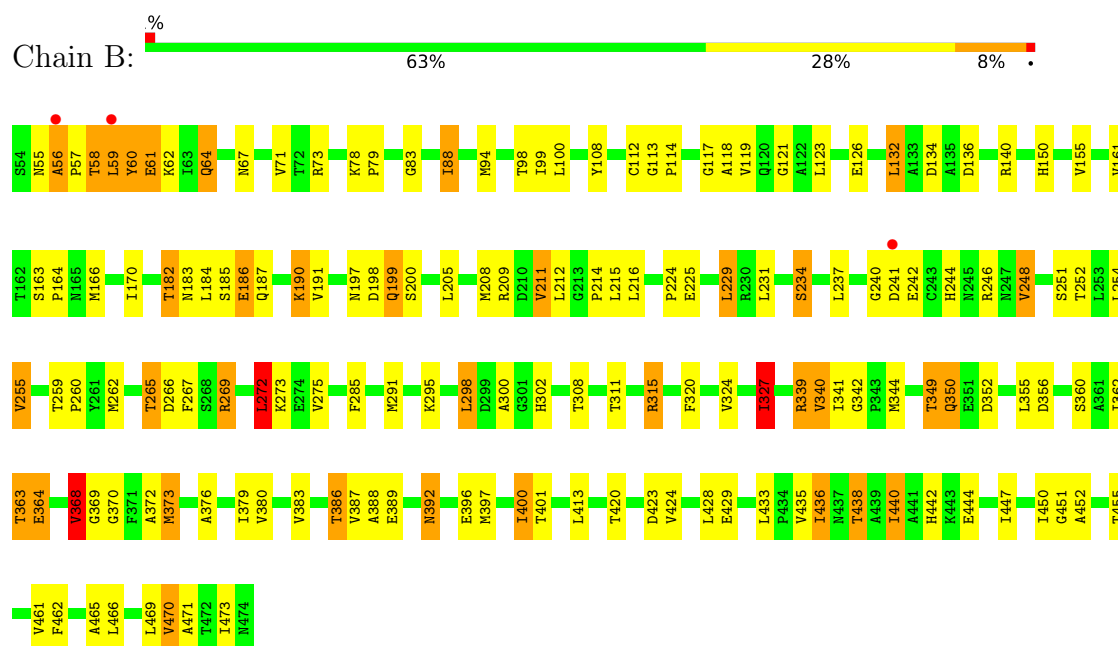
3 Residue-property plots

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.

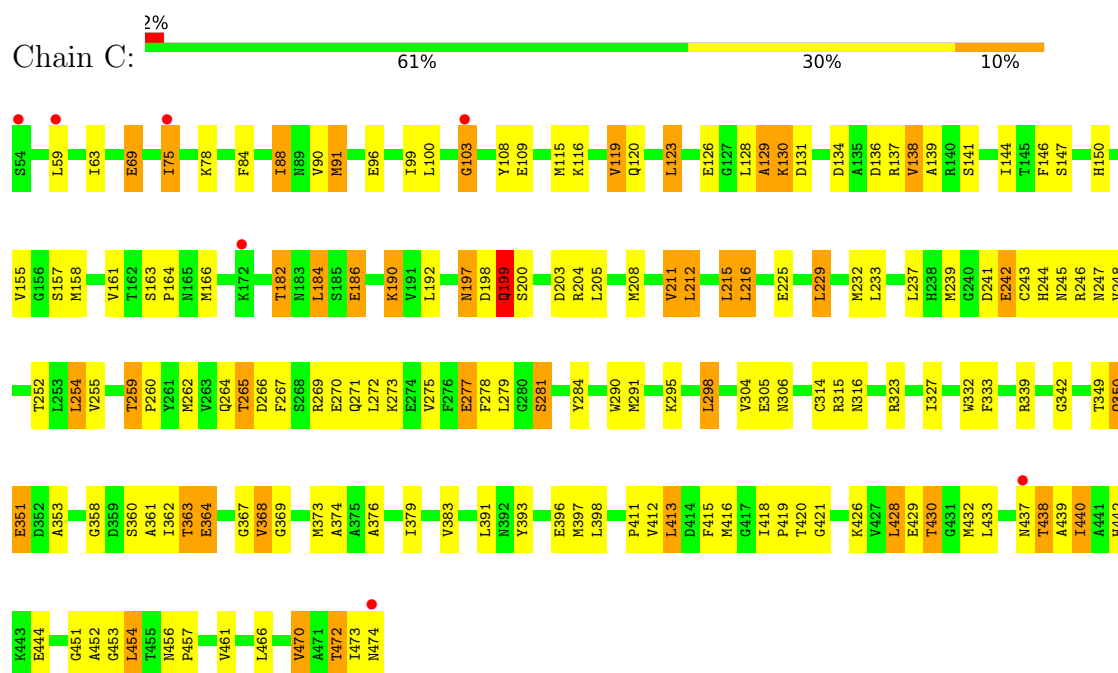
• Molecule 1: Uncharacterized protein



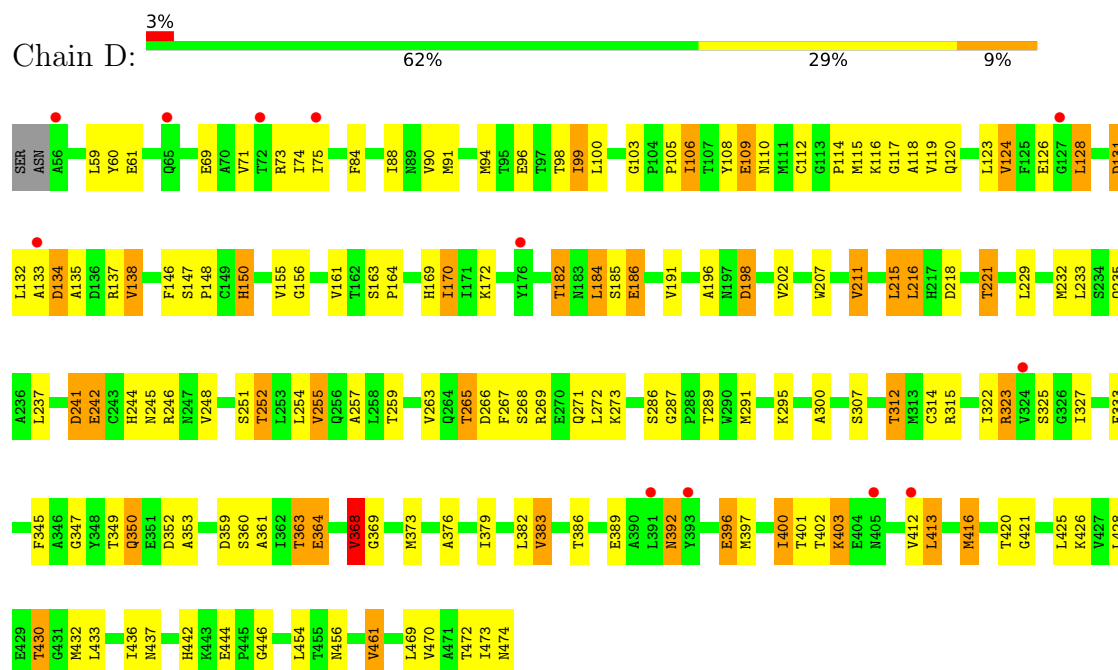
• Molecule 1: Uncharacterized protein



• Molecule 1: Uncharacterized protein



• Molecule 1: Uncharacterized protein



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	104.16Å 61.61Å 164.54Å 90.00° 103.94° 90.00°	Depositor
Resolution (Å)	43.03 – 2.50 43.03 – 2.50	Depositor EDS
% Data completeness (in resolution range)	88.7 (43.03-2.50) 88.6 (43.03-2.50)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.00 (at 2.51Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.183 , 0.240 0.183 , 0.239	Depositor DCC
R_{free} test set	3161 reflections (4.47%)	wwPDB-VP
Wilson B-factor (Å ²)	55.6	Xtriage
Anisotropy	0.101	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 47.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	12653	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 4.33% 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: PEG

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	0.87	0/3186	1.12	11/4300 (0.3%)
1	B	0.75	0/3192	1.03	9/4308 (0.2%)
1	C	0.84	0/3192	1.07	8/4308 (0.2%)
1	D	0.76	3/3178 (0.1%)	1.00	7/4289 (0.2%)
All	All	0.81	3/12748 (0.0%)	1.06	35/17205 (0.2%)

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	131	ASP	C-O	8.23	1.34	1.24
1	D	133	ALA	C-O	5.86	1.31	1.24
1	D	128	LEU	CG-CD1	5.71	1.71	1.52

All (35) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	186	GLU	N-CA-C	-10.18	97.10	110.53
1	D	186	GLU	N-CA-C	-9.86	97.51	110.43
1	A	186	GLU	CA-C-N	-8.79	106.87	122.42
1	A	186	GLU	C-N-CA	-8.79	106.87	122.42
1	A	186	GLU	N-CA-C	-7.87	100.43	110.19
1	C	91	MSE	CA-C-N	6.43	126.19	119.76
1	C	91	MSE	C-N-CA	6.43	126.19	119.76
1	B	186	GLU	CA-C-N	-6.30	112.47	122.29
1	B	186	GLU	C-N-CA	-6.30	112.47	122.29
1	B	380	VAL	CA-C-N	-6.02	113.56	119.64
1	B	380	VAL	C-N-CA	-6.02	113.56	119.64
1	B	121	GLY	N-CA-C	-5.93	105.61	112.73
1	A	422	ILE	CB-CA-C	-5.88	102.42	111.71
1	C	186	GLU	N-CA-C	-5.87	102.22	110.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	75	ILE	CB-CA-C	-5.76	104.27	112.22
1	D	106	ILE	CB-CA-C	-5.73	106.35	111.74
1	A	433	LEU	CA-C-N	5.45	125.46	119.90
1	A	433	LEU	C-N-CA	5.45	125.46	119.90
1	A	121	GLY	N-CA-C	-5.45	106.19	112.73
1	A	82	VAL	N-CA-C	5.45	116.49	111.81
1	C	211	VAL	N-CA-C	5.44	115.91	111.62
1	C	199	GLN	N-CA-C	-5.43	105.36	111.28
1	A	305	GLU	CA-C-N	-5.43	113.94	122.79
1	A	305	GLU	C-N-CA	-5.43	113.94	122.79
1	D	186	GLU	CA-C-N	-5.41	113.75	122.24
1	D	186	GLU	C-N-CA	-5.41	113.75	122.24
1	C	103	GLY	CA-C-N	5.41	125.95	120.38
1	C	103	GLY	C-N-CA	5.41	125.95	120.38
1	A	271	GLN	N-CA-C	-5.38	105.58	111.82
1	C	453	GLY	N-CA-C	5.33	118.04	110.74
1	B	272	LEU	N-CA-C	-5.24	105.64	111.36
1	B	327	ILE	N-CA-C	-5.16	107.37	111.81
1	D	347	GLY	N-CA-C	5.09	122.31	115.59
1	D	353	ALA	N-CA-C	5.09	117.54	109.24
1	B	368	VAL	CB-CA-C	5.04	119.55	111.29

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	3143	0	3112	108	0
1	B	3149	0	3117	129	0
1	C	3149	0	3117	146	0
1	D	3135	0	3106	130	0
2	B	14	0	20	3	0
2	C	7	0	10	0	0
2	D	7	0	10	1	0
3	A	19	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	9	0	0	0	0
3	C	18	0	0	0	0
3	D	3	0	0	0	0
All	All	12653	0	12492	506	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 20.

All (506) 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:155:VAL:O	1:B:182:THR:HG22	1.51	1.09
1:A:447:ILE:HG22	1:A:448:GLY:H	1.16	1.05
1:B:386:THR:HG22	1:B:389:GLU:H	1.23	1.02
1:B:224:PRO:HD2	1:B:225:GLU:OE1	1.60	0.99
1:D:400:ILE:HD11	1:D:430:THR:HG21	1.45	0.98
1:B:340:VAL:HB	1:B:440:ILE:HG22	1.49	0.95
1:A:196:ALA:HA	1:A:446:GLY:HA2	1.46	0.95
1:C:186:GLU:HG2	1:C:208:MSE:HE1	1.46	0.94
1:C:442:HIS:CD2	1:C:444:GLU:HB2	2.02	0.94
1:C:360:SER:O	1:C:363:THR:HB	1.69	0.92
1:B:386:THR:CG2	1:B:389:GLU:H	1.82	0.92
1:D:244:HIS:HB2	1:D:363:THR:HG21	1.51	0.92
1:D:116:LYS:O	1:D:119:VAL:HG22	1.70	0.90
1:A:265:THR:HG22	1:A:267:PHE:H	1.34	0.90
1:C:373:MSE:HE1	1:C:393:TYR:CD2	2.06	0.90
1:B:265:THR:HG23	1:B:267:PHE:H	1.35	0.89
1:D:120:GLN:O	1:D:124:VAL:HG23	1.72	0.89
1:D:426:LYS:O	1:D:430:THR:HB	1.73	0.88
1:D:350:GLN:HE21	1:D:350:GLN:HA	1.36	0.88
1:C:373:MSE:HE1	1:C:393:TYR:HD2	1.37	0.88
1:D:368:VAL:HG13	1:D:369:GLY:H	1.40	0.87
1:C:116:LYS:O	1:C:120:GLN:HG3	1.75	0.85
1:C:368:VAL:HG13	1:C:369:GLY:H	1.40	0.85
1:B:442:HIS:HD2	1:B:444:GLU:H	1.21	0.84
1:B:324:VAL:O	1:B:327:ILE:HG22	1.77	0.84
1:C:442:HIS:HD2	1:C:444:GLU:HB2	1.43	0.84
1:A:265:THR:CG2	1:A:267:PHE:H	1.90	0.83
1:C:412:VAL:HG13	1:C:413:LEU:HD13	1.59	0.83
1:D:430:THR:HG23	1:D:432:MSE:H	1.43	0.83
1:B:155:VAL:HG23	1:B:182:THR:CG2	2.08	0.83

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:73:ARG:HD3	1:B:300:ALA:O	1.79	0.81
1:D:218:ASP:O	1:D:221:THR:HB	1.79	0.81
1:D:430:THR:CG2	1:D:432:MSE:HB2	2.11	0.80
1:B:291:MSE:HE2	1:B:360:SER:HB3	1.61	0.80
1:D:135:ALA:HA	1:D:138:VAL:HG22	1.63	0.79
1:A:245:ASN:HD21	1:A:438:THR:HA	1.47	0.78
1:C:134:ASP:O	1:C:138:VAL:HG13	1.84	0.78
1:C:397:MSE:HE1	1:C:432:MSE:HE3	1.66	0.78
1:C:339:ARG:HH22	1:C:353:ALA:HB3	1.47	0.77
1:A:262:MSE:O	1:A:265:THR:HB	1.83	0.77
1:D:126:GLU:OE1	1:D:126:GLU:HA	1.85	0.77
1:D:400:ILE:CD1	1:D:430:THR:HG21	2.13	0.77
1:A:392:ASN:O	1:A:396:GLU:HG2	1.84	0.76
1:C:204:ARG:HG2	1:C:208:MSE:HE2	1.68	0.75
1:A:58:THR:CG2	1:A:61:GLU:HB2	2.17	0.75
1:C:265:THR:HG23	1:C:267:PHE:H	1.50	0.75
1:A:308:THR:HG22	1:A:469:LEU:HD13	1.67	0.75
1:A:447:ILE:CG2	1:A:448:GLY:H	1.99	0.74
1:A:447:ILE:HG22	1:A:448:GLY:N	1.91	0.74
1:D:105:PRO:O	1:D:106:ILE:HG23	1.87	0.74
1:B:155:VAL:O	1:B:182:THR:CG2	2.32	0.74
1:C:200:SER:O	1:C:203:ASP:HB2	1.86	0.74
1:B:269:ARG:HD3	2:B:2:PEG:H32	1.70	0.74
1:C:155:VAL:HG23	1:C:182:THR:HG23	1.70	0.73
1:C:252:THR:HG22	1:D:252:THR:HB	1.70	0.73
1:B:291:MSE:HE2	1:B:360:SER:CB	2.18	0.72
1:D:442:HIS:HD2	1:D:444:GLU:H	1.37	0.72
1:D:134:ASP:O	1:D:138:VAL:HG13	1.88	0.72
1:A:233:LEU:C	1:A:233:LEU:HD12	2.14	0.71
1:C:430:THR:CG2	1:C:432:MSE:H	2.03	0.71
1:B:291:MSE:CE	1:B:360:SER:HB3	2.20	0.71
1:B:136:ASP:OD1	1:B:140:ARG:NH1	2.24	0.71
1:A:58:THR:HG23	1:A:61:GLU:HB2	1.72	0.71
1:B:308:THR:HG22	1:B:469:LEU:HD13	1.73	0.71
1:A:278:PHE:O	1:A:281:SER:HB2	1.91	0.71
1:C:91:MSE:HE1	1:C:100:LEU:HD11	1.73	0.70
1:C:155:VAL:HG23	1:C:182:THR:CG2	2.22	0.70
1:D:368:VAL:CG1	1:D:369:GLY:H	2.04	0.70
1:D:430:THR:HG21	1:D:432:MSE:HB2	1.72	0.70
1:B:386:THR:HG22	1:B:389:GLU:N	2.01	0.70
1:C:426:LYS:O	1:C:430:THR:HB	1.91	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:397:MSE:CE	1:D:432:MSE:HE1	2.22	0.70
1:C:368:VAL:HG13	1:C:369:GLY:N	2.07	0.70
1:A:252:THR:OG1	1:B:252:THR:HG22	1.92	0.69
1:A:242:GLU:O	1:A:368:VAL:HG13	1.92	0.69
1:D:73:ARG:HD3	1:D:300:ALA:O	1.93	0.69
1:A:364:GLU:OE1	1:A:370:GLY:N	2.26	0.68
1:A:265:THR:CG2	1:A:267:PHE:HD2	2.07	0.68
1:D:265:THR:HG23	1:D:267:PHE:H	1.59	0.68
1:D:430:THR:CG2	1:D:432:MSE:H	2.05	0.68
1:A:368:VAL:HG13	1:A:369:GLY:H	1.56	0.68
1:B:440:ILE:HG12	1:B:451:GLY:C	2.18	0.68
1:A:442:HIS:HD2	1:A:444:GLU:H	1.40	0.68
1:C:245:ASN:ND2	1:C:437:ASN:OD1	2.26	0.68
1:D:400:ILE:HD11	1:D:430:THR:CG2	2.22	0.68
1:A:150:HIS:HD2	1:A:295:LYS:HZ2	1.43	0.67
1:B:315:ARG:NH1	1:B:436:ILE:HD11	2.10	0.67
1:B:442:HIS:CD2	1:B:444:GLU:HB2	2.30	0.67
1:C:368:VAL:CG1	1:C:369:GLY:N	2.57	0.67
1:D:155:VAL:O	1:D:182:THR:HG23	1.93	0.67
1:C:123:LEU:HD11	1:C:144:ILE:CD1	2.26	0.66
1:D:150:HIS:HD2	1:D:295:LYS:NZ	1.93	0.66
1:C:265:THR:HG23	1:C:266:ASP:N	2.10	0.66
1:C:430:THR:HG23	1:C:432:MSE:H	1.60	0.66
1:D:84:PHE:CD2	1:D:216:LEU:HB3	2.30	0.66
1:A:373:MSE:HG2	1:A:379:ILE:HD11	1.76	0.66
1:D:291:MSE:HE2	1:D:360:SER:HB2	1.77	0.66
1:A:291:MSE:HE2	1:A:360:SER:HB3	1.78	0.66
1:B:100:LEU:O	1:B:161:VAL:HA	1.96	0.65
1:B:155:VAL:HG23	1:B:182:THR:HG23	1.77	0.65
1:D:350:GLN:HE21	1:D:350:GLN:CA	2.06	0.65
1:A:73:ARG:HD3	1:A:300:ALA:O	1.97	0.65
1:C:456:ASN:HB3	1:C:457:PRO:HD2	1.78	0.65
1:D:251:SER:O	1:D:255:VAL:HG13	1.97	0.64
1:D:368:VAL:CG1	1:D:369:GLY:N	2.60	0.64
1:B:315:ARG:HH11	1:B:436:ILE:HD11	1.63	0.64
1:C:212:LEU:HD22	1:C:216:LEU:HD22	1.79	0.63
1:C:351:GLU:HG2	1:C:351:GLU:O	1.96	0.63
1:C:430:THR:CG2	1:C:432:MSE:HB2	2.28	0.63
1:A:190:LYS:NZ	1:A:198:ASP:OD1	2.32	0.63
1:C:373:MSE:HE3	1:C:393:TYR:HB2	1.80	0.63
1:C:350:GLN:CD	1:C:350:GLN:H	2.07	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:265:THR:HG23	1:D:266:ASP:N	2.14	0.62
1:D:312:THR:OG1	1:D:323:ARG:NH1	2.32	0.62
1:D:469:LEU:O	1:D:473:ILE:HG12	1.99	0.62
1:D:312:THR:HB	1:D:323:ARG:HB2	1.81	0.62
1:B:344:MSE:SE	1:B:440:ILE:HD11	2.48	0.62
1:C:123:LEU:HD11	1:C:144:ILE:HD13	1.82	0.62
1:D:442:HIS:CD2	1:D:444:GLU:H	2.17	0.62
1:B:244:HIS:ND1	1:B:364:GLU:OE2	2.31	0.62
1:A:190:LYS:NZ	1:A:198:ASP:CG	2.57	0.62
1:A:126:GLU:CD	1:A:165:ASN:HD21	2.07	0.61
1:B:466:LEU:O	1:B:470:VAL:HG13	2.00	0.61
1:B:251:SER:O	1:B:255:VAL:HG13	2.00	0.61
1:C:150:HIS:HD2	1:C:295:LYS:NZ	1.98	0.61
1:A:158:MSE:HB2	1:A:193:ARG:HG3	1.81	0.61
1:B:134:ASP:OD1	1:B:134:ASP:C	2.42	0.61
1:B:183:ASN:C	1:B:183:ASN:OD1	2.43	0.61
1:C:163:SER:HB2	1:C:164:PRO:CD	2.30	0.61
1:C:376:ALA:O	1:C:379:ILE:HG12	2.00	0.61
1:D:232:MSE:HA	1:D:235:GLN:HE21	1.66	0.61
1:A:473:ILE:O	1:A:474:ASN:HB2	2.02	0.60
1:A:265:THR:HG23	1:A:267:PHE:HD2	1.67	0.60
1:C:244:HIS:HB2	1:C:363:THR:HG21	1.82	0.60
1:D:90:VAL:HG21	1:D:170:ILE:HD13	1.84	0.60
1:C:252:THR:CG2	1:D:252:THR:HB	2.30	0.60
1:B:442:HIS:CD2	1:B:444:GLU:H	2.11	0.60
1:B:155:VAL:HG23	1:B:182:THR:HG21	1.83	0.60
1:C:204:ARG:HG2	1:C:208:MSE:CE	2.31	0.60
1:C:397:MSE:CE	1:C:432:MSE:CE	2.80	0.60
1:D:265:THR:HG23	1:D:267:PHE:HD2	1.66	0.60
1:A:150:HIS:HD2	1:A:295:LYS:NZ	1.99	0.59
1:B:108:TYR:CE1	1:B:119:VAL:HG21	2.36	0.59
1:B:126:GLU:OE2	1:B:163:SER:OG	2.17	0.59
1:B:376:ALA:O	1:B:379:ILE:HG12	2.02	0.59
1:A:233:LEU:HD12	1:A:233:LEU:O	2.01	0.59
1:C:278:PHE:O	1:C:281:SER:HB2	2.02	0.59
1:A:291:MSE:HE2	1:A:360:SER:CB	2.32	0.59
1:A:368:VAL:HG13	1:A:369:GLY:N	2.16	0.59
1:D:108:TYR:HE1	1:D:119:VAL:HG21	1.68	0.59
1:D:137:ARG:NH2	1:D:138:VAL:HG12	2.17	0.59
1:A:383:VAL:HG12	1:A:383:VAL:O	2.03	0.59
1:C:232:MSE:HG2	1:C:290:TRP:HH2	1.66	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:262:MSE:O	1:C:265:THR:HB	2.03	0.59
1:C:305:GLU:O	1:C:306:ASN:HB2	2.03	0.59
1:B:224:PRO:CD	1:B:225:GLU:OE1	2.45	0.59
1:A:383:VAL:O	1:A:383:VAL:CG1	2.51	0.58
1:A:360:SER:O	1:A:363:THR:HB	2.03	0.58
1:A:435:VAL:HG13	1:A:435:VAL:O	2.03	0.58
1:B:302:HIS:CD2	1:B:311:THR:OG1	2.56	0.58
1:C:398:LEU:HD23	1:C:419:PRO:HB3	1.86	0.58
1:A:413:LEU:HD23	1:A:416:MSE:HE2	1.84	0.58
1:A:185:SER:OG	1:A:186:GLU:O	2.16	0.58
1:C:138:VAL:O	1:C:141:SER:HB3	2.03	0.58
1:A:368:VAL:CG1	1:A:369:GLY:N	2.67	0.58
1:C:109:GLU:H	1:C:109:GLU:CD	2.12	0.58
1:A:295:LYS:HE3	1:A:299:ASP:OD2	2.04	0.57
1:C:204:ARG:CG	1:C:208:MSE:HE2	2.34	0.57
1:C:397:MSE:HE1	1:C:432:MSE:CE	2.33	0.57
1:A:245:ASN:ND2	1:A:437:ASN:OD1	2.36	0.57
1:A:442:HIS:CD2	1:A:444:GLU:H	2.22	0.57
1:D:126:GLU:HB3	1:D:128:LEU:HD13	1.87	0.57
1:B:344:MSE:SE	1:B:440:ILE:CD1	3.02	0.57
1:C:128:LEU:O	1:C:129:ALA:HB2	2.04	0.57
1:A:126:GLU:OE1	1:A:165:ASN:ND2	2.34	0.57
1:B:372:ALA:O	1:B:373:MSE:C	2.48	0.57
1:C:186:GLU:CG	1:C:208:MSE:HE1	2.28	0.57
1:C:373:MSE:CE	1:C:393:TYR:CD2	2.83	0.57
1:B:231:LEU:O	1:B:234:SER:CB	2.54	0.56
1:C:265:THR:HG23	1:C:267:PHE:HD2	1.70	0.56
1:B:155:VAL:CG2	1:B:182:THR:HG23	2.36	0.56
1:B:400:ILE:HG22	1:B:401:THR:HG23	1.87	0.56
1:D:103:GLY:HA2	1:D:314:CYS:SG	2.45	0.56
1:B:112:CYS:SG	1:B:114:PRO:HD2	2.45	0.56
1:C:397:MSE:CE	1:C:432:MSE:HE1	2.36	0.56
1:C:75:ILE:HD13	1:C:75:ILE:N	2.20	0.55
1:C:339:ARG:NH2	1:C:353:ALA:HB3	2.18	0.55
1:B:55:ASN:O	1:B:56:ALA:C	2.49	0.55
1:C:99:ILE:CD1	1:C:123:LEU:HD13	2.35	0.55
1:D:108:TYR:CE1	1:D:119:VAL:HG21	2.42	0.55
1:B:241:ASP:HA	1:B:246:ARG:HG2	1.89	0.55
1:C:88:ILE:HG12	1:C:164:PRO:HB3	1.89	0.55
1:A:190:LYS:HZ1	1:A:198:ASP:CG	2.15	0.55
1:A:233:LEU:C	1:A:233:LEU:CD1	2.80	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:150:HIS:HD2	1:D:295:LYS:HZ2	1.54	0.55
1:B:386:THR:HG22	1:B:389:GLU:HB2	1.89	0.55
1:A:58:THR:HG23	1:A:61:GLU:CB	2.35	0.54
1:A:291:MSE:CE	1:A:360:SER:HB3	2.36	0.54
1:D:363:THR:HG23	1:D:368:VAL:HG12	1.88	0.54
1:B:386:THR:HG22	1:B:389:GLU:CB	2.37	0.54
1:A:363:THR:HG22	1:A:364:GLU:N	2.21	0.54
1:A:265:THR:HG22	1:A:267:PHE:N	2.15	0.54
1:A:371:PHE:CE1	1:A:422:ILE:HD11	2.42	0.54
1:A:240:GLY:O	1:A:246:ARG:HD3	2.07	0.54
1:A:320:PHE:O	1:A:334:THR:HA	2.07	0.54
1:B:383:VAL:CG1	1:B:383:VAL:O	2.55	0.54
1:D:131:ASP:OD2	1:D:134:ASP:OD1	2.26	0.54
1:C:63:ILE:HD11	1:C:473:ILE:HD12	1.90	0.54
1:B:444:GLU:CB	1:B:447:ILE:HD12	2.38	0.54
1:C:466:LEU:O	1:C:470:VAL:HG13	2.08	0.54
1:B:435:VAL:O	1:B:435:VAL:CG1	2.56	0.53
1:D:196:ALA:N	1:D:446:GLY:HA2	2.22	0.53
1:A:315:ARG:NH2	1:A:358:GLY:O	2.39	0.53
1:D:364:GLU:OE1	1:D:436:ILE:HA	2.08	0.53
1:A:413:LEU:HB3	1:A:416:MSE:HG2	1.91	0.53
1:B:59:LEU:O	1:B:62:LYS:N	2.42	0.53
1:C:373:MSE:CE	1:C:393:TYR:HB2	2.39	0.53
1:C:232:MSE:HG2	1:C:290:TRP:CH2	2.44	0.53
1:C:245:ASN:HD21	1:C:438:THR:HA	1.74	0.53
1:C:440:ILE:HG12	1:C:451:GLY:C	2.33	0.53
1:B:240:GLY:O	1:B:246:ARG:HD3	2.09	0.53
1:B:444:GLU:HB2	1:B:447:ILE:HD12	1.91	0.53
1:C:150:HIS:HD2	1:C:295:LYS:HZ3	1.55	0.53
1:B:386:THR:HG23	1:B:388:ALA:N	2.24	0.53
1:B:269:ARG:HG2	2:B:2:PEG:O4	2.09	0.52
1:B:435:VAL:O	1:B:435:VAL:HG13	2.08	0.52
1:B:298:LEU:HD23	1:B:362:ILE:HG13	1.91	0.52
1:D:245:ASN:HD21	1:D:437:ASN:C	2.18	0.52
1:C:197:ASN:N	1:C:197:ASN:OD1	2.43	0.52
1:C:339:ARG:NH2	1:C:350:GLN:O	2.42	0.52
1:C:350:GLN:H	1:C:350:GLN:NE2	2.08	0.52
1:D:126:GLU:OE2	1:D:163:SER:HB2	2.10	0.52
1:C:363:THR:HG22	1:C:364:GLU:N	2.24	0.52
1:D:134:ASP:O	1:D:138:VAL:N	2.25	0.52
1:B:360:SER:O	1:B:363:THR:HB	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:198:ASP:HB2	1:C:200:SER:OG	2.10	0.52
1:C:259:THR:N	1:C:260:PRO:HD2	2.25	0.51
1:A:100:LEU:O	1:A:161:VAL:HA	2.10	0.51
1:A:307:SER:OG	1:A:309:ILE:HG12	2.10	0.51
1:A:473:ILE:O	1:A:473:ILE:HG22	2.09	0.51
1:D:413:LEU:HB3	1:D:416:MSE:HG2	1.92	0.51
1:D:430:THR:CG2	1:D:432:MSE:N	2.74	0.51
1:A:130:LYS:HB2	1:A:130:LYS:NZ	2.25	0.51
1:A:185:SER:C	1:A:186:GLU:O	2.49	0.51
1:B:211:VAL:HG22	1:B:212:LEU:N	2.25	0.51
1:C:264:GLN:NE2	1:D:273:LYS:HD2	2.25	0.51
1:C:103:GLY:HA2	1:C:314:CYS:SG	2.50	0.51
1:D:322:ILE:HG12	1:D:461:VAL:HG13	1.92	0.51
1:D:397:MSE:SE	1:D:432:MSE:HE1	2.60	0.51
1:A:363:THR:CG2	1:A:364:GLU:N	2.74	0.51
1:C:442:HIS:CD2	1:C:444:GLU:H	2.29	0.51
1:D:392:ASN:ND2	1:D:396:GLU:OE2	2.44	0.51
1:B:244:HIS:HB2	1:B:363:THR:HG21	1.93	0.51
1:B:364:GLU:OE1	1:B:370:GLY:N	2.39	0.51
1:A:244:HIS:ND1	1:A:363:THR:HG21	2.26	0.50
1:C:155:VAL:O	1:C:182:THR:HG22	2.10	0.50
1:A:351:GLU:O	1:A:443:LYS:HE3	2.11	0.50
1:C:115:MSE:O	1:C:119:VAL:HG13	2.10	0.50
1:C:100:LEU:O	1:C:161:VAL:HA	2.11	0.50
1:B:231:LEU:O	1:B:234:SER:HB2	2.10	0.50
1:A:78:LYS:HD3	1:A:174:GLU:OE1	2.12	0.50
1:B:185:SER:OG	1:B:186:GLU:O	2.27	0.50
1:C:242:GLU:O	1:C:368:VAL:HG13	2.12	0.50
1:B:117:GLY:O	1:B:197:ASN:ND2	2.44	0.49
1:D:430:THR:HG23	1:D:432:MSE:HB2	1.91	0.49
1:B:88:ILE:HA	1:B:94:MSE:HG2	1.94	0.49
1:B:340:VAL:HB	1:B:440:ILE:CG2	2.32	0.49
1:B:163:SER:OG	1:B:166:MSE:HE3	2.12	0.49
1:D:207:TRP:O	1:D:211:VAL:HG13	2.13	0.49
1:B:339:ARG:NH1	1:B:350:GLN:OE1	2.46	0.49
1:D:268:SER:OG	1:D:271:GLN:HG3	2.12	0.49
1:B:58:THR:OG1	1:B:59:LEU:N	2.41	0.49
1:B:340:VAL:CB	1:B:440:ILE:HG22	2.34	0.49
1:D:322:ILE:HG12	1:D:461:VAL:CG1	2.41	0.49
1:B:423:ASP:C	1:B:423:ASP:OD2	2.56	0.49
1:D:105:PRO:O	1:D:106:ILE:CG2	2.58	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:115:MSE:O	1:D:119:VAL:HG13	2.13	0.49
1:B:383:VAL:O	1:B:383:VAL:HG12	2.12	0.49
1:D:134:ASP:OD1	1:D:134:ASP:N	2.30	0.49
1:D:156:GLY:H	1:D:359:ASP:HB2	1.78	0.49
1:D:120:GLN:HB3	1:D:132:LEU:HD22	1.95	0.49
1:C:138:VAL:O	1:C:141:SER:N	2.46	0.49
1:C:273:LYS:HE2	1:C:277:GLU:OE1	2.13	0.49
1:C:430:THR:HG22	1:C:432:MSE:H	1.74	0.49
1:D:99:ILE:HD13	1:D:161:VAL:HG13	1.95	0.49
1:D:412:VAL:HG13	1:D:413:LEU:HD13	1.94	0.49
1:B:340:VAL:HG11	1:B:438:THR:HG23	1.94	0.49
1:A:58:THR:CG2	1:A:61:GLU:CB	2.91	0.48
1:A:244:HIS:HB2	1:A:363:THR:HG21	1.95	0.48
1:B:58:THR:OG1	1:B:61:GLU:HG2	2.13	0.48
1:B:59:LEU:C	1:B:61:GLU:N	2.70	0.48
1:C:233:LEU:HD13	1:C:243:CYS:SG	2.53	0.48
1:C:271:GLN:O	1:C:275:VAL:HG23	2.13	0.48
1:C:472:THR:O	1:C:472:THR:HG23	2.12	0.48
1:A:58:THR:HG22	1:A:61:GLU:OE1	2.13	0.48
1:B:83:GLY:C	1:B:170:ILE:HD12	2.38	0.48
1:C:265:THR:CG2	1:C:267:PHE:H	2.24	0.48
1:B:211:VAL:O	1:B:214:PRO:HD2	2.13	0.48
1:C:138:VAL:CG2	1:C:139:ALA:N	2.75	0.48
1:C:208:MSE:HA	1:C:212:LEU:HB2	1.94	0.48
1:A:245:ASN:HD21	1:A:438:THR:CA	2.20	0.48
1:D:327:ILE:HD13	1:D:333:PHE:CZ	2.48	0.48
1:D:246:ARG:HB2	1:D:379:ILE:HG22	1.96	0.48
1:C:473:ILE:O	1:C:474:ASN:CG	2.57	0.48
1:D:232:MSE:HA	1:D:235:GLN:NE2	2.29	0.48
1:A:233:LEU:CD1	1:A:237:LEU:HD13	2.44	0.48
1:B:118:ALA:HB1	1:B:161:VAL:HG21	1.95	0.48
1:C:411:PRO:HB3	1:C:415:PHE:CE1	2.49	0.48
1:D:59:LEU:C	1:D:59:LEU:HD23	2.38	0.48
1:D:364:GLU:H	1:D:364:GLU:HG2	1.24	0.48
1:A:265:THR:CG2	1:A:267:PHE:CD2	2.94	0.48
1:C:108:TYR:HB2	1:C:146:PHE:CE2	2.49	0.48
1:C:184:LEU:HD23	1:C:212:LEU:HD13	1.95	0.48
1:D:327:ILE:HD13	1:D:333:PHE:HZ	1.79	0.47
1:D:360:SER:O	1:D:363:THR:HB	2.14	0.47
1:D:397:MSE:CE	1:D:432:MSE:CE	2.91	0.47
1:D:442:HIS:HD2	1:D:444:GLU:N	2.10	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:190:LYS:HZ3	1:A:198:ASP:CG	2.22	0.47
1:B:150:HIS:HD2	1:B:295:LYS:NZ	2.12	0.47
1:C:437:ASN:HA	1:C:454:LEU:HD12	1.96	0.47
1:B:262:MSE:HE1	1:B:275:VAL:HG11	1.96	0.47
1:B:339:ARG:HH11	1:B:339:ARG:HB3	1.79	0.47
1:C:115:MSE:HE1	1:C:316:ASN:HB2	1.96	0.47
1:B:262:MSE:O	1:B:265:THR:HB	2.14	0.47
1:C:204:ARG:O	1:C:208:MSE:HG3	2.14	0.47
1:D:242:GLU:C	1:D:242:GLU:OE1	2.57	0.47
1:D:386:THR:HG23	1:D:389:GLU:H	1.80	0.47
1:B:262:MSE:HE1	1:B:275:VAL:CG1	2.44	0.47
1:C:158:MSE:O	1:C:358:GLY:HA2	2.14	0.47
1:D:361:ALA:C	1:D:363:THR:H	2.23	0.47
1:A:83:GLY:HA2	1:A:220:MSE:HG3	1.96	0.47
1:D:352:ASP:HB3	1:D:442:HIS:CE1	2.50	0.47
1:D:361:ALA:C	1:D:363:THR:N	2.70	0.47
1:D:96:GLU:OE2	1:D:96:GLU:HA	2.15	0.47
1:A:138:VAL:O	1:A:141:SER:OG	2.28	0.46
1:B:58:THR:OG1	1:B:61:GLU:CG	2.63	0.46
1:C:129:ALA:O	1:C:130:LYS:C	2.57	0.46
1:C:229:LEU:HD12	1:C:229:LEU:HA	1.60	0.46
1:C:298:LEU:HD23	1:C:362:ILE:CD1	2.46	0.46
1:C:363:THR:HG22	1:C:364:GLU:OE2	2.15	0.46
1:D:124:VAL:HG21	1:D:132:LEU:HD23	1.97	0.46
1:D:392:ASN:C	1:D:392:ASN:HD22	2.22	0.46
1:D:401:THR:HB	1:D:420:THR:O	2.15	0.46
1:C:342:GLY:HA3	1:C:452:ALA:O	2.15	0.46
1:A:473:ILE:O	1:A:474:ASN:CB	2.63	0.46
1:A:150:HIS:CD2	1:A:295:LYS:NZ	2.83	0.46
1:B:340:VAL:HG13	1:B:455:THR:HB	1.97	0.46
1:B:392:ASN:O	1:B:396:GLU:HG3	2.14	0.46
1:C:367:GLY:O	1:C:418:ILE:HB	2.15	0.46
1:A:194:PHE:CZ	1:A:449:MSE:HB2	2.50	0.46
1:C:192:LEU:HD22	1:C:205:LEU:HD11	1.98	0.46
1:C:396:GLU:HG3	1:C:397:MSE:HE2	1.97	0.46
1:C:397:MSE:HE2	1:C:432:MSE:HE1	1.97	0.46
1:B:265:THR:CG2	1:B:267:PHE:H	2.19	0.46
1:B:349:THR:HG23	1:B:352:ASP:OD1	2.16	0.46
1:C:323:ARG:HD2	1:C:332:TRP:CH2	2.51	0.46
1:B:118:ALA:CB	1:B:161:VAL:HG21	2.46	0.46
1:A:225:GLU:CD	1:A:225:GLU:H	2.23	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:370:GLY:O	1:B:373:MSE:HB2	2.16	0.45
1:C:284:TYR:OH	1:C:291:MSE:CE	2.64	0.45
1:A:239:MSE:HE3	1:B:248:VAL:HB	1.98	0.45
1:D:169:HIS:CE1	1:D:184:LEU:HD12	2.51	0.45
1:B:108:TYR:HE1	1:B:119:VAL:HG21	1.79	0.45
1:C:420:THR:HG22	1:C:421:GLY:N	2.31	0.45
1:B:61:GLU:O	1:B:64:GLN:N	2.50	0.45
1:B:132:LEU:HD21	1:B:197:ASN:OD1	2.16	0.45
1:B:190:LYS:HE2	1:B:198:ASP:OD2	2.16	0.45
1:C:136:ASP:O	1:C:137:ARG:C	2.58	0.45
1:D:134:ASP:O	1:D:135:ALA:C	2.58	0.45
1:A:158:MSE:CB	1:A:193:ARG:HG3	2.46	0.45
1:B:186:GLU:H	1:B:186:GLU:HG3	1.63	0.45
1:B:208:MSE:HA	1:B:212:LEU:HB3	1.97	0.45
1:C:158:MSE:HE2	1:C:158:MSE:H	1.81	0.45
1:D:432:MSE:HE2	1:D:432:MSE:HB3	1.67	0.45
1:C:215:LEU:HD21	1:C:262:MSE:HE3	1.97	0.45
1:C:163:SER:OG	1:C:166:MSE:HE3	2.17	0.45
1:C:212:LEU:HD22	1:C:216:LEU:CD2	2.46	0.45
1:C:430:THR:HG21	1:C:432:MSE:HB2	1.98	0.45
1:A:218:ASP:O	1:A:221:THR:HB	2.17	0.45
1:C:269:ARG:HG2	2:D:3:PEG:O4	2.17	0.45
1:C:327:ILE:HD13	1:C:333:PHE:CE2	2.52	0.45
1:D:244:HIS:C	1:D:244:HIS:CD2	2.92	0.45
1:D:265:THR:HG23	1:D:267:PHE:N	2.29	0.44
1:D:286:SER:O	1:D:287:GLY:C	2.58	0.44
1:A:58:THR:HG22	1:A:61:GLU:HB2	1.95	0.44
1:A:126:GLU:CD	1:A:165:ASN:ND2	2.73	0.44
1:B:262:MSE:CE	1:B:275:VAL:HG11	2.47	0.44
1:B:342:GLY:HA3	1:B:452:ALA:O	2.16	0.44
1:C:116:LYS:O	1:C:119:VAL:HG22	2.17	0.44
1:D:88:ILE:HA	1:D:94:MSE:HG2	2.00	0.44
1:D:246:ARG:HB2	1:D:379:ILE:CG2	2.48	0.44
1:A:371:PHE:CE1	1:A:422:ILE:CD1	3.00	0.44
1:B:265:THR:HG23	1:B:266:ASP:N	2.32	0.44
1:D:100:LEU:O	1:D:161:VAL:HA	2.17	0.44
1:A:265:THR:HG21	1:A:267:PHE:HD2	1.80	0.44
1:A:321:GLY:HA2	1:A:333:PHE:O	2.18	0.44
1:C:131:ASP:OD1	1:C:131:ASP:C	2.61	0.44
1:A:412:VAL:HG13	1:A:413:LEU:HD13	1.99	0.44
1:B:199:GLN:O	1:B:200:SER:C	2.59	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:138:VAL:HG23	1:C:139:ALA:N	2.31	0.44
1:D:135:ALA:CA	1:D:138:VAL:HG22	2.40	0.44
1:D:402:THR:O	1:D:403:LYS:HB3	2.17	0.44
1:A:265:THR:HG21	1:A:267:PHE:CD2	2.53	0.44
1:B:59:LEU:O	1:B:60:TYR:C	2.61	0.44
1:B:386:THR:CG2	1:B:389:GLU:N	2.64	0.44
1:C:163:SER:HB2	1:C:164:PRO:HD2	1.99	0.44
1:A:345:PHE:HB3	1:A:346:ALA:H	1.35	0.44
1:A:440:ILE:HG13	1:A:452:ALA:HA	2.00	0.44
1:B:302:HIS:HD2	1:B:311:THR:OG1	1.99	0.44
1:C:264:GLN:HE21	1:D:273:LYS:HD2	1.83	0.44
1:D:71:VAL:HA	1:D:74:ILE:HD12	1.99	0.44
1:A:108:TYR:CZ	1:A:116:LYS:HD3	2.53	0.43
1:D:69:GLU:HA	1:D:69:GLU:OE1	2.18	0.43
1:D:59:LEU:HD23	1:D:60:TYR:N	2.33	0.43
1:B:259:THR:HB	1:B:260:PRO:HD3	2.01	0.43
1:C:84:PHE:CD2	1:C:216:LEU:HB3	2.54	0.43
1:D:112:CYS:SG	1:D:114:PRO:HD2	2.57	0.43
1:A:382:LEU:O	1:A:382:LEU:HG	2.18	0.43
1:B:315:ARG:NE	1:B:356:ASP:OD2	2.48	0.43
1:C:126:GLU:CD	1:C:164:PRO:HD2	2.44	0.43
1:B:190:LYS:HD3	1:B:198:ASP:OD2	2.18	0.43
1:D:109:GLU:H	1:D:109:GLU:CD	2.26	0.43
1:A:424:VAL:O	1:A:428:LEU:HD22	2.18	0.43
1:B:442:HIS:HD2	1:B:444:GLU:N	2.03	0.43
1:C:298:LEU:HD23	1:C:362:ILE:HD11	2.01	0.43
1:A:324:VAL:O	1:A:327:ILE:HG22	2.19	0.43
1:B:272:LEU:HD12	1:B:272:LEU:HA	1.88	0.43
1:C:373:MSE:CE	1:C:393:TYR:CB	2.97	0.43
1:D:108:TYR:HB2	1:D:146:PHE:CE2	2.53	0.43
1:D:98:THR:O	1:D:164:PRO:HD3	2.19	0.43
1:D:216:LEU:HD12	1:D:216:LEU:HA	1.84	0.43
1:C:265:THR:CG2	1:C:267:PHE:HD2	2.31	0.42
1:D:376:ALA:O	1:D:379:ILE:HG12	2.19	0.42
1:C:374:ALA:HB1	1:C:391:LEU:HD23	2.01	0.42
1:A:247:ASN:O	1:A:248:VAL:C	2.62	0.42
1:A:459:ALA:O	1:A:460:ASN:C	2.62	0.42
1:B:67:ASN:O	1:B:71:VAL:HG12	2.18	0.42
1:D:265:THR:CG2	1:D:267:PHE:H	2.28	0.42
1:C:428:LEU:HD12	1:C:428:LEU:HA	1.63	0.42
1:D:241:ASP:OD1	1:D:246:ARG:O	2.37	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:91:MSE:HE2	1:D:91:MSE:HB3	1.93	0.42
1:D:420:THR:HG22	1:D:421:GLY:N	2.33	0.42
1:A:90:VAL:HG13	1:A:181:PHE:CE1	2.55	0.42
1:A:371:PHE:HE1	1:A:422:ILE:CD1	2.31	0.42
1:A:447:ILE:CG2	1:A:448:GLY:N	2.63	0.42
1:B:344:MSE:SE	1:B:440:ILE:HD12	2.70	0.42
1:D:185:SER:C	1:D:186:GLU:O	2.57	0.42
1:C:255:VAL:HG22	1:C:279:LEU:HD13	2.02	0.42
1:B:469:LEU:C	1:B:471:ALA:N	2.77	0.42
1:D:397:MSE:HE2	1:D:432:MSE:HE1	1.97	0.42
1:C:265:THR:CG2	1:C:266:ASP:N	2.73	0.42
1:C:241:ASP:OD1	1:C:246:ARG:HG2	2.20	0.42
1:C:254:LEU:HD23	1:C:254:LEU:HA	1.93	0.42
1:C:363:THR:CG2	1:C:369:GLY:HA3	2.50	0.42
1:C:438:THR:HG23	1:C:439:ALA:O	2.20	0.42
1:D:150:HIS:CD2	1:D:295:LYS:NZ	2.82	0.42
1:D:198:ASP:O	1:D:202:VAL:HG23	2.20	0.42
1:C:361:ALA:C	1:C:363:THR:N	2.78	0.41
1:A:317:GLY:HA2	1:A:356:ASP:O	2.20	0.41
1:B:184:LEU:N	1:B:184:LEU:HD12	2.35	0.41
1:A:58:THR:HG23	1:A:61:GLU:H	1.85	0.41
1:B:79:PRO:O	1:B:229:LEU:HB2	2.21	0.41
1:B:88:ILE:HD13	1:B:88:ILE:O	2.21	0.41
1:B:315:ARG:HD2	1:B:320:PHE:CE1	2.55	0.41
1:B:315:ARG:HE	1:B:356:ASP:CG	2.27	0.41
1:C:155:VAL:CG2	1:C:182:THR:HG23	2.47	0.41
1:D:123:LEU:HD13	1:D:138:VAL:HG23	2.01	0.41
1:B:100:LEU:N	1:B:100:LEU:HD23	2.36	0.41
1:B:368:VAL:HG13	1:B:369:GLY:N	2.35	0.41
1:C:199:GLN:NE2	1:C:203:ASP:OD1	2.53	0.41
1:C:242:GLU:OE1	1:C:242:GLU:C	2.64	0.41
1:D:117:GLY:O	1:D:118:ALA:C	2.63	0.41
1:D:215:LEU:C	1:D:215:LEU:CD2	2.94	0.41
1:B:134:ASP:OD1	1:B:134:ASP:O	2.39	0.41
1:B:187:GLN:HE22	1:B:285:PHE:N	2.18	0.41
1:C:247:ASN:O	1:C:248:VAL:C	2.64	0.41
1:D:155:VAL:O	1:D:182:THR:CG2	2.65	0.41
1:C:396:GLU:C	1:C:398:LEU:N	2.78	0.41
1:B:150:HIS:CD2	1:B:295:LYS:NZ	2.88	0.41
1:D:232:MSE:HE1	1:D:257:ALA:HB2	2.01	0.41
1:A:466:LEU:O	1:A:470:VAL:HG13	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:69:GLU:HG2	1:C:304:VAL:HG11	2.02	0.41
1:C:190:LYS:HD2	1:C:190:LYS:HA	1.95	0.41
1:A:269:ARG:HG2	2:B:2:PEG:H21	2.02	0.41
1:A:364:GLU:H	1:A:364:GLU:HG2	1.50	0.41
1:B:211:VAL:O	1:B:212:LEU:C	2.64	0.41
1:B:462:PHE:O	1:B:465:ALA:HB3	2.21	0.41
1:C:239:MSE:HE3	1:D:248:VAL:HG12	2.02	0.41
1:D:386:THR:HG22	1:D:389:GLU:CD	2.46	0.41
1:C:157:SER:HB2	1:C:291:MSE:HE1	2.03	0.41
1:D:119:VAL:O	1:D:123:LEU:HG	2.20	0.41
1:A:217:HIS:HD2	1:A:218:ASP:OD2	2.03	0.40
1:B:440:ILE:HG12	1:B:451:GLY:O	2.21	0.40
1:C:126:GLU:CB	1:C:128:LEU:HD12	2.51	0.40
1:B:211:VAL:CG2	1:B:212:LEU:N	2.84	0.40
1:D:472:THR:O	1:D:473:ILE:C	2.63	0.40
1:A:84:PHE:HA	1:A:168:VAL:O	2.22	0.40
1:B:88:ILE:HB	1:B:164:PRO:HB3	2.02	0.40
1:B:185:SER:C	1:B:186:GLU:O	2.58	0.40
1:C:456:ASN:CB	1:C:457:PRO:HD2	2.49	0.40
1:D:103:GLY:O	1:D:148:PRO:HB3	2.21	0.40
1:D:383:VAL:O	1:D:383:VAL:HG13	2.22	0.40
1:A:251:SER:O	1:A:255:VAL:HG13	2.21	0.40
1:A:272:LEU:HD12	1:A:272:LEU:HA	1.98	0.40
1:D:307:SER:HB3	1:D:325:SER:HB3	2.02	0.40
1:D:363:THR:HG22	1:D:364:GLU:N	2.37	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	418/421 (99%)	392 (94%)	22 (5%)	4 (1%)	12 24

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	419/421 (100%)	380 (91%)	33 (8%)	6 (1%)	9	17
1	C	419/421 (100%)	390 (93%)	27 (6%)	2 (0%)	24	43
1	D	417/421 (99%)	386 (93%)	27 (6%)	4 (1%)	12	24
All	All	1673/1684 (99%)	1548 (92%)	109 (6%)	16 (1%)	12	24

All (16) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	447	ILE
1	A	346	ALA
1	B	57	PRO
1	B	373	MSE
1	C	129	ALA
1	B	473	ILE
1	D	345	PHE
1	A	198	ASP
1	A	345	PHE
1	B	56	ALA
1	C	130	LYS
1	D	373	MSE
1	B	60	TYR
1	D	198	ASP
1	B	113	GLY
1	D	368	VAL

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	336/317 (106%)	293 (87%)	43 (13%)	4	9
1	B	337/317 (106%)	278 (82%)	59 (18%)	2	3
1	C	337/317 (106%)	285 (85%)	52 (15%)	2	5
1	D	335/317 (106%)	278 (83%)	57 (17%)	2	4

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	1345/1268 (106%)	1134 (84%)	211 (16%)	2 5

All (211) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	59	LEU
1	A	64	GLN
1	A	90	VAL
1	A	119	VAL
1	A	123	LEU
1	A	128	LEU
1	A	130	LYS
1	A	165	ASN
1	A	184	LEU
1	A	191	VAL
1	A	193	ARG
1	A	202	VAL
1	A	211	VAL
1	A	216	LEU
1	A	221	THR
1	A	225	GLU
1	A	229	LEU
1	A	233	LEU
1	A	242	GLU
1	A	254	LEU
1	A	255	VAL
1	A	265	THR
1	A	272	LEU
1	A	315	ARG
1	A	324	VAL
1	A	327	ILE
1	A	339	ARG
1	A	349	THR
1	A	351	GLU
1	A	363	THR
1	A	364	GLU
1	A	368	VAL
1	A	386	THR
1	A	387	VAL
1	A	396	GLU
1	A	413	LEU
1	A	428	LEU

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Mol	Chain	Res	Type
1	A	429	GLU
1	A	454	LEU
1	A	461	VAL
1	A	466	LEU
1	A	470	VAL
1	A	474	ASN
1	B	58	THR
1	B	59	LEU
1	B	61	GLU
1	B	64	GLN
1	B	78	LYS
1	B	88	ILE
1	B	98	THR
1	B	99	ILE
1	B	123	LEU
1	B	132	LEU
1	B	182	THR
1	B	190	LYS
1	B	191	VAL
1	B	199	GLN
1	B	205	LEU
1	B	209	ARG
1	B	211	VAL
1	B	215	LEU
1	B	216	LEU
1	B	229	LEU
1	B	234	SER
1	B	237	LEU
1	B	242	GLU
1	B	248	VAL
1	B	254	LEU
1	B	255	VAL
1	B	265	THR
1	B	269	ARG
1	B	272	LEU
1	B	273	LYS
1	B	298	LEU
1	B	315	ARG
1	B	327	ILE
1	B	339	ARG
1	B	340	VAL
1	B	341	ILE

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Mol	Chain	Res	Type
1	B	349	THR
1	B	350	GLN
1	B	355	LEU
1	B	363	THR
1	B	364	GLU
1	B	368	VAL
1	B	386	THR
1	B	387	VAL
1	B	392	ASN
1	B	397	MSE
1	B	400	ILE
1	B	413	LEU
1	B	420	THR
1	B	424	VAL
1	B	428	LEU
1	B	429	GLU
1	B	433	LEU
1	B	436	ILE
1	B	438	THR
1	B	440	ILE
1	B	450	ILE
1	B	461	VAL
1	B	470	VAL
1	C	59	LEU
1	C	69	GLU
1	C	75	ILE
1	C	78	LYS
1	C	88	ILE
1	C	90	VAL
1	C	96	GLU
1	C	119	VAL
1	C	123	LEU
1	C	138	VAL
1	C	147	SER
1	C	182	THR
1	C	184	LEU
1	C	190	LYS
1	C	197	ASN
1	C	199	GLN
1	C	211	VAL
1	C	212	LEU
1	C	215	LEU

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Mol	Chain	Res	Type
1	C	216	LEU
1	C	225	GLU
1	C	229	LEU
1	C	237	LEU
1	C	242	GLU
1	C	254	LEU
1	C	259	THR
1	C	265	THR
1	C	270	GLU
1	C	272	LEU
1	C	277	GLU
1	C	281	SER
1	C	298	LEU
1	C	315	ARG
1	C	349	THR
1	C	350	GLN
1	C	351	GLU
1	C	363	THR
1	C	364	GLU
1	C	368	VAL
1	C	383	VAL
1	C	413	LEU
1	C	416	MSE
1	C	428	LEU
1	C	429	GLU
1	C	430	THR
1	C	433	LEU
1	C	438	THR
1	C	440	ILE
1	C	454	LEU
1	C	461	VAL
1	C	470	VAL
1	C	472	THR
1	D	61	GLU
1	D	99	ILE
1	D	109	GLU
1	D	110	ASN
1	D	124	VAL
1	D	134	ASP
1	D	138	VAL
1	D	147	SER
1	D	150	HIS

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Mol	Chain	Res	Type
1	D	170	ILE
1	D	172	LYS
1	D	182	THR
1	D	184	LEU
1	D	191	VAL
1	D	211	VAL
1	D	215	LEU
1	D	216	LEU
1	D	221	THR
1	D	229	LEU
1	D	233	LEU
1	D	237	LEU
1	D	241	ASP
1	D	242	GLU
1	D	252	THR
1	D	254	LEU
1	D	255	VAL
1	D	259	THR
1	D	263	VAL
1	D	265	THR
1	D	269	ARG
1	D	272	LEU
1	D	289	THR
1	D	312	THR
1	D	315	ARG
1	D	323	ARG
1	D	349	THR
1	D	350	GLN
1	D	363	THR
1	D	364	GLU
1	D	368	VAL
1	D	382	LEU
1	D	383	VAL
1	D	392	ASN
1	D	396	GLU
1	D	400	ILE
1	D	403	LYS
1	D	413	LEU
1	D	416	MSE
1	D	425	LEU
1	D	428	LEU
1	D	430	THR

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Mol	Chain	Res	Type
1	D	433	LEU
1	D	454	LEU
1	D	456	ASN
1	D	461	VAL
1	D	470	VAL
1	D	474	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (36) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	65	GLN
1	A	150	HIS
1	A	165	ASN
1	A	187	GLN
1	A	217	HIS
1	A	235	GLN
1	A	245	ASN
1	A	306	ASN
1	A	442	HIS
1	A	463	ASN
1	B	76	GLN
1	B	150	HIS
1	B	187	GLN
1	B	199	GLN
1	B	302	HIS
1	B	437	ASN
1	B	442	HIS
1	C	76	GLN
1	C	120	GLN
1	C	150	HIS
1	C	217	HIS
1	C	245	ASN
1	C	247	ASN
1	C	264	GLN
1	C	442	HIS
1	C	463	ASN
1	D	150	HIS
1	D	169	HIS
1	D	235	GLN
1	D	264	GLN
1	D	302	HIS
1	D	350	GLN

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Mol	Chain	Res	Type
1	D	392	ASN
1	D	437	ASN
1	D	442	HIS
1	D	463	ASN

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

4 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	$\# Z > 2$
2	PEG	B	1	-	6,6,6	0.41	0	5,5,5	0.50	0
2	PEG	B	2	-	6,6,6	0.66	0	5,5,5	0.41	0
2	PEG	D	3	-	6,6,6	0.57	0	5,5,5	0.15	0
2	PEG	C	4	-	6,6,6	0.49	0	5,5,5	0.36	0

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
2	PEG	B	1	-	-	2/4/4/4	-
2	PEG	B	2	-	-	4/4/4/4	-
2	PEG	D	3	-	-	2/4/4/4	-
2	PEG	C	4	-	-	2/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (10) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	2	PEG	C1-C2-O2-C3
2	B	1	PEG	O2-C3-C4-O4
2	C	4	PEG	O2-C3-C4-O4
2	D	3	PEG	O2-C3-C4-O4
2	B	2	PEG	O1-C1-C2-O2
2	B	1	PEG	O1-C1-C2-O2
2	C	4	PEG	C4-C3-O2-C2
2	B	2	PEG	C4-C3-O2-C2
2	D	3	PEG	O1-C1-C2-O2
2	B	2	PEG	O2-C3-C4-O4

There are no ring outliers.

2 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	2	PEG	3	0
2	D	3	PEG	1	0

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	400/421 (95%)	-0.03	1 (0%) 90 87	44, 55, 66, 78	0
1	B	401/421 (95%)	0.23	3 (0%) 84 81	47, 55, 63, 88	0
1	C	401/421 (95%)	0.43	7 (1%) 69 65	47, 54, 63, 80	0
1	D	399/421 (94%)	0.75	12 (3%) 52 48	47, 55, 64, 73	0
All	All	1601/1684 (95%)	0.35	23 (1%) 73 70	44, 55, 64, 88	0

All (23) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	56	ALA	5.5
1	C	437	ASN	3.5
1	B	56	ALA	3.0
1	C	59	LEU	2.7
1	C	75	ILE	2.6
1	C	474	ASN	2.5
1	D	133	ALA	2.5
1	B	59	LEU	2.4
1	D	412	VAL	2.4
1	D	393	TYR	2.4
1	D	176	TYR	2.4
1	D	72	THR	2.3
1	C	103	GLY	2.3
1	D	75	ILE	2.3
1	A	55	ASN	2.2
1	D	65	GLN	2.2
1	B	241	ASP	2.2
1	C	54	SER	2.2
1	D	324	VAL	2.1
1	D	391	LEU	2.1
1	C	172	LYS	2.1

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Mol	Chain	Res	Type	RSRZ
1	D	127	GLY	2.0
1	D	405	ASN	2.0

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 oligosaccharides 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($\text{\AA}^2$)	Q<0.9
2	PEG	B	2	7/7	0.70	0.19	77,78,80,80	0
2	PEG	C	4	7/7	0.83	0.14	73,75,75,75	0
2	PEG	D	3	7/7	0.84	0.16	83,84,84,84	0
2	PEG	B	1	7/7	0.91	0.12	59,61,64,66	0

6.5 Other polymers [i](#)

There are no such residues in this entry.