



Full wwPDB X-ray Structure Validation Report ⓘ

Apr 18, 2026 – 11:41 AM UTC

PDB ID : 1V4G / pdb_00001v4g
Title : Crystal Structure of gamma-Glutamylcysteine Synthetase from Escherichia coli B
Authors : Hibi, T.; Nii, H.; Nakatsu, T.; Kato, H.; Hiratake, J.; Oda, J.
Deposited on : 2003-11-13
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

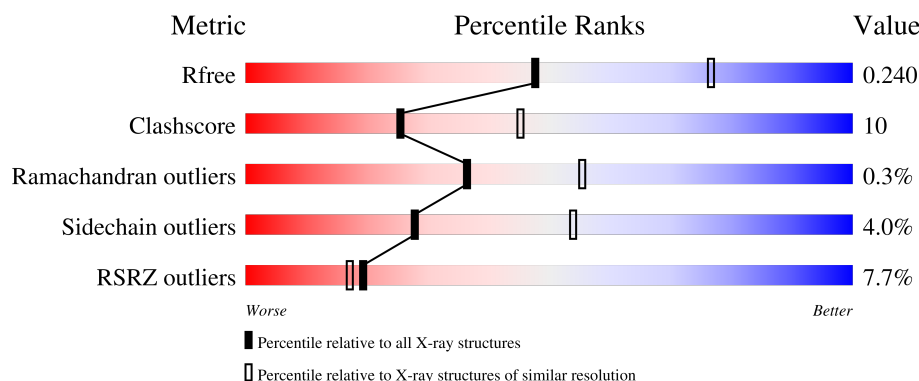
1 Overall quality at a glance

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	518	2% 81% 16% ..
1	B	518	8% 77% 19% ..
1	C	518	10% 69% 27% ..
1	D	518	10% 72% 23% ..

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 16214 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 Glutamate–cysteine ligase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	509	Total	C	N	O	S	0	0	0
			4021	2554	689	760	18			
1	B	505	Total	C	N	O	S	0	0	0
			3951	2517	670	746	18			
1	C	509	Total	C	N	O	S	0	0	0
			4010	2551	682	759	18			
1	D	501	Total	C	N	O	S	0	0	0
			3919	2497	667	737	18			

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	FME	MET	modified residue	UNP P0A6W9
A	106	SER	CYS	engineered mutation	UNP P0A6W9
A	164	SER	CYS	engineered mutation	UNP P0A6W9
A	205	SER	CYS	engineered mutation	UNP P0A6W9
A	223	SER	CYS	engineered mutation	UNP P0A6W9
B	1	FME	MET	modified residue	UNP P0A6W9
B	106	SER	CYS	engineered mutation	UNP P0A6W9
B	164	SER	CYS	engineered mutation	UNP P0A6W9
B	205	SER	CYS	engineered mutation	UNP P0A6W9
B	223	SER	CYS	engineered mutation	UNP P0A6W9
C	1	FME	MET	modified residue	UNP P0A6W9
C	106	SER	CYS	engineered mutation	UNP P0A6W9
C	164	SER	CYS	engineered mutation	UNP P0A6W9
C	205	SER	CYS	engineered mutation	UNP P0A6W9
C	223	SER	CYS	engineered mutation	UNP P0A6W9
D	1	FME	MET	modified residue	UNP P0A6W9
D	106	SER	CYS	engineered mutation	UNP P0A6W9
D	164	SER	CYS	engineered mutation	UNP P0A6W9
D	205	SER	CYS	engineered mutation	UNP P0A6W9
D	223	SER	CYS	engineered mutation	UNP P0A6W9

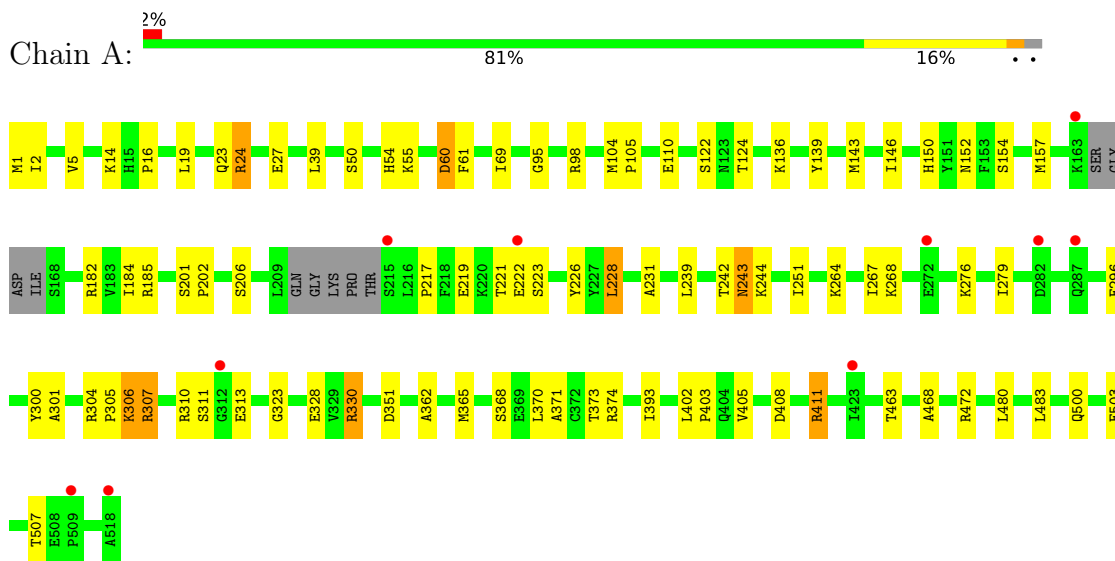
- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	159	Total 159	O 159	0	0
2	B	58	Total 58	O 58	0	0
2	C	38	Total 38	O 38	0	0
2	D	58	Total 58	O 58	0	0

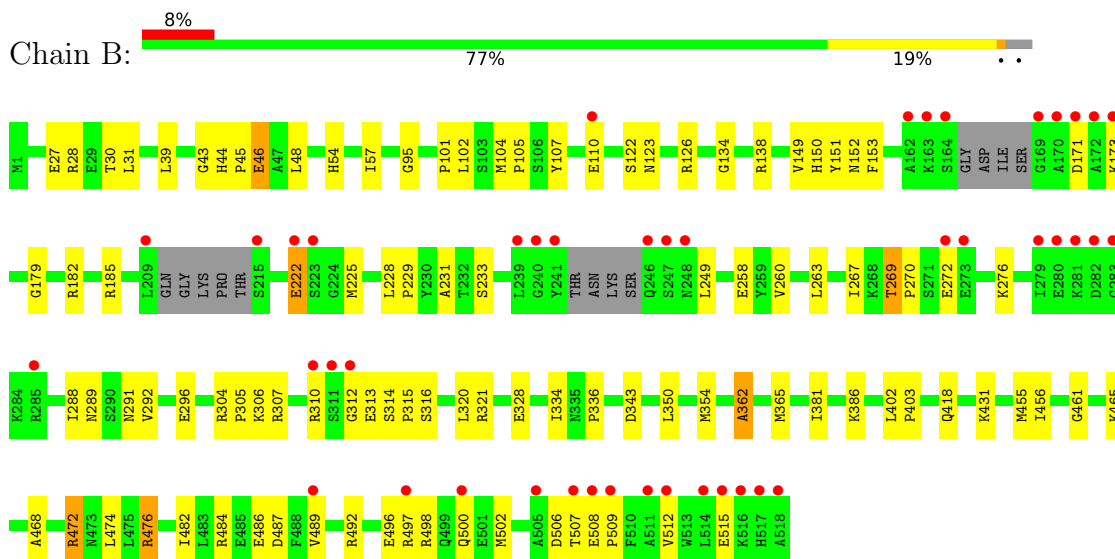
3 Residue-property plots [i](#)

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.

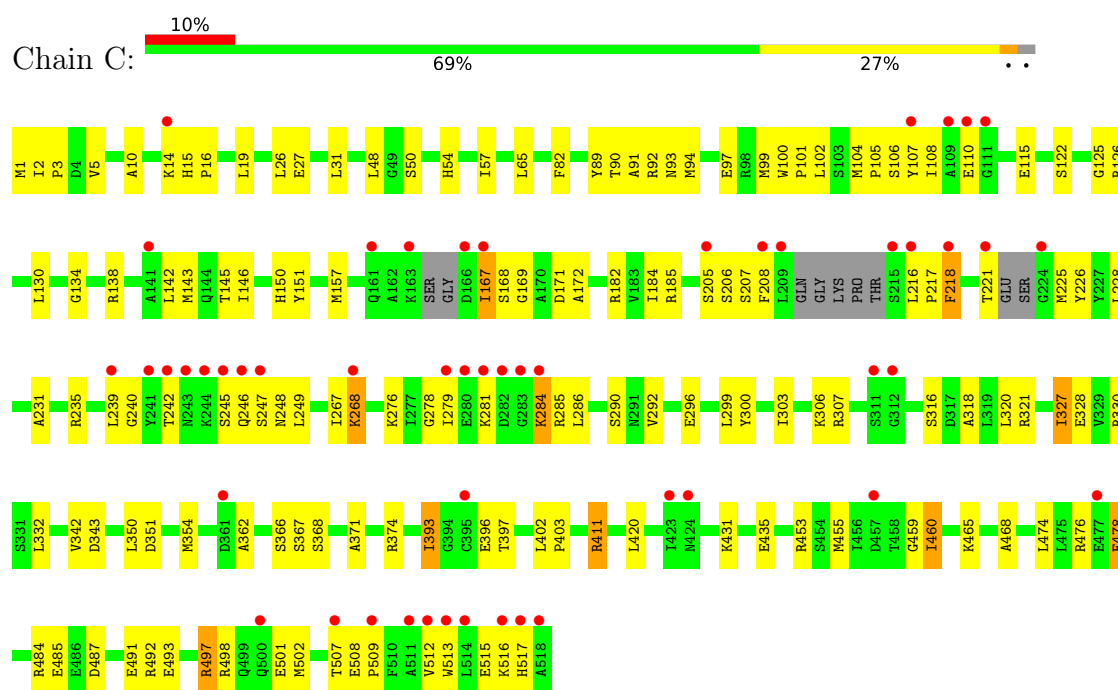
- Molecule 1: Glutamate–cysteine ligase



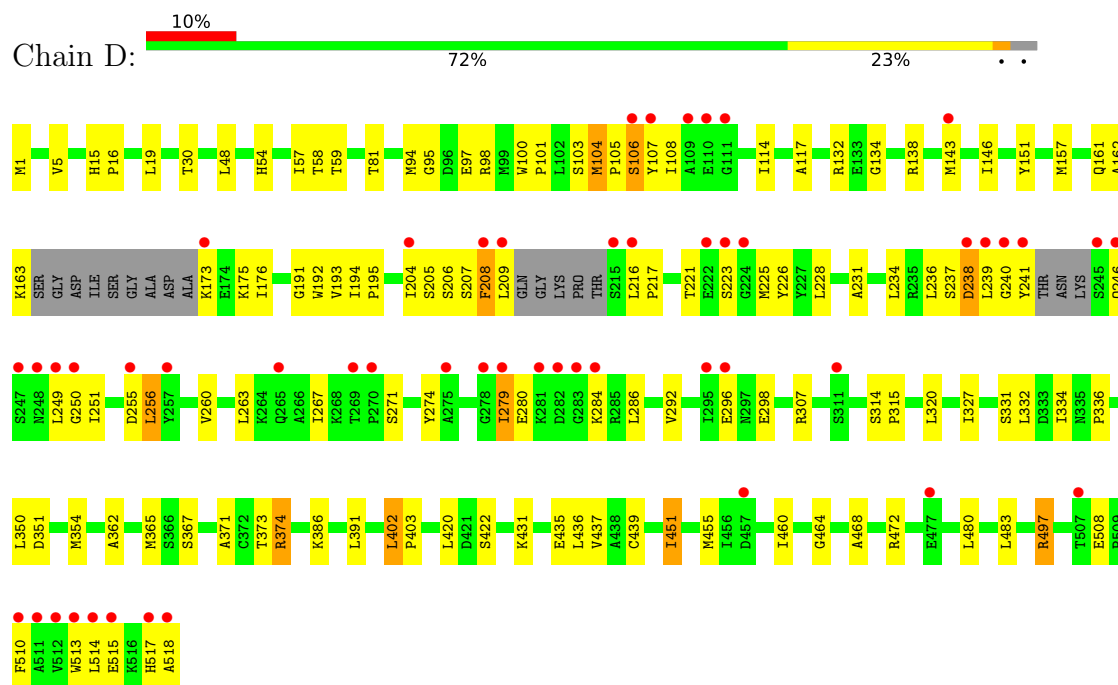
- Molecule 1: Glutamate–cysteine ligase



- Molecule 1: Glutamate–cysteine ligase



• Molecule 1: Glutamate-cysteine ligase



4 Data and refinement statistics

Property	Value	Source
Space group	H 3	Depositor
Cell constants a, b, c, α , β , γ	326.82Å 326.82Å 104.73Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	40.00 – 2.50 40.00 – 2.50	Depositor EDS
% Data completeness (in resolution range)	99.9 (40.00-2.50) 99.9 (40.00-2.50)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.40 (at 2.51Å)	Xtriage
Refinement program	REFMAC 5.1.24	Depositor
R, R_{free}	0.206 , 0.236 0.212 , 0.240	Depositor DCC
R_{free} test set	7235 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å ²)	41.2	Xtriage
Anisotropy	0.075	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 47.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.52$, $\langle L^2 \rangle = 0.36$	Xtriage
Estimated twinning fraction	0.000 for h,-h-k,-l	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	16214	wwPDB-VP
Average B, all atoms (Å ²)	34.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.61% 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 [i](#)

5.1 Standard geometry [i](#)

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

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	1.39	4/4098 (0.1%)	1.30	7/5546 (0.1%)
1	B	1.26	2/4029 (0.0%)	1.28	9/5460 (0.2%)
1	C	1.22	2/4086 (0.0%)	1.28	14/5531 (0.3%)
1	D	1.26	4/3997 (0.1%)	1.30	6/5418 (0.1%)
All	All	1.29	12/16210 (0.1%)	1.29	36/21955 (0.2%)

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	362	ALA	C-O	-9.13	1.17	1.25
1	A	60	ASP	CA-C	8.60	1.58	1.53
1	C	318	ALA	CA-CB	-6.03	1.43	1.53
1	A	228	LEU	C-O	-5.88	1.17	1.24
1	D	238	ASP	N-CA	5.88	1.53	1.46
1	C	517	HIS	N-CA	-5.85	1.38	1.46
1	D	362	ALA	CA-CB	-5.67	1.45	1.52
1	A	368	SER	CA-C	5.49	1.60	1.52
1	D	81	THR	CA-C	5.25	1.59	1.52
1	A	146	ILE	CA-CB	5.02	1.59	1.54
1	B	476	ARG	N-CA	5.02	1.52	1.46
1	D	515	GLU	C-O	-5.00	1.18	1.24

All (36) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	171	ASP	N-CA-C	-7.08	103.90	112.54
1	B	263	LEU	N-CA-C	6.60	118.47	111.28
1	C	516	LYS	N-CA-C	-6.49	105.19	113.23
1	D	298	GLU	N-CA-C	-6.41	104.72	112.54
1	B	173	LYS	N-CA-C	6.21	119.95	112.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	100	TRP	CA-C-N	6.03	125.58	119.19
1	C	100	TRP	C-N-CA	6.03	125.58	119.19
1	C	182	ARG	N-CA-C	-5.97	104.77	111.28
1	C	125	GLY	CA-C-O	5.94	126.46	119.45
1	D	175	LYS	N-CA-C	-5.93	104.82	111.28
1	A	219	GLU	N-CA-C	-5.75	101.17	110.32
1	D	331	SER	N-CA-C	5.67	120.04	113.18
1	C	460	ILE	CB-CA-C	-5.59	104.54	111.70
1	D	223	SER	N-CA-C	-5.58	106.31	113.23
1	B	482	ILE	CB-CA-C	-5.56	106.10	111.05
1	A	184	ILE	N-CA-C	5.53	116.17	110.36
1	A	69	ILE	N-CA-C	5.51	115.92	107.77
1	D	256	LEU	N-CA-C	5.47	117.67	111.11
1	C	366	SER	N-CA-C	-5.45	103.71	110.41
1	B	46	GLU	N-CA-C	5.37	117.21	111.36
1	C	478	GLU	N-CA-C	5.37	116.58	109.93
1	C	102	LEU	N-CA-C	5.34	118.42	110.14
1	C	327	ILE	CB-CA-C	-5.34	102.70	110.81
1	B	269	THR	N-CA-C	5.25	116.29	109.72
1	B	123	ASN	N-CA-C	-5.23	105.47	111.07
1	D	30	THR	N-CA-C	5.22	117.00	108.55
1	B	312	GLY	N-CA-C	-5.22	108.12	115.32
1	C	306	LYS	N-CA-C	5.21	117.31	109.23
1	A	243	ASN	N-CA-C	5.19	117.03	110.33
1	C	125	GLY	N-CA-C	-5.18	108.23	114.66
1	A	55	LYS	N-CA-C	5.18	117.00	111.36
1	A	405	VAL	CB-CA-C	-5.17	105.17	112.14
1	C	50	SER	N-CA-C	5.08	116.93	107.99
1	B	30	THR	N-CA-C	5.05	116.73	108.55
1	C	411	ARG	N-CA-C	-5.04	106.39	112.54
1	A	370	LEU	CB-CA-C	-5.01	103.02	110.88

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	4021	0	3939	51	0
1	B	3951	0	3822	62	0
1	C	4010	0	3901	107	0
1	D	3919	0	3782	81	0
2	A	159	0	0	4	0
2	B	58	0	0	2	0
2	C	38	0	0	3	0
2	D	58	0	0	0	0
All	All	16214	0	15444	300	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 10.

All (300) 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:C:167:ILE:HG13	1:C:167:ILE:O	1.49	1.12
1:A:143:MET:HE1	1:A:239:LEU:O	1.55	1.06
1:C:281:LYS:HB2	1:C:286:LEU:HD11	1.35	1.04
1:C:91:ALA:HA	1:C:94:MET:HE3	1.42	0.97
1:C:354:MET:HE2	1:C:354:MET:HA	1.42	0.97
1:A:157:MET:HE2	1:A:157:MET:HA	1.47	0.96
1:C:367:SER:HB2	2:C:541:HOH:O	1.70	0.91
1:D:204:ILE:CD1	1:D:239:LEU:HD21	2.09	0.83
1:D:105:PRO:HG2	1:D:208:PHE:CE1	2.13	0.82
1:D:134:GLY:O	1:D:138:ARG:HG3	1.79	0.82
1:C:497:ARG:O	1:C:501:GLU:HG2	1.79	0.82
1:D:204:ILE:HD13	1:D:239:LEU:HD21	1.60	0.81
1:C:218:PHE:CD2	1:C:226:TYR:HB3	2.16	0.80
1:A:244:LYS:HD2	2:A:641:HOH:O	1.82	0.80
1:C:143:MET:HG3	1:C:242:THR:CG2	2.14	0.78
1:B:152:ASN:ND2	1:B:328:GLU:HG3	1.98	0.77
1:C:167:ILE:O	1:C:167:ILE:CG1	2.34	0.75
1:D:105:PRO:HG2	1:D:208:PHE:HE1	1.52	0.74
1:D:204:ILE:HD11	1:D:209:LEU:HD21	1.68	0.74
1:C:431:LYS:O	1:C:435:GLU:HG3	1.88	0.73
1:C:218:PHE:CE2	1:C:226:TYR:HB3	2.23	0.73
1:A:157:MET:HE2	1:A:157:MET:CA	2.17	0.71
1:D:402:LEU:HB3	1:D:403:PRO:HD3	1.72	0.71
1:C:90:THR:HG22	1:C:94:MET:HE2	1.72	0.71
1:B:492:ARG:O	1:B:496:GLU:HG2	1.91	0.70
1:B:484:ARG:HG3	1:B:487:ASP:OD2	1.92	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:451:ILE:O	1:D:455:MET:HG3	1.92	0.69
1:A:152:ASN:ND2	1:A:328:GLU:HG3	2.07	0.69
1:D:271:SER:HB3	1:D:274:TYR:HB2	1.73	0.69
1:A:221:THR:HG22	1:A:223:SER:H	1.58	0.68
1:C:92:ARG:HG3	1:C:476:ARG:HG2	1.73	0.68
1:C:134:GLY:O	1:C:138:ARG:HG3	1.95	0.67
1:B:152:ASN:HD21	1:B:328:GLU:HG3	1.59	0.67
1:C:143:MET:HG3	1:C:242:THR:HG21	1.76	0.67
1:A:365:MET:HE1	1:A:373:THR:CG2	2.25	0.67
1:D:204:ILE:HD13	1:D:239:LEU:CD2	2.25	0.66
1:C:216:LEU:HB2	1:C:218:PHE:HD1	1.59	0.66
1:B:107:TYR:OH	1:B:465:LYS:HE2	1.96	0.65
1:C:281:LYS:CB	1:C:286:LEU:HD11	2.21	0.64
1:B:267:ILE:HD11	1:B:296:GLU:CG	2.28	0.64
1:B:185:ARG:HG2	1:B:365:MET:HE3	1.80	0.64
1:D:246:GLN:HB3	1:D:249:LEU:HD12	1.79	0.64
1:B:267:ILE:HD11	1:B:296:GLU:HG3	1.80	0.63
1:C:108:ILE:HG22	1:C:142:LEU:CD1	2.29	0.63
1:C:108:ILE:HG22	1:C:142:LEU:HD11	1.81	0.63
1:A:365:MET:HE1	1:A:373:THR:HG21	1.81	0.63
1:D:256:LEU:O	1:D:260:VAL:HG23	1.99	0.63
1:C:31:LEU:HD23	1:C:65:LEU:HD13	1.82	0.62
1:D:250:GLY:HA2	1:D:367:SER:OG	1.99	0.61
1:D:431:LYS:HE3	1:D:435:GLU:OE2	2.01	0.61
1:B:122:SER:O	1:B:126:ARG:HG3	2.01	0.60
1:C:5:VAL:HG12	1:C:5:VAL:O	2.01	0.60
1:A:305:PRO:O	1:A:306:LYS:HG2	2.01	0.60
1:C:104:MET:HE2	1:C:235:ARG:HB2	1.84	0.60
1:C:279:ILE:HG22	1:C:279:ILE:O	2.02	0.60
1:C:249:LEU:HD21	1:C:292:VAL:HG11	1.84	0.60
1:C:397:THR:HG23	2:C:539:HOH:O	2.02	0.59
1:A:157:MET:HA	1:A:157:MET:CE	2.25	0.59
1:C:185:ARG:NH1	1:C:362:ALA:O	2.35	0.59
1:A:243:ASN:HB3	1:A:300:TYR:HB2	1.83	0.59
1:D:143:MET:HG3	1:D:240:GLY:O	2.03	0.59
1:B:31:LEU:HD22	1:B:39:LEU:HD11	1.84	0.58
1:A:206:SER:HB3	1:A:226:TYR:CE1	2.39	0.57
1:A:14:LYS:C	1:A:16:PRO:HD3	2.29	0.57
1:C:94:MET:O	1:C:97:GLU:HB2	2.04	0.57
1:C:91:ALA:HB2	1:C:99:MET:CE	2.34	0.57
1:A:122:SER:HB3	1:A:503:GLU:HG3	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:354:MET:HE2	1:D:354:MET:HA	1.85	0.57
1:B:289:ASN:OD1	1:B:291:ASN:HB2	2.04	0.57
1:A:152:ASN:HD21	1:A:328:GLU:HG3	1.70	0.56
1:C:143:MET:HE1	1:C:239:LEU:O	2.04	0.56
1:D:249:LEU:HD21	1:D:292:VAL:HG21	1.86	0.56
1:B:508:GLU:CB	1:B:509:PRO:HD2	2.36	0.56
1:C:484:ARG:O	1:C:487:ASP:N	2.37	0.56
1:D:100:TRP:CH2	1:D:464:GLY:HA3	2.41	0.56
1:D:204:ILE:CD1	1:D:209:LEU:HD21	2.36	0.55
1:C:216:LEU:C	1:C:218:PHE:H	2.14	0.55
1:C:515:GLU:O	1:C:515:GLU:HG2	2.06	0.55
1:C:281:LYS:HB2	1:C:286:LEU:CD1	2.23	0.55
1:C:296:GLU:OE2	1:C:316:SER:OG	2.23	0.55
1:C:14:LYS:C	1:C:16:PRO:HD3	2.32	0.55
1:B:101:PRO:HD3	1:B:468:ALA:HB2	1.89	0.54
1:A:95:GLY:O	1:A:472:ARG:NH2	2.38	0.54
1:D:371:ALA:O	1:D:374:ARG:HB2	2.07	0.54
1:B:498:ARG:O	1:B:502:MET:HG3	2.07	0.54
1:C:474:LEU:O	1:C:478:GLU:HG3	2.08	0.54
1:D:314:SER:HB2	1:D:315:PRO:CD	2.38	0.54
1:B:27:GLU:HB2	1:B:150:HIS:HB2	1.89	0.54
1:B:512:VAL:O	1:B:515:GLU:HB3	2.08	0.54
1:B:229:PRO:HD2	2:B:524:HOH:O	2.08	0.53
1:C:228:LEU:HB2	1:C:231:ALA:HB2	1.89	0.53
1:D:194:ILE:HB	1:D:195:PRO:HD3	1.89	0.53
1:C:245:SER:HA	1:C:300:TYR:HB3	1.90	0.53
1:B:486:GLU:C	1:B:489:VAL:HG22	2.34	0.53
1:C:332:LEU:HD11	1:C:350:LEU:HD11	1.90	0.53
1:D:19:LEU:HD13	1:D:420:LEU:HD13	1.91	0.53
1:D:436:LEU:O	1:D:439:CYS:HB2	2.09	0.53
1:B:95:GLY:O	1:B:472:ARG:NH2	2.40	0.53
1:B:46:GLU:HG2	1:B:492:ARG:NH2	2.24	0.53
1:B:472:ARG:O	1:B:476:ARG:HG3	2.09	0.53
1:C:19:LEU:HD13	1:C:420:LEU:HD21	1.90	0.52
1:C:151:TYR:OH	1:C:351:ASP:OD1	2.27	0.52
1:B:486:GLU:O	1:B:489:VAL:HG22	2.08	0.52
1:D:209:LEU:HD23	1:D:239:LEU:HD11	1.91	0.52
1:A:402:LEU:HB3	1:A:403:PRO:HD3	1.92	0.52
1:C:105:PRO:HB3	1:C:108:ILE:HD12	1.90	0.52
1:C:221:THR:OG1	1:C:225:MET:HB3	2.10	0.52
1:C:91:ALA:HA	1:C:94:MET:CE	2.30	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:354:MET:HE2	1:C:354:MET:CA	2.28	0.52
1:D:241:TYR:O	1:D:241:TYR:CD1	2.63	0.52
1:C:106:SER:O	1:C:107:TYR:HB2	2.10	0.52
1:C:206:SER:C	1:C:208:PHE:H	2.18	0.52
1:C:245:SER:O	1:C:248:ASN:HB3	2.10	0.52
1:B:134:GLY:O	1:B:138:ARG:HG3	2.10	0.51
1:B:267:ILE:O	1:B:267:ILE:CG2	2.58	0.51
1:C:246:GLN:HA	1:C:299:LEU:HD11	1.92	0.51
1:C:54:HIS:HB3	1:C:57:ILE:O	2.10	0.51
1:D:510:PHE:O	1:D:513:TRP:HB3	2.10	0.51
1:B:486:GLU:O	1:B:489:VAL:CG2	2.58	0.51
1:D:236:LEU:O	1:D:241:TYR:CE2	2.63	0.51
1:C:455:MET:O	1:C:459:GLY:HA2	2.11	0.51
1:C:15:HIS:N	1:C:16:PRO:HD3	2.25	0.51
1:D:431:LYS:O	1:D:435:GLU:HG3	2.09	0.51
1:A:185:ARG:NH1	1:A:362:ALA:O	2.44	0.51
1:B:507:THR:OG1	1:B:508:GLU:N	2.44	0.50
1:C:91:ALA:HB2	1:C:99:MET:HE1	1.92	0.50
1:D:15:HIS:N	1:D:16:PRO:HD3	2.24	0.50
1:C:216:LEU:HB2	1:C:218:PHE:CD1	2.45	0.50
1:C:321:ARG:HG2	1:C:321:ARG:HH11	1.77	0.50
1:D:19:LEU:CD1	1:D:420:LEU:HD13	2.42	0.50
1:C:130:LEU:HD21	1:C:285:ARG:HG2	1.93	0.49
1:C:267:ILE:HG21	1:C:296:GLU:HG2	1.95	0.49
1:C:509:PRO:HG2	1:C:512:VAL:HG23	1.93	0.49
1:C:101:PRO:HD3	1:C:468:ALA:HB2	1.93	0.49
1:B:228:LEU:HB2	1:B:231:ALA:HB2	1.93	0.49
1:C:110:GLU:HA	1:C:142:LEU:HD22	1.95	0.49
1:D:104:MET:HE2	1:D:146:ILE:HG12	1.93	0.49
1:B:296:GLU:OE1	1:B:315:PRO:HD2	2.13	0.49
1:B:496:GLU:OE1	1:B:496:GLU:HA	2.13	0.49
1:D:58:THR:OG1	1:D:59:THR:N	2.45	0.48
1:A:307:ARG:HD2	1:A:323:GLY:O	2.13	0.48
1:C:327:ILE:HG22	1:C:328:GLU:N	2.28	0.48
1:D:5:VAL:HG12	1:D:5:VAL:O	2.13	0.48
1:D:267:ILE:HD11	1:D:296:GLU:HG2	1.95	0.48
1:A:371:ALA:O	1:A:374:ARG:HB2	2.13	0.48
1:D:206:SER:HA	1:D:209:LEU:HD12	1.95	0.48
1:A:50:SER:O	1:A:54:HIS:HB2	2.13	0.48
1:D:206:SER:HB3	1:D:226:TYR:HE1	1.77	0.48
1:C:168:SER:O	1:C:169:GLY:C	2.56	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:54:HIS:HB3	1:B:57:ILE:O	2.13	0.48
1:C:94:MET:HE1	1:C:99:MET:HE2	1.95	0.48
1:B:461:GLY:O	1:B:465:LYS:HG3	2.14	0.48
1:C:89:TYR:CE1	1:C:93:ASN:ND2	2.82	0.48
1:C:146:ILE:HD12	1:C:240:GLY:O	2.14	0.47
1:C:393:ILE:O	1:C:396:GLU:HB2	2.14	0.47
1:D:117:ALA:HB3	1:D:132:ARG:CD	2.44	0.47
1:B:272:GLU:O	1:B:276:LYS:HG3	2.14	0.47
1:A:507:THR:HG21	1:B:222:GLU:HG3	1.95	0.47
1:B:304:ARG:HD3	2:B:531:HOH:O	2.14	0.47
1:C:216:LEU:HD12	1:C:218:PHE:HE1	1.78	0.47
1:D:221:THR:HG1	1:D:225:MET:H	1.61	0.47
1:D:508:GLU:CD	1:D:508:GLU:H	2.22	0.47
1:A:301:ALA:O	1:A:330:ARG:HD2	2.14	0.47
1:A:304:ARG:HG3	1:A:305:PRO:HD2	1.96	0.47
1:B:102:LEU:HD23	1:B:336:PRO:HB3	1.95	0.47
1:D:236:LEU:O	1:D:241:TYR:HE2	1.97	0.47
1:A:264:LYS:HB3	2:A:653:HOH:O	2.14	0.47
1:C:268:LYS:HE3	1:C:268:LYS:HB3	1.58	0.47
1:C:354:MET:HA	1:C:354:MET:CE	2.29	0.47
1:D:204:ILE:HG23	1:D:234:LEU:HD12	1.96	0.46
1:D:249:LEU:O	1:D:250:GLY:C	2.58	0.46
1:A:139:TYR:HB3	1:A:242:THR:HB	1.96	0.46
1:A:267:ILE:HD11	1:A:296:GLU:HG2	1.97	0.46
1:B:225:MET:HE1	1:B:455:MET:C	2.40	0.46
1:D:107:TYR:C	1:D:108:ILE:HG13	2.41	0.46
1:C:26:LEU:HD13	1:C:342:VAL:HG11	1.96	0.46
1:D:205:SER:O	1:D:208:PHE:HB2	2.15	0.46
1:B:104:MET:HA	1:B:105:PRO:HD3	1.81	0.45
1:C:508:GLU:HG3	1:C:513:TRP:HB2	1.98	0.45
1:A:27:GLU:HB2	1:A:150:HIS:HB2	1.99	0.45
1:B:48:LEU:HD13	1:B:57:ILE:HG21	1.99	0.45
1:D:228:LEU:HB2	1:D:231:ALA:HB2	1.98	0.45
1:B:267:ILE:HD11	1:B:296:GLU:HG2	1.97	0.45
1:C:27:GLU:HB2	1:C:150:HIS:HB2	1.99	0.45
1:C:498:ARG:O	1:C:502:MET:HG3	2.16	0.45
1:A:306:LYS:HE2	1:A:328:GLU:OE1	2.17	0.45
1:D:279:ILE:O	1:D:286:LEU:N	2.48	0.45
1:A:139:TYR:HB3	1:A:242:THR:CB	2.47	0.45
1:D:48:LEU:O	1:D:54:HIS:CD2	2.70	0.45
1:C:48:LEU:O	1:C:54:HIS:CD2	2.69	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:391:LEU:HD11	1:D:402:LEU:HD12	1.98	0.45
1:B:320:LEU:HD12	1:B:320:LEU:HA	1.81	0.45
1:D:192:TRP:C	1:D:195:PRO:HD2	2.42	0.45
1:C:321:ARG:HG2	1:C:321:ARG:NH1	2.32	0.45
1:D:365:MET:HE1	1:D:373:THR:CG2	2.46	0.45
1:C:491:GLU:O	1:C:492:ARG:C	2.56	0.45
1:D:151:TYR:OH	1:D:351:ASP:OD1	2.34	0.45
1:D:517:HIS:CD2	1:D:518:ALA:N	2.84	0.44
1:A:307:ARG:NH2	2:A:569:HOH:O	2.50	0.44
1:C:245:SER:OG	1:C:248:ASN:HB2	2.17	0.44
1:A:157:MET:HE2	1:A:157:MET:N	2.32	0.44
1:D:334:ILE:O	1:D:336:PRO:HD3	2.18	0.44
1:A:408:ASP:OD1	1:A:411:ARG:NH1	2.50	0.44
1:A:201:SER:N	1:A:202:PRO:HD3	2.32	0.44
1:B:288:ILE:HG22	1:B:289:ASN:HD22	1.82	0.44
1:D:105:PRO:CG	1:D:208:PHE:CE1	2.94	0.44
1:D:480:LEU:HB3	1:D:483:LEU:O	2.17	0.44
1:B:48:LEU:O	1:B:54:HIS:CD2	2.71	0.44
1:D:327:ILE:HD11	1:D:354:MET:SD	2.57	0.44
1:B:249:LEU:HD21	1:B:292:VAL:HG11	1.98	0.44
1:D:237:SER:C	1:D:239:LEU:H	2.23	0.44
1:C:276:LYS:C	1:C:278:GLY:N	2.71	0.44
1:B:305:PRO:C	1:B:306:LYS:HG2	2.43	0.44
1:D:510:PHE:CE2	1:D:514:LEU:HD11	2.53	0.44
1:B:44:HIS:HA	1:B:45:PRO:HD3	1.84	0.43
1:C:327:ILE:CG2	1:C:328:GLU:N	2.80	0.43
1:C:19:LEU:HD23	1:C:19:LEU:HA	1.88	0.43
1:C:205:SER:O	1:C:208:PHE:HB2	2.18	0.43
1:A:60:ASP:CG	1:A:61:PHE:H	2.26	0.43
1:B:151:TYR:CD2	1:B:350:LEU:HD13	2.53	0.43
1:C:225:MET:SD	1:C:460:ILE:HG13	2.58	0.43
1:A:104:MET:HA	1:A:105:PRO:HD3	1.83	0.43
1:C:90:THR:HG22	1:C:94:MET:CE	2.44	0.43
1:B:179:GLY:O	1:B:182:ARG:HB3	2.18	0.43
1:C:320:LEU:HD12	1:C:320:LEU:HA	1.91	0.43
1:B:149:VAL:HG23	1:B:334:ILE:HD13	2.01	0.43
1:C:107:TYR:CZ	1:C:465:LYS:HE3	2.54	0.43
1:C:402:LEU:HB3	1:C:403:PRO:HD3	2.01	0.43
1:A:221:THR:HG22	1:A:222:GLU:N	2.33	0.43
1:C:2:ILE:HA	1:C:3:PRO:HD3	1.93	0.43
1:C:107:TYR:CE2	1:C:465:LYS:HE3	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:480:LEU:HB3	1:A:483:LEU:O	2.19	0.42
1:D:497:ARG:O	1:D:497:ARG:HG2	2.19	0.42
1:B:43:GLY:O	1:B:44:HIS:C	2.61	0.42
1:B:267:ILE:O	1:B:267:ILE:HG22	2.14	0.42
1:D:173:LYS:O	1:D:176:ILE:HB	2.18	0.42
1:C:143:MET:HG3	1:C:242:THR:HG23	1.95	0.42
1:C:279:ILE:HD11	1:C:290:SER:HB3	2.01	0.42
1:D:191:GLY:C	1:D:193:VAL:H	2.27	0.42
1:D:95:GLY:O	1:D:472:ARG:NH2	2.52	0.42
1:D:280:GLU:HA	1:D:284:LYS:O	2.20	0.42
1:D:451:ILE:HD12	1:D:451:ILE:HA	1.88	0.42
1:A:24:ARG:HG3	2:A:535:HOH:O	2.19	0.42
1:A:24:ARG:NH2	1:A:351:ASP:OD2	2.41	0.42
1:B:267:ILE:CD1	1:B:296:GLU:HG3	2.49	0.42
1:C:371:ALA:O	1:C:374:ARG:HB2	2.20	0.42
1:B:233:SER:O	1:B:381:ILE:HG23	2.20	0.42
1:B:260:VAL:HG13	1:B:316:SER:HB2	2.02	0.42
1:D:101:PRO:HD3	1:D:468:ALA:HB2	2.02	0.42
1:D:157:MET:HA	1:D:157:MET:HE2	2.01	0.42
1:A:23:GLN:HB2	1:A:154:SER:OG	2.20	0.42
1:B:269:THR:HA	1:B:270:PRO:HD3	1.81	0.42
1:C:10:ALA:O	1:C:14:LYS:HG3	2.19	0.42
1:B:486:GLU:CA	1:B:489:VAL:HG22	2.50	0.42
1:C:82:PHE:CD1	1:C:82:PHE:C	2.98	0.42
1:D:94:MET:O	1:D:97:GLU:HB2	2.20	0.42
1:C:206:SER:C	1:C:208:PHE:N	2.77	0.41
1:D:94:MET:O	1:D:94:MET:HG3	2.20	0.41
1:A:5:VAL:HG12	1:A:5:VAL:O	2.20	0.41
1:C:122:SER:O	1:C:126:ARG:HB2	2.20	0.41
1:C:343:ASP:C	1:C:343:ASP:OD1	2.63	0.41
1:B:402:LEU:N	1:B:403:PRO:CD	2.83	0.41
1:C:284:LYS:HD2	1:C:286:LEU:HD23	2.03	0.41
1:A:157:MET:CA	1:A:157:MET:CE	2.93	0.41
1:B:305:PRO:O	1:B:306:LYS:HG2	2.20	0.41
1:C:493:GLU:HB3	1:C:497:ARG:NH2	2.35	0.41
1:D:161:GLN:C	1:D:163:LYS:N	2.78	0.41
1:A:304:ARG:NH2	1:A:330:ARG:HH21	2.18	0.41
1:B:185:ARG:NH1	1:B:362:ALA:O	2.54	0.41
1:C:184:ILE:HG12	1:C:303:ILE:HG12	2.03	0.41
1:A:201:SER:N	1:A:202:PRO:CD	2.84	0.41
1:D:117:ALA:HB3	1:D:132:ARG:HD3	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:153:PHE:CE2	1:B:354:MET:HB3	2.56	0.41
1:A:310:ARG:O	1:A:311:SER:C	2.63	0.41
1:C:94:MET:CE	1:C:99:MET:HE2	2.51	0.41
1:C:279:ILE:O	1:C:279:ILE:CG2	2.68	0.41
1:C:281:LYS:HB3	1:C:286:LEU:HD21	2.03	0.41
1:D:143:MET:SD	1:D:208:PHE:CE2	3.14	0.41
1:D:161:GLN:O	1:D:162:ALA:C	2.63	0.41
1:D:237:SER:C	1:D:239:LEU:N	2.78	0.41
1:A:221:THR:CG2	1:A:222:GLU:N	2.84	0.41
1:C:142:LEU:O	1:C:145:THR:OG1	2.28	0.41
1:C:296:GLU:HG3	2:C:531:HOH:O	2.20	0.41
1:A:228:LEU:HB2	1:A:231:ALA:HB2	2.02	0.40
1:A:268:LYS:O	1:A:268:LYS:HG3	2.19	0.40
1:C:171:ASP:O	1:C:172:ALA:C	2.64	0.40
1:C:507:THR:OG1	1:C:508:GLU:N	2.54	0.40
1:D:105:PRO:HB2	1:D:108:ILE:HD12	2.03	0.40
1:D:332:LEU:HD11	1:D:350:LEU:HD11	2.03	0.40
1:A:19:LEU:HD23	1:A:19:LEU:HA	1.82	0.40
1:B:343:ASP:OD1	1:B:343:ASP:C	2.64	0.40
1:C:206:SER:O	1:C:208:PHE:N	2.54	0.40
1:B:497:ARG:HA	1:B:500:GLN:OE1	2.20	0.40
1:D:54:HIS:HB3	1:D:57:ILE:O	2.22	0.40
1:D:314:SER:HB2	1:D:315:PRO:HD2	2.02	0.40
1:A:98:ARG:HG3	1:A:468:ALA:HB1	2.03	0.40
1:B:314:SER:HB2	1:B:315:PRO:HD2	2.04	0.40
1:D:106:SER:HB2	1:D:460:ILE:HG22	2.04	0.40
1:D:216:LEU:HA	1:D:217:PRO:HD3	1.85	0.40
1:D:365:MET:HE1	1:D:373:THR:HG21	2.03	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	503/518 (97%)	488 (97%)	14 (3%)	1 (0%)	43	63
1	B	497/518 (96%)	481 (97%)	16 (3%)	0	100	100
1	C	501/518 (97%)	474 (95%)	23 (5%)	4 (1%)	16	31
1	D	493/518 (95%)	465 (94%)	27 (6%)	1 (0%)	43	63
All	All	1994/2072 (96%)	1908 (96%)	80 (4%)	6 (0%)	36	55

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	485	GLU
1	C	207	SER
1	C	218	PHE
1	C	217	PRO
1	D	238	ASP
1	A	217	PRO

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	419/433 (97%)	401 (96%)	18 (4%)	26	51
1	B	403/433 (93%)	388 (96%)	15 (4%)	30	57
1	C	412/433 (95%)	399 (97%)	13 (3%)	34	62
1	D	398/433 (92%)	378 (95%)	20 (5%)	22	44
All	All	1632/1732 (94%)	1566 (96%)	66 (4%)	28	54

All (66) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2	ILE
1	A	24	ARG
1	A	39	LEU
1	A	110	GLU
1	A	124	THR

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Mol	Chain	Res	Type
1	A	136	LYS
1	A	182	ARG
1	A	251	ILE
1	A	276	LYS
1	A	279	ILE
1	A	306	LYS
1	A	307	ARG
1	A	313	GLU
1	A	330	ARG
1	A	393	ILE
1	A	411	ARG
1	A	463	THR
1	A	500	GLN
1	B	28	ARG
1	B	110	GLU
1	B	222	GLU
1	B	258	GLU
1	B	307	ARG
1	B	310	ARG
1	B	313	GLU
1	B	321	ARG
1	B	386	LYS
1	B	418	GLN
1	B	431	LYS
1	B	456	ILE
1	B	472	ARG
1	B	474	LEU
1	B	506	ASP
1	C	115	GLU
1	C	157	MET
1	C	167	ILE
1	C	247	SER
1	C	268	LYS
1	C	284	LYS
1	C	307	ARG
1	C	330	ARG
1	C	368	SER
1	C	393	ILE
1	C	411	ARG
1	C	453	ARG
1	C	497	ARG
1	D	98	ARG

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Mol	Chain	Res	Type
1	D	103	SER
1	D	104	MET
1	D	106	SER
1	D	114	ILE
1	D	207	SER
1	D	208	PHE
1	D	251	ILE
1	D	255	ASP
1	D	263	LEU
1	D	279	ILE
1	D	307	ARG
1	D	320	LEU
1	D	374	ARG
1	D	386	LYS
1	D	402	LEU
1	D	422	SER
1	D	437	VAL
1	D	451	ILE
1	D	497	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (17) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	44	HIS
1	A	150	HIS
1	A	152	ASN
1	B	17	GLN
1	B	23	GLN
1	B	152	ASN
1	C	93	ASN
1	C	150	HIS
1	C	152	ASN
1	C	418	GLN
1	C	430	GLN
1	D	17	GLN
1	D	23	GLN
1	D	44	HIS
1	D	152	ASN
1	D	291	ASN
1	D	517	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

4 non-standard protein/DNA/RNA residues 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$
1	FME	B	1	1	6,7,10	0.62	0	2,7,11	0.49	0
1	FME	D	1	1	6,7,10	1.17	1 (16%)	2,7,11	0.46	0
1	FME	C	1	1	8,9,10	0.95	1 (12%)	8,9,11	2.10	3 (37%)
1	FME	A	1	1	8,9,10	0.99	1 (12%)	8,9,11	2.65	3 (37%)

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
1	FME	B	1	1	-	1/5/6/11	-
1	FME	D	1	1	-	0/5/6/11	-
1	FME	C	1	1	-	5/7/9/11	-
1	FME	A	1	1	-	3/7/9/11	-

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1	FME	CA-N	2.34	1.49	1.46
1	C	1	FME	CA-N	2.23	1.49	1.46
1	D	1	FME	CB-CA	-2.09	1.50	1.53

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1	FME	O1-CN-N	-5.27	111.69	125.32
1	A	1	FME	CA-N-CN	4.47	129.70	122.82
1	C	1	FME	CA-N-CN	4.22	129.32	122.82
1	C	1	FME	O1-CN-N	-3.38	116.59	125.32
1	A	1	FME	C-CA-N	2.46	114.24	109.50
1	C	1	FME	C-CA-N	2.29	113.92	109.50

There are no chirality outliers.

All (9) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	1	FME	O1-CN-N-CA
1	A	1	FME	CB-CA-N-CN
1	C	1	FME	O1-CN-N-CA
1	C	1	FME	O-C-CA-CB
1	C	1	FME	C-CA-CB-CG
1	B	1	FME	CB-CG-SD-CE
1	C	1	FME	N-CA-CB-CG
1	C	1	FME	CB-CA-N-CN
1	A	1	FME	CB-CG-SD-CE

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

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	508/518 (98%)	-0.10	10 (1%) 65 61	9, 23, 44, 56	0
1	B	504/518 (97%)	0.32	44 (8%) 16 14	17, 34, 55, 87	0
1	C	508/518 (98%)	0.56	51 (10%) 12 10	21, 39, 57, 84	0
1	D	500/518 (96%)	0.42	51 (10%) 12 10	16, 35, 54, 85	0
All	All	2020/2072 (97%)	0.30	156 (7%) 19 17	9, 33, 54, 87	0

All (156) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	248	ASN	8.8
1	D	245	SER	7.5
1	B	172	ALA	6.9
1	D	518	ALA	6.3
1	C	518	ALA	6.0
1	D	241	TYR	6.0
1	B	311	SER	5.8
1	C	224	GLY	5.8
1	C	312	GLY	5.8
1	B	171	ASP	5.7
1	D	512	VAL	5.7
1	D	111	GLY	5.7
1	B	241	TYR	5.5
1	B	215	SER	5.5
1	C	512	VAL	5.1
1	D	240	GLY	5.0
1	B	170	ALA	4.9
1	D	109	ALA	4.9
1	D	239	LEU	4.9
1	B	312	GLY	4.9
1	D	282	ASP	4.8

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Mol	Chain	Res	Type	RSRZ
1	C	166	ASP	4.7
1	B	164	SER	4.7
1	D	283	GLY	4.6
1	D	110	GLU	4.5
1	C	110	GLU	4.3
1	D	247	SER	4.2
1	C	282	ASP	4.2
1	A	518	ALA	4.2
1	B	246	GLN	4.1
1	C	109	ALA	4.0
1	B	282	ASP	4.0
1	D	265	GLN	4.0
1	D	515	GLU	3.9
1	D	143	MET	3.9
1	B	247	SER	3.9
1	B	239	LEU	3.9
1	C	216	LEU	3.9
1	D	215	SER	3.9
1	A	215	SER	3.9
1	C	215	SER	3.9
1	D	222	GLU	3.8
1	B	507	THR	3.7
1	C	242	THR	3.7
1	D	278	GLY	3.7
1	C	516	LYS	3.7
1	C	513	TRP	3.6
1	B	169	GLY	3.6
1	C	111	GLY	3.6
1	D	281	LYS	3.5
1	C	511	ALA	3.5
1	D	209	LEU	3.5
1	C	247	SER	3.5
1	C	221	THR	3.4
1	C	163	LYS	3.4
1	D	279	ILE	3.4
1	D	238	ASP	3.3
1	C	244	LYS	3.3
1	C	246	GLN	3.3
1	C	514	LEU	3.3
1	B	500	GLN	3.2
1	C	311	SER	3.2
1	B	310	ARG	3.2

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Mol	Chain	Res	Type	RSRZ
1	C	509	PRO	3.2
1	B	512	VAL	3.2
1	B	505	ALA	3.1
1	C	284	LYS	3.1
1	A	222	GLU	3.1
1	D	513	TRP	3.1
1	B	272	GLU	3.0
1	B	280	GLU	3.0
1	C	279	ILE	3.0
1	D	107	TYR	3.0
1	D	477	GLU	3.0
1	D	223	SER	3.0
1	B	517	HIS	3.0
1	B	516	LYS	3.0
1	D	507	THR	2.9
1	D	517	HIS	2.9
1	D	284	LYS	2.9
1	C	209	LEU	2.9
1	C	477	GLU	2.9
1	B	515	GLU	2.8
1	D	296	GLU	2.8
1	C	283	GLY	2.7
1	D	208	PHE	2.8
1	C	161	GLN	2.7
1	D	250	GLY	2.7
1	C	423	ILE	2.7
1	C	245	SER	2.7
1	C	14	LYS	2.7
1	C	280	GLU	2.7
1	C	457	ASP	2.7
1	B	240	GLY	2.7
1	D	510	PHE	2.7
1	B	509	PRO	2.7
1	B	279	ILE	2.7
1	C	241	TYR	2.6
1	B	222	GLU	2.6
1	B	273	GLU	2.6
1	C	281	LYS	2.6
1	C	167	ILE	2.5
1	C	500	GLN	2.5
1	D	246	GLN	2.5
1	D	257	TYR	2.5

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Mol	Chain	Res	Type	RSRZ
1	B	281	LYS	2.5
1	A	423	ILE	2.5
1	B	209	LEU	2.5
1	B	514	LEU	2.5
1	B	248	ASN	2.5
1	D	249	LEU	2.4
1	C	361	ASP	2.4
1	B	518	ALA	2.4
1	C	507	THR	2.4
1	C	205	SER	2.4
1	B	283	GLY	2.4
1	A	282	ASP	2.4
1	C	243	ASN	2.4
1	B	511	ALA	2.4
1	D	255	ASP	2.4
1	D	457	ASP	2.4
1	D	106	SER	2.3
1	C	218	PHE	2.3
1	A	272	GLU	2.3
1	D	269	THR	2.3
1	B	285	ARG	2.3
1	B	497	ARG	2.3
1	D	295	ILE	2.3
1	B	489	VAL	2.3
1	B	162	ALA	2.2
1	C	107	TYR	2.2
1	D	173	LYS	2.2
1	C	239	LEU	2.2
1	B	508	GLU	2.2
1	D	275	ALA	2.2
1	D	511	ALA	2.2
1	B	163	LYS	2.2
1	D	204	ILE	2.2
1	B	223	SER	2.2
1	A	287	GLN	2.2
1	C	517	HIS	2.2
1	D	514	LEU	2.1
1	C	395	CYS	2.1
1	D	311	SER	2.1
1	A	163	LYS	2.1
1	B	173	LYS	2.1
1	A	312	GLY	2.1

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Mol	Chain	Res	Type	RSRZ
1	A	509	PRO	2.1
1	C	141	ALA	2.1
1	D	216	LEU	2.1
1	D	224	GLY	2.1
1	C	268	LYS	2.0
1	C	208	PHE	2.0
1	B	110	GLU	2.0
1	C	424	ASN	2.0
1	D	270	PRO	2.0

6.2 Non-standard residues in protein, DNA, RNA chains [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
1	FME	C	1	10/11	0.81	0.17	27,36,45,54	0
1	FME	A	1	10/11	0.87	0.14	25,37,48,53	0
1	FME	D	1	8/11	0.94	0.11	36,38,47,52	0
1	FME	B	1	8/11	0.95	0.11	32,36,40,46	0

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.