



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 09:36 PM UTC

PDB ID : 2XVN / pdb_00002xvn
Title : A. fumigatus chitinase A1 phenyl-methylguanylylurea complex
Authors : Rush, C.L.; Schuttelkopf, A.W.; Hurtado-Guerrero, R.; Blair, D.E.; Ibrahim, A.F.M.; Desvergnés, S.; Eggleston, I.M.; van Aalten, D.M.F.
Deposited on : 2010-10-26
Resolution : 2.35 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

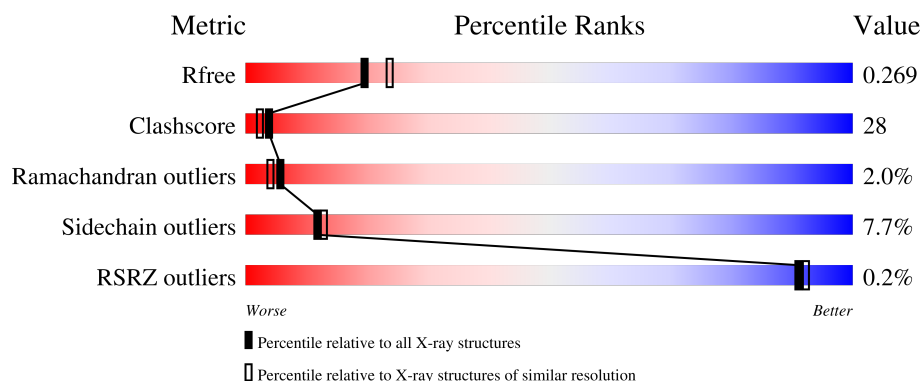
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.35 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	1596 (2.36-2.36)
Clashscore	190562	1663 (2.36-2.36)
Ramachandran outliers	187476	1646 (2.36-2.36)
Sidechain outliers	187428	1646 (2.36-2.36)
RSRZ outliers	180081	1598 (2.36-2.36)

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	309	 71% 26% ..
1	B	309	 69% 26% 5%
1	C	309	 26% 30% 10% . 32%

2 Entry composition [i](#)

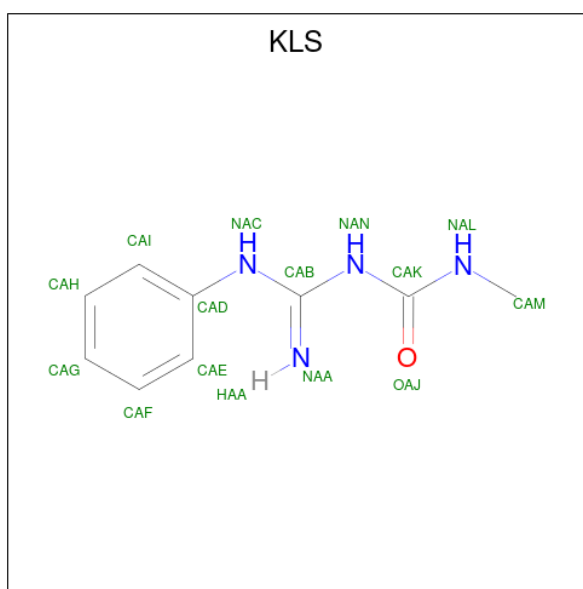
There are 4 unique types of molecules in this entry. The entry contains 6669 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 ASPERGILLUS FUMIGATUS CHITINASE A1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	309	Total	C	N	O	S	0	0	0
			2396	1541	382	461	12			
1	B	309	Total	C	N	O	S	0	0	0
			2396	1541	382	461	12			
1	C	210	Total	C	N	O	S	0	0	0
			1631	1062	253	307	9			

- Molecule 2 is 1-METHYL-3-(N-PHENYLCARBAMIMIDOYL)UREA (CCD ID: KLS) (formula: C₉H₁₂N₄O).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			14	9	4	1		
2	B	1	Total	C	N	O	0	0
			14	9	4	1		

- Molecule 3 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	B	2	Total	Cl	0	0
			2	2		

- Molecule 4 is water.

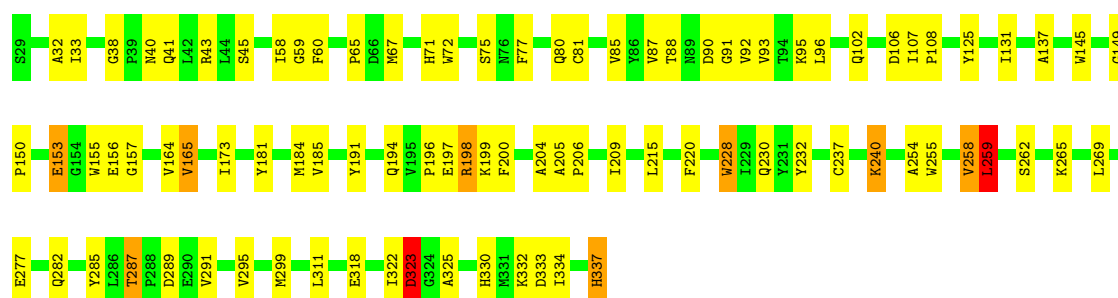
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	89	Total	O	0	0
			89	89		
4	B	95	Total	O	0	0
			95	95		
4	C	32	Total	O	0	0
			32	32		

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.

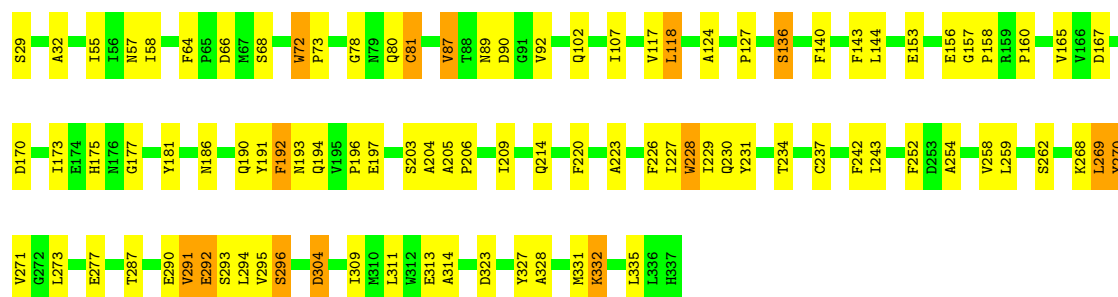
• Molecule 1: ASPERGILLUS FUMIGATUS CHITINASE A1

Chain A: 



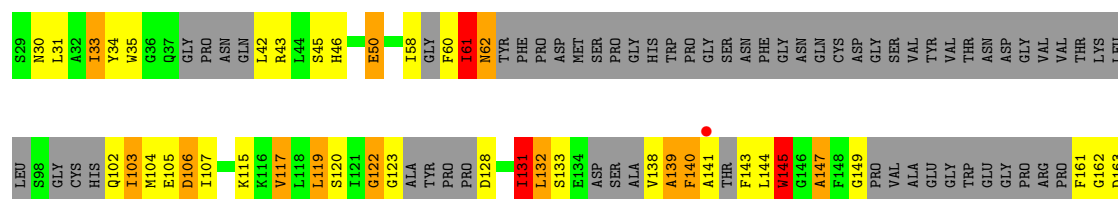
• Molecule 1: ASPERGILLUS FUMIGATUS CHITINASE A1

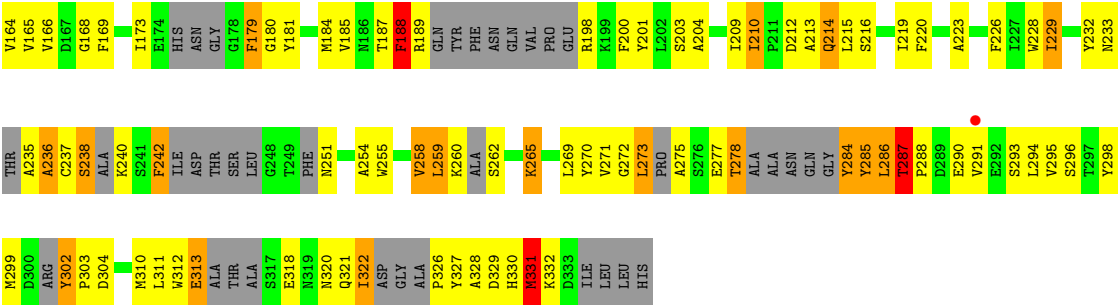
Chain B: 



• Molecule 1: ASPERGILLUS FUMIGATUS CHITINASE A1

Chain C: 





4 Data and refinement statistics

Property	Value	Source
Space group	P 32	Depositor
Cell constants a, b, c, α , β , γ	99.98Å 99.98Å 111.30Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	12.00 – 2.35 12.00 – 2.40	Depositor EDS
% Data completeness (in resolution range)	98.4 (12.00-2.35) 96.3 (12.00-2.40)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.10 (at 2.41Å)	Xtriage
Refinement program	REFMAC 5.5.0088	Depositor
R, R_{free}	0.259 , 0.299 0.252 , 0.269	Depositor DCC
R_{free} test set	465 reflections (1.00%)	wwPDB-VP
Wilson B-factor (Å ²)	17.5	Xtriage
Anisotropy	0.068	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.46 , 26.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.025 for -h,-k,l 0.449 for h,-h-k,-l 0.027 for -k,-h,-l	Xtriage
Reported twinning fraction	0.460 for H, K, L 0.540 for K, H, -L	Depositor
Outliers	0 of 46543 reflections	Xtriage
F_o, F_c correlation	0.90	EDS
Total number of atoms	6669	wwPDB-VP
Average B, all atoms (Å ²)	15.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.33% 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: KLS, CL

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	1.42	8/2468 (0.3%)	1.46	21/3368 (0.6%)
1	B	1.38	9/2468 (0.4%)	1.31	15/3368 (0.4%)
1	C	1.12	5/1655 (0.3%)	1.18	7/2218 (0.3%)
All	All	1.33	22/6591 (0.3%)	1.34	43/8954 (0.5%)

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	C	0	1

All (22) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	198	ARG	C-N	-29.45	0.93	1.33
1	B	291	VAL	C-N	-17.45	1.09	1.34
1	B	292	GLU	C-N	13.16	1.51	1.33
1	B	277	GLU	C-N	-12.74	1.17	1.33
1	A	58	ILE	CA-CB	6.39	1.61	1.54
1	A	32	ALA	CA-CB	6.00	1.64	1.53
1	B	160	PRO	C-O	5.86	1.30	1.24
1	A	289	ASP	C-O	-5.62	1.17	1.24
1	C	229	ILE	CA-C	-5.60	1.46	1.52
1	C	131	ILE	CA-CB	5.59	1.62	1.54
1	C	271	VAL	CA-CB	5.37	1.59	1.53
1	B	223	ALA	CA-CB	5.34	1.59	1.53
1	B	273	LEU	N-CA	5.33	1.52	1.45
1	B	156	GLU	C-O	-5.30	1.17	1.24
1	A	325	ALA	N-CA	5.29	1.51	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	237	CYS	C-O	-5.25	1.20	1.23
1	C	103	ILE	N-CA	-5.25	1.39	1.46
1	A	199	LYS	C-N	-5.17	1.26	1.33
1	A	209	ILE	N-CA	5.09	1.52	1.46
1	B	157	GLY	C-O	-5.07	1.17	1.24
1	C	145	TRP	CA-C	5.05	1.59	1.52
1	B	314	ALA	CA-CB	-5.00	1.45	1.53

All (43) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	198	ARG	CA-C-N	19.50	151.04	121.99
1	A	198	ARG	C-N-CA	19.50	151.04	121.99
1	A	258	VAL	CB-CA-C	-16.39	88.53	110.98
1	A	258	VAL	N-CA-C	-15.77	84.97	107.99
1	A	259	LEU	N-CA-C	-10.27	88.93	110.80
1	A	198	ARG	O-C-N	-9.96	111.45	123.30
1	B	292	GLU	O-C-N	9.37	133.79	122.27
1	A	72	TRP	CA-C-N	-7.88	112.59	120.31
1	A	72	TRP	C-N-CA	-7.88	112.59	120.31
1	A	259	LEU	N-CA-CB	7.64	123.40	110.49
1	A	325	ALA	CA-C-N	-7.27	113.20	120.98
1	A	325	ALA	C-N-CA	-7.27	113.20	120.98
1	B	291	VAL	O-C-N	-6.90	115.13	121.89
1	C	106	ASP	N-CA-C	6.43	118.37	111.36
1	B	118	LEU	N-CA-C	-6.35	97.89	108.75
1	A	287	THR	CA-C-N	-6.28	112.37	119.28
1	A	287	THR	C-N-CA	-6.28	112.37	119.28
1	A	43	ARG	NE-CZ-NH1	-6.22	115.28	121.50
1	B	291	VAL	CA-C-N	6.20	129.74	120.31
1	B	291	VAL	C-N-CA	6.20	129.74	120.31
1	B	205	ALA	CA-C-N	-6.17	114.29	120.21
1	B	205	ALA	C-N-CA	-6.17	114.29	120.21
1	C	214	GLN	N-CA-C	5.82	117.70	111.36
1	B	332	LYS	N-CA-C	5.77	117.57	111.28
1	C	210	ILE	CB-CA-C	5.74	116.51	110.37
1	A	165	VAL	CB-CA-C	5.71	118.88	110.77
1	C	213	ALA	CA-C-N	5.61	128.26	120.29
1	C	213	ALA	C-N-CA	5.61	128.26	120.29
1	A	107	ILE	N-CA-CB	5.47	113.95	110.50
1	C	331	MET	CB-CG-SD	5.44	129.02	112.70
1	A	153	GLU	N-CA-C	5.38	120.20	111.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	287	THR	N-CA-C	-5.31	102.55	110.20
1	A	43	ARG	NE-CZ-NH2	5.30	123.97	119.20
1	B	328	ALA	N-CA-C	5.23	118.45	111.75
1	B	270	TYR	N-CA-C	5.17	118.18	109.95
1	B	72	TRP	CA-C-N	5.16	126.28	119.84
1	B	72	TRP	C-N-CA	5.16	126.28	119.84
1	A	58	ILE	CA-C-N	-5.13	117.96	122.73
1	A	58	ILE	C-N-CA	-5.13	117.96	122.73
1	B	304	ASP	N-CA-C	-5.12	106.89	113.23
1	C	209	ILE	CB-CA-C	-5.11	103.26	111.59
1	B	68	SER	CB-CA-C	5.05	116.70	108.87
1	A	323	ASP	N-CA-C	5.04	118.35	111.39

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	302	TYR	Peptide

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	2396	0	2235	56	3
1	B	2396	0	2235	59	1
1	C	1631	0	1511	235	2
2	A	14	0	11	0	0
2	B	14	0	11	5	0
3	B	2	0	0	0	0
4	A	89	0	0	8	0
4	B	95	0	0	3	0
4	C	32	0	0	20	0
All	All	6669	0	6003	353	3

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 28.

All (353) 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:286:LEU:HA	1:C:287:THR:CG2	1.40	1.50
1:C:287:THR:OG1	1:C:290:GLU:CB	1.68	1.41
1:C:133:SER:O	1:C:138:VAL:CG2	1.68	1.39
1:C:132:LEU:HA	1:C:179:PHE:CZ	1.60	1.35
1:C:286:LEU:CA	1:C:287:THR:HG23	1.58	1.33
1:C:60:PHE:CB	1:C:122:GLY:O	1.76	1.32
1:C:286:LEU:HD22	1:C:287:THR:CG2	1.63	1.29
1:C:285:TYR:OH	1:C:288:PRO:HD3	1.35	1.27
1:C:286:LEU:CD2	1:C:287:THR:HG21	1.64	1.27
1:C:238:SER:HB3	1:C:284:TYR:OH	1.14	1.25
1:C:258:VAL:HG12	1:C:259:LEU:CD2	1.67	1.25
1:A:255:TRP:O	1:A:258:VAL:O	1.58	1.21
1:C:286:LEU:HA	1:C:287:THR:CB	1.64	1.20
1:C:60:PHE:HB3	1:C:122:GLY:O	1.04	1.19
1:C:285:TYR:CE2	1:C:287:THR:HG22	1.77	1.19
1:C:132:LEU:CA	1:C:179:PHE:HZ	1.50	1.17
1:C:163:ASP:HB2	4:C:2010:HOH:O	1.44	1.15
1:A:277:GLU:OE2	4:A:2069:HOH:O	1.62	1.14
1:C:286:LEU:HD22	1:C:287:THR:CB	1.76	1.14
1:C:238:SER:CB	1:C:284:TYR:CZ	2.31	1.14
1:C:238:SER:CB	1:C:284:TYR:OH	1.94	1.14
1:C:259:LEU:N	1:C:259:LEU:HD23	1.67	1.09
1:C:240:LYS:CG	1:C:284:TYR:HB2	1.81	1.09
1:C:131:ILE:HD12	1:C:131:ILE:H	1.13	1.07
1:C:133:SER:O	1:C:138:VAL:HG21	1.48	1.07
1:C:296:SER:HA	4:C:2031:HOH:O	1.53	1.07
1:C:61:ILE:CD1	1:C:119:LEU:HD11	1.83	1.06
1:C:61:ILE:HD11	1:C:119:LEU:HD11	1.34	1.05
1:C:286:LEU:HD22	1:C:287:THR:HG21	1.22	1.05
1:C:240:LYS:CD	1:C:284:TYR:HB2	1.87	1.05
1:B:196:PRO:HD2	1:B:197:GLU:OE1	1.57	1.04
1:C:133:SER:O	1:C:138:VAL:HG22	1.52	1.04
1:C:60:PHE:CG	1:C:122:GLY:O	2.11	1.03
1:C:258:VAL:HG12	1:C:259:LEU:HD21	1.36	1.03
1:C:286:LEU:CD2	1:C:287:THR:CG2	2.30	1.02
1:C:238:SER:HB3	1:C:284:TYR:CZ	1.95	1.01
1:C:140:PHE:CD2	1:C:184:MET:HE3	1.96	1.00
1:B:243:ILE:HG13	1:B:290:GLU:HG2	1.43	0.99
1:C:240:LYS:HD3	1:C:284:TYR:HB2	1.43	0.99
1:C:132:LEU:HA	1:C:179:PHE:HZ	0.91	0.99
1:C:173:ILE:HG22	1:C:214:GLN:HG3	1.39	0.99

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:286:LEU:N	1:C:287:THR:HG23	1.79	0.98
1:C:145:TRP:HH2	1:C:200:PHE:CE2	1.81	0.97
1:C:240:LYS:HG2	1:C:284:TYR:HB2	1.43	0.97
1:C:286:LEU:HA	1:C:287:THR:HG23	0.98	0.97
1:C:35:TRP:O	1:C:58:ILE:HA	1.65	0.97
1:C:179:PHE:CD1	1:C:179:PHE:C	2.41	0.96
1:C:286:LEU:HD22	1:C:287:THR:OG1	1.64	0.95
1:C:132:LEU:CA	1:C:179:PHE:CZ	2.35	0.95
1:C:299:MET:HB3	4:C:2031:HOH:O	1.66	0.95
1:C:258:VAL:CG1	1:C:259:LEU:CD2	2.45	0.94
1:C:238:SER:HB2	1:C:284:TYR:CZ	2.02	0.92
1:C:286:LEU:HD23	1:C:287:THR:HG21	1.48	0.92
1:C:238:SER:HB3	1:C:284:TYR:HH	1.19	0.92
1:A:80:GLN:HE22	1:A:102:GLN:NE2	1.66	0.91
1:C:287:THR:OG1	1:C:290:GLU:HB2	0.74	0.91
1:C:285:TYR:CG	1:C:286:LEU:N	2.35	0.91
1:C:255:TRP:O	1:C:259:LEU:CD2	2.18	0.91
1:C:258:VAL:C	1:C:259:LEU:HD23	1.96	0.90
1:C:258:VAL:HG12	1:C:259:LEU:HD23	1.53	0.90
1:A:333:ASP:HB3	4:A:2089:HOH:O	1.71	0.90
1:C:285:TYR:CE2	1:C:287:THR:CG2	2.53	0.90
1:C:60:PHE:O	1:C:62:ASN:N	2.04	0.89
1:C:277:GLU:HB2	4:C:2027:HOH:O	1.72	0.89
1:C:140:PHE:CD2	1:C:184:MET:CE	2.56	0.88
1:C:161:PHE:HB2	1:C:164:VAL:HB	1.53	0.88
1:C:145:TRP:CH2	1:C:200:PHE:CE2	2.61	0.88
1:B:229:ILE:HD11	1:B:269:LEU:HD21	1.54	0.87
1:C:318:GLU:O	1:C:321:GLN:NE2	2.08	0.87
1:C:179:PHE:C	1:C:179:PHE:HD1	1.84	0.86
1:C:285:TYR:CZ	1:C:287:THR:HA	2.10	0.85
1:A:87:VAL:HG13	1:A:92:VAL:C	2.01	0.85
1:C:60:PHE:C	1:C:62:ASN:H	1.81	0.84
1:C:275:ALA:HB3	1:C:312:TRP:O	1.76	0.84
1:C:284:TYR:HD1	1:C:284:TYR:O	1.61	0.83
1:B:78:GLY:HA2	4:B:2001:HOH:O	1.78	0.83
1:C:131:ILE:H	1:C:131:ILE:CD1	1.90	0.83
1:C:251:ASN:N	4:C:2025:HOH:O	2.09	0.83
1:C:240:LYS:HG2	1:C:284:TYR:CB	2.08	0.83
1:C:286:LEU:CA	1:C:287:THR:CG2	2.30	0.82
1:A:95:LYS:HE3	4:A:2011:HOH:O	1.79	0.82
1:C:143:PHE:HD2	4:C:2009:HOH:O	1.60	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:286:LEU:HA	1:C:287:THR:OG1	1.79	0.81
1:B:268:LYS:HE2	4:B:2083:HOH:O	1.81	0.81
1:C:286:LEU:CA	1:C:287:THR:CB	2.50	0.81
1:C:285:TYR:CD2	1:C:287:THR:CG2	2.65	0.80
1:C:140:PHE:CG	1:C:184:MET:HE3	2.17	0.80
1:C:286:LEU:CA	1:C:287:THR:OG1	2.30	0.80
1:C:50:GLU:O	1:C:115:LYS:NZ	2.12	0.80
1:C:140:PHE:O	1:C:141:ALA:C	2.22	0.80
1:C:238:SER:CB	1:C:284:TYR:CE2	2.65	0.79
1:C:259:LEU:CD2	1:C:259:LEU:N	2.41	0.79
1:A:87:VAL:HG13	1:A:92:VAL:O	1.83	0.79
1:A:87:VAL:HG22	1:A:93:VAL:HA	1.63	0.78
1:C:61:ILE:CG2	1:C:61:ILE:O	2.31	0.78
1:C:61:ILE:O	1:C:61:ILE:HG22	1.83	0.78
1:C:286:LEU:CD2	1:C:287:THR:OG1	2.30	0.78
1:C:140:PHE:CB	1:C:184:MET:HE3	2.13	0.78
1:C:251:ASN:HA	4:C:2025:HOH:O	1.84	0.78
1:B:117:VAL:O	1:B:118:LEU:HD23	1.83	0.78
1:C:285:TYR:HE2	1:C:287:THR:HG22	1.46	0.77
1:C:144:LEU:HD23	4:C:2009:HOH:O	1.83	0.77
1:C:273:LEU:O	1:C:311:LEU:HA	1.84	0.77
1:C:285:TYR:CD2	1:C:287:THR:HG22	2.19	0.77
1:C:287:THR:CB	1:C:290:GLU:HB2	2.12	0.75
1:C:34:TYR:O	1:C:313:GLU:HB2	1.86	0.75
1:C:165:VAL:O	1:C:198:ARG:NH2	2.20	0.75
1:C:285:TYR:CZ	1:C:288:PRO:HD3	2.21	0.74
1:C:238:SER:OG	1:C:284:TYR:CE2	2.40	0.74
1:A:181:TYR:O	1:A:185:VAL:HG23	1.87	0.74
1:C:284:TYR:O	1:C:284:TYR:CD1	2.40	0.73
1:C:62:ASN:OD1	1:C:62:ASN:C	2.30	0.73
1:A:80:GLN:HE22	1:A:102:GLN:HE21	1.33	0.73
1:C:286:LEU:CG	1:C:287:THR:OG1	2.36	0.73
1:C:327:TYR:O	1:C:331:MET:HG2	1.89	0.73
1:C:141:ALA:HA	1:C:188:PHE:CZ	2.23	0.73
1:C:103:ILE:C	1:C:105:GLU:H	1.96	0.72
1:C:161:PHE:O	1:C:164:VAL:HG23	1.90	0.72
2:B:1340:KLS:NAA	2:B:1340:KLS:HAI	2.04	0.71
1:C:60:PHE:CD1	1:C:122:GLY:C	2.68	0.71
1:C:286:LEU:H	1:C:287:THR:HG23	1.56	0.71
1:C:132:LEU:HA	1:C:179:PHE:CE2	2.23	0.71
1:A:85:VAL:HA	1:A:96:LEU:O	1.91	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:229:ILE:CD1	1:B:269:LEU:HD21	2.21	0.70
1:C:140:PHE:O	1:C:143:PHE:N	2.24	0.70
1:C:255:TRP:O	1:C:259:LEU:HG	1.91	0.70
1:C:131:ILE:HD12	1:C:131:ILE:N	1.99	0.70
1:C:240:LYS:HD3	1:C:284:TYR:CB	2.22	0.70
1:C:242:PHE:HE1	1:C:294:LEU:HA	1.58	0.69
1:B:80:GLN:HE22	1:B:102:GLN:HB2	1.58	0.69
1:C:286:LEU:CD1	1:C:287:THR:OG1	2.30	0.69
1:C:60:PHE:C	1:C:62:ASN:N	2.49	0.69
1:C:161:PHE:CB	1:C:164:VAL:HB	2.23	0.69
1:C:232:TYR:HA	1:C:284:TYR:OH	1.94	0.68
1:C:285:TYR:CD2	1:C:287:THR:HG23	2.29	0.67
1:C:295:VAL:HG12	1:C:299:MET:HE3	1.76	0.67
1:A:149:GLY:O	1:A:165:VAL:HG22	1.94	0.66
1:C:219:ILE:HB	4:C:2019:HOH:O	1.95	0.66
1:B:292:GLU:C	1:B:292:GLU:CD	2.63	0.66
1:C:275:ALA:HB3	1:C:312:TRP:C	2.20	0.66
1:C:298:TYR:C	4:C:2032:HOH:O	2.39	0.66
1:C:140:PHE:CG	1:C:184:MET:CE	2.79	0.65
1:C:216:SER:O	4:C:2019:HOH:O	2.15	0.65
1:C:255:TRP:O	1:C:259:LEU:CG	2.44	0.65
1:B:194:GLN:O	1:B:196:PRO:HD3	1.98	0.64
1:C:149:GLY:C	1:C:165:VAL:HG23	2.23	0.64
1:C:104:MET:HA	1:C:164:VAL:HG21	1.78	0.64
1:C:179:PHE:HD1	1:C:179:PHE:O	1.80	0.64
1:C:258:VAL:CG1	1:C:259:LEU:HD23	2.22	0.63
1:B:186:ASN:O	1:B:190:GLN:HG3	1.97	0.63
1:B:254:ALA:O	1:B:258:VAL:HG23	1.99	0.63
1:C:259:LEU:O	1:C:265:LYS:HA	1.98	0.63
1:C:138:VAL:O	1:C:140:PHE:N	2.28	0.62
1:C:251:ASN:CA	4:C:2025:HOH:O	2.38	0.62
1:A:196:PRO:HD2	1:A:197:GLU:OE1	1.99	0.62
1:A:150:PRO:HA	1:A:165:VAL:HG21	1.80	0.62
1:C:255:TRP:O	1:C:259:LEU:HD23	1.98	0.61
1:C:232:TYR:HE1	1:C:272:GLY:O	1.84	0.61
1:B:177:GLY:H	1:B:214:GLN:HE21	1.49	0.61
1:C:229:ILE:HD11	1:C:269:LEU:HD11	1.82	0.61
1:C:103:ILE:C	1:C:105:GLU:N	2.59	0.60
1:C:33:ILE:HD12	1:C:311:LEU:HD12	1.82	0.60
1:B:117:VAL:O	1:B:167:ASP:HB2	2.02	0.60
1:C:61:ILE:CG1	1:C:119:LEU:HD11	2.32	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:255:TRP:O	1:C:259:LEU:HD21	2.01	0.59
1:B:294:LEU:C	1:B:294:LEU:HD23	2.27	0.59
1:A:155:TRP:CZ2	1:A:157:GLY:HA3	2.38	0.59
1:C:131:ILE:HG12	1:C:184:MET:SD	2.43	0.59
1:C:285:TYR:CE2	1:C:287:THR:HA	2.38	0.59
1:C:60:PHE:CD1	1:C:122:GLY:O	2.56	0.59
1:C:187:THR:O	1:C:188:PHE:C	2.45	0.58
1:C:326:PRO:O	1:C:329:ASP:HB2	2.03	0.58
1:C:61:ILE:HD11	1:C:119:LEU:CD1	2.23	0.58
1:A:333:ASP:O	1:A:337:HIS:HB2	2.04	0.58
1:A:125:TYR:HB2	4:A:2028:HOH:O	2.03	0.57
1:A:131:ILE:HG21	1:A:137:ALA:HB2	1.86	0.57
1:C:145:TRP:O	1:C:149:GLY:HA3	2.03	0.57
1:B:295:VAL:HG21	1:B:309:ILE:HD11	1.86	0.57
1:C:240:LYS:HB2	1:C:284:TYR:CD1	2.40	0.57
1:C:295:VAL:CG1	1:C:299:MET:HE3	2.34	0.57
1:A:65:PRO:HB3	1:A:71:HIS:O	2.05	0.57
1:B:80:GLN:O	1:B:81:CYS:HB2	2.05	0.57
1:C:140:PHE:CD2	1:C:184:MET:HE1	2.38	0.57
1:A:287:THR:O	1:A:291:VAL:HG23	2.05	0.56
1:C:235:ALA:O	1:C:236:ALA:C	2.47	0.56
1:C:143:PHE:CD2	4:C:2009:HOH:O	2.44	0.56
1:C:240:LYS:HD3	1:C:284:TYR:C	2.31	0.56
1:B:170:ASP:OD1	1:B:203:SER:OG	2.18	0.55
1:C:220:PHE:HA	1:C:262:SER:HB2	1.88	0.55
1:C:237:CYS:O	1:C:238:SER:C	2.47	0.55
1:C:286:LEU:CB	1:C:287:THR:OG1	2.55	0.55
1:A:38:GLY:HA3	4:A:2079:HOH:O	2.07	0.55
1:C:103:ILE:O	1:C:105:GLU:N	2.40	0.55
1:C:242:PHE:CE1	1:C:294:LEU:HA	2.41	0.55
1:C:144:LEU:HA	4:C:2009:HOH:O	2.07	0.54
1:C:310:MET:SD	1:C:311:LEU:N	2.80	0.54
1:C:232:TYR:CE1	1:C:272:GLY:O	2.61	0.54
1:C:328:ALA:HA	1:C:331:MET:HG3	1.88	0.54
1:B:87:VAL:HA	1:B:92:VAL:O	2.07	0.54
1:C:287:THR:OG1	1:C:290:GLU:CA	2.51	0.54
1:C:60:PHE:HE1	1:C:120:SER:HG	1.55	0.54
1:C:240:LYS:CB	1:C:284:TYR:CG	2.91	0.54
1:C:203:SER:HA	1:C:226:PHE:O	2.08	0.54
1:A:220:PHE:HA	1:A:262:SER:HB2	1.90	0.53
1:A:333:ASP:CB	4:A:2089:HOH:O	2.43	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:104:MET:O	1:C:104:MET:HG2	2.08	0.53
1:B:191:TYR:O	1:B:192:PHE:C	2.51	0.53
1:C:168:GLY:HA3	1:C:201:TYR:O	2.08	0.53
1:C:173:ILE:CG2	1:C:214:GLN:HG3	2.27	0.53
1:C:42:LEU:HD13	1:C:46:HIS:CD2	2.44	0.53
1:B:242:PHE:HD2	1:B:243:ILE:HD13	1.72	0.53
1:A:204:ALA:HB1	1:A:215:LEU:HD13	1.90	0.53
1:A:330:HIS:O	1:A:334:ILE:HG13	2.08	0.53
1:B:72:TRP:CH2	1:B:158:PRO:HD3	2.44	0.52
1:B:66:ASP:OD2	1:B:136:SER:OG	2.27	0.52
1:C:240:LYS:CG	1:C:284:TYR:CB	2.67	0.52
1:C:210:ILE:HD11	1:C:255:TRP:CD1	2.45	0.52
1:C:60:PHE:CG	1:C:122:GLY:C	2.83	0.52
1:C:133:SER:O	1:C:138:VAL:HG23	1.92	0.52
1:C:120:SER:O	1:C:122:GLY:HA2	2.10	0.52
1:C:141:ALA:HB2	1:C:184:MET:O	2.09	0.52
1:C:161:PHE:O	1:C:164:VAL:CG2	2.57	0.52
1:B:80:GLN:O	1:B:81:CYS:CB	2.58	0.51
1:B:127:PRO:HA	1:B:175:HIS:CD2	2.46	0.51
1:B:196:PRO:CD	1:B:197:GLU:OE1	2.46	0.51
1:C:140:PHE:CB	1:C:184:MET:CE	2.86	0.51
1:A:87:VAL:CG1	1:A:91:GLY:C	2.84	0.51
1:C:240:LYS:HB2	1:C:284:TYR:CG	2.45	0.51
1:A:145:TRP:CE2	1:A:191:TYR:HB3	2.46	0.50
1:C:229:ILE:CD1	1:C:269:LEU:HD11	2.41	0.50
1:C:286:LEU:HD23	1:C:287:THR:CG2	2.22	0.50
1:C:169:PHE:CE2	1:C:188:PHE:CE1	2.99	0.50
1:C:143:PHE:HB3	4:C:2009:HOH:O	2.12	0.50
1:C:132:LEU:C	1:C:179:PHE:CE2	2.90	0.50
1:C:140:PHE:O	1:C:141:ALA:O	2.28	0.50
1:C:284:TYR:O	1:C:285:TYR:O	2.30	0.50
1:C:60:PHE:HD1	1:C:122:GLY:HA2	1.77	0.49
1:B:268:LYS:HE3	1:B:304:ASP:O	2.12	0.49
1:A:65:PRO:O	1:A:71:HIS:HA	2.11	0.49
1:A:80:GLN:NE2	1:A:102:GLN:NE2	2.48	0.49
1:C:287:THR:O	1:C:291:VAL:N	2.45	0.49
1:A:240:LYS:HG3	1:A:240:LYS:O	2.12	0.49
1:C:295:VAL:O	1:C:299:MET:HB3	2.13	0.48
1:C:123:GLY:HA2	4:C:2007:HOH:O	2.13	0.48
1:C:165:VAL:O	1:C:165:VAL:HG13	2.13	0.48
1:C:232:TYR:HA	1:C:284:TYR:CE1	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:327:TYR:CZ	1:B:331:MET:HE3	2.48	0.48
1:C:165:VAL:O	1:C:165:VAL:HG22	2.13	0.48
1:C:258:VAL:C	1:C:259:LEU:CD2	2.77	0.48
1:B:124:ALA:HB1	2:B:1340:KLS:HAE	1.96	0.48
1:B:311:LEU:HD11	1:B:331:MET:HG3	1.96	0.48
1:C:45:SER:HB3	1:C:106:ASP:CG	2.38	0.48
1:C:144:LEU:CA	4:C:2009:HOH:O	2.62	0.48
1:A:330:HIS:HE1	4:A:2082:HOH:O	1.96	0.48
1:B:58:ILE:HD11	1:B:117:VAL:HG11	1.94	0.47
1:B:73:PRO:HG2	1:B:143:PHE:CD1	2.49	0.47
1:C:62:ASN:OD1	1:C:62:ASN:O	2.31	0.47
1:C:179:PHE:CD1	1:C:180:GLY:N	2.81	0.47
1:C:313:GLU:C	4:C:2001:HOH:O	2.57	0.47
1:B:124:ALA:HB1	2:B:1340:KLS:CAE	2.45	0.47
1:A:282:GLN:O	1:A:282:GLN:HG3	2.13	0.47
1:B:80:GLN:OE1	1:B:102:GLN:OE1	2.33	0.47
1:C:189:ARG:NH2	1:C:223:ALA:O	2.40	0.47
1:C:107:ILE:HG23	1:C:117:VAL:HG21	1.96	0.46
1:C:131:ILE:HG22	1:C:138:VAL:HG23	1.97	0.46
1:C:140:PHE:HD2	1:C:184:MET:HE3	1.66	0.46
1:C:43:ARG:NH2	1:C:106:ASP:OD1	2.49	0.46
1:C:233:ASN:HB2	4:C:2022:HOH:O	2.14	0.46
1:A:155:TRP:CE2	1:A:157:GLY:HA3	2.51	0.46
1:A:108:PRO:HG3	1:A:164:VAL:HG22	1.98	0.46
1:C:147:ALA:C	1:C:149:GLY:H	2.24	0.46
1:C:295:VAL:O	1:C:299:MET:CB	2.64	0.46
1:A:75:SER:HB2	1:A:77:PHE:CE2	2.51	0.46
1:C:181:TYR:O	1:C:185:VAL:HG23	2.16	0.46
1:C:212:ASP:OD2	1:C:215:LEU:N	2.47	0.46
1:A:332:LYS:HA	1:A:332:LYS:HD2	1.84	0.46
1:B:220:PHE:HA	1:B:262:SER:HB2	1.97	0.45
1:A:33:ILE:HD12	1:A:311:LEU:HD12	1.96	0.45
1:B:64:PHE:HB3	4:B:2037:HOH:O	2.17	0.45
1:C:285:TYR:O	1:C:286:LEU:HB2	2.17	0.45
1:B:204:ALA:HB3	1:B:227:ILE:HG12	1.99	0.45
1:A:87:VAL:HA	1:A:92:VAL:O	2.16	0.45
1:C:173:ILE:HG21	1:C:181:TYR:CE2	2.51	0.45
1:C:104:MET:O	1:C:104:MET:CG	2.64	0.45
2:B:1340:KLS:NAA	2:B:1340:KLS:OAJ	2.50	0.45
1:C:141:ALA:HA	1:C:188:PHE:CE1	2.51	0.44
1:C:204:ALA:HB1	1:C:215:LEU:HD13	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:191:TYR:O	1:B:193:ASN:N	2.51	0.44
1:B:292:GLU:O	1:B:296:SER:HB3	2.17	0.44
1:A:45:SER:HB3	1:A:106:ASP:CG	2.42	0.44
1:A:322:ILE:O	1:A:330:HIS:NE2	2.48	0.44
1:C:132:LEU:C	1:C:179:PHE:CZ	2.94	0.44
1:C:145:TRP:CH2	1:C:200:PHE:CD2	3.05	0.44
1:B:140:PHE:CE1	1:B:144:LEU:HD11	2.52	0.44
1:C:322:ILE:O	1:C:330:HIS:NE2	2.51	0.44
1:B:209:ILE:HG13	1:B:237:CYS:SG	2.57	0.43
1:C:31:LEU:HD22	1:C:332:LYS:HB2	2.00	0.43
1:B:29:SER:OG	1:B:335:LEU:HD22	2.18	0.43
1:B:209:ILE:CD1	1:B:234:THR:HG21	2.47	0.43
1:B:228:TRP:HA	1:B:270:TYR:HB2	1.99	0.43
1:A:205:ALA:HB2	1:A:228:TRP:HD1	1.83	0.43
1:C:251:ASN:C	1:C:251:ASN:OD1	2.61	0.43
1:C:311:LEU:HD11	1:C:331:MET:HG3	2.00	0.43
1:B:173:ILE:HG21	1:B:181:TYR:CE2	2.54	0.43
1:B:291:VAL:HG11	1:B:331:MET:SD	2.59	0.43
1:C:161:PHE:HB3	1:C:164:VAL:HG21	2.01	0.43
1:C:61:ILE:HG12	1:C:119:LEU:HD11	2.01	0.43
1:A:59:GLY:HA2	1:A:60:PHE:HA	1.83	0.43
1:B:206:PRO:O	1:B:230:GLN:HG3	2.19	0.43
1:C:294:LEU:C	1:C:294:LEU:HD23	2.44	0.43
1:C:161:PHE:O	1:C:162:GLY:C	2.60	0.43
1:A:206:PRO:O	1:A:230:GLN:HG3	2.19	0.42
1:A:198:ARG:HG2	1:A:200:PHE:CE2	2.54	0.42
1:B:292:GLU:C	1:B:292:GLU:OE1	2.63	0.42
1:C:30:ASN:HB2	1:C:270:TYR:OH	2.19	0.42
1:A:277:GLU:HG2	1:A:285:TYR:CD2	2.54	0.42
1:B:32:ALA:HA	1:B:55:ILE:HB	2.02	0.42
1:B:203:SER:HA	1:B:226:PHE:O	2.20	0.42
1:C:140:PHE:HB3	1:C:184:MET:CE	2.49	0.42
1:C:107:ILE:HG23	1:C:117:VAL:HG11	2.02	0.42
1:C:254:ALA:O	1:C:258:VAL:HB	2.20	0.42
1:C:286:LEU:C	1:C:287:THR:OG1	2.62	0.42
1:B:107:ILE:HG23	1:B:117:VAL:HG21	2.01	0.42
1:A:173:ILE:HG21	1:A:181:TYR:CE2	2.55	0.42
1:B:191:TYR:C	1:B:193:ASN:N	2.77	0.42
1:B:229:ILE:CD1	1:B:269:LEU:CD2	2.95	0.42
1:A:88:THR:C	1:A:90:ASP:H	2.27	0.41
1:A:259:LEU:O	1:A:265:LYS:HA	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:58:ILE:HD13	1:B:58:ILE:HG21	1.91	0.41
1:A:254:ALA:O	1:A:258:VAL:HG23	2.19	0.41
1:C:240:LYS:HD3	1:C:284:TYR:CA	2.51	0.41
1:C:326:PRO:HG2	1:C:329:ASP:CG	2.46	0.41
1:B:231:TYR:HD2	1:B:271:VAL:HG13	1.84	0.41
1:A:258:VAL:O	1:A:259:LEU:HB2	2.21	0.41
1:A:269:LEU:HD12	1:A:269:LEU:HA	1.95	0.41
1:A:299:MET:HE3	1:A:299:MET:HB2	1.84	0.41
1:A:330:HIS:ND1	4:A:2086:HOH:O	2.36	0.41
1:B:57:ASN:HA	1:B:118:LEU:O	2.20	0.41
1:C:140:PHE:HB2	1:C:184:MET:HE3	1.94	0.41
1:A:184:MET:HE2	1:A:184:MET:HB3	1.92	0.41
1:B:252:PHE:CZ	1:B:269:LEU:HD13	2.55	0.41
2:B:1340:KLS:NAA	2:B:1340:KLS:CAI	2.71	0.41
1:C:60:PHE:HB3	1:C:122:GLY:C	2.13	0.41
1:C:232:TYR:HA	1:C:284:TYR:CZ	2.55	0.41
1:B:242:PHE:CD2	1:B:243:ILE:HD13	2.55	0.41
1:C:138:VAL:HB	1:C:139:ALA:H	1.47	0.41
1:A:259:LEU:HD22	1:A:259:LEU:HA	1.97	0.40
1:C:60:PHE:HE2	1:C:312:TRP:CH2	2.39	0.40
1:C:138:VAL:HG12	1:C:139:ALA:N	2.36	0.40
1:C:141:ALA:HA	1:C:188:PHE:CE2	2.56	0.40
1:A:40:ASN:O	1:A:41:GLN:C	2.64	0.40
1:B:209:ILE:HD12	1:B:234:THR:HG21	2.02	0.40
1:C:296:SER:CA	4:C:2031:HOH:O	2.35	0.40

All (3) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:323:ASP:OD2	1:B:90:ASP:O[2_554]	1.74	0.46
1:A:153:GLU:OE1	1:C:278:THR:CG2[3_555]	2.10	0.10
1:A:156:GLU:OE2	1:C:320:ASN:OD1[3_555]	2.16	0.04

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	307/309 (99%)	281 (92%)	24 (8%)	2 (1%)	18	20
1	B	307/309 (99%)	291 (95%)	14 (5%)	2 (1%)	18	20
1	C	169/309 (55%)	134 (79%)	23 (14%)	12 (7%)	1	0
All	All	783/927 (84%)	706 (90%)	61 (8%)	16 (2%)	6	4

All (16) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	259	LEU
1	C	61	ILE
1	C	139	ALA
1	C	147	ALA
1	C	166	VAL
1	C	236	ALA
1	C	285	TYR
1	C	303	PRO
1	A	81	CYS
1	C	145	TRP
1	C	188	PHE
1	C	287	THR
1	B	192	PHE
1	C	122	GLY
1	C	304	ASP
1	B	81	CYS

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	252/252 (100%)	243 (96%)	9 (4%)	31	41
1	B	252/252 (100%)	239 (95%)	13 (5%)	21	25

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	168/252 (67%)	138 (82%)	30 (18%)	2	1
All	All	672/756 (89%)	620 (92%)	52 (8%)	12	13

All (52) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	67	MET
1	A	194	GLN
1	A	228	TRP
1	A	232	TYR
1	A	240	LYS
1	A	295	VAL
1	A	318	GLU
1	A	323	ASP
1	A	337	HIS
1	B	87	VAL
1	B	89	ASN
1	B	136	SER
1	B	153	GLU
1	B	165	VAL
1	B	228	TRP
1	B	259	LEU
1	B	269	LEU
1	B	293	SER
1	B	296	SER
1	B	313	GLU
1	B	323	ASP
1	B	332	LYS
1	C	33	ILE
1	C	50	GLU
1	C	61	ILE
1	C	62	ASN
1	C	102	GLN
1	C	117	VAL
1	C	119	LEU
1	C	128	ASP
1	C	131	ILE
1	C	132	LEU
1	C	140	PHE
1	C	179	PHE
1	C	188	PHE
1	C	228	TRP

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Mol	Chain	Res	Type
1	C	238	SER
1	C	242	PHE
1	C	258	VAL
1	C	259	LEU
1	C	260	LYS
1	C	265	LYS
1	C	273	LEU
1	C	278	THR
1	C	284	TYR
1	C	286	LEU
1	C	287	THR
1	C	293	SER
1	C	302	TYR
1	C	313	GLU
1	C	322	ILE
1	C	331	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	37	GLN
1	A	102	GLN
1	A	207	GLN
1	A	319	ASN
1	B	40	ASN
1	B	71	HIS
1	B	80	GLN
1	B	190	GLN
1	B	214	GLN
1	C	46	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 4 ligands modelled in this entry, 2 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
2	KLS	A	1338	-	12,14,14	1.05	1 (8%)	15,17,17	1.25	1 (6%)
2	KLS	B	1340	-	12,14,14	1.03	1 (8%)	15,17,17	0.87	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	KLS	A	1338	-	-	0/10/10/10	0/1/1/1
2	KLS	B	1340	-	-	0/10/10/10	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1340	KLS	CAD-NAC	-2.80	1.36	1.41
2	A	1338	KLS	CAD-NAC	-2.70	1.36	1.41

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	1338	KLS	CAB-NAN-CAK	3.82	132.64	125.53

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	1340	KLS	5	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	B	2
1	A	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	B	277:GLU	C	278:THR	N	1.17
1	B	291:VAL	C	292:GLU	N	1.09
1	A	198:ARG	C	199:LYS	N	0.92

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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	309/309 (100%)	-1.32	0 100 100	2, 13, 27, 39	0
1	B	309/309 (100%)	-1.37	0 100 100	2, 10, 23, 31	0
1	C	210/309 (67%)	-0.74	2 (0%) 79 83	7, 21, 63, 67	4 (1%)
All	All	828/927 (89%)	-1.19	2 (0%) 91 92	2, 13, 36, 67	4 (0%)

All (2) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	291	VAL	3.1
1	C	141	ALA	2.8

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(Å ²)	Q<0.9
3	CL	B	1339	1/1	0.98	0.04	30,30,30,30	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	KLS	B	1340	14/14	0.99	0.05	24,32,39,39	0
3	CL	B	1338	1/1	0.99	0.04	30,30,30,30	0
2	KLS	A	1338	14/14	0.99	0.03	7,11,22,22	0

6.5 Other polymers [i](#)

There are no such residues in this entry.