



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 02:10 PM GMT

PDB ID : 3WCC
Title : The complex structure of TcSQS with ligand, E5700
Authors : Shang, N.; Li, Q.; Ko, T.P.; Chan, H.C.; Huang, C.H.; Ren, F.; Zheng, Y.;
Zhu, Z.; Chen, C.C.; Guo, R.T.
Deposited on : 2013-05-27
Resolution : 2.32 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
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Mogul : 1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20026688
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac : 5.8.0135
CCP4 : 6.5.0
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk26865

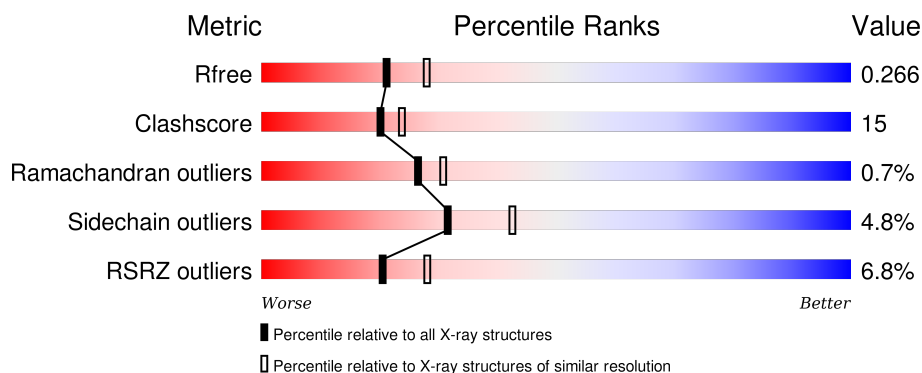
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.32 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}	91344	4425 (2.34-2.30)
Clashscore	102246	5057 (2.34-2.30)
Ramachandran outliers	100387	5008 (2.34-2.30)
Sidechain outliers	100360	5007 (2.34-2.30)
RSRZ outliers	91569	4432 (2.34-2.30)

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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. 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	365	<div> <div>3%</div> <div>74%18%7%</div> </div>
1	B	365	<div> <div>4%</div> <div>66%26%7%</div> </div>
1	C	365	<div> <div>4%</div> <div>68%24%6%</div> </div>
1	D	365	<div> <div>14%</div> <div>51%38%7%</div> </div>

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 11641 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 Farnesyltransferase, putative.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	341	Total	C	N	O	S	0	0	0
			2751	1745	473	511	22			
1	B	341	Total	C	N	O	S	0	0	0
			2751	1745	473	511	22			
1	C	342	Total	C	N	O	S	0	0	0
			2759	1749	475	513	22			
1	D	341	Total	C	N	O	S	0	0	0
			2752	1745	473	512	22			

There are 88 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	4	MET	-	EXPRESSION TAG	UNP Q4CWB4
A	5	GLY	-	EXPRESSION TAG	UNP Q4CWB4
A	6	SER	-	EXPRESSION TAG	UNP Q4CWB4
A	7	SER	-	EXPRESSION TAG	UNP Q4CWB4
A	8	HIS	-	EXPRESSION TAG	UNP Q4CWB4
A	9	HIS	-	EXPRESSION TAG	UNP Q4CWB4
A	10	HIS	-	EXPRESSION TAG	UNP Q4CWB4
A	11	HIS	-	EXPRESSION TAG	UNP Q4CWB4
A	12	HIS	-	EXPRESSION TAG	UNP Q4CWB4
A	13	HIS	-	EXPRESSION TAG	UNP Q4CWB4
A	14	SER	-	EXPRESSION TAG	UNP Q4CWB4
A	15	SER	-	EXPRESSION TAG	UNP Q4CWB4
A	16	GLY	-	EXPRESSION TAG	UNP Q4CWB4
A	17	LEU	-	EXPRESSION TAG	UNP Q4CWB4
A	18	VAL	-	EXPRESSION TAG	UNP Q4CWB4
A	19	PRO	-	EXPRESSION TAG	UNP Q4CWB4
A	20	ARG	-	EXPRESSION TAG	UNP Q4CWB4
A	21	GLY	-	EXPRESSION TAG	UNP Q4CWB4
A	22	SER	-	EXPRESSION TAG	UNP Q4CWB4
A	23	HIS	-	EXPRESSION TAG	UNP Q4CWB4
A	24	MET	-	EXPRESSION TAG	UNP Q4CWB4

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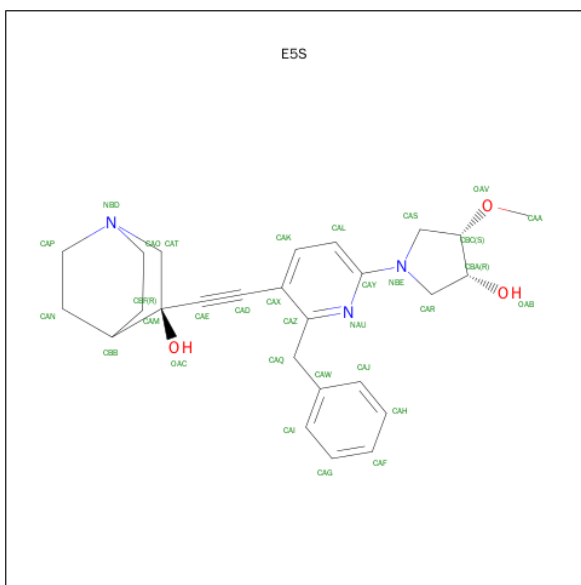
Chain	Residue	Modelled	Actual	Comment	Reference
A	82	GLU	ASP	ENGINEERED MUTATION	UNP Q4CWB4
B	4	MET	-	EXPRESSION TAG	UNP Q4CWB4
B	5	GLY	-	EXPRESSION TAG	UNP Q4CWB4
B	6	SER	-	EXPRESSION TAG	UNP Q4CWB4
B	7	SER	-	EXPRESSION TAG	UNP Q4CWB4
B	8	HIS	-	EXPRESSION TAG	UNP Q4CWB4
B	9	HIS	-	EXPRESSION TAG	UNP Q4CWB4
B	10	HIS	-	EXPRESSION TAG	UNP Q4CWB4
B	11	HIS	-	EXPRESSION TAG	UNP Q4CWB4
B	12	HIS	-	EXPRESSION TAG	UNP Q4CWB4
B	13	HIS	-	EXPRESSION TAG	UNP Q4CWB4
B	14	SER	-	EXPRESSION TAG	UNP Q4CWB4
B	15	SER	-	EXPRESSION TAG	UNP Q4CWB4
B	16	GLY	-	EXPRESSION TAG	UNP Q4CWB4
B	17	LEU	-	EXPRESSION TAG	UNP Q4CWB4
B	18	VAL	-	EXPRESSION TAG	UNP Q4CWB4
B	19	PRO	-	EXPRESSION TAG	UNP Q4CWB4
B	20	ARG	-	EXPRESSION TAG	UNP Q4CWB4
B	21	GLY	-	EXPRESSION TAG	UNP Q4CWB4
B	22	SER	-	EXPRESSION TAG	UNP Q4CWB4
B	23	HIS	-	EXPRESSION TAG	UNP Q4CWB4
B	24	MET	-	EXPRESSION TAG	UNP Q4CWB4
B	82	GLU	ASP	ENGINEERED MUTATION	UNP Q4CWB4
C	4	MET	-	EXPRESSION TAG	UNP Q4CWB4
C	5	GLY	-	EXPRESSION TAG	UNP Q4CWB4
C	6	SER	-	EXPRESSION TAG	UNP Q4CWB4
C	7	SER	-	EXPRESSION TAG	UNP Q4CWB4
C	8	HIS	-	EXPRESSION TAG	UNP Q4CWB4
C	9	HIS	-	EXPRESSION TAG	UNP Q4CWB4
C	10	HIS	-	EXPRESSION TAG	UNP Q4CWB4
C	11	HIS	-	EXPRESSION TAG	UNP Q4CWB4
C	12	HIS	-	EXPRESSION TAG	UNP Q4CWB4
C	13	HIS	-	EXPRESSION TAG	UNP Q4CWB4
C	14	SER	-	EXPRESSION TAG	UNP Q4CWB4
C	15	SER	-	EXPRESSION TAG	UNP Q4CWB4
C	16	GLY	-	EXPRESSION TAG	UNP Q4CWB4
C	17	LEU	-	EXPRESSION TAG	UNP Q4CWB4
C	18	VAL	-	EXPRESSION TAG	UNP Q4CWB4
C	19	PRO	-	EXPRESSION TAG	UNP Q4CWB4
C	20	ARG	-	EXPRESSION TAG	UNP Q4CWB4
C	21	GLY	-	EXPRESSION TAG	UNP Q4CWB4
C	22	SER	-	EXPRESSION TAG	UNP Q4CWB4

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Chain	Residue	Modelled	Actual	Comment	Reference
C	23	HIS	-	EXPRESSION TAG	UNP Q4CWB4
C	24	MET	-	EXPRESSION TAG	UNP Q4CWB4
C	82	GLU	ASP	ENGINEERED MUTATION	UNP Q4CWB4
D	4	MET	-	EXPRESSION TAG	UNP Q4CWB4
D	5	GLY	-	EXPRESSION TAG	UNP Q4CWB4
D	6	SER	-	EXPRESSION TAG	UNP Q4CWB4
D	7	SER	-	EXPRESSION TAG	UNP Q4CWB4
D	8	HIS	-	EXPRESSION TAG	UNP Q4CWB4
D	9	HIS	-	EXPRESSION TAG	UNP Q4CWB4
D	10	HIS	-	EXPRESSION TAG	UNP Q4CWB4
D	11	HIS	-	EXPRESSION TAG	UNP Q4CWB4
D	12	HIS	-	EXPRESSION TAG	UNP Q4CWB4
D	13	HIS	-	EXPRESSION TAG	UNP Q4CWB4
D	14	SER	-	EXPRESSION TAG	UNP Q4CWB4
D	15	SER	-	EXPRESSION TAG	UNP Q4CWB4
D	16	GLY	-	EXPRESSION TAG	UNP Q4CWB4
D	17	LEU	-	EXPRESSION TAG	UNP Q4CWB4
D	18	VAL	-	EXPRESSION TAG	UNP Q4CWB4
D	19	PRO	-	EXPRESSION TAG	UNP Q4CWB4
D	20	ARG	-	EXPRESSION TAG	UNP Q4CWB4
D	21	GLY	-	EXPRESSION TAG	UNP Q4CWB4
D	22	SER	-	EXPRESSION TAG	UNP Q4CWB4
D	23	HIS	-	EXPRESSION TAG	UNP Q4CWB4
D	24	MET	-	EXPRESSION TAG	UNP Q4CWB4
D	82	GLU	ASP	ENGINEERED MUTATION	UNP Q4CWB4

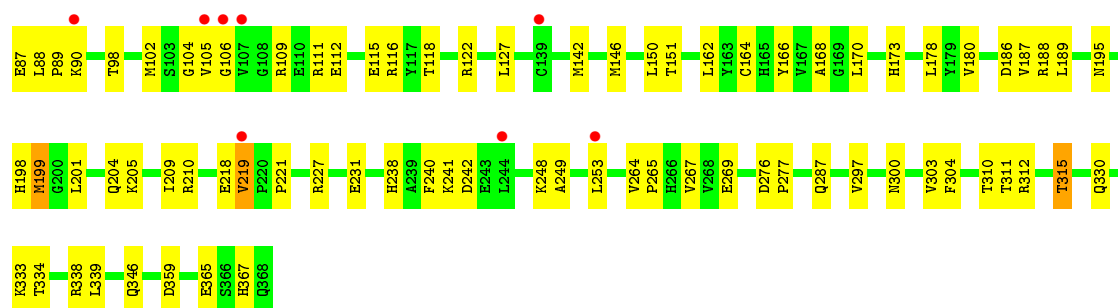
- Molecule 2 is (3R)-3-({2-BENZYL-6-[(3R,4S)-3-HYDROXY-4-METHOXYPIRROLIDIN-1-YL]PYRIDIN-3-YL}ETHYNYL)-1-AZABICYCLO[2.2.2]OCTAN-3-OL (three-letter code: E5S) (formula: C₂₆H₃₁N₃O₃).



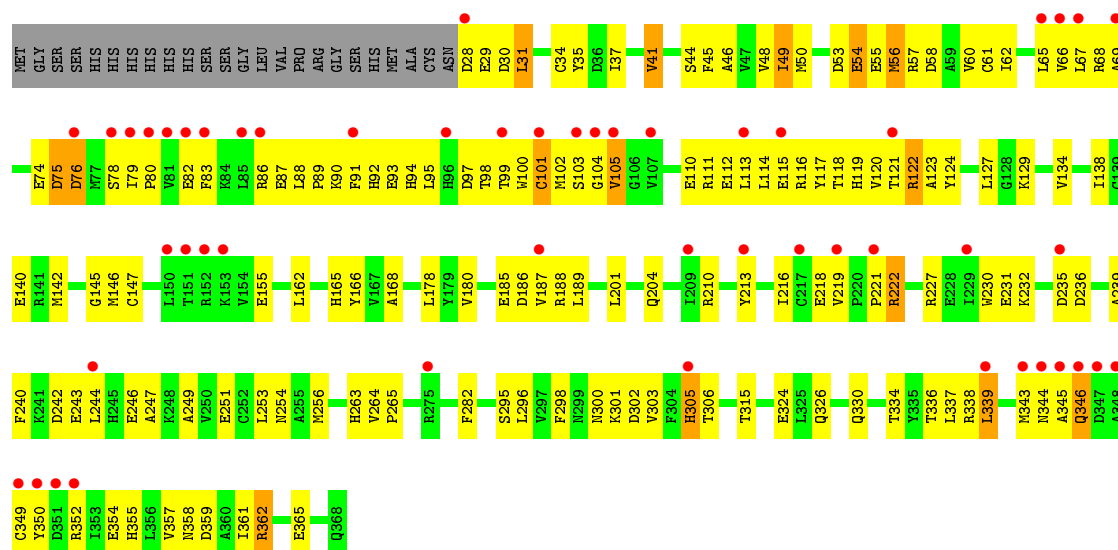
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total 32	C 26	N 3	O 3	0	0
2	B	1	Total 32	C 26	N 3	O 3	0	0
2	C	1	Total 32	C 26	N 3	O 3	0	0
2	D	1	Total 32	C 26	N 3	O 3	0	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	153	Total O 153 153	0	0
3	B	154	Total O 154 154	0	0
3	C	128	Total O 128 128	0	0
3	D	65	Total O 65 65	0	0



• Molecule 1: Farnesyltransferase, putative



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	79.07Å 131.60Å 143.12Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	25.00 – 2.32 24.91 – 2.32	Depositor EDS
% Data completeness (in resolution range)	(Not available) (25.00-2.32) 96.5 (24.91-2.32)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.13 (at 2.31Å)	Xtriage
Refinement program	CNS 1.2	Depositor
R, R_{free}	0.213 , 0.262 0.212 , 0.266	Depositor DCC
R_{free} test set	3186 reflections (5.05%)	DCC
Wilson B-factor (Å ²)	41.3	Xtriage
Anisotropy	0.164	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 51.4	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.33$	Xtriage
Outliers	0 of 63299 reflections	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	11641	wwPDB-VP
Average B, all atoms (Å ²)	52.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.20% 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, 0.375 respectively for untwinned datasets, and 0.333, 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: E5S

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	0.37	0/2809	0.57	0/3806
1	B	0.36	0/2809	0.58	1/3806 (0.0%)
1	C	0.35	0/2817	0.56	0/3817
1	D	0.32	0/2810	0.56	0/3806
All	All	0.35	0/11245	0.57	1/15235 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	103	SER	N-CA-C	5.24	125.15	111.00

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2751	0	2698	53	0
1	B	2751	0	2698	78	0
1	C	2759	0	2704	76	0
1	D	2752	0	2698	122	0
2	A	32	0	31	1	0
2	B	32	0	31	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	C	32	0	31	0	0
2	D	32	0	31	0	0
3	A	153	0	0	2	0
3	B	154	0	0	5	0
3	C	128	0	0	1	0
3	D	65	0	0	0	0
All	All	11641	0	10922	325	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 15.

All (325) 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:199:MET:HE1	1:C:267:VAL:HG13	1.24	1.11
1:B:102:MET:HE3	1:B:105:VAL:HG21	1.39	1.00
1:D:31:LEU:HD22	1:D:31:LEU:H	1.32	0.92
1:D:242:ASP:OD2	1:D:244:LEU:HB2	1.71	0.91
1:C:104:GLY:HA2	1:C:111:ARG:HH12	1.34	0.90
1:C:104:GLY:HA2	1:C:111:ARG:NH1	1.90	0.85
1:D:62:ILE:HD12	1:D:127:LEU:HD11	1.58	0.84
1:B:186:ASP:OD2	1:B:188:ARG:HB2	1.76	0.83
1:D:155:GLU:HA	1:D:227:ARG:HB3	1.61	0.83
1:D:103:SER:HA	1:D:115:GLU:HG2	1.61	0.83
1:B:242:ASP:OD2	1:B:244:LEU:HB3	1.81	0.80
1:B:41:VAL:HG22	1:B:68:ARG:CZ	2.12	0.79
1:A:121:THR:O	1:A:124:TYR:HB3	1.85	0.77
1:C:46:ALA:O	1:C:50:MET:HG2	1.85	0.77
1:D:45:PHE:O	1:D:49:ILE:HB	1.86	0.76
1:C:86:ARG:O	1:C:90:LYS:HE3	1.86	0.76
1:C:104:GLY:CA	1:C:111:ARG:HH12	1.99	0.76
1:C:186:ASP:OD2	1:C:188:ARG:HB2	1.86	0.75
1:D:79:ILE:HG23	1:D:83:PHE:HD2	1.51	0.75
1:A:362:ARG:NH1	1:D:111:ARG:HH12	1.83	0.75
1:D:344:ASN:HB2	1:D:346:GLN:HB2	1.69	0.74
1:C:43:ARG:HB2	1:C:43:ARG:CZ	2.17	0.74
1:D:30:ASP:CG	1:D:122:ARG:HD2	2.08	0.74
1:B:73:VAL:HG22	1:B:102:MET:HE1	1.71	0.73
1:A:40:ALA:HB1	1:A:109:ARG:HG2	1.73	0.71
1:D:41:VAL:HG13	1:D:68:ARG:NH1	2.06	0.71
1:B:55:GLU:HG2	1:B:131:TYR:HE2	1.56	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:46:ALA:O	1:B:49:ILE:HG22	1.90	0.70
1:C:199:MET:HE1	1:C:267:VAL:CG1	2.14	0.70
1:C:106:GLY:O	1:C:111:ARG:HB2	1.92	0.70
1:C:35:TYR:O	1:C:39:GLN:HG3	1.92	0.69
1:B:309:LYS:HD3	3:B:568:HOH:O	1.93	0.69
1:D:142:MET:O	1:D:146:MET:HG3	1.92	0.69
1:B:55:GLU:HG2	1:B:131:TYR:CE2	2.29	0.68
1:C:199:MET:HE3	1:C:267:VAL:HG22	1.76	0.67
1:B:363:ALA:O	1:B:366:SER:HB3	1.95	0.67
1:D:88:LEU:HB2	1:D:89:PRO:HD3	1.77	0.67
1:B:83:PHE:CZ	1:B:87:GLU:HG3	2.32	0.64
1:B:73:VAL:HG22	1:B:102:MET:CE	2.27	0.64
1:C:238:HIS:O	1:C:241:LYS:HB2	1.97	0.64
1:D:105:VAL:HG21	1:D:114:LEU:HD13	1.79	0.63
1:D:264:VAL:HB	1:D:265:PRO:HD3	1.79	0.63
1:B:111:ARG:O	1:B:115:GLU:HG3	1.98	0.63
1:A:98:THR:O	1:A:118:THR:HG23	1.99	0.63
1:C:199:MET:CE	1:C:267:VAL:HG22	2.30	0.62
1:C:199:MET:HE2	1:C:199:MET:HA	1.81	0.62
1:D:227:ARG:HA	1:D:230:TRP:NE1	2.14	0.62
1:D:46:ALA:O	1:D:49:ILE:HG22	2.00	0.62
1:D:31:LEU:HD22	1:D:31:LEU:N	2.12	0.61
1:A:298:PHE:HZ	1:A:343:MET:HE3	1.64	0.61
1:D:358:ASN:O	1:D:362:ARG:HG2	2.01	0.61
1:C:221:PRO:HG3	1:D:235:ASP:OD1	2.00	0.61
1:D:344:ASN:C	1:D:346:GLN:H	2.05	0.60
1:D:295:SER:HA	1:D:339:LEU:HD22	1.84	0.60
1:B:153:LYS:HB2	1:B:155:GLU:OE2	2.02	0.60
1:C:118:THR:HB	1:C:122:ARG:NH1	2.16	0.60
1:A:30:ASP:OD1	1:A:122:ARG:HD2	2.02	0.59
1:B:343:MET:CE	1:B:350:TYR:HA	2.33	0.58
1:D:142:MET:HG3	1:D:166:TYR:O	2.03	0.58
1:A:34:CYS:O	1:A:37:ILE:HG22	2.03	0.58
1:C:199:MET:HA	1:C:199:MET:CE	2.34	0.58
1:D:90:LYS:HE2	1:D:94:HIS:HE1	1.69	0.58
1:C:199:MET:CE	1:C:267:VAL:HG13	2.16	0.58
1:D:31:LEU:CD2	1:D:31:LEU:H	2.10	0.58
1:B:227:ARG:HA	1:B:230:TRP:CE2	2.38	0.57
1:C:85:LEU:HD11	1:C:151:THR:CG2	2.34	0.57
1:A:35:TYR:OH	1:A:57:ARG:HG2	2.04	0.57
1:B:257:VAL:HG13	1:B:294:LEU:CD1	2.34	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:188:ARG:HG2	1:D:188:ARG:HH11	1.69	0.57
1:B:102:MET:HE3	1:B:105:VAL:CG2	2.26	0.56
1:D:34:CYS:O	1:D:37:ILE:HG22	2.05	0.56
1:C:43:ARG:HB2	1:C:43:ARG:NH1	2.20	0.56
1:B:88:LEU:HB2	1:B:89:PRO:HD3	1.87	0.56
1:A:344:ASN:N	1:A:344:ASN:HD22	2.02	0.56
1:D:87:GLU:O	1:D:90:LYS:N	2.31	0.56
1:A:77:MET:HG2	1:A:222:ARG:HH22	1.70	0.56
1:B:145:GLY:HA3	1:B:166:TYR:CD1	2.40	0.56
1:D:67:LEU:HD22	1:D:142:MET:SD	2.45	0.56
1:C:330:GLN:O	1:C:334:THR:HG23	2.05	0.56
1:C:37:ILE:O	1:C:41:VAL:HG22	2.05	0.56
1:C:219:VAL:O	1:C:219:VAL:HG22	2.05	0.56
1:B:257:VAL:HG13	1:B:294:LEU:HD13	1.88	0.56
1:D:30:ASP:OD2	1:D:122:ARG:HD2	2.06	0.55
1:C:338:ARG:HG3	1:C:338:ARG:HH11	1.72	0.55
1:D:112:GLU:O	1:D:116:ARG:HD3	2.06	0.55
1:D:344:ASN:C	1:D:346:GLN:N	2.60	0.55
1:B:142:MET:O	1:B:146:MET:HG3	2.07	0.55
1:D:254:ASN:HB3	1:D:349:CYS:SG	2.46	0.55
1:A:71:ASP:O	1:A:75:ASP:HB2	2.07	0.55
1:C:86:ARG:O	1:C:90:LYS:CE	2.54	0.54
1:A:309:LYS:HE3	3:A:644:HOH:O	2.07	0.54
1:B:40:ALA:HB1	1:B:109:ARG:HG2	1.90	0.54
1:B:302:ASP:O	1:B:306:THR:HG22	2.08	0.54
1:A:285:ILE:HB	1:A:286:PRO:HD3	1.90	0.54
1:A:343:MET:CE	1:A:350:TYR:HA	2.37	0.54
1:A:311:THR:O	1:A:315:THR:HG23	2.08	0.54
1:D:79:ILE:CG2	1:D:83:PHE:HD2	2.18	0.53
1:A:222:ARG:HH11	1:A:222:ARG:HG3	1.73	0.53
1:D:180:VAL:HG13	1:D:187:VAL:HA	1.90	0.53
1:C:85:LEU:HD11	1:C:151:THR:HG21	1.89	0.53
1:A:344:ASN:H	1:A:344:ASN:HD22	1.56	0.53
1:C:88:LEU:HB2	1:C:89:PRO:HD3	1.90	0.53
1:D:253:LEU:O	1:D:256:MET:HB2	2.09	0.53
1:D:90:LYS:HE2	1:D:94:HIS:CE1	2.43	0.53
1:C:339:LEU:HD23	1:C:339:LEU:C	2.29	0.53
1:A:227:ARG:HA	1:A:230:TRP:NE1	2.24	0.53
1:D:117:TYR:O	1:D:120:VAL:HB	2.09	0.53
1:B:344:ASN:HB3	1:B:346:GLN:H	1.73	0.53
1:D:336:THR:HG22	1:D:357:VAL:HG13	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:100:TRP:O	1:D:101:CYS:HB3	2.09	0.52
1:B:227:ARG:HA	1:B:230:TRP:NE1	2.24	0.52
1:D:302:ASP:O	1:D:306:THR:HG22	2.09	0.52
1:D:58:ASP:O	1:D:62:ILE:HG13	2.08	0.52
1:D:326:GLN:O	1:D:330:GLN:HG3	2.09	0.52
1:D:145:GLY:HA3	1:D:166:TYR:CD1	2.45	0.52
1:D:79:ILE:HD13	1:D:83:PHE:HE2	1.74	0.52
1:C:98:THR:O	1:C:98:THR:HG22	2.09	0.52
1:C:338:ARG:HG3	1:C:338:ARG:NH1	2.24	0.52
1:D:185:GLU:HB3	1:D:189:LEU:HD22	1.90	0.52
1:D:186:ASP:OD2	1:D:188:ARG:HB2	2.10	0.52
1:B:142:MET:HG3	1:B:166:TYR:O	2.10	0.52
1:A:62:ILE:O	1:A:66:VAL:HG23	2.10	0.52
1:B:140:GLU:HA	3:B:554:HOH:O	2.08	0.52
1:B:31:LEU:O	1:B:34:CYS:HB2	2.10	0.52
1:B:34:CYS:O	1:B:37:ILE:HG22	2.10	0.52
1:D:102:MET:SD	1:D:105:VAL:HG11	2.50	0.51
1:D:361:ILE:O	1:D:365:GLU:HG3	2.10	0.51
1:B:326:GLN:O	1:B:330:GLN:HG3	2.10	0.51
1:A:309:LYS:HE2	3:A:564:HOH:O	2.11	0.51
1:D:86:ARG:NH1	1:D:90:LYS:HD2	2.25	0.51
1:C:164:CYS:HB3	1:C:201:LEU:HD22	1.93	0.51
1:B:344:ASN:HB3	1:B:346:GLN:HB2	1.92	0.51
1:D:121:THR:O	1:D:124:TYR:HB3	2.09	0.51
1:D:90:LYS:O	1:D:93:GLU:HG3	2.10	0.51
1:D:227:ARG:O	1:D:231:GLU:HB3	2.10	0.51
1:C:180:VAL:HG13	1:C:187:VAL:HA	1.92	0.51
1:A:210:ARG:HD2	1:A:210:ARG:O	2.11	0.51
1:C:227:ARG:HG3	1:C:231:GLU:HB3	1.93	0.51
1:A:88:LEU:HB2	1:A:89:PRO:HD3	1.93	0.50
1:D:112:GLU:HG2	1:D:116:ARG:HD3	1.93	0.50
1:C:111:ARG:O	1:C:115:GLU:HG3	2.11	0.50
1:D:227:ARG:HA	1:D:230:TRP:CE2	2.46	0.50
1:D:240:PHE:CE1	1:D:249:ALA:HA	2.47	0.50
1:B:41:VAL:CG2	1:B:68:ARG:CZ	2.86	0.50
1:A:40:ALA:CB	1:A:109:ARG:HG2	2.41	0.50
1:B:40:ALA:CB	1:B:109:ARG:HG2	2.42	0.50
1:D:105:VAL:CG2	1:D:114:LEU:HD13	2.41	0.49
1:D:110:GLU:O	1:D:113:LEU:HB3	2.11	0.49
1:D:243:GLU:O	1:D:246:GLU:HG3	2.12	0.49
1:A:110:GLU:O	1:A:113:LEU:HB3	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:79:ILE:HG21	1:C:83:PHE:HD2	1.77	0.49
1:A:362:ARG:NH1	1:D:111:ARG:NH1	2.58	0.49
1:B:116:ARG:HH21	1:B:119:HIS:HE1	1.61	0.49
1:C:199:MET:HE2	1:C:287:GLN:CD	2.33	0.49
1:A:363:ALA:O	1:A:366:SER:HB3	2.12	0.49
1:C:86:ARG:C	1:C:90:LYS:HZ1	2.17	0.48
1:A:91:PHE:HA	1:A:94:HIS:CD2	2.48	0.48
1:D:295:SER:HA	1:D:339:LEU:CD2	2.43	0.48
1:C:54:GLU:H	1:C:54:GLU:CD	2.17	0.48
1:C:109:ARG:NH2	1:C:112:GLU:OE1	2.47	0.48
1:B:58:ASP:O	1:B:62:ILE:HG12	2.13	0.48
1:C:210:ARG:O	1:C:210:ARG:HD2	2.14	0.48
1:D:213:TYR:HA	1:D:216:ILE:HG22	1.96	0.48
1:B:102:MET:HB3	1:B:114:LEU:HB3	1.96	0.47
1:D:90:LYS:O	1:D:93:GLU:N	2.42	0.47
1:D:155:GLU:CA	1:D:227:ARG:HB3	2.40	0.47
1:B:227:ARG:HG2	1:B:231:GLU:HB3	1.96	0.47
1:A:31:LEU:HD21	1:A:58:ASP:OD1	2.13	0.47
1:A:227:ARG:HA	1:A:230:TRP:CD1	2.49	0.47
1:C:40:ALA:HB1	1:C:109:ARG:HG3	1.95	0.47
1:A:83:PHE:CD2	1:A:83:PHE:C	2.87	0.47
1:C:300:ASN:O	1:C:303:VAL:HG23	2.13	0.47
1:D:87:GLU:HA	1:D:90:LYS:HD3	1.96	0.47
1:A:253:LEU:HD21	1:A:297:VAL:O	2.15	0.47
1:B:180:VAL:HG13	1:B:187:VAL:HA	1.96	0.47
1:A:232:LYS:HG3	1:A:233:TYR:CE2	2.49	0.47
1:B:164:CYS:HB3	1:B:201:LEU:HD22	1.96	0.47
1:D:87:GLU:O	1:D:88:LEU:C	2.52	0.47
1:B:83:PHE:CE2	1:B:87:GLU:HG3	2.49	0.47
1:D:69:ALA:HB1	1:D:114:LEU:HD21	1.97	0.47
1:C:118:THR:O	1:C:122:ARG:HB2	2.15	0.47
1:B:41:VAL:HG22	1:B:68:ARG:NH1	2.28	0.47
1:C:87:GLU:HA	1:C:90:LYS:CE	2.44	0.47
1:D:162:LEU:HG	1:D:166:TYR:CE2	2.50	0.47
1:D:222:ARG:HG3	1:D:222:ARG:HH11	1.79	0.47
1:A:52:LEU:O	1:A:57:ARG:NH1	2.46	0.46
1:D:222:ARG:NH1	1:D:222:ARG:HG3	2.30	0.46
1:A:41:VAL:HG11	1:A:68:ARG:HG2	1.96	0.46
1:A:118:THR:O	1:A:122:ARG:HG2	2.15	0.46
1:B:344:ASN:C	1:B:346:GLN:N	2.69	0.46
1:B:233:TYR:O	1:B:234:THR:HB	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:243:GLU:HG2	1:B:243:GLU:O	2.15	0.46
1:B:156:THR:HA	1:B:228:GLU:HB2	1.97	0.46
1:C:205:LYS:O	1:C:209:ILE:HG13	2.16	0.46
1:C:312:ARG:HG2	3:C:514:HOH:O	2.14	0.46
1:A:41:VAL:HG13	1:A:68:ARG:CZ	2.45	0.46
1:C:249:ALA:HB1	1:C:304:PHE:CE2	2.51	0.46
1:A:219:VAL:HG23	1:A:219:VAL:O	2.15	0.46
1:D:56:MET:O	1:D:60:VAL:HG23	2.15	0.46
1:D:62:ILE:O	1:D:66:VAL:HG23	2.16	0.46
1:C:311:THR:O	1:C:315:THR:HG23	2.16	0.46
1:D:298:PHE:CD2	1:D:339:LEU:HD13	2.51	0.46
1:C:334:THR:O	1:C:338:ARG:HG2	2.16	0.46
1:D:76:ASP:OD1	1:D:78:SER:HB2	2.16	0.46
1:B:131:TYR:CD1	1:B:178:LEU:HD22	2.51	0.46
1:D:188:ARG:HG2	1:D:188:ARG:NH1	2.31	0.46
1:B:102:MET:O	1:B:115:GLU:HA	2.16	0.45
1:D:357:VAL:O	1:D:361:ILE:HG13	2.17	0.45
1:D:345:ALA:HA	1:D:350:TYR:CD2	2.51	0.45
1:B:219:VAL:HA	1:B:220:PRO:HA	1.85	0.45
1:B:338:ARG:NH2	3:B:599:HOH:O	2.49	0.45
1:B:338:ARG:O	1:B:342:ARG:HG3	2.16	0.45
1:C:142:MET:HG3	1:C:166:TYR:O	2.16	0.45
1:D:74:GLU:HG3	1:D:146:MET:HB3	1.98	0.45
1:A:298:PHE:CZ	1:A:343:MET:HE3	2.48	0.45
1:C:98:THR:HG23	1:C:122:ARG:HD3	1.99	0.45
1:A:344:ASN:ND2	1:A:346:GLN:HG3	2.31	0.45
1:D:88:LEU:HD12	1:D:147:CYS:SG	2.56	0.45
1:D:162:LEU:O	1:D:165:HIS:HB3	2.17	0.45
1:C:34:CYS:O	1:C:37:ILE:HG22	2.17	0.45
1:D:61:CYS:O	1:D:65:LEU:HG	2.17	0.45
1:B:242:ASP:CG	1:B:244:LEU:H	2.21	0.44
1:D:355:HIS:O	1:D:358:ASN:HB2	2.17	0.44
1:D:134:VAL:O	1:D:138:ILE:HG12	2.17	0.44
1:A:205:LYS:O	1:A:209:ILE:HG13	2.17	0.44
1:C:168:ALA:CB	1:C:204:GLN:HB2	2.47	0.44
1:C:248:LYS:HA	1:C:248:LYS:HD3	1.77	0.44
1:B:37:ILE:O	1:B:41:VAL:HG12	2.16	0.44
1:D:79:ILE:CG2	1:D:83:PHE:CD2	2.99	0.44
1:A:30:ASP:CG	1:A:122:ARG:HD2	2.37	0.44
2:A:401:E5S:H3	2:A:401:E5S:H32	1.99	0.44
1:D:201:LEU:HD12	1:D:263:HIS:CE1	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:30:ASP:OD1	1:D:122:ARG:NE	2.49	0.44
1:D:232:LYS:O	1:D:232:LYS:HG2	2.17	0.44
1:D:86:ARG:C	1:D:86:ARG:HD3	2.38	0.44
1:B:38:LEU:HD21	1:B:49:ILE:HG21	2.00	0.44
1:A:30:ASP:OD1	1:A:119:HIS:HD2	2.01	0.44
1:D:79:ILE:HG23	1:D:83:PHE:CD2	2.42	0.44
1:B:122:ARG:HG3	1:B:122:ARG:HH11	1.82	0.44
1:C:62:ILE:HD12	1:C:127:LEU:HD21	2.00	0.44
1:D:213:TYR:O	1:D:216:ILE:HG22	2.18	0.44
1:B:336:THR:HG22	1:B:357:VAL:HG13	2.00	0.43
1:D:46:ALA:O	1:D:50:MET:HG2	2.18	0.43
1:B:339:LEU:C	1:B:339:LEU:HD23	2.38	0.43
1:C:264:VAL:HB	1:C:265:PRO:HD3	2.01	0.43
1:C:102:MET:CE	1:C:105:VAL:HG21	2.48	0.43
1:A:344:ASN:N	1:A:344:ASN:ND2	2.67	0.43
1:C:240:PHE:CE1	1:C:249:ALA:HA	2.53	0.43
1:D:35:TYR:OH	1:D:57:ARG:HG2	2.17	0.43
1:D:54:GLU:HG2	1:D:55:GLU:H	1.83	0.43
1:B:87:GLU:O	1:B:90:LYS:HG2	2.18	0.43
1:C:210:ARG:C	1:C:210:ARG:HD2	2.38	0.43
1:C:74:GLU:HG3	1:C:146:MET:HB3	1.99	0.43
1:D:142:MET:HE2	1:D:166:TYR:O	2.17	0.43
1:C:310:THR:OG1	1:C:315:THR:HG22	2.18	0.43
1:B:238:HIS:CD2	1:B:241:LYS:CD	3.02	0.43
1:D:83:PHE:CE1	1:D:87:GLU:HG3	2.54	0.43
1:A:41:VAL:CG1	1:A:68:ARG:CZ	2.97	0.43
1:D:48:VAL:HG12	1:D:282:PHE:CD2	2.54	0.43
1:D:168:ALA:HB2	1:D:204:GLN:HB2	2.01	0.43
1:A:301:LYS:HE3	1:B:32:ARG:CZ	2.49	0.43
1:D:92:HIS:O	1:D:95:LEU:HB2	2.19	0.43
1:B:340:ALA:O	1:B:343:MET:HG2	2.19	0.43
1:D:343:MET:CE	1:D:350:TYR:HA	2.49	0.42
1:C:162:LEU:HG	1:C:166:TYR:CE2	2.54	0.42
1:D:54:GLU:HG2	1:D:55:GLU:N	2.34	0.42
1:C:218:GLU:HA	1:C:218:GLU:OE1	2.19	0.42
1:D:86:ARG:HD3	1:D:86:ARG:O	2.19	0.42
1:B:86:ARG:O	1:B:90:LYS:HD2	2.18	0.42
1:D:302:ASP:HA	1:D:305:HIS:NE2	2.35	0.42
1:A:294:LEU:HA	1:A:297:VAL:HG22	2.00	0.42
1:D:218:GLU:O	1:D:221:PRO:HA	2.19	0.42
1:D:44:SER:OG	1:D:45:PHE:N	2.53	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:227:ARG:HA	1:A:230:TRP:CE2	2.54	0.42
1:B:156:THR:O	1:B:159:ASP:HB2	2.19	0.42
1:C:253:LEU:HD21	1:C:297:VAL:O	2.20	0.42
1:B:151:THR:O	1:B:152:ARG:HB3	2.18	0.42
1:B:243:GLU:HG2	3:B:639:HOH:O	2.19	0.42
1:B:321:TYR:O	1:B:323:THR:N	2.48	0.42
1:B:246:GLU:O	1:B:250:VAL:HG23	2.19	0.42
1:B:246:GLU:CD	1:B:301:LYS:HG3	2.40	0.42
1:D:56:MET:HE1	1:D:178:LEU:C	2.40	0.42
1:B:361:ILE:O	1:B:365:GLU:HG3	2.20	0.42
1:C:42:SER:O	1:C:46:ALA:HB2	2.20	0.42
1:D:92:HIS:ND1	1:D:140:GLU:HG3	2.35	0.42
1:A:339:LEU:C	1:A:339:LEU:HD23	2.40	0.42
1:B:52:LEU:O	1:B:57:ARG:HD3	2.19	0.42
1:D:56:MET:HE1	1:D:178:LEU:O	2.20	0.42
1:C:170:LEU:O	1:C:173:HIS:HB2	2.19	0.42
1:D:219:VAL:HG13	1:D:219:VAL:O	2.20	0.42
1:D:122:ARG:HG3	1:D:123:ALA:N	2.35	0.42
1:C:178:LEU:HA	1:C:178:LEU:HD23	1.87	0.41
1:B:219:VAL:O	1:B:219:VAL:HG13	2.20	0.41
1:B:49:ILE:HG12	1:B:57:ARG:HG3	2.01	0.41
1:C:276:ASP:HA	1:C:277:PRO:HD3	1.92	0.41
1:D:116:ARG:C	1:D:118:THR:H	2.24	0.41
1:B:28:ASP:N	3:B:646:HOH:O	2.53	0.41
1:C:87:GLU:C	1:C:90:LYS:HZ3	2.24	0.41
1:C:269:GLU:OE2	1:C:367:HIS:NE2	2.43	0.41
1:A:102:MET:SD	1:A:105:VAL:HG21	2.60	0.41
1:D:28:ASP:N	1:D:31:LEU:CD2	2.83	0.41
1:B:257:VAL:HG13	1:B:294:LEU:HD11	2.02	0.41
1:A:87:GLU:OE1	1:A:90:LYS:HE3	2.20	0.41
1:C:195:ASN:O	1:C:198:HIS:HB2	2.20	0.41
1:B:253:LEU:HD21	1:B:297:VAL:O	2.20	0.41
1:C:238:HIS:HE1	1:D:235:ASP:OD2	2.03	0.41
1:B:37:ILE:HG23	1:B:65:LEU:HD21	2.02	0.41
1:D:79:ILE:HA	1:D:80:PRO:HD3	1.82	0.41
1:C:249:ALA:HB1	1:C:304:PHE:CZ	2.56	0.41
1:D:300:ASN:O	1:D:303:VAL:HG23	2.20	0.41
1:D:75:ASP:OD1	1:D:222:ARG:NH2	2.54	0.41
1:B:321:TYR:C	1:B:323:THR:H	2.23	0.41
1:D:97:ASP:O	1:D:99:THR:N	2.41	0.41
1:A:227:ARG:O	1:A:231:GLU:HB3	2.20	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:247:ALA:O	1:D:251:GLU:HG3	2.21	0.40
1:A:103:SER:HA	1:A:115:GLU:HG2	2.04	0.40
1:D:210:ARG:C	1:D:210:ARG:HD2	2.41	0.40
1:A:276:ASP:HA	1:A:277:PRO:HD3	1.81	0.40
1:C:90:LYS:HE2	1:C:90:LYS:HB2	1.70	0.40
1:C:116:ARG:C	1:C:118:THR:N	2.74	0.40
1:D:236:ASP:O	1:D:239:ALA:HB3	2.21	0.40
1:D:232:LYS:CG	1:D:232:LYS:O	2.69	0.40
1:B:122:ARG:HG3	1:B:122:ARG:NH1	2.36	0.40
1:D:334:THR:O	1:D:338:ARG:HG3	2.22	0.40
1:D:119:HIS:H	1:D:119:HIS:HD1	1.69	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	339/365 (93%)	324 (96%)	14 (4%)	1 (0%)	46	56
1	B	339/365 (93%)	320 (94%)	17 (5%)	2 (1%)	30	35
1	C	340/365 (93%)	322 (95%)	18 (5%)	0	100	100
1	D	339/365 (93%)	312 (92%)	20 (6%)	7 (2%)	9	6
All	All	1357/1460 (93%)	1278 (94%)	69 (5%)	10 (1%)	26	31

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	54	GLU
1	B	98	THR
1	D	98	THR
1	D	305	HIS

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Mol	Chain	Res	Type
1	A	345	ALA
1	D	76	ASP
1	D	91	PHE
1	D	101	CYS
1	B	322	SER
1	D	104	GLY

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	298/318 (94%)	287 (96%)	11 (4%)	41	55
1	B	298/318 (94%)	287 (96%)	11 (4%)	41	55
1	C	299/318 (94%)	287 (96%)	12 (4%)	38	52
1	D	298/318 (94%)	275 (92%)	23 (8%)	16	19
All	All	1193/1272 (94%)	1136 (95%)	57 (5%)	31	42

All (57) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	43	ARG
1	A	56	MET
1	A	75	ASP
1	A	109	ARG
1	A	153	LYS
1	A	188	ARG
1	A	315	THR
1	A	343	MET
1	A	344	ASN
1	A	346	GLN
1	A	352	ARG
1	B	39	GLN
1	B	56	MET
1	B	74	GLU
1	B	102	MET

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Mol	Chain	Res	Type
1	B	109	ARG
1	B	111	ARG
1	B	118	THR
1	B	188	ARG
1	B	294	LEU
1	B	301	LYS
1	B	352	ARG
1	C	43	ARG
1	C	74	GLU
1	C	150	LEU
1	C	189	LEU
1	C	199	MET
1	C	219	VAL
1	C	242	ASP
1	C	315	THR
1	C	333	LYS
1	C	346	GLN
1	C	359	ASP
1	C	365	GLU
1	D	29	GLU
1	D	31	LEU
1	D	41	VAL
1	D	49	ILE
1	D	53	ASP
1	D	56	MET
1	D	75	ASP
1	D	82	GLU
1	D	105	VAL
1	D	122	ARG
1	D	129	LYS
1	D	222	ARG
1	D	296	LEU
1	D	301	LYS
1	D	315	THR
1	D	324	GLU
1	D	337	LEU
1	D	339	LEU
1	D	346	GLN
1	D	352	ARG
1	D	354	GLU
1	D	359	ASP
1	D	362	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (23) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	94	HIS
1	A	119	HIS
1	A	144	ASN
1	A	238	HIS
1	A	320	HIS
1	A	344	ASN
1	B	119	HIS
1	B	144	ASN
1	B	238	HIS
1	B	320	HIS
1	B	330	GLN
1	B	346	GLN
1	B	358	ASN
1	C	27	ASN
1	C	144	ASN
1	C	238	HIS
1	C	245	HIS
1	C	346	GLN
1	D	94	HIS
1	D	144	ASN
1	D	238	HIS
1	D	245	HIS
1	D	330	GLN

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 carbohydrates in this entry.

5.6 Ligand geometry

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	E5S	A	401	-	34,36,36	2.69	9 (26%)	42,52,52	1.49	3 (7%)
2	E5S	B	401	-	34,36,36	2.70	8 (23%)	42,52,52	1.63	3 (7%)
2	E5S	C	401	-	34,36,36	2.58	9 (26%)	42,52,52	1.61	3 (7%)
2	E5S	D	401	-	34,36,36	2.64	9 (26%)	42,52,52	1.64	4 (9%)

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	E5S	A	401	-	-	0/14/49/49	0/3/5/5
2	E5S	B	401	-	-	0/14/49/49	0/3/5/5
2	E5S	C	401	-	-	0/14/49/49	0/3/5/5
2	E5S	D	401	-	-	0/14/49/49	0/3/5/5

All (35) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	401	E5S	CAQ-CAZ	-11.65	1.41	1.51
2	D	401	E5S	CAQ-CAZ	-11.26	1.42	1.51
2	C	401	E5S	CAQ-CAZ	-11.00	1.42	1.51
2	B	401	E5S	CAQ-CAZ	-10.91	1.42	1.51
2	D	401	E5S	CAQ-CAW	-2.90	1.41	1.52
2	B	401	E5S	CAQ-CAW	-2.90	1.41	1.52
2	A	401	E5S	CAQ-CAW	-2.67	1.42	1.52
2	C	401	E5S	CAQ-CAW	-2.61	1.42	1.52
2	C	401	E5S	CAY-NBE	-2.03	1.33	1.37
2	C	401	E5S	CAO-NBD	2.01	1.52	1.46
2	D	401	E5S	CAJ-CAW	2.04	1.43	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	401	E5S	CAJ-CAW	2.05	1.43	1.38
2	A	401	E5S	CAJ-CAW	2.05	1.43	1.38
2	D	401	E5S	CAI-CAW	2.07	1.43	1.38
2	C	401	E5S	CAD-CAE	2.11	1.22	1.19
2	A	401	E5S	CAK-CAL	2.11	1.42	1.38
2	D	401	E5S	CAD-CAE	2.41	1.22	1.19
2	A	401	E5S	CAS-NBE	2.59	1.50	1.46
2	C	401	E5S	CAS-NBE	2.84	1.50	1.46
2	A	401	E5S	CAX-CAZ	2.91	1.43	1.40
2	D	401	E5S	CAS-NBE	3.06	1.50	1.46
2	A	401	E5S	CAR-NBE	3.08	1.50	1.46
2	B	401	E5S	CAS-NBE	3.23	1.50	1.46
2	D	401	E5S	CAR-NBE	3.31	1.51	1.46
2	C	401	E5S	CAR-NBE	3.34	1.51	1.46
2	C	401	E5S	CAX-CAZ	3.51	1.44	1.40
2	D	401	E5S	CAX-CAZ	3.61	1.44	1.40
2	B	401	E5S	CAR-NBE	3.63	1.51	1.46
2	C	401	E5S	CAT-NBD	3.69	1.51	1.46
2	A	401	E5S	CAT-NBD	3.71	1.51	1.46
2	D	401	E5S	CAT-NBD	3.73	1.51	1.46
2	B	401	E5S	CAT-NBD	3.87	1.51	1.46
2	A	401	E5S	CAD-CAE	3.94	1.24	1.19
2	B	401	E5S	CAD-CAE	3.98	1.24	1.19
2	B	401	E5S	CAX-CAZ	4.04	1.44	1.40

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	401	E5S	CAR-CBA-CBC	-8.59	97.89	104.37
2	B	401	E5S	CAR-CBA-CBC	-8.43	98.01	104.37
2	C	401	E5S	CAR-CBA-CBC	-8.37	98.05	104.37
2	A	401	E5S	CAR-CBA-CBC	-7.84	98.46	104.37
2	B	401	E5S	CAL-CAY-NAU	-2.59	119.55	123.47
2	A	401	E5S	CAL-CAY-NAU	-2.49	119.70	123.47
2	C	401	E5S	CAL-CAY-NAU	-2.35	119.91	123.47
2	D	401	E5S	CAL-CAY-NAU	-2.33	119.93	123.47
2	B	401	E5S	CAT-CBF-CAE	-2.22	108.01	112.60
2	C	401	E5S	CAT-CBF-CAE	-2.22	108.01	112.60
2	D	401	E5S	CAT-CBF-CAE	-2.19	108.08	112.60
2	A	401	E5S	CAT-CBF-CAE	-2.08	108.31	112.60
2	D	401	E5S	CAR-NBE-CAS	-2.02	108.14	112.42

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	401	E5S	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	341/365 (93%)	0.13	12 (3%) 48 56	23, 40, 62, 91	0
1	B	341/365 (93%)	0.23	14 (4%) 41 49	22, 44, 77, 86	0
1	C	342/365 (93%)	0.37	16 (4%) 35 44	20, 46, 82, 89	0
1	D	341/365 (93%)	0.91	51 (14%) 3 5	27, 65, 110, 117	0
All	All	1365/1460 (93%)	0.41	93 (6%) 20 28	20, 47, 91, 117	0

All (93) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	345	ALA	6.6
1	D	80	PRO	6.1
1	D	346	GLN	5.7
1	D	78	SER	5.6
1	D	103	SER	5.5
1	B	345	ALA	4.7
1	A	346	GLN	4.7
1	B	219	VAL	4.6
1	D	86	ARG	4.6
1	D	82	GLU	4.5
1	D	348	ALA	4.4
1	D	69	ALA	4.3
1	A	349	CYS	4.3
1	C	66	VAL	4.2
1	D	217	CYS	4.2
1	C	43	ARG	4.1
1	D	151	THR	4.0
1	C	107	VAL	3.9
1	B	346	GLN	3.9
1	D	107	VAL	3.8
1	B	217	CYS	3.8

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Mol	Chain	Res	Type	RSRZ
1	B	244	LEU	3.7
1	C	69	ALA	3.6
1	D	85	LEU	3.6
1	D	350	TYR	3.5
1	D	104	GLY	3.5
1	C	105	VAL	3.5
1	D	105	VAL	3.5
1	B	43	ARG	3.5
1	D	79	ILE	3.4
1	D	343	MET	3.4
1	A	67	LEU	3.3
1	A	344	ASN	3.3
1	D	347	ASP	3.3
1	D	121	THR	3.2
1	D	344	ASN	3.1
1	B	362	ARG	3.1
1	B	213	TYR	3.1
1	D	99	THR	3.1
1	D	209	ILE	3.0
1	D	153	LYS	3.0
1	A	348	ALA	3.0
1	C	81	VAL	3.0
1	C	219	VAL	3.0
1	D	28	ASP	3.0
1	C	90	LYS	3.0
1	C	86	ARG	2.9
1	C	244	LEU	2.9
1	D	66	VAL	2.9
1	D	96	HIS	2.9
1	D	213	TYR	2.9
1	D	349	CYS	2.8
1	D	67	LEU	2.8
1	C	253	LEU	2.8
1	D	113	LEU	2.8
1	D	81	VAL	2.5
1	C	82	GLU	2.5
1	D	244	LEU	2.5
1	D	235	ASP	2.5
1	C	67	LEU	2.5
1	C	70	LEU	2.4
1	A	219	VAL	2.4
1	D	152	ARG	2.4

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Mol	Chain	Res	Type	RSRZ
1	D	150	LEU	2.4
1	B	344	ASN	2.4
1	B	188	ARG	2.4
1	D	115	GLU	2.3
1	A	28	ASP	2.3
1	D	219	VAL	2.3
1	D	187	VAL	2.2
1	D	83	PHE	2.2
1	D	91	PHE	2.2
1	C	106	GLY	2.2
1	A	151	THR	2.2
1	D	351	ASP	2.2
1	B	220	PRO	2.2
1	D	275	ARG	2.2
1	D	101	CYS	2.2
1	D	229	ILE	2.2
1	D	221	PRO	2.2
1	D	76	ASP	2.1
1	D	352	ARG	2.1
1	A	43	ARG	2.1
1	B	222	ARG	2.1
1	C	139	CYS	2.1
1	B	253	LEU	2.1
1	D	65	LEU	2.1
1	B	341	ALA	2.1
1	A	126	ARG	2.0
1	A	65	LEU	2.0
1	D	305	HIS	2.0
1	A	345	ALA	2.0
1	D	339	LEU	2.0

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

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

6.3 Carbohydrates ⓘ

There are no carbohydrates 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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	LLDF	B-factors(Å ²)	Q<0.9
2	E5S	D	401	32/32	0.91	0.21	0.75	51,57,59,60	0
2	E5S	A	401	32/32	0.95	0.20	0.70	29,37,49,50	0
2	E5S	C	401	32/32	0.94	0.15	-0.18	25,35,42,43	0
2	E5S	B	401	32/32	0.95	0.14	-0.60	31,39,43,45	0

6.5 Other polymers [i](#)

There are no such residues in this entry.