



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 20, 2023 – 12:38 AM JST

PDB ID : 7XLY
Title : Crystal structure of FadA2 (Rv0243) from the fatty acid metabolic pathway of Mycobacterium tuberculosis
Authors : Singh, R.; Kundu, P.; Singh, B.K.; Bhattacharyya, S.; Das, A.K.
Deposited on : 2022-04-23
Resolution : 2.90 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.35
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.35

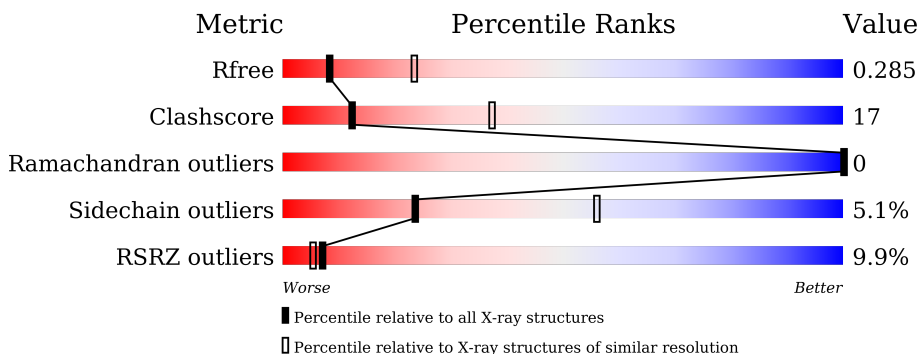
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.90 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1957 (2.90-2.90)
Clashscore	141614	2172 (2.90-2.90)
Ramachandran outliers	138981	2115 (2.90-2.90)
Sidechain outliers	138945	2117 (2.90-2.90)
RSRZ outliers	127900	1906 (2.90-2.90)

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	440	 11% 65% 24% • 10%
1	B	440	 8% 68% 21% • 9%
1	C	440	 6% 62% 27% • 10%
1	D	440	 11% 59% 28% • 11%

2 Entry composition [i](#)

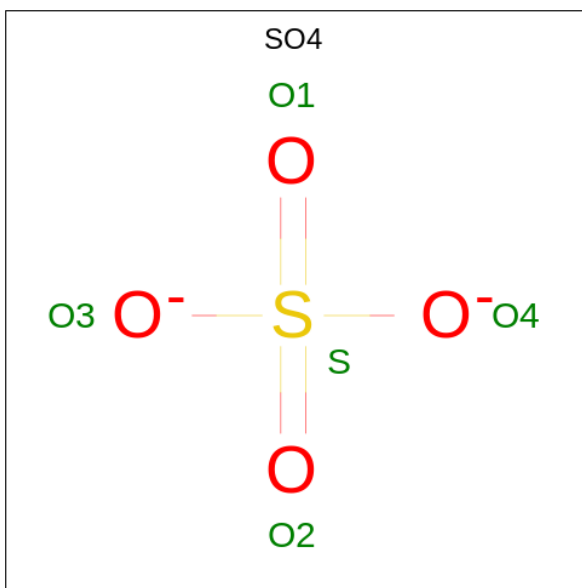
There are 2 unique types of molecules in this entry. The entry contains 22012 atoms, of which 10736 are hydrogens and 0 are deuteriums.

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 Probable acetyl-CoA acyltransferase FadA2 (3-ketoacyl-CoA thiolase) (Beta-ketothiolase).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
			Total	C	H	N	O				S
1	C	396	Total 5510	C 1762	H 2691	N 488	O 557	S 12	0	0	0
1	A	397	Total 5589	C 1779	H 2738	N 499	O 561	S 12	0	0	0
1	B	400	Total 5594	C 1780	H 2738	N 499	O 565	S 12	0	0	0
1	D	392	Total 5314	C 1713	H 2569	N 480	O 541	S 11	0	0	0

- Molecule 2 is SULFATE ION (three-letter code: SO4) (formula: O₄S).

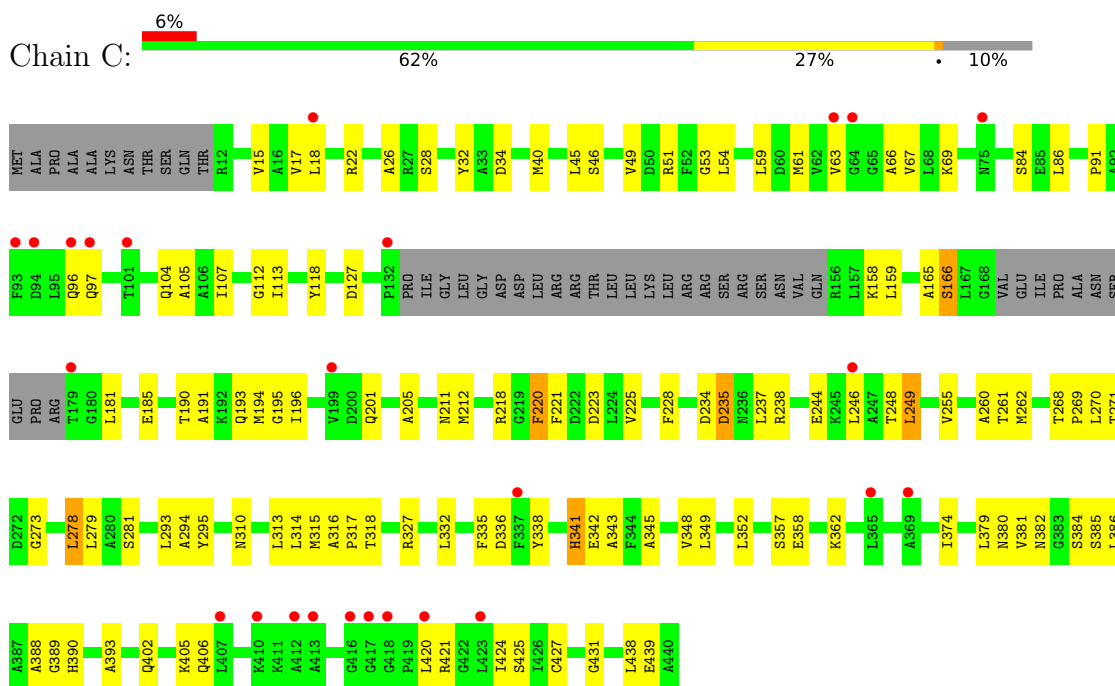


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	O	S		
2	B	1	Total 5	O 4	S 1	0	0

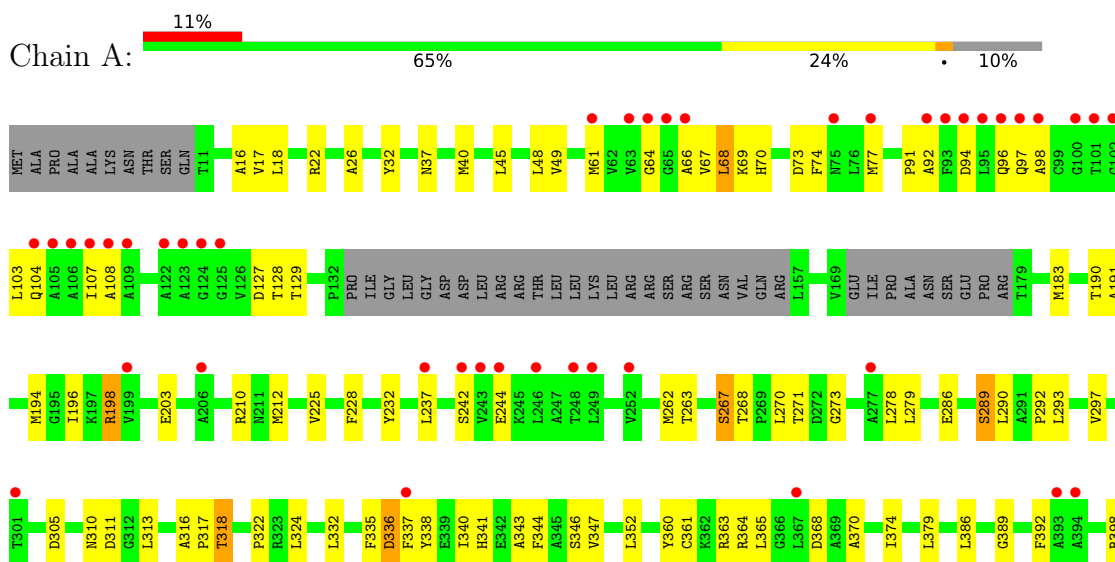
3 Residue-property plots [i](#)

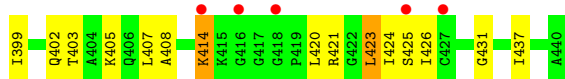
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: Probable acetyl-CoA acyltransferase FadA2 (3-ketoacyl-CoA thiolase) (Beta-ketothiolase)

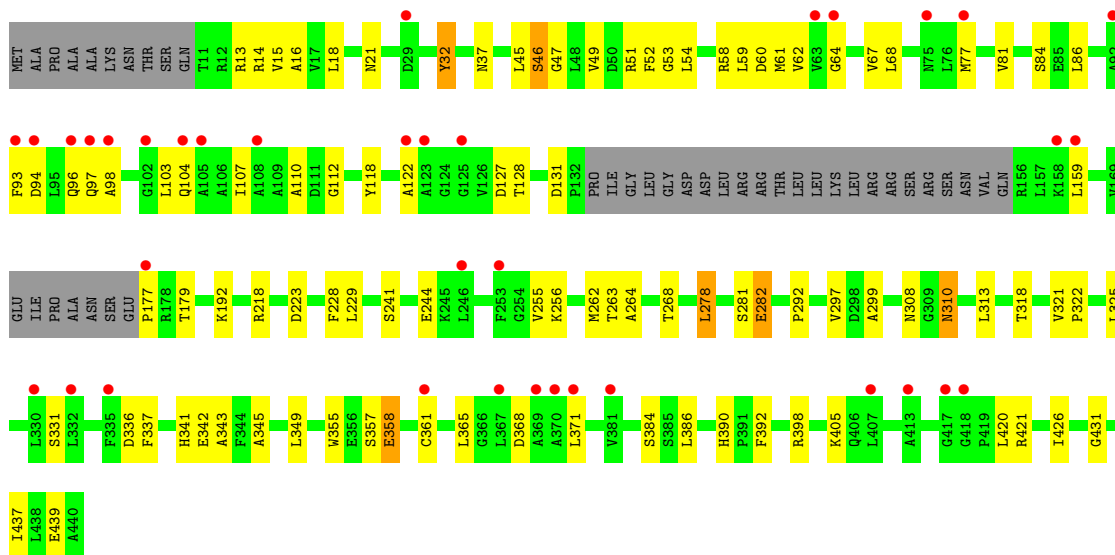


- Molecule 1: Probable acetyl-CoA acyltransferase FadA2 (3-ketoacyl-CoA thiolase) (Beta-ketothiolase)

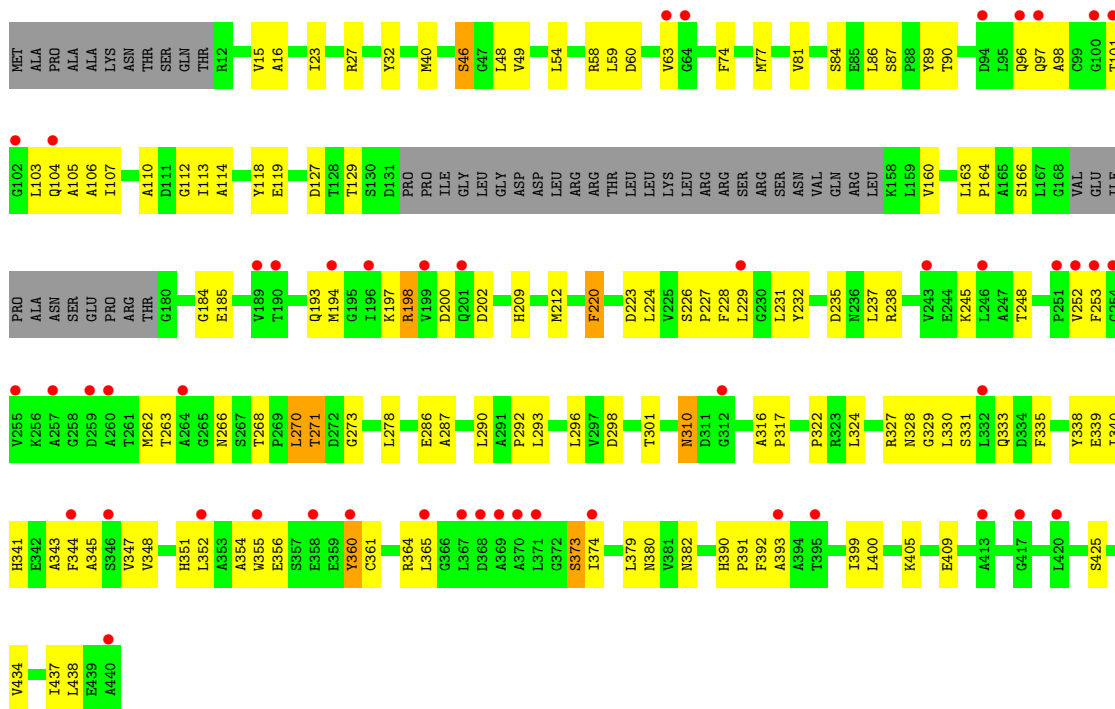




- Molecule 1: Probable acetyl-CoA acyltransferase FadA2 (3-ketoacyl-CoA thiolase) (Beta-ketothiolase)



- Molecule 1: Probable acetyl-CoA acyltransferase FadA2 (3-ketoacyl-CoA thiolase) (Beta-ketothiolase)



4 Data and refinement statistics

Property	Value	Source
Space group	P 32 2 1	Depositor
Cell constants a, b, c, α , β , γ	109.78Å 109.78Å 353.11Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	47.54 – 2.90 47.54 – 2.90	Depositor EDS
% Data completeness (in resolution range)	99.2 (47.54-2.90) 99.9 (47.54-2.90)	Depositor EDS
R_{merge}	0.17	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.21 (at 2.91Å)	Xtrriage
Refinement program	PHENIX 1.19.2_4158	Depositor
R, R_{free}	0.245 , 0.285 0.245 , 0.285	Depositor DCC
R_{free} test set	2702 reflections (4.85%)	wwPDB-VP
Wilson B-factor (Å ²)	70.0	Xtrriage
Anisotropy	0.915	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.39 , 75.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	0.020 for -h,-k,l	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	22012	wwPDB-VP
Average B, all atoms (Å ²)	99.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.50% 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: CSX, SO4

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	0.29	0/2887	0.56	0/3920
1	B	0.29	0/2892	0.56	1/3929 (0.0%)
1	C	0.30	0/2855	0.57	0/3880
1	D	0.28	0/2780	0.55	0/3788
All	All	0.29	0/11414	0.56	1/15517 (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	177	PRO	N-CA-CB	5.84	110.31	103.30

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	2851	2738	2763	86	1
1	B	2856	2738	2745	79	0
1	C	2819	2691	2707	106	0
1	D	2745	2569	2571	108	1
2	B	5	0	0	0	0
All	All	11276	10736	10786	372	1

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 17.

All (372) 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:D:356:GLU:OE2	1:D:373:SER:OG	1.61	1.18
1:C:191:ALA:HB1	1:C:196:ILE:HD11	1.37	1.03
1:D:310:ASN:O	1:D:364:ARG:NH2	1.92	1.03
1:A:212:MET:HE3	1:A:237:LEU:HD13	1.42	1.00
1:C:244:GLU:N	1:C:244:GLU:OE1	1.97	0.97
1:A:332:LEU:O	1:A:338:TYR:OH	1.95	0.82
1:A:212:MET:HE3	1:A:237:LEU:CD1	2.09	0.82
1:A:352:LEU:HD21	1:A:374:ILE:HD13	1.63	0.80
1:C:345:ALA:O	1:C:349:LEU:HD12	1.82	0.79
1:B:32:TYR:CE1	1:B:228:PHE:HD2	2.01	0.78
1:B:342:GLU:HB2	1:B:386:LEU:HD22	1.65	0.78
1:A:352:LEU:CD2	1:A:374:ILE:HD13	2.16	0.76
1:A:37:ASN:OD1	1:A:128:THR:HG22	1.86	0.76
1:B:355:TRP:CD1	1:B:371:LEU:HD12	2.22	0.74
1:C:341:HIS:HE1	1:C:343:ALA:HB2	1.53	0.74
1:D:333:GLN:N	1:D:333:GLN:OE1	2.20	0.74
1:A:341:HIS:HB2	1:A:426:ILE:HD12	1.70	0.73
1:C:66:ALA:H	1:C:69:LYS:HE3	1.54	0.72
1:C:66:ALA:HB3	1:C:69:LYS:HG2	1.70	0.71
1:D:341:HIS:CE1	1:D:343:ALA:HB2	2.25	0.71
1:D:63:VAL:HG23	1:D:105:ALA:HB1	1.73	0.69
1:B:32:TYR:CE1	1:B:228:PHE:CD2	2.80	0.69
1:D:98:ALA:O	1:D:101:THR:OG1	2.10	0.69
1:D:245:LYS:O	1:D:248:THR:OG1	2.11	0.68
1:D:344:PHE:O	1:D:347:VAL:N	2.28	0.67
1:C:293:LEU:HD12	1:C:293:LEU:H	1.60	0.66
1:A:196:ILE:HD12	1:A:196:ILE:O	1.94	0.66
1:C:271:THR:HG21	1:C:389:GLY:HA3	1.78	0.66
1:C:341:HIS:CE1	1:C:343:ALA:HB2	2.31	0.66
1:A:191:ALA:HB1	1:A:196:ILE:HD11	1.77	0.66
1:D:341:HIS:HE1	1:D:343:ALA:HB2	1.61	0.65
1:C:69:LYS:NZ	1:C:96:GLN:CD	2.50	0.65
1:B:345:ALA:O	1:B:349:LEU:HD12	1.96	0.65
1:A:403:THR:HG21	1:A:424:ILE:HD11	1.77	0.64
1:C:66:ALA:O	1:C:69:LYS:HG3	1.98	0.64
1:B:368:ASP:O	1:B:368:ASP:OD2	2.15	0.64
1:D:266:ASN:O	1:D:266:ASN:ND2	2.31	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:342:GLU:HB2	1:B:386:LEU:CD2	2.27	0.64
1:D:339:GLU:HG2	1:D:399:ILE:HG23	1.79	0.64
1:A:45:LEU:O	1:A:49:VAL:HG23	1.98	0.64
1:C:218:ARG:HG2	1:C:218:ARG:HH11	1.63	0.63
1:A:212:MET:CE	1:A:237:LEU:CD1	2.76	0.63
1:D:84:SER:OG	1:D:86:LEU:HD12	1.99	0.63
1:D:268:THR:HG23	1:D:343:ALA:O	1.99	0.62
1:D:103:LEU:O	1:D:107:ILE:HD12	2.00	0.62
1:D:60:ASP:HB2	1:D:118:TYR:HB3	1.81	0.62
1:C:335:PHE:HB2	1:C:338:TYR:HE1	1.63	0.61
1:A:212:MET:CE	1:A:237:LEU:HD13	2.25	0.61
1:B:59:LEU:HG	1:B:86:LEU:HD22	1.82	0.61
1:D:271:THR:OG1	1:D:391:PRO:HD3	2.00	0.61
1:A:16:ALA:HB1	1:A:292:PRO:HB3	1.81	0.61
1:D:354:ALA:HB1	1:D:360:TYR:HE2	1.66	0.61
1:D:103:LEU:O	1:D:106:ALA:N	2.34	0.60
1:C:63:VAL:HG23	1:C:105:ALA:HB1	1.83	0.60
1:D:160:VAL:HG22	1:D:270:LEU:HD22	1.83	0.60
1:D:212:MET:HE3	1:D:237:LEU:HD22	1.84	0.60
1:C:341:HIS:NE2	1:C:390:HIS:CE1	2.70	0.60
1:D:113:ILE:HD12	1:D:114:ALA:N	2.16	0.60
1:B:342:GLU:CB	1:B:386:LEU:CD2	2.80	0.60
1:C:34:ASP:OD1	1:C:34:ASP:N	2.36	0.59
1:C:54:LEU:HD11	1:C:278:LEU:CD1	2.33	0.58
1:D:15:VAL:HG22	1:D:113:ILE:CD1	2.33	0.58
1:C:342:GLU:OE2	1:C:384:SER:HB3	2.02	0.58
1:D:209:HIS:ND1	1:D:237:LEU:HD12	2.18	0.58
1:D:113:ILE:HG23	1:D:118:TYR:HB2	1.84	0.58
1:C:191:ALA:CB	1:C:196:ILE:HD11	2.25	0.57
1:C:293:LEU:HD12	1:C:293:LEU:N	2.19	0.57
1:C:196:ILE:HD12	1:C:196:ILE:O	2.04	0.57
1:C:69:LYS:NZ	1:C:96:GLN:NE2	2.53	0.57
1:D:365:LEU:O	1:D:365:LEU:HD23	2.03	0.57
1:D:354:ALA:HB1	1:D:360:TYR:CE2	2.40	0.57
1:B:341:HIS:CE1	1:B:390:HIS:CD2	2.94	0.56
1:C:17:VAL:HG12	1:C:279:LEU:HD21	1.87	0.56
1:A:104:GLN:O	1:A:107:ILE:HD12	2.06	0.56
1:A:289:SER:O	1:A:290:LEU:HD23	2.06	0.56
1:C:26:ALA:HA	1:C:235:ASP:HB2	1.86	0.56
1:C:338:TYR:HE2	1:C:374:ILE:HB	1.71	0.56
1:A:399:ILE:O	1:A:403:THR:HG22	2.05	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:32:TYR:HD1	1:B:229:LEU:HD12	1.71	0.55
1:C:315:MET:O	1:C:318:THR:HG22	2.07	0.55
1:A:368:ASP:OD2	1:A:368:ASP:N	2.39	0.55
1:D:212:MET:CE	1:D:237:LEU:HD22	2.37	0.55
1:A:318:THR:HG21	1:A:360:TYR:CE2	2.41	0.55
1:B:32:TYR:CD1	1:B:228:PHE:CD2	2.95	0.54
1:D:194:MET:HA	1:D:194:MET:CE	2.36	0.54
1:C:104:GLN:O	1:C:107:ILE:HG13	2.08	0.54
1:C:97:GLN:OE1	1:C:104:GLN:NE2	2.41	0.54
1:C:22:ARG:NH2	1:C:234:ASP:OD2	2.41	0.54
1:C:66:ALA:O	1:C:69:LYS:HE3	2.07	0.54
1:A:40:MET:HE1	1:A:273:GLY:N	2.23	0.54
1:A:365:LEU:N	1:A:365:LEU:HD23	2.23	0.54
1:D:268:THR:HG21	1:D:343:ALA:HA	1.90	0.54
1:C:402:GLN:O	1:C:406:GLN:HG3	2.09	0.53
1:C:249:LEU:HD12	1:C:249:LEU:H	1.71	0.53
1:B:45:LEU:O	1:B:49:VAL:HG13	2.08	0.53
1:D:322:PRO:HG2	1:D:365:LEU:HD11	1.89	0.53
1:A:414:LYS:HE2	1:A:414:LYS:HA	1.90	0.53
1:D:298:ASP:OD2	1:D:327:ARG:NH1	2.41	0.53
1:C:379:LEU:HG	1:C:380:ASN:OD1	2.08	0.53
1:D:340:ILE:HG21	1:D:348:VAL:HG23	1.91	0.53
1:B:62:VAL:HG22	1:B:122:ALA:HB3	1.90	0.53
1:B:390:HIS:CE1	1:B:392:PHE:HA	2.44	0.53
1:C:220:PHE:CE1	1:C:382:ASN:ND2	2.77	0.52
1:A:322:PRO:HG2	1:A:365:LEU:HD13	1.91	0.52
1:D:23:ILE:CD1	1:D:228:PHE:HB2	2.38	0.52
1:D:271:THR:CB	1:D:391:PRO:HD3	2.39	0.52
1:A:66:ALA:HB3	1:A:69:LYS:HG2	1.91	0.52
1:C:69:LYS:HZ1	1:C:96:GLN:CD	2.13	0.52
1:A:335:PHE:HB2	1:A:338:TYR:CE1	2.44	0.52
1:C:190:THR:O	1:C:194:MET:HG2	2.10	0.52
1:A:127:ASP:OD2	1:A:392:PHE:HB2	2.09	0.52
1:C:221:PHE:O	1:C:225:VAL:HG22	2.10	0.52
1:C:246:LEU:HA	1:C:249:LEU:HD11	1.91	0.52
1:D:60:ASP:OD2	1:D:119:GLU:N	2.42	0.52
1:C:237:LEU:HD12	1:C:238:ARG:H	1.73	0.51
1:A:107:ILE:HD12	1:A:108:ALA:N	2.25	0.51
1:A:310:ASN:O	1:A:364:ARG:NH2	2.43	0.51
1:C:158:LYS:C	1:C:159:LEU:HD12	2.30	0.51
1:D:193:GLN:HG3	1:D:194:MET:HE3	1.91	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:310:ASN:O	1:C:310:ASN:ND2	2.44	0.51
1:B:49:VAL:HA	1:B:54:LEU:HD23	1.92	0.51
1:D:198:ARG:HE	1:D:263:THR:HG21	1.75	0.51
1:C:18:LEU:HD12	1:C:278:LEU:CD2	2.41	0.51
1:B:51:ARG:HG3	1:B:51:ARG:HH11	1.75	0.51
1:B:58:ARG:NH2	1:B:60:ASP:OD1	2.43	0.51
1:B:268:THR:HG23	1:B:343:ALA:O	2.11	0.51
1:C:424:ILE:CD1	1:C:438:LEU:HD11	2.41	0.50
1:A:61:MET:HE2	1:A:91:PRO:HG2	1.94	0.50
1:A:336:ASP:OD2	1:A:420:LEU:HD22	2.12	0.50
1:C:220:PHE:C	1:C:220:PHE:CD2	2.85	0.50
1:B:18:LEU:HB2	1:B:278:LEU:HD23	1.93	0.50
1:D:301:THR:HG23	1:D:434:VAL:HG22	1.93	0.50
1:C:218:ARG:HG2	1:C:218:ARG:O	2.12	0.50
1:C:59:LEU:HD21	1:C:86:LEU:HD23	1.94	0.50
1:D:129:THR:OG1	1:D:270:LEU:HD12	2.12	0.49
1:C:255:VAL:HA	1:C:260:ALA:HB2	1.93	0.49
1:B:321:VAL:HB	1:B:355:TRP:CZ2	2.47	0.49
1:C:59:LEU:N	1:C:59:LEU:HD22	2.27	0.49
1:A:271:THR:HG21	1:A:389:GLY:HA3	1.94	0.49
1:B:384:SER:OG	1:B:398:ARG:NH2	2.46	0.49
1:D:223:ASP:OD1	1:D:405:LYS:NZ	2.44	0.49
1:C:113:ILE:HG22	1:C:118:TYR:HB2	1.94	0.49
1:C:270:LEU:HD12	1:C:270:LEU:H	1.78	0.49
1:D:341:HIS:NE2	1:D:390:HIS:CE1	2.81	0.49
1:A:67:VAL:HG21	1:A:98:ALA:HA	1.95	0.49
1:B:223:ASP:OD1	1:B:405:LYS:NZ	2.34	0.49
1:D:331:SER:OG	1:D:333:GLN:OE1	2.31	0.49
1:D:390:HIS:CD2	1:D:392:PHE:HA	2.48	0.49
1:C:158:LYS:C	1:C:270:LEU:HD12	2.34	0.48
1:D:352:LEU:HD21	1:D:374:ILE:HD11	1.95	0.48
1:C:181:LEU:HG	1:C:185:GLU:HB2	1.96	0.48
1:C:166:SER:O	1:C:166:SER:OG	2.32	0.48
1:A:335:PHE:HB2	1:A:338:TYR:HE1	1.78	0.48
1:D:87:SER:O	1:D:90:THR:HG23	2.13	0.48
1:D:40:MET:HE1	1:D:273:GLY:N	2.28	0.48
1:D:345:ALA:HA	1:D:348:VAL:HG12	1.96	0.48
1:B:228:PHE:CE2	1:B:229:LEU:HG	2.48	0.48
1:B:263:THR:OG1	1:B:264:ALA:N	2.47	0.48
1:A:26:ALA:HB3	1:A:32:TYR:CD2	2.49	0.47
1:A:66:ALA:O	1:A:69:LYS:HE3	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:129:THR:HG21	1:A:270:LEU:HD22	1.95	0.47
1:B:67:VAL:HG21	1:B:98:ALA:HA	1.96	0.47
1:D:193:GLN:C	1:D:194:MET:HE3	2.34	0.47
1:D:296:LEU:HD23	1:D:438:LEU:HD21	1.96	0.47
1:B:37:ASN:OD1	1:B:128:THR:HG22	2.14	0.47
1:D:46:SER:HA	1:D:49:VAL:HG12	1.96	0.47
1:C:49:VAL:O	1:C:53:GLY:N	2.48	0.47
1:C:195:GLY:HA3	1:A:363:ARG:NH1	2.29	0.47
1:C:341:HIS:HE2	1:C:390:HIS:CE1	2.33	0.47
1:A:340:ILE:HD12	1:A:379:LEU:HD13	1.96	0.47
1:B:318:THR:HA	1:B:355:TRP:CZ2	2.49	0.47
1:A:70:HIS:N	1:A:73:ASP:OD2	2.45	0.47
1:C:84:SER:OG	1:C:86:LEU:HD12	2.14	0.47
1:C:212:MET:HE1	1:C:388:ALA:HB2	1.96	0.47
1:C:269:PRO:O	1:C:271:THR:HG23	2.14	0.47
1:C:335:PHE:HB2	1:C:338:TYR:CE1	2.46	0.47
1:A:96:GLN:HG2	1:B:94:ASP:HB2	1.97	0.47
1:A:263:THR:O	1:A:267:SER:OG	2.33	0.47
1:A:268:THR:HG23	1:A:343:ALA:O	2.14	0.47
1:B:361:CYS:HA	1:B:365:LEU:HD12	1.96	0.47
1:D:49:VAL:HA	1:D:54:LEU:HD12	1.97	0.47
1:C:28:SER:OG	1:C:270:LEU:O	2.28	0.47
1:C:336:ASP:OD2	1:C:420:LEU:HD23	2.15	0.47
1:D:112:GLY:HA3	1:D:118:TYR:CE2	2.50	0.47
1:A:316:ALA:N	1:A:317:PRO:CD	2.78	0.47
1:B:310:ASN:OD1	1:B:310:ASN:N	2.48	0.47
1:A:425:SER:C	1:A:426:ILE:HD13	2.35	0.46
1:B:18:LEU:HD12	1:B:278:LEU:CD2	2.44	0.46
1:D:49:VAL:HG23	1:D:54:LEU:HB2	1.97	0.46
1:D:361:CYS:HA	1:D:365:LEU:HB3	1.96	0.46
1:D:113:ILE:HD12	1:D:114:ALA:H	1.79	0.46
1:A:32:TYR:CE1	1:A:228:PHE:HD2	2.34	0.46
1:B:179:THR:O	1:B:179:THR:HG22	2.16	0.46
1:A:18:LEU:HD12	1:A:278:LEU:HD23	1.96	0.46
1:B:13:ARG:HH21	1:B:281:SER:HB3	1.81	0.46
1:D:231:LEU:HD21	1:D:235:ASP:HB2	1.96	0.46
1:C:352:LEU:H	1:C:352:LEU:HD22	1.80	0.46
1:A:335:PHE:HD2	1:A:421:ARG:HB2	1.80	0.46
1:D:374:ILE:HD12	1:D:374:ILE:O	2.16	0.46
1:A:289:SER:O	1:A:289:SER:OG	2.32	0.46
1:A:337:PHE:CD2	1:A:407:LEU:HD23	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:14:ARG:NH1	1:B:282:GLU:OE1	2.48	0.46
1:C:113:ILE:CG2	1:C:118:TYR:HB2	2.45	0.46
1:C:205:ALA:HA	1:C:386:LEU:HD13	1.98	0.46
1:A:212:MET:HB3	1:A:237:LEU:HD11	1.98	0.46
1:C:15:VAL:O	1:C:295:TYR:HD2	1.99	0.46
1:D:379:LEU:HD12	1:D:380:ASN:N	2.30	0.46
1:C:40:MET:HE1	1:C:273:GLY:N	2.31	0.45
1:B:244:GLU:N	1:B:244:GLU:OE1	2.49	0.45
1:D:400:LEU:HD12	1:D:438:LEU:HD11	1.98	0.45
1:C:310:ASN:OD1	1:D:89:TYR:OH	2.33	0.45
1:A:293:LEU:O	1:A:408:ALA:HB2	2.16	0.45
1:A:398:ARG:HD2	1:A:402:GLN:OE1	2.16	0.45
1:D:286:GLU:OE1	1:D:287:ALA:N	2.49	0.45
1:A:262:MET:CE	1:A:346:SER:OG	2.64	0.45
1:B:18:LEU:HD12	1:B:278:LEU:HD23	1.98	0.45
1:C:194:MET:O	1:A:363:ARG:NH1	2.50	0.45
1:A:293:LEU:HD13	1:A:405:LYS:HA	1.98	0.45
1:D:113:ILE:CG2	1:D:118:TYR:HB2	2.46	0.45
1:A:66:ALA:O	1:A:69:LYS:HG3	2.17	0.45
1:A:311:ASP:OD1	1:A:364:ARG:NH1	2.50	0.45
1:D:59:LEU:N	1:D:90:THR:HG22	2.32	0.45
1:D:104:GLN:HA	1:D:107:ILE:HD13	1.99	0.45
1:D:273:GLY:N	1:D:391:PRO:HG3	2.32	0.45
1:C:45:LEU:O	1:C:49:VAL:HG23	2.16	0.45
1:B:112:GLY:HA3	1:B:118:TYR:CE2	2.52	0.45
1:B:14:ARG:NH1	1:B:282:GLU:OE2	2.50	0.45
1:D:127:ASP:OD2	1:D:392:PHE:HB2	2.17	0.45
1:D:252:VAL:O	1:D:252:VAL:CG1	2.65	0.45
1:C:66:ALA:N	1:C:69:LYS:HE3	2.27	0.44
1:C:218:ARG:HG2	1:C:218:ARG:NH1	2.31	0.44
1:C:402:GLN:HG2	1:C:406:GLN:OE1	2.17	0.44
1:B:313:LEU:O	1:B:431:GLY:HA2	2.18	0.44
1:A:104:GLN:HA	1:A:107:ILE:HD11	1.99	0.44
1:D:316:ALA:N	1:D:317:PRO:HD2	2.33	0.44
1:C:314:LEU:HD22	1:C:427:CYS:SG	2.58	0.44
1:A:17:VAL:HA	1:A:279:LEU:HD23	1.99	0.44
1:A:103:LEU:O	1:A:107:ILE:HG13	2.18	0.44
1:D:110:ALA:O	1:D:113:ILE:HD12	2.18	0.44
1:D:228:PHE:CD2	1:D:229:LEU:HD22	2.53	0.44
1:B:49:VAL:O	1:B:53:GLY:N	2.51	0.44
1:D:296:LEU:HD23	1:D:438:LEU:CD2	2.48	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:220:PHE:CD1	1:C:382:ASN:ND2	2.86	0.44
1:A:344:PHE:HB2	1:A:347:VAL:HG12	1.99	0.44
1:D:193:GLN:O	1:D:194:MET:HE3	2.17	0.44
1:C:348:VAL:O	1:C:352:LEU:CD2	2.66	0.44
1:A:198:ARG:NH2	1:A:263:THR:HG21	2.32	0.44
1:B:255:VAL:HG13	1:B:256:LYS:HG3	2.00	0.44
1:D:59:LEU:HG	1:D:86:LEU:HD22	2.00	0.44
1:C:15:VAL:HG22	1:C:113:ILE:HD11	2.00	0.44
1:C:61:MET:CE	1:C:91:PRO:HB2	2.48	0.44
1:C:211:ASN:HB3	1:C:381:VAL:O	2.18	0.44
1:A:37:ASN:CG	1:A:128:THR:HG22	2.38	0.44
1:A:64:GLY:O	1:A:94:ASP:HA	2.17	0.44
1:A:293:LEU:HD22	1:A:408:ALA:CB	2.48	0.43
1:B:107:ILE:HD13	1:B:299:ALA:CB	2.48	0.43
1:B:421:ARG:NH1	1:B:439:GLU:OE2	2.51	0.43
1:C:201:GLN:NE2	1:C:261:THR:O	2.50	0.43
1:B:341:HIS:HB2	1:B:426:ILE:HG23	2.00	0.43
1:B:77:MET:O	1:B:81:VAL:HG13	2.18	0.43
1:B:297:VAL:HG12	1:B:437:ILE:O	2.18	0.43
1:B:341:HIS:CB	1:B:426:ILE:HG23	2.48	0.43
1:D:330:LEU:N	1:D:330:LEU:HD12	2.34	0.43
1:D:96:GLN:HA	1:D:101:THR:HG23	2.00	0.43
1:B:84:SER:OG	1:B:86:LEU:HD12	2.19	0.43
1:D:107:ILE:HD12	1:D:107:ILE:H	1.83	0.43
1:C:349:LEU:HA	1:C:352:LEU:HD23	2.01	0.43
1:D:290:LEU:N	1:D:290:LEU:HD22	2.34	0.43
1:B:46:SER:O	1:B:49:VAL:HG22	2.19	0.43
1:D:127:ASP:OD2	1:D:393:ALA:N	2.45	0.43
1:A:324:LEU:HD11	1:A:437:ILE:CD1	2.49	0.43
1:B:97:GLN:OE1	1:B:104:GLN:NE2	2.40	0.43
1:D:97:GLN:O	1:D:97:GLN:CG	2.67	0.43
1:A:48:LEU:HD21	1:A:278:LEU:HD13	2.01	0.43
1:A:361:CYS:SG	1:A:370:ALA:HA	2.59	0.43
1:B:342:GLU:HB3	1:B:386:LEU:CD2	2.47	0.43
1:C:112:GLY:HA3	1:C:118:TYR:CD2	2.55	0.42
1:C:338:TYR:CE2	1:C:374:ILE:HB	2.53	0.42
1:D:77:MET:O	1:D:81:VAL:HG13	2.19	0.42
1:C:59:LEU:CD2	1:C:86:LEU:HD23	2.49	0.42
1:D:227:PRO:HB3	1:D:232:TYR:CD1	2.54	0.42
1:D:271:THR:OG1	1:D:390:HIS:N	2.45	0.42
1:A:77:MET:HB3	1:A:92:ALA:HB1	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:15:VAL:HG11	1:B:110:ALA:HA	2.01	0.42
1:B:21:ASN:OD1	1:B:51:ARG:NH2	2.52	0.42
1:C:127:ASP:OD2	1:C:393:ALA:N	2.45	0.42
1:C:268:THR:HG22	1:C:386:LEU:HA	2.01	0.42
1:C:332:LEU:O	1:C:332:LEU:HD12	2.19	0.42
1:A:352:LEU:HD22	1:A:374:ILE:HD13	1.97	0.42
1:B:52:PHE:HB2	1:B:54:LEU:CD2	2.49	0.42
1:D:184:GLY:HA3	1:D:253:PHE:CE2	2.54	0.42
1:C:17:VAL:HG12	1:C:279:LEU:CD2	2.50	0.42
1:B:420:LEU:N	1:B:420:LEU:HD22	2.34	0.42
1:D:48:LEU:HD11	1:D:278:LEU:HB2	2.02	0.42
1:D:209:HIS:CE1	1:D:238:ARG:H	2.38	0.42
1:A:297:VAL:HG13	1:A:437:ILE:HB	2.02	0.42
1:A:352:LEU:HD23	1:A:352:LEU:HA	1.84	0.42
1:D:335:PHE:HB2	1:D:338:TYR:CE1	2.55	0.42
1:C:238:ARG:HA	1:C:238:ARG:HD3	1.87	0.42
1:A:242:SER:HB2	1:A:244:GLU:OE2	2.20	0.42
1:D:23:ILE:CD1	1:D:228:PHE:CB	2.97	0.42
1:B:58:ARG:NH1	1:B:58:ARG:HG2	2.35	0.42
1:D:194:MET:HA	1:D:194:MET:HE2	2.00	0.42
1:D:329:GLY:C	1:D:330:LEU:HD12	2.40	0.42
1:C:358:GLU:O	1:C:362:LYS:HG2	2.20	0.42
1:B:61:MET:HE2	1:B:61:MET:HB2	1.90	0.42
1:B:68:LEU:HD11	1:B:392:PHE:CE2	2.55	0.42
1:D:74:PHE:CD1	1:D:74:PHE:N	2.84	0.42
1:D:212:MET:HG3	1:D:382:ASN:O	2.20	0.42
1:C:32:TYR:CE1	1:C:228:PHE:HD2	2.39	0.41
1:C:195:GLY:HA3	1:A:363:ARG:HH11	1.85	0.41
1:A:22:ARG:O	1:A:225:VAL:HA	2.20	0.41
1:B:308:ASN:HB3	1:B:310:ASN:OD1	2.20	0.41
1:D:223:ASP:O	1:D:224:LEU:HD23	2.20	0.41
1:B:32:TYR:CD1	1:B:228:PHE:CE2	3.08	0.41
1:B:218:ARG:O	1:B:218:ARG:HG2	2.20	0.41
1:D:293:LEU:H	1:D:293:LEU:HD12	1.85	0.41
1:C:17:VAL:HG22	1:C:294:ALA:O	2.21	0.41
1:C:424:ILE:HD12	1:C:438:LEU:HD11	2.01	0.41
1:A:313:LEU:O	1:A:313:LEU:HD12	2.19	0.41
1:B:159:LEU:HD11	1:B:264:ALA:HA	2.02	0.41
1:B:322:PRO:HG3	1:B:371:LEU:HD11	2.02	0.41
1:D:324:LEU:HD21	1:D:437:ILE:HG13	2.03	0.41
1:A:335:PHE:HE1	1:A:423:LEU:CD1	2.34	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:322:PRO:HA	1:B:325:LEU:HD12	2.03	0.41
1:B:358:GLU:H	1:B:358:GLU:CD	2.24	0.41
1:D:129:THR:CB	1:D:270:LEU:HD12	2.50	0.41
1:D:160:VAL:CG2	1:D:268:THR:OG1	2.68	0.41
1:C:316:ALA:N	1:C:317:PRO:CD	2.83	0.41
1:A:68:LEU:HD12	1:A:68:LEU:H	1.85	0.41
1:B:68:LEU:HD11	1:B:392:PHE:HE2	1.85	0.41
1:A:74:PHE:N	1:A:74:PHE:CD2	2.88	0.41
1:A:305:ASP:OD2	1:A:310:ASN:ND2	2.54	0.41
1:B:16:ALA:HB1	1:B:292:PRO:HB3	2.02	0.41
1:D:16:ALA:HB1	1:D:292:PRO:HB3	2.03	0.41
1:D:338:TYR:CE2	1:D:374:ILE:HB	2.56	0.41
1:C:237:LEU:HD12	1:C:238:ARG:N	2.34	0.41
1:C:345:ALA:C	1:C:349:LEU:HD12	2.41	0.41
1:C:405:LYS:O	1:C:406:GLN:C	2.56	0.41
1:B:64:GLY:O	1:B:94:ASP:HA	2.20	0.41
1:B:336:ASP:C	1:B:337:PHE:CD1	2.94	0.41
1:D:27:ARG:HA	1:D:271:THR:HG22	2.03	0.41
1:D:220:PHE:CE2	1:D:405:LYS:HG2	2.56	0.41
1:A:190:THR:O	1:A:194:MET:HG2	2.20	0.41
1:A:386:LEU:HD23	1:A:386:LEU:HA	1.94	0.41
1:B:14:ARG:CZ	1:B:282:GLU:OE1	2.69	0.41
1:B:341:HIS:NE2	1:B:390:HIS:CD2	2.89	0.41
1:D:163:LEU:HB3	1:D:164:PRO:HD2	2.03	0.41
1:D:185:GLU:CD	1:D:253:PHE:HD1	2.24	0.41
1:D:237:LEU:HD12	1:D:238:ARG:N	2.36	0.41
1:D:328:ASN:HB3	1:D:330:LEU:HD13	2.02	0.41
1:B:59:LEU:CG	1:B:86:LEU:HD22	2.51	0.41
1:D:58:ARG:HA	1:D:90:THR:HG22	2.02	0.41
1:C:193:GLN:HB2	1:A:364:ARG:NH2	2.36	0.40
1:C:51:ARG:HH21	1:C:223:ASP:HA	1.86	0.40
1:C:421:ARG:HG2	1:C:439:GLU:HG2	2.03	0.40
1:A:97:GLN:OE1	1:B:93:PHE:HB3	2.20	0.40
1:D:160:VAL:HG12	1:D:160:VAL:O	2.21	0.40
1:C:17:VAL:CG1	1:C:279:LEU:HD21	2.50	0.40
1:C:424:ILE:HD11	1:C:438:LEU:HD11	2.03	0.40
1:B:21:ASN:ND2	1:B:47:GLY:HA3	2.36	0.40
1:B:60:ASP:HB2	1:B:118:TYR:HB3	2.04	0.40
1:D:351:HIS:HB3	1:D:355:TRP:CZ3	2.57	0.40
1:C:54:LEU:HD11	1:C:278:LEU:HD13	2.03	0.40
1:A:68:LEU:HD11	1:A:392:PHE:CD2	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:127:ASP:OD2	1:B:392:PHE:HB2	2.22	0.40
1:B:192:LYS:O	1:B:192:LYS:HD3	2.21	0.40
1:C:165:ALA:HB1	1:C:313:LEU:HD22	2.03	0.40
1:C:313:LEU:O	1:C:431:GLY:HA2	2.20	0.40
1:A:313:LEU:O	1:A:431:GLY:HA2	2.21	0.40
1:B:103:LEU:O	1:B:107:ILE:HG13	2.21	0.40
1:D:32:TYR:CD1	1:D:229:LEU:HD23	2.56	0.40

All (1) 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:232:TYR:OH	1:D:409:GLU:OE1[6_664]	1.95	0.25

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	390/440 (89%)	376 (96%)	14 (4%)	0	100	100
1	B	393/440 (89%)	375 (95%)	18 (5%)	0	100	100
1	C	389/440 (88%)	370 (95%)	19 (5%)	0	100	100
1	D	385/440 (88%)	370 (96%)	15 (4%)	0	100	100
All	All	1557/1760 (88%)	1491 (96%)	66 (4%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar

resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	274/323 (85%)	262 (96%)	12 (4%)	28	61
1	B	272/323 (84%)	260 (96%)	12 (4%)	28	61
1	C	267/323 (83%)	252 (94%)	15 (6%)	21	52
1	D	248/323 (77%)	233 (94%)	15 (6%)	19	49
All	All	1061/1292 (82%)	1007 (95%)	54 (5%)	24	56

All (54) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	46	SER
1	C	67	VAL
1	C	166	SER
1	C	220	PHE
1	C	235	ASP
1	C	248	THR
1	C	249	LEU
1	C	262	MET
1	C	278	LEU
1	C	281	SER
1	C	327	ARG
1	C	341	HIS
1	C	357	SER
1	C	385	SER
1	C	425	SER
1	A	68	LEU
1	A	183	MET
1	A	198	ARG
1	A	203	GLU
1	A	210	ARG
1	A	267	SER
1	A	286	GLU
1	A	289	SER
1	A	318	THR
1	A	336	ASP
1	A	414	LYS
1	A	423	LEU
1	B	32	TYR

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Mol	Chain	Res	Type
1	B	46	SER
1	B	96	GLN
1	B	131	ASP
1	B	241	SER
1	B	262	MET
1	B	278	LEU
1	B	282	GLU
1	B	310	ASN
1	B	331	SER
1	B	357	SER
1	B	358	GLU
1	D	46	SER
1	D	166	SER
1	D	197	LYS
1	D	198	ARG
1	D	200	ASP
1	D	202	ASP
1	D	220	PHE
1	D	226	SER
1	D	262	MET
1	D	270	LEU
1	D	271	THR
1	D	310	ASN
1	D	360	TYR
1	D	373	SER
1	D	425	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	341	HIS
1	A	382	ASN
1	D	390	HIS

5.3.3 RNA [i](#)

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	CSX	D	99	1	3,6,7	0.89	0	1,6,8	1.06	0
1	CSX	C	99	1	3,6,7	0.92	0	1,6,8	0.07	0
1	CSX	A	99	1	3,6,7	0.93	0	1,6,8	0.53	0
1	CSX	B	99	1	3,6,7	0.93	0	1,6,8	0.05	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
1	CSX	D	99	1	-	1/1/5/7	-
1	CSX	C	99	1	-	1/1/5/7	-
1	CSX	A	99	1	-	0/1/5/7	-
1	CSX	B	99	1	-	1/1/5/7	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	C	99	CSX	N-CA-CB-SG
1	D	99	CSX	N-CA-CB-SG
1	B	99	CSX	N-CA-CB-SG

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

1 ligand is 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	SO4	B	501	-	4,4,4	0.14	0	6,6,6	0.05	0

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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	396/440 (90%)	0.76	48 (12%) 4 3	63, 88, 110, 134	0
1	B	399/440 (90%)	0.59	36 (9%) 9 7	64, 86, 110, 128	0
1	C	395/440 (89%)	0.61	25 (6%) 20 16	66, 87, 111, 130	0
1	D	391/440 (88%)	0.82	48 (12%) 4 3	64, 97, 126, 136	0
All	All	1581/1760 (89%)	0.69	157 (9%) 7 5	63, 88, 118, 136	0

All (157) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	75	ASN	4.8
1	D	371	LEU	4.7
1	D	252	VAL	4.6
1	D	260	ALA	4.1
1	D	332	LEU	4.0
1	D	312	GLY	4.0
1	D	374	ILE	4.0
1	A	94	ASP	3.9
1	D	243	VAL	3.9
1	D	369	ALA	3.8
1	B	417	GLY	3.8
1	A	124	GLY	3.8
1	C	179	THR	3.8
1	D	368	ASP	3.7
1	A	96	GLN	3.6
1	B	367	LEU	3.6
1	D	355	TRP	3.6
1	D	246	LEU	3.6
1	D	253	PHE	3.6
1	B	94	ASP	3.6
1	D	196	ILE	3.6

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Mol	Chain	Res	Type	RSRZ
1	D	367	LEU	3.6
1	D	259	ASP	3.5
1	A	249	LEU	3.5
1	D	365	LEU	3.4
1	A	75	ASN	3.4
1	C	369	ALA	3.4
1	C	417	GLY	3.3
1	A	246	LEU	3.3
1	D	199	VAL	3.3
1	A	104	GLN	3.3
1	A	199	VAL	3.3
1	C	337	PHE	3.2
1	D	255	VAL	3.2
1	A	97	GLN	3.2
1	C	94	ASP	3.2
1	D	417	GLY	3.2
1	A	101	THR	3.1
1	D	360	TYR	3.1
1	A	64	GLY	3.1
1	A	206	ALA	3.1
1	D	251	PRO	3.1
1	A	108	ALA	3.1
1	B	371	LEU	3.1
1	D	352	LEU	3.1
1	C	418	GLY	3.1
1	A	414	LYS	3.0
1	A	92	ALA	3.0
1	D	64	GLY	3.0
1	B	369	ALA	3.0
1	D	96	GLN	3.0
1	B	330	LEU	2.9
1	A	105	ALA	2.9
1	B	370	ALA	2.9
1	C	416	GLY	2.9
1	C	413	ALA	2.9
1	A	394	ALA	2.8
1	D	97	GLN	2.8
1	B	29	ASP	2.8
1	B	96	GLN	2.8
1	D	194	MET	2.8
1	B	407	LEU	2.8
1	D	254	GLY	2.8

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Mol	Chain	Res	Type	RSRZ
1	C	412	ALA	2.7
1	D	440	ALA	2.7
1	D	201	GLN	2.7
1	D	101	THR	2.7
1	A	427	CYS	2.7
1	A	63	VAL	2.7
1	D	420	LEU	2.7
1	A	123	ALA	2.7
1	D	358	GLU	2.7
1	A	301	THR	2.6
1	A	418	GLY	2.6
1	B	63	VAL	2.6
1	A	393	ALA	2.6
1	C	423	LEU	2.6
1	D	104	GLN	2.6
1	A	125	GLY	2.6
1	A	66	ALA	2.6
1	A	93	PHE	2.6
1	D	63	VAL	2.6
1	C	199	VAL	2.5
1	C	407	LEU	2.5
1	B	105	ALA	2.5
1	D	102	GLY	2.5
1	C	101	THR	2.5
1	B	75	ASN	2.4
1	A	106	ALA	2.4
1	B	335	PHE	2.4
1	D	344	PHE	2.4
1	B	413	ALA	2.4
1	C	132	PRO	2.4
1	A	65	GLY	2.4
1	B	64	GLY	2.4
1	B	125	GLY	2.4
1	C	420	LEU	2.4
1	A	107	ILE	2.4
1	B	104	GLN	2.4
1	A	109	ALA	2.4
1	A	95	LEU	2.4
1	D	94	ASP	2.3
1	C	246	LEU	2.3
1	A	77	MET	2.3
1	C	18	LEU	2.3

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Mol	Chain	Res	Type	RSRZ
1	B	158	LYS	2.3
1	C	365	LEU	2.3
1	A	61	MET	2.3
1	D	395	THR	2.3
1	B	77	MET	2.3
1	B	159	LEU	2.3
1	C	410	LYS	2.3
1	B	361	CYS	2.2
1	A	100	GLY	2.2
1	A	416	GLY	2.2
1	D	100	GLY	2.2
1	A	337	PHE	2.2
1	B	108	ALA	2.2
1	B	93	PHE	2.2
1	D	346	SER	2.2
1	B	98	ALA	2.2
1	B	123	ALA	2.2
1	D	189	VAL	2.2
1	B	102	GLY	2.2
1	D	370	ALA	2.2
1	C	93	PHE	2.1
1	A	98	ALA	2.1
1	D	257	ALA	2.1
1	B	122	ALA	2.1
1	C	63	VAL	2.1
1	B	418	GLY	2.1
1	A	122	ALA	2.1
1	D	264	ALA	2.1
1	A	243	VAL	2.1
1	A	242	SER	2.1
1	D	190	THR	2.1
1	B	246	LEU	2.1
1	D	413	ALA	2.1
1	A	277	ALA	2.1
1	B	381	VAL	2.1
1	C	96	GLN	2.1
1	A	425	SER	2.1
1	C	64	GLY	2.1
1	B	253	PHE	2.1
1	D	393	ALA	2.0
1	A	252	VAL	2.0
1	A	367	LEU	2.0

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Mol	Chain	Res	Type	RSRZ
1	B	97	GLN	2.0
1	B	92	ALA	2.0
1	A	102	GLY	2.0
1	A	244	GLU	2.0
1	A	248	THR	2.0
1	C	97	GLN	2.0
1	B	332	LEU	2.0
1	D	229	LEU	2.0
1	A	237	LEU	2.0
1	B	177	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	CSX	B	99	7/8	0.91	0.29	71,83,90,95	0
1	CSX	A	99	7/8	0.93	0.32	63,81,84,99	0
1	CSX	C	99	7/8	0.93	0.27	64,78,85,97	0
1	CSX	D	99	7/8	0.96	0.31	87,105,116,126	0

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q < 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	SO4	B	501	5/5	0.81	0.31	127,133,134,144	0

6.5 Other polymers [i](#)

There are no such residues in this entry.