



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 01:54 AM UTC

PDB ID : 3TDL / pdb_00003tdl
Title : Structure of human serum albumin in complex with DAUDA
Authors : Wang, Y.; Luo, Z.; Shi, X.; Wang, H.; Nie, L.
Deposited on : 2011-08-11
Resolution : 2.60 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
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
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

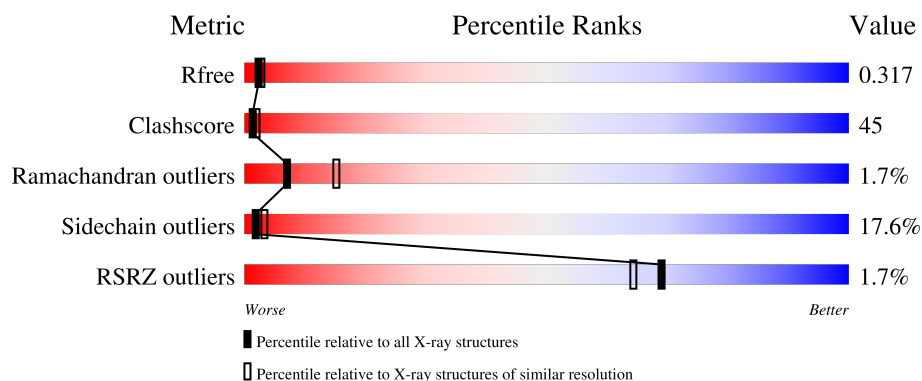
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.60 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	4008 (2.60-2.60)
Clashscore	190562	4347 (2.60-2.60)
Ramachandran outliers	187476	4277 (2.60-2.60)
Sidechain outliers	187428	4277 (2.60-2.60)
RSRZ outliers	180081	4008 (2.60-2.60)

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	585	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	MYR	A	1003	-	-	X	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	MYR	A	1004	-	X	X	-

2 Entry composition [i](#)

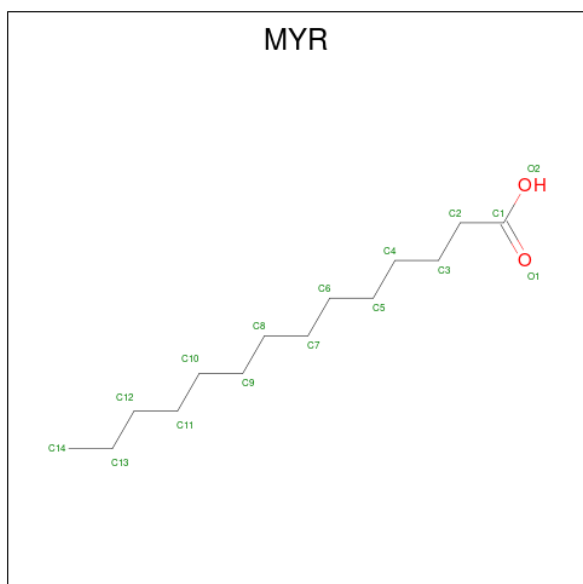
There are 3 unique types of molecules in this entry. The entry contains 4720 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Serum albumin.

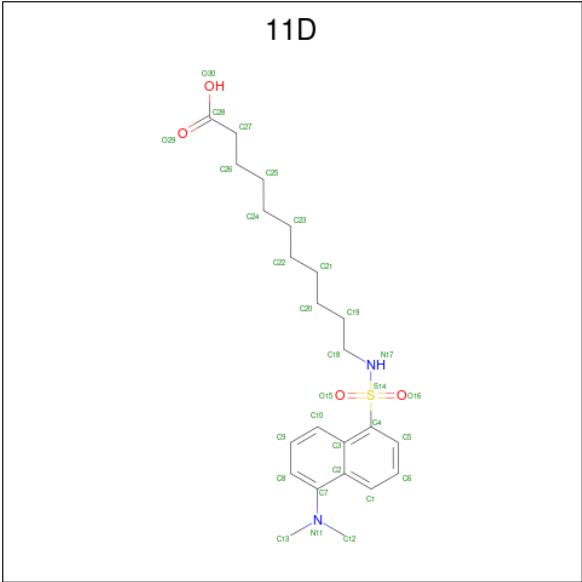
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	578	Total	C	N	O	S	0	0	0
			4600	2906	778	875	41			

- Molecule 2 is MYRISTIC ACID (CCD ID: MYR) (formula: C₁₄H₂₈O₂).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	0
			16	14	2		
2	A	1	Total	C	O	0	0
			16	14	2		
2	A	1	Total	C		0	0
			12	12			
2	A	1	Total	C	O	0	0
			16	14	2		

- Molecule 3 is 11-([5-(dimethylamino)naphthalen-1-yl]sulfonyl)amino)undecanoic acid (CCD ID: 11D) (formula: C₂₃H₃₄N₂O₄S).

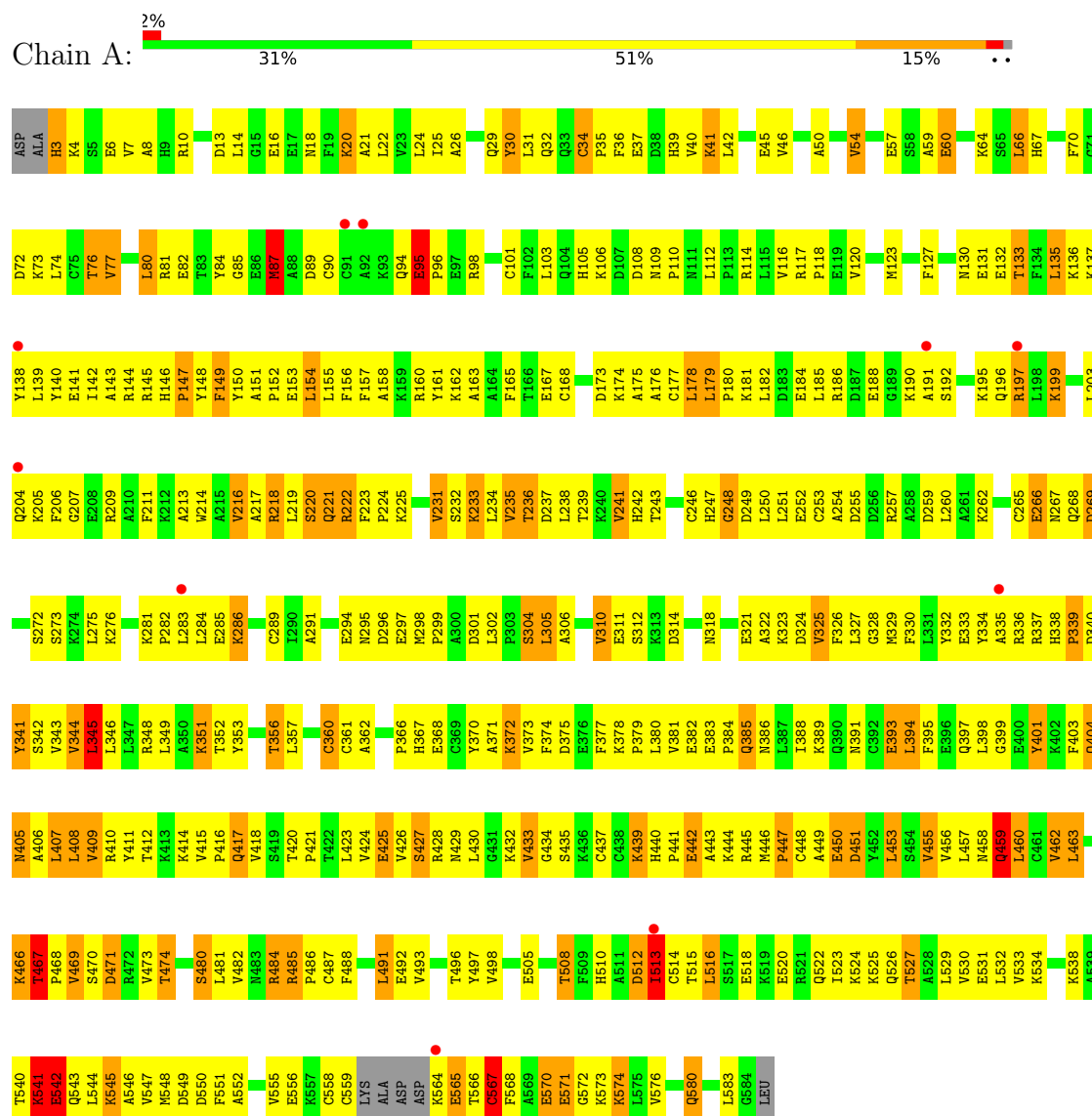


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	S	0	0
			30	23	2	4	1		
3	A	1	Total	C	N	O	S	0	0
			30	23	2	4	1		

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: Serum albumin



4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	176.66Å 37.14Å 90.19Å 90.00° 104.38° 90.00°	Depositor
Resolution (Å)	35.50 – 2.60 35.50 – 2.60	Depositor EDS
% Data completeness (in resolution range)	98.2 (35.50-2.60) 98.2 (35.50-2.60)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	6.56 (at 2.58Å)	Xtriage
Refinement program	CNS 1.3	Depositor
R, R_{free}	0.251 , 0.261 0.254 , 0.317	Depositor DCC
R_{free} test set	911 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å ²)	51.0	Xtriage
Anisotropy	0.632	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 27.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	4720	wwPDB-VP
Average B, all atoms (Å ²)	62.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.65% 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: MYR, 11D

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	0.62	0/4689	1.20	56/6323 (0.9%)

There are no bond length outliers.

All (56) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	147	PRO	N-CA-C	-10.04	97.17	111.22
1	A	54	VAL	N-CA-C	-8.12	103.90	111.45
1	A	339	PRO	N-CA-C	-7.93	103.56	114.27
1	A	566	THR	N-CA-C	-7.76	103.54	113.16
1	A	8	ALA	N-CA-C	-7.73	102.55	110.97
1	A	248	GLY	N-CA-C	7.53	124.05	115.08
1	A	106	LYS	N-CA-C	-7.46	98.46	110.32
1	A	516	LEU	N-CA-C	-7.37	99.61	110.52
1	A	415	VAL	CA-C-N	7.30	126.93	119.19
1	A	415	VAL	C-N-CA	7.30	126.93	119.19
1	A	314	ASP	N-CA-C	7.17	122.48	112.72
1	A	80	LEU	N-CA-C	7.14	119.06	111.28
1	A	565	GLU	N-CA-C	6.95	122.65	113.20
1	A	496	THR	N-CA-C	-6.93	104.56	113.16
1	A	393	GLU	N-CA-C	-6.92	102.31	111.24
1	A	545	LYS	N-CA-C	-6.83	104.05	112.38
1	A	360	CYS	N-CA-C	6.24	117.77	110.97
1	A	204	GLN	N-CA-C	6.14	117.85	111.03
1	A	325	VAL	N-CA-C	-6.12	104.77	110.53
1	A	512	ASP	N-CA-C	-6.10	103.80	111.11
1	A	401	TYR	N-CA-C	6.02	117.71	111.03
1	A	95	GLU	N-CA-C	5.93	122.92	109.81
1	A	64	LYS	N-CA-C	5.90	118.38	110.35
1	A	95	GLU	CA-C-N	-5.87	112.50	119.84

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	95	GLU	C-N-CA	-5.87	112.50	119.84
1	A	404	GLN	N-CA-C	-5.77	104.99	111.28
1	A	513	ILE	N-CA-C	5.73	117.15	110.62
1	A	434	GLY	N-CA-C	-5.63	105.68	112.49
1	A	221	GLN	N-CA-C	-5.61	104.79	111.69
1	A	571	GLU	N-CA-C	-5.59	105.56	112.38
1	A	87	MET	N-CA-C	-5.58	105.20	111.28
1	A	76	THR	N-CA-C	-5.52	106.39	113.23
1	A	567	CYS	N-CA-C	-5.43	104.76	111.33
1	A	493	VAL	N-CA-C	-5.42	100.64	108.87
1	A	467	THR	N-CA-C	-5.40	97.87	109.81
1	A	305	LEU	N-CA-C	-5.39	106.47	113.16
1	A	541	LYS	N-CA-C	-5.37	105.83	112.38
1	A	345	LEU	N-CA-C	-5.33	105.16	110.97
1	A	459	GLN	N-CA-C	-5.32	105.38	111.07
1	A	20	LYS	N-CA-C	-5.31	105.39	111.07
1	A	114	ARG	N-CA-C	-5.25	102.62	110.23
1	A	266	GLU	N-CA-C	-5.25	106.72	113.02
1	A	233	LYS	N-CA-C	-5.24	104.62	111.02
1	A	30	TYR	N-CA-C	-5.24	105.97	112.93
1	A	207	GLY	N-CA-C	5.24	119.19	112.18
1	A	289	CYS	N-CA-C	-5.22	105.48	111.07
1	A	498	VAL	N-CA-C	-5.22	102.49	107.76
1	A	375	ASP	N-CA-C	-5.21	105.78	111.82
1	A	157	PHE	N-CA-C	-5.19	105.31	111.69
1	A	412	THR	N-CA-C	-5.19	105.62	111.28
1	A	304	SER	N-CA-C	-5.19	104.03	110.41
1	A	542	GLU	N-CA-C	-5.17	105.29	111.03
1	A	178	LEU	N-CA-C	5.13	116.56	110.97
1	A	109	ASN	N-CA-C	-5.09	98.56	109.81
1	A	463	LEU	N-CA-C	-5.07	105.76	111.28
1	A	385	GLN	N-CA-C	-5.06	105.47	111.69

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4600	0	4525	404	0
2	A	60	0	104	41	0
3	A	60	0	66	16	0
All	All	4720	0	4695	426	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 45.

All (426) 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)
2:A:1003:MYR:C13	2:A:1003:MYR:H82	1.59	1.29
2:A:1004:MYR:C8	2:A:1004:MYR:H42	1.76	1.12
2:A:1003:MYR:H82	2:A:1003:MYR:H132	1.11	1.06
2:A:1004:MYR:H42	2:A:1004:MYR:H82	1.33	1.03
2:A:1004:MYR:C4	2:A:1004:MYR:H82	1.88	1.03
1:A:306:ALA:HA	1:A:310:VAL:HG23	1.40	1.03
1:A:523:ILE:O	1:A:527:THR:HG22	1.59	0.99
2:A:1003:MYR:H82	2:A:1003:MYR:C12	1.89	0.98
1:A:385:GLN:O	1:A:388:ILE:HG13	1.65	0.95
1:A:467:THR:H	1:A:468:PRO:CD	1.70	0.95
1:A:467:THR:H	1:A:468:PRO:HD3	1.29	0.94
1:A:383:GLU:HB3	1:A:384:PRO:HD3	1.46	0.93
1:A:541:LYS:HD3	1:A:541:LYS:H	1.34	0.93
1:A:337:ARG:HH21	1:A:337:ARG:HG3	1.34	0.92
1:A:488:PHE:HB3	2:A:1004:MYR:H92	1.48	0.92
1:A:42:LEU:HD22	1:A:73:LYS:HE3	1.53	0.90
2:A:1004:MYR:C8	2:A:1004:MYR:C4	2.45	0.90
1:A:466:LYS:HE3	1:A:466:LYS:HA	1.53	0.90
1:A:467:THR:N	1:A:468:PRO:CD	2.35	0.89
2:A:1003:MYR:H132	2:A:1003:MYR:C8	2.00	0.86
1:A:16:GLU:O	1:A:20:LYS:HG3	1.77	0.85
1:A:31:LEU:HB2	1:A:39:HIS:HE1	1.39	0.85
1:A:342:SER:HB3	1:A:446:MET:HG2	1.57	0.84
1:A:410:ARG:O	1:A:414:LYS:HG3	1.77	0.84
1:A:81:ARG:NH1	1:A:89:ASP:OD2	2.11	0.83
1:A:259:ASP:O	1:A:262:LYS:HG2	1.79	0.82
1:A:236:THR:O	1:A:239:THR:HG22	1.79	0.82
1:A:467:THR:N	1:A:468:PRO:HD3	1.94	0.82
1:A:423:LEU:O	1:A:427:SER:HB2	1.78	0.81
1:A:505:GLU:HA	1:A:508:THR:HG22	1.63	0.80
1:A:341:TYR:CD1	1:A:345:LEU:HD13	2.17	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:249:ASP:OD1	1:A:252:GLU:HG2	1.84	0.78
1:A:353:TYR:HB2	1:A:377:PHE:HZ	1.46	0.78
2:A:1003:MYR:C8	2:A:1003:MYR:H122	2.14	0.78
1:A:108:ASP:O	1:A:110:PRO:HD3	1.84	0.77
1:A:31:LEU:HB2	1:A:39:HIS:CE1	2.19	0.77
1:A:222:ARG:HG2	1:A:222:ARG:HH21	1.47	0.76
1:A:442:GLU:HA	1:A:445:ARG:HD2	1.67	0.76
1:A:254:ALA:HB1	2:A:1002:MYR:H72	1.68	0.76
1:A:453:LEU:HD11	2:A:1004:MYR:C6	2.16	0.75
1:A:471:ASP:HA	1:A:474:THR:OG1	1.86	0.75
1:A:523:ILE:O	1:A:527:THR:CG2	2.34	0.75
1:A:22:LEU:HD13	2:A:1002:MYR:H82	1.67	0.75
1:A:152:PRO:O	1:A:155:LEU:HB3	1.87	0.75
1:A:3:HIS:HB2	1:A:6:GLU:OE2	1.88	0.74
2:A:1003:MYR:C12	2:A:1003:MYR:C8	2.58	0.73
1:A:424:VAL:O	1:A:428:ARG:HG3	1.89	0.72
1:A:428:ARG:HH21	1:A:526:GLN:HE22	1.37	0.72
1:A:306:ALA:HA	1:A:310:VAL:CG2	2.17	0.72
1:A:291:ALA:HB2	3:A:1007:11D:H24	1.71	0.72
1:A:394:LEU:HD23	1:A:397:GLN:HE21	1.54	0.72
1:A:254:ALA:CB	2:A:1002:MYR:H72	2.20	0.71
1:A:430:LEU:O	1:A:433:VAL:HG13	1.90	0.71
1:A:567:CYS:SG	1:A:568:PHE:N	2.65	0.70
1:A:45:GLU:OE2	1:A:73:LYS:NZ	2.21	0.70
1:A:282:PRO:HG2	1:A:285:GLU:HG3	1.74	0.69
1:A:168:CYS:HB2	1:A:178:LEU:HG	1.72	0.69
1:A:332:TYR:O	1:A:336:ARG:HG2	1.93	0.69
2:A:1004:MYR:H82	2:A:1004:MYR:H41	1.72	0.68
1:A:453:LEU:HD11	2:A:1004:MYR:H61	1.75	0.68
1:A:146:HIS:HB3	1:A:149:PHE:HB2	1.74	0.68
1:A:50:ALA:O	1:A:54:VAL:HG23	1.93	0.68
1:A:214:TRP:CD1	1:A:343:VAL:HG11	2.29	0.68
1:A:74:LEU:O	1:A:77:VAL:CG1	2.42	0.67
1:A:232:SER:HA	1:A:235:VAL:CG1	2.25	0.67
1:A:233:LYS:NZ	1:A:237:ASP:OD1	2.23	0.67
1:A:118:PRO:O	1:A:123:MET:HE2	1.94	0.67
1:A:74:LEU:O	1:A:77:VAL:HG13	1.94	0.67
1:A:246:CYS:C	1:A:248:GLY:N	2.50	0.67
3:A:1006:11D:H10	3:A:1006:11D:O16	1.94	0.66
1:A:179:LEU:HD23	1:A:179:LEU:H	1.60	0.66
1:A:488:PHE:O	1:A:491:LEU:HB2	1.96	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:155:LEU:O	1:A:158:ALA:HB3	1.95	0.66
2:A:1003:MYR:H71	2:A:1004:MYR:H52	1.76	0.66
1:A:337:ARG:HG3	1:A:337:ARG:NH2	2.06	0.66
1:A:218:ARG:CG	1:A:343:VAL:HG21	2.27	0.65
1:A:397:GLN:HG3	1:A:398:LEU:HD13	1.78	0.65
1:A:576:VAL:HA	2:A:1005:MYR:H132	1.77	0.65
1:A:101:CYS:O	1:A:105:HIS:HD2	1.79	0.65
1:A:237:ASP:O	1:A:241:VAL:HG13	1.97	0.65
1:A:199:LYS:HB3	1:A:242:HIS:HE1	1.62	0.64
1:A:112:LEU:HD12	1:A:145:ARG:HG3	1.80	0.64
1:A:405:ASN:N	1:A:405:ASN:HD22	1.93	0.64
1:A:151:ALA:HB3	1:A:152:PRO:HD3	1.79	0.64
1:A:218:ARG:HG2	1:A:343:VAL:HG21	1.80	0.63
1:A:505:GLU:HA	1:A:508:THR:CG2	2.29	0.63
1:A:223:PHE:CD2	1:A:272:SER:HB2	2.33	0.63
1:A:418:VAL:HA	1:A:469:VAL:HG21	1.80	0.63
1:A:250:LEU:HD11	2:A:1002:MYR:H81	1.80	0.63
1:A:532:LEU:HD22	2:A:1005:MYR:H102	1.79	0.63
1:A:299:PRO:HD2	1:A:302:LEU:HD11	1.79	0.63
1:A:351:LYS:HG3	3:A:1006:11D:H27A	1.81	0.63
1:A:326:PHE:HE2	1:A:353:TYR:OH	1.82	0.63
2:A:1003:MYR:C13	2:A:1004:MYR:H51	2.29	0.63
1:A:298:MET:HE3	1:A:302:LEU:HD12	1.82	0.62
1:A:488:PHE:HA	1:A:491:LEU:HD22	1.81	0.62
1:A:179:LEU:HB2	1:A:180:PRO:HD3	1.82	0.62
1:A:216:VAL:HG23	1:A:235:VAL:HG11	1.82	0.62
1:A:95:GLU:O	1:A:96:PRO:C	2.41	0.62
1:A:395:PHE:HE2	1:A:439:LYS:HZ1	1.44	0.62
1:A:84:TYR:HB3	1:A:87:MET:HB3	1.82	0.62
1:A:429:ASN:O	1:A:433:VAL:HG12	1.99	0.62
1:A:120:VAL:HG11	1:A:174:LYS:HB3	1.81	0.61
1:A:214:TRP:CZ3	3:A:1007:11D:H12A	2.35	0.61
1:A:525:LYS:HE2	1:A:551:PHE:HE2	1.64	0.61
1:A:21:ALA:O	1:A:25:ILE:HG13	2.01	0.61
1:A:173:ASP:HB3	1:A:176:ALA:HB3	1.82	0.61
1:A:206:PHE:CD1	1:A:481:LEU:HD13	2.36	0.60
1:A:306:ALA:CA	1:A:310:VAL:HG23	2.22	0.60
1:A:485:ARG:HD3	2:A:1003:MYR:O1	2.01	0.60
1:A:160:ARG:HH12	1:A:188:GLU:CD	2.09	0.60
1:A:156:PHE:CE1	1:A:285:GLU:HA	2.37	0.60
1:A:395:PHE:C	1:A:395:PHE:CD2	2.79	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1003:MYR:H141	2:A:1004:MYR:H51	1.83	0.60
1:A:516:LEU:HB3	1:A:520:GLU:HB2	1.82	0.60
1:A:246:CYS:C	1:A:248:GLY:H	2.08	0.60
1:A:382:GLU:O	1:A:386:ASN:N	2.28	0.60
1:A:395:PHE:CZ	1:A:435:SER:HA	2.36	0.59
1:A:352:THR:O	1:A:356:THR:HG23	2.02	0.59
1:A:168:CYS:CB	1:A:178:LEU:HG	2.32	0.59
1:A:216:VAL:O	1:A:220:SER:OG	2.17	0.59
1:A:408:LEU:HG	1:A:530:VAL:HG22	1.83	0.59
1:A:353:TYR:HB2	1:A:377:PHE:CZ	2.35	0.59
2:A:1003:MYR:C13	2:A:1003:MYR:C8	2.56	0.59
1:A:408:LEU:HG	1:A:530:VAL:CG2	2.32	0.58
1:A:541:LYS:HD3	1:A:541:LYS:N	2.14	0.58
1:A:394:LEU:HD22	1:A:398:LEU:HD22	1.85	0.58
1:A:337:ARG:HH21	1:A:337:ARG:CG	2.14	0.58
1:A:348:ARG:CG	1:A:482:VAL:HB	2.33	0.58
1:A:213:ALA:HB2	3:A:1006:11D:H19	1.85	0.58
1:A:246:CYS:O	1:A:248:GLY:N	2.37	0.58
1:A:281:LYS:HB3	1:A:282:PRO:HD2	1.85	0.58
1:A:217:ALA:HB3	1:A:343:VAL:HG13	1.86	0.57
1:A:156:PHE:N	1:A:156:PHE:CD2	2.72	0.57
1:A:459:GLN:HG2	1:A:460:LEU:N	2.19	0.57
1:A:214:TRP:HZ3	3:A:1007:11D:H12A	1.69	0.57
1:A:342:SER:HB2	1:A:450:GLU:HB3	1.85	0.57
1:A:219:LEU:HD11	1:A:238:LEU:HD12	1.86	0.57
1:A:471:ASP:HA	1:A:474:THR:HG1	1.70	0.57
1:A:232:SER:HA	1:A:235:VAL:HG12	1.87	0.57
1:A:266:GLU:C	1:A:267:ASN:HD22	2.13	0.57
1:A:485:ARG:HH11	1:A:486:PRO:HA	1.70	0.57
1:A:547:VAL:O	1:A:550:ASP:HB2	2.04	0.57
1:A:395:PHE:CE1	1:A:435:SER:HA	2.39	0.56
1:A:526:GLN:O	1:A:530:VAL:HG23	2.05	0.56
1:A:291:ALA:HA	3:A:1007:11D:H20A	1.87	0.56
1:A:241:VAL:HG11	1:A:260:LEU:HD22	1.86	0.56
1:A:132:GLU:O	1:A:136:LYS:HG2	2.05	0.56
1:A:156:PHE:O	1:A:160:ARG:HG3	2.06	0.56
1:A:341:TYR:CE1	1:A:381:VAL:HG22	2.41	0.56
1:A:249:ASP:OD1	1:A:252:GLU:CG	2.54	0.56
1:A:444:LYS:O	1:A:447:PRO:HD2	2.05	0.56
1:A:332:TYR:CE1	1:A:336:ARG:HD2	2.41	0.55
1:A:153:GLU:OE2	1:A:192:SER:OG	2.23	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:334:TYR:CE1	1:A:338:HIS:HD2	2.24	0.55
1:A:449:ALA:O	1:A:453:LEU:HB2	2.06	0.55
1:A:150:TYR:OH	2:A:1002:MYR:C1	2.55	0.55
1:A:238:LEU:HD21	3:A:1007:11D:H21A	1.89	0.55
1:A:466:LYS:CA	1:A:468:PRO:HD3	2.37	0.54
1:A:567:CYS:O	1:A:571:GLU:N	2.39	0.54
1:A:332:TYR:CZ	1:A:336:ARG:HD2	2.42	0.54
1:A:337:ARG:NH2	1:A:337:ARG:CG	2.70	0.54
1:A:378:LYS:N	1:A:379:PRO:HD2	2.21	0.54
1:A:543:GLN:HB3	1:A:583:LEU:CD2	2.38	0.54
1:A:142:ILE:CG2	1:A:154:LEU:HD21	2.38	0.54
1:A:343:VAL:N	1:A:450:GLU:OE1	2.34	0.54
1:A:428:ARG:HD2	1:A:526:GLN:HE22	1.72	0.54
1:A:437:CYS:O	1:A:440:HIS:HB2	2.08	0.54
1:A:135:LEU:HD11	1:A:162:LYS:HB2	1.88	0.53
1:A:311:GLU:O	1:A:312:SER:C	2.49	0.53
1:A:323:LYS:O	1:A:327:LEU:HG	2.09	0.53
1:A:381:VAL:O	1:A:384:PRO:HD2	2.08	0.53
1:A:411:TYR:CE1	2:A:1004:MYR:H112	2.43	0.53
1:A:455:VAL:HG12	1:A:456:VAL:N	2.23	0.53
1:A:338:HIS:HB3	1:A:341:TYR:CD2	2.43	0.53
1:A:430:LEU:HA	1:A:433:VAL:CG1	2.38	0.53
1:A:32:GLN:O	1:A:144:ARG:NH2	2.42	0.53
1:A:103:LEU:HD21	1:A:249:ASP:HB2	1.89	0.53
1:A:453:LEU:HD12	1:A:485:ARG:HG3	1.91	0.53
1:A:466:LYS:HA	1:A:466:LYS:CE	2.34	0.53
1:A:259:ASP:O	1:A:262:LYS:CG	2.55	0.53
1:A:120:VAL:HG11	1:A:174:LYS:CB	2.39	0.53
1:A:340:ASP:HA	1:A:443:ALA:O	2.08	0.53
1:A:345:LEU:HD12	1:A:446:MET:SD	2.49	0.53
1:A:351:LYS:HA	3:A:1006:11D:H23A	1.91	0.53
1:A:444:LYS:C	1:A:447:PRO:HD2	2.34	0.53
1:A:179:LEU:HD23	1:A:179:LEU:N	2.24	0.53
1:A:408:LEU:HD12	1:A:427:SER:CB	2.40	0.52
1:A:428:ARG:HH21	1:A:526:GLN:NE2	2.05	0.52
1:A:155:LEU:HD23	1:A:284:LEU:HD21	1.92	0.52
1:A:480:SER:HG	1:A:482:VAL:CG2	2.22	0.52
1:A:156:PHE:CZ	1:A:284:LEU:HG	2.44	0.52
1:A:179:LEU:N	1:A:179:LEU:CD2	2.72	0.52
1:A:420:THR:OG1	1:A:534:LYS:NZ	2.35	0.52
1:A:381:VAL:CG1	1:A:385:GLN:OE1	2.58	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:414:LYS:HA	1:A:492:GLU:O	2.08	0.52
1:A:544:LEU:C	1:A:546:ALA:N	2.66	0.52
1:A:167:GLU:OE1	1:A:181:LYS:HE3	2.10	0.52
1:A:383:GLU:HB3	1:A:384:PRO:CD	2.30	0.52
2:A:1003:MYR:C14	2:A:1004:MYR:H51	2.41	0.51
1:A:485:ARG:NH2	2:A:1003:MYR:O1	2.41	0.51
1:A:120:VAL:HA	1:A:123:MET:HE3	1.93	0.51
1:A:218:ARG:HG3	1:A:343:VAL:HG21	1.93	0.51
1:A:253:CYS:O	1:A:257:ARG:HG3	2.11	0.51
1:A:367:HIS:O	1:A:371:ALA:HB2	2.11	0.51
1:A:197:ARG:NH1	1:A:458:ASN:HD21	2.08	0.51
1:A:380:LEU:O	1:A:384:PRO:CD	2.58	0.51
1:A:411:TYR:HB3	2:A:1004:MYR:H142	1.93	0.51
1:A:186:ARG:HD2	1:A:190:LYS:HD3	1.92	0.50
1:A:458:ASN:O	1:A:462:VAL:HG23	2.11	0.50
1:A:221:GLN:NE2	1:A:341:TYR:O	2.43	0.50
1:A:222:ARG:HH21	1:A:222:ARG:CG	2.18	0.50
1:A:318:ASN:O	1:A:321:GLU:HG2	2.12	0.50
1:A:342:SER:HB2	1:A:450:GLU:CB	2.41	0.50
1:A:407:LEU:HG	1:A:411:TYR:HE2	1.74	0.50
1:A:525:LYS:HE2	1:A:551:PHE:CE2	2.46	0.50
1:A:394:LEU:O	1:A:397:GLN:HG2	2.12	0.50
1:A:510:HIS:C	1:A:512:ASP:H	2.19	0.50
1:A:218:ARG:HG2	1:A:343:VAL:CG2	2.41	0.50
1:A:424:VAL:HG11	1:A:523:ILE:HG23	1.93	0.50
1:A:147:PRO:O	1:A:148:TYR:HB2	2.12	0.50
1:A:405:ASN:O	1:A:409:VAL:HG13	2.12	0.50
1:A:518:GLU:O	1:A:522:GLN:HG3	2.12	0.50
1:A:529:LEU:O	1:A:532:LEU:HB3	2.12	0.50
1:A:196:GLN:O	1:A:197:ARG:C	2.55	0.50
1:A:334:TYR:CE1	1:A:338:HIS:CD2	3.00	0.50
1:A:318:ASN:HA	1:A:321:GLU:HG2	1.92	0.49
1:A:72:ASP:O	1:A:76:THR:HG23	2.12	0.49
1:A:437:CYS:O	1:A:445:ARG:HG2	2.12	0.49
1:A:39:HIS:CD2	1:A:140:TYR:HE2	2.30	0.49
1:A:149:PHE:CD1	1:A:149:PHE:C	2.91	0.49
1:A:524:LYS:HA	1:A:527:THR:HG23	1.94	0.49
1:A:36:PHE:CE1	1:A:137:LYS:HA	2.47	0.49
1:A:137:LYS:O	1:A:141:GLU:HG2	2.12	0.49
1:A:485:ARG:NH1	1:A:486:PRO:HA	2.27	0.49
1:A:231:VAL:O	1:A:235:VAL:HG12	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:348:ARG:HG2	1:A:482:VAL:HB	1.94	0.49
1:A:220:SER:O	1:A:336:ARG:HA	2.13	0.49
1:A:186:ARG:HD2	1:A:190:LYS:CD	2.42	0.49
1:A:262:LYS:O	1:A:266:GLU:HG3	2.13	0.49
1:A:466:LYS:HA	1:A:468:PRO:HD3	1.94	0.49
1:A:381:VAL:HG13	1:A:385:GLN:OE1	2.14	0.48
1:A:417:GLN:HG2	1:A:470:SER:HB2	1.94	0.48
1:A:510:HIS:C	1:A:512:ASP:N	2.69	0.48
1:A:135:LEU:O	1:A:139:LEU:HB2	2.14	0.48
1:A:156:PHE:CZ	1:A:285:GLU:HA	2.48	0.48
1:A:356:THR:O	1:A:360:CYS:N	2.36	0.48
1:A:341:TYR:CD2	1:A:341:TYR:N	2.82	0.48
1:A:197:ARG:HH11	1:A:458:ASN:HD21	1.62	0.48
1:A:540:THR:C	1:A:542:GLU:N	2.65	0.48
1:A:178:LEU:O	1:A:179:LEU:C	2.56	0.48
1:A:425:GLU:HG3	1:A:429:ASN:OD1	2.13	0.48
1:A:282:PRO:O	1:A:283:LEU:C	2.56	0.48
1:A:570:GLU:C	1:A:572:GLY:N	2.69	0.48
1:A:512:ASP:O	1:A:516:LEU:HG	2.13	0.48
1:A:36:PHE:CG	1:A:137:LYS:HD3	2.48	0.48
1:A:334:TYR:CZ	1:A:349:LEU:HD13	2.48	0.48
1:A:77:VAL:O	1:A:80:LEU:HB2	2.13	0.47
1:A:548:MET:HE3	2:A:1005:MYR:H42	1.96	0.47
1:A:32:GLN:NE2	1:A:110:PRO:HB3	2.29	0.47
1:A:149:PHE:C	1:A:149:PHE:HD1	2.22	0.47
1:A:218:ARG:NH1	1:A:451:ASP:OD1	2.47	0.47
3:A:1006:11D:H23	3:A:1006:11D:H26A	1.55	0.47
1:A:329:MET:O	1:A:333:GLU:HG2	2.13	0.47
1:A:348:ARG:HG3	1:A:482:VAL:HB	1.95	0.47
1:A:379:PRO:O	1:A:383:GLU:HB2	2.13	0.47
1:A:505:GLU:CA	1:A:508:THR:HG22	2.40	0.47
1:A:14:LEU:O	1:A:18:ASN:ND2	2.47	0.47
1:A:221:GLN:O	1:A:224:PRO:HD3	2.15	0.47
1:A:199:LYS:HA	1:A:199:LYS:HD2	1.54	0.47
1:A:42:LEU:O	1:A:46:VAL:HG23	2.14	0.47
1:A:117:ARG:HH21	1:A:179:LEU:HD13	1.79	0.47
1:A:407:LEU:CD1	1:A:410:ARG:HH11	2.28	0.47
1:A:416:PRO:HB2	1:A:497:TYR:CE2	2.50	0.47
1:A:450:GLU:CG	1:A:451:ASP:N	2.78	0.47
1:A:25:ILE:O	1:A:29:GLN:HG3	2.14	0.47
1:A:77:VAL:HG22	1:A:80:LEU:HB2	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:108:ASP:C	1:A:110:PRO:HD3	2.40	0.47
1:A:203:LEU:HD12	1:A:203:LEU:O	2.15	0.47
1:A:446:MET:O	1:A:447:PRO:C	2.57	0.47
1:A:480:SER:OG	1:A:482:VAL:CG2	2.63	0.46
1:A:525:LYS:HD3	2:A:1005:MYR:H31	1.95	0.46
1:A:439:LYS:HA	1:A:439:LYS:HD3	1.42	0.46
1:A:418:VAL:HA	1:A:469:VAL:CG2	2.44	0.46
1:A:486:PRO:O	1:A:487:CYS:C	2.58	0.46
1:A:570:GLU:HG3	1:A:571:GLU:H	1.80	0.46
1:A:161:TYR:O	1:A:165:PHE:HD2	1.98	0.46
1:A:399:GLY:O	1:A:403:PHE:HB2	2.16	0.46
1:A:397:GLN:O	1:A:398:LEU:HD12	2.15	0.46
1:A:525:LYS:HG2	1:A:551:PHE:CE2	2.51	0.46
1:A:42:LEU:HD22	1:A:73:LYS:CE	2.36	0.46
1:A:572:GLY:O	1:A:573:LYS:C	2.59	0.46
1:A:342:SER:OG	1:A:344:VAL:HG23	2.15	0.45
1:A:441:PRO:O	1:A:442:GLU:C	2.59	0.45
1:A:179:LEU:O	1:A:180:PRO:C	2.55	0.45
1:A:224:PRO:HB2	1:A:299:PRO:HD3	1.99	0.45
1:A:370:TYR:CD1	1:A:370:TYR:C	2.94	0.45
1:A:401:TYR:CE2	1:A:522:GLN:HG2	2.51	0.45
1:A:470:SER:O	1:A:473:VAL:HB	2.17	0.45
1:A:36:PHE:O	1:A:40:VAL:HG23	2.17	0.45
1:A:66:LEU:HD13	1:A:66:LEU:HA	1.59	0.45
1:A:341:TYR:N	1:A:341:TYR:HD2	2.13	0.45
1:A:540:THR:C	1:A:542:GLU:H	2.24	0.45
1:A:130:ASN:CG	1:A:133:THR:HB	2.41	0.45
1:A:545:LYS:O	1:A:549:ASP:HB2	2.16	0.45
1:A:120:VAL:CG1	1:A:174:LYS:HB3	2.46	0.45
1:A:224:PRO:HB2	1:A:298:MET:HA	1.98	0.45
1:A:391:ASN:HB2	2:A:1003:MYR:H101	1.98	0.45
1:A:251:LEU:HD23	2:A:1002:MYR:H91	1.98	0.45
1:A:405:ASN:N	1:A:405:ASN:ND2	2.64	0.45
1:A:217:ALA:O	1:A:221:GLN:HG3	2.17	0.45
1:A:67:HIS:HE1	1:A:249:ASP:OD2	2.01	0.44
1:A:238:LEU:HD22	3:A:1007:11D:H13B	1.99	0.44
1:A:480:SER:OG	1:A:482:VAL:HG22	2.18	0.44
1:A:488:PHE:HB3	2:A:1004:MYR:C9	2.33	0.44
1:A:530:VAL:O	1:A:533:VAL:N	2.50	0.44
1:A:325:VAL:O	1:A:329:MET:HG3	2.18	0.44
1:A:348:ARG:HH12	2:A:1003:MYR:C1	2.31	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:388:ILE:HD12	1:A:389:LYS:N	2.32	0.44
1:A:485:ARG:HB3	1:A:486:PRO:HD3	1.99	0.44
1:A:266:GLU:C	1:A:267:ASN:ND2	2.75	0.44
1:A:31:LEU:HD21	1:A:74:LEU:HD22	1.99	0.44
1:A:90:CYS:O	1:A:98:ARG:HG3	2.18	0.44
1:A:184:GLU:O	1:A:188:GLU:HG3	2.16	0.44
1:A:466:LYS:HE3	1:A:466:LYS:CA	2.35	0.44
1:A:156:PHE:N	1:A:156:PHE:HD2	2.11	0.44
1:A:367:HIS:HD1	1:A:367:HIS:C	2.25	0.44
1:A:458:ASN:OD1	1:A:484:ARG:NH1	2.49	0.44
2:A:1003:MYR:H132	2:A:1004:MYR:H51	1.98	0.44
1:A:275:LEU:O	1:A:276:LYS:C	2.60	0.44
1:A:393:GLU:O	1:A:394:LEU:C	2.59	0.43
1:A:551:PHE:O	1:A:552:ALA:C	2.60	0.43
2:A:1004:MYR:H71	2:A:1004:MYR:H101	1.55	0.43
1:A:195:LYS:HE3	1:A:195:LYS:HB2	1.71	0.43
1:A:480:SER:HG	1:A:482:VAL:HG22	1.83	0.43
1:A:540:THR:HB	1:A:542:GLU:CG	2.48	0.43
1:A:41:LYS:O	1:A:45:GLU:HG3	2.17	0.43
1:A:59:ALA:O	1:A:60:GLU:C	2.61	0.43
1:A:265:CYS:O	1:A:268:GLN:HG3	2.17	0.43
1:A:513:ILE:CG2	1:A:514:CYS:N	2.82	0.43
1:A:410:ARG:HG3	1:A:414:LYS:HE3	2.00	0.43
1:A:32:GLN:HE22	1:A:110:PRO:HB3	1.84	0.43
1:A:120:VAL:HG21	1:A:175:ALA:HA	1.99	0.43
1:A:457:LEU:HD21	2:A:1004:MYR:H91	2.00	0.43
1:A:565:GLU:HA	1:A:565:GLU:OE2	2.18	0.43
1:A:26:ALA:O	1:A:30:TYR:HD2	2.02	0.43
1:A:404:GLN:NE2	1:A:428:ARG:HA	2.32	0.43
1:A:156:PHE:HZ	1:A:284:LEU:HG	1.83	0.43
3:A:1007:11D:O15	3:A:1007:11D:H10	2.19	0.43
1:A:304:SER:OG	1:A:306:ALA:HB3	2.18	0.43
1:A:305:LEU:HB3	1:A:374:PHE:HZ	1.84	0.43
1:A:565:GLU:OE2	1:A:565:GLU:CA	2.66	0.43
1:A:234:LEU:O	1:A:238:LEU:HB2	2.18	0.43
3:A:1006:11D:H12A	3:A:1006:11D:H1	2.01	0.42
1:A:453:LEU:HD11	2:A:1004:MYR:H62	1.97	0.42
1:A:168:CYS:SG	1:A:177:CYS:C	3.03	0.42
1:A:209:ARG:NH1	3:A:1006:11D:H26	2.34	0.42
1:A:283:LEU:O	2:A:1002:MYR:H21	2.19	0.42
1:A:340:ASP:O	1:A:447:PRO:HD3	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:550:ASP:O	1:A:551:PHE:C	2.60	0.42
1:A:269:ASP:OD2	1:A:269:ASP:N	2.53	0.42
1:A:296:ASP:OD1	1:A:297:GLU:N	2.52	0.42
1:A:332:TYR:OH	1:A:336:ARG:CZ	2.67	0.42
1:A:458:ASN:HA	1:A:484:ARG:NH1	2.34	0.42
1:A:152:PRO:O	1:A:156:PHE:CD2	2.73	0.42
1:A:163:ALA:O	1:A:167:GLU:HB2	2.19	0.42
1:A:222:ARG:HG3	1:A:295:ASN:HD22	1.84	0.42
1:A:370:TYR:HD1	1:A:370:TYR:O	2.02	0.42
1:A:24:LEU:HD21	1:A:140:TYR:HB2	2.01	0.42
1:A:205:LYS:HE3	1:A:206:PHE:CE2	2.55	0.42
1:A:211:PHE:C	1:A:211:PHE:CD2	2.97	0.42
1:A:345:LEU:O	1:A:346:LEU:C	2.62	0.42
1:A:453:LEU:HD22	1:A:453:LEU:HA	1.80	0.42
1:A:67:HIS:HE1	1:A:249:ASP:CG	2.28	0.42
1:A:343:VAL:O	1:A:346:LEU:N	2.52	0.42
1:A:564:LYS:O	1:A:564:LYS:HG2	2.19	0.42
1:A:25:ILE:HG23	1:A:143:ALA:HB2	2.02	0.42
1:A:576:VAL:O	1:A:580:GLN:HB2	2.20	0.42
1:A:257:ARG:CZ	3:A:1007:11D:H26	2.51	0.41
1:A:259:ASP:HA	1:A:262:LYS:HE3	2.02	0.41
1:A:74:LEU:O	1:A:77:VAL:HG12	2.18	0.41
1:A:117:ARG:HA	1:A:118:PRO:HD3	1.89	0.41
1:A:326:PHE:CE2	1:A:353:TYR:OH	2.68	0.41
1:A:384:PRO:HG3	1:A:485:ARG:HH22	1.85	0.41
1:A:437:CYS:SG	1:A:448:CYS:C	3.03	0.41
1:A:551:PHE:O	1:A:555:VAL:HG22	2.20	0.41
1:A:178:LEU:HD22	1:A:182:LEU:HG	2.03	0.41
1:A:343:VAL:O	1:A:344:VAL:C	2.63	0.41
1:A:372:LYS:CB	1:A:372:LYS:NZ	2.84	0.41
1:A:34:CYS:HA	1:A:35:PRO:HD3	1.90	0.41
1:A:220:SER:HB2	1:A:335:ALA:HB3	2.01	0.41
1:A:360:CYS:O	1:A:362:ALA:N	2.53	0.41
1:A:73:LYS:HA	1:A:73:LYS:HD2	1.67	0.41
1:A:388:ILE:O	1:A:389:LYS:C	2.61	0.41
1:A:127:PHE:O	1:A:131:GLU:HG2	2.19	0.41
1:A:138:TYR:O	1:A:139:LEU:C	2.61	0.41
1:A:161:TYR:O	1:A:165:PHE:CD2	2.73	0.41
1:A:295:ASN:OD1	1:A:339:PRO:HB2	2.21	0.41
1:A:330:PHE:HZ	1:A:377:PHE:CE1	2.38	0.41
1:A:232:SER:O	1:A:233:LYS:C	2.61	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:430:LEU:HG	1:A:456:VAL:HG11	2.02	0.41
1:A:10:ARG:O	1:A:14:LEU:HB2	2.20	0.41
1:A:191:ALA:O	1:A:195:LYS:N	2.42	0.41
1:A:213:ALA:O	1:A:214:TRP:C	2.64	0.41
1:A:223:PHE:O	1:A:224:PRO:C	2.62	0.41
1:A:342:SER:O	1:A:343:VAL:C	2.62	0.41
1:A:429:ASN:HD22	1:A:432:LYS:HE2	1.86	0.41
1:A:328:GLY:HA2	3:A:1006:11D:H18	2.03	0.41
1:A:403:PHE:O	1:A:406:ALA:HB3	2.21	0.41
1:A:26:ALA:HB1	1:A:70:PHE:CE1	2.56	0.40
1:A:178:LEU:O	1:A:181:LYS:N	2.54	0.40
1:A:380:LEU:O	1:A:384:PRO:HD3	2.20	0.40
1:A:383:GLU:OE2	1:A:384:PRO:HG3	2.22	0.40
1:A:118:PRO:HD2	1:A:123:MET:SD	2.61	0.40
1:A:420:THR:N	1:A:421:PRO:CD	2.84	0.40
1:A:447:PRO:O	1:A:448:CYS:C	2.64	0.40
1:A:458:ASN:O	1:A:459:GLN:C	2.62	0.40
1:A:571:GLU:O	1:A:574:LYS:HG2	2.21	0.40
1:A:168:CYS:SG	1:A:178:LEU:N	2.94	0.40
1:A:417:GLN:H	1:A:417:GLN:CD	2.29	0.40
1:A:458:ASN:HA	1:A:484:ARG:HH11	1.86	0.40
1:A:526:GLN:HE21	1:A:526:GLN:HB2	1.57	0.40
1:A:531:GLU:HA	1:A:534:LYS:HB2	2.04	0.40
1:A:37:GLU:H	1:A:37:GLU:CD	2.29	0.40
1:A:81:ARG:O	1:A:85:GLY:HA2	2.22	0.40
1:A:428:ARG:NH2	1:A:526:GLN:HE22	2.12	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	574/585 (98%)	486 (85%)	78 (14%)	10 (2%)	7	15

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	322	ALA
1	A	467	THR
1	A	247	HIS
1	A	286	LYS
1	A	301	ASP
1	A	361	CYS
1	A	442	GLU
1	A	447	PRO
1	A	558	CYS
1	A	366	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	506/511 (99%)	417 (82%)	89 (18%)	2	3

All (89) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	3	HIS
1	A	4	LYS
1	A	7	VAL
1	A	13	ASP
1	A	34	CYS
1	A	41	LYS
1	A	57	GLU
1	A	60	GLU
1	A	66	LEU
1	A	77	VAL
1	A	82	GLU

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Mol	Chain	Res	Type
1	A	87	MET
1	A	94	GLN
1	A	95	GLU
1	A	116	VAL
1	A	133	THR
1	A	135	LEU
1	A	149	PHE
1	A	154	LEU
1	A	179	LEU
1	A	185	LEU
1	A	197	ARG
1	A	199	LYS
1	A	216	VAL
1	A	218	ARG
1	A	220	SER
1	A	222	ARG
1	A	225	LYS
1	A	231	VAL
1	A	235	VAL
1	A	236	THR
1	A	241	VAL
1	A	243	THR
1	A	255	ASP
1	A	269	ASP
1	A	273	SER
1	A	286	LYS
1	A	294	GLU
1	A	310	VAL
1	A	324	ASP
1	A	341	TYR
1	A	344	VAL
1	A	345	LEU
1	A	351	LYS
1	A	356	THR
1	A	357	LEU
1	A	368	GLU
1	A	372	LYS
1	A	373	VAL
1	A	394	LEU
1	A	405	ASN
1	A	407	LEU
1	A	408	LEU

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Mol	Chain	Res	Type
1	A	409	VAL
1	A	417	GLN
1	A	425	GLU
1	A	426	VAL
1	A	427	SER
1	A	433	VAL
1	A	439	LYS
1	A	450	GLU
1	A	451	ASP
1	A	453	LEU
1	A	455	VAL
1	A	459	GLN
1	A	460	LEU
1	A	462	VAL
1	A	463	LEU
1	A	466	LYS
1	A	469	VAL
1	A	471	ASP
1	A	474	THR
1	A	480	SER
1	A	484	ARG
1	A	485	ARG
1	A	491	LEU
1	A	508	THR
1	A	513	ILE
1	A	515	THR
1	A	527	THR
1	A	538	LYS
1	A	541	LYS
1	A	542	GLU
1	A	556	GLU
1	A	559	CYS
1	A	567	CYS
1	A	570	GLU
1	A	574	LYS
1	A	580	GLN

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

Mol	Chain	Res	Type
1	A	3	HIS
1	A	39	HIS

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Mol	Chain	Res	Type
1	A	67	HIS
1	A	105	HIS
1	A	130	ASN
1	A	146	HIS
1	A	221	GLN
1	A	242	HIS
1	A	267	ASN
1	A	268	GLN
1	A	288	HIS
1	A	295	ASN
1	A	338	HIS
1	A	390	GLN
1	A	397	GLN
1	A	404	GLN
1	A	405	ASN
1	A	429	ASN
1	A	440	HIS
1	A	459	GLN
1	A	483	ASN
1	A	522	GLN
1	A	526	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

6 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	MYR	A	1005	-	15,15,15	0.63	0	15,15,15	0.85	0
2	MYR	A	1003	-	15,15,15	0.72	1 (6%)	15,15,15	1.11	2 (13%)
3	11D	A	1006	-	31,31,31	2.86	4 (12%)	41,41,41	1.80	9 (21%)
3	11D	A	1007	-	31,31,31	3.50	5 (16%)	41,41,41	1.71	7 (17%)
2	MYR	A	1004	-	11,11,15	0.88	0	10,10,15	2.86	7 (70%)
2	MYR	A	1002	-	15,15,15	0.45	0	15,15,15	1.41	2 (13%)

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	MYR	A	1005	-	-	8/13/13/13	-
2	MYR	A	1003	-	-	10/13/13/13	-
3	11D	A	1006	-	-	17/25/25/25	0/2/2/2
3	11D	A	1007	-	-	10/25/25/25	0/2/2/2
2	MYR	A	1004	-	-	6/9/9/13	-
2	MYR	A	1002	-	-	9/13/13/13	-

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	1007	11D	C4-S14	-18.23	1.58	1.77
3	A	1006	11D	C4-S14	-14.33	1.62	1.77
3	A	1006	11D	O29-C28	4.06	1.35	1.22
3	A	1007	11D	O29-C28	3.68	1.34	1.22
3	A	1007	11D	C4-C3	-3.18	1.37	1.43
3	A	1006	11D	C5-C4	2.66	1.40	1.37
3	A	1006	11D	S14-N17	-2.36	1.58	1.61
2	A	1003	MYR	O2-C1	-2.33	1.23	1.30
3	A	1007	11D	O30-C28	-2.03	1.24	1.30
3	A	1007	11D	C3-C2	-2.00	1.39	1.43

All (27) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	1007	11D	O16-S14-O15	-6.94	111.09	119.52
3	A	1006	11D	O16-S14-O15	-6.87	111.18	119.52
2	A	1004	MYR	C8-C7-C6	-5.11	88.56	114.37
2	A	1004	MYR	C11-C10-C9	-3.72	95.54	114.37
3	A	1006	11D	C4-S14-N17	3.25	112.78	106.78
2	A	1002	MYR	O2-C1-C2	3.22	124.19	114.00
2	A	1004	MYR	C13-C12-C11	-3.07	88.30	115.25
2	A	1004	MYR	C9-C8-C7	-2.88	99.79	114.37
2	A	1004	MYR	C7-C6-C5	-2.86	99.92	114.37
3	A	1006	11D	C12-N11-C7	2.85	122.85	114.19
3	A	1007	11D	C3-C4-S14	-2.75	118.42	121.66
2	A	1004	MYR	C12-C11-C10	-2.69	100.78	114.37
3	A	1006	11D	C5-C4-C3	-2.51	118.14	120.95
3	A	1007	11D	O30-C28-C27	2.47	121.80	114.00
3	A	1007	11D	C5-C4-S14	2.43	119.75	116.92
2	A	1003	MYR	O2-C1-C2	2.40	121.57	114.00
3	A	1007	11D	C13-N11-C7	2.37	121.42	114.19
3	A	1006	11D	C2-C7-N11	2.35	121.97	118.37
3	A	1006	11D	C3-C4-S14	2.24	124.29	121.66
3	A	1006	11D	C4-C3-C2	2.22	120.92	117.97
3	A	1007	11D	C10-C3-C2	2.20	121.15	118.42
3	A	1007	11D	C10-C3-C4	-2.17	120.33	123.58
2	A	1004	MYR	C10-C9-C8	-2.16	103.43	114.37
2	A	1002	MYR	O2-C1-O1	-2.10	117.94	123.33
2	A	1003	MYR	O2-C1-O1	-2.08	117.98	123.33
3	A	1006	11D	C13-N11-C7	2.02	120.34	114.19
3	A	1006	11D	C10-C3-C4	-2.00	120.57	123.58

There are no chirality outliers.

All (60) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	1006	11D	C3-C4-S14-O15
3	A	1006	11D	C3-C4-S14-O16
3	A	1006	11D	C3-C4-S14-N17
3	A	1006	11D	C5-C4-S14-O15
3	A	1006	11D	C5-C4-S14-N17
3	A	1006	11D	N17-C18-C19-C20
2	A	1003	MYR	C1-C2-C3-C4
2	A	1003	MYR	C9-C10-C11-C12
2	A	1004	MYR	C7-C8-C9-C10
3	A	1006	11D	C5-C4-S14-O16
3	A	1006	11D	C23-C24-C25-C26

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Mol	Chain	Res	Type	Atoms
3	A	1006	11D	C18-N17-S14-O16
3	A	1007	11D	C23-C24-C25-C26
2	A	1002	MYR	C4-C5-C6-C7
3	A	1006	11D	C24-C25-C26-C27
2	A	1005	MYR	C10-C11-C12-C13
3	A	1006	11D	C22-C23-C24-C25
2	A	1005	MYR	C4-C5-C6-C7
3	A	1007	11D	C21-C22-C23-C24
2	A	1002	MYR	C9-C10-C11-C12
2	A	1003	MYR	C5-C6-C7-C8
2	A	1004	MYR	C5-C6-C7-C8
3	A	1007	11D	C20-C21-C22-C23
2	A	1005	MYR	C7-C8-C9-C10
2	A	1002	MYR	C6-C7-C8-C9
3	A	1007	11D	C22-C23-C24-C25
2	A	1004	MYR	C9-C10-C11-C12
3	A	1006	11D	C18-C19-C20-C21
3	A	1007	11D	C25-C26-C27-C28
2	A	1002	MYR	C3-C4-C5-C6
2	A	1005	MYR	C11-C12-C13-C14
2	A	1003	MYR	C3-C4-C5-C6
2	A	1003	MYR	C2-C3-C4-C5
2	A	1005	MYR	C6-C7-C8-C9
2	A	1005	MYR	C9-C10-C11-C12
3	A	1006	11D	C18-N17-S14-O15
3	A	1007	11D	C24-C25-C26-C27
2	A	1003	MYR	C7-C8-C9-C10
3	A	1007	11D	N17-C18-C19-C20
2	A	1003	MYR	C10-C11-C12-C13
3	A	1007	11D	C18-C19-C20-C21
2	A	1002	MYR	C2-C3-C4-C5
2	A	1002	MYR	C11-C10-C9-C8
3	A	1006	11D	C18-N17-S14-C4
2	A	1004	MYR	C4-C5-C6-C7
3	A	1007	11D	C19-C20-C21-C22
2	A	1002	MYR	C1-C2-C3-C4
3	A	1007	11D	C18-N17-S14-O15
2	A	1005	MYR	O1-C1-C2-C3
2	A	1003	MYR	C6-C7-C8-C9
2	A	1005	MYR	O2-C1-C2-C3
2	A	1004	MYR	C11-C10-C9-C8
2	A	1002	MYR	O1-C1-C2-C3

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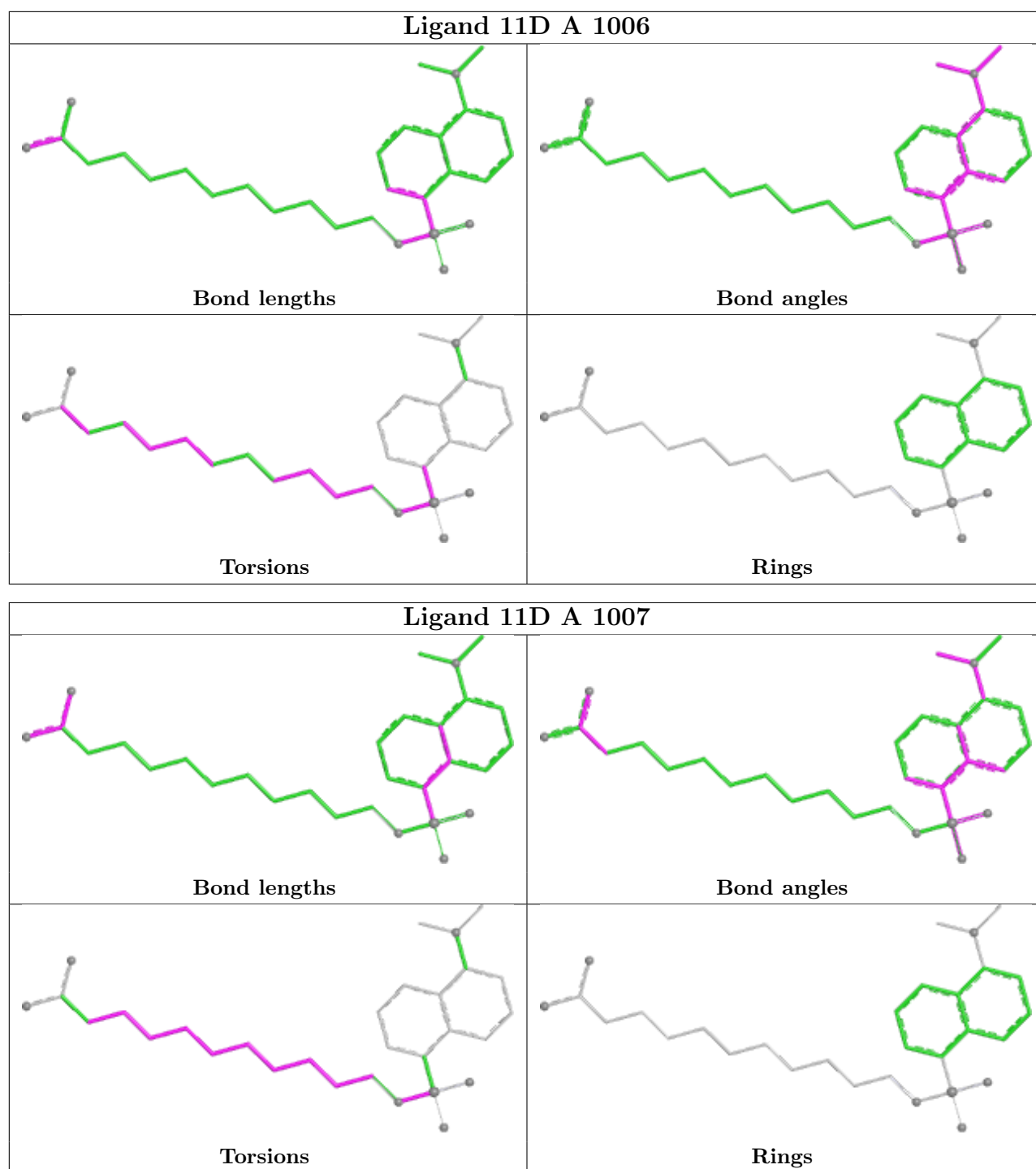
Mol	Chain	Res	Type	Atoms
3	A	1006	11D	C26-C27-C28-O30
2	A	1002	MYR	O2-C1-C2-C3
2	A	1004	MYR	C11-C12-C13-C14
3	A	1006	11D	C26-C27-C28-O29
2	A	1003	MYR	O1-C1-C2-C3
2	A	1003	MYR	O2-C1-C2-C3
3	A	1006	11D	C19-C20-C21-C22

There are no ring outliers.

6 monomers are involved in 57 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1005	MYR	4	0
2	A	1003	MYR	16	0
3	A	1006	11D	8	0
3	A	1007	11D	8	0
2	A	1004	MYR	19	0
2	A	1002	MYR	7	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



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 [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	578/585 (98%)	0.43	10 (1%) 69 64	36, 60, 90, 110	0

All (10) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	92	ALA	3.2
1	A	204	GLN	2.9
1	A	197	ARG	2.5
1	A	335	ALA	2.4
1	A	283	LEU	2.3
1	A	513	ILE	2.3
1	A	564	LYS	2.1
1	A	138	TYR	2.1
1	A	91	CYS	2.0
1	A	191	ALA	2.0

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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

6.3 Carbohydrates [i](#)

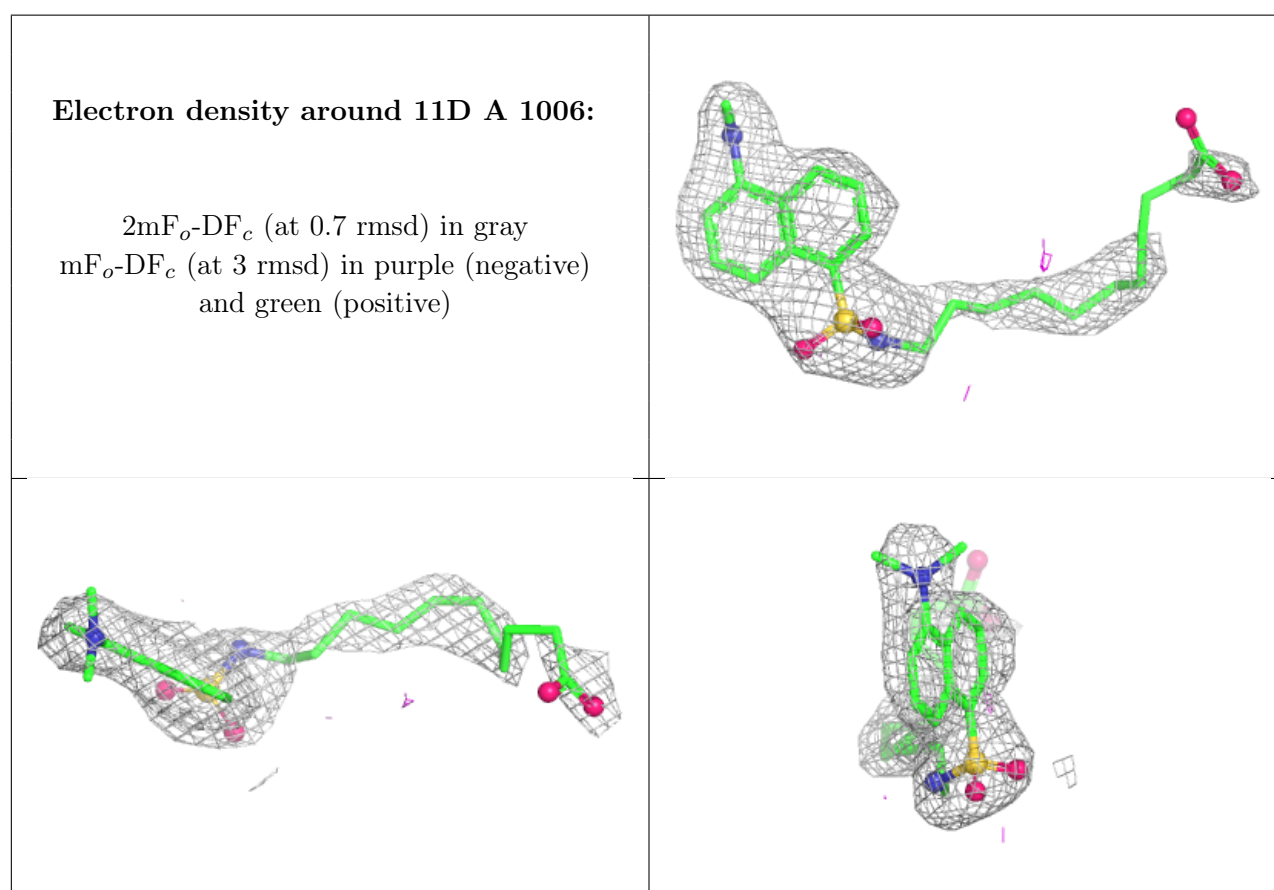
There are no oligosaccharides in this entry.

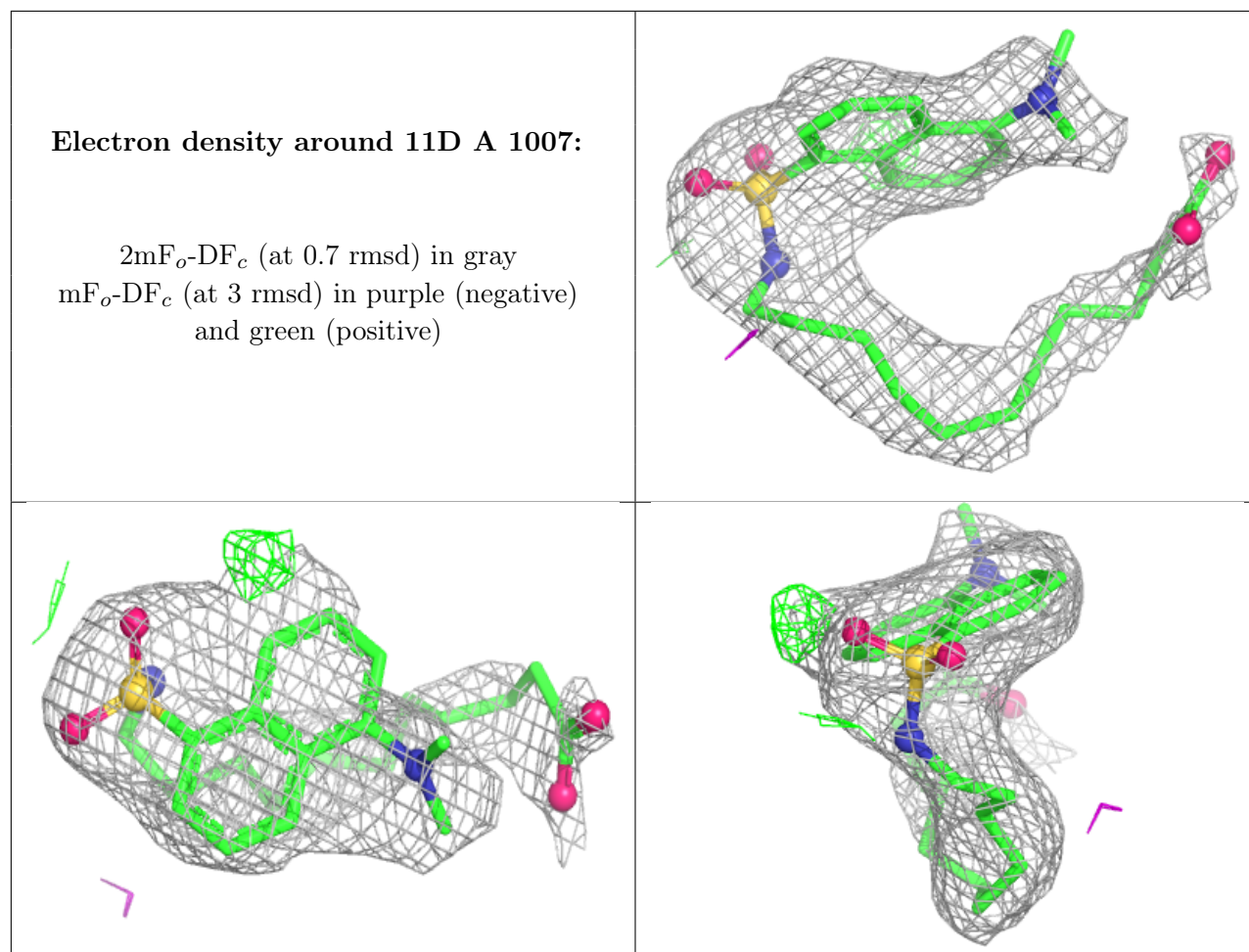
6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	MYR	A	1004	12/16	0.84	0.15	54,55,72,75	0
2	MYR	A	1003	16/16	0.86	0.17	53,63,69,70	0
2	MYR	A	1002	16/16	0.86	0.14	52,55,62,62	0
2	MYR	A	1005	16/16	0.86	0.12	61,67,82,82	0
3	11D	A	1006	30/30	0.86	0.15	54,66,74,80	0
3	11D	A	1007	30/30	0.87	0.13	52,65,78,83	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.





6.5 Other polymers [i](#)

There are no such residues in this entry.