



Full wwPDB X-ray Structure Validation Report ⓘ

Apr 27, 2026 – 06:25 PM EDT

PDB ID : 3UVF / pdb_00003uvf
Title : Expanding LAGALIDADG endonuclease scaffold diversity by rapidly surveying evolutionary sequence space
Authors : Jacoby, K.; Metzger, M.; Shen, B.; Jarjour, J.; Stoddard, B.; Scharenberg, A.
Deposited on : 2011-11-29
Resolution : 3.00 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

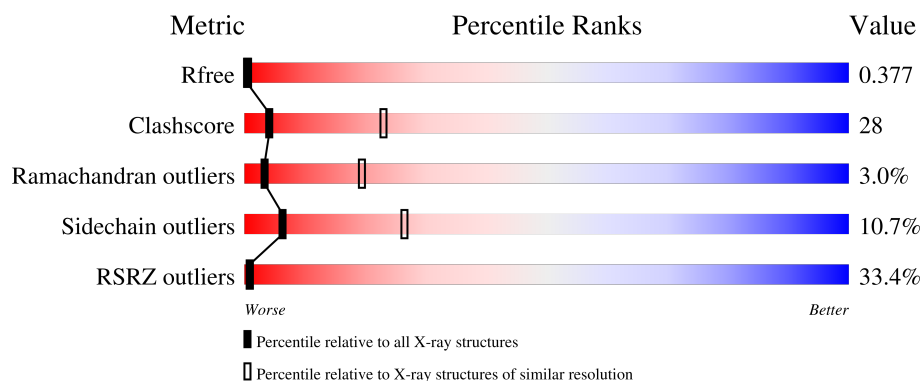
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.00 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.



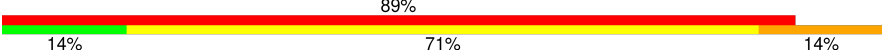
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	2672 (3.00-3.00)
Clashscore	190562	2977 (3.00-3.00)
Ramachandran outliers	187476	2877 (3.00-3.00)
Sidechain outliers	187428	2880 (3.00-3.00)
RSRZ outliers	180081	2671 (3.00-3.00)

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	255	4% 50% 41% 7%
1	B	255	58% 45% 47% 7%
2	C	28	4% 32% 54% 14%
2	E	28	86% 21% 57% 21%
3	D	28	29% 57% 14%

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Mol	Chain	Length	Quality of chain
3	F	28	

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
5	PEG	B	302	-	-	X	-
7	NA	B	304	-	-	-	X

2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 6688 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 Intron-encoded DNA endonuclease I-HjeMI.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	255	Total	C	N	O	S	0	1	0
			2099	1366	345	383	5			
1	B	255	Total	C	N	O	S	0	0	0
			2091	1361	342	383	5			

- Molecule 2 is a DNA chain called synthetic oligo.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	28	Total	C	N	O	P	0	0	0
			577	275	106	169	27			
2	E	28	Total	C	N	O	P	0	0	0
			577	275	106	169	27			

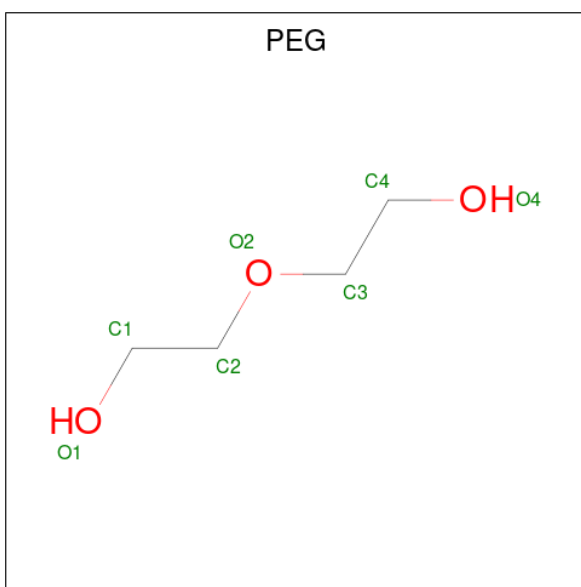
- Molecule 3 is a DNA chain called synthetic oligo.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	D	28	Total	C	N	O	P	0	0	0
			565	270	105	163	27			
3	F	28	Total	C	N	O	P	0	0	0
			565	270	105	163	27			

- Molecule 4 is CALCIUM ION (CCD ID: CA) (formula: Ca).

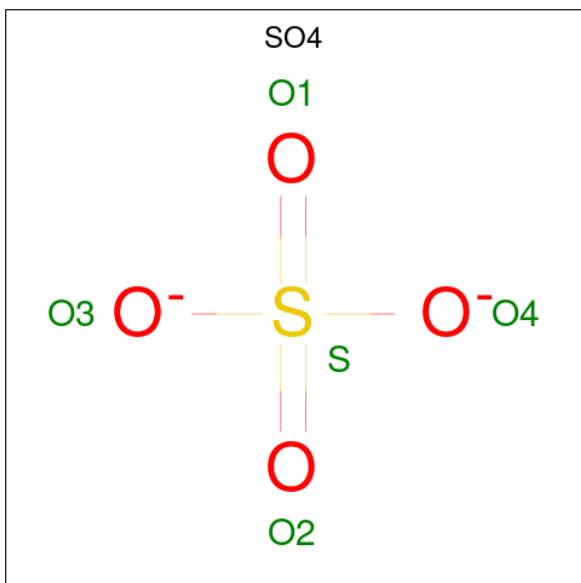
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	3	Total	Ca	0	0
			3	3		
4	B	1	Total	Ca	0	0
			1	1		
4	E	2	Total	Ca	0	0
			2	2		

- Molecule 5 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: C₄H₁₀O₃).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	C	O	0	0
			7	4	3		
5	B	1	Total	C	O	0	0
			7	4	3		
5	E	1	Total	C	O	0	0
			7	4	3		
5	F	1	Total	C	O	0	0
			7	4	3		

- Molecule 6 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



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

- Molecule 7 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	B	1	Total	Na	0	0
			1	1		

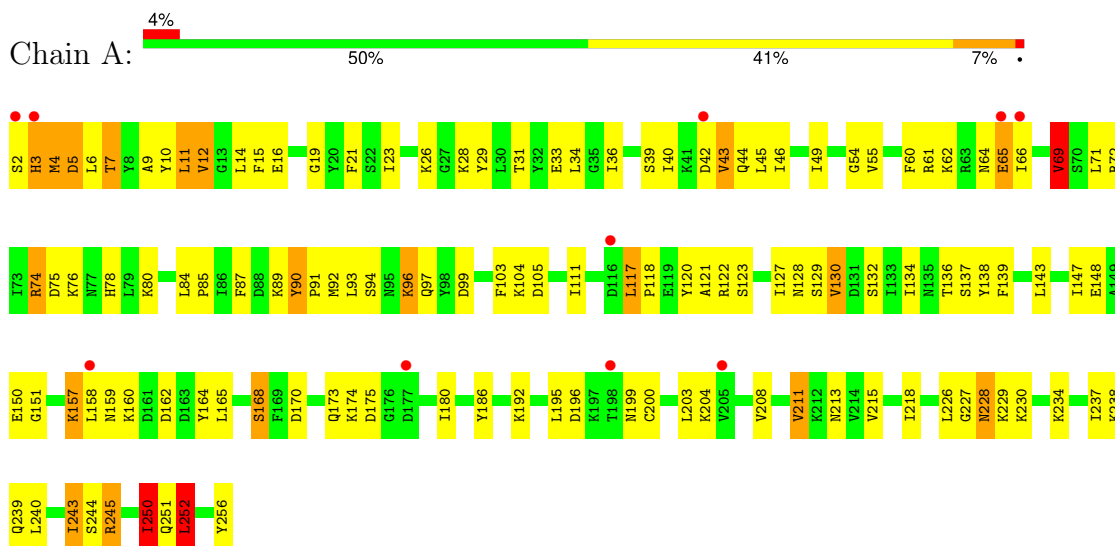
- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	43	Total	O	0	0
			43	43		
8	C	26	Total	O	0	0
			26	26		
8	D	9	Total	O	0	0
			9	9		
8	B	44	Total	O	0	0
			44	44		
8	E	26	Total	O	0	0
			26	26		
8	F	26	Total	O	0	0
			26	26		

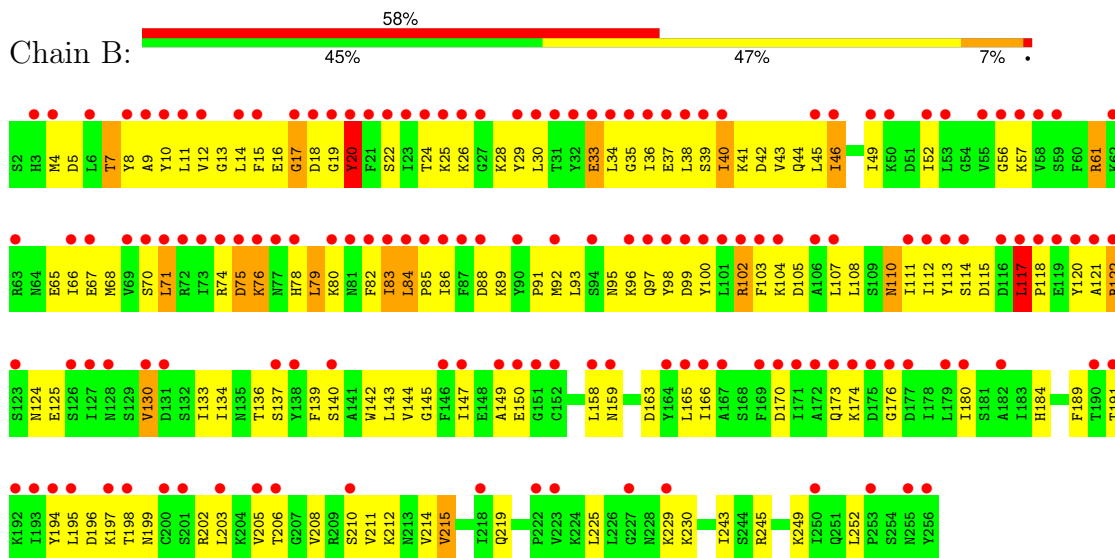
3 Residue-property plots

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: Intron-encoded DNA endonuclease I-HjeMI

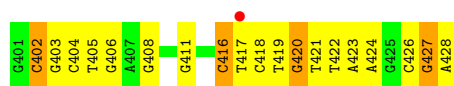


• Molecule 1: Intron-encoded DNA endonuclease I-HjeMI

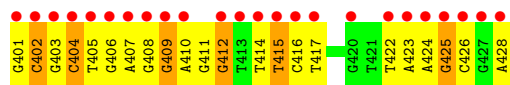
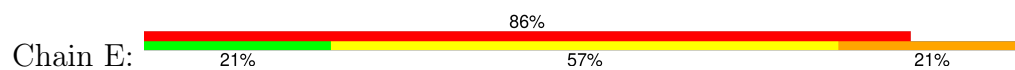


• Molecule 2: synthetic oligo





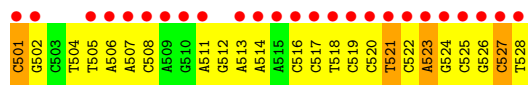
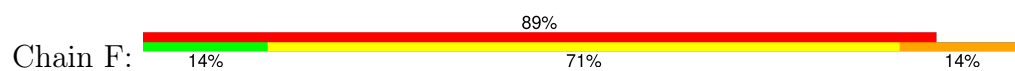
- Molecule 2: synthetic oligo



- Molecule 3: synthetic oligo



- Molecule 3: synthetic oligo



4 Data and refinement statistics

Property	Value	Source
Space group	P 2 ₁ 2 ₁ 2	Depositor
Cell constants a, b, c, α , β , γ	181.59Å 73.59Å 82.03Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.71 – 3.00 48.71 – 3.00	Depositor EDS
% Data completeness (in resolution range)	99.3 (48.71-3.00) 99.3 (48.71-3.00)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.07	Depositor
$\langle I/\sigma(I) \rangle$ ¹	12.14 (at 3.01Å)	Xtriage
Refinement program	REFMAC 5.5.0110	Depositor
R, R_{free}	0.280 , 0.378 0.277 , 0.377	Depositor DCC
R_{free} test set	1155 reflections (5.08%)	wwPDB-VP
Wilson B-factor (Å ²)	28.7	Xtriage
Anisotropy	1.300	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 69.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.88	EDS
Total number of atoms	6688	wwPDB-VP
Average B, all atoms (Å ²)	67.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 37.88 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 4.0079e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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: CA, PEG, NA, 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	0.86	0/2144	1.15	11/2883 (0.4%)
1	B	0.85	0/2133	1.15	7/2869 (0.2%)
2	C	0.61	0/647	1.53	9/999 (0.9%)
2	E	0.53	0/647	1.49	6/999 (0.6%)
3	D	0.58	0/633	1.49	6/973 (0.6%)
3	F	0.57	0/633	1.48	5/973 (0.5%)
All	All	0.76	0/6837	1.30	44/9696 (0.5%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1

There are no bond length outliers.

All (44) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	117	LEU	CA-C-N	11.83	134.63	119.84
1	B	117	LEU	C-N-CA	11.83	134.63	119.84
1	B	20	TYR	N-CA-C	7.91	121.29	108.32
3	F	523	DA	P-O3'-C3'	7.20	131.00	120.20
3	D	516	DC	O5'-C5'-C4'	-7.08	100.17	110.80
2	E	412	DG	N9-C1'-C2'	6.98	123.97	113.50
2	C	418	DC	P-O3'-C3'	6.96	130.64	120.20
2	E	402	DC	O4'-C1'-N1	-6.66	98.41	108.40
2	C	418	DC	C1'-O4'-C4'	-6.49	99.97	109.70
2	E	415	DT	P-O3'-C3'	6.38	129.77	120.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	416	DC	N1-C1'-C2'	6.35	123.03	113.50
1	B	206	THR	N-CA-C	-6.21	100.80	110.42
3	F	501	DC	N1-C1'-C2'	6.04	122.56	113.50
2	E	425	DG	N9-C1'-C2'	6.01	122.51	113.50
2	C	426	DC	C4'-C3'-O3'	-5.98	101.02	110.00
1	A	230	LYS	N-CA-C	-5.97	104.46	110.97
2	E	404	DC	P-O3'-C3'	5.94	129.10	120.20
2	E	409	DG	O4'-C1'-N9	5.93	117.30	108.40
1	A	90	TYR	CA-C-N	-5.76	114.33	120.03
1	A	90	TYR	C-N-CA	-5.76	114.33	120.03
1	A	49	ILE	CB-CA-C	-5.73	104.64	111.97
1	A	250	ILE	N-CA-C	5.73	116.11	107.75
3	F	527	DC	P-O3'-C3'	5.65	128.67	120.20
1	A	117	LEU	N-CA-C	5.57	119.33	109.58
2	C	402	DC	C4'-C3'-O3'	-5.54	101.69	110.00
3	D	517	DC	O3'-P-O5'	5.47	112.21	104.00
3	F	524	DG	C4'-C3'-O3'	5.43	118.15	110.00
1	B	22	SER	N-CA-C	5.43	116.43	107.20
1	A	96	LYS	N-CA-C	-5.42	105.93	112.54
1	B	17	GLY	N-CA-C	5.41	120.62	114.67
2	C	427	DG	P-O3'-C3'	5.34	128.21	120.20
1	B	61	ARG	N-CA-C	5.25	117.66	109.52
3	F	521	DT	P-O3'-C3'	5.22	128.03	120.20
3	D	507	DA	N9-C1'-C2'	5.20	121.30	113.50
2	C	418	DC	C4'-C3'-O3'	-5.18	102.23	110.00
3	D	528	DT	O5'-C5'-C4'	5.18	118.56	110.80
1	A	168	SER	N-CA-C	5.17	118.01	109.85
1	A	252	LEU	CA-C-N	5.13	126.26	119.84
1	A	252	LEU	C-N-CA	5.13	126.26	119.84
2	C	420	DG	N9-C1'-C2'	5.13	121.19	113.50
1	A	69	VAL	CB-CA-C	-5.08	102.67	110.50
2	C	426	DC	O4'-C1'-C2'	-5.08	98.78	106.40
3	D	504	DT	C1'-O4'-C4'	-5.02	102.17	109.70
3	D	510	DG	N9-C1'-C2'	5.01	121.02	113.50

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	157	LYS	Peptide

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2099	0	2161	104	0
1	B	2091	0	2148	151	0
2	C	577	0	318	20	0
2	E	577	0	318	35	0
3	D	565	0	315	18	0
3	F	565	0	315	29	0
4	A	3	0	0	0	0
4	B	1	0	0	0	0
4	E	2	0	0	0	0
5	A	7	0	10	0	0
5	B	7	0	10	4	0
5	E	7	0	10	0	0
5	F	7	0	10	0	0
6	B	5	0	0	0	0
7	B	1	0	0	0	0
8	A	43	0	0	6	0
8	B	44	0	0	11	0
8	C	26	0	0	1	0
8	D	9	0	0	1	0
8	E	26	0	0	5	0
8	F	26	0	0	6	0
All	All	6688	0	5615	328	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 28.

All (328) 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)
3:D:526:DG:H4'	3:D:527:DC:OP1	1.37	1.15
1:B:80:LYS:HD2	5:B:302:PEG:H22	1.14	1.09
1:A:97:GLN:HA	1:A:97:GLN:HE21	1.15	1.05
1:B:36:ILE:CG2	1:B:38:LEU:HG	1.89	1.02
1:B:17:GLY:O	1:B:150:GLU:OE2	1.80	1.00
1:B:80:LYS:CD	5:B:302:PEG:H22	1.92	0.98

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:80:LYS:HD2	5:B:302:PEG:C2	1.93	0.97
1:B:36:ILE:HG22	1:B:38:LEU:HG	1.46	0.95
3:D:508:DC:OP2	8:D:604:HOH:O	1.83	0.95
1:A:97:GLN:HA	1:A:97:GLN:NE2	1.84	0.91
1:B:98:TYR:HB3	1:B:120:TYR:OH	1.72	0.89
1:B:26:LYS:NZ	2:E:406:DG:O6	2.04	0.89
1:B:76:LYS:CB	8:E:626:HOH:O	2.22	0.88
1:B:174:LYS:NZ	1:B:198:THR:O	2.08	0.87
1:B:57:LYS:HE3	2:E:407:DA:OP1	1.75	0.86
1:A:45:LEU:HD22	1:A:227:GLY:HA3	1.60	0.84
2:E:406:DG:H2''	2:E:407:DA:O5'	1.79	0.83
1:B:122:ARG:HG2	8:B:422:HOH:O	1.79	0.83
1:B:26:LYS:HG3	3:F:520:DC:C5	2.14	0.82
1:B:30:LEU:CD1	1:B:111:ILE:HG22	2.09	0.82
1:B:78:HIS:CE1	8:B:401:HOH:O	2.30	0.81
1:B:78:HIS:HE1	8:B:401:HOH:O	1.63	0.80
2:E:415:DT:H2''	2:E:416:DC:O4'	1.83	0.79
1:B:76:LYS:HB3	8:E:626:HOH:O	1.79	0.79
1:A:74:ARG:NH2	2:C:408:DG:N7	2.29	0.79
3:F:506:DA:H2''	8:F:706:HOH:O	1.81	0.78
1:B:36:ILE:HG21	1:B:38:LEU:HG	1.64	0.78
1:B:30:LEU:HD21	1:B:114:SER:HA	1.64	0.78
3:D:522:DC:H2''	3:D:523:DA:C8	2.18	0.77
1:B:225:LEU:O	1:B:230:LYS:HB2	1.85	0.77
1:A:40:ILE:O	1:A:43:VAL:HG22	1.84	0.77
3:F:525:DC:H2''	3:F:526:DG:C8	2.20	0.76
3:D:515:DA:H2''	3:D:516:DC:O5'	1.84	0.75
1:B:19:GLY:O	1:B:96:LYS:NZ	2.19	0.75
1:B:26:LYS:HD2	3:F:521:DT:O4	1.88	0.74
2:E:423:DA:H2''	2:E:424:DA:O5'	1.86	0.74
1:B:170:ASP:HB2	8:B:415:HOH:O	1.86	0.73
1:B:76:LYS:HB2	8:E:626:HOH:O	1.87	0.73
2:E:411:DG:H2''	2:E:412:DG:OP2	1.89	0.72
1:A:2:SER:HA	1:A:5:ASP:HB2	1.71	0.72
1:A:239:GLN:HA	1:A:239:GLN:OE1	1.88	0.72
2:E:401:DG:H2''	2:E:402:DC:O5'	1.90	0.72
1:A:234:LYS:HE3	1:A:256:TYR:HB3	1.71	0.71
3:D:517:DC:H2''	3:D:518:DT:O5'	1.89	0.71
2:C:420:DG:H2''	2:C:421:DT:H5'	1.72	0.71
1:A:251:GLN:NE2	2:E:414:DT:OP1	2.23	0.71
1:B:210:SER:O	1:B:214:VAL:HG23	1.91	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:15:PHE:CZ	1:B:34:LEU:HD12	2.29	0.68
1:A:99:ASP:OD2	1:A:122:ARG:NH2	2.18	0.67
1:A:65:GLU:OE2	1:A:65:GLU:HA	1.93	0.67
3:D:526:DG:C4'	3:D:527:DC:OP1	2.27	0.65
1:B:40:ILE:O	1:B:43:VAL:HG23	1.95	0.65
1:B:80:LYS:HZ1	1:B:108:LEU:HA	1.60	0.65
1:B:96:LYS:HB2	8:B:406:HOH:O	1.95	0.65
1:A:174:LYS:O	1:A:175:ASP:C	2.40	0.65
2:E:401:DG:H2''	2:E:402:DC:C6	2.32	0.65
1:B:38:LEU:HD12	1:B:46:ILE:CD1	2.25	0.65
2:E:428:DA:N7	8:E:614:HOH:O	2.29	0.65
1:A:150:GLU:OE1	2:C:416:DC:OP1	2.15	0.64
2:E:401:DG:H2'	2:E:402:DC:C5	2.33	0.64
1:B:15:PHE:CE2	1:B:34:LEU:HD12	2.32	0.63
1:A:117:LEU:HD12	1:A:118:PRO:HD2	1.80	0.63
1:B:202:ARG:HG2	2:E:417:DT:H73	1.80	0.63
1:A:192:LYS:HD2	3:D:507:DA:H3'	1.79	0.63
1:B:80:LYS:CD	5:B:302:PEG:C2	2.64	0.63
2:E:403:DG:H1	3:F:525:DC:H42	1.46	0.63
1:B:15:PHE:CE2	1:B:34:LEU:CD1	2.82	0.63
2:C:420:DG:C2'	2:C:421:DT:H5'	2.29	0.62
1:A:120:TYR:HA	8:A:434:HOH:O	1.99	0.62
1:B:35:GLY:HA3	1:B:71:LEU:O	2.00	0.62
1:B:95:ASN:C	1:B:97:GLN:H	2.07	0.62
1:A:175:ASP:OD1	1:A:199:ASN:ND2	2.27	0.61
1:B:29:TYR:HB3	8:E:602:HOH:O	1.99	0.61
1:B:84:LEU:O	1:B:88:ASP:HB2	2.00	0.61
2:E:403:DG:H2''	2:E:404:DC:OP2	2.00	0.61
2:C:423:DA:H2''	2:C:424:DA:OP2	1.98	0.61
1:A:16:GLU:OE1	1:A:94:SER:N	2.32	0.61
3:F:507:DA:O3'	8:F:707:HOH:O	2.16	0.61
1:B:11:LEU:HD22	1:B:49:ILE:HG23	1.84	0.60
2:E:401:DG:C2'	2:E:402:DC:C5	2.84	0.60
1:B:15:PHE:CZ	1:B:34:LEU:CD1	2.85	0.60
1:B:82:PHE:HE2	8:B:442:HOH:O	1.83	0.60
1:B:75:ASP:O	1:B:76:LYS:C	2.45	0.59
1:B:13:GLY:HA2	1:B:142:TRP:NE1	2.17	0.59
1:B:147:ILE:O	1:B:229:LYS:HE3	2.02	0.59
1:A:173:GLN:HA	1:A:173:GLN:HE21	1.68	0.59
1:A:4:MET:HG3	1:A:89:LYS:HD3	1.84	0.59
1:B:158:LEU:HD13	1:B:166:ILE:HD11	1.85	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:511:DA:H2''	3:F:512:DG:C8	2.38	0.58
1:B:24:THR:OG1	3:F:519:DC:OP2	2.22	0.58
1:B:36:ILE:O	1:B:70:SER:HA	2.02	0.58
1:B:61:ARG:N	1:B:68:MET:O	2.36	0.57
1:B:83:ILE:HG22	1:B:84:LEU:N	2.18	0.57
1:B:219:GLN:OE1	1:B:219:GLN:HA	2.03	0.57
1:B:95:ASN:C	1:B:97:GLN:N	2.63	0.57
2:E:423:DA:C2	2:E:424:DA:C2	2.92	0.57
3:F:525:DC:H2''	3:F:526:DG:N7	2.20	0.57
1:A:45:LEU:HD22	1:A:227:GLY:CA	2.34	0.56
1:A:134:ILE:HD12	1:A:134:ILE:H	1.69	0.56
1:B:56:GLY:HA3	1:B:71:LEU:CD1	2.36	0.56
1:B:215:VAL:O	1:B:219:GLN:HG2	2.06	0.56
1:A:164:TYR:CZ	1:A:245:ARG:NH2	2.73	0.56
1:B:30:LEU:HD11	1:B:111:ILE:HG22	1.87	0.56
1:B:93:LEU:HD13	1:B:133:ILE:HG23	1.87	0.56
1:B:158:LEU:HD23	1:B:159:ASN:HD22	1.71	0.56
1:B:26:LYS:CE	2:E:406:DG:O6	2.54	0.56
1:B:84:LEU:HD11	1:B:107:LEU:HD23	1.85	0.56
2:E:424:DA:H2''	2:E:425:DG:H8	1.70	0.56
1:B:8:TYR:HA	1:B:11:LEU:HD12	1.88	0.56
2:C:402:DC:H1'	2:C:403:DG:H5'	1.87	0.55
1:B:14:LEU:HA	1:B:145:GLY:O	2.06	0.55
1:B:80:LYS:NZ	1:B:108:LEU:HA	2.22	0.55
1:B:176:GLY:O	1:B:180:ILE:HB	2.04	0.55
3:D:523:DA:H2''	3:D:524:DG:O5'	2.06	0.55
1:B:196:ASP:C	1:B:196:ASP:OD1	2.49	0.55
1:B:80:LYS:HZ3	1:B:107:LEU:HG	1.72	0.55
1:A:2:SER:HB2	2:E:422:DT:H4'	1.89	0.55
1:A:165:LEU:HB2	1:A:243:ILE:HG12	1.89	0.55
1:A:2:SER:C	2:E:422:DT:H5''	2.31	0.55
1:A:240:LEU:HB3	1:A:252:LEU:HD21	1.87	0.55
1:B:245:ARG:HD3	8:F:711:HOH:O	2.07	0.55
1:A:45:LEU:CB	8:A:404:HOH:O	2.55	0.54
1:B:34:LEU:HD21	1:B:83:ILE:HG12	1.88	0.54
1:B:40:ILE:C	1:B:42:ASP:H	2.16	0.54
1:A:60:PHE:CD2	1:A:69:VAL:CG1	2.90	0.54
1:A:42:ASP:OD1	1:A:228:ASN:HB2	2.07	0.54
2:E:406:DG:H2''	2:E:407:DA:C5'	2.38	0.54
1:B:57:LYS:HE2	8:B:420:HOH:O	2.06	0.54
1:A:143:LEU:O	1:A:147:ILE:HG13	2.08	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:5:ASP:HB3	1:B:8:TYR:CD2	2.43	0.53
1:B:30:LEU:HD12	1:B:111:ILE:HG22	1.89	0.53
1:B:184:HIS:HB2	1:B:203:LEU:HD12	1.89	0.53
1:B:110:ASN:O	1:B:112:ILE:HG23	2.08	0.53
1:B:25:LYS:NZ	8:B:421:HOH:O	2.41	0.53
1:A:136:THR:HB	1:A:139:PHE:HB2	1.90	0.53
1:A:208:VAL:HG23	3:D:505:DT:OP1	2.09	0.53
3:F:521:DT:C2'	3:F:522:DC:C6	2.91	0.53
1:B:38:LEU:HD12	1:B:46:ILE:HG12	1.89	0.53
3:D:504:DT:H2''	3:D:505:DT:O5'	2.08	0.53
3:D:522:DC:C2'	3:D:523:DA:C8	2.91	0.53
1:A:16:GLU:HG3	1:A:96:LYS:HD3	1.91	0.53
1:A:132:SER:O	1:A:136:THR:OG1	2.25	0.53
1:B:89:LYS:O	1:B:91:PRO:HD3	2.09	0.53
1:A:158:LEU:HD21	2:C:422:DT:H72	1.91	0.52
1:B:97:GLN:OE1	1:B:100:TYR:HB3	2.09	0.52
3:F:504:DT:C2'	3:F:505:DT:H71	2.40	0.52
3:F:521:DT:H2'	3:F:522:DC:C6	2.44	0.52
1:A:29:TYR:OH	2:C:403:DG:H2''	2.09	0.52
1:B:39:SER:OG	3:F:514:DA:H3'	2.10	0.52
1:A:96:LYS:O	1:A:99:ASP:N	2.43	0.52
2:C:405:DT:H2'	2:C:406:DG:C8	2.45	0.52
1:B:38:LEU:HD12	1:B:46:ILE:HD11	1.90	0.52
1:B:121:ALA:O	1:B:122:ARG:C	2.53	0.52
2:E:401:DG:H2''	2:E:402:DC:C5	2.45	0.52
2:E:408:DG:H2'	2:E:409:DG:H8	1.75	0.52
1:B:44:GLN:HA	1:B:44:GLN:OE1	2.09	0.51
1:A:60:PHE:CD2	1:A:69:VAL:HG12	2.45	0.51
1:B:61:ARG:NH1	2:E:410:DA:C5	2.78	0.51
1:A:158:LEU:HD21	2:C:422:DT:C7	2.40	0.51
1:A:45:LEU:HB3	8:A:404:HOH:O	2.10	0.51
1:B:136:THR:O	1:B:139:PHE:HB3	2.11	0.51
1:B:10:TYR:C	1:B:10:TYR:CD2	2.89	0.51
1:B:34:LEU:CD2	1:B:83:ILE:HG21	2.40	0.51
1:A:76:LYS:O	1:A:80:LYS:HG3	2.11	0.51
1:A:15:PHE:O	1:A:19:GLY:N	2.43	0.50
1:A:96:LYS:O	1:A:97:GLN:C	2.54	0.50
1:B:163:ASP:O	1:B:165:LEU:HD23	2.10	0.50
1:A:15:PHE:CE2	1:A:36:ILE:HB	2.46	0.50
1:B:85:PRO:HA	1:B:88:ASP:CB	2.41	0.50
1:A:158:LEU:CD2	2:C:422:DT:H73	2.41	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:250:ILE:HB	1:A:252:LEU:HD13	1.94	0.50
1:B:93:LEU:HD22	1:B:133:ILE:HG12	1.94	0.50
1:B:26:LYS:HG3	3:F:520:DC:H5	1.75	0.50
1:B:104:LYS:O	1:B:108:LEU:HD12	2.12	0.49
3:F:512:DG:N2	3:F:513:DA:C2	2.80	0.49
1:A:7:THR:O	1:A:10:TYR:HB3	2.13	0.49
1:A:74:ARG:HD3	8:C:503:HOH:O	2.12	0.49
1:A:157:LYS:HD2	1:A:162:ASP:O	2.12	0.49
1:B:40:ILE:C	1:B:42:ASP:N	2.69	0.49
1:B:96:LYS:O	1:B:99:ASP:HB2	2.12	0.49
1:B:158:LEU:CD1	1:B:166:ILE:HD11	2.43	0.49
3:F:508:DC:P	8:F:707:HOH:O	2.70	0.49
1:B:33:GLU:O	1:B:103:PHE:CE1	2.66	0.49
1:A:237:ILE:O	1:A:238:LYS:C	2.56	0.48
1:A:10:TYR:CE2	1:A:226:LEU:HD12	2.48	0.48
2:E:425:DG:H2'	2:E:426:DC:C6	2.49	0.48
1:A:173:GLN:HA	1:A:173:GLN:NE2	2.28	0.48
1:B:20:TYR:CE1	3:F:517:DC:H5	2.31	0.48
1:B:212:LYS:NZ	1:B:249:LYS:O	2.40	0.48
1:A:4:MET:CG	1:A:89:LYS:HD3	2.44	0.48
1:B:83:ILE:CG2	1:B:84:LEU:N	2.75	0.48
1:B:95:ASN:O	1:B:97:GLN:N	2.47	0.48
1:A:61:ARG:NH1	2:C:411:DG:N7	2.59	0.47
2:E:406:DG:C2'	2:E:407:DA:O5'	2.56	0.47
1:B:8:TYR:HB3	1:B:86:ILE:HG21	1.96	0.47
1:B:38:LEU:HD12	1:B:46:ILE:CG1	2.45	0.47
1:B:40:ILE:O	1:B:42:ASP:N	2.47	0.47
1:B:61:ARG:O	1:B:67:GLU:HA	2.15	0.47
1:B:65:GLU:C	1:B:66:ILE:HG13	2.38	0.47
1:A:42:ASP:O	1:A:43:VAL:C	2.58	0.47
1:B:203:LEU:O	8:B:415:HOH:O	2.20	0.47
1:A:2:SER:O	1:A:3:HIS:HB3	2.15	0.47
1:A:227:GLY:C	1:A:229:LYS:N	2.71	0.47
1:A:55:VAL:HB	8:A:417:HOH:O	2.15	0.47
1:A:203:LEU:HD23	1:A:203:LEU:C	2.40	0.47
1:A:33:GLU:CD	1:A:72[B]:ARG:HE	2.23	0.47
1:A:120:TYR:CG	1:A:121:ALA:N	2.82	0.47
1:B:79:LEU:O	1:B:80:LYS:C	2.57	0.47
1:B:194:TYR:CE2	1:B:202:ARG:NH1	2.83	0.47
1:A:136:THR:O	1:A:139:PHE:N	2.43	0.47
1:A:46:ILE:HG23	1:A:71:LEU:HB2	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:15:PHE:HZ	1:B:34:LEU:HD12	1.79	0.46
1:B:202:ARG:NE	8:B:414:HOH:O	2.47	0.46
1:B:97:GLN:O	1:B:100:TYR:N	2.49	0.46
1:A:134:ILE:HD12	1:A:134:ILE:N	2.30	0.46
1:B:191:THR:HG22	8:F:708:HOH:O	2.16	0.46
1:B:195:LEU:HD11	1:B:199:ASN:OD1	2.16	0.46
2:C:416:DC:H2''	2:C:417:DT:O4'	2.16	0.46
1:B:56:GLY:C	1:B:57:LYS:HG2	2.41	0.46
2:E:403:DG:C5	2:E:404:DC:C4	3.04	0.46
3:D:507:DA:H2''	3:D:508:DC:O5'	2.15	0.46
1:A:75:ASP:OD1	1:A:78:HIS:N	2.48	0.45
1:B:8:TYR:O	1:B:12:VAL:HG13	2.16	0.45
1:B:15:PHE:CE2	1:B:34:LEU:HD11	2.52	0.45
3:D:514:DA:C2	3:D:515:DA:C4	3.04	0.45
2:C:416:DC:N4	3:D:511:DA:N6	2.65	0.45
2:E:424:DA:H2''	2:E:425:DG:C8	2.51	0.45
2:E:402:DC:H1'	2:E:403:DG:C8	2.51	0.45
1:A:2:SER:HA	1:A:5:ASP:CB	2.44	0.45
1:A:92:MET:O	1:A:93:LEU:HD23	2.15	0.45
1:B:56:GLY:O	1:B:57:LYS:HG2	2.16	0.45
1:B:136:THR:O	1:B:139:PHE:CB	2.65	0.45
2:C:420:DG:H2'	2:C:421:DT:C6	2.51	0.45
1:B:117:LEU:HA	1:B:118:PRO:HD2	1.45	0.45
1:A:97:GLN:HE21	1:A:97:GLN:CA	1.94	0.45
1:B:20:TYR:HE1	3:F:517:DC:H5	1.65	0.45
3:F:501:DC:H2''	3:F:502:DG:C8	2.52	0.45
3:F:517:DC:H2''	3:F:518:DT:H6	1.82	0.45
1:A:26:LYS:HD3	1:A:31:THR:OG1	2.17	0.44
1:B:36:ILE:HG21	1:B:38:LEU:CG	2.42	0.44
1:B:99:ASP:CG	1:B:122:ARG:HH11	2.26	0.44
1:B:189:PHE:CG	1:B:205:VAL:HG11	2.52	0.44
1:A:192:LYS:NZ	3:D:507:DA:H5''	2.32	0.44
1:A:196:ASP:OD1	1:A:196:ASP:C	2.59	0.44
1:B:102:ARG:HA	1:B:102:ARG:HD3	1.68	0.44
1:B:85:PRO:HA	1:B:88:ASP:HB3	1.99	0.44
1:A:203:LEU:HD23	1:A:204:LYS:N	2.32	0.44
2:C:404:DC:H2''	2:C:405:DT:O5'	2.18	0.44
1:B:9:ALA:HA	1:B:12:VAL:HG22	1.99	0.44
1:A:227:GLY:C	1:A:229:LYS:H	2.25	0.44
1:A:2:SER:O	1:A:3:HIS:CB	2.66	0.44
1:A:134:ILE:HG23	1:A:186:TYR:HD1	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:147:ILE:HG23	1:A:151:GLY:HA3	1.99	0.44
3:D:501:DC:H1'	3:D:502:DG:H5'	2.00	0.43
2:E:405:DT:C2'	2:E:406:DG:H5'	2.48	0.43
1:A:62:LYS:HA	1:A:66:ILE:O	2.18	0.43
1:A:159:ASN:O	1:A:160:LYS:C	2.61	0.43
1:B:28:LYS:O	1:B:113:TYR:HA	2.18	0.43
1:B:40:ILE:HG21	1:B:67:GLU:HB2	2.01	0.43
1:B:143:LEU:O	1:B:147:ILE:HG13	2.19	0.43
1:B:170:ASP:HB2	1:B:203:LEU:O	2.18	0.43
1:B:20:TYR:N	1:B:20:TYR:CD2	2.86	0.43
3:F:527:DC:H1'	3:F:528:DT:H5'	2.00	0.43
3:F:504:DT:H2'	3:F:505:DT:H71	2.00	0.43
1:A:12:VAL:HB	1:A:87:PHE:CE2	2.53	0.43
1:A:129:SER:O	1:A:130:VAL:C	2.61	0.43
1:A:14:LEU:HD13	1:A:148:GLU:HG2	2.01	0.43
1:A:23:ILE:HD11	1:A:103:PHE:HA	2.01	0.43
1:A:4:MET:HB2	1:A:90:TYR:HE1	1.84	0.43
2:E:408:DG:H2'	2:E:409:DG:C8	2.54	0.43
2:E:408:DG:C2'	2:E:409:DG:C8	3.02	0.43
1:B:85:PRO:HA	1:B:88:ASP:HB2	2.01	0.43
3:F:521:DT:H2''	3:F:522:DC:C6	2.53	0.43
1:A:54:GLY:O	1:A:55:VAL:HG13	2.19	0.42
1:A:84:LEU:N	1:A:85:PRO:CD	2.82	0.42
1:A:127:ILE:HG23	1:A:128:ASN:HB2	2.00	0.42
1:B:16:GLU:HG3	1:B:92:MET:HE3	2.01	0.42
3:F:516:DC:H1'	3:F:517:DC:H5''	2.00	0.42
1:A:11:LEU:HA	1:A:11:LEU:HD23	1.68	0.42
1:B:26:LYS:HB3	1:B:26:LYS:HE2	1.80	0.42
2:C:419:DT:H2'	2:C:419:DT:O5'	2.18	0.42
3:F:523:DA:H2'	8:F:717:HOH:O	2.20	0.42
1:A:99:ASP:OD1	1:A:120:TYR:OH	2.25	0.42
3:D:507:DA:C2	3:D:508:DC:C2	3.08	0.42
1:B:37:GLU:HG2	1:B:68:MET:HE3	2.02	0.42
1:B:158:LEU:CD2	1:B:159:ASN:ND2	2.83	0.42
1:B:173:GLN:O	1:B:176:GLY:N	2.45	0.42
1:B:205:VAL:HA	8:B:416:HOH:O	2.19	0.42
1:A:9:ALA:O	1:A:10:TYR:C	2.63	0.42
1:A:28:LYS:NZ	8:A:426:HOH:O	2.35	0.42
1:B:20:TYR:HE1	3:F:517:DC:C5	2.38	0.42
3:F:505:DT:H2''	3:F:506:DA:OP2	2.19	0.42
2:E:409:DG:H2'	2:E:409:DG:OP2	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:513:DA:H1'	3:F:514:DA:C8	2.55	0.42
1:A:84:LEU:HD13	1:A:104:LYS:HG3	2.01	0.42
1:B:82:PHE:O	1:B:85:PRO:HD2	2.20	0.42
1:B:7:THR:O	1:B:10:TYR:HB3	2.20	0.41
3:F:525:DC:OP2	3:F:525:DC:H6	2.02	0.41
1:A:136:THR:O	1:A:137:SER:C	2.63	0.41
1:B:121:ALA:O	1:B:122:ARG:O	2.38	0.41
1:B:165:LEU:HD12	1:B:243:ILE:HD11	2.02	0.41
1:B:194:TYR:HE2	1:B:202:ARG:NH1	2.18	0.41
1:A:45:LEU:HB2	8:A:404:HOH:O	2.19	0.41
1:A:239:GLN:OE1	1:A:239:GLN:CA	2.59	0.41
1:A:21:PHE:CZ	1:A:34:LEU:HD13	2.56	0.41
1:A:76:LYS:HB2	1:A:76:LYS:HE3	1.89	0.41
1:A:234:LYS:O	1:A:238:LYS:HG2	2.20	0.41
1:B:100:TYR:O	1:B:104:LYS:HB2	2.21	0.41
1:B:197:LYS:C	1:B:199:ASN:H	2.27	0.41
1:A:91:PRO:HD2	1:A:138:TYR:OH	2.20	0.41
2:C:416:DC:H2'	2:C:417:DT:C6	2.56	0.41
3:D:518:DT:H2'	3:D:519:DC:C6	2.55	0.41
2:E:408:DG:C2'	2:E:409:DG:H8	2.34	0.41
1:A:158:LEU:HG	1:A:159:ASN:HA	2.02	0.41
1:B:5:ASP:HB3	1:B:8:TYR:HD2	1.84	0.41
1:A:204:LYS:NZ	2:C:420:DG:N7	2.68	0.41
2:E:408:DG:H2''	2:E:409:DG:O5'	2.20	0.41
1:A:211:VAL:O	1:A:215:VAL:HG23	2.20	0.40
2:C:427:DG:C5	2:C:428:DA:C2	3.09	0.40
1:A:97:GLN:NE2	1:A:97:GLN:CA	2.59	0.40
1:B:46:ILE:HA	1:B:49:ILE:HD12	2.03	0.40
1:B:8:TYR:HB3	1:B:86:ILE:CG2	2.51	0.40
1:B:189:PHE:HD1	1:B:203:LEU:HD11	1.86	0.40
1:A:211:VAL:C	1:A:213:ASN:N	2.80	0.40
1:B:12:VAL:O	1:B:16:GLU:HB2	2.22	0.40
1:B:18:ASP:OD1	1:B:149:ALA:HB1	2.21	0.40
1:B:39:SER:O	1:B:40:ILE:C	2.65	0.40
1:B:174:LYS:C	1:B:176:GLY:H	2.29	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	254/255 (100%)	230 (91%)	20 (8%)	4 (2%)	7	34
1	B	253/255 (99%)	200 (79%)	42 (17%)	11 (4%)	2	12
All	All	507/510 (99%)	430 (85%)	62 (12%)	15 (3%)	3	19

All (15) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	3	HIS
1	B	122	ARG
1	B	40	ILE
1	B	41	LYS
1	B	45	LEU
1	B	76	LYS
1	B	110	ASN
1	A	228	ASN
1	B	137	SER
1	A	64	ASN
1	B	79	LEU
1	B	115	ASP
1	A	130	VAL
1	B	46	ILE
1	B	130	VAL

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	234/233 (100%)	207 (88%)	27 (12%)	5	24
1	B	233/233 (100%)	210 (90%)	23 (10%)	7	30
All	All	467/466 (100%)	417 (89%)	50 (11%)	6	26

All (50) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	4	MET
1	A	5	ASP
1	A	6	LEU
1	A	7	THR
1	A	11	LEU
1	A	12	VAL
1	A	39	SER
1	A	43	VAL
1	A	44	GLN
1	A	65	GLU
1	A	69	VAL
1	A	74	ARG
1	A	105	ASP
1	A	111	ILE
1	A	123	SER
1	A	168	SER
1	A	170	ASP
1	A	180	ILE
1	A	195	LEU
1	A	200	CYS
1	A	211	VAL
1	A	218	ILE
1	A	243	ILE
1	A	244	SER
1	A	245	ARG
1	A	250	ILE
1	A	252	LEU
1	B	4	MET
1	B	7	THR
1	B	20	TYR
1	B	33	GLU
1	B	52	ILE
1	B	71	LEU
1	B	74	ARG
1	B	75	ASP

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Mol	Chain	Res	Type
1	B	83	ILE
1	B	84	LEU
1	B	102	ARG
1	B	105	ASP
1	B	117	LEU
1	B	124	ASN
1	B	125	GLU
1	B	130	VAL
1	B	134	ILE
1	B	140	SER
1	B	144	VAL
1	B	208	VAL
1	B	211	VAL
1	B	215	VAL
1	B	252	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	97	GLN
1	A	173	GLN
1	B	77	ASN
1	B	135	ASN
1	B	159	ASN
1	B	173	GLN
1	B	213	ASN
1	B	251	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

Of 12 ligands modelled in this entry, 7 are monoatomic - leaving 5 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
5	PEG	F	601	-	6,6,6	0.57	0	5,5,5	0.36	0
6	SO4	B	303	-	4,4,4	0.24	0	6,6,6	0.27	0
5	PEG	E	503	-	6,6,6	0.46	0	5,5,5	0.22	0
5	PEG	B	302	-	6,6,6	0.42	0	5,5,5	0.49	0
5	PEG	A	304	-	6,6,6	0.49	0	5,5,5	0.22	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
5	PEG	A	304	-	-	2/4/4/4	-
5	PEG	E	503	-	-	2/4/4/4	-
5	PEG	B	302	-	-	4/4/4/4	-
5	PEG	F	601	-	-	2/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (10) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	B	302	PEG	O2-C3-C4-O4
5	A	304	PEG	O2-C3-C4-O4
5	E	503	PEG	O1-C1-C2-O2
5	B	302	PEG	C1-C2-O2-C3
5	B	302	PEG	C4-C3-O2-C2
5	B	302	PEG	O1-C1-C2-O2

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Mol	Chain	Res	Type	Atoms
5	E	503	PEG	C1-C2-O2-C3
5	A	304	PEG	C4-C3-O2-C2
5	F	601	PEG	O2-C3-C4-O4
5	F	601	PEG	C4-C3-O2-C2

There are no ring outliers.

1 monomer is involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	B	302	PEG	4	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	255/255 (100%)	0.72	10 (3%) 43 24	23, 50, 71, 94	1 (0%)
1	B	255/255 (100%)	2.33	148 (58%) 0 0	66, 76, 88, 105	0
2	C	28/28 (100%)	0.97	1 (3%) 46 26	46, 57, 90, 103	0
2	E	28/28 (100%)	2.92	24 (85%) 0 0	66, 84, 97, 100	0
3	D	28/28 (100%)	0.89	0 100 100	43, 64, 89, 103	0
3	F	28/28 (100%)	3.04	25 (89%) 0 0	78, 86, 90, 95	0
All	All	622/622 (100%)	1.60	208 (33%) 1 1	23, 70, 89, 105	1 (0%)

All (208) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	20	TYR	6.1
1	B	22	SER	5.7
1	B	114	SER	5.5
3	F	525	DC	5.2
1	B	32	TYR	4.9
1	B	180	ILE	4.8
3	F	528	DT	4.7
3	F	501	DC	4.6
1	B	158	LEU	4.5
1	B	12	VAL	4.5
3	F	524	DG	4.4
1	B	31	THR	4.3
3	F	527	DC	4.3
1	B	23	ILE	4.3
1	B	52	ILE	4.2
1	B	116	ASP	4.2
1	B	171	ILE	4.2
2	E	403	DG	4.1
1	B	201	SER	4.1

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Mol	Chain	Res	Type	RSRZ
1	B	86	ILE	4.0
2	E	401	DG	4.0
1	B	38	LEU	4.0
1	B	83	ILE	4.0
1	B	117	LEU	3.9
1	A	2	SER	3.9
1	B	98	TYR	3.9
3	F	518	DT	3.9
1	B	17	GLY	3.9
1	B	126	SER	3.9
3	F	517	DC	3.9
1	B	55	VAL	3.8
1	B	150	GLU	3.8
1	B	87	PHE	3.8
1	B	106	ALA	3.8
1	B	82	PHE	3.8
1	B	149	ALA	3.7
1	B	112	ILE	3.7
2	E	402	DC	3.7
3	F	519	DC	3.7
1	B	173	GLN	3.7
1	B	76	LYS	3.7
2	E	404	DC	3.7
2	E	409	DG	3.6
1	B	122	ARG	3.6
1	B	152	CYS	3.6
1	B	4	MET	3.6
1	B	33	GLU	3.5
2	E	406	DG	3.5
3	F	514	DA	3.5
1	B	49	ILE	3.5
1	B	206	THR	3.4
3	F	522	DC	3.4
1	B	172	ALA	3.4
1	B	75	ASP	3.4
1	B	35	GLY	3.4
1	B	72	ARG	3.4
1	B	192	LYS	3.4
2	E	417	DT	3.3
2	E	407	DA	3.3
1	B	78	HIS	3.3
1	B	119	GLU	3.3

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Mol	Chain	Res	Type	RSRZ
3	F	526	DG	3.3
1	B	80	LYS	3.3
1	B	159	ASN	3.3
1	B	14	LEU	3.2
1	B	96	LYS	3.2
1	B	170	ASP	3.2
1	B	39	SER	3.2
1	B	107	LEU	3.2
1	B	195	LEU	3.2
3	F	523	DA	3.2
1	B	66	ILE	3.2
1	B	166	ILE	3.2
2	E	405	DT	3.2
2	E	414	DT	3.2
3	F	516	DC	3.2
2	E	410	DA	3.2
1	B	36	ILE	3.2
1	B	130	VAL	3.1
1	B	73	ILE	3.1
1	B	71	LEU	3.1
1	B	169	PHE	3.1
1	B	205	VAL	3.1
1	B	111	ILE	3.1
1	B	103	PHE	3.1
1	B	120	TYR	3.1
1	B	100	TYR	3.1
2	E	408	DG	3.1
1	B	118	PRO	3.0
1	B	229	LYS	3.0
2	E	412	DG	3.0
1	B	34	LEU	3.0
1	B	45	LEU	3.0
1	B	74	ARG	3.0
1	B	77	ASN	3.0
1	B	253	PRO	3.0
1	B	99	ASP	3.0
2	E	426	DC	3.0
2	E	422	DT	3.0
3	F	521	DT	3.0
2	E	415	DT	2.9
2	E	425	DG	2.9
1	B	57	LYS	2.9

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Mol	Chain	Res	Type	RSRZ
1	B	179	LEU	2.9
1	B	175	ASP	2.8
1	B	11	LEU	2.8
1	B	46	ILE	2.8
1	B	101	LEU	2.8
3	F	506	DA	2.8
1	B	194	TYR	2.8
1	B	18	ASP	2.8
1	B	24	THR	2.8
1	B	102	ARG	2.8
1	B	104	LYS	2.8
2	E	428	DA	2.8
1	B	21	PHE	2.8
2	E	423	DA	2.8
1	A	158	LEU	2.8
1	B	203	LEU	2.8
1	B	198	THR	2.8
1	B	92	MET	2.7
1	B	84	LEU	2.7
1	B	151	GLY	2.7
1	B	191	THR	2.7
3	F	513	DA	2.7
1	B	59	SER	2.7
3	F	502	DG	2.7
1	B	63	ARG	2.6
1	B	27	GLY	2.6
2	E	424	DA	2.6
1	B	15	PHE	2.6
1	B	3	HIS	2.6
1	B	30	LEU	2.6
1	B	6	LEU	2.6
1	B	167	ALA	2.6
1	B	8	TYR	2.6
1	B	255	ASN	2.6
1	B	190	THR	2.6
1	B	123	SER	2.5
2	E	413	DT	2.5
3	F	505	DT	2.5
1	B	137	SER	2.5
1	B	88	ASP	2.5
1	B	25	LYS	2.5
1	B	140	SER	2.5

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Mol	Chain	Res	Type	RSRZ
1	B	127	ILE	2.5
1	B	128	ASN	2.5
1	B	138	TYR	2.4
1	B	81	ASN	2.4
1	B	147	ILE	2.4
1	B	67	GLU	2.4
1	A	3	HIS	2.4
1	B	121	ALA	2.4
1	B	26	LYS	2.4
1	B	62	LYS	2.4
1	B	174	LYS	2.4
1	B	29	TYR	2.3
1	B	177	ASP	2.3
1	B	165	LEU	2.3
2	E	427	DG	2.3
3	F	520	DC	2.3
1	B	222	PRO	2.3
1	B	227	GLY	2.3
1	A	66	ILE	2.3
1	A	116	ASP	2.3
2	E	420	DG	2.3
1	B	193	ILE	2.3
1	B	164	TYR	2.3
1	B	53	LEU	2.3
3	F	507	DA	2.3
1	A	65	GLU	2.3
1	B	113	TYR	2.3
1	A	177	ASP	2.3
1	B	56	GLY	2.3
1	B	210	SER	2.3
3	F	510	DG	2.3
1	B	94	SER	2.2
1	B	37	GLU	2.2
3	F	508	DC	2.2
1	B	197	LYS	2.2
1	B	69	VAL	2.2
1	B	131	ASP	2.2
1	B	146	PHE	2.2
1	B	19	GLY	2.2
1	B	200	CYS	2.2
1	B	70	SER	2.1
3	F	515	DA	2.1

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Mol	Chain	Res	Type	RSRZ
1	B	50	LYS	2.1
1	B	256	TYR	2.1
2	C	417	DT	2.1
1	B	176	GLY	2.1
1	A	205	VAL	2.1
1	B	58	VAL	2.1
1	B	9	ALA	2.1
1	B	182	ALA	2.1
1	B	10	TYR	2.1
1	B	90	TYR	2.1
1	A	198	THR	2.0
2	E	416	DC	2.0
1	B	97	GLN	2.0
1	B	85	PRO	2.0
3	F	509	DA	2.0
3	F	511	DA	2.0
1	A	42	ASP	2.0
1	B	223	VAL	2.0
1	B	40	ILE	2.0
1	B	218	ILE	2.0
1	B	250	ILE	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
6	SO4	B	303	5/5	0.55	0.20	104,113,117,120	0
5	PEG	F	601	7/7	0.64	0.33	99,103,113,118	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
5	PEG	A	304	7/7	0.64	0.31	99,103,107,109	0
5	PEG	E	503	7/7	0.72	0.39	89,96,105,114	7
4	CA	B	301	1/1	0.76	0.29	67,67,67,67	0
5	PEG	B	302	7/7	0.80	0.27	93,97,107,108	0
7	NA	B	304	1/1	0.80	0.46	71,71,71,71	0
4	CA	E	501	1/1	0.90	0.08	67,67,67,67	0
4	CA	A	302	1/1	0.92	0.16	42,42,42,42	0
4	CA	E	502	1/1	0.92	0.14	93,93,93,93	0
4	CA	A	301	1/1	0.93	0.07	42,42,42,42	0
4	CA	A	303	1/1	0.95	0.18	42,42,42,42	0

6.5 Other polymers [i](#)

There are no such residues in this entry.