



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 10, 2026 – 12:43 PM UTC

PDB ID : 1XCO / pdb_00001xco
Title : Crystal Structure of a Phosphotransacetylase from *Bacillus subtilis* in complex with acetylphosphate
Authors : Xu, Q.S.; Jancarik, J.; Lou, Y.; Yokota, H.; Adams, P.; Kim, R.; Kim, S.-H.; Berkeley Structural Genomics Center (BSGC)
Deposited on : 2004-09-02
Resolution : 2.85 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

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

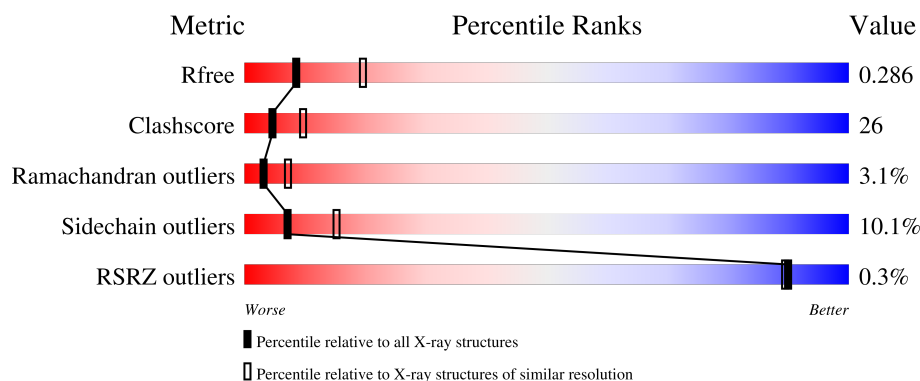
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.85 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	1407 (2.88-2.84)
Clashscore	190562	1446 (2.88-2.84)
Ramachandran outliers	187476	1406 (2.88-2.84)
Sidechain outliers	187428	1407 (2.88-2.84)
RSRZ outliers	180081	1408 (2.88-2.84)

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	329	 53% 37% 8% ..
1	B	329	 53% 37% 8% ..
1	C	329	 53% 36% 8% ..
1	D	329	 51% 39% 9% ..
1	E	329	 55% 33% 10% ..

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Mol	Chain	Length	Quality of chain
1	F	329	% 53% 35% 10% ••

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
3	UVW	D	410	-	-	X	-

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 15000 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 Phosphate acetyltransferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	324	Total	C	N	O	S	0	0	0
			2449	1547	408	485	9			
1	B	324	Total	C	N	O	S	0	0	0
			2449	1547	408	485	9			
1	C	323	Total	C	N	O	S	0	0	0
			2445	1545	407	484	9			
1	D	325	Total	C	N	O	S	0	0	0
			2453	1549	409	486	9			
1	E	324	Total	C	N	O	S	0	1	0
			2458	1552	409	488	9			
1	F	323	Total	C	N	O	S	0	0	0
			2445	1545	407	484	9			

There are 42 discrepancies between the modelled and reference sequences:

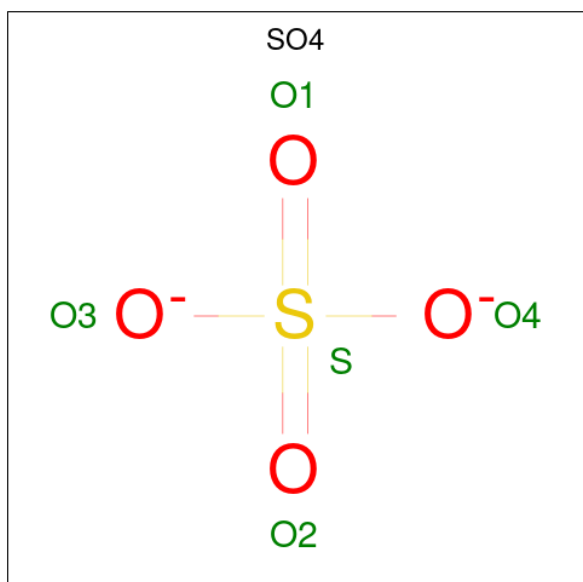
Chain	Residue	Modelled	Actual	Comment	Reference
A	-5	GLY	-	cloning artifact	UNP P39646
A	-4	GLY	-	cloning artifact	UNP P39646
A	-3	GLY	-	cloning artifact	UNP P39646
A	-2	GLY	-	cloning artifact	UNP P39646
A	-1	GLY	-	cloning artifact	UNP P39646
A	0	GLY	-	cloning artifact	UNP P39646
A	1	MET	-	initiating methionine	UNP P39646
B	-5	GLY	-	cloning artifact	UNP P39646
B	-4	GLY	-	cloning artifact	UNP P39646
B	-3	GLY	-	cloning artifact	UNP P39646
B	-2	GLY	-	cloning artifact	UNP P39646
B	-1	GLY	-	cloning artifact	UNP P39646
B	0	GLY	-	cloning artifact	UNP P39646
B	1	MET	-	initiating methionine	UNP P39646
C	-5	GLY	-	cloning artifact	UNP P39646
C	-4	GLY	-	cloning artifact	UNP P39646
C	-3	GLY	-	cloning artifact	UNP P39646

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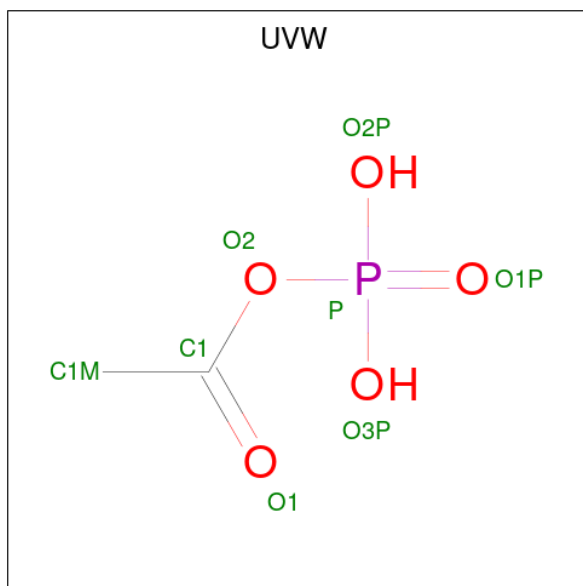
Chain	Residue	Modelled	Actual	Comment	Reference
C	-2	GLY	-	cloning artifact	UNP P39646
C	-1	GLY	-	cloning artifact	UNP P39646
C	0	GLY	-	cloning artifact	UNP P39646
C	1	MET	-	initiating methionine	UNP P39646
D	-5	GLY	-	cloning artifact	UNP P39646
D	-4	GLY	-	cloning artifact	UNP P39646
D	-3	GLY	-	cloning artifact	UNP P39646
D	-2	GLY	-	cloning artifact	UNP P39646
D	-1	GLY	-	cloning artifact	UNP P39646
D	0	GLY	-	cloning artifact	UNP P39646
D	1	MET	-	initiating methionine	UNP P39646
E	-5	GLY	-	cloning artifact	UNP P39646
E	-4	GLY	-	cloning artifact	UNP P39646
E	-3	GLY	-	cloning artifact	UNP P39646
E	-2	GLY	-	cloning artifact	UNP P39646
E	-1	GLY	-	cloning artifact	UNP P39646
E	0	GLY	-	cloning artifact	UNP P39646
E	1	MET	-	initiating methionine	UNP P39646
F	-5	GLY	-	cloning artifact	UNP P39646
F	-4	GLY	-	cloning artifact	UNP P39646
F	-3	GLY	-	cloning artifact	UNP P39646
F	-2	GLY	-	cloning artifact	UNP P39646
F	-1	GLY	-	cloning artifact	UNP P39646
F	0	GLY	-	cloning artifact	UNP P39646
F	1	MET	-	initiating methionine	UNP P39646

- Molecule 2 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	O	S	0	0
			5	4	1		
2	C	1	Total	O	S	0	0
			5	4	1		
2	E	1	Total	O	S	0	0
			5	4	1		

- Molecule 3 is ACETYLPHOSPHATE (CCD ID: UVW) (formula: $C_2H_5O_5P$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	O	P	0	0
			8	2	5	1		
3	A	1	Total	C	O	P	0	0
			8	2	5	1		
3	A	1	Total	C	O	P	0	0
			8	2	5	1		
3	A	1	Total	C	O	P	0	0
			8	2	5	1		
3	B	1	Total	C	O	P	0	0
			8	2	5	1		
3	B	1	Total	C	O	P	0	0
			8	2	5	1		
3	B	1	Total	C	O	P	0	0
			8	2	5	1		
3	C	1	Total	C	O	P	0	0
			8	2	5	1		

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	C	1	Total	C	O	P	0	0
			8	2	5	1		
3	C	1	Total	C	O	P	0	0
			8	2	5	1		
3	C	1	Total	C	O	P	0	0
			8	2	5	1		
3	D	1	Total	C	O	P	0	0
			8	2	5	1		
3	D	1	Total	C	O	P	0	0
			8	2	5	1		
3	D	1	Total	C	O	P	0	0
			8	2	5	1		
3	D	1	Total	C	O	P	0	0
			8	2	5	1		
3	E	1	Total	C	O	P	0	0
			8	2	5	1		
3	E	1	Total	C	O	P	0	0
			8	2	5	1		
3	E	1	Total	C	O	P	0	0
			8	2	5	1		
3	E	1	Total	C	O	P	0	0
			8	2	5	1		
3	F	1	Total	C	O	P	0	0
			8	2	5	1		
3	F	1	Total	C	O	P	0	0
			8	2	5	1		
3	F	1	Total	C	O	P	0	0
			8	2	5	1		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	23	Total	O	0	0
			23	23		
4	B	11	Total	O	0	0
			11	11		
4	C	21	Total	O	0	0
			21	21		
4	D	16	Total	O	0	0
			16	16		
4	E	23	Total	O	0	0
			23	23		

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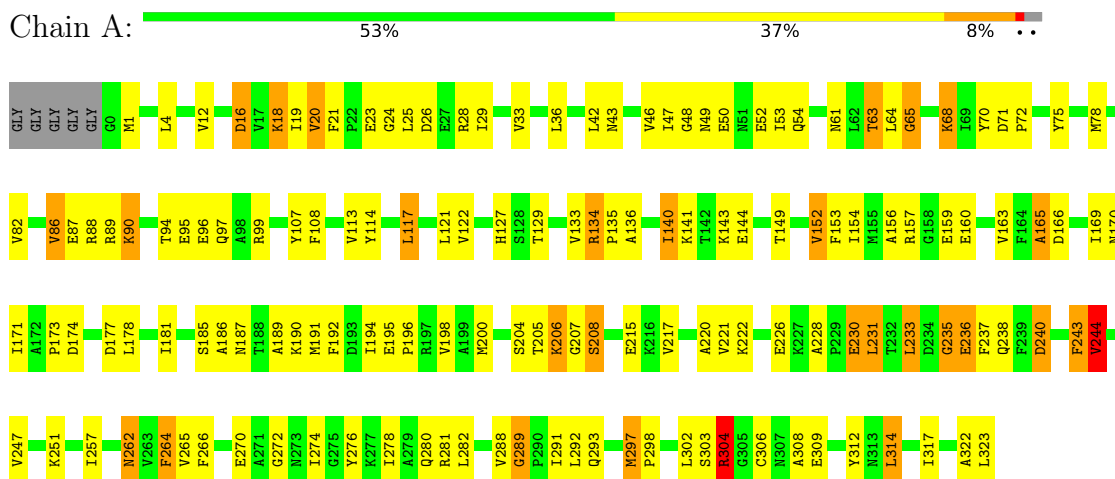
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	F	8	Total	O	0	0
			8	8		

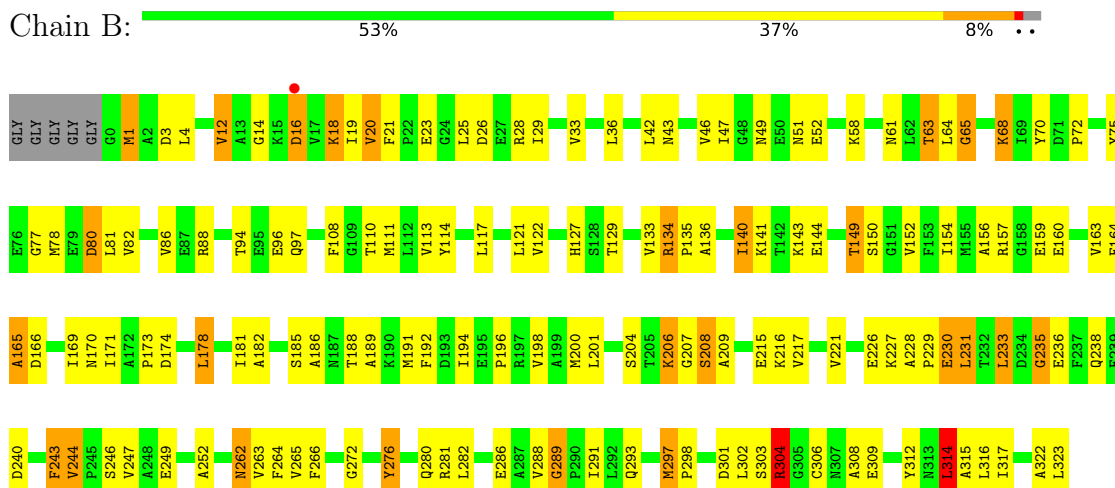
3 Residue-property plots

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: Phosphate acetyltransferase

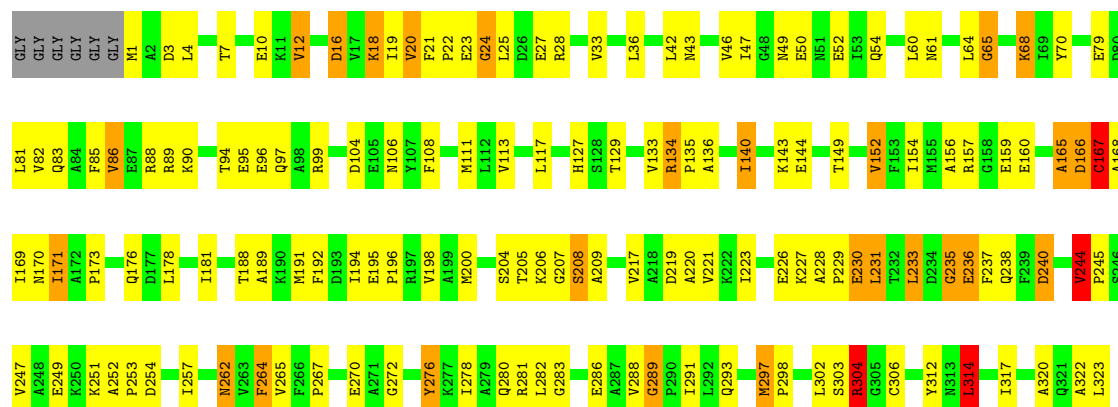


• Molecule 1: Phosphate acetyltransferase



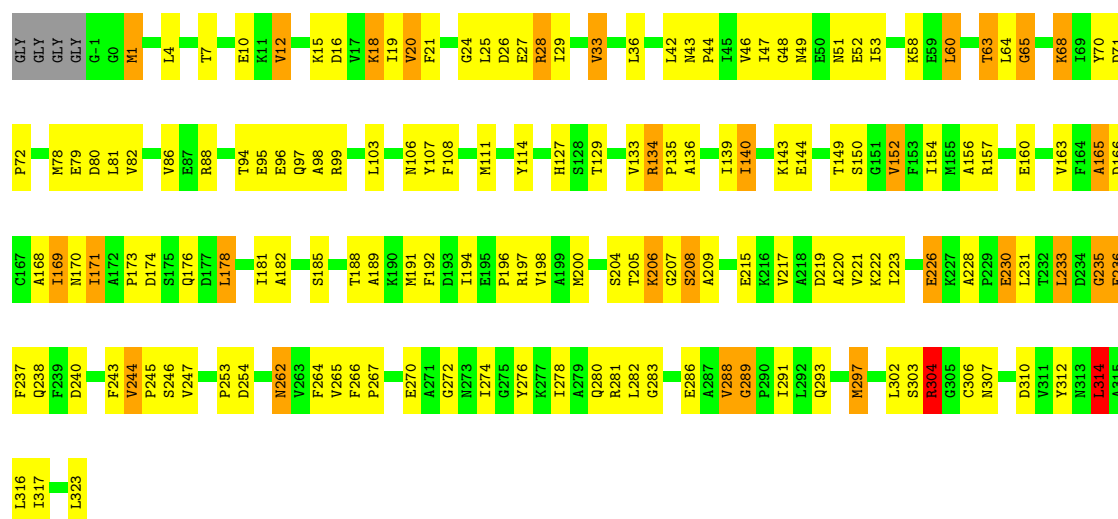
• Molecule 1: Phosphate acetyltransferase





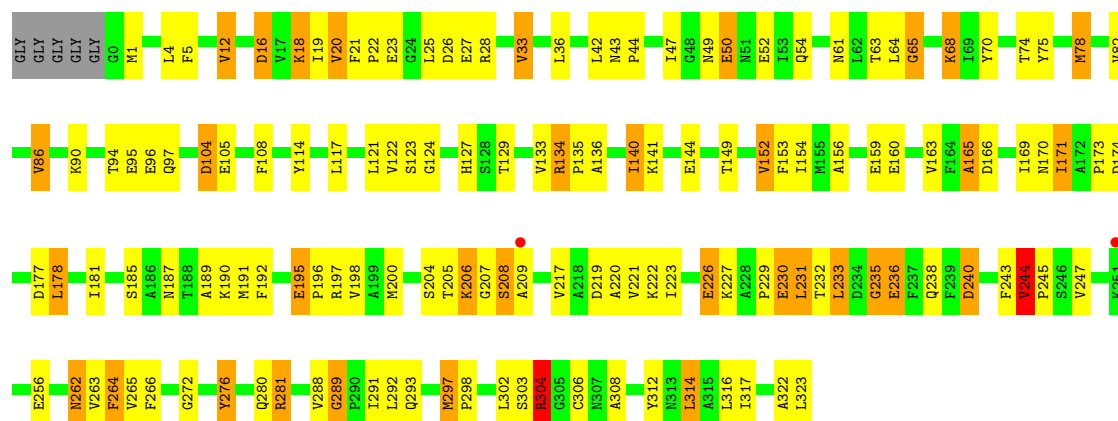
• Molecule 1: Phosphate acetyltransferase

Chain D: 51% 39% 9% ..

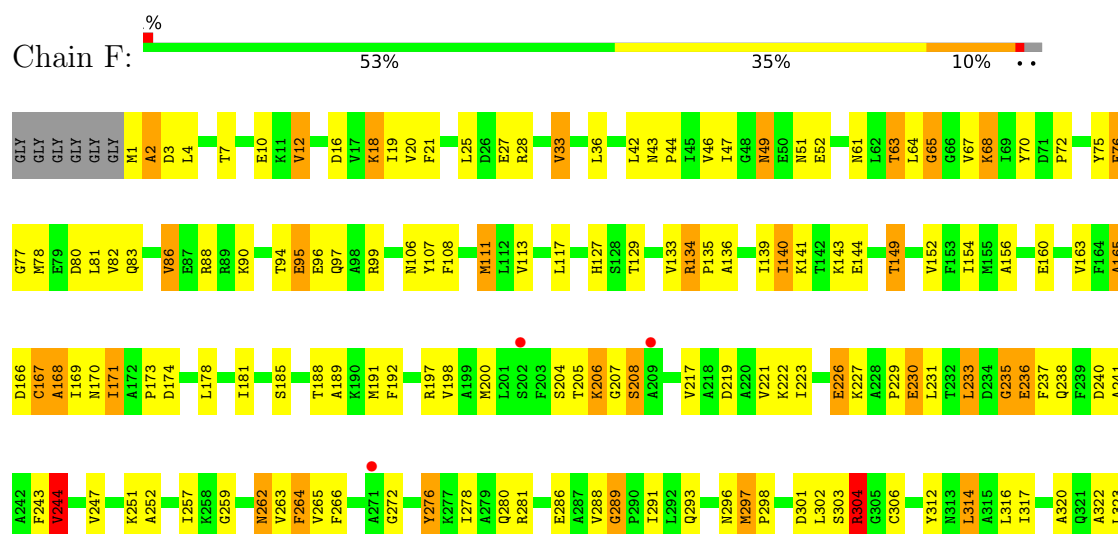


• Molecule 1: Phosphate acetyltransferase

Chain E: 55% 33% 10% ..



• Molecule 1: Phosphate acetyltransferase



4 Data and refinement statistics

Property	Value	Source
Space group	P 64 2 2	Depositor
Cell constants a, b, c, α , β , γ	184.66Å 184.66Å 259.46Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	19.99 – 2.85 19.99 – 2.85	Depositor EDS
% Data completeness (in resolution range)	99.7 (19.99-2.85) 99.4 (19.99-2.85)	Depositor EDS
R_{merge}	0.15	Depositor
R_{sym}	0.15	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.43 (at 2.83Å)	Xtrriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.245 , 0.288 0.243 , 0.286	Depositor DCC
R_{free} test set	1666 reflections (2.72%)	wwPDB-VP
Wilson B-factor (Å ²)	47.6	Xtrriage
Anisotropy	0.486	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 46.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.28$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	15000	wwPDB-VP
Average B, all atoms (Å ²)	46.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 54.17 % 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 3.7951e-05. 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: UVW, 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	0.73	0/2483	1.19	19/3351 (0.6%)
1	B	0.70	0/2483	1.20	18/3351 (0.5%)
1	C	0.73	0/2479	1.18	20/3346 (0.6%)
1	D	0.68	0/2487	1.20	22/3356 (0.7%)
1	E	0.73	1/2492 (0.0%)	1.20	17/3363 (0.5%)
1	F	0.65	0/2479	1.15	17/3346 (0.5%)
All	All	0.70	1/14903 (0.0%)	1.19	113/20113 (0.6%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	78	MET	SD-CE	5.11	1.92	1.79

All (113) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	140	ILE	N-CA-C	-11.26	97.49	110.21
1	A	235	GLY	N-CA-C	10.40	127.20	111.18
1	C	235	GLY	N-CA-C	10.09	126.71	111.18
1	E	235	GLY	N-CA-C	9.90	127.52	111.38
1	B	235	GLY	N-CA-C	9.86	126.37	111.18
1	D	235	GLY	N-CA-C	9.83	125.61	110.96
1	F	235	GLY	N-CA-C	9.51	125.13	110.96
1	D	304	ARG	N-CA-C	-9.27	98.19	110.24
1	C	140	ILE	N-CA-C	-8.79	98.11	109.80
1	F	238	GLN	N-CA-C	-8.63	96.99	110.36
1	E	238	GLN	N-CA-C	-8.44	98.36	110.59
1	C	304	ARG	N-CA-C	-8.32	99.43	110.24
1	A	238	GLN	N-CA-C	-8.09	98.86	110.59
1	D	12	VAL	N-CA-C	8.04	118.62	110.82

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	238	GLN	N-CA-C	-8.03	98.95	110.59
1	F	244	VAL	N-CA-C	7.90	116.05	107.60
1	E	244	VAL	CA-C-N	7.85	128.27	119.32
1	E	244	VAL	C-N-CA	7.85	128.27	119.32
1	D	238	GLN	N-CA-C	-7.82	99.25	110.59
1	E	12	VAL	N-CA-C	7.81	117.76	110.42
1	C	238	GLN	N-CA-C	-7.79	98.28	110.36
1	F	304	ARG	N-CA-C	-7.66	100.28	110.24
1	A	165	ALA	N-CA-C	7.59	120.87	109.25
1	B	140	ILE	N-CA-C	-7.48	99.85	109.80
1	B	165	ALA	N-CA-C	7.38	120.55	109.25
1	D	140	ILE	N-CA-C	-7.37	99.04	110.09
1	F	12	VAL	N-CA-C	7.37	117.34	110.42
1	E	304	ARG	N-CA-C	-7.28	100.78	110.24
1	F	140	ILE	N-CA-C	-7.19	100.24	109.80
1	F	95	GLU	N-CA-C	-7.13	103.59	111.36
1	A	228	ALA	CA-C-N	6.87	126.84	119.28
1	A	228	ALA	C-N-CA	6.87	126.84	119.28
1	E	20	VAL	CB-CA-C	-6.84	102.43	110.91
1	B	12	VAL	N-CA-C	6.80	117.42	110.82
1	E	140	ILE	N-CA-C	-6.76	100.81	109.80
1	D	314	LEU	N-CA-C	-6.58	104.11	111.28
1	B	314	LEU	N-CA-C	-6.57	104.11	111.28
1	C	244	VAL	CA-C-N	6.53	128.01	119.84
1	C	244	VAL	C-N-CA	6.53	128.01	119.84
1	C	12	VAL	N-CA-C	6.53	117.15	110.82
1	D	228	ALA	CA-C-N	6.53	126.46	119.28
1	D	228	ALA	C-N-CA	6.53	126.46	119.28
1	D	140	ILE	CA-C-N	-6.49	113.59	122.16
1	D	140	ILE	C-N-CA	-6.49	113.59	122.16
1	B	80	ASP	N-CA-C	-6.48	104.22	111.28
1	D	165	ALA	N-CA-C	6.48	119.16	109.25
1	D	1	MET	N-CA-C	-6.35	105.36	113.23
1	B	244	VAL	CA-C-N	6.34	126.54	119.32
1	B	244	VAL	C-N-CA	6.34	126.54	119.32
1	B	228	ALA	CA-C-N	6.29	126.20	119.28
1	B	228	ALA	C-N-CA	6.29	126.20	119.28
1	C	140	ILE	CB-CA-C	-6.19	102.73	111.28
1	A	304	ARG	N-CA-C	-6.16	101.55	110.24
1	A	12	VAL	N-CA-C	6.14	116.78	110.82
1	B	243	PHE	N-CA-C	6.10	120.85	113.41
1	C	165	ALA	N-CA-C	6.08	118.55	109.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	243	PHE	N-CA-C	6.05	120.69	113.12
1	A	140	ILE	CB-CA-C	-6.04	104.68	111.45
1	D	60	LEU	N-CA-C	-5.95	105.21	112.88
1	A	20	VAL	CB-CA-C	-5.92	103.57	110.91
1	F	278	ILE	N-CA-C	-5.79	104.87	110.72
1	C	24	GLY	N-CA-C	5.75	119.84	112.83
1	A	251	LYS	N-CA-C	5.74	118.48	111.82
1	A	244	VAL	CA-C-N	5.69	126.95	119.84
1	A	244	VAL	C-N-CA	5.69	126.95	119.84
1	C	244	VAL	N-CA-C	5.67	113.67	107.60
1	D	80	ASP	N-CA-C	-5.65	105.21	111.71
1	D	140	ILE	CB-CA-C	-5.60	104.02	111.13
1	A	308	ALA	N-CA-C	-5.59	105.33	111.82
1	F	244	VAL	CA-C-N	5.57	125.93	119.47
1	F	244	VAL	C-N-CA	5.57	125.93	119.47
1	C	314	LEU	N-CA-C	-5.54	105.24	111.28
1	E	171	ILE	N-CA-C	5.49	115.73	110.74
1	D	20	VAL	CB-CA-C	-5.47	103.72	111.21
1	A	243	PHE	N-CA-C	5.43	119.91	113.12
1	F	165	ALA	N-CA-C	5.38	118.03	109.96
1	C	228	ALA	CA-C-N	5.36	125.00	119.05
1	C	228	ALA	C-N-CA	5.36	125.00	119.05
1	B	1	MET	N-CA-C	-5.36	105.89	112.90
1	F	243	PHE	N-CA-C	5.32	119.75	112.68
1	F	80	ASP	N-CA-C	-5.30	105.67	111.82
1	E	165	ALA	N-CA-C	5.27	117.87	109.96
1	B	308	ALA	N-CA-C	-5.26	106.12	112.54
1	C	171	ILE	N-CA-C	5.26	115.36	110.42
1	C	20	VAL	CB-CA-C	-5.25	104.02	111.21
1	C	240	ASP	CB-CA-C	-5.23	102.61	110.92
1	D	24	GLY	N-CA-C	5.23	120.22	113.27
1	F	301	ASP	N-CA-C	5.21	117.02	108.52
1	D	28	ARG	N-CA-C	-5.21	105.51	111.14
1	B	20	VAL	CB-CA-C	-5.20	104.09	111.21
1	A	24	GLY	N-CA-C	5.18	120.03	113.24
1	C	79	GLU	N-CA-C	-5.17	105.76	111.71
1	C	167	CYS	N-CA-C	-5.15	105.46	112.26
1	E	281	ARG	N-CA-C	5.15	118.83	112.54
1	F	111	MET	N-CA-C	-5.14	105.67	111.28
1	E	50	GLU	N-CA-C	5.13	116.56	111.07
1	E	240	ASP	CB-CA-C	-5.12	102.33	110.84
1	A	240	ASP	CB-CA-C	-5.11	103.10	110.96

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	168	ALA	N-CA-C	5.10	121.18	114.75
1	C	60	LEU	N-CA-C	-5.10	106.30	112.88
1	F	140	ILE	CB-CA-C	-5.10	104.25	111.28
1	D	169	ILE	N-CA-C	5.07	119.88	109.34
1	D	171	ILE	N-CA-C	5.07	115.18	110.42
1	D	244	VAL	CA-C-N	5.06	126.17	119.84
1	D	244	VAL	C-N-CA	5.06	126.17	119.84
1	B	140	ILE	CB-CA-C	-5.04	104.32	111.28
1	E	308	ALA	N-CA-C	-5.03	105.98	111.82
1	E	195	GLU	CA-C-N	5.02	126.12	119.84
1	E	195	GLU	C-N-CA	5.02	126.12	119.84
1	B	304	ARG	N-CA-C	-5.02	100.11	110.80
1	A	140	ILE	CA-C-N	-5.02	114.16	122.39
1	A	140	ILE	C-N-CA	-5.02	114.16	122.39
1	B	301	ASP	N-CA-C	5.01	116.57	108.41

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	2449	0	2471	131	0
1	B	2449	0	2471	131	0
1	C	2445	0	2468	133	0
1	D	2453	0	2474	135	0
1	E	2458	0	2476	121	0
1	F	2445	0	2468	134	0
2	A	5	0	0	0	0
2	C	5	0	0	0	0
2	E	5	0	0	0	0
3	A	32	0	12	3	0
3	B	32	0	12	6	0
3	C	32	0	12	3	0
3	D	32	0	12	6	0
3	E	32	0	12	8	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	F	24	0	9	1	0
4	A	23	0	0	1	0
4	B	11	0	0	2	0
4	C	21	0	0	2	0
4	D	16	0	0	1	0
4	E	23	0	0	2	0
4	F	8	0	0	0	0
All	All	15000	0	14897	774	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 26.

All (774) 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:B:403:UVW:C1	3:B:403:UVW:O2	1.65	1.44
3:C:420:UVW:O2	3:C:420:UVW:C1	1.64	1.44
3:D:421:UVW:C1	3:D:421:UVW:O2	1.64	1.43
3:D:410:UVW:C1	3:D:410:UVW:O2	1.64	1.42
3:E:413:UVW:C1	3:E:413:UVW:O2	1.63	1.42
3:E:415:UVW:C1	3:E:415:UVW:O2	1.63	1.40
3:E:422:UVW:C1	3:E:422:UVW:O2	1.65	1.40
1:C:165:ALA:HB3	1:C:265:VAL:HA	1.33	1.08
1:C:204:SER:HB2	1:C:208:SER:HB2	1.37	1.07
1:F:198:VAL:HB	1:F:233:LEU:HB2	1.36	1.06
1:A:165:ALA:HB3	1:A:265:VAL:HA	1.32	1.06
1:D:165:ALA:HB3	1:D:265:VAL:HA	1.36	1.06
1:F:165:ALA:HB3	1:F:265:VAL:HA	1.37	1.06
1:A:204:SER:HB2	1:A:208:SER:HB2	1.35	1.06
1:B:204:SER:HB2	1:B:208:SER:HB2	1.35	1.05
1:B:165:ALA:HB3	1:B:265:VAL:HA	1.40	1.03
3:E:413:UVW:C1	3:E:413:UVW:P	2.46	1.02
1:E:221:VAL:HG21	1:E:235:GLY:HA3	1.37	1.02
1:B:221:VAL:HG21	1:B:235:GLY:HA3	1.37	1.02
3:D:410:UVW:C1	3:D:410:UVW:P	2.47	1.02
1:C:198:VAL:HB	1:C:233:LEU:HB2	1.42	1.01
1:D:204:SER:HB2	1:D:208:SER:HB2	1.40	1.00
1:C:231:LEU:HD12	1:C:233:LEU:HD23	1.42	1.00
1:E:198:VAL:HB	1:E:233:LEU:HB2	1.43	1.00
3:D:421:UVW:C1	3:D:421:UVW:P	2.50	0.99
1:A:198:VAL:HB	1:A:233:LEU:HB2	1.43	0.99

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:204:SER:HB2	1:E:208:SER:HB2	1.42	0.98
1:E:165:ALA:HB3	1:E:265:VAL:HA	1.45	0.98
1:C:302:LEU:HD23	1:C:314:LEU:HD12	1.46	0.98
1:D:16:ASP:HB2	1:D:43:ASN:HD21	1.27	0.98
3:E:415:UVW:C1	3:E:415:UVW:P	2.51	0.97
3:E:422:UVW:C1	3:E:422:UVW:P	2.54	0.96
3:B:403:UVW:C1	3:B:403:UVW:P	2.54	0.96
1:F:204:SER:HB2	1:F:208:SER:HB2	1.46	0.95
1:F:302:LEU:HD23	1:F:314:LEU:HD12	1.46	0.94
3:C:420:UVW:C1	3:C:420:UVW:P	2.54	0.94
1:D:198:VAL:HB	1:D:233:LEU:HB2	1.49	0.94
1:A:19:ILE:HG22	1:A:21:PHE:CE1	2.03	0.93
1:B:302:LEU:HD23	1:B:314:LEU:HD12	1.49	0.92
1:B:198:VAL:HB	1:B:233:LEU:HB2	1.52	0.92
1:F:36:LEU:HD13	1:F:42:LEU:HD11	1.53	0.90
1:A:302:LEU:HD23	1:A:314:LEU:HD12	1.53	0.89
1:D:1:MET:HE3	1:D:288:VAL:HG23	1.53	0.89
1:E:231:LEU:HD12	1:E:233:LEU:HD23	1.54	0.88
1:D:221:VAL:HG21	1:D:235:GLY:HA3	1.53	0.88
1:D:36:LEU:HD13	1:D:42:LEU:HD11	1.56	0.87
1:E:36:LEU:HD13	1:E:42:LEU:HD11	1.56	0.87
1:D:49:ASN:HD22	1:D:52:GLU:H	1.24	0.86
1:D:16:ASP:HB2	1:D:43:ASN:ND2	1.91	0.85
1:F:49:ASN:HD22	1:F:52:GLU:H	1.25	0.85
1:B:1:MET:HE3	1:B:288:VAL:HG23	1.58	0.84
1:A:141:LYS:HB2	3:A:401:UVW:H1M3	1.57	0.84
1:A:221:VAL:HG21	1:A:235:GLY:HA3	1.58	0.84
1:E:200:MET:HG3	1:E:221:VAL:HG22	1.60	0.84
1:C:129:THR:O	1:C:133:VAL:HG12	1.78	0.83
1:A:134:ARG:HB3	1:A:135:PRO:HD3	1.62	0.81
1:B:16:ASP:HB2	1:B:43:ASN:HD21	1.45	0.81
1:E:221:VAL:CG2	1:E:235:GLY:HA3	2.09	0.81
1:B:221:VAL:CG2	1:B:235:GLY:HA3	2.10	0.80
1:F:231:LEU:HD12	1:F:233:LEU:HD23	1.63	0.80
1:B:19:ILE:HG22	1:B:21:PHE:CE1	2.17	0.80
1:B:231:LEU:HD12	1:B:233:LEU:HD23	1.62	0.80
1:A:231:LEU:HD12	1:A:233:LEU:HD23	1.62	0.80
1:E:19:ILE:HG22	1:E:21:PHE:CE1	2.17	0.79
1:E:16:ASP:HB2	1:E:43:ASN:HD21	1.47	0.79
1:F:302:LEU:CD2	1:F:314:LEU:HD12	2.13	0.79
1:D:231:LEU:HD12	1:D:233:LEU:HD23	1.64	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:16:ASP:HB2	1:F:43:ASN:HD21	1.48	0.78
1:F:191:MET:HE1	1:F:317:ILE:HG23	1.64	0.78
1:C:49:ASN:HD22	1:C:52:GLU:H	1.31	0.77
1:E:302:LEU:HD23	1:E:314:LEU:HD12	1.67	0.76
1:D:221:VAL:CG2	1:D:235:GLY:HA3	2.15	0.76
1:E:49:ASN:HD22	1:E:52:GLU:H	1.30	0.76
1:F:221:VAL:HG21	1:F:235:GLY:HA3	1.67	0.76
1:A:165:ALA:CB	1:A:265:VAL:HA	2.14	0.76
1:A:36:LEU:HD13	1:A:42:LEU:HD11	1.68	0.76
1:B:49:ASN:HD22	1:B:52:GLU:H	1.34	0.75
1:F:129:THR:O	1:F:133:VAL:HG12	1.86	0.75
1:D:129:THR:O	1:D:133:VAL:HG12	1.87	0.74
1:C:19:ILE:HG22	1:C:21:PHE:CE1	2.22	0.74
1:F:19:ILE:HG22	1:F:21:PHE:CE1	2.22	0.74
1:D:94:THR:HB	1:D:97:GLN:HG3	1.69	0.74
1:A:191:MET:HE1	1:A:317:ILE:HG23	1.70	0.73
1:D:165:ALA:CB	1:D:265:VAL:HA	2.18	0.73
1:E:1:MET:HE3	1:E:288:VAL:HG23	1.70	0.73
1:B:16:ASP:HB2	1:B:43:ASN:ND2	2.02	0.73
1:C:221:VAL:HG21	1:C:235:GLY:HA3	1.69	0.73
1:F:49:ASN:ND2	1:F:52:GLU:H	1.86	0.73
1:F:165:ALA:CB	1:F:265:VAL:HA	2.16	0.73
1:B:200:MET:HG3	1:B:221:VAL:HG22	1.70	0.72
1:B:72:PRO:HG3	1:B:108:PHE:CD1	2.25	0.72
1:E:165:ALA:CB	1:E:265:VAL:HA	2.19	0.72
1:F:18:LYS:O	1:F:19:ILE:HD12	1.89	0.72
1:B:191:MET:HE1	1:B:317:ILE:HG23	1.70	0.72
1:E:129:THR:O	1:E:133:VAL:HG12	1.90	0.71
1:D:191:MET:HE1	1:D:317:ILE:HG23	1.71	0.71
1:A:49:ASN:HD22	1:A:52:GLU:H	1.39	0.71
1:D:262:ASN:HD22	1:D:262:ASN:H	1.39	0.71
1:B:302:LEU:CD2	1:B:314:LEU:HD12	2.20	0.70
1:D:302:LEU:HD23	1:D:314:LEU:HD12	1.73	0.70
1:A:18:LYS:O	1:A:19:ILE:HD12	1.92	0.69
1:C:36:LEU:HD13	1:C:42:LEU:HD11	1.75	0.69
1:A:171:ILE:HD12	1:A:171:ILE:H	1.55	0.69
1:F:16:ASP:HB2	1:F:43:ASN:ND2	2.08	0.69
1:F:262:ASN:HD22	1:F:262:ASN:H	1.40	0.69
1:D:171:ILE:HD12	1:D:171:ILE:H	1.58	0.69
1:F:169:ILE:HG22	1:F:170:ASN:N	2.07	0.69
1:A:68:LYS:HB2	1:A:68:LYS:NZ	2.09	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:221:VAL:CG2	1:A:235:GLY:HA3	2.23	0.67
1:B:36:LEU:HD13	1:B:42:LEU:HD11	1.74	0.67
1:E:262:ASN:H	1:E:262:ASN:HD22	1.43	0.67
1:C:165:ALA:CB	1:C:265:VAL:HA	2.18	0.67
1:F:68:LYS:HB2	1:F:68:LYS:NZ	2.10	0.67
1:D:18:LYS:O	1:D:19:ILE:HD12	1.94	0.67
1:F:221:VAL:CG2	1:F:235:GLY:HA3	2.24	0.67
1:E:61:ASN:HD21	1:F:65:GLY:HA3	1.60	0.67
1:E:16:ASP:HB2	1:E:43:ASN:ND2	2.09	0.66
1:F:81:LEU:HD22	1:F:111:MET:HB3	1.76	0.66
1:F:163:VAL:HG21	1:F:189:ALA:HB2	1.76	0.66
1:E:198:VAL:HB	1:E:233:LEU:CB	2.23	0.66
1:A:61:ASN:HD21	1:D:65:GLY:HA3	1.59	0.66
1:C:221:VAL:CG2	1:C:235:GLY:HA3	2.26	0.66
1:E:47:ILE:HD13	1:E:70:TYR:HB2	1.77	0.66
1:F:165:ALA:HB1	1:F:181:ILE:CG2	2.26	0.66
1:C:157:ARG:NH2	1:D:282:LEU:O	2.28	0.65
1:E:173:PRO:HB2	1:E:178:LEU:HD22	1.78	0.65
1:F:188:THR:OG1	1:F:293:GLN:NE2	2.29	0.65
1:B:1:MET:O	1:B:4:LEU:HB3	1.96	0.65
1:A:302:LEU:CD2	1:A:314:LEU:HD12	2.26	0.65
1:E:1:MET:CE	1:E:288:VAL:HG23	2.26	0.65
1:E:230:GLU:CD	1:E:230:GLU:H	1.98	0.65
1:A:129:THR:O	1:A:133:VAL:HG12	1.97	0.65
1:B:129:THR:O	1:B:133:VAL:HG12	1.97	0.64
1:C:291:ILE:HD11	1:C:317:ILE:HD13	1.80	0.64
1:F:171:ILE:HD12	1:F:171:ILE:H	1.61	0.64
1:F:198:VAL:HB	1:F:233:LEU:CB	2.21	0.64
1:B:47:ILE:HD13	1:B:70:TYR:HB2	1.79	0.64
1:A:154:ILE:HD13	1:A:291:ILE:HD12	1.78	0.64
1:F:72:PRO:HG3	1:F:108:PHE:CD1	2.33	0.64
1:C:198:VAL:HB	1:C:233:LEU:CB	2.21	0.64
1:E:217:VAL:O	1:E:221:VAL:HG23	1.99	0.63
1:A:94:THR:HG22	1:A:95:GLU:H	1.64	0.63
1:A:200:MET:HG3	1:A:221:VAL:HG22	1.80	0.63
1:B:171:ILE:HD12	1:B:171:ILE:H	1.62	0.63
1:E:1:MET:O	1:E:4:LEU:HB3	1.99	0.63
1:E:50:GLU:O	1:E:54:GLN:HB2	1.99	0.63
1:F:200:MET:HG3	1:F:221:VAL:HG22	1.81	0.63
1:E:163:VAL:HG21	1:E:189:ALA:HB2	1.80	0.63
1:D:19:ILE:HG22	1:D:21:PHE:CE1	2.33	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:191:MET:HE1	1:E:317:ILE:HG23	1.80	0.63
1:F:82:VAL:O	1:F:86:VAL:HG13	1.99	0.63
1:A:63:THR:HG22	1:A:65:GLY:H	1.64	0.62
1:C:169:ILE:HG22	1:C:170:ASN:N	2.14	0.62
1:C:191:MET:HE1	1:C:317:ILE:HG23	1.81	0.62
1:C:23:GLU:OE1	1:C:127:HIS:HD2	1.82	0.62
1:C:230:GLU:CD	1:C:230:GLU:H	2.07	0.62
1:D:47:ILE:HD13	1:D:70:TYR:HB2	1.80	0.62
1:D:198:VAL:HB	1:D:233:LEU:CB	2.26	0.62
1:D:114:TYR:HA	1:D:297:MET:CE	2.30	0.62
1:B:280:GLN:HG2	1:B:281:ARG:HD2	1.82	0.62
1:F:312:TYR:HE2	1:F:316:LEU:HD11	1.64	0.62
1:C:302:LEU:CD2	1:C:314:LEU:HD12	2.23	0.62
1:E:227:LYS:O	1:E:229:PRO:HD3	2.00	0.61
1:A:23:GLU:OE1	1:A:127:HIS:HD2	1.82	0.61
1:F:68:LYS:HB2	1:F:68:LYS:HZ2	1.65	0.61
1:F:205:THR:HA	1:F:236:GLU:O	2.00	0.61
1:A:173:PRO:HB2	1:A:178:LEU:HD22	1.81	0.61
1:B:163:VAL:HG21	1:B:189:ALA:HB2	1.82	0.61
1:E:204:SER:HB2	1:E:208:SER:CB	2.26	0.61
1:E:240:ASP:HB3	1:E:247:VAL:HG11	1.81	0.61
1:A:230:GLU:CD	1:A:230:GLU:H	2.07	0.61
1:C:82:VAL:O	1:C:86:VAL:HG13	2.00	0.61
1:D:185:SER:HA	1:D:293:GLN:HE22	1.65	0.61
1:A:198:VAL:HB	1:A:233:LEU:CB	2.26	0.61
1:B:113:VAL:O	1:B:297:MET:HE2	2.00	0.60
1:C:217:VAL:O	1:C:220:ALA:HB3	2.01	0.60
1:A:26:ASP:HB3	1:A:29:ILE:HD13	1.83	0.60
1:B:169:ILE:HG22	1:B:170:ASN:N	2.17	0.60
1:F:173:PRO:HB2	1:F:178:LEU:HD22	1.84	0.60
1:B:26:ASP:HB3	1:B:29:ILE:HD13	1.83	0.60
1:E:1:MET:O	1:E:4:LEU:N	2.28	0.60
1:C:1:MET:O	1:C:4:LEU:HB3	2.02	0.60
1:D:302:LEU:CD2	1:D:314:LEU:HD12	2.30	0.60
1:D:68:LYS:HB2	1:D:68:LYS:NZ	2.17	0.59
1:E:28:ARG:HG2	1:E:28:ARG:HH11	1.67	0.59
1:F:171:ILE:HD12	1:F:171:ILE:N	2.17	0.59
1:E:94:THR:HG22	1:E:95:GLU:H	1.67	0.59
1:C:200:MET:HG3	1:C:221:VAL:HG22	1.85	0.59
1:E:298:PRO:HG2	1:E:322:ALA:HB2	1.84	0.59
1:F:230:GLU:CD	1:F:230:GLU:H	2.09	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:16:ASP:HB2	1:A:43:ASN:HD21	1.68	0.59
1:A:171:ILE:HD12	1:A:171:ILE:N	2.17	0.59
1:F:28:ARG:HG2	1:F:28:ARG:HH11	1.67	0.59
1:F:1:MET:O	1:F:4:LEU:N	2.29	0.58
1:D:79:GLU:OE2	1:D:99:ARG:NH1	2.37	0.58
1:D:47:ILE:HD12	1:D:108:PHE:CD1	2.39	0.58
1:D:188:THR:OG1	1:D:293:GLN:NE2	2.37	0.58
1:F:217:VAL:O	1:F:221:VAL:HG23	2.04	0.58
1:B:68:LYS:HB2	1:B:68:LYS:NZ	2.19	0.58
1:A:107:TYR:CE1	1:A:135:PRO:HG3	2.39	0.58
1:B:136:ALA:O	1:B:140:ILE:O	2.22	0.58
1:C:88:ARG:NH2	3:C:407:UVW:O3P	2.32	0.58
1:D:169:ILE:HG22	1:D:170:ASN:N	2.18	0.58
1:E:63:THR:HG22	1:E:65:GLY:H	1.67	0.58
1:C:205:THR:HG23	1:C:237:PHE:HA	1.85	0.57
1:F:262:ASN:ND2	1:F:263:VAL:HG23	2.19	0.57
1:F:266:PHE:CD2	1:F:272:GLY:HA2	2.39	0.57
1:C:244:VAL:HG22	1:C:247:VAL:HG23	1.86	0.57
1:E:302:LEU:CD2	1:E:314:LEU:HD12	2.34	0.57
1:B:23:GLU:OE1	1:B:127:HIS:HD2	1.86	0.57
1:E:49:ASN:ND2	1:E:52:GLU:H	2.02	0.57
1:C:291:ILE:CD1	1:C:317:ILE:HD13	2.34	0.57
1:F:156:ALA:HA	1:F:160:GLU:O	2.05	0.57
1:F:280:GLN:HG2	1:F:281:ARG:HD2	1.86	0.57
1:A:281:ARG:HB3	1:B:243:PHE:HD2	1.68	0.57
1:D:94:THR:CB	1:D:97:GLN:HG3	2.35	0.57
1:A:152:VAL:HG11	1:A:293:GLN:NE2	2.20	0.57
1:F:4:LEU:HD11	1:F:154:ILE:HG21	1.87	0.57
1:F:168:ALA:C	1:F:169:ILE:HD12	2.30	0.57
1:D:205:THR:HG23	1:D:237:PHE:HA	1.87	0.56
1:B:154:ILE:HD13	1:B:291:ILE:HD12	1.86	0.56
1:D:217:VAL:O	1:D:220:ALA:HB3	2.05	0.56
1:A:240:ASP:CB	1:A:247:VAL:HG11	2.35	0.56
1:B:3:ASP:CG	1:D:246:SER:OG	2.48	0.56
1:B:230:GLU:CD	1:B:230:GLU:H	2.08	0.56
1:B:240:ASP:HB3	1:B:247:VAL:HG11	1.87	0.56
1:E:68:LYS:HB2	1:E:68:LYS:NZ	2.20	0.56
1:D:288:VAL:O	1:D:289:GLY:O	2.22	0.56
1:E:288:VAL:O	1:E:289:GLY:O	2.22	0.56
1:F:165:ALA:HB1	1:F:181:ILE:HG22	1.87	0.56
1:B:1:MET:CE	1:B:288:VAL:HG23	2.31	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:262:ASN:H	1:F:262:ASN:ND2	2.03	0.56
1:A:1:MET:CE	1:A:288:VAL:HG23	2.36	0.56
1:A:28:ARG:HH12	1:A:306:CYS:H	1.52	0.56
1:C:298:PRO:HG2	1:C:322:ALA:HB2	1.87	0.56
1:D:163:VAL:HG21	1:D:189:ALA:HB2	1.86	0.56
1:F:76:GLU:OE2	1:F:76:GLU:N	2.39	0.56
1:B:174:ASP:OD1	1:B:174:ASP:C	2.49	0.56
1:A:61:ASN:C	1:D:63:THR:HB	2.30	0.56
1:A:75:TYR:OH	1:A:117:LEU:HD22	2.06	0.56
1:C:1:MET:HE3	1:C:288:VAL:HG23	1.87	0.56
1:F:7:THR:O	1:F:10:GLU:HB3	2.05	0.56
1:B:185:SER:HA	1:B:293:GLN:HE22	1.70	0.55
1:E:47:ILE:HD12	1:E:108:PHE:CD1	2.41	0.55
1:D:4:LEU:HD21	1:D:192:PHE:CD2	2.41	0.55
1:D:106:ASN:HD21	1:D:127:HIS:CD2	2.23	0.55
1:E:4:LEU:HD21	1:E:192:PHE:CD2	2.41	0.55
1:A:141:LYS:CB	3:A:401:UVW:H1M3	2.33	0.55
1:B:204:SER:HB2	1:B:208:SER:CB	2.24	0.55
1:F:262:ASN:HD22	1:F:262:ASN:N	2.01	0.55
1:E:74:THR:O	1:E:75:TYR:C	2.48	0.55
1:E:82:VAL:O	1:E:86:VAL:HG13	2.06	0.55
1:A:94:THR:CB	1:A:97:GLN:HG3	2.36	0.55
1:A:157:ARG:NH2	1:B:282:LEU:O	2.39	0.55
1:C:205:THR:HA	1:C:236:GLU:O	2.07	0.55
1:A:16:ASP:HB2	1:A:43:ASN:ND2	2.21	0.55
1:E:28:ARG:HH12	1:E:306:CYS:H	1.55	0.55
1:D:18:LYS:C	1:D:19:ILE:HD12	2.32	0.55
1:A:240:ASP:HB3	1:A:247:VAL:HG11	1.87	0.55
1:C:95:GLU:HG2	1:C:99:ARG:NH2	2.22	0.55
1:A:28:ARG:HG2	1:A:28:ARG:HH11	1.72	0.54
1:B:134:ARG:HB3	1:B:135:PRO:CD	2.36	0.54
1:D:114:TYR:HA	1:D:297:MET:HE2	1.88	0.54
1:E:280:GLN:HG2	1:E:281:ARG:HD2	1.90	0.54
1:E:264:PHE:CD1	1:E:264:PHE:N	2.73	0.54
1:F:18:LYS:C	1:F:19:ILE:HD12	2.32	0.54
1:F:312:TYR:CE2	1:F:316:LEU:HD11	2.43	0.54
1:A:121:LEU:HD23	1:A:122:VAL:N	2.22	0.54
1:B:12:VAL:HA	1:B:323:LEU:HD11	1.89	0.54
1:A:4:LEU:HD21	1:A:192:PHE:CD2	2.43	0.54
1:A:280:GLN:HG2	1:A:281:ARG:HD2	1.90	0.54
1:C:188:THR:OG1	1:C:293:GLN:NE2	2.39	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:28:ARG:HG2	1:C:28:ARG:HH11	1.71	0.54
1:D:171:ILE:HD12	1:D:171:ILE:N	2.22	0.54
1:E:23:GLU:OE1	1:E:127:HIS:HD2	1.91	0.54
1:B:165:ALA:CB	1:B:265:VAL:HA	2.26	0.54
1:C:68:LYS:HD3	1:C:70:TYR:CZ	2.43	0.54
1:E:262:ASN:H	1:E:262:ASN:ND2	2.05	0.54
1:C:47:ILE:HD12	1:C:108:PHE:CD1	2.43	0.54
1:E:121:LEU:HD23	1:E:122:VAL:N	2.23	0.54
1:A:94:THR:HB	1:A:97:GLN:HG3	1.89	0.54
1:D:230:GLU:H	1:D:230:GLU:CD	2.10	0.54
1:F:185:SER:HA	1:F:293:GLN:HE22	1.72	0.53
1:A:61:ASN:CA	1:D:63:THR:HB	2.39	0.53
1:C:207:GLY:O	1:C:208:SER:C	2.51	0.53
1:A:1:MET:O	1:A:4:LEU:HB3	2.08	0.53
1:B:72:PRO:HG3	1:B:108:PHE:CG	2.42	0.53
1:E:227:LYS:C	1:E:229:PRO:HD3	2.34	0.53
1:E:154:ILE:HD13	1:E:291:ILE:HD12	1.91	0.53
1:B:171:ILE:HD12	1:B:171:ILE:N	2.23	0.53
1:F:244:VAL:O	1:F:244:VAL:HG22	2.09	0.53
1:A:61:ASN:ND2	1:D:65:GLY:HA3	2.24	0.53
1:B:262:ASN:C	1:B:262:ASN:HD22	2.17	0.53
1:F:291:ILE:HD11	1:F:317:ILE:HD13	1.91	0.53
1:A:233:LEU:C	1:A:233:LEU:HD12	2.34	0.53
1:B:303:SER:O	1:B:304:ARG:C	2.52	0.53
1:F:107:TYR:CE2	1:F:135:PRO:HB3	2.44	0.53
1:A:288:VAL:O	1:A:289:GLY:O	2.26	0.52
1:D:88:ARG:NH2	3:D:410:UVW:O3P	2.40	0.52
1:E:185:SER:HA	1:E:293:GLN:HE22	1.74	0.52
1:B:110:THR:HG23	1:B:140:ILE:HD11	1.89	0.52
1:E:169:ILE:HG22	1:E:170:ASN:N	2.24	0.52
1:A:28:ARG:HH12	1:A:306:CYS:N	2.07	0.52
1:C:262:ASN:H	1:C:262:ASN:HD22	1.56	0.52
1:E:33:VAL:HG22	1:E:44:PRO:HB2	1.91	0.52
1:F:227:LYS:O	1:F:229:PRO:HD3	2.09	0.52
1:C:7:THR:O	1:C:10:GLU:HB3	2.10	0.52
1:F:78:MET:O	1:F:81:LEU:HB2	2.09	0.52
1:A:264:PHE:N	1:A:264:PHE:CD1	2.76	0.52
1:B:217:VAL:O	1:B:221:VAL:HG23	2.09	0.52
1:D:168:ALA:C	1:D:169:ILE:HD12	2.35	0.52
1:D:200:MET:HG3	1:D:221:VAL:HG22	1.91	0.52
1:E:222:LYS:O	1:E:226:GLU:HB2	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:304:ARG:HD3	1:A:304:ARG:H	1.75	0.52
1:E:123:SER:OG	1:E:124:GLY:N	2.43	0.52
1:E:171:ILE:H	1:E:171:ILE:HD12	1.75	0.52
1:A:50:GLU:O	1:A:54:GLN:HB2	2.09	0.52
1:B:4:LEU:HD21	1:B:192:PHE:CD2	2.45	0.52
1:B:233:LEU:HD12	1:B:233:LEU:C	2.35	0.52
1:B:262:ASN:ND2	1:B:263:VAL:HG23	2.24	0.52
1:D:205:THR:HA	1:D:236:GLU:O	2.10	0.52
1:E:141:LYS:HB2	3:E:413:UVW:H1M3	1.91	0.52
1:A:68:LYS:HD3	1:A:70:TYR:CZ	2.44	0.51
1:A:88:ARG:NH2	3:A:401:UVW:O3P	2.32	0.51
1:A:95:GLU:HG2	1:A:99:ARG:NH2	2.25	0.51
1:F:94:THR:HB	1:F:97:GLN:HG3	1.91	0.51
1:F:276:TYR:CD1	1:F:276:TYR:C	2.88	0.51
1:B:303:SER:C	1:B:304:ARG:O	2.49	0.51
1:D:266:PHE:CD2	1:D:272:GLY:HA2	2.45	0.51
1:F:106:ASN:HD21	1:F:127:HIS:CD2	2.29	0.51
1:A:298:PRO:HG2	1:A:322:ALA:HB2	1.92	0.51
1:B:114:TYR:HA	1:B:297:MET:CE	2.40	0.51
1:C:18:LYS:O	1:C:19:ILE:HD12	2.11	0.51
1:B:156:ALA:HA	1:B:160:GLU:O	2.11	0.51
1:F:4:LEU:HD21	1:F:192:PHE:CD2	2.46	0.51
1:E:68:LYS:HD3	1:E:70:TYR:CZ	2.45	0.51
1:F:28:ARG:HH12	1:F:306:CYS:H	1.58	0.51
1:A:217:VAL:O	1:A:221:VAL:HG23	2.11	0.51
1:B:182:ALA:HA	1:B:265:VAL:HG21	1.93	0.51
1:B:298:PRO:HG2	1:B:322:ALA:HB2	1.93	0.51
1:C:49:ASN:ND2	1:C:52:GLU:H	2.03	0.51
1:C:83:GLN:O	1:C:86:VAL:HG22	2.11	0.51
1:D:26:ASP:HB3	1:D:29:ILE:HD13	1.91	0.51
1:D:81:LEU:HD22	1:D:111:MET:HB3	1.91	0.51
1:D:165:ALA:HB1	1:D:181:ILE:CG2	2.41	0.51
1:E:12:VAL:HA	1:E:323:LEU:HD11	1.93	0.51
1:F:1:MET:CE	1:F:288:VAL:HG23	2.41	0.51
1:F:174:ASP:OD1	1:F:174:ASP:C	2.54	0.51
1:C:28:ARG:HH12	1:C:306:CYS:H	1.57	0.51
1:A:47:ILE:HD13	1:A:70:TYR:HB2	1.92	0.50
1:A:94:THR:OG1	1:A:97:GLN:HG3	2.11	0.50
1:C:280:GLN:HG2	1:C:281:ARG:HD2	1.92	0.50
1:D:78:MET:HE2	1:D:103:LEU:HD23	1.92	0.50
1:D:191:MET:HE2	1:D:192:PHE:CE1	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:304:ARG:H	1:E:304:ARG:HD3	1.76	0.50
1:C:171:ILE:HD12	1:C:171:ILE:H	1.74	0.50
1:C:264:PHE:CD1	1:C:264:PHE:N	2.78	0.50
1:F:1:MET:HB3	1:F:286:GLU:OE1	2.10	0.50
1:F:222:LYS:O	1:F:226:GLU:HB2	2.10	0.50
1:A:68:LYS:HB2	1:A:68:LYS:HZ3	1.77	0.50
1:B:63:THR:HB	1:C:61:ASN:CA	2.42	0.50
1:B:134:ARG:CB	1:B:135:PRO:CD	2.90	0.50
1:B:240:ASP:CB	1:B:247:VAL:HG11	2.42	0.50
1:D:1:MET:SD	1:D:4:LEU:HD22	2.50	0.50
1:E:18:LYS:O	1:E:19:ILE:HD12	2.12	0.50
1:F:94:THR:CB	1:F:97:GLN:HG3	2.41	0.50
1:A:134:ARG:CB	1:A:135:PRO:HD3	2.36	0.50
1:B:288:VAL:O	1:B:289:GLY:O	2.29	0.50
1:C:4:LEU:HD21	1:C:192:PHE:CD2	2.47	0.50
1:C:24:GLY:HA2	1:C:46:VAL:HG13	1.94	0.50
1:D:262:ASN:H	1:D:262:ASN:ND2	2.07	0.50
1:F:136:ALA:O	1:F:140:ILE:O	2.29	0.50
1:A:281:ARG:HB3	1:B:243:PHE:CD2	2.46	0.50
1:D:291:ILE:CD1	1:D:317:ILE:HD13	2.41	0.50
1:F:241:ALA:O	1:F:259:GLY:HA2	2.12	0.50
1:F:264:PHE:CD1	1:F:264:PHE:N	2.78	0.50
1:A:19:ILE:CG2	1:A:21:PHE:CE1	2.88	0.50
1:B:141:LYS:HB2	3:B:404:UVW:H1M3	1.92	0.50
1:E:156:ALA:HA	1:E:160:GLU:O	2.11	0.50
1:B:165:ALA:HB1	1:B:181:ILE:CG2	2.42	0.50
1:B:173:PRO:HB2	1:B:178:LEU:HD22	1.93	0.50
1:B:235:GLY:O	1:B:236:GLU:HB3	2.12	0.50
1:B:312:TYR:HE2	1:B:316:LEU:HD11	1.77	0.50
1:C:4:LEU:HD23	1:C:4:LEU:C	2.37	0.50
1:C:47:ILE:HD12	1:C:108:PHE:HD1	1.76	0.50
1:F:1:MET:HE3	1:F:288:VAL:HG23	1.94	0.50
1:F:94:THR:HG22	1:F:95:GLU:H	1.77	0.50
1:C:176:GLN:HG2	4:C:652:HOH:O	2.11	0.49
1:D:1:MET:HE3	1:D:288:VAL:CG2	2.32	0.49
1:B:65:GLY:HA3	1:C:61:ASN:HD21	1.76	0.49
1:E:134:ARG:HB3	1:E:135:PRO:CD	2.42	0.49
1:E:262:ASN:ND2	1:E:262:ASN:N	2.60	0.49
1:F:12:VAL:HA	1:F:323:LEU:HD11	1.94	0.49
1:F:298:PRO:HG2	1:F:322:ALA:HB2	1.93	0.49
1:A:47:ILE:HD12	1:A:108:PHE:CD1	2.46	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:68:LYS:HD3	1:A:70:TYR:CE2	2.47	0.49
1:C:227:LYS:O	1:C:229:PRO:HD3	2.12	0.49
1:F:4:LEU:HD21	1:F:192:PHE:CE2	2.48	0.49
1:F:33:VAL:HG22	1:F:44:PRO:HB2	1.92	0.49
1:C:104:ASP:OD1	1:C:106:ASN:N	2.45	0.49
1:D:303:SER:C	1:D:304:ARG:O	2.54	0.49
1:E:136:ALA:O	1:E:140:ILE:O	2.30	0.49
1:F:134:ARG:HG2	1:F:134:ARG:HH11	1.77	0.49
1:D:152:VAL:HG11	1:D:293:GLN:NE2	2.28	0.49
1:D:194:ILE:O	1:D:196:PRO:HD3	2.13	0.49
1:E:114:TYR:HA	1:E:297:MET:HE2	1.93	0.49
1:E:219:ASP:O	1:E:223:ILE:HG13	2.12	0.49
1:F:227:LYS:C	1:F:229:PRO:HD3	2.37	0.49
1:D:47:ILE:HD12	1:D:108:PHE:HD1	1.76	0.49
1:D:72:PRO:HG3	1:D:108:PHE:CD1	2.48	0.49
1:F:231:LEU:CD1	1:F:233:LEU:HB3	2.43	0.49
1:C:154:ILE:N	1:C:154:ILE:HD12	2.28	0.49
1:D:15:LYS:O	1:D:16:ASP:OD2	2.30	0.49
1:D:134:ARG:HG2	1:D:134:ARG:HH11	1.77	0.49
1:F:76:GLU:OE2	1:F:77:GLY:N	2.46	0.49
1:A:187:ASN:O	1:A:190:LYS:HB2	2.13	0.49
1:B:63:THR:HG22	1:B:65:GLY:H	1.77	0.49
1:C:227:LYS:C	1:C:229:PRO:HD3	2.37	0.49
1:D:154:ILE:HD13	1:D:291:ILE:HD12	1.95	0.49
1:D:219:ASP:O	1:D:223:ILE:HG13	2.13	0.49
1:F:244:VAL:HG22	1:F:247:VAL:H	1.78	0.49
1:B:28:ARG:HH12	1:B:306:CYS:H	1.61	0.49
1:C:94:THR:CB	1:C:97:GLN:HG3	2.42	0.49
1:C:136:ALA:O	1:C:140:ILE:O	2.31	0.49
1:D:48:GLY:HA3	1:D:53:ILE:HD11	1.93	0.49
1:D:207:GLY:O	1:D:208:SER:C	2.56	0.48
1:C:18:LYS:C	1:C:19:ILE:HD12	2.38	0.48
1:D:303:SER:O	1:D:304:ARG:C	2.56	0.48
1:E:207:GLY:O	1:E:208:SER:C	2.57	0.48
1:F:317:ILE:O	1:F:320:ALA:HB3	2.13	0.48
1:A:136:ALA:O	1:A:140:ILE:O	2.32	0.48
1:C:94:THR:OG1	1:C:97:GLN:HG3	2.13	0.48
1:C:270:GLU:OE2	1:D:267:PRO:HB2	2.13	0.48
1:E:68:LYS:HD3	1:E:70:TYR:CE2	2.48	0.48
1:B:134:ARG:HH11	1:B:134:ARG:HG2	1.78	0.48
1:D:7:THR:O	1:D:10:GLU:HB3	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:114:TYR:HA	1:E:297:MET:CE	2.43	0.48
1:E:262:ASN:HD22	1:E:262:ASN:N	2.04	0.48
1:B:114:TYR:HA	1:B:297:MET:HE2	1.96	0.48
1:D:4:LEU:HD11	1:D:154:ILE:HG21	1.96	0.48
1:D:114:TYR:HA	1:D:297:MET:HE1	1.94	0.48
1:F:197:ARG:N	1:F:262:ASN:HD21	2.11	0.48
1:A:152:VAL:HG23	1:A:153:PHE:N	2.28	0.48
1:A:156:ALA:HA	1:A:160:GLU:O	2.13	0.48
1:B:82:VAL:O	1:B:86:VAL:HG13	2.14	0.48
1:B:141:LYS:CB	3:B:404:UVW:H1M3	2.43	0.48
1:F:303:SER:O	1:F:304:ARG:C	2.56	0.48
1:A:114:TYR:HA	1:A:297:MET:CE	2.44	0.48
1:D:28:ARG:HH11	1:D:28:ARG:HG2	1.78	0.47
1:E:63:THR:HG22	1:E:65:GLY:N	2.29	0.47
1:E:105:GLU:HG2	4:E:639:HOH:O	2.12	0.47
1:E:197:ARG:N	1:E:262:ASN:HD21	2.11	0.47
1:F:47:ILE:HD13	1:F:70:TYR:HB2	1.95	0.47
1:C:81:LEU:HD22	1:C:111:MET:HB3	1.95	0.47
1:F:207:GLY:O	1:F:208:SER:C	2.57	0.47
1:B:264:PHE:CD1	1:B:264:PHE:N	2.82	0.47
1:B:309:GLU:O	1:B:309:GLU:HG2	2.14	0.47
1:D:274:ILE:O	1:D:278:ILE:HG13	2.14	0.47
1:E:61:ASN:C	1:F:63:THR:HB	2.39	0.47
1:A:314:LEU:HD23	1:A:314:LEU:HA	1.69	0.47
1:C:281:ARG:HB3	1:D:243:PHE:CD2	2.49	0.47
1:E:235:GLY:O	1:E:236:GLU:HB3	2.13	0.47
1:A:262:ASN:C	1:A:262:ASN:HD22	2.22	0.47
1:B:63:THR:HB	1:C:61:ASN:C	2.39	0.47
1:B:81:LEU:HD22	1:B:111:MET:HB3	1.97	0.47
1:C:1:MET:CE	1:C:288:VAL:HG23	2.45	0.47
1:C:68:LYS:HB2	1:C:68:LYS:NZ	2.30	0.47
1:C:231:LEU:CD1	1:C:233:LEU:HB3	2.45	0.47
1:C:235:GLY:O	1:C:236:GLU:HB3	2.15	0.47
1:D:182:ALA:HA	1:D:265:VAL:HG21	1.97	0.47
1:A:262:ASN:HD22	1:A:262:ASN:H	1.61	0.47
1:B:304:ARG:HD3	3:B:419:UVW:O1P	2.14	0.47
1:C:154:ILE:N	1:C:154:ILE:CD1	2.78	0.47
1:A:207:GLY:O	1:A:208:SER:C	2.58	0.47
1:D:72:PRO:HG3	1:D:108:PHE:CG	2.49	0.47
1:D:262:ASN:ND2	1:D:262:ASN:N	2.62	0.47
1:E:169:ILE:N	1:E:169:ILE:HD12	2.30	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:134:ARG:HB3	1:F:135:PRO:CD	2.45	0.47
1:C:173:PRO:HB2	1:C:178:LEU:HD22	1.97	0.47
1:E:312:TYR:HE2	1:E:316:LEU:HD11	1.80	0.46
1:F:140:ILE:HG22	1:F:296:ASN:HB2	1.97	0.46
1:C:68:LYS:HD3	1:C:70:TYR:CE2	2.50	0.46
1:D:12:VAL:HA	1:D:323:LEU:HD11	1.96	0.46
1:D:27:GLU:HB3	1:D:60:LEU:HD11	1.97	0.46
1:D:240:ASP:HB3	1:D:247:VAL:HG11	1.97	0.46
1:F:167:CYS:HB3	1:F:272:GLY:O	2.15	0.46
1:A:152:VAL:CG1	1:A:293:GLN:NE2	2.78	0.46
1:B:64:LEU:HD23	1:B:64:LEU:HA	1.72	0.46
1:C:166:ASP:HB3	4:C:673:HOH:O	2.16	0.46
1:C:171:ILE:HD12	1:C:171:ILE:N	2.30	0.46
1:D:174:ASP:OD1	1:D:174:ASP:C	2.59	0.46
1:E:64:LEU:HD23	1:E:64:LEU:HA	1.72	0.46
1:F:1:MET:O	1:F:2:ALA:C	2.58	0.46
1:F:237:PHE:CE1	1:F:257:ILE:HB	2.51	0.46
1:F:240:ASP:HB3	1:F:247:VAL:HG11	1.97	0.46
1:A:68:LYS:HB2	1:A:68:LYS:HZ2	1.80	0.46
1:B:165:ALA:HB1	1:B:181:ILE:HG22	1.97	0.46
1:B:201:LEU:HD11	1:B:264:PHE:HB3	1.98	0.46
1:D:307:ASN:HB2	1:D:310:ASP:OD2	2.16	0.46
1:F:49:ASN:ND2	1:F:49:ASN:C	2.73	0.46
1:B:88:ARG:HA	4:B:607:HOH:O	2.16	0.46
1:D:68:LYS:HB2	1:D:68:LYS:HZ2	1.80	0.46
1:B:169:ILE:N	1:B:169:ILE:HD12	2.31	0.46
1:B:227:LYS:C	1:B:229:PRO:HD3	2.41	0.46
1:D:33:VAL:HG22	1:D:44:PRO:HB2	1.96	0.46
1:B:227:LYS:O	1:B:229:PRO:HD3	2.15	0.46
1:D:154:ILE:HD12	1:D:154:ILE:N	2.30	0.46
1:D:280:GLN:HG2	1:D:281:ARG:HD2	1.97	0.46
1:F:95:GLU:HG2	1:F:99:ARG:HH22	1.80	0.46
1:A:47:ILE:HD12	1:A:108:PHE:HD1	1.79	0.46
1:C:231:LEU:HD12	1:C:233:LEU:CD2	2.30	0.46
1:D:58:LYS:HD2	4:D:612:HOH:O	2.16	0.46
1:E:187:ASN:O	1:E:190:LYS:HB2	2.16	0.46
1:B:1:MET:HB3	1:B:286:GLU:OE1	2.16	0.46
1:F:113:VAL:O	1:F:297:MET:HE2	2.16	0.46
1:A:243:PHE:CZ	1:B:282:LEU:HD21	2.50	0.46
1:B:314:LEU:HD23	1:B:314:LEU:HA	1.72	0.46
1:C:278:ILE:HG23	1:C:282:LEU:HD12	1.97	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:237:PHE:CE1	1:A:257:ILE:HB	2.50	0.45
1:D:49:ASN:HD21	1:D:51:ASN:HB2	1.81	0.45
1:E:68:LYS:HB2	1:E:68:LYS:HZ2	1.80	0.45
1:E:291:ILE:CD1	1:E:317:ILE:HD13	2.46	0.45
1:F:191:MET:HE2	1:F:192:PHE:CE1	2.51	0.45
1:B:94:THR:HB	1:B:97:GLN:HG3	1.97	0.45
1:B:262:ASN:C	1:B:262:ASN:ND2	2.75	0.45
1:D:204:SER:HB2	1:D:209:ALA:H	1.81	0.45
1:F:83:GLN:O	1:F:86:VAL:HG22	2.16	0.45
1:F:149:THR:HG23	1:F:293:GLN:O	2.16	0.45
1:A:174:ASP:OD1	1:A:174:ASP:C	2.58	0.45
1:A:205:THR:HA	1:A:236:GLU:O	2.16	0.45
1:C:95:GLU:HG2	1:C:99:ARG:HH22	1.81	0.45
1:C:134:ARG:HG2	1:C:134:ARG:HH11	1.82	0.45
1:E:314:LEU:HA	1:E:314:LEU:HD23	1.61	0.45
1:F:65:GLY:C	1:F:67:VAL:H	2.24	0.45
1:B:75:TYR:CE1	1:B:77:GLY:HA3	2.51	0.45
1:E:47:ILE:HD12	1:E:108:PHE:HD1	1.82	0.45
1:E:134:ARG:CB	1:E:135:PRO:CD	2.94	0.45
1:F:288:VAL:O	1:F:289:GLY:O	2.35	0.45
1:A:169:ILE:HG22	1:A:170:ASN:N	2.32	0.45
1:A:270:GLU:O	1:A:274:ILE:HG13	2.16	0.45
1:B:157:ARG:NH1	1:D:157:ARG:NH1	2.64	0.45
1:C:94:THR:HB	1:C:97:GLN:HG3	1.99	0.45
1:C:94:THR:HG22	1:C:95:GLU:H	1.81	0.45
1:C:28:ARG:HG2	1:C:28:ARG:NH1	2.32	0.45
1:E:94:THR:HB	1:E:97:GLN:HG3	1.99	0.45
3:E:415:UVW:O2	3:E:415:UVW:C1M	2.45	0.45
1:F:235:GLY:O	1:F:236:GLU:HB3	2.17	0.45
1:F:303:SER:C	1:F:304:ARG:O	2.57	0.45
1:E:22:PRO:HD2	1:E:123:SER:HB2	1.98	0.45
1:A:237:PHE:HE1	1:A:257:ILE:HB	1.81	0.45
1:A:281:ARG:HG3	1:A:281:ARG:HH11	1.81	0.45
1:A:309:GLU:HB2	4:A:659:HOH:O	2.16	0.45
1:D:107:TYR:CZ	1:D:135:PRO:HB3	2.51	0.45
1:E:174:ASP:C	1:E:174:ASP:OD1	2.60	0.45
1:E:266:PHE:CD2	1:E:272:GLY:HA2	2.52	0.45
1:B:3:ASP:OD1	1:D:246:SER:OG	2.34	0.45
1:C:288:VAL:O	1:C:289:GLY:O	2.35	0.45
1:D:197:ARG:HB2	1:D:262:ASN:ND2	2.32	0.45
1:C:283:GLY:HA2	1:D:283:GLY:HA2	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:78:MET:O	1:D:82:VAL:HG23	2.17	0.44
1:D:314:LEU:HD23	1:D:314:LEU:HA	1.68	0.44
1:F:141:LYS:H	1:F:296:ASN:HD22	1.64	0.44
1:F:291:ILE:CD1	1:F:317:ILE:HD13	2.46	0.44
1:A:185:SER:HA	1:A:293:GLN:HE22	1.82	0.44
1:E:191:MET:HE2	1:E:192:PHE:CE1	2.52	0.44
1:B:18:LYS:O	1:B:19:ILE:HD12	2.17	0.44
1:C:50:GLU:O	1:C:54:GLN:HB2	2.17	0.44
1:D:156:ALA:HA	1:D:160:GLU:O	2.17	0.44
1:A:28:ARG:HG2	1:A:28:ARG:NH1	2.32	0.44
1:A:82:VAL:O	1:A:86:VAL:HG13	2.18	0.44
1:A:86:VAL:CG2	1:A:87:GLU:N	2.81	0.44
1:A:226:GLU:C	1:A:226:GLU:OE2	2.61	0.44
1:B:88:ARG:NH2	3:B:404:UVW:O3P	2.36	0.44
1:B:207:GLY:O	1:B:208:SER:C	2.59	0.44
1:C:23:GLU:OE1	1:C:127:HIS:CD2	2.68	0.44
1:C:262:ASN:HD22	1:C:262:ASN:C	2.26	0.44
1:D:28:ARG:HH12	1:D:306:CYS:H	1.64	0.44
1:B:216:LYS:HE2	1:B:216:LYS:HB3	1.82	0.44
1:C:262:ASN:HD22	1:C:262:ASN:N	2.14	0.44
1:E:204:SER:HB2	1:E:209:ALA:H	1.83	0.44
1:F:314:LEU:HD23	1:F:314:LEU:HA	1.79	0.44
1:B:4:LEU:HD21	1:B:192:PHE:CE2	2.52	0.44
1:A:244:VAL:O	1:A:244:VAL:HG22	2.16	0.44
1:C:83:GLN:NE2	1:C:86:VAL:HG21	2.32	0.44
1:D:217:VAL:O	1:D:221:VAL:HG23	2.17	0.44
1:F:204:SER:HB2	1:F:208:SER:CB	2.32	0.44
1:A:26:ASP:OD2	1:A:28:ARG:HB2	2.18	0.44
1:F:76:GLU:OE2	1:F:76:GLU:CA	2.65	0.44
1:F:244:VAL:HG22	1:F:247:VAL:HG23	1.99	0.44
1:A:1:MET:HE3	1:A:288:VAL:HG23	2.00	0.44
1:A:113:VAL:O	1:A:297:MET:HE2	2.18	0.44
1:B:68:LYS:HB2	1:B:68:LYS:HZ2	1.83	0.44
1:C:134:ARG:HB3	1:C:135:PRO:CD	2.48	0.44
1:D:264:PHE:CD1	1:D:264:PHE:N	2.85	0.44
1:B:204:SER:HB2	1:B:209:ALA:H	1.82	0.43
1:C:156:ALA:HA	1:C:160:GLU:O	2.18	0.43
1:C:237:PHE:CE1	1:C:257:ILE:HB	2.53	0.43
1:D:291:ILE:HD13	1:D:317:ILE:HD13	2.00	0.43
1:E:28:ARG:HG2	1:E:28:ARG:NH1	2.31	0.43
1:E:240:ASP:CB	1:E:247:VAL:HG11	2.45	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:303:SER:O	1:A:304:ARG:C	2.62	0.43
1:B:68:LYS:HD3	1:B:70:TYR:CZ	2.53	0.43
1:C:152:VAL:HG11	1:C:293:GLN:NE2	2.33	0.43
1:D:288:VAL:O	1:D:288:VAL:HG12	2.17	0.43
1:E:262:ASN:ND2	1:E:263:VAL:HG23	2.33	0.43
1:F:28:ARG:HG2	1:F:28:ARG:NH1	2.31	0.43
1:A:64:LEU:HA	1:A:64:LEU:HD23	1.74	0.43
1:A:222:LYS:O	1:A:226:GLU:HB2	2.18	0.43
1:B:149:THR:HG23	1:B:293:GLN:O	2.18	0.43
1:D:1:MET:HB3	1:D:286:GLU:OE1	2.18	0.43
1:B:49:ASN:HD21	1:B:51:ASN:HB2	1.83	0.43
1:B:171:ILE:H	1:B:171:ILE:CD1	2.30	0.43
1:C:249:GLU:O	1:C:253:PRO:HD3	2.17	0.43
1:E:171:ILE:HD12	1:E:171:ILE:N	2.33	0.43
1:F:219:ASP:O	1:F:223:ILE:HG13	2.18	0.43
1:A:163:VAL:HG21	1:A:189:ALA:HB2	2.00	0.43
1:D:4:LEU:HD21	1:D:192:PHE:CE2	2.52	0.43
1:D:152:VAL:CG1	1:D:293:GLN:NE2	2.82	0.43
1:F:205:THR:HG23	1:F:237:PHE:HA	1.99	0.43
1:C:4:LEU:HD11	1:C:154:ILE:HG21	2.00	0.43
1:C:16:ASP:HB2	1:C:43:ASN:ND2	2.33	0.43
1:D:245:PRO:O	1:D:246:SER:C	2.61	0.43
1:E:177:ASP:O	1:E:181:ILE:HG13	2.18	0.43
1:A:36:LEU:HD23	1:A:312:TYR:CE1	2.54	0.43
1:A:61:ASN:O	1:D:63:THR:HB	2.18	0.43
1:A:235:GLY:O	1:A:236:GLU:HB3	2.19	0.43
1:A:278:ILE:O	1:A:282:LEU:HB2	2.19	0.43
1:B:68:LYS:HD3	1:B:70:TYR:CE2	2.54	0.43
1:C:167:CYS:HB3	1:C:272:GLY:O	2.19	0.43
1:C:221:VAL:HG21	1:C:235:GLY:CA	2.46	0.43
1:D:71:ASP:OD1	1:D:71:ASP:C	2.62	0.43
3:D:410:UVW:O2	3:D:410:UVW:C1M	2.46	0.43
1:F:134:ARG:CB	1:F:135:PRO:CD	2.96	0.43
1:F:251:LYS:O	1:F:252:ALA:HB2	2.19	0.43
1:A:71:ASP:O	1:A:72:PRO:C	2.61	0.43
1:A:217:VAL:O	1:A:220:ALA:HB3	2.19	0.43
1:B:47:ILE:HD12	1:B:108:PHE:CD1	2.54	0.43
1:E:232:THR:HG23	1:E:256:GLU:HB3	2.01	0.43
1:E:303:SER:O	1:E:304:ARG:C	2.61	0.43
1:C:64:LEU:HD23	1:C:64:LEU:HA	1.83	0.43
1:C:317:ILE:O	1:C:320:ALA:HB3	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:136:ALA:O	1:D:140:ILE:O	2.37	0.43
1:A:95:GLU:HG2	1:A:99:ARG:HH22	1.83	0.43
1:B:75:TYR:OH	1:B:117:LEU:HD22	2.19	0.43
1:B:206:LYS:HD3	1:B:252:ALA:HB1	2.01	0.43
1:D:94:THR:HG22	1:D:95:GLU:H	1.84	0.43
1:D:205:THR:O	1:D:206:LYS:C	2.62	0.43
1:B:188:THR:OG1	1:B:293:GLN:NE2	2.52	0.42
1:C:1:MET:HB3	1:C:286:GLU:OE1	2.19	0.42
1:F:198:VAL:CG2	1:F:231:LEU:HD11	2.49	0.42
1:F:262:ASN:HD22	1:F:262:ASN:C	2.27	0.42
1:A:266:PHE:CD2	1:A:272:GLY:HA2	2.55	0.42
1:B:154:ILE:N	1:B:154:ILE:HD12	2.34	0.42
1:B:312:TYR:CE2	1:B:316:LEU:HD11	2.54	0.42
1:D:240:ASP:CB	1:D:247:VAL:HG11	2.50	0.42
1:F:197:ARG:H	1:F:262:ASN:HD21	1.66	0.42
1:A:189:ALA:O	1:A:194:ILE:HB	2.20	0.42
1:B:14:GLY:C	1:B:16:ASP:H	2.28	0.42
1:C:191:MET:HE2	1:C:192:PHE:CE1	2.55	0.42
1:C:219:ASP:O	1:C:223:ILE:HG13	2.20	0.42
1:C:240:ASP:HB3	1:C:247:VAL:HG11	2.00	0.42
1:C:276:TYR:CD1	1:C:276:TYR:C	2.97	0.42
1:D:134:ARG:HB3	1:D:135:PRO:CD	2.49	0.42
1:B:288:VAL:O	1:B:288:VAL:HG12	2.18	0.42
1:B:110:THR:HG23	1:B:140:ILE:CD1	2.49	0.42
1:B:133:VAL:HG22	1:B:133:VAL:O	2.19	0.42
1:F:88:ARG:NH2	3:F:416:UVW:O3P	2.34	0.42
1:A:169:ILE:HD11	1:A:292:LEU:HD21	2.02	0.42
1:A:205:THR:O	1:A:206:LYS:C	2.63	0.42
1:B:163:VAL:O	1:B:164:PHE:HD2	2.03	0.42
1:C:189:ALA:O	1:C:194:ILE:HB	2.20	0.42
1:C:303:SER:O	1:C:304:ARG:C	2.63	0.42
1:E:63:THR:HB	1:F:61:ASN:HA	2.00	0.42
1:F:95:GLU:HG2	1:F:99:ARG:NH2	2.34	0.42
1:F:304:ARG:HD3	1:F:304:ARG:H	1.84	0.42
1:A:48:GLY:HA3	1:A:53:ILE:HD11	2.02	0.42
1:C:12:VAL:HA	1:C:323:LEU:HD11	2.01	0.42
1:C:165:ALA:HB1	1:C:181:ILE:CG2	2.49	0.42
1:E:18:LYS:C	1:E:19:ILE:HD12	2.44	0.42
1:E:154:ILE:HG12	1:E:192:PHE:CZ	2.55	0.42
1:A:240:ASP:HB2	1:A:247:VAL:HG11	2.01	0.42
1:C:36:LEU:HD23	1:C:312:TYR:CE1	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:195:GLU:OE2	1:C:196:PRO:HD2	2.19	0.42
1:D:64:LEU:HD23	1:D:64:LEU:HA	1.87	0.42
1:D:253:PRO:O	1:D:254:ASP:HB2	2.20	0.42
1:F:49:ASN:HD21	1:F:51:ASN:HB2	1.83	0.42
1:A:191:MET:HE2	1:A:192:PHE:CE1	2.54	0.42
1:C:253:PRO:O	1:C:254:ASP:HB2	2.19	0.42
1:E:217:VAL:O	1:E:220:ALA:HB3	2.19	0.42
1:E:292:LEU:HG	4:E:627:HOH:O	2.18	0.42
1:B:63:THR:HG22	1:C:61:ASN:OD1	2.20	0.42
1:C:85:PHE:CE2	1:C:89:ARG:HG3	2.55	0.42
1:C:226:GLU:C	1:C:226:GLU:OE2	2.63	0.42
1:D:262:ASN:HD22	1:D:262:ASN:N	2.01	0.42
1:B:186:ALA:HB1	1:B:231:LEU:HD21	2.02	0.41
1:B:246:SER:O	1:B:249:GLU:HG2	2.20	0.41
1:C:22:PRO:HA	1:C:47:ILE:HB	2.01	0.41
1:E:205:THR:O	1:E:206:LYS:C	2.63	0.41
1:A:154:ILE:HD12	1:A:154:ILE:N	2.35	0.41
1:D:196:PRO:O	1:D:197:ARG:HG3	2.20	0.41
1:E:153:PHE:CE2	1:E:276:TYR:CZ	3.08	0.41
1:E:291:ILE:HD11	1:E:317:ILE:HD13	2.01	0.41
1:A:89:ARG:O	1:A:90:LYS:C	2.63	0.41
1:A:186:ALA:HB1	1:A:231:LEU:HD21	2.00	0.41
1:B:63:THR:CG2	1:C:61:ASN:OD1	2.69	0.41
1:B:194:ILE:O	1:B:196:PRO:HD3	2.21	0.41
1:C:28:ARG:HH12	1:C:306:CYS:N	2.17	0.41
1:C:113:VAL:O	1:C:297:MET:HE2	2.20	0.41
1:C:288:VAL:O	1:C:288:VAL:HG12	2.20	0.41
1:A:177:ASP:O	1:A:181:ILE:HG13	2.20	0.41
1:A:18:LYS:C	1:A:19:ILE:HD12	2.45	0.41
1:C:262:ASN:C	1:C:262:ASN:ND2	2.79	0.41
1:C:267:PRO:HB2	1:D:270:GLU:OE2	2.21	0.41
1:D:86:VAL:HG12	1:D:98:ALA:HB2	2.02	0.41
1:E:5:PHE:HZ	1:E:288:VAL:CG2	2.34	0.41
1:E:104:ASP:O	1:E:105:GLU:C	2.64	0.41
1:F:83:GLN:NE2	1:F:86:VAL:HG21	2.36	0.41
1:A:49:ASN:ND2	1:A:52:GLU:H	2.13	0.41
1:A:322:ALA:O	1:A:323:LEU:C	2.64	0.41
1:D:165:ALA:HB1	1:D:181:ILE:HG22	2.02	0.41
1:E:33:VAL:HG22	1:E:44:PRO:CB	2.50	0.41
1:F:28:ARG:HH12	1:F:306:CYS:N	2.17	0.41
1:C:104:ASP:OD1	1:C:106:ASN:HB2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:194:ILE:O	1:C:196:PRO:HD3	2.20	0.41
1:C:204:SER:HB2	1:C:209:ALA:H	1.86	0.41
1:C:231:LEU:HD13	1:C:233:LEU:HB3	2.02	0.41
1:D:134:ARG:CB	1:D:135:PRO:CD	2.99	0.41
1:F:64:LEU:HA	1:F:64:LEU:HD23	1.81	0.41
1:F:262:ASN:ND2	1:F:262:ASN:C	2.77	0.41
1:B:266:PHE:CD2	1:B:272:GLY:HA2	2.56	0.41
1:C:244:VAL:HG22	1:C:244:VAL:O	2.19	0.41
1:C:251:LYS:O	1:C:252:ALA:HB2	2.21	0.41
1:D:95:GLU:HG2	1:D:99:ARG:HH22	1.85	0.41
1:F:1:MET:O	1:F:4:LEU:HB3	2.21	0.41
1:A:195:GLU:HA	1:A:196:PRO:HD3	1.91	0.41
1:A:243:PHE:HD2	1:B:281:ARG:HB3	1.86	0.41
1:A:262:ASN:HD22	1:A:262:ASN:N	2.17	0.41
1:B:47:ILE:CD1	1:B:70:TYR:HB2	2.48	0.41
1:B:58:LYS:HD2	4:B:649:HOH:O	2.21	0.41
1:B:61:ASN:HD21	1:C:65:GLY:HA3	1.86	0.41
1:B:121:LEU:HD23	1:B:122:VAL:N	2.36	0.41
1:C:168:ALA:C	1:C:169:ILE:HD12	2.46	0.41
1:D:49:ASN:ND2	1:D:52:GLU:H	2.04	0.41
1:E:19:ILE:CG2	1:E:21:PHE:CE1	2.98	0.41
1:E:26:ASP:OD2	1:E:28:ARG:HB2	2.21	0.41
1:E:195:GLU:HA	1:E:196:PRO:HD3	1.92	0.41
1:F:129:THR:O	1:F:129:THR:HG22	2.21	0.41
1:A:262:ASN:C	1:A:262:ASN:ND2	2.79	0.41
1:D:176:GLN:NE2	1:D:223:ILE:HD13	2.36	0.41
1:D:222:LYS:O	1:D:226:GLU:HB2	2.20	0.41
1:D:312:TYR:HE2	1:D:316:LEU:HD11	1.86	0.41
1:E:152:VAL:HG23	1:E:153:PHE:N	2.34	0.41
1:E:163:VAL:HG21	1:E:189:ALA:CB	2.48	0.41
1:E:226:GLU:C	1:E:226:GLU:OE2	2.64	0.41
1:E:244:VAL:HA	1:E:245:PRO:HD3	1.86	0.41
1:B:75:TYR:OH	1:B:117:LEU:CD2	2.69	0.40
1:B:198:VAL:HB	1:B:233:LEU:CB	2.37	0.40
1:D:173:PRO:HB2	1:D:178:LEU:HD22	2.03	0.40
1:E:5:PHE:HZ	1:E:288:VAL:HG22	1.87	0.40
1:F:149:THR:CG2	1:F:293:GLN:O	2.69	0.40
1:F:205:THR:O	1:F:206:LYS:C	2.64	0.40
1:A:134:ARG:CB	1:A:135:PRO:CD	2.99	0.40
1:B:276:TYR:CD1	1:B:276:TYR:C	2.99	0.40
1:C:244:VAL:HA	1:C:245:PRO:HD3	1.92	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:159:GLU:OE2	1:E:159:GLU:HA	2.21	0.40
1:F:167:CYS:HB3	1:F:272:GLY:C	2.47	0.40
1:F:171:ILE:H	1:F:171:ILE:CD1	2.31	0.40
1:C:244:VAL:CG2	1:C:247:VAL:HG23	2.52	0.40
1:C:291:ILE:HD13	1:C:317:ILE:HG21	2.04	0.40
1:D:95:GLU:HG2	1:D:99:ARG:NH2	2.35	0.40
1:E:312:TYR:CE2	1:E:316:LEU:HD11	2.56	0.40
1:C:240:ASP:CB	1:C:247:VAL:HG11	2.51	0.40
1:B:312:TYR:O	1:B:315:ALA:HB3	2.22	0.40
1:D:276:TYR:CD1	1:D:276:TYR:C	2.98	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	322/329 (98%)	292 (91%)	20 (6%)	10 (3%)	3	7
1	B	322/329 (98%)	283 (88%)	31 (10%)	8 (2%)	4	10
1	C	321/329 (98%)	289 (90%)	22 (7%)	10 (3%)	3	7
1	D	323/329 (98%)	288 (89%)	26 (8%)	9 (3%)	4	9
1	E	323/329 (98%)	284 (88%)	30 (9%)	9 (3%)	4	9
1	F	321/329 (98%)	280 (87%)	28 (9%)	13 (4%)	2	4
All	All	1932/1974 (98%)	1716 (89%)	157 (8%)	59 (3%)	3	7

All (59) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	65	GLY
1	A	144	GLU

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Mol	Chain	Res	Type
1	A	289	GLY
1	B	65	GLY
1	B	144	GLU
1	B	208	SER
1	B	289	GLY
1	C	65	GLY
1	C	143	LYS
1	C	144	GLU
1	C	206	LYS
1	C	208	SER
1	C	289	GLY
1	D	65	GLY
1	D	144	GLU
1	D	208	SER
1	D	289	GLY
1	E	90	LYS
1	E	144	GLU
1	E	206	LYS
1	E	208	SER
1	E	289	GLY
1	F	65	GLY
1	F	144	GLU
1	F	206	LYS
1	F	208	SER
1	F	289	GLY
1	A	90	LYS
1	A	143	LYS
1	A	206	LYS
1	A	208	SER
1	B	143	LYS
1	B	206	LYS
1	C	236	GLU
1	D	143	LYS
1	D	206	LYS
1	E	65	GLY
1	E	166	ASP
1	E	236	GLU
1	F	143	LYS
1	F	166	ASP
1	A	166	ASP
1	A	236	GLU
1	C	16	ASP

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Mol	Chain	Res	Type
1	C	166	ASP
1	D	166	ASP
1	F	2	ALA
1	F	90	LYS
1	F	236	GLU
1	B	16	ASP
1	B	166	ASP
1	C	90	LYS
1	E	16	ASP
1	A	16	ASP
1	D	236	GLU
1	F	75	TYR
1	F	139	ILE
1	D	139	ILE
1	F	134	ARG

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	257/257 (100%)	231 (90%)	26 (10%)	7	15
1	B	257/257 (100%)	230 (90%)	27 (10%)	6	13
1	C	257/257 (100%)	232 (90%)	25 (10%)	8	17
1	D	257/257 (100%)	234 (91%)	23 (9%)	9	20
1	E	258/257 (100%)	232 (90%)	26 (10%)	7	15
1	F	257/257 (100%)	229 (89%)	28 (11%)	6	12
All	All	1543/1542 (100%)	1388 (90%)	155 (10%)	7	16

All (155) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	18	LYS
1	A	20	VAL
1	A	25	LEU

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Mol	Chain	Res	Type
1	A	33	VAL
1	A	46	VAL
1	A	63	THR
1	A	68	LYS
1	A	78	MET
1	A	86	VAL
1	A	96	GLU
1	A	117	LEU
1	A	134	ARG
1	A	149	THR
1	A	152	VAL
1	A	159	GLU
1	A	215	GLU
1	A	230	GLU
1	A	231	LEU
1	A	233	LEU
1	A	244	VAL
1	A	262	ASN
1	A	264	PHE
1	A	276	TYR
1	A	297	MET
1	A	304	ARG
1	A	314	LEU
1	B	18	LYS
1	B	20	VAL
1	B	25	LEU
1	B	33	VAL
1	B	46	VAL
1	B	63	THR
1	B	68	LYS
1	B	78	MET
1	B	80	ASP
1	B	96	GLU
1	B	134	ARG
1	B	149	THR
1	B	150	SER
1	B	152	VAL
1	B	159	GLU
1	B	178	LEU
1	B	215	GLU
1	B	226	GLU
1	B	230	GLU

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Mol	Chain	Res	Type
1	B	231	LEU
1	B	233	LEU
1	B	244	VAL
1	B	262	ASN
1	B	276	TYR
1	B	297	MET
1	B	304	ARG
1	B	314	LEU
1	C	3	ASP
1	C	18	LYS
1	C	20	VAL
1	C	25	LEU
1	C	27	GLU
1	C	33	VAL
1	C	68	LYS
1	C	86	VAL
1	C	96	GLU
1	C	117	LEU
1	C	134	ARG
1	C	149	THR
1	C	152	VAL
1	C	159	GLU
1	C	167	CYS
1	C	230	GLU
1	C	231	LEU
1	C	233	LEU
1	C	244	VAL
1	C	262	ASN
1	C	264	PHE
1	C	276	TYR
1	C	297	MET
1	C	304	ARG
1	C	314	LEU
1	D	18	LYS
1	D	20	VAL
1	D	25	LEU
1	D	33	VAL
1	D	46	VAL
1	D	63	THR
1	D	68	LYS
1	D	96	GLU
1	D	134	ARG

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Mol	Chain	Res	Type
1	D	149	THR
1	D	150	SER
1	D	152	VAL
1	D	178	LEU
1	D	215	GLU
1	D	226	GLU
1	D	230	GLU
1	D	233	LEU
1	D	244	VAL
1	D	262	ASN
1	D	288	VAL
1	D	297	MET
1	D	304	ARG
1	D	314	LEU
1	E	18	LYS
1	E	20	VAL
1	E	25	LEU
1	E	27	GLU
1	E	33	VAL
1	E	68	LYS
1	E	78	MET
1	E	86	VAL
1	E	96	GLU
1	E	104	ASP
1	E	117	LEU
1	E	134	ARG
1	E	149	THR
1	E	152	VAL
1	E	178	LEU
1	E	226	GLU
1	E	230	GLU
1	E	231	LEU
1	E	233	LEU
1	E	244	VAL
1	E	262	ASN
1	E	264	PHE
1	E	276	TYR
1	E	297	MET
1	E	304	ARG
1	E	314	LEU
1	F	3	ASP
1	F	18	LYS

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Mol	Chain	Res	Type
1	F	20	VAL
1	F	25	LEU
1	F	27	GLU
1	F	33	VAL
1	F	46	VAL
1	F	49	ASN
1	F	63	THR
1	F	68	LYS
1	F	76	GLU
1	F	86	VAL
1	F	96	GLU
1	F	117	LEU
1	F	149	THR
1	F	152	VAL
1	F	167	CYS
1	F	171	ILE
1	F	226	GLU
1	F	230	GLU
1	F	233	LEU
1	F	244	VAL
1	F	262	ASN
1	F	264	PHE
1	F	276	TYR
1	F	297	MET
1	F	304	ARG
1	F	314	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (59) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	43	ASN
1	A	49	ASN
1	A	73	HIS
1	A	83	GLN
1	A	127	HIS
1	A	161	GLN
1	A	262	ASN
1	A	284	ASN
1	A	293	GLN
1	B	43	ASN
1	B	49	ASN
1	B	83	GLN

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Mol	Chain	Res	Type
1	B	127	HIS
1	B	161	GLN
1	B	262	ASN
1	B	280	GLN
1	B	293	GLN
1	B	313	ASN
1	C	43	ASN
1	C	49	ASN
1	C	54	GLN
1	C	83	GLN
1	C	127	HIS
1	C	161	GLN
1	C	176	GLN
1	C	262	ASN
1	C	284	ASN
1	C	293	GLN
1	D	43	ASN
1	D	49	ASN
1	D	54	GLN
1	D	73	HIS
1	D	83	GLN
1	D	106	ASN
1	D	127	HIS
1	D	161	GLN
1	D	176	GLN
1	D	262	ASN
1	D	280	GLN
1	D	293	GLN
1	E	43	ASN
1	E	49	ASN
1	E	83	GLN
1	E	127	HIS
1	E	161	GLN
1	E	262	ASN
1	E	280	GLN
1	E	284	ASN
1	E	293	GLN
1	F	9	GLN
1	F	43	ASN
1	F	49	ASN
1	F	54	GLN
1	F	83	GLN

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Mol	Chain	Res	Type
1	F	127	HIS
1	F	161	GLN
1	F	176	GLN
1	F	262	ASN
1	F	293	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

26 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$
3	UVW	A	401	-	6,7,7	3.28	3 (50%)	7,10,10	1.58	1 (14%)
3	UVW	B	419	-	6,7,7	3.49	4 (66%)	7,10,10	1.98	1 (14%)
3	UVW	C	420	-	6,7,7	3.20	3 (50%)	7,10,10	2.04	1 (14%)
2	SO4	E	503	-	4,4,4	2.15	1 (25%)	6,6,6	0.82	0
3	UVW	F	423	-	6,7,7	3.42	4 (66%)	7,10,10	1.89	1 (14%)
2	SO4	A	501	-	4,4,4	2.13	1 (25%)	6,6,6	0.81	0
3	UVW	A	402	-	6,7,7	3.31	4 (66%)	7,10,10	1.68	1 (14%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	UVW	A	406	-	6,7,7	3.07	4 (66%)	7,10,10	1.92	1 (14%)
3	UVW	C	408	-	6,7,7	3.21	3 (50%)	7,10,10	1.68	1 (14%)
3	UVW	D	409	-	6,7,7	3.30	3 (50%)	7,10,10	1.70	1 (14%)
3	UVW	D	421	-	6,7,7	3.48	4 (66%)	7,10,10	1.89	1 (14%)
3	UVW	F	416	-	6,7,7	3.24	3 (50%)	7,10,10	1.64	1 (14%)
3	UVW	B	403	-	6,7,7	3.12	3 (50%)	7,10,10	1.78	1 (14%)
3	UVW	B	404	-	6,7,7	3.52	3 (50%)	7,10,10	1.70	1 (14%)
3	UVW	C	412	-	6,7,7	3.34	3 (50%)	7,10,10	1.79	1 (14%)
3	UVW	E	414	-	6,7,7	3.41	3 (50%)	7,10,10	1.83	1 (14%)
3	UVW	D	410	-	6,7,7	3.20	3 (50%)	7,10,10	1.66	1 (14%)
3	UVW	E	413	-	6,7,7	3.20	4 (66%)	7,10,10	1.54	1 (14%)
2	SO4	C	502	-	4,4,4	2.17	1 (25%)	6,6,6	0.71	0
3	UVW	B	405	-	6,7,7	3.28	3 (50%)	7,10,10	1.87	1 (14%)
3	UVW	D	411	-	6,7,7	3.47	3 (50%)	7,10,10	1.77	1 (14%)
3	UVW	E	422	-	6,7,7	3.46	4 (66%)	7,10,10	1.94	1 (14%)
3	UVW	A	418	-	6,7,7	3.57	3 (50%)	7,10,10	1.55	1 (14%)
3	UVW	E	415	-	6,7,7	3.28	4 (66%)	7,10,10	1.70	1 (14%)
3	UVW	C	407	-	6,7,7	3.39	3 (50%)	7,10,10	1.69	1 (14%)
3	UVW	F	417	-	6,7,7	3.42	3 (50%)	7,10,10	1.83	1 (14%)

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
3	UVW	A	401	-	-	0/3/5/5	-
3	UVW	B	419	-	-	0/3/5/5	-
3	UVW	C	420	-	-	2/3/5/5	-
3	UVW	F	423	-	-	0/3/5/5	-
3	UVW	A	402	-	-	0/3/5/5	-
3	UVW	A	406	-	-	1/3/5/5	-
3	UVW	C	408	-	-	0/3/5/5	-
3	UVW	D	409	-	-	0/3/5/5	-
3	UVW	D	421	-	-	0/3/5/5	-
3	UVW	F	416	-	-	0/3/5/5	-
3	UVW	B	403	-	-	0/3/5/5	-
3	UVW	B	404	-	-	0/3/5/5	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	UVW	C	412	-	-	0/3/5/5	-
3	UVW	E	414	-	-	0/3/5/5	-
3	UVW	D	410	-	-	0/3/5/5	-
3	UVW	C	407	-	-	3/3/5/5	-
3	UVW	E	413	-	-	0/3/5/5	-
3	UVW	B	405	-	-	0/3/5/5	-
3	UVW	D	411	-	-	1/3/5/5	-
3	UVW	E	422	-	-	0/3/5/5	-
3	UVW	A	418	-	-	0/3/5/5	-
3	UVW	E	415	-	-	0/3/5/5	-
3	UVW	F	417	-	-	1/3/5/5	-

All (80) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	404	UVW	C1M-C1	-7.08	1.26	1.49
3	D	411	UVW	C1M-C1	-6.94	1.26	1.49
3	A	401	UVW	C1M-C1	-6.92	1.26	1.49
3	F	417	UVW	C1M-C1	-6.91	1.26	1.49
3	F	423	UVW	C1M-C1	-6.85	1.26	1.49
3	E	414	UVW	C1M-C1	-6.81	1.27	1.49
3	B	405	UVW	C1M-C1	-6.79	1.27	1.49
3	E	415	UVW	C1M-C1	-6.77	1.27	1.49
3	D	410	UVW	C1M-C1	-6.74	1.27	1.49
3	E	413	UVW	C1M-C1	-6.67	1.27	1.49
3	C	408	UVW	C1M-C1	-6.67	1.27	1.49
3	D	421	UVW	C1M-C1	-6.66	1.27	1.49
3	D	409	UVW	C1M-C1	-6.63	1.27	1.49
3	C	407	UVW	C1M-C1	-6.57	1.27	1.49
3	A	402	UVW	C1M-C1	-6.55	1.27	1.49
3	B	403	UVW	C1M-C1	-6.53	1.27	1.49
3	C	412	UVW	C1M-C1	-6.50	1.28	1.49
3	B	419	UVW	C1M-C1	-6.46	1.28	1.49
3	A	418	UVW	C1M-C1	-6.36	1.28	1.49
3	F	416	UVW	C1M-C1	-6.31	1.28	1.49
3	C	420	UVW	C1M-C1	-6.30	1.28	1.49
3	A	406	UVW	C1M-C1	-6.20	1.29	1.49
3	E	422	UVW	C1M-C1	-6.11	1.29	1.49
3	A	418	UVW	P-O2	-4.79	1.51	1.59
2	C	502	SO4	O1-S	4.01	1.68	1.44
2	A	501	SO4	O1-S	3.96	1.68	1.44
2	E	503	SO4	O1-S	3.93	1.68	1.44

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	419	UVW	P-O2	-3.92	1.52	1.59
3	E	422	UVW	P-O2	-3.91	1.52	1.59
3	C	407	UVW	P-O2	-3.86	1.52	1.59
3	B	404	UVW	P-O2	-3.61	1.53	1.59
3	E	414	UVW	P-O2	-3.55	1.53	1.59
3	D	421	UVW	P-O2	-3.54	1.53	1.59
3	C	412	UVW	P-O2	-3.50	1.53	1.59
3	D	411	UVW	P-O2	-3.36	1.53	1.59
3	F	416	UVW	P-O2	-3.31	1.53	1.59
3	A	402	UVW	P-O2	-3.17	1.53	1.59
3	F	417	UVW	P-O2	-3.13	1.54	1.59
3	D	409	UVW	P-O2	-3.09	1.54	1.59
3	C	420	UVW	P-O2	-3.00	1.54	1.59
3	F	423	UVW	P-O2	-2.99	1.54	1.59
3	B	419	UVW	P-O2P	-2.81	1.44	1.54
3	D	421	UVW	P-O2P	-2.76	1.44	1.54
3	B	403	UVW	O1-C1	2.75	1.30	1.21
3	E	422	UVW	P-O1P	-2.73	1.42	1.50
3	B	405	UVW	P-O2	-2.73	1.54	1.59
3	A	401	UVW	P-O2	-2.73	1.54	1.59
3	E	422	UVW	P-O2P	-2.70	1.44	1.54
3	C	408	UVW	P-O3P	2.67	1.64	1.54
3	B	403	UVW	P-O3P	2.64	1.64	1.54
3	D	411	UVW	P-O2P	-2.60	1.45	1.54
3	E	415	UVW	P-O2	-2.59	1.55	1.59
3	A	406	UVW	P-O3P	2.55	1.64	1.54
3	A	406	UVW	O1-C1	2.50	1.30	1.21
3	F	416	UVW	O1-C1	2.49	1.30	1.21
3	F	417	UVW	O1-C1	2.40	1.29	1.21
3	F	423	UVW	P-O2P	-2.39	1.45	1.54
3	D	410	UVW	O1-C1	2.38	1.29	1.21
3	C	408	UVW	O1-C1	2.33	1.29	1.21
3	A	418	UVW	P-O2P	-2.31	1.46	1.54
3	C	420	UVW	P-O2P	-2.27	1.46	1.54
3	B	404	UVW	O1-C1	2.26	1.29	1.21
3	C	412	UVW	O1-C1	2.26	1.29	1.21
3	E	413	UVW	P-O2	-2.25	1.55	1.59
3	A	402	UVW	O1-C1	2.24	1.29	1.21
3	D	410	UVW	P-O3P	2.23	1.63	1.54
3	D	409	UVW	O1-C1	2.21	1.29	1.21
3	E	413	UVW	O1-C1	2.18	1.28	1.21
3	C	407	UVW	O1-C1	2.18	1.28	1.21

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	401	UVW	O1-C1	2.16	1.28	1.21
3	E	415	UVW	O1-C1	2.13	1.28	1.21
3	E	415	UVW	P-O3P	2.10	1.62	1.54
3	E	413	UVW	P-O3P	2.10	1.62	1.54
3	D	421	UVW	P-O1P	-2.10	1.43	1.50
3	B	419	UVW	P-O1P	-2.07	1.44	1.50
3	F	423	UVW	P-O1P	-2.04	1.44	1.50
3	A	402	UVW	P-O3P	2.03	1.62	1.54
3	E	414	UVW	P-O2P	-2.01	1.47	1.54
3	B	405	UVW	P-O2P	-2.01	1.47	1.54
3	A	406	UVW	P-O2P	-2.00	1.47	1.54

All (23) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	420	UVW	O3P-P-O2	4.88	119.52	105.32
3	B	419	UVW	O3P-P-O2	4.49	118.41	105.32
3	E	422	UVW	O3P-P-O2	4.44	118.24	105.32
3	D	421	UVW	O3P-P-O2	4.40	118.14	105.32
3	F	417	UVW	O3P-P-O2	4.28	117.79	105.32
3	F	423	UVW	O3P-P-O2	4.25	117.70	105.32
3	B	405	UVW	O3P-P-O2	4.25	117.70	105.32
3	A	406	UVW	O3P-P-O2	4.24	117.66	105.32
3	C	412	UVW	O3P-P-O2	4.19	117.51	105.32
3	B	403	UVW	O3P-P-O2	4.09	117.23	105.32
3	B	404	UVW	O3P-P-O2	3.99	116.93	105.32
3	C	407	UVW	O3P-P-O2	3.94	116.78	105.32
3	E	414	UVW	O3P-P-O2	3.93	116.78	105.32
3	D	409	UVW	O3P-P-O2	3.84	116.51	105.32
3	E	415	UVW	O3P-P-O2	3.80	116.40	105.32
3	D	411	UVW	O3P-P-O2	3.79	116.36	105.32
3	C	408	UVW	O3P-P-O2	3.78	116.33	105.32
3	F	416	UVW	O3P-P-O2	3.67	116.00	105.32
3	A	401	UVW	O3P-P-O2	3.62	115.86	105.32
3	D	410	UVW	O3P-P-O2	3.60	115.80	105.32
3	A	402	UVW	O3P-P-O2	3.58	115.73	105.32
3	A	418	UVW	O3P-P-O2	3.34	115.05	105.32
3	E	413	UVW	O3P-P-O2	3.22	114.68	105.32

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	F	417	UVW	C1-O2-P-O1P
3	C	407	UVW	C1-O2-P-O2P
3	C	420	UVW	C1-O2-P-O3P
3	C	407	UVW	C1-O2-P-O3P
3	A	406	UVW	C1-O2-P-O1P
3	C	407	UVW	C1-O2-P-O1P
3	C	420	UVW	C1-O2-P-O1P
3	D	411	UVW	C1-O2-P-O1P

There are no ring outliers.

12 monomers are involved in 27 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	401	UVW	3	0
3	B	419	UVW	1	0
3	C	420	UVW	2	0
3	D	421	UVW	2	0
3	F	416	UVW	1	0
3	B	403	UVW	2	0
3	B	404	UVW	3	0
3	D	410	UVW	4	0
3	E	413	UVW	3	0
3	E	422	UVW	2	0
3	E	415	UVW	3	0
3	C	407	UVW	1	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [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	324/329 (98%)	-0.54	0 100 100	13, 37, 67, 89	0
1	B	324/329 (98%)	-0.32	1 (0%) 90 89	19, 43, 74, 97	0
1	C	323/329 (98%)	-0.49	0 100 100	9, 37, 71, 95	0
1	D	325/329 (98%)	-0.31	0 100 100	15, 43, 78, 105	0
1	E	324/329 (98%)	-0.33	2 (0%) 85 82	12, 39, 72, 93	1 (0%)
1	F	323/329 (98%)	0.34	3 (0%) 81 76	24, 65, 95, 108	0
All	All	1943/1974 (98%)	-0.28	6 (0%) 90 89	9, 43, 82, 108	1 (0%)

All (6) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	202	SER	2.7
1	F	271	ALA	2.5
1	F	209	ALA	2.4
1	B	16	ASP	2.4
1	E	251	LYS	2.3
1	E	209	ALA	2.2

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 ⓘ

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
3	UVW	C	420	8/8	0.67	0.18	40,50,62,75	8
3	UVW	E	415	8/8	0.80	0.15	15,33,45,52	8
3	UVW	E	413	8/8	0.81	0.14	28,48,58,60	8
3	UVW	B	419	8/8	0.81	0.17	27,45,49,55	8
3	UVW	F	423	8/8	0.81	0.15	19,36,49,57	8
3	UVW	A	418	8/8	0.82	0.13	37,44,55,63	8
3	UVW	A	406	8/8	0.82	0.13	25,42,52,57	8
3	UVW	D	409	8/8	0.83	0.14	27,36,46,49	8
3	UVW	C	412	8/8	0.85	0.12	22,35,41,50	8
3	UVW	A	401	8/8	0.86	0.12	37,42,47,50	8
3	UVW	E	422	8/8	0.87	0.17	34,43,58,58	8
2	SO4	C	502	5/5	0.88	0.09	42,45,47,49	5
3	UVW	B	403	8/8	0.88	0.11	38,52,58,68	8
3	UVW	D	410	8/8	0.88	0.11	31,41,48,48	8
3	UVW	F	417	8/8	0.88	0.11	17,29,43,45	8
3	UVW	D	421	8/8	0.88	0.15	8,39,47,54	8
3	UVW	B	404	8/8	0.89	0.10	36,41,49,50	8
3	UVW	A	402	8/8	0.89	0.09	24,37,40,46	8
3	UVW	C	407	8/8	0.89	0.09	23,35,41,46	8
3	UVW	D	411	8/8	0.89	0.10	28,35,43,44	8
2	SO4	E	503	5/5	0.89	0.09	33,34,46,53	5
3	UVW	F	416	8/8	0.91	0.10	39,44,49,51	8
3	UVW	E	414	8/8	0.92	0.09	21,32,49,50	8
2	SO4	A	501	5/5	0.92	0.08	39,39,48,51	5
3	UVW	C	408	8/8	0.93	0.07	33,43,53,55	8
3	UVW	B	405	8/8	0.94	0.07	17,33,49,50	8

6.5 Other polymers ⓘ

There are no such residues in this entry.