Full wwPDB X-ray Structure Validation Report (i)

Nov 13, 2023 – 03:03 PM JST

PDB ID	:	5XEX
Title	:	Crystal structure of S.aureus PNPase catalytic domain
Authors	:	Wang, X.; Zhang, X.; Zang, J.
Deposited on	:	2017-04-06
Resolution	:	2.20 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 (i) 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 (i)) were used in the production of this report:

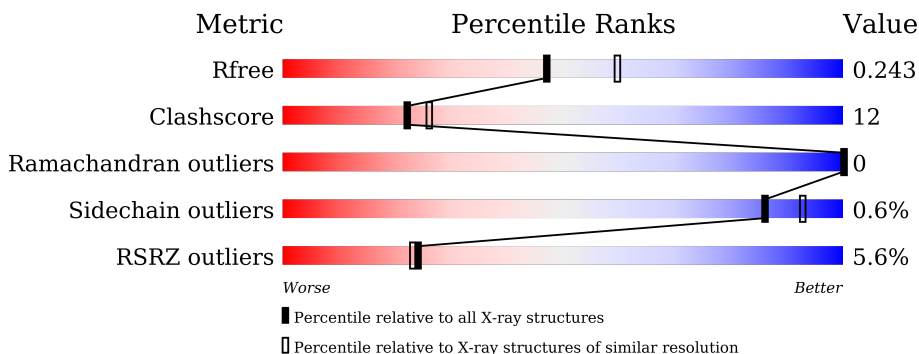|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 2.20 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	Percentile Ranks	Value
Rfree		0.243
Clashscore		12
Ramachandran outliers		0
Sidechain outliers		0.6%
RSRZ outliers		5.6%

Worse   Better

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	4898 (2.20-2.20)
Clashscore	141614	5594 (2.20-2.20)
Ramachandran outliers	138981	5503 (2.20-2.20)
Sidechain outliers	138945	5504 (2.20-2.20)
RSRZ outliers	127900	4800 (2.20-2.20)

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 <=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	559	3% 69% 21% • 9%
1	B	559	3% 70% 21% • 9%
1	C	559	4% 70% 21% • 9%
1	D	559	6% 71% 21% • 8%
1	E	559	8% 70% 21% • 9%
1	F	559	7% 69% 21% • 8%

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
4	PPV	A	603[A]	-	-	X	-
4	PPV	A	603[B]	-	-	X	-
4	PPV	B	603[A]	-	-	X	-
4	PPV	C	603[A]	-	-	X	-
4	PPV	D	603[A]	-	-	X	-
4	PPV	E	603[A]	-	-	X	-
4	PPV	F	603[A]	-	-	X	-

2 Entry composition ⓘ

There are 5 unique types of molecules in this entry. The entry contains 24313 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 Polyribonucleotide nucleotidyltransferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	511	Total	C	N	O	S	0	0	0
			3976	2497	684	777	18			
1	B	510	Total	C	N	O	S	0	0	0
			3970	2493	682	777	18			
1	C	511	Total	C	N	O	S	0	0	0
			3974	2495	683	778	18			
1	D	515	Total	C	N	O	S	0	0	0
			4007	2515	688	786	18			
1	E	511	Total	C	N	O	S	0	0	0
			3971	2493	683	777	18			
1	F	513	Total	C	N	O	S	0	0	0
			3987	2503	686	780	18			

There are 36 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	554	HIS	-	expression tag	UNP Q2FZ20
A	555	HIS	-	expression tag	UNP Q2FZ20
A	556	HIS	-	expression tag	UNP Q2FZ20
A	557	HIS	-	expression tag	UNP Q2FZ20
A	558	HIS	-	expression tag	UNP Q2FZ20
A	559	HIS	-	expression tag	UNP Q2FZ20
B	554	HIS	-	expression tag	UNP Q2FZ20
B	555	HIS	-	expression tag	UNP Q2FZ20
B	556	HIS	-	expression tag	UNP Q2FZ20
B	557	HIS	-	expression tag	UNP Q2FZ20
B	558	HIS	-	expression tag	UNP Q2FZ20
B	559	HIS	-	expression tag	UNP Q2FZ20
C	554	HIS	-	expression tag	UNP Q2FZ20
C	555	HIS	-	expression tag	UNP Q2FZ20
C	556	HIS	-	expression tag	UNP Q2FZ20
C	557	HIS	-	expression tag	UNP Q2FZ20
C	558	HIS	-	expression tag	UNP Q2FZ20

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Chain	Residue	Modelled	Actual	Comment	Reference
C	559	HIS	-	expression tag	UNP Q2FZ20
D	554	HIS	-	expression tag	UNP Q2FZ20
D	555	HIS	-	expression tag	UNP Q2FZ20
D	556	HIS	-	expression tag	UNP Q2FZ20
D	557	HIS	-	expression tag	UNP Q2FZ20
D	558	HIS	-	expression tag	UNP Q2FZ20
D	559	HIS	-	expression tag	UNP Q2FZ20
E	554	HIS	-	expression tag	UNP Q2FZ20
E	555	HIS	-	expression tag	UNP Q2FZ20
E	556	HIS	-	expression tag	UNP Q2FZ20
E	557	HIS	-	expression tag	UNP Q2FZ20
E	558	HIS	-	expression tag	UNP Q2FZ20
E	559	HIS	-	expression tag	UNP Q2FZ20
F	554	HIS	-	expression tag	UNP Q2FZ20
F	555	HIS	-	expression tag	UNP Q2FZ20
F	556	HIS	-	expression tag	UNP Q2FZ20
F	557	HIS	-	expression tag	UNP Q2FZ20
F	558	HIS	-	expression tag	UNP Q2FZ20
F	559	HIS	-	expression tag	UNP Q2FZ20

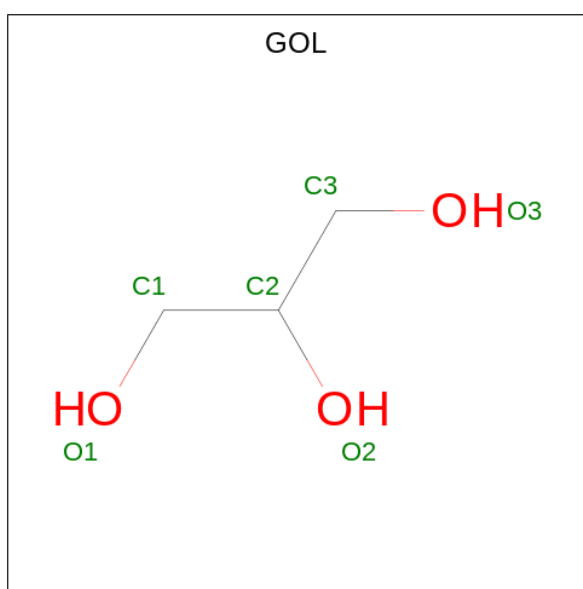- Molecule 2 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: $C_4H_{10}O_3$).
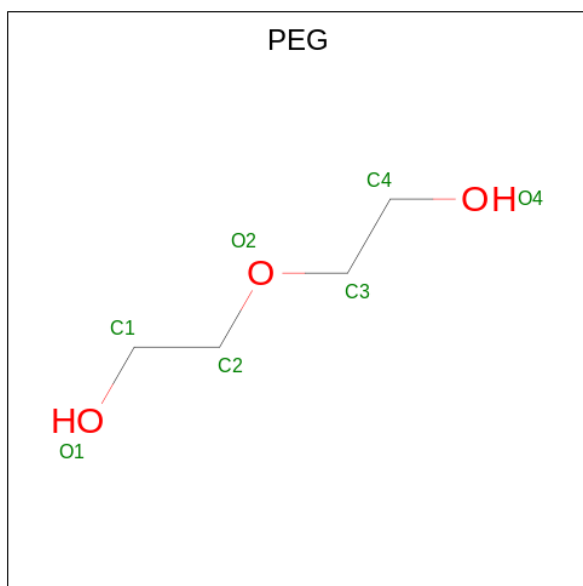
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total 7	C 4	O 3	0	0
2	B	1	Total 7	C 4	O 3	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	C	1	Total 7	C 4	O 3	0	0
2	D	1	Total 7	C 4	O 3	0	0
2	E	1	Total 7	C 4	O 3	0	0
2	F	1	Total 7	C 4	O 3	0	0

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).

GOL

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total 6	C 3	O 3	0	0
3	B	1	Total 6	C 3	O 3	0	0
3	C	1	Total 6	C 3	O 3	0	0
3	D	1	Total 6	C 3	O 3	0	0
3	E	1	Total 6	C 3	O 3	0	0
3	F	1	Total 6	C 3	O 3	0	0

- Molecule 4 is PYROPHOSPHATE (three-letter code: PPV) (formula: $H_4O_7P_2$).

PPV
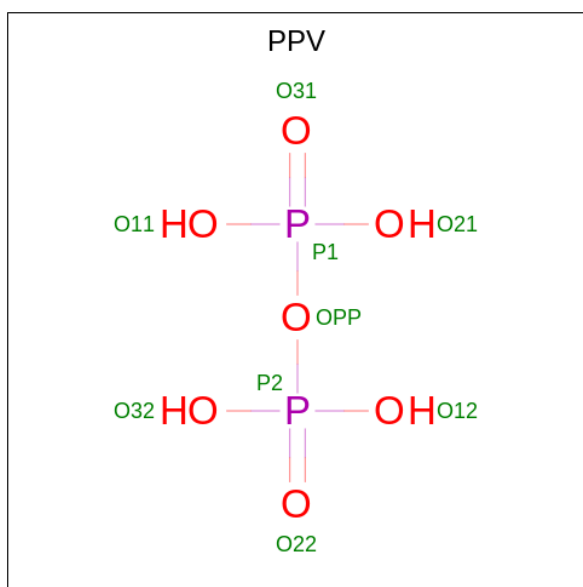
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total 18	O 14	P 4	0	1
4	B	1	Total 18	O 14	P 4	0	1
4	C	1	Total 18	O 14	P 4	0	1
4	D	1	Total 18	O 14	P 4	0	1
4	E	1	Total 18	O 14	P 4	0	1
4	F	1	Total 18	O 14	P 4	0	1

- Molecule 5 is water.

| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	29	Total 29	O 29	0	0
5	B	17	Total 17	O 17	0	0
5	C	44	Total 44	O 44	0	0
5	D	42	Total 42	O 42	0	0
5	E	51	Total 51	O 51	0	0
5	F	59	Total 59	O 59	0	0

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: Polyribonucleotide nucleotidyltransferase
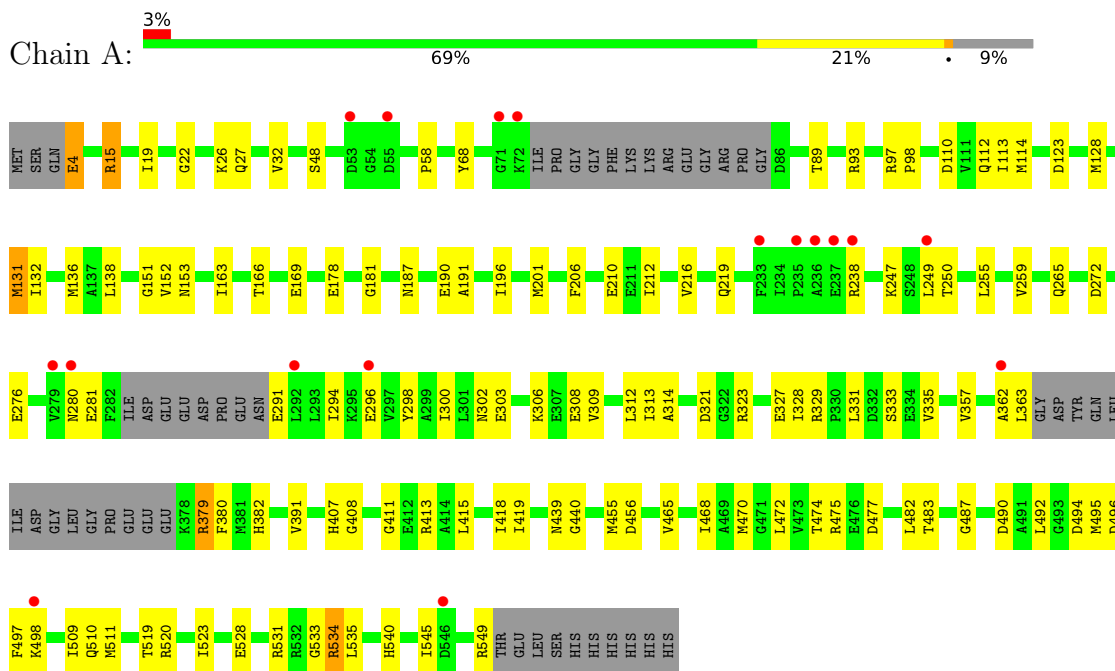
Chain A:

• Molecule 1: Polyribonucleotide nucleotidyltransferase

Chain B:

Q510 M511 R520 I523 L527 E528 R531 R532 G533 R534 L535 M538 N539 H540 I545 R549 T550 GLU LEU SER HIS HIS HIS HIS HIS
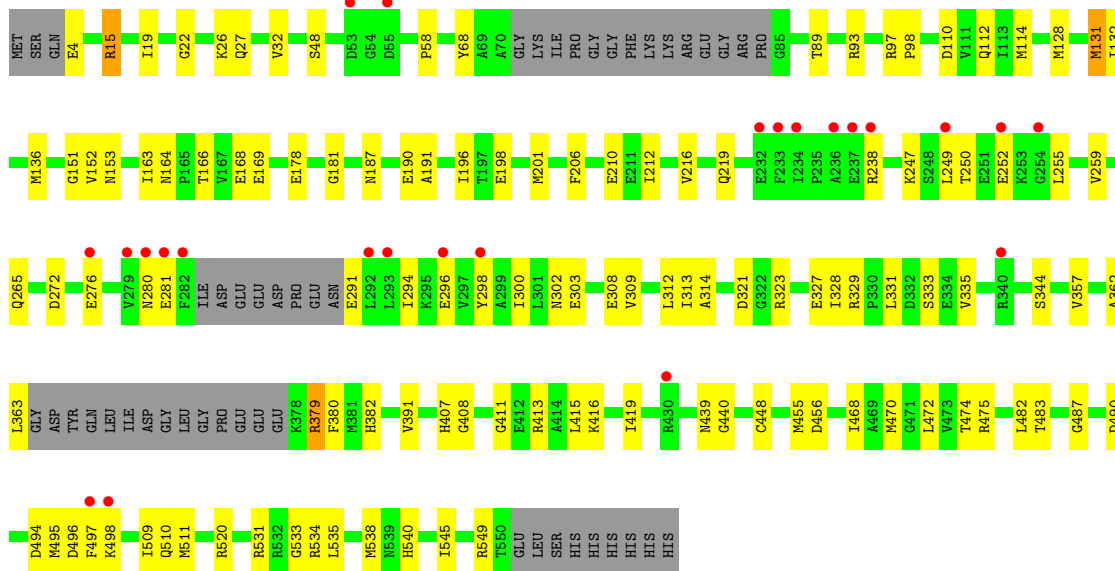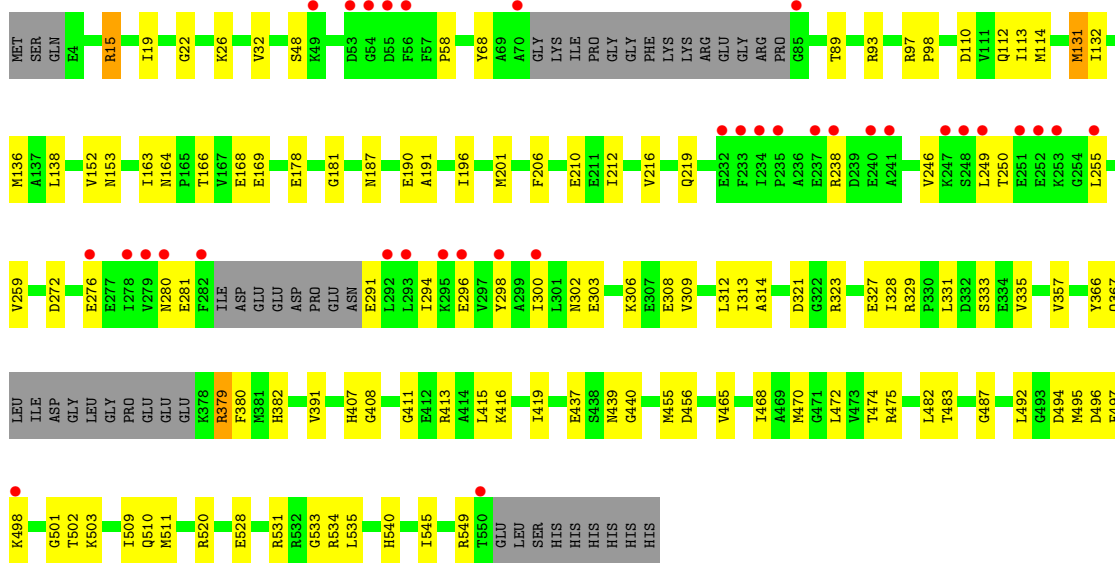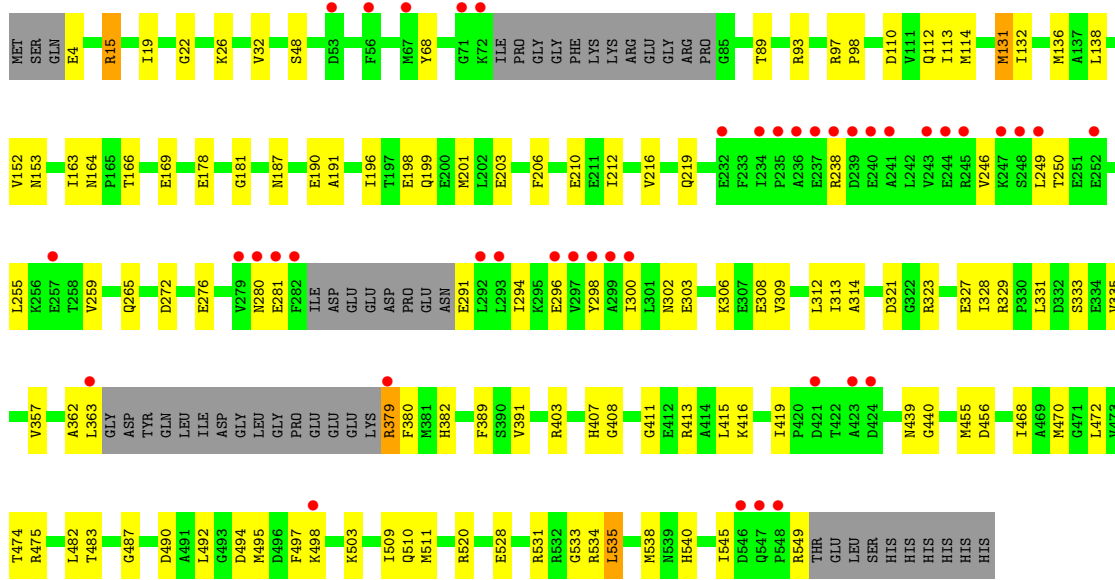
• Molecule 1: Polyribonucleotide nucleotidyltransferase

Chain C:

• Molecule 1: Polyribonucleotide nucleotidyltransferase
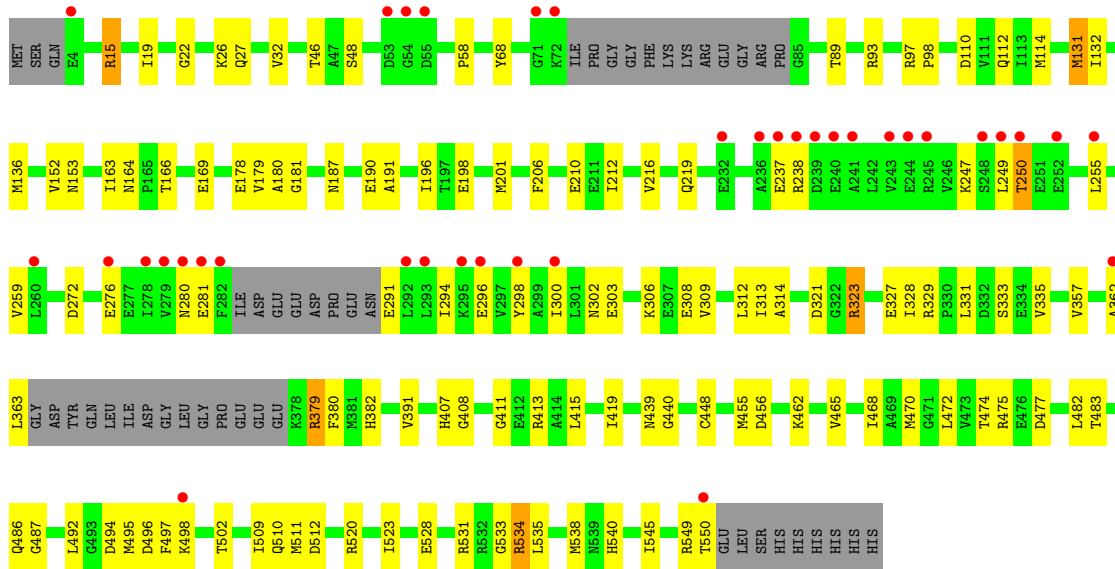
Chain D:
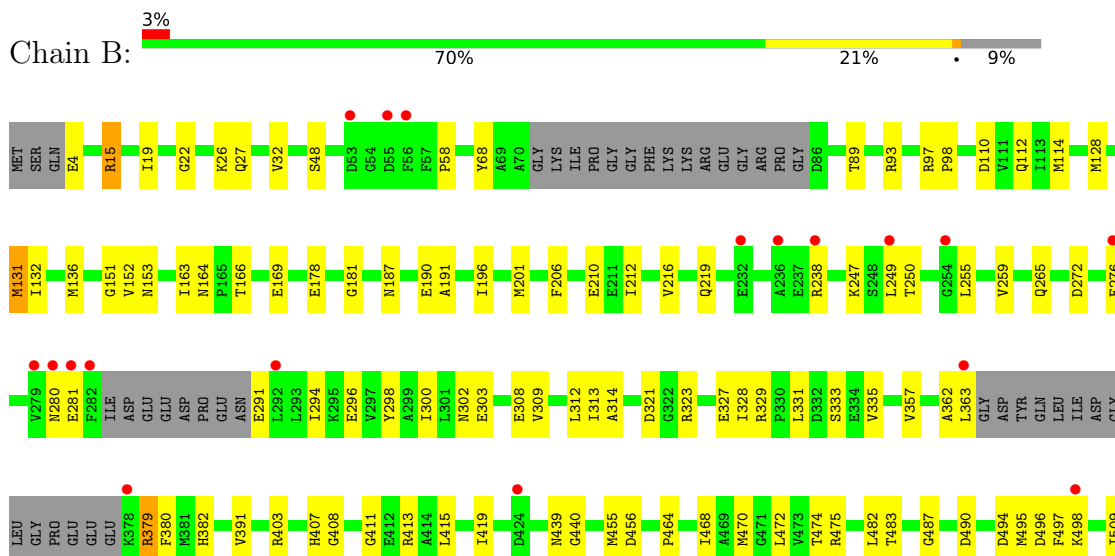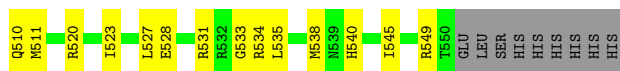
• Molecule 1: Polyribonucleotide nucleotidyltransferase

Chain E:

• Molecule 1: Polyribonucleotide nucleotidyltransferase

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	93.70Å 93.77Å 130.24Å 98.22° 95.34° 120.01°	Depositor
Resolution (Å)	49.24 – 2.20 49.19 – 2.20	Depositor EDS
% Data completeness (in resolution range)	84.0 (49.24-2.20) 84.1 (49.19-2.20)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.01 (at 2.20Å)	Xtriage
Refinement program	REFMAC 5.7.0032	Depositor
R, R_{free}	0.223 , 0.249 0.223 , 0.243	Depositor DCC
R_{free} test set	7966 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å^2)	43.3	Xtriage
Anisotropy	0.521	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 41.1	EDS
L-test for twinning [2]	$< |L| > = 0.49, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.085 for -k,-h,-l	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	24313	wwPDB-VP
Average B, all atoms (Å^2)	53.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.24% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: PPV, GOL, PEG

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	0.57	1/4035 (0.0%)	0.72	3/5447 (0.1%)
1	B	0.57	1/4029 (0.0%)	0.72	3/5441 (0.1%)
1	C	0.57	1/4033 (0.0%)	0.72	4/5446 (0.1%)
1	D	0.56	2/4067 (0.0%)	0.73	3/5492 (0.1%)
1	E	0.53	0/4030	0.73	4/5441 (0.1%)
1	F	0.55	1/4046 (0.0%)	0.72	5/5462 (0.1%)
All	All	0.56	6/24240 (0.0%)	0.72	22/32729 (0.1%)

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

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	58	PRO	N-CD	9.30	1.60	1.47
1	B	58	PRO	N-CD	7.92	1.58	1.47
1	F	58	PRO	N-CD	7.11	1.57	1.47
1	D	58	PRO	N-CD	7.02	1.57	1.47
1	A	58	PRO	N-CD	5.60	1.55	1.47
1	D	437	GLU	CD-OE1	5.09	1.31	1.25

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	E	534	ARG	NE-CZ-NH1	6.44	123.52	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	534	ARG	NE-CZ-NH1	6.27	123.44	120.30
1	D	534	ARG	NE-CZ-NH1	6.15	123.38	120.30
1	F	523	ILE	N-CA-C	-6.09	94.55	111.00
1	E	534	ARG	NE-CZ-NH2	-6.07	117.27	120.30
1	F	534	ARG	NE-CZ-NH2	-6.02	117.29	120.30
1	C	534	ARG	NE-CZ-NH1	5.97	123.28	120.30
1	F	534	ARG	NE-CZ-NH1	5.96	123.28	120.30
1	D	534	ARG	NE-CZ-NH2	-5.94	117.33	120.30
1	B	534	ARG	NE-CZ-NH1	5.93	123.26	120.30
1	A	534	ARG	NE-CZ-NH2	-5.83	117.39	120.30
1	C	534	ARG	NE-CZ-NH2	-5.74	117.43	120.30
1	B	534	ARG	NE-CZ-NH2	-5.73	117.43	120.30
1	C	58	PRO	CA-N-CD	-5.56	103.71	111.50
1	E	131	MET	CG-SD-CE	-5.36	91.62	100.20
1	D	131	MET	CG-SD-CE	-5.33	91.67	100.20
1	B	131	MET	CG-SD-CE	-5.33	91.67	100.20
1	E	535	LEU	CB-CG-CD1	5.26	119.94	111.00
1	A	131	MET	CG-SD-CE	-5.14	91.98	100.20
1	F	131	MET	CG-SD-CE	-5.11	92.02	100.20
1	C	131	MET	CG-SD-CE	-5.05	92.12	100.20
1	F	323	ARG	NE-CZ-NH2	-5.02	117.79	120.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	15	ARG	Sidechain

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	3976	0	3991	101	0
1	B	3970	0	3982	96	0
1	C	3974	0	3985	96	1
1	D	4007	0	4009	90	1
1	E	3971	0	3981	91	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	3987	0	4001	91	0
2	A	7	0	10	0	0
2	B	7	0	10	0	0
2	C	7	0	10	0	0
2	D	7	0	10	0	0
2	E	7	0	10	0	0
2	F	7	0	10	0	0
3	A	6	0	8	0	0
3	B	6	0	8	0	0
3	C	6	0	8	0	0
3	D	6	0	8	0	0
3	E	6	0	8	0	0
3	F	6	0	8	0	0
4	A	18	0	0	8	0
4	B	18	0	0	8	0
4	C	18	0	0	7	0
4	D	18	0	0	6	0
4	E	18	0	0	7	0
4	F	18	0	0	6	0
5	A	29	0	0	1	0
5	B	17	0	0	1	0
5	C	44	0	0	6	0
5	D	42	0	0	3	0
5	E	51	0	0	2	0
5	F	59	0	0	8	0
All	All	24313	0	24057	565	1

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 12.

All (565) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:531:ARG:O	1:C:535:LEU:HD13	1.39	1.22
1:E:246:VAL:O	1:E:250:THR:HG23	1.39	1.20
1:A:531:ARG:O	1:A:535:LEU:HD13	1.38	1.20
1:B:531:ARG:O	1:B:535:LEU:HD13	1.42	1.18
1:D:246:VAL:O	1:D:250:THR:HG23	1.43	1.15
1:C:531:ARG:O	1:C:535:LEU:CD1	1.98	1.11
1:A:276:GLU:O	1:A:280:ASN:ND2	1.91	1.04
1:D:276:GLU:O	1:D:280:ASN:ND2	1.90	1.04

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:276:GLU:O	1:E:280:ASN:ND2	1.90	1.04
1:F:276:GLU:O	1:F:280:ASN:ND2	1.90	1.04
1:B:531:ARG:O	1:B:535:LEU:CD1	2.04	1.04
1:C:276:GLU:O	1:C:280:ASN:ND2	1.91	1.04
1:B:276:GLU:O	1:B:280:ASN:ND2	1.90	1.04
1:C:98:PRO:HG3	1:C:131:MET:HE1	1.43	1.00
1:C:210:GLU:OE2	5:C:701:HOH:O	1.79	0.99
1:E:98:PRO:HG3	1:E:131:MET:HE1	1.47	0.96
4:C:603[A]:PPV:O32	4:C:603[A]:PPV:O11	1.82	0.96
1:A:98:PRO:HG3	1:A:131:MET:HE1	1.45	0.96
1:F:531:ARG:O	1:F:535:LEU:HD13	1.66	0.95
1:B:98:PRO:HG3	1:B:131:MET:HE1	1.48	0.95
1:A:531:ARG:O	1:A:535:LEU:CD1	2.13	0.95
1:C:238:ARG:NH2	1:C:303:GLU:HG3	1.82	0.94
1:E:238:ARG:NH2	1:E:303:GLU:HG3	1.82	0.94
1:F:238:ARG:NH2	1:F:303:GLU:HG3	1.82	0.94
1:A:238:ARG:NH2	1:A:303:GLU:HG3	1.82	0.93
1:F:98:PRO:HG3	1:F:131:MET:HE1	1.50	0.93
1:D:98:PRO:HG3	1:D:131:MET:HE1	1.51	0.93
1:B:238:ARG:NH2	1:B:303:GLU:HG3	1.82	0.92
1:D:238:ARG:NH2	1:D:303:GLU:HG3	1.83	0.92
1:A:97:ARG:NH1	1:A:190:GLU:OE1	2.06	0.89
1:E:389:PHE:HB2	5:F:701:HOH:O	1.72	0.88
1:C:238:ARG:HH22	1:C:303:GLU:HG3	1.39	0.88
1:F:46:THR:OG1	5:F:701:HOH:O	1.92	0.88
1:A:238:ARG:HH22	1:A:303:GLU:HG3	1.39	0.87
1:D:238:ARG:HH22	1:D:303:GLU:HG3	1.40	0.86
1:F:238:ARG:HH22	1:F:303:GLU:HG3	1.40	0.85
1:B:238:ARG:HH22	1:B:303:GLU:HG3	1.39	0.85
1:D:210:GLU:OE2	5:D:701:HOH:O	1.95	0.84
1:C:212:ILE:O	1:C:216:VAL:HG23	1.78	0.83
1:A:212:ILE:O	1:A:216:VAL:HG23	1.78	0.83
1:D:212:ILE:O	1:D:216:VAL:HG23	1.78	0.82
1:E:212:ILE:O	1:E:216:VAL:HG23	1.78	0.82
1:E:238:ARG:HH22	1:E:303:GLU:HG3	1.40	0.82
1:F:212:ILE:O	1:F:216:VAL:HG23	1.78	0.81
1:D:98:PRO:HG3	1:D:131:MET:CE	2.10	0.81
1:E:98:PRO:HG3	1:E:131:MET:CE	2.10	0.81
1:C:98:PRO:HG3	1:C:131:MET:CE	2.10	0.81
1:B:98:PRO:HG3	1:B:131:MET:CE	2.10	0.81
1:B:212:ILE:O	1:B:216:VAL:HG23	1.79	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:210:GLU:OE2	5:A:701:HOH:O	1.98	0.81
4:F:603[A]:PPV:O32	4:F:603[A]:PPV:O11	1.97	0.80
1:D:97:ARG:NH1	1:D:190:GLU:OE1	2.14	0.80
1:A:98:PRO:HG3	1:A:131:MET:CE	2.10	0.80
1:F:98:PRO:HG3	1:F:131:MET:CE	2.10	0.79
4:A:603[A]:PPV:O32	4:A:603[A]:PPV:O11	1.98	0.79
1:E:531:ARG:O	1:E:535:LEU:HD23	1.83	0.78
1:B:210:GLU:OE2	5:B:701:HOH:O	2.01	0.78
1:C:97:ARG:NH1	1:C:190:GLU:OE1	2.18	0.77
1:E:210:GLU:OE2	5:E:701:HOH:O	2.01	0.77
4:A:603[B]:PPV:O31	4:A:603[B]:PPV:O32	2.03	0.76
1:C:498:LYS:NZ	4:C:603[A]:PPV:O31	2.20	0.75
1:F:448:CYS:SG	5:F:721:HOH:O	2.47	0.73
1:F:210:GLU:OE2	5:F:702:HOH:O	2.06	0.72
1:A:15:ARG:NH1	1:A:123:ASP:O	2.23	0.72
1:C:448:CYS:SG	5:C:718:HOH:O	2.46	0.72
1:A:4:GLU:O	1:A:4:GLU:HG2	1.89	0.71
1:C:531:ARG:O	1:C:535:LEU:HD12	1.86	0.71
1:A:498:LYS:NZ	4:A:603[A]:PPV:O31	2.24	0.71
1:D:455:MET:HE3	1:D:545:ILE:HG23	1.72	0.71
1:C:247:LYS:HA	1:C:250:THR:CG2	2.21	0.70
1:B:455:MET:HE3	1:B:545:ILE:HG23	1.72	0.70
1:C:247:LYS:C	1:C:250:THR:HG22	2.12	0.70
1:E:455:MET:HE3	1:E:545:ILE:HG23	1.73	0.70
1:B:498:LYS:NZ	4:B:603[A]:PPV:O31	2.25	0.70
1:D:498:LYS:NZ	4:D:603[A]:PPV:O21	2.24	0.70
1:A:455:MET:HE3	1:A:545:ILE:HG23	1.72	0.70
1:F:97:ARG:NH1	1:F:190:GLU:OE1	2.25	0.70
1:C:455:MET:HE3	1:C:545:ILE:HG23	1.74	0.70
1:B:455:MET:CE	1:B:545:ILE:HG23	2.23	0.69
1:B:181:GLY:HA2	1:B:187:ASN:HB2	1.75	0.69
1:F:455:MET:HE3	1:F:545:ILE:HG23	1.73	0.68
1:B:411:GLY:O	1:B:415:LEU:HD23	1.93	0.68
1:F:455:MET:CE	1:F:545:ILE:HG23	2.23	0.68
1:D:411:GLY:O	1:D:415:LEU:HD23	1.94	0.68
1:F:498:LYS:NZ	4:F:603[A]:PPV:O21	2.26	0.68
1:D:455:MET:CE	1:D:545:ILE:HG23	2.24	0.68
1:F:411:GLY:O	1:F:415:LEU:HD23	1.94	0.68
1:A:455:MET:CE	1:A:545:ILE:HG23	2.23	0.68
1:B:531:ARG:O	1:B:535:LEU:HD12	1.94	0.68
1:D:465:VAL:HG22	1:D:502:THR:HG22	1.75	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:455:MET:CE	1:E:545:ILE:HG23	2.24	0.68
1:A:496:ASP:OD2	4:A:603[B]:PPV:O12	2.13	0.67
1:C:455:MET:CE	1:C:545:ILE:HG23	2.24	0.67
1:E:181:GLY:HA2	1:E:187:ASN:HB2	1.77	0.67
1:B:472:LEU:CD1	1:B:474:THR:HG23	2.26	0.66
1:E:411:GLY:O	1:E:415:LEU:HD23	1.94	0.66
1:C:411:GLY:O	1:C:415:LEU:HD23	1.94	0.66
1:C:181:GLY:HA2	1:C:187:ASN:HB2	1.78	0.66
1:D:181:GLY:HA2	1:D:187:ASN:HB2	1.76	0.66
1:A:411:GLY:O	1:A:415:LEU:HD23	1.94	0.66
1:A:19:ILE:HD13	1:A:136:MET:HG3	1.78	0.66
1:A:472:LEU:CD1	1:A:474:THR:HG23	2.26	0.66
1:A:181:GLY:HA2	1:A:187:ASN:HB2	1.76	0.66
1:B:247:LYS:C	1:B:250:THR:HG22	2.16	0.66
1:F:472:LEU:CD1	1:F:474:THR:HG23	2.26	0.66
1:C:472:LEU:CD1	1:C:474:THR:HG23	2.26	0.65
1:F:181:GLY:HA2	1:F:187:ASN:HB2	1.78	0.65
1:C:4:GLU:O	1:C:4:GLU:HG2	1.95	0.65
1:C:19:ILE:HD13	1:C:136:MET:HG3	1.78	0.65
1:E:472:LEU:CD1	1:E:474:THR:HG23	2.26	0.65
1:F:19:ILE:HD13	1:F:136:MET:HG3	1.79	0.65
1:F:472:LEU:HD11	1:F:474:THR:HG23	1.79	0.65
1:A:472:LEU:HD11	1:A:474:THR:HG23	1.79	0.64
1:B:19:ILE:HD13	1:B:136:MET:HG3	1.78	0.64
1:E:503:LYS:HG2	1:E:535:LEU:HD13	1.77	0.64
1:B:335:VAL:CG2	1:B:456:ASP:HB2	2.27	0.64
1:D:15:ARG:NH2	1:D:164:ASN:O	2.30	0.64
4:D:603[A]:PPV:O32	4:D:603[A]:PPV:O11	2.14	0.64
1:E:19:ILE:HD13	1:E:136:MET:HG3	1.79	0.64
1:E:335:VAL:CG2	1:E:456:ASP:HB2	2.28	0.64
1:A:247:LYS:C	1:A:250:THR:HG22	2.17	0.64
1:D:335:VAL:CG2	1:D:456:ASP:HB2	2.28	0.64
1:D:472:LEU:CD1	1:D:474:THR:HG23	2.26	0.64
1:E:498:LYS:NZ	4:E:603[A]:PPV:O21	2.31	0.64
4:E:603[A]:PPV:O11	4:E:603[A]:PPV:O32	2.15	0.64
1:C:472:LEU:HD11	1:C:474:THR:HG23	1.79	0.64
1:B:472:LEU:HD11	1:B:474:THR:HG23	1.79	0.64
1:F:335:VAL:CG2	1:F:456:ASP:HB2	2.27	0.64
1:B:250:THR:OG1	1:B:255:LEU:HD12	1.98	0.64
1:D:19:ILE:HD13	1:D:136:MET:HG3	1.79	0.64
1:E:472:LEU:HD11	1:E:474:THR:HG23	1.79	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:335:VAL:CG2	1:A:456:ASP:HB2	2.28	0.63
1:C:470:MET:HE3	1:C:482:LEU:O	1.99	0.63
1:C:335:VAL:CG2	1:C:456:ASP:HB2	2.28	0.63
1:E:15:ARG:NH2	1:E:164:ASN:O	2.30	0.63
1:A:470:MET:HE3	1:A:482:LEU:O	1.99	0.63
1:D:472:LEU:HD11	1:D:474:THR:HG23	1.79	0.63
1:E:470:MET:HE3	1:E:482:LEU:O	1.99	0.62
1:F:470:MET:HE3	1:F:482:LEU:O	2.00	0.62
1:B:97:ARG:NH1	1:B:190:GLU:OE1	2.32	0.62
1:C:238:ARG:HB2	5:C:721:HOH:O	1.99	0.62
1:C:15:ARG:NH2	1:C:164:ASN:O	2.31	0.62
1:A:250:THR:OG1	1:A:255:LEU:HD12	1.98	0.62
1:F:191:ALA:O	1:F:413:ARG:NH1	2.33	0.61
4:C:603[B]:PPV:O31	4:C:603[B]:PPV:O32	2.17	0.61
1:A:191:ALA:O	1:A:413:ARG:NH1	2.33	0.61
1:C:247:LYS:HA	1:C:250:THR:HG22	1.82	0.61
1:E:456:ASP:OD1	1:E:549:ARG:NH1	2.34	0.61
1:B:191:ALA:O	1:B:413:ARG:NH1	2.34	0.61
1:B:523:ILE:HG22	1:B:523:ILE:O	2.01	0.61
1:B:470:MET:HE3	1:B:482:LEU:O	2.01	0.61
1:C:191:ALA:O	1:C:413:ARG:NH1	2.33	0.61
1:D:191:ALA:O	1:D:413:ARG:NH1	2.34	0.60
1:E:97:ARG:NH1	1:E:190:GLU:OE1	2.34	0.60
1:E:191:ALA:O	1:E:413:ARG:NH1	2.34	0.60
1:D:291:GLU:OE1	5:D:702:HOH:O	2.16	0.60
1:E:497:PHE:CD1	1:E:511:MET:HB2	2.37	0.60
1:C:456:ASP:OD1	1:C:549:ARG:NH1	2.34	0.60
1:D:456:ASP:OD1	1:D:549:ARG:NH1	2.34	0.60
1:A:247:LYS:O	1:A:250:THR:HG22	2.01	0.60
1:C:247:LYS:CA	1:C:250:THR:HG22	2.32	0.60
1:C:344:SER:HB3	5:C:710:HOH:O	2.01	0.60
1:F:456:ASP:OD1	1:F:549:ARG:NH1	2.35	0.60
1:B:456:ASP:OD1	1:B:549:ARG:NH1	2.34	0.60
1:D:407:HIS:HE1	4:D:603[A]:PPV:O32	1.85	0.60
1:B:48:SER:HB3	1:B:110:ASP:HB2	1.84	0.60
1:D:470:MET:HE3	1:D:482:LEU:O	2.02	0.59
1:E:48:SER:HB3	1:E:110:ASP:HB2	1.84	0.59
1:A:456:ASP:OD1	1:A:549:ARG:NH1	2.34	0.59
1:C:48:SER:HB3	1:C:110:ASP:HB2	1.84	0.59
1:B:247:LYS:O	1:B:250:THR:HG22	2.03	0.59
1:D:48:SER:HB3	1:D:110:ASP:HB2	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:48:SER:HB3	1:F:110:ASP:HB2	1.84	0.59
1:B:391:VAL:HG12	1:B:391:VAL:O	2.02	0.59
1:C:391:VAL:HG12	1:C:391:VAL:O	2.03	0.58
1:E:298:TYR:O	1:E:302:ASN:ND2	2.34	0.58
1:D:391:VAL:HG12	1:D:391:VAL:O	2.02	0.58
1:B:329:ARG:HH22	1:B:440:GLY:HA3	1.68	0.58
1:D:465:VAL:HG13	1:D:501:GLY:O	2.02	0.58
1:C:329:ARG:HH22	1:C:440:GLY:HA3	1.69	0.58
1:C:298:TYR:O	1:C:302:ASN:ND2	2.35	0.58
4:B:603[A]:PPV:O32	4:B:603[A]:PPV:O11	2.21	0.58
1:D:329:ARG:HH22	1:D:440:GLY:HA3	1.69	0.58
1:E:391:VAL:HG12	1:E:391:VAL:O	2.03	0.58
1:F:391:VAL:HG12	1:F:391:VAL:O	2.02	0.58
1:B:407:HIS:HE1	4:B:603[A]:PPV:O32	1.86	0.57
1:D:298:TYR:O	1:D:302:ASN:ND2	2.34	0.57
1:F:528:GLU:OE2	1:F:531:ARG:NH1	2.38	0.57
1:A:48:SER:HB3	1:A:110:ASP:HB2	1.84	0.57
1:F:329:ARG:HH22	1:F:440:GLY:HA3	1.70	0.57
1:A:298:TYR:O	1:A:302:ASN:ND2	2.34	0.57
1:A:329:ARG:HH22	1:A:440:GLY:HA3	1.70	0.57
1:A:497:PHE:CD1	1:A:511:MET:HB2	2.38	0.57
1:C:309:VAL:O	1:C:313:ILE:HG13	2.05	0.57
1:D:309:VAL:O	1:D:313:ILE:HG13	2.05	0.57
1:F:15:ARG:NH2	1:F:164:ASN:O	2.37	0.57
1:F:309:VAL:O	1:F:313:ILE:HG13	2.05	0.57
1:B:309:VAL:O	1:B:313:ILE:HG13	2.05	0.57
1:A:309:VAL:O	1:A:313:ILE:HG13	2.05	0.57
1:A:391:VAL:HG12	1:A:391:VAL:O	2.03	0.57
1:D:465:VAL:HG22	1:D:502:THR:CG2	2.35	0.57
1:E:329:ARG:HH22	1:E:440:GLY:HA3	1.69	0.56
1:B:497:PHE:CD1	1:B:511:MET:HB2	2.40	0.56
1:D:407:HIS:CE1	4:D:603[A]:PPV:O32	2.58	0.56
1:A:407:HIS:HE1	4:A:603[A]:PPV:O32	1.87	0.56
1:B:298:TYR:O	1:B:302:ASN:ND2	2.35	0.56
1:D:503:LYS:HG2	1:D:535:LEU:CD2	2.35	0.56
1:F:298:TYR:O	1:F:302:ASN:ND2	2.34	0.56
1:E:309:VAL:O	1:E:313:ILE:HG13	2.05	0.56
1:E:497:PHE:HD1	1:E:511:MET:HB2	1.70	0.56
1:F:497:PHE:CD1	1:F:511:MET:HB2	2.41	0.56
1:D:114:MET:HE3	5:D:736:HOH:O	2.06	0.56
1:F:335:VAL:HG23	1:F:456:ASP:HB2	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:528:GLU:OE2	1:A:531:ARG:NH1	2.40	0.55
1:D:335:VAL:HG23	1:D:456:ASP:HB2	1.88	0.55
1:F:250:THR:OG1	1:F:255:LEU:HD12	2.06	0.55
1:E:335:VAL:HG23	1:E:456:ASP:HB2	1.87	0.55
1:A:335:VAL:HG23	1:A:456:ASP:HB2	1.87	0.55
1:E:246:VAL:O	1:E:250:THR:CG2	2.33	0.55
1:B:335:VAL:HG23	1:B:456:ASP:HB2	1.87	0.55
1:C:250:THR:OG1	1:C:255:LEU:HD12	2.07	0.55
1:A:407:HIS:CE1	4:A:603[A]:PPV:O32	2.59	0.54
1:D:68:TYR:CD1	1:F:357:VAL:HG11	2.43	0.54
1:F:472:LEU:HD11	1:F:474:THR:CG2	2.37	0.54
1:C:247:LYS:HA	1:C:250:THR:HG21	1.88	0.54
1:C:335:VAL:HG23	1:C:456:ASP:HB2	1.88	0.54
1:C:472:LEU:HD11	1:C:474:THR:CG2	2.38	0.54
1:D:472:LEU:HD11	1:D:474:THR:CG2	2.38	0.54
1:E:472:LEU:HD11	1:E:474:THR:CG2	2.38	0.54
1:E:528:GLU:OE2	1:E:531:ARG:NH1	2.40	0.54
1:F:407:HIS:HE1	4:F:603[A]:PPV:O32	1.91	0.54
1:B:472:LEU:HD11	1:B:474:THR:CG2	2.37	0.54
1:E:407:HIS:HE1	4:E:603[A]:PPV:O32	1.90	0.54
1:B:15:ARG:NH1	1:B:164:ASN:O	2.41	0.53
1:C:344:SER:CB	5:C:710:HOH:O	2.56	0.53
1:D:465:VAL:HG13	1:D:501:GLY:C	2.29	0.53
1:D:465:VAL:CG2	1:D:502:THR:HG22	2.37	0.53
1:A:472:LEU:HD11	1:A:474:THR:CG2	2.38	0.53
1:C:496:ASP:OD2	4:C:603[B]:PPV:O12	2.25	0.53
1:E:407:HIS:CE1	4:E:603[A]:PPV:O32	2.62	0.53
1:E:503:LYS:HG2	1:E:535:LEU:CD1	2.38	0.53
1:C:497:PHE:CD1	1:C:511:MET:HB2	2.44	0.53
1:D:497:PHE:CD1	1:D:511:MET:HB2	2.44	0.52
1:A:68:TYR:CD1	1:B:357:VAL:HG11	2.44	0.52
1:A:490:ASP:OD2	4:A:603[B]:PPV:O12	2.27	0.52
1:B:407:HIS:CE1	4:B:603[A]:PPV:O32	2.63	0.52
1:B:523:ILE:O	1:B:523:ILE:CG2	2.57	0.52
1:B:128:MET:HG3	1:B:151:GLY:O	2.10	0.52
1:A:190:GLU:OE2	1:A:510:GLN:HG3	2.10	0.52
1:B:196:ILE:HD11	1:B:201:MET:HE1	1.92	0.51
4:F:603[B]:PPV:O32	4:F:603[B]:PPV:O21	2.28	0.51
1:B:528:GLU:OE2	1:B:531:ARG:NH1	2.44	0.51
1:A:490:ASP:OD2	4:A:603[B]:PPV:P2	2.69	0.51
1:F:247:LYS:O	1:F:250:THR:HG22	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:247:LYS:HA	1:B:250:THR:CG2	2.41	0.51
4:E:603[B]:PPV:O32	4:E:603[B]:PPV:O21	2.29	0.51
1:E:314:ALA:CB	1:E:475:ARG:HD2	2.41	0.50
1:D:314:ALA:CB	1:D:475:ARG:HD2	2.41	0.50
1:F:407:HIS:CE1	4:F:603[A]:PPV:O32	2.64	0.50
1:F:314:ALA:CB	1:F:475:ARG:HD2	2.42	0.50
1:A:128:MET:HG3	1:A:151:GLY:O	2.12	0.50
1:A:314:ALA:CB	1:A:475:ARG:HD2	2.41	0.50
1:B:314:ALA:CB	1:B:475:ARG:HD2	2.41	0.50
1:D:528:GLU:OE2	1:D:531:ARG:NH1	2.45	0.50
1:F:198:GLU:OE2	1:F:198:GLU:N	2.40	0.50
1:B:247:LYS:HA	1:B:250:THR:HG22	1.93	0.49
1:A:97:ARG:NH1	1:A:190:GLU:CD	2.64	0.49
1:A:308:GLU:O	1:A:312:LEU:HD23	2.13	0.49
1:A:497:PHE:HD1	1:A:511:MET:HB2	1.77	0.49
1:B:333:SER:OG	1:B:540:HIS:HE1	1.96	0.49
1:C:314:ALA:CB	1:C:475:ARG:HD2	2.42	0.49
1:E:490:ASP:OD2	4:E:603[B]:PPV:O12	2.30	0.49
1:A:357:VAL:HG11	1:C:68:TYR:CD1	2.47	0.49
4:D:603[B]:PPV:O32	4:D:603[B]:PPV:O21	2.31	0.49
1:F:308:GLU:O	1:F:312:LEU:HD23	2.13	0.49
1:A:247:LYS:HA	1:A:250:THR:HG22	1.95	0.49
1:B:308:GLU:O	1:B:312:LEU:HD23	2.13	0.48
1:F:291:GLU:HB3	1:F:294:ILE:HG12	1.95	0.48
1:A:250:THR:HG1	1:A:255:LEU:HD12	1.78	0.48
1:A:333:SER:OG	1:A:540:HIS:HE1	1.96	0.48
1:F:462:LYS:HD3	5:F:753:HOH:O	2.12	0.48
1:C:308:GLU:O	1:C:312:LEU:HD23	2.13	0.48
1:C:407:HIS:HE1	4:C:603[A]:PPV:O32	1.95	0.48
1:E:308:GLU:O	1:E:312:LEU:HD23	2.13	0.48
1:E:328:ILE:HD11	1:E:533:GLY:HA2	1.95	0.48
1:A:291:GLU:HB3	1:A:294:ILE:HG12	1.96	0.48
1:C:128:MET:HG3	1:C:151:GLY:O	2.14	0.48
1:E:333:SER:OG	1:E:540:HIS:HE1	1.97	0.48
1:F:439:ASN:O	1:F:487:GLY:N	2.47	0.48
1:A:328:ILE:HD11	1:A:533:GLY:HA2	1.95	0.48
1:C:291:GLU:HB3	1:C:294:ILE:HG12	1.96	0.48
1:D:291:GLU:HB3	1:D:294:ILE:HG12	1.96	0.48
1:A:247:LYS:HA	1:A:250:THR:CG2	2.43	0.48
1:D:308:GLU:O	1:D:312:LEU:HD23	2.13	0.47
1:D:333:SER:OG	1:D:540:HIS:HE1	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:291:GLU:HB3	1:E:294:ILE:HG12	1.95	0.47
1:E:439:ASN:O	1:E:487:GLY:N	2.47	0.47
1:F:538:MET:HE1	5:F:741:HOH:O	2.13	0.47
1:B:291:GLU:HB3	1:B:294:ILE:HG12	1.95	0.47
1:B:380:PHE:CG	1:B:419:ILE:HD13	2.49	0.47
1:C:439:ASN:O	1:C:487:GLY:N	2.47	0.47
1:C:490:ASP:OD2	4:C:603[B]:PPV:P2	2.73	0.47
1:E:470:MET:CE	1:E:483:THR:HA	2.44	0.47
1:B:439:ASN:O	1:B:487:GLY:N	2.47	0.47
1:D:190:GLU:OE2	1:D:510:GLN:NE2	2.48	0.47
1:C:333:SER:OG	1:C:540:HIS:HE1	1.97	0.47
1:D:328:ILE:HD11	1:D:533:GLY:HA2	1.96	0.47
1:D:470:MET:CE	1:D:483:THR:HA	2.45	0.47
1:E:199:GLN:O	1:E:203:GLU:CG	2.63	0.47
1:B:68:TYR:CD1	1:C:357:VAL:HG11	2.50	0.47
1:D:439:ASN:O	1:D:487:GLY:N	2.46	0.47
1:F:333:SER:OG	1:F:540:HIS:HE1	1.97	0.47
1:F:497:PHE:HD1	1:F:511:MET:HB2	1.80	0.47
1:A:19:ILE:HG23	1:A:32:VAL:HG13	1.97	0.47
1:A:439:ASN:O	1:A:487:GLY:N	2.48	0.47
1:B:523:ILE:O	1:B:527:LEU:HG	2.14	0.47
1:E:19:ILE:HG23	1:E:32:VAL:HG13	1.97	0.47
1:E:403:ARG:NH1	4:E:603[A]:PPV:O32	2.47	0.47
1:D:503:LYS:HG2	1:D:535:LEU:HD23	1.96	0.47
1:F:328:ILE:HD11	1:F:533:GLY:HA2	1.96	0.47
1:B:247:LYS:CA	1:B:250:THR:HG22	2.45	0.46
1:C:249:LEU:CD2	1:C:281:GLU:HG3	2.45	0.46
1:C:407:HIS:CE1	4:C:603[A]:PPV:O32	2.68	0.46
1:E:323:ARG:HB3	1:E:327:GLU:HG3	1.97	0.46
1:F:19:ILE:HG23	1:F:32:VAL:HG13	1.97	0.46
1:C:19:ILE:HG23	1:C:32:VAL:HG13	1.97	0.46
1:F:380:PHE:CG	1:F:419:ILE:HD13	2.50	0.46
1:F:470:MET:CE	1:F:483:THR:HA	2.46	0.46
1:B:328:ILE:HD11	1:B:533:GLY:HA2	1.96	0.46
1:C:323:ARG:HB3	1:C:327:GLU:HG3	1.97	0.46
1:B:19:ILE:HG23	1:B:32:VAL:HG13	1.97	0.46
1:F:179:VAL:HG12	1:F:180:ALA:N	2.31	0.46
1:C:190:GLU:OE2	1:C:510:GLN:NE2	2.49	0.46
1:F:249:LEU:CD2	1:F:281:GLU:HG3	2.45	0.46
1:A:250:THR:OG1	1:A:255:LEU:CD1	2.64	0.46
1:C:329:ARG:O	1:C:331:LEU:HD13	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:472:LEU:HD12	1:A:494:ASP:HB2	1.98	0.46
1:D:246:VAL:O	1:D:250:THR:CG2	2.37	0.46
1:D:249:LEU:CD2	1:D:281:GLU:HG3	2.45	0.46
1:E:153:ASN:OD1	1:E:178:GLU:HG3	2.16	0.46
1:A:153:ASN:OD1	1:A:178:GLU:HG3	2.16	0.46
1:B:153:ASN:OD1	1:B:178:GLU:HG3	2.16	0.46
1:E:196:ILE:HD11	1:E:201:MET:HE1	1.98	0.46
1:C:328:ILE:HD11	1:C:533:GLY:HA2	1.97	0.46
1:D:380:PHE:CG	1:D:419:ILE:HD13	2.51	0.46
1:E:249:LEU:CD2	1:E:281:GLU:HG3	2.46	0.46
1:A:470:MET:CE	1:A:483:THR:HA	2.45	0.46
1:B:250:THR:OG1	1:B:255:LEU:CD1	2.63	0.46
1:C:153:ASN:OD1	1:C:178:GLU:HG3	2.16	0.46
1:D:153:ASN:OD1	1:D:178:GLU:HG3	2.16	0.46
1:D:472:LEU:HD12	1:D:494:ASP:HB2	1.98	0.46
1:E:380:PHE:CG	1:E:419:ILE:HD13	2.51	0.46
1:F:153:ASN:OD1	1:F:178:GLU:HG3	2.16	0.46
1:B:468:ILE:HD11	1:B:483:THR:HG22	1.98	0.45
1:B:470:MET:CE	1:B:483:THR:HA	2.46	0.45
1:C:380:PHE:CG	1:C:419:ILE:HD13	2.51	0.45
1:C:470:MET:CE	1:C:483:THR:HA	2.46	0.45
1:E:329:ARG:O	1:E:331:LEU:HD13	2.16	0.45
1:A:329:ARG:O	1:A:331:LEU:HD13	2.16	0.45
1:B:323:ARG:HB3	1:B:327:GLU:HG3	1.98	0.45
1:B:329:ARG:O	1:B:331:LEU:HD13	2.15	0.45
1:B:472:LEU:HD12	1:B:494:ASP:HB2	1.98	0.45
1:D:503:LYS:HG2	1:D:535:LEU:HD21	1.98	0.45
1:E:472:LEU:HD12	1:E:494:ASP:HB2	1.98	0.45
1:F:472:LEU:HD12	1:F:494:ASP:HB2	1.98	0.45
1:C:472:LEU:HD12	1:C:494:ASP:HB2	1.99	0.45
1:A:249:LEU:CD2	1:A:281:GLU:HG3	2.46	0.45
1:B:249:LEU:CD2	1:B:281:GLU:HG3	2.46	0.45
1:F:323:ARG:HB3	1:F:327:GLU:HG3	1.97	0.45
1:B:132:ILE:HG13	1:B:219:GLN:NE2	2.32	0.45
1:D:19:ILE:HG23	1:D:32:VAL:HG13	1.98	0.45
1:F:329:ARG:O	1:F:331:LEU:HD13	2.17	0.45
1:F:534:ARG:HG3	1:F:535:LEU:HD12	1.98	0.45
1:A:380:PHE:CG	1:A:419:ILE:HD13	2.52	0.45
1:B:490:ASP:OD2	4:B:603[B]:PPV:P2	2.74	0.45
1:F:196:ILE:HD11	1:F:201:MET:HE1	1.98	0.45
1:A:238:ARG:HH22	1:A:303:GLU:CG	2.21	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:314:ALA:HB3	1:D:475:ARG:HD2	1.99	0.45
1:D:323:ARG:HB3	1:D:327:GLU:HG3	1.98	0.45
1:E:238:ARG:HH21	1:E:303:GLU:HG3	1.77	0.45
1:A:314:ALA:HB3	1:A:475:ARG:HD2	1.99	0.45
1:E:22:GLY:O	1:E:26:LYS:HD3	2.17	0.45
1:A:190:GLU:OE2	1:A:510:GLN:NE2	2.50	0.45
1:E:468:ILE:HD11	1:E:483:THR:HG22	1.99	0.45
1:C:206:PHE:CE2	1:C:520:ARG:HG3	2.52	0.45
1:C:250:THR:OG1	1:C:255:LEU:CD1	2.65	0.45
1:D:366:TYR:O	1:D:367:GLN:C	2.55	0.45
1:E:357:VAL:HG11	1:F:68:TYR:CD1	2.52	0.45
1:B:314:ALA:HB3	1:B:475:ARG:HD2	1.99	0.44
1:F:465:VAL:HG22	1:F:502:THR:HG22	1.98	0.44
1:F:468:ILE:HD11	1:F:483:THR:HG22	1.98	0.44
1:B:112:GLN:NE2	1:B:114:MET:SD	2.91	0.44
1:C:112:GLN:NE2	1:C:114:MET:SD	2.91	0.44
1:E:112:GLN:NE2	1:E:114:MET:SD	2.91	0.44
1:A:206:PHE:CE2	1:A:520:ARG:HG3	2.52	0.44
1:C:132:ILE:HG13	1:C:219:GLN:NE2	2.32	0.44
1:D:329:ARG:O	1:D:331:LEU:HD13	2.17	0.44
1:A:112:GLN:NE2	1:A:114:MET:SD	2.90	0.44
1:A:323:ARG:HB3	1:A:327:GLU:HG3	1.98	0.44
1:C:252:GLU:OE1	1:F:237:GLU:OE2	2.35	0.44
1:C:152:VAL:HG22	1:C:163:ILE:HG23	2.00	0.44
1:D:196:ILE:HD11	1:D:201:MET:HE1	1.99	0.44
1:F:166:THR:OG1	1:F:169:GLU:HG3	2.18	0.44
1:A:166:THR:OG1	1:A:169:GLU:HG3	2.18	0.44
1:A:247:LYS:CA	1:A:250:THR:HG22	2.47	0.44
1:A:255:LEU:HD23	1:A:259:VAL:HG23	2.00	0.44
1:A:468:ILE:HD11	1:A:483:THR:HG22	1.98	0.44
1:B:321:ASP:OD2	1:B:323:ARG:CD	2.66	0.44
1:D:321:ASP:OD2	1:D:323:ARG:CD	2.66	0.44
1:F:314:ALA:HB3	1:F:475:ARG:HD2	2.00	0.44
1:D:166:THR:OG1	1:D:169:GLU:HG3	2.18	0.44
1:E:314:ALA:HB3	1:E:475:ARG:HD2	1.99	0.44
1:F:495:MET:HE3	1:F:497:PHE:HB2	2.00	0.44
1:B:152:VAL:HG22	1:B:163:ILE:HG23	2.00	0.44
1:B:206:PHE:CE2	1:B:520:ARG:HG3	2.53	0.44
1:B:464:PRO:HG2	1:B:538:MET:HE1	1.99	0.44
1:D:112:GLN:NE2	1:D:114:MET:SD	2.91	0.44
1:F:112:GLN:NE2	1:F:114:MET:SD	2.91	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:22:GLY:O	1:B:26:LYS:HD3	2.18	0.44
1:D:22:GLY:O	1:D:26:LYS:HD3	2.18	0.44
1:D:468:ILE:HD11	1:D:483:THR:HG22	1.99	0.44
1:A:152:VAL:HG22	1:A:163:ILE:HG23	2.00	0.43
1:B:166:THR:OG1	1:B:169:GLU:HG3	2.18	0.43
1:F:255:LEU:HD23	1:F:259:VAL:HG23	2.00	0.43
1:A:196:ILE:HD11	1:A:201:MET:HE1	2.01	0.43
1:B:379:ARG:HD3	1:B:379:ARG:C	2.38	0.43
1:C:22:GLY:O	1:C:26:LYS:HD3	2.18	0.43
1:E:132:ILE:HG13	1:E:219:GLN:NE2	2.33	0.43
1:E:152:VAL:HG22	1:E:163:ILE:HG23	2.00	0.43
1:F:22:GLY:O	1:F:26:LYS:HD3	2.18	0.43
1:F:362:ALA:O	1:F:363:LEU:CB	2.67	0.43
1:A:132:ILE:HG13	1:A:219:GLN:NE2	2.34	0.43
1:C:321:ASP:OD2	1:C:323:ARG:CD	2.66	0.43
1:C:468:ILE:HD11	1:C:483:THR:HG22	1.99	0.43
1:E:166:THR:OG1	1:E:169:GLU:HG3	2.18	0.43
1:F:152:VAL:HG22	1:F:163:ILE:HG23	2.00	0.43
1:F:206:PHE:CE2	1:F:520:ARG:HG3	2.53	0.43
1:A:321:ASP:OD2	1:A:323:ARG:CD	2.66	0.43
1:C:166:THR:OG1	1:C:169:GLU:HG3	2.18	0.43
1:C:247:LYS:O	1:C:250:THR:CG2	2.67	0.43
1:C:314:ALA:HB3	1:C:475:ARG:HD2	2.00	0.43
1:E:321:ASP:OD2	1:E:323:ARG:CD	2.66	0.43
1:C:89:THR:O	1:C:93:ARG:HG3	2.19	0.43
1:D:296:GLU:O	1:D:300:ILE:HG13	2.19	0.43
1:F:486:GLN:CD	5:F:720:HOH:O	2.57	0.43
1:A:265:GLN:OE1	1:C:27:GLN:HG2	2.19	0.43
1:B:497:PHE:HD1	1:B:511:MET:HB2	1.78	0.43
1:C:32:VAL:HG21	1:C:136:MET:HB3	2.01	0.43
1:F:475:ARG:HB2	1:F:477:ASP:OD1	2.18	0.43
1:F:496:ASP:OD2	4:F:603[B]:PPV:O22	2.36	0.43
1:F:132:ILE:HG13	1:F:219:GLN:NE2	2.33	0.43
1:F:296:GLU:O	1:F:300:ILE:HG13	2.19	0.43
1:A:382:HIS:HD2	1:A:408:GLY:O	2.02	0.43
1:B:496:ASP:OD2	4:B:603[B]:PPV:O12	2.37	0.43
1:C:272:ASP:O	1:C:276:GLU:HB2	2.19	0.43
1:D:32:VAL:HG21	1:D:136:MET:HB3	2.01	0.43
1:E:379:ARG:HD3	1:E:379:ARG:C	2.39	0.43
1:B:89:THR:O	1:B:93:ARG:HG3	2.19	0.43
1:B:272:ASP:O	1:B:276:GLU:HB2	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:238:ARG:HH22	1:C:303:GLU:CG	2.21	0.43
1:C:382:HIS:HD2	1:C:408:GLY:O	2.02	0.43
1:F:238:ARG:HH22	1:F:303:GLU:CG	2.22	0.43
1:A:22:GLY:O	1:A:26:LYS:HD3	2.19	0.43
1:B:509:ILE:HG22	1:B:510:GLN:N	2.34	0.43
1:C:296:GLU:O	1:C:300:ILE:HG13	2.19	0.43
1:D:152:VAL:HG22	1:D:163:ILE:HG23	2.01	0.43
1:F:32:VAL:HG21	1:F:136:MET:HB3	2.01	0.43
1:F:89:THR:O	1:F:93:ARG:HG3	2.19	0.43
1:A:362:ALA:O	1:A:363:LEU:CB	2.67	0.42
1:D:382:HIS:HD2	1:D:408:GLY:O	2.02	0.42
1:E:472:LEU:HB2	1:E:495:MET:SD	2.59	0.42
1:A:272:ASP:O	1:A:276:GLU:HB2	2.19	0.42
1:A:296:GLU:O	1:A:300:ILE:HG13	2.20	0.42
1:D:132:ILE:HG13	1:D:219:GLN:NE2	2.33	0.42
1:D:472:LEU:HB2	1:D:495:MET:SD	2.60	0.42
1:E:198:GLU:H	1:E:198:GLU:CD	2.22	0.42
1:E:265:GLN:OE1	1:F:27:GLN:HG2	2.20	0.42
1:F:321:ASP:OD2	1:F:323:ARG:CD	2.67	0.42
1:B:27:GLN:HG2	1:C:265:GLN:OE1	2.19	0.42
1:B:472:LEU:HB2	1:B:495:MET:SD	2.59	0.42
1:C:255:LEU:HD23	1:C:259:VAL:HG23	2.00	0.42
1:C:472:LEU:HB2	1:C:495:MET:SD	2.60	0.42
1:D:255:LEU:HD23	1:D:259:VAL:HG23	2.00	0.42
1:E:238:ARG:HH22	1:E:303:GLU:CG	2.21	0.42
1:E:255:LEU:HD23	1:E:259:VAL:HG23	2.00	0.42
1:E:362:ALA:O	1:E:363:LEU:CB	2.66	0.42
1:F:272:ASP:O	1:F:276:GLU:HB2	2.19	0.42
1:B:362:ALA:O	1:B:363:LEU:CB	2.67	0.42
1:D:98:PRO:HG3	1:D:131:MET:HE3	1.97	0.42
1:D:89:THR:O	1:D:93:ARG:HG3	2.19	0.42
1:D:206:PHE:CE2	1:D:520:ARG:HG3	2.54	0.42
1:D:321:ASP:OD2	1:D:323:ARG:HD2	2.20	0.42
1:E:206:PHE:CE2	1:E:520:ARG:HG3	2.55	0.42
1:A:32:VAL:HG21	1:A:136:MET:HB3	2.02	0.42
1:B:321:ASP:OD2	1:B:323:ARG:HD2	2.19	0.42
1:C:362:ALA:O	1:C:363:LEU:CB	2.67	0.42
1:E:89:THR:O	1:E:93:ARG:HG3	2.19	0.42
1:B:296:GLU:O	1:B:300:ILE:HG13	2.19	0.42
1:B:255:LEU:HD23	1:B:259:VAL:HG23	2.00	0.42
1:D:272:ASP:O	1:D:276:GLU:HB2	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:190:GLU:OE2	1:A:510:GLN:CG	2.68	0.42
1:A:519:THR:O	1:A:523:ILE:HG13	2.19	0.42
1:A:534:ARG:HG3	1:A:535:LEU:HD12	2.01	0.42
1:B:403:ARG:NH1	4:B:603[A]:PPV:O32	2.46	0.42
1:C:196:ILE:HD11	1:C:201:MET:HE1	2.01	0.42
1:D:357:VAL:HG11	1:E:68:TYR:CD1	2.55	0.42
1:E:306:LYS:HA	1:E:492:LEU:HD13	2.02	0.42
1:A:306:LYS:HA	1:A:492:LEU:HD13	2.02	0.41
1:B:238:ARG:HH22	1:B:303:GLU:CG	2.21	0.41
1:D:509:ILE:HG22	1:D:510:GLN:N	2.35	0.41
1:E:198:GLU:CD	1:E:198:GLU:N	2.74	0.41
1:F:321:ASP:OD2	1:F:323:ARG:HD2	2.20	0.41
1:B:32:VAL:HG21	1:B:136:MET:HB3	2.01	0.41
1:B:382:HIS:HD2	1:B:408:GLY:O	2.03	0.41
1:E:296:GLU:O	1:E:300:ILE:HG13	2.19	0.41
1:E:321:ASP:OD2	1:E:323:ARG:HD2	2.20	0.41
1:E:538:MET:HE1	5:E:737:HOH:O	2.20	0.41
1:F:306:LYS:HA	1:F:492:LEU:HD13	2.02	0.41
1:F:382:HIS:HD2	1:F:408:GLY:O	2.03	0.41
1:F:472:LEU:HB2	1:F:495:MET:SD	2.60	0.41
1:A:238:ARG:HH21	1:A:303:GLU:HG3	1.77	0.41
1:A:472:LEU:HB2	1:A:495:MET:SD	2.60	0.41
1:E:32:VAL:HG21	1:E:136:MET:HB3	2.01	0.41
1:E:272:ASP:O	1:E:276:GLU:HB2	2.19	0.41
1:B:98:PRO:HG3	1:B:131:MET:HE3	2.00	0.41
1:C:538:MET:HE1	5:C:733:HOH:O	2.20	0.41
1:A:321:ASP:OD2	1:A:323:ARG:HD2	2.20	0.41
1:C:379:ARG:HD3	1:C:379:ARG:C	2.41	0.41
1:A:89:THR:O	1:A:93:ARG:HG3	2.20	0.41
1:A:475:ARG:HB2	1:A:477:ASP:OD1	2.19	0.41
1:B:250:THR:HG1	1:B:255:LEU:HD12	1.82	0.41
1:C:198:GLU:OE2	1:C:198:GLU:N	2.52	0.41
1:D:379:ARG:C	1:D:379:ARG:HD3	2.40	0.41
1:D:495:MET:HE3	1:D:497:PHE:HB2	2.03	0.41
1:D:496:ASP:OD2	4:D:603[B]:PPV:O22	2.38	0.41
1:E:113:ILE:HD11	1:E:138:LEU:HD11	2.03	0.41
1:E:382:HIS:HD2	1:E:408:GLY:O	2.04	0.41
1:D:391:VAL:O	1:D:391:VAL:CG1	2.69	0.41
1:E:329:ARG:O	1:E:331:LEU:CD1	2.69	0.41
1:D:113:ILE:HD11	1:D:138:LEU:HD11	2.02	0.41
1:E:391:VAL:O	1:E:391:VAL:CG1	2.69	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:379:ARG:C	1:F:379:ARG:HD3	2.41	0.41
1:C:321:ASP:OD2	1:C:323:ARG:HD2	2.20	0.41
1:D:465:VAL:HG13	1:D:501:GLY:CA	2.51	0.41
1:F:391:VAL:O	1:F:391:VAL:CG1	2.69	0.41
1:A:391:VAL:O	1:A:391:VAL:CG1	2.69	0.40
1:A:509:ILE:HG22	1:A:510:GLN:N	2.36	0.40
1:B:329:ARG:O	1:B:331:LEU:CD1	2.68	0.40
1:C:509:ILE:HG22	1:C:510:GLN:N	2.36	0.40
1:D:306:LYS:HA	1:D:492:LEU:HD13	2.02	0.40
1:D:416:LYS:HA	1:D:419:ILE:HD12	2.04	0.40
1:E:509:ILE:HG22	1:E:510:GLN:N	2.35	0.40
1:F:509:ILE:HG22	1:F:510:GLN:N	2.37	0.40
1:A:113:ILE:HD11	1:A:138:LEU:HD11	2.03	0.40
1:A:329:ARG:O	1:A:331:LEU:CD1	2.69	0.40
1:A:418:ILE:HG12	1:A:465:VAL:CG2	2.51	0.40
1:E:416:LYS:HA	1:E:419:ILE:HD12	2.03	0.40
1:B:323:ARG:CZ	1:B:329:ARG:HG3	2.52	0.40
1:B:490:ASP:OD2	4:B:603[B]:PPV:O12	2.39	0.40
1:C:416:LYS:HA	1:C:419:ILE:HD12	2.03	0.40
1:F:512:ASP:HA	5:F:731:HOH:O	2.21	0.40
1:A:27:GLN:HG2	1:B:265:GLN:OE1	2.21	0.40
1:A:379:ARG:HD3	1:A:379:ARG:C	2.41	0.40
1:E:199:GLN:O	1:E:203:GLU:HG2	2.22	0.40
1:C:497:PHE:HD1	1:C:511:MET:HB2	1.86	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:168:GLU:OE2	1:D:168:GLU:OE1[1_454]	1.70	0.50

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	503/559 (90%)	480 (95%)	23 (5%)	0	100	100
1	B	502/559 (90%)	478 (95%)	24 (5%)	0	100	100
1	C	503/559 (90%)	480 (95%)	23 (5%)	0	100	100
1	D	507/559 (91%)	484 (96%)	23 (4%)	0	100	100
1	E	503/559 (90%)	482 (96%)	21 (4%)	0	100	100
1	F	505/559 (90%)	483 (96%)	22 (4%)	0	100	100
All	All	3023/3354 (90%)	2887 (96%)	136 (4%)	0	100	100

There are no Ramachandran outliers to report.

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	431/472 (91%)	429 (100%)	2 (0%)	88	94
1	B	431/472 (91%)	428 (99%)	3 (1%)	84	91
1	C	431/472 (91%)	429 (100%)	2 (0%)	88	94
1	D	434/472 (92%)	432 (100%)	2 (0%)	88	94
1	E	430/472 (91%)	427 (99%)	3 (1%)	84	91
1	F	432/472 (92%)	428 (99%)	4 (1%)	78	88
All	All	2589/2832 (91%)	2573 (99%)	16 (1%)	86	93

All (16) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	4	GLU
1	A	379	ARG
1	B	4	GLU
1	B	15	ARG
1	B	379	ARG

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Mol	Chain	Res	Type
1	C	15	ARG
1	C	379	ARG
1	D	15	ARG
1	D	379	ARG
1	E	4	GLU
1	E	15	ARG
1	E	379	ARG
1	F	15	ARG
1	F	250	THR
1	F	379	ARG
1	F	550	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (54) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	23	GLN
1	A	115	ASN
1	A	182	HIS
1	A	266	GLN
1	A	280	ASN
1	A	382	HIS
1	A	407	HIS
1	A	529	GLN
1	A	540	HIS
1	B	23	GLN
1	B	115	ASN
1	B	182	HIS
1	B	199	GLN
1	B	266	GLN
1	B	382	HIS
1	B	407	HIS
1	B	529	GLN
1	B	540	HIS
1	C	23	GLN
1	C	115	ASN
1	C	182	HIS
1	C	266	GLN
1	C	280	ASN
1	C	382	HIS
1	C	407	HIS
1	C	529	GLN
1	C	540	HIS

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Mol	Chain	Res	Type
1	D	23	GLN
1	D	115	ASN
1	D	182	HIS
1	D	266	GLN
1	D	280	ASN
1	D	382	HIS
1	D	407	HIS
1	D	529	GLN
1	D	540	HIS
1	E	23	GLN
1	E	115	ASN
1	E	182	HIS
1	E	266	GLN
1	E	280	ASN
1	E	382	HIS
1	E	407	HIS
1	E	529	GLN
1	E	540	HIS
1	F	23	GLN
1	F	115	ASN
1	F	182	HIS
1	F	266	GLN
1	F	280	ASN
1	F	382	HIS
1	F	407	HIS
1	F	529	GLN
1	F	540	HIS

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 monosaccharides in this entry.

5.6 Ligand geometry ⓘ

24 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	GOL	A	602	-	5,5,5	0.36	0	5,5,5	0.25	0
4	PPV	C	603[B]	-	6,8,8	1.64	1 (16%)	13,13,13	1.90	2 (15%)
4	PPV	C	603[A]	-	6,8,8	1.57	1 (16%)	13,13,13	2.31	3 (23%)
2	PEG	A	601	-	6,6,6	0.54	0	5,5,5	0.42	0
4	PPV	B	603[A]	-	6,8,8	1.57	1 (16%)	13,13,13	2.21	3 (23%)
4	PPV	B	603[B]	-	6,8,8	1.63	1 (16%)	13,13,13	1.67	2 (15%)
4	PPV	D	603[B]	-	6,8,8	0.96	0	13,13,13	1.38	2 (15%)
3	GOL	C	602	-	5,5,5	0.36	0	5,5,5	0.29	0
2	PEG	D	601	-	6,6,6	0.66	0	5,5,5	0.48	0
4	PPV	D	603[A]	-	6,8,8	1.03	0	13,13,13	2.18	3 (23%)
4	PPV	F	603[A]	-	6,8,8	0.98	0	13,13,13	2.09	3 (23%)
2	PEG	C	601	-	6,6,6	0.63	0	5,5,5	0.41	0
2	PEG	B	601	-	6,6,6	0.57	0	5,5,5	0.32	0
3	GOL	D	602	-	5,5,5	0.32	0	5,5,5	0.46	0
2	PEG	E	601	-	6,6,6	0.64	0	5,5,5	0.39	0
4	PPV	E	603[B]	-	6,8,8	0.96	0	13,13,13	1.44	2 (15%)
2	PEG	F	601	-	6,6,6	0.63	0	5,5,5	0.30	0
4	PPV	A	603[B]	-	6,8,8	1.64	1 (16%)	13,13,13	1.97	2 (15%)
3	GOL	E	602	-	5,5,5	0.23	0	5,5,5	0.52	0
4	PPV	E	603[A]	-	6,8,8	1.06	0	13,13,13	2.04	2 (15%)
4	PPV	A	603[A]	-	6,8,8	1.60	1 (16%)	13,13,13	2.49	5 (38%)
4	PPV	F	603[B]	-	6,8,8	0.95	0	13,13,13	1.23	2 (15%)
3	GOL	B	602	-	5,5,5	0.23	0	5,5,5	0.38	0
3	GOL	F	602	-	5,5,5	0.28	0	5,5,5	0.18	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
3	GOL	A	602	-	-	0/4/4/4	-
4	PPV	C	603[B]	-	-	0/6/6/6	-
4	PPV	C	603[A]	-	-	3/6/6/6	-
2	PEG	A	601	-	-	3/4/4/4	-
4	PPV	B	603[A]	-	-	3/6/6/6	-
4	PPV	B	603[B]	-	-	0/6/6/6	-
4	PPV	D	603[B]	-	-	0/6/6/6	-
3	GOL	C	602	-	-	0/4/4/4	-
2	PEG	D	601	-	-	3/4/4/4	-
4	PPV	D	603[A]	-	-	2/6/6/6	-
4	PPV	F	603[A]	-	-	3/6/6/6	-
2	PEG	C	601	-	-	2/4/4/4	-
2	PEG	B	601	-	-	3/4/4/4	-
3	GOL	D	602	-	-	0/4/4/4	-
2	PEG	E	601	-	-	3/4/4/4	-
4	PPV	E	603[B]	-	-	2/6/6/6	-
2	PEG	F	601	-	-	1/4/4/4	-
4	PPV	A	603[B]	-	-	0/6/6/6	-
3	GOL	E	602	-	-	0/4/4/4	-
4	PPV	E	603[A]	-	-	2/6/6/6	-
4	PPV	A	603[A]	-	-	3/6/6/6	-
4	PPV	F	603[B]	-	-	0/6/6/6	-
3	GOL	B	602	-	-	0/4/4/4	-
3	GOL	F	602	-	-	1/4/4/4	-

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	603[B]	PPV	P1-O31	3.60	1.62	1.50
4	C	603[B]	PPV	P1-O31	3.57	1.62	1.50
4	A	603[B]	PPV	P1-O31	3.56	1.62	1.50
4	A	603[A]	PPV	P1-O31	3.49	1.61	1.50
4	B	603[A]	PPV	P1-O31	3.44	1.61	1.50
4	C	603[A]	PPV	P1-O31	3.43	1.61	1.50

All (31) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	603[A]	PPV	P2-OPP-P1	-6.60	110.17	132.83
4	C	603[A]	PPV	P2-OPP-P1	-6.28	111.27	132.83

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	D	603[A]	PPV	P2-OPP-P1	-6.14	111.77	132.83
4	F	603[A]	PPV	P2-OPP-P1	-5.98	112.30	132.83
4	E	603[A]	PPV	P2-OPP-P1	-5.78	112.98	132.83
4	B	603[A]	PPV	P2-OPP-P1	-5.46	114.08	132.83
4	A	603[B]	PPV	P2-OPP-P1	-4.35	117.89	132.83
4	C	603[B]	PPV	P2-OPP-P1	-4.29	118.09	132.83
4	C	603[B]	PPV	O21-P1-O11	3.63	121.49	107.64
4	A	603[B]	PPV	O21-P1-O11	3.60	121.38	107.64
4	E	603[B]	PPV	P2-OPP-P1	-3.42	121.09	132.83
4	B	603[B]	PPV	O21-P1-O11	3.29	120.20	107.64
4	B	603[B]	PPV	P2-OPP-P1	-3.19	121.86	132.83
4	C	603[A]	PPV	O21-P1-O11	3.19	119.84	107.64
4	D	603[B]	PPV	P2-OPP-P1	-3.15	122.01	132.83
4	A	603[A]	PPV	O21-P1-O11	3.08	119.42	107.64
4	B	603[A]	PPV	O21-P1-O11	2.99	119.07	107.64
4	B	603[A]	PPV	O21-P1-OPP	2.91	114.39	104.64
4	A	603[A]	PPV	O32-P2-OPP	-2.87	95.00	104.64
4	D	603[A]	PPV	O32-P2-OPP	-2.83	95.15	104.64
4	F	603[B]	PPV	P2-OPP-P1	-2.76	123.35	132.83
4	E	603[B]	PPV	O11-P1-O31	2.68	121.18	110.68
4	D	603[B]	PPV	O11-P1-O31	2.67	121.14	110.68
4	E	603[A]	PPV	O11-P1-O31	2.59	120.83	110.68
4	A	603[A]	PPV	O21-P1-OPP	2.48	112.94	104.64
4	F	603[A]	PPV	O11-P1-O31	2.48	120.38	110.68
4	C	603[A]	PPV	O32-P2-OPP	-2.39	96.60	104.64
4	D	603[A]	PPV	O11-P1-O31	2.38	120.01	110.68
4	F	603[A]	PPV	O32-P2-OPP	-2.37	96.69	104.64
4	F	603[B]	PPV	O11-P1-O31	2.29	119.63	110.68
4	A	603[A]	PPV	O12-P2-OPP	2.14	111.80	104.64

There are no chirality outliers.

All (34) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	603[A]	PPV	P1-OPP-P2-O32
4	B	603[A]	PPV	P1-OPP-P2-O32
4	C	603[A]	PPV	P1-OPP-P2-O32
4	D	603[A]	PPV	P1-OPP-P2-O32
4	E	603[A]	PPV	P1-OPP-P2-O32
4	E	603[B]	PPV	P1-OPP-P2-O32
4	F	603[A]	PPV	P1-OPP-P2-O32
2	A	601	PEG	O2-C3-C4-O4

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Mol	Chain	Res	Type	Atoms
2	F	601	PEG	O2-C3-C4-O4
2	B	601	PEG	O2-C3-C4-O4
2	C	601	PEG	O2-C3-C4-O4
2	D	601	PEG	O2-C3-C4-O4
2	E	601	PEG	O2-C3-C4-O4
2	D	601	PEG	O1-C1-C2-O2
2	A	601	PEG	C1-C2-O2-C3
2	B	601	PEG	C1-C2-O2-C3
2	E	601	PEG	C1-C2-O2-C3
2	C	601	PEG	C1-C2-O2-C3
2	A	601	PEG	O1-C1-C2-O2
4	C	603[A]	PPV	P1-OPP-P2-O22
2	D	601	PEG	C1-C2-O2-C3
2	B	601	PEG	O1-C1-C2-O2
3	F	602	GOL	O1-C1-C2-O2
4	A	603[A]	PPV	P1-OPP-P2-O22
4	B	603[A]	PPV	P1-OPP-P2-O22
4	D	603[A]	PPV	P1-OPP-P2-O22
4	E	603[A]	PPV	P1-OPP-P2-O22
4	E	603[B]	PPV	P1-OPP-P2-O22
4	F	603[A]	PPV	P1-OPP-P2-O22
4	A	603[A]	PPV	P1-OPP-P2-O12
4	B	603[A]	PPV	P1-OPP-P2-O12
4	C	603[A]	PPV	P1-OPP-P2-O12
4	F	603[A]	PPV	P1-OPP-P2-O12
2	E	601	PEG	O1-C1-C2-O2

There are no ring outliers.

12 monomers are involved in 42 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	C	603[B]	PPV	3	0
4	C	603[A]	PPV	4	0
4	B	603[A]	PPV	5	0
4	B	603[B]	PPV	3	0
4	D	603[B]	PPV	2	0
4	D	603[A]	PPV	4	0
4	F	603[A]	PPV	4	0
4	E	603[B]	PPV	2	0
4	A	603[B]	PPV	4	0
4	E	603[A]	PPV	5	0
4	A	603[A]	PPV	4	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	F	603[B]	PPV	2	0

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

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(Å²)	Q<0.9
1	A	511/559 (91%)	0.08	17 (3%)	46	44	26, 45, 87, 102	1 (0%)
1	B	510/559 (91%)	0.10	18 (3%)	44	42	27, 45, 87, 127	1 (0%)
1	C	511/559 (91%)	0.08	24 (4%)	31	30	27, 46, 92, 124	1 (0%)
1	D	515/559 (92%)	0.16	35 (6%)	17	16	28, 48, 105, 135	1 (0%)
1	E	511/559 (91%)	0.28	42 (8%)	11	10	27, 49, 107, 145	1 (0%)
1	F	513/559 (91%)	0.26	37 (7%)	15	14	29, 49, 102, 143	1 (0%)
All	All	3071/3354 (91%)	0.16	173 (5%)	24	23	26, 47, 97, 145	6 (0%)

All (173) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	72	LYS	9.9
1	E	293	LEU	9.7
1	F	237	GLU	9.4
1	E	237	GLU	8.5
1	A	55	ASP	8.3
1	E	72	LYS	7.8
1	C	55	ASP	7.5
1	F	55	ASP	6.9
1	C	236	ALA	6.7
1	B	55	ASP	6.7
1	A	71	GLY	6.6
1	D	237	GLU	6.5
1	D	293	LEU	6.4
1	D	241	ALA	6.1
1	E	236	ALA	6.0
1	E	363	LEU	5.9
1	F	252	GLU	5.8
1	F	71	GLY	5.6
1	F	293	LEU	5.6

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Mol	Chain	Res	Type	RSRZ
1	D	55	ASP	5.1
1	D	235	PRO	5.0
1	F	241	ALA	4.9
1	B	363	LEU	4.9
1	F	240	GLU	4.9
1	F	282	PHE	4.8
1	D	279	VAL	4.8
1	A	236	ALA	4.8
1	E	240	GLU	4.8
1	E	53	ASP	4.8
1	E	279	VAL	4.8
1	D	232	GLU	4.7
1	D	53	ASP	4.7
1	F	292	LEU	4.7
1	F	279	VAL	4.7
1	D	296	GLU	4.7
1	A	72	LYS	4.6
1	E	424	ASP	4.6
1	E	238	ARG	4.5
1	D	282	PHE	4.5
1	B	238	ARG	4.5
1	D	252	GLU	4.4
1	E	298	TYR	4.3
1	F	232	GLU	4.3
1	E	244	GLU	4.1
1	E	292	LEU	4.1
1	F	244	GLU	4.0
1	F	238	ARG	4.0
1	D	249	LEU	4.0
1	F	249	LEU	4.0
1	D	238	ARG	4.0
1	F	236	ALA	3.9
1	F	362	ALA	3.9
1	C	237	GLU	3.9
1	E	282	PHE	3.8
1	E	281	GLU	3.8
1	C	298	TYR	3.8
1	D	298	TYR	3.7
1	D	550	THR	3.7
1	C	238	ARG	3.7
1	E	234	ILE	3.7
1	B	53	ASP	3.6

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Mol	Chain	Res	Type	RSRZ
1	F	4	GLU	3.6
1	C	279	VAL	3.5
1	E	241	ALA	3.4
1	D	240	GLU	3.4
1	E	56	PHE	3.4
1	B	279	VAL	3.4
1	B	378	LYS	3.4
1	F	53	ASP	3.4
1	F	296	GLU	3.4
1	D	70	ALA	3.3
1	B	236	ALA	3.3
1	E	280	ASN	3.3
1	D	56	PHE	3.3
1	D	234	ILE	3.3
1	E	548	PRO	3.3
1	C	281	GLU	3.3
1	B	281	GLU	3.2
1	C	53	ASP	3.2
1	F	54	GLY	3.2
1	F	255	LEU	3.2
1	E	296	GLU	3.1
1	E	252	GLU	3.1
1	F	278	ILE	3.1
1	B	280	ASN	3.1
1	B	498	LYS	3.1
1	F	245	ARG	3.1
1	F	276	GLU	3.1
1	F	300	ILE	3.1
1	D	498	LYS	3.1
1	F	281	GLU	3.1
1	C	498	LYS	3.1
1	D	255	LEU	3.0
1	D	54	GLY	3.0
1	D	247	LYS	3.0
1	F	498	LYS	3.0
1	C	292	LEU	2.9
1	F	298	TYR	2.9
1	A	238	ARG	2.9
1	A	249	LEU	2.9
1	E	498	LYS	2.9
1	E	232	GLU	2.9
1	C	249	LEU	2.8

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Mol	Chain	Res	Type	RSRZ
1	A	362	ALA	2.8
1	D	233	PHE	2.8
1	C	280	ASN	2.7
1	A	53	ASP	2.7
1	F	550	THR	2.7
1	A	233	PHE	2.7
1	A	292	LEU	2.7
1	B	254	GLY	2.6
1	C	254	GLY	2.6
1	E	379	ARG	2.6
1	E	235	PRO	2.6
1	D	300	ILE	2.6
1	E	300	ILE	2.6
1	E	423	ALA	2.6
1	D	280	ASN	2.6
1	E	421	ASP	2.6
1	F	248	SER	2.6
1	D	295	LYS	2.6
1	B	249	LEU	2.6
1	B	56	PHE	2.6
1	D	276	GLU	2.5
1	A	498	LYS	2.5
1	C	340	ARG	2.5
1	E	71	GLY	2.5
1	F	280	ASN	2.5
1	C	252	GLU	2.5
1	A	237	GLU	2.5
1	F	250	THR	2.5
1	B	276	GLU	2.5
1	E	249	LEU	2.5
1	B	232	GLU	2.4
1	D	292	LEU	2.4
1	A	296	GLU	2.4
1	C	296	GLU	2.4
1	C	276	GLU	2.3
1	E	243	VAL	2.3
1	D	251	GLU	2.3
1	C	293	LEU	2.3
1	C	233	PHE	2.3
1	B	424	ASP	2.3
1	E	297	VAL	2.3
1	E	299	ALA	2.3

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Mol	Chain	Res	Type	RSRZ
1	E	248	SER	2.3
1	D	49	LYS	2.2
1	E	67	MET	2.2
1	C	430	ARG	2.2
1	E	247	LYS	2.2
1	F	243	VAL	2.2
1	D	278	ILE	2.2
1	E	257	GLU	2.2
1	F	239	ASP	2.2
1	C	232	GLU	2.2
1	C	234	ILE	2.2
1	B	292	LEU	2.2
1	E	546	ASP	2.2
1	C	282	PHE	2.1
1	E	547	GLN	2.1
1	F	295	LYS	2.1
1	B	282	PHE	2.1
1	E	245	ARG	2.1
1	F	260	LEU	2.1
1	D	248	SER	2.0
1	A	546	ASP	2.0
1	C	497	PHE	2.0
1	A	235	PRO	2.0
1	E	239	ASP	2.0
1	A	279	VAL	2.0
1	A	280	ASN	2.0
1	D	85	GLY	2.0
1	D	253	LYS	2.0

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

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

6.3 Carbohydrates ⓘ

There are no monosaccharides 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
4	PPV	B	603[A]	9/9	0.74	0.33	31,35,45,49	9
4	PPV	B	603[B]	9/9	0.74	0.33	46,51,62,62	9
4	PPV	C	603[A]	9/9	0.74	0.32	29,36,53,53	9
4	PPV	C	603[B]	9/9	0.74	0.32	49,54,62,63	9
4	PPV	D	603[A]	9/9	0.77	0.30	30,37,48,50	9
4	PPV	D	603[B]	9/9	0.77	0.30	56,60,66,69	9
2	PEG	F	601	7/7	0.78	0.17	51,56,59,61	0
4	PPV	A	603[A]	9/9	0.78	0.27	29,33,46,48	9
4	PPV	A	603[B]	9/9	0.78	0.27	43,51,60,61	9
2	PEG	E	601	7/7	0.79	0.17	54,58,61,62	0
2	PEG	C	601	7/7	0.79	0.15	47,52,55,55	0
2	PEG	B	601	7/7	0.80	0.14	52,53,55,56	0
2	PEG	A	601	7/7	0.82	0.16	48,49,53,54	0
4	PPV	E	603[A]	9/9	0.82	0.28	34,39,51,54	9
4	PPV	E	603[B]	9/9	0.82	0.28	58,63,68,68	9
4	PPV	F	603[A]	9/9	0.82	0.28	34,39,55,57	9
4	PPV	F	603[B]	9/9	0.82	0.28	53,61,68,70	9
2	PEG	D	601	7/7	0.84	0.14	52,53,57,58	0
3	GOL	B	602	6/6	0.84	0.15	52,55,56,59	0
3	GOL	C	602	6/6	0.85	0.16	47,48,52,54	0
3	GOL	E	602	6/6	0.86	0.14	57,60,63,68	0
3	GOL	A	602	6/6	0.89	0.14	53,56,59,62	0
3	GOL	D	602	6/6	0.90	0.12	55,57,60,61	0
3	GOL	F	602	6/6	0.91	0.11	57,59,60,60	0

6.5 Other polymers (i)

There are no such residues in this entry.