Full wwPDB X-ray Structure Validation Report (i)

Apr 28, 2025 – 04:15 PM JST

PDB ID	:	9LNX / pdb_00009lnx
Title	:	Crystal structure of T2R-TTL-YQVB9 Complex
Authors	:	Wu, C.Y.; Wang, Y.X.; Chen, Q.F.
Deposited on	:	2025-01-22
Resolution	:	2.59 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:

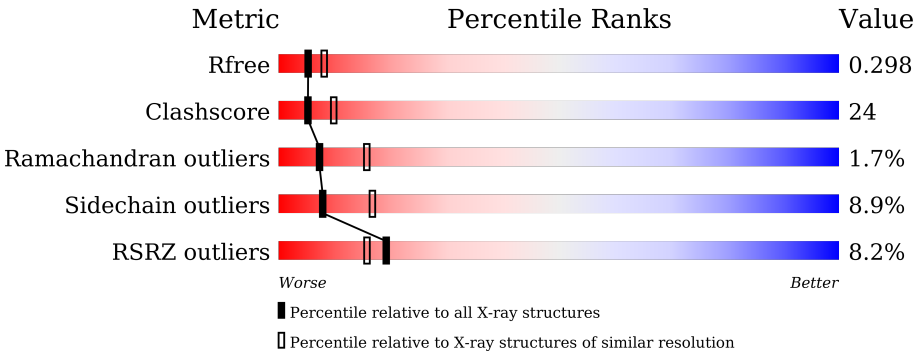
MolProbity	:	4-5-2 with Phenix2.0rc1
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	2.0rc1
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.006 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.43.1

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.59 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}	164625	3775 (2.60-2.60)
Clashscore	180529	4181 (2.60-2.60)
Ramachandran outliers	177936	4129 (2.60-2.60)
Sidechain outliers	177891	4129 (2.60-2.60)
RSRZ outliers	164620	3775 (2.60-2.60)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	450	2% 60% 32% 5%
1	C	450	4% 66% 28% 5%
2	B	445	3% 60% 33%
2	D	445	14% 44% 44% 7% 5%
3	E	143	12% 50% 28% 6% 16%
4	F	384	15% 47% 32% 7% 14%

2 Entry composition (i)

There are 10 unique types of molecules in this entry. The entry contains 17618 atoms, of which 61 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 Detyrosinated tubulin alpha-1B chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	439	Total	C	N	O	S	13	9	0
			3465	2200	584	657	24			
1	C	440	Total	C	N	O	S	4	7	0
			3466	2197	584	662	23			

- Molecule 2 is a protein called Tubulin beta chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	D	424	Total	C	N	O	S	11	4	0
			3343	2102	567	646	28			
2	B	428	Total	C	N	O	S	6	2	0
			3370	2118	576	649	27			

- Molecule 3 is a protein called Stathmin-4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	E	120	Total	C	N	O	S	0	0	0
			991	612	180	194	5			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	3	MET	-	initiating methionine	UNP P63042
E	4	ALA	-	expression tag	UNP P63042

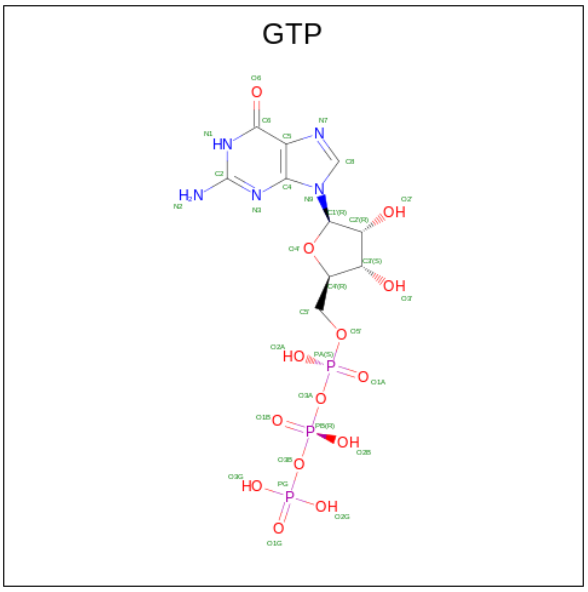
- Molecule 4 is a protein called Tubulin tyrosine ligase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	F	331	Total	C	N	O	S	9	4	0
			2729	1762	457	496	14			

There are 39 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	?	-	ALA	deletion	UNP A0A8V0Z8P0
F	?	-	GLU	deletion	UNP A0A8V0Z8P0
F	?	-	MET	deletion	UNP A0A8V0Z8P0
F	?	-	GLN	deletion	UNP A0A8V0Z8P0
F	?	-	GLN	deletion	UNP A0A8V0Z8P0
F	?	-	GLN	deletion	UNP A0A8V0Z8P0
F	?	-	LEU	deletion	UNP A0A8V0Z8P0
F	?	-	LEU	deletion	UNP A0A8V0Z8P0
F	?	-	GLU	deletion	UNP A0A8V0Z8P0
F	?	-	GLY	deletion	UNP A0A8V0Z8P0
F	?	-	ASP	deletion	UNP A0A8V0Z8P0
F	?	-	GLN	deletion	UNP A0A8V0Z8P0
F	?	-	THR	deletion	UNP A0A8V0Z8P0
F	?	-	LEU	deletion	UNP A0A8V0Z8P0
F	?	-	VAL	deletion	UNP A0A8V0Z8P0
F	?	-	LEU	deletion	UNP A0A8V0Z8P0
F	?	-	ALA	deletion	UNP A0A8V0Z8P0
F	?	-	SER	deletion	UNP A0A8V0Z8P0
F	?	-	SER	deletion	UNP A0A8V0Z8P0
F	?	-	THR	deletion	UNP A0A8V0Z8P0
F	?	-	HIS	deletion	UNP A0A8V0Z8P0
F	?	-	PRO	deletion	UNP A0A8V0Z8P0
F	?	-	GLU	deletion	UNP A0A8V0Z8P0
F	?	-	SER	deletion	UNP A0A8V0Z8P0
F	?	-	VAL	deletion	UNP A0A8V0Z8P0
F	?	-	ASP	deletion	UNP A0A8V0Z8P0
F	?	-	SER	deletion	UNP A0A8V0Z8P0
F	?	-	ASP	deletion	UNP A0A8V0Z8P0
F	?	-	LYS	deletion	UNP A0A8V0Z8P0
F	?	-	ASN	deletion	UNP A0A8V0Z8P0
F	?	-	HIS	deletion	UNP A0A8V0Z8P0
F	?	-	GLY	deletion	UNP A0A8V0Z8P0
F	?	-	PHE	deletion	UNP A0A8V0Z8P0
F	379	HIS	-	expression tag	UNP A0A8V0Z8P0
F	380	HIS	-	expression tag	UNP A0A8V0Z8P0
F	381	HIS	-	expression tag	UNP A0A8V0Z8P0
F	382	HIS	-	expression tag	UNP A0A8V0Z8P0
F	383	HIS	-	expression tag	UNP A0A8V0Z8P0
F	384	HIS	-	expression tag	UNP A0A8V0Z8P0

- Molecule 5 is GUANOSINE-5'-TRIPHOSPHATE (CCD ID: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C N O P 32 10 5 14 3	32	0
5	C	1	Total C N O P 32 10 5 14 3	32	0

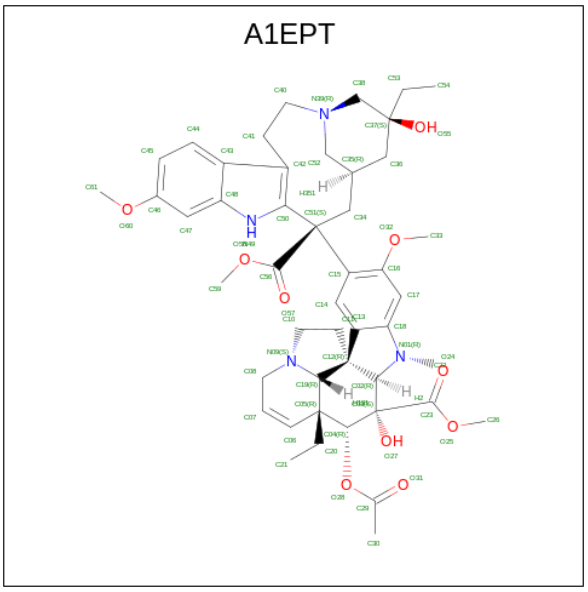
- Molecule 6 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total Mg 1 1	1	0
6	C	1	Total Mg 1 1	1	0

- Molecule 7 is CALCIUM ION (CCD ID: CA) (formula: Ca).

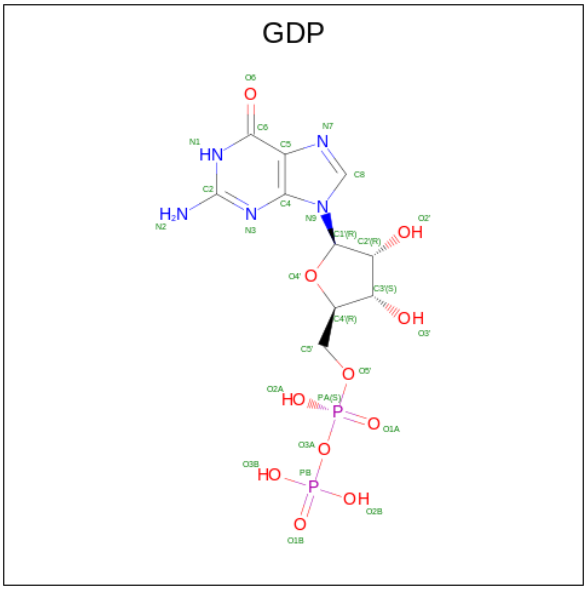
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	1	Total Ca 1 1	1	0
7	C	1	Total Ca 1 1	1	0

- Molecule 8 is 10'-methoxyvinblastine (CCD ID: A1EPT) (formula: $C_{47}H_{60}N_4O_{10}$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
8	C	1	Total	C	H	N	O	0	0
			122	47	61	4	10		

- Molecule 9 is GUANOSINE-5'-DIPHOSPHATE (CCD ID: GDP) (formula: $C_{10}H_{15}N_5O_{11}P_2$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
9	D	1	Total	C	N	O	P	28	0
			28	10	5	11	2		
9	B	1	Total	C	N	O	P	28	0
			28	10	5	11	2		

- Molecule 10 is water.

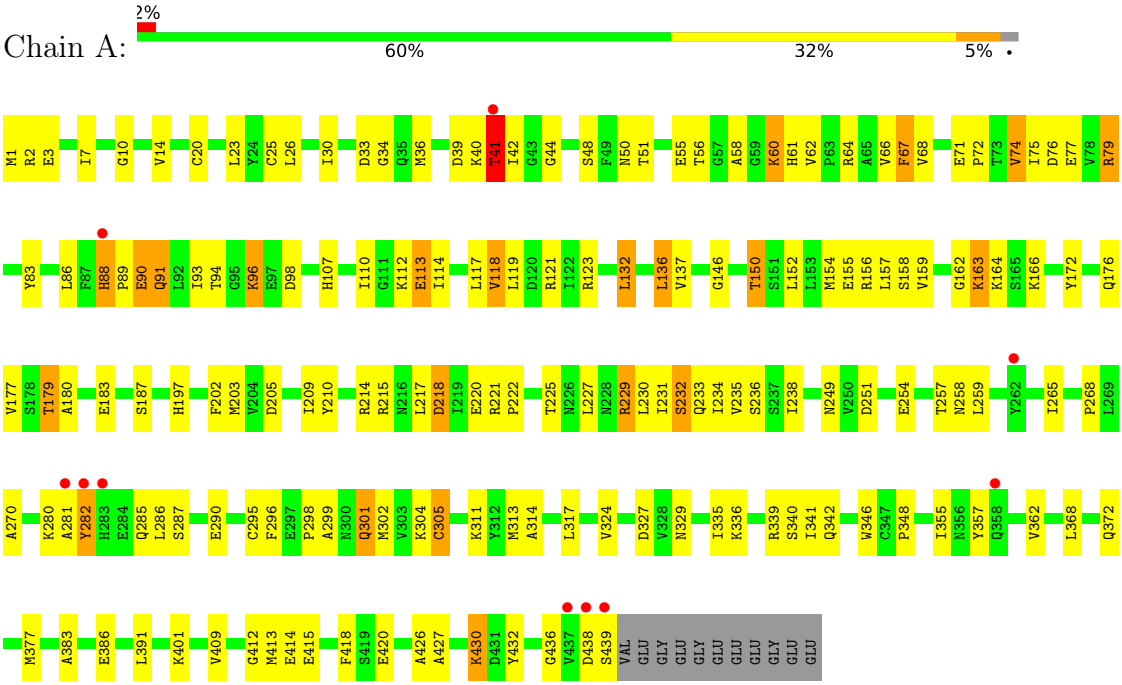
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
10	C	5	Total O 5 5	0	0
10	B	3	Total O 3 3	0	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

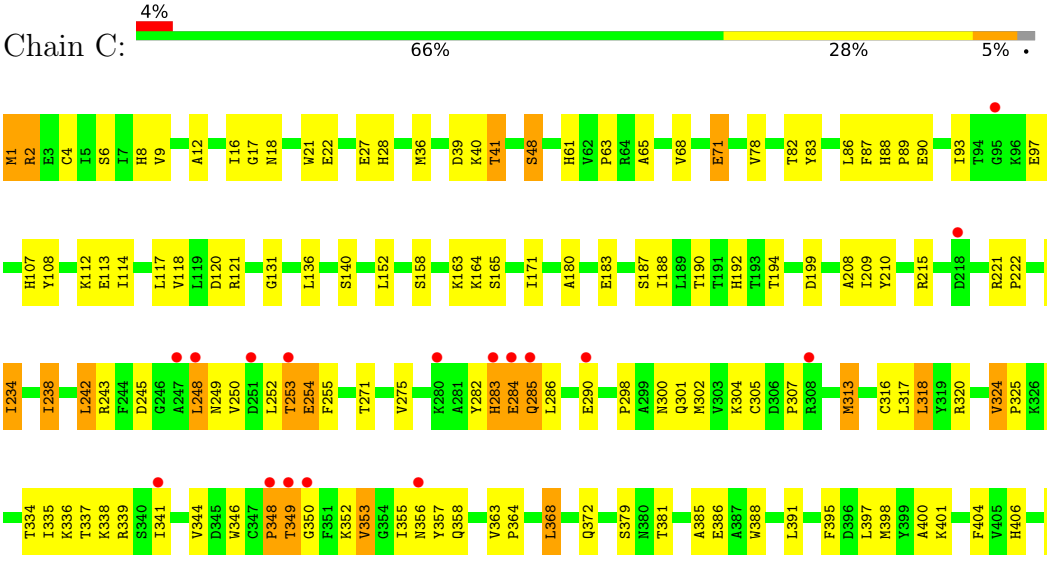
• Molecule 1: Detyrosinated tubulin alpha-1B chain

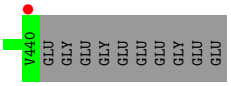
Chain A:



• Molecule 1: Detyrosinated tubulin alpha-1B chain

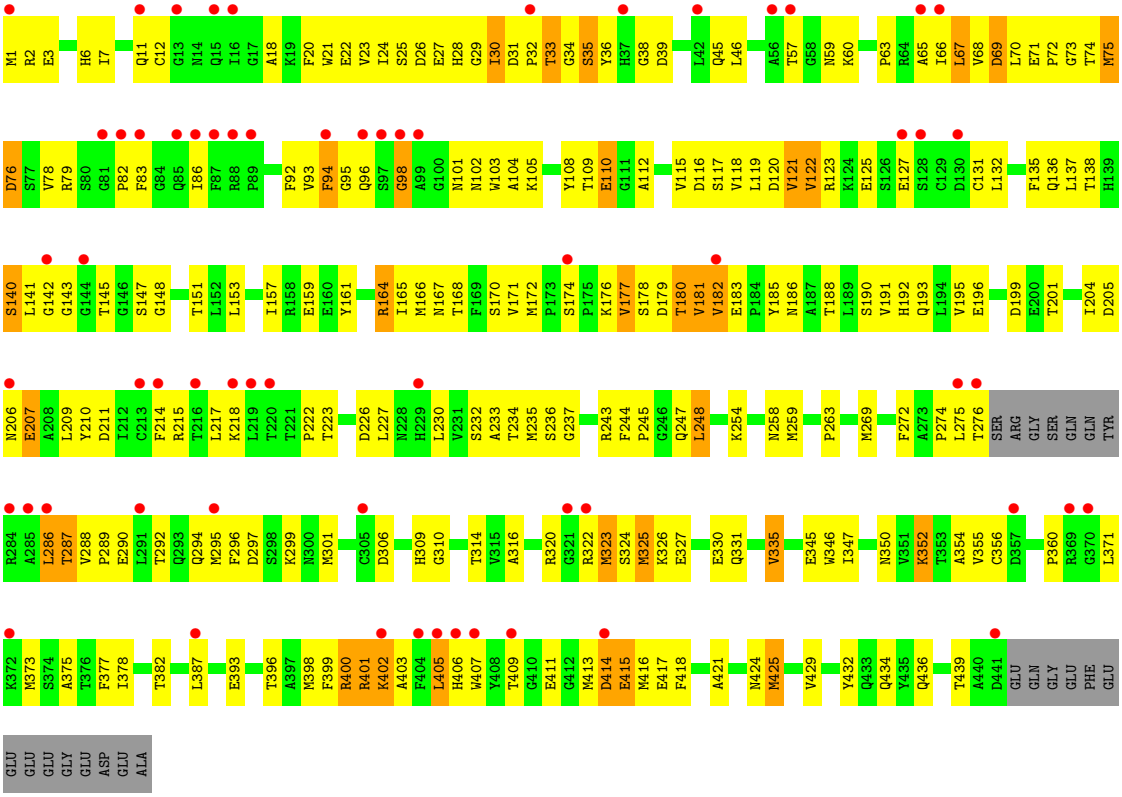
Chain C:





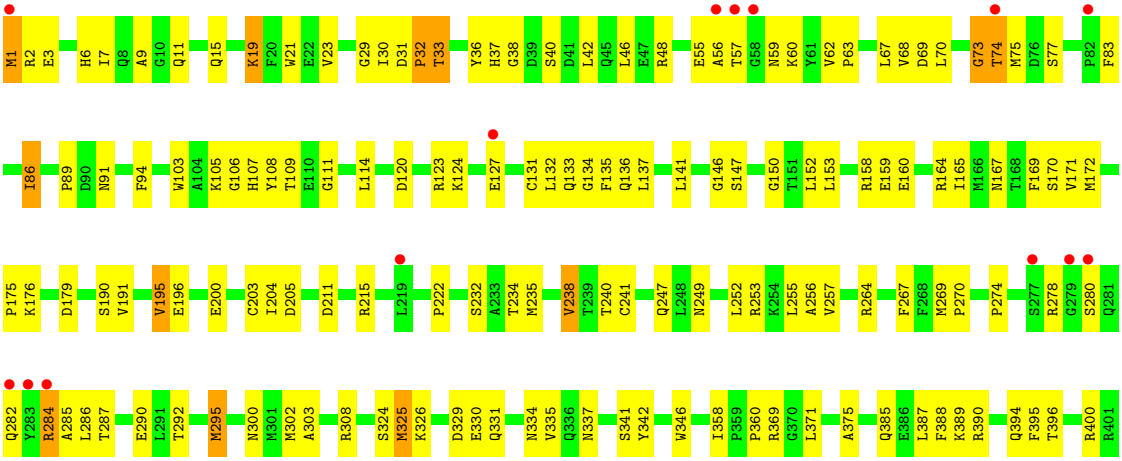
• Molecule 2: Tubulin beta chain

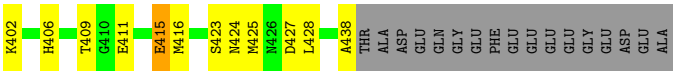
Chain D:



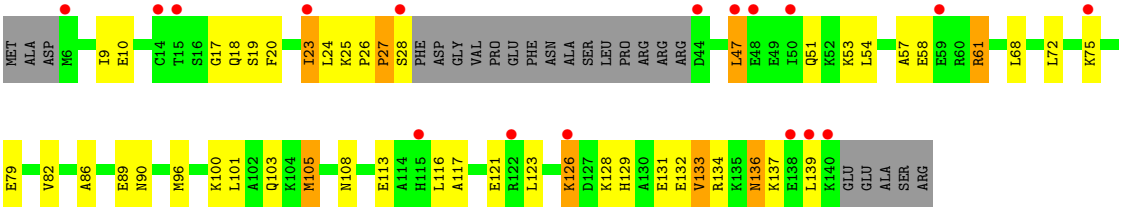
• Molecule 2: Tubulin beta chain

Chain B:

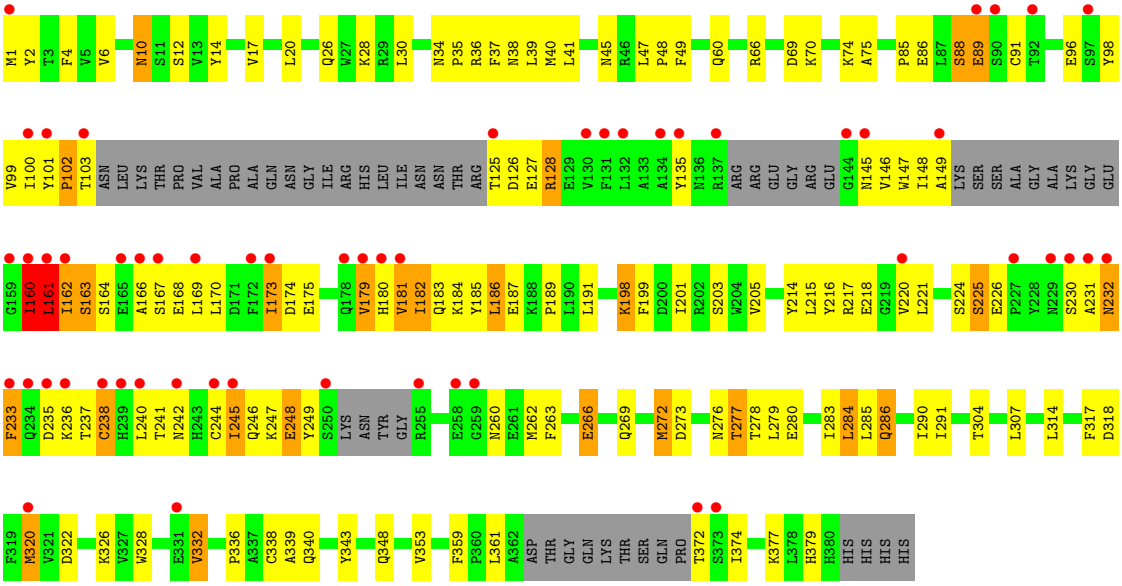




• Molecule 3: Stathmin-4



• Molecule 4: Tubulin tyrosine ligase



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	105.09Å 156.68Å 183.66Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	91.21 – 2.59 91.21 – 2.59	Depositor EDS
% Data completeness (in resolution range)	99.0 (91.21-2.59) 99.0 (91.21-2.59)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.56 (at 2.58Å)	Xtriage
Refinement program	PHENIX (???)	Depositor
R, R_{free}	0.226 , 0.296 0.230 , 0.298	Depositor DCC
R_{free} test set	5512 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å^2)	48.9	Xtriage
Anisotropy	0.079	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 38.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	17618	wwPDB-VP
Average B, all atoms (Å^2)	54.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.67% of the height of the origin peak. No significant pseudotranslation is detected.*

[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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: A1EPT, GTP, MG, CA, GDP

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	0.38	0/3571	0.57	0/4849
1	C	0.42	0/3565	0.59	0/4842
2	B	0.38	0/3451	0.57	0/4675
2	D	0.32	0/3428	0.50	0/4645
3	E	0.39	0/999	0.52	0/1325
4	F	0.32	0/2802	0.52	0/3789
All	All	0.37	0/17816	0.55	0/24125

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	C	0	1
2	D	0	1
All	All	0	2

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	254	GLU	Peptide
2	D	57	THR	Peptide

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	3465	0	3402	165	0
1	C	3466	0	3393	144	0
2	B	3370	0	3250	145	0
2	D	3343	0	3230	219	0
3	E	991	0	1012	48	0
4	F	2729	0	2715	135	0
5	A	32	0	12	0	0
5	C	32	0	12	0	0
6	A	1	0	0	0	0
6	C	1	0	0	0	0
7	A	1	0	0	0	0
7	C	1	0	0	0	0
8	C	61	61	0	16	0
9	B	28	0	12	0	0
9	D	28	0	12	0	0
10	B	3	0	0	1	0
10	C	5	0	0	5	0
All	All	17557	61	17050	824	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 24.

All (824) 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)
8:C:504:A1EPT:C12	8:C:504:A1EPT:C02	1.84	1.41
2:D:135:PHE:HB2	2:D:166:MET:HE1	1.32	1.08
1:A:56:THR:HG22	1:A:60:LYS:H	1.13	1.04
1:A:209:ILE:HD11	1:A:302:MET:CE	1.89	1.03
8:C:504:A1EPT:C11	8:C:504:A1EPT:C10	1.80	1.03
2:B:1:MET:HE2	2:B:1:MET:HA	1.41	1.03
2:D:416:MET:HE2	2:D:416:MET:HA	1.40	1.02
3:E:9:ILE:HG22	3:E:10:GLU:HG2	1.39	1.01
2:D:259:MET:HE2	2:D:259:MET:HA	1.40	1.01
2:B:2:ARG:HD3	2:B:133:GLN:HG2	1.43	1.00

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:149:ALA:HB3	4:F:160:ILE:HB	1.41	0.98
2:D:295:MET:HE3	2:D:377:PHE:HB2	1.45	0.98
1:C:324:VAL:HG22	1:C:327:ASP:HB2	1.46	0.97
1:C:221:ARG:HG2	2:D:325:MET:HE3	1.43	0.96
2:D:20:PHE:HB2	2:D:235:MET:HE3	1.47	0.95
1:A:68[B]:VAL:HG23	1:A:93:ILE:HB	1.47	0.95
1:A:137:VAL:HG21	1:A:154:MET:CE	1.97	0.94
1:A:209:ILE:HD11	1:A:302:MET:HE1	1.49	0.93
2:D:20:PHE:HB2	2:D:235:MET:CE	1.98	0.93
2:B:172:MET:HE2	2:B:387:LEU:HD21	1.51	0.92
2:B:75:MET:HE2	2:B:94:PHE:HB3	1.54	0.88
1:A:72:PRO:HA	1:A:94:THR:HG21	1.53	0.88
2:D:135:PHE:HB2	2:D:166:MET:CE	2.04	0.87
2:D:209:LEU:HD12	2:D:230:LEU:HB2	1.57	0.86
2:D:166:MET:HE3	2:D:166:MET:HA	1.56	0.86
4:F:148:ILE:O	4:F:182:ILE:HD12	1.75	0.85
1:A:56:THR:HG22	1:A:60:LYS:N	1.90	0.85
1:A:225:THR:O	1:A:229:ARG:HG3	1.77	0.85
2:B:132:LEU:HB3	2:B:164:ARG:HH11	1.42	0.85
2:D:108:TYR:CD2	3:E:133:VAL:HG11	2.12	0.84
2:D:142:GLY:O	2:D:186:ASN:ND2	2.08	0.84
2:D:411:GLU:HA	3:E:137:LYS:HD2	1.57	0.84
1:A:209:ILE:HD11	1:A:302:MET:HE3	1.60	0.83
1:A:56:THR:CG2	1:A:60:LYS:HB3	2.08	0.83
1:A:137:VAL:HG21	1:A:154:MET:HE1	1.58	0.83
1:C:252:LEU:HD12	1:C:255:PHE:HB2	1.59	0.83
2:B:264:ARG:NH2	2:B:424:ASN:OD1	2.12	0.82
2:D:286:LEU:H	2:D:286:LEU:HD23	1.45	0.82
1:A:348:PRO:HB2	3:E:23:ILE:HD12	1.62	0.81
1:C:209:ILE:HD11	1:C:302:MET:SD	2.21	0.80
2:B:124:LYS:HA	2:B:127:GLU:HG2	1.63	0.80
2:B:36:TYR:CZ	2:B:38:GLY:HA3	2.16	0.80
1:C:313:MET:HE3	1:C:435:VAL:HB	1.64	0.80
2:D:248:LEU:HD23	2:D:354:ALA:HB2	1.64	0.80
1:C:324:VAL:HG22	1:C:327:ASP:CB	2.11	0.79
2:D:36:TYR:CE1	2:D:38:GLY:HA3	2.18	0.79
1:C:163:LYS:HG2	3:E:90:ASN:OD1	1.83	0.79
2:D:120:ASP:OD1	2:D:123:ARG:NH1	2.15	0.79
3:E:105:MET:HE2	3:E:105:MET:HA	1.64	0.78
8:C:504:A1EPT:C33	2:B:222:PRO:HD2	2.13	0.78
2:D:141:LEU:HD11	2:D:170:SER:HB3	1.64	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:320:ARG:HA	2:D:356:CYS:O	1.83	0.78
2:B:278:ARG:HD3	10:B:601:HOH:O	1.83	0.78
2:D:7:ILE:O	2:D:137:LEU:HD12	1.84	0.78
1:A:287:SER:OG	1:A:290:GLU:HG3	1.84	0.78
4:F:237:THR:O	4:F:246:GLN:NE2	2.17	0.78
1:A:56:THR:CG2	1:A:60:LYS:H	1.96	0.77
1:A:155:GLU:HA	1:A:197:HIS:CD2	2.20	0.77
2:D:217:LEU:HD21	2:D:276:THR:HA	1.67	0.77
4:F:147:TRP:CB	4:F:182:ILE:HD11	2.15	0.77
2:B:36:TYR:OH	2:B:40:SER:O	2.02	0.77
4:F:39:LEU:HD21	4:F:41:LEU:HD21	1.66	0.77
1:A:317:LEU:HD21	1:A:377:MET:HE2	1.68	0.76
2:B:73:GLY:O	2:B:75:MET:N	2.17	0.76
1:A:132:LEU:HD23	1:A:164:LYS:HE2	1.66	0.76
2:B:42:LEU:HD23	2:B:358:ILE:HD11	1.65	0.76
2:D:209:LEU:HB3	2:D:227:LEU:HD22	1.67	0.76
1:A:336:LYS:HG2	3:E:24:LEU:HD23	1.70	0.74
1:A:210:TYR:OH	1:A:221:ARG:HD2	1.88	0.74
1:A:285:GLN:HG2	1:A:372[B]:GLN:HG3	1.70	0.74
1:A:295:CYS:HB3	1:A:377:MET:HE3	1.70	0.74
4:F:1:MET:HE3	4:F:28:LYS:HB2	1.68	0.74
1:A:336:LYS:HG2	3:E:24:LEU:CD2	2.18	0.74
1:C:275:VAL:HG13	1:C:368:LEU:HD11	1.68	0.73
2:D:180:THR:O	2:D:182:VAL:N	2.22	0.73
4:F:103:THR:HG22	4:F:174:ASP:OD1	1.88	0.73
4:F:225:SER:HB2	4:F:260:ASN:HD21	1.52	0.73
1:A:234:ILE:HD13	1:A:302:MET:CE	2.18	0.73
2:D:6:HIS:CD2	2:D:21:TRP:HE1	2.07	0.73
4:F:277[A]:THR:OG1	4:F:278:THR:N	2.18	0.73
2:B:215:ARG:HH11	2:B:215:ARG:HB3	1.53	0.73
1:C:101:ASN:OD1	2:D:254:LYS:HD3	1.89	0.73
3:E:136:ASN:HA	3:E:139:LEU:HD13	1.69	0.73
4:F:102:PRO:HB3	4:F:173:ILE:O	1.88	0.73
4:F:231:ALA:O	4:F:232:ASN:HB3	1.88	0.73
1:C:337:THR:O	1:C:338:LYS:HG2	1.88	0.72
1:C:356:ASN:HB3	10:C:602:HOH:O	1.88	0.72
4:F:244:CYS:SG	4:F:245:ILE:HG13	2.29	0.72
4:F:149:ALA:CB	4:F:160:ILE:HB	2.18	0.72
1:A:56:THR:HG21	1:A:60:LYS:HB3	1.72	0.72
2:D:347:ILE:HG22	2:D:350:ASN:HB3	1.70	0.72
2:B:29:GLY:O	2:B:36:TYR:HA	1.90	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3:GLU:HG2	1:A:64:ARG:CZ	2.20	0.72
2:D:176:LYS:HB3	2:D:210:TYR:CE2	2.25	0.72
1:A:209:ILE:CD1	1:A:302:MET:HE1	2.20	0.71
1:C:93:ILE:HD11	1:C:121:ARG:HG3	1.71	0.71
2:D:79:ARG:HH22	2:D:94:PHE:HE2	1.36	0.71
2:D:287:THR:HG23	2:D:290:GLU:OE1	1.90	0.71
1:A:158:SER:OG	1:A:166:LYS:HE3	1.90	0.71
1:A:298:PRO:O	1:A:301:GLN:HG3	1.89	0.71
2:B:36:TYR:OH	2:B:38:GLY:HA3	1.89	0.71
2:B:123:ARG:NH1	2:B:160:GLU:OE2	2.23	0.71
4:F:148:ILE:HG12	4:F:149:ALA:H	1.55	0.71
2:B:191:VAL:CB	2:B:425:MET:HE3	2.21	0.71
4:F:147:TRP:HB3	4:F:182:ILE:HD11	1.72	0.70
2:B:326:LYS:HE2	2:B:330:GLU:OE2	1.90	0.70
2:D:153:LEU:O	2:D:157:ILE:HG13	1.91	0.70
1:A:88:HIS:O	1:A:91:GLN:HG3	1.91	0.70
1:C:328:VAL:HG21	8:C:504:A1EPT:O60	1.90	0.70
1:A:362:VAL:HG21	1:A:368:LEU:O	1.92	0.70
2:B:1:MET:HA	2:B:1:MET:CE	2.20	0.70
1:C:1:MET:O	1:C:2:ARG:NE	2.25	0.69
1:A:187:SER:HB3	1:A:391:LEU:HD21	1.73	0.69
1:A:227:LEU:O	1:A:231:ILE:HG13	1.92	0.69
1:A:295:CYS:CB	1:A:377:MET:HE3	2.21	0.69
2:B:191:VAL:HB	2:B:425:MET:HE3	1.75	0.69
2:D:326:LYS:HE2	2:D:330:GLU:OE2	1.91	0.69
1:A:137:VAL:HG21	1:A:154:MET:HE3	1.75	0.69
1:A:68[B]:VAL:HG21	1:A:118:VAL:CG2	2.23	0.69
2:B:19:LYS:O	2:B:23:VAL:HG23	1.93	0.69
2:D:191:VAL:HG11	2:D:425:MET:HG3	1.74	0.69
4:F:304:THR:HG22	4:F:307:LEU:HD23	1.75	0.68
1:A:311:LYS:NZ	1:A:342:GLN:HG2	2.07	0.68
2:D:223:THR:HG22	2:D:226:ASP:OD2	1.93	0.68
2:D:223:THR:HG23	2:D:226:ASP:H	1.57	0.68
1:A:41:THR:OG1	1:A:44:GLY:O	2.12	0.68
2:D:12:CYS:HB3	2:D:140:SER:OG	1.94	0.68
1:A:311:LYS:HZ2	1:A:342:GLN:HG2	1.59	0.67
2:D:101:ASN:OD1	2:D:180:THR:HG21	1.93	0.67
2:B:132:LEU:HB3	2:B:164:ARG:NH1	2.08	0.67
2:B:36:TYR:C	2:B:37:HIS:HD1	2.03	0.67
4:F:280:GLU:HA	4:F:284[B]:LEU:HD12	1.77	0.67
2:B:29:GLY:C	2:B:30:ILE:HD12	2.19	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:262:MET:HE2	4:F:266:GLU:OE1	1.94	0.67
1:A:285:GLN:HG2	1:A:372[B]:GLN:OE1	1.96	0.66
2:D:119:LEU:O	2:D:123:ARG:HG3	1.96	0.66
3:E:126:LYS:HE2	3:E:126:LYS:HA	1.77	0.66
2:D:31:ASP:CG	2:D:33:THR:HG23	2.21	0.66
1:C:22:GLU:HG3	1:C:83:TYR:OH	1.97	0.65
2:D:34:GLY:O	2:D:60:LYS:HA	1.95	0.65
2:B:274:PRO:HB3	2:B:286:LEU:HD21	1.78	0.65
1:C:335:ILE:HG22	1:C:341:ILE:HD11	1.78	0.65
2:D:27:GLU:OE2	2:D:236:SER:OG	2.12	0.65
2:B:55:GLU:OE2	2:B:59:ASN:ND2	2.29	0.65
1:A:56:THR:HG22	1:A:60:LYS:HB3	1.77	0.65
2:D:287:THR:N	2:D:290:GLU:OE1	2.27	0.65
4:F:184:LYS:HE2	4:F:185:TYR:O	1.97	0.65
1:A:180:ALA:O	1:A:183:GLU:HG3	1.96	0.64
1:A:96:LYS:H	1:A:96:LYS:HD2	1.62	0.64
2:D:112:ALA:O	2:D:115:VAL:HG12	1.97	0.64
4:F:135:TYR:OH	4:F:164:SER:O	2.08	0.64
1:A:88:HIS:CE1	1:A:90:GLU:HB2	2.33	0.64
2:B:416:MET:HA	2:B:416:MET:HE2	1.78	0.64
1:A:88:HIS:N	1:A:91:GLN:OE1	2.25	0.64
1:A:68[B]:VAL:HG21	1:A:118:VAL:HG21	1.78	0.64
4:F:280:GLU:HA	4:F:284[B]:LEU:HB2	1.79	0.64
2:D:104:ALA:HB2	2:D:413:MET:HE3	1.80	0.64
4:F:170:LEU:HD23	4:F:173:ILE:HD11	1.80	0.64
2:D:20:PHE:HB2	2:D:235:MET:HE1	1.79	0.64
1:A:3:GLU:HG2	1:A:64:ARG:NH2	2.13	0.64
1:C:1:MET:HG3	1:C:131:GLY:HA3	1.79	0.64
2:D:119:LEU:HA	2:D:122:VAL:HG23	1.80	0.64
4:F:148:ILE:HG12	4:F:149:ALA:N	2.12	0.64
1:A:76:ASP:HA	1:A:79:ARG:HG3	1.80	0.63
2:D:83:PHE:O	2:D:86:ILE:HG22	1.97	0.63
4:F:135:TYR:CE2	4:F:166:ALA:HB2	2.33	0.63
1:C:301:GLN:NE2	1:C:307:PRO:HG2	2.13	0.63
2:D:297:ASP:OD2	2:D:299:LYS:HE3	1.98	0.63
2:B:124:LYS:HA	2:B:127:GLU:CG	2.28	0.63
1:A:335:ILE:C	1:A:335:ILE:HD12	2.22	0.63
1:C:298:PRO:HA	1:C:301:GLN:NE2	2.14	0.63
4:F:47:LEU:HD23	4:F:48:PRO:HD2	1.80	0.63
2:B:215:ARG:HB3	2:B:215:ARG:NH1	2.13	0.63
1:A:209:ILE:HG22	1:A:227:LEU:HD22	1.79	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:308:ARG:HG2	2:B:342:TYR:CZ	2.34	0.62
2:D:416:MET:HA	2:D:416:MET:CE	2.23	0.62
4:F:146:VAL:HG23	4:F:187:GLU:OE2	1.98	0.62
2:B:172:MET:HG3	2:B:387:LEU:HD11	1.82	0.62
1:A:90:GLU:O	1:A:121:ARG:HD2	1.99	0.62
1:C:313:MET:HG2	1:C:346:TRP:CH2	2.35	0.62
2:D:73:GLY:HA2	2:D:76:ASP:CG	2.24	0.62
2:D:274:PRO:HB3	2:D:286:LEU:HD21	1.81	0.62
2:D:209:LEU:HD12	2:D:230:LEU:CB	2.28	0.62
4:F:163:SER:OG	4:F:164:SER:N	2.32	0.61
4:F:286:GLN:O	4:F:290:ILE:HG13	1.99	0.61
2:D:25:SER:HB3	2:D:30:ILE:HG22	1.82	0.61
2:B:31:ASP:O	2:B:33:THR:N	2.33	0.61
2:D:259:MET:HA	2:D:259:MET:CE	2.23	0.61
3:E:101:LEU:O	3:E:105:MET:HG2	2.00	0.61
2:B:284:ARG:HD2	2:B:285:ALA:O	2.00	0.61
4:F:160:ILE:HG12	4:F:161:LEU:N	2.16	0.61
4:F:186:LEU:HD22	4:F:320:MET:HE3	1.83	0.61
2:D:288:VAL:HB	2:D:289:PRO:HD3	1.81	0.61
3:E:72:LEU:HD13	2:B:159:GLU:HB2	1.81	0.61
1:C:88:HIS:CE1	1:C:90:GLU:HG3	2.34	0.61
1:C:301:GLN:HE22	1:C:307:PRO:HG2	1.66	0.61
2:D:205:ASP:O	2:D:209:LEU:HD22	2.00	0.61
4:F:89:GLU:OE1	4:F:89:GLU:HA	1.95	0.61
2:B:48:ARG:NH2	2:B:241:CYS:O	2.33	0.61
1:C:190:THR:O	1:C:194[B]:THR:HG23	2.01	0.61
1:C:324:VAL:HG23	1:C:327:ASP:H	1.66	0.61
1:C:353:VAL:HG13	8:C:504:A1EPT:C61	2.31	0.61
2:B:331:GLN:O	2:B:335:VAL:HG23	2.01	0.61
2:D:181:VAL:O	2:D:398:MET:HE1	2.01	0.60
4:F:272:MET:HE3	4:F:278:THR:HG22	1.83	0.60
4:F:147:TRP:HB2	4:F:182:ILE:HD11	1.81	0.60
1:C:401:LYS:HD2	1:C:401:LYS:N	2.15	0.60
4:F:217:ARG:HG2	4:F:374:ILE:O	2.01	0.60
4:F:225:SER:H	4:F:246:GLN:HE22	1.50	0.60
2:D:210:TYR:CD1	2:D:222:PRO:HG3	2.36	0.60
1:C:21:TRP:CZ3	1:C:63:PRO:HB3	2.36	0.60
1:C:210:TYR:CZ	1:C:222:PRO:HD2	2.36	0.60
4:F:199:PHE:CD2	4:F:221:LEU:HG	2.36	0.60
2:B:83:PHE:O	2:B:86:ILE:HG23	2.02	0.60
1:C:348:PRO:O	1:C:350:GLY:N	2.35	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:283:HIS:O	1:C:284:GLU:HB3	2.00	0.60
3:E:47:LEU:HD12	3:E:47:LEU:O	2.01	0.60
2:D:176:LYS:HB3	2:D:210:TYR:HE2	1.67	0.59
2:D:179:ASP:O	2:D:181:VAL:N	2.31	0.59
2:D:405:LEU:C	2:D:405:LEU:HD23	2.27	0.59
2:B:2:ARG:HA	2:B:131:CYS:O	2.02	0.59
1:A:48:SER:O	1:A:51[A]:THR:HG23	2.02	0.59
1:C:324:VAL:CG2	1:C:327:ASP:H	2.14	0.59
2:B:6:HIS:CD2	2:B:21:TRP:HE1	2.20	0.59
2:D:75:MET:HE2	2:D:94:PHE:CD2	2.37	0.59
1:C:18:ASN:OD1	1:C:78:VAL:HG22	2.03	0.59
4:F:100:ILE:O	4:F:179:VAL:HG23	2.03	0.58
2:D:36:TYR:CZ	2:D:38:GLY:HA3	2.37	0.58
2:D:123:ARG:O	2:D:127:GLU:HG2	2.03	0.58
2:B:31:ASP:C	2:B:33:THR:H	2.10	0.58
2:D:104:ALA:HB2	2:D:413:MET:CE	2.33	0.58
1:C:108:TYR:CD2	3:E:105:MET:HE1	2.38	0.58
2:D:119:LEU:HA	2:D:122:VAL:CG2	2.33	0.58
2:B:2:ARG:NH1	2:B:133:GLN:HA	2.19	0.58
2:B:141:LEU:HD11	2:B:170:SER:HB3	1.86	0.58
2:D:259:MET:CE	2:D:314:THR:HB	2.33	0.58
4:F:20:LEU:HD22	4:F:348:GLN:OE1	2.04	0.58
1:C:238:ILE:HG23	1:C:252:LEU:HD22	1.86	0.58
3:E:126:LYS:HA	3:E:126:LYS:CE	2.34	0.58
1:C:180:ALA:O	1:C:183:GLU:HG3	2.04	0.58
2:D:29:GLY:O	2:D:36:TYR:HA	2.04	0.57
3:E:47:LEU:O	3:E:51:GLN:HG2	2.04	0.57
2:B:120:ASP:OD1	2:B:123:ARG:NH2	2.37	0.57
1:A:10:GLY:O	1:A:14:VAL:HG23	2.04	0.57
1:A:209:ILE:HG23	1:A:230:LEU:HD23	1.86	0.57
1:C:313:MET:HG2	1:C:346:TRP:CZ2	2.39	0.57
1:A:96:LYS:HE2	1:A:113:GLU:OE2	2.05	0.57
8:C:504:A1EPT:C02	8:C:504:A1EPT:C19	2.71	0.57
2:D:223:THR:HG22	2:D:226:ASP:CG	2.30	0.57
1:C:401:LYS:NZ	2:D:439:THR:O	2.32	0.57
1:A:311:LYS:HG3	1:A:436:GLY:HA2	1.87	0.57
1:C:400:ALA:C	1:C:401:LYS:HD2	2.29	0.57
2:D:39:ASP:N	2:D:39:ASP:OD1	2.36	0.57
4:F:89:GLU:C	4:F:91:CYS:H	2.13	0.57
4:F:245:ILE:HG22	4:F:245:ILE:O	2.05	0.57
1:C:271:THR:HG23	1:C:300:ASN:C	2.29	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:41:THR:OG1	1:A:41:THR:O	2.23	0.56
1:C:301:GLN:HE22	1:C:307:PRO:CD	2.18	0.56
3:E:9:ILE:HG22	3:E:10:GLU:N	2.20	0.56
3:E:129:HIS:HA	3:E:132:GLU:OE1	2.04	0.56
1:C:317:LEU:C	1:C:318:LEU:HD12	2.31	0.56
2:D:30:ILE:HA	2:D:35:SER:O	2.05	0.56
2:D:32:PRO:HB3	2:D:83:PHE:HA	1.87	0.56
2:D:118:VAL:O	2:D:122:VAL:HG23	2.05	0.56
3:E:75:LYS:O	3:E:79:GLU:HG3	2.05	0.56
3:E:126:LYS:HE2	3:E:126:LYS:CA	2.36	0.56
2:B:38:GLY:C	2:B:40:SER:H	2.13	0.56
2:D:67:LEU:N	2:D:67:LEU:HD12	2.20	0.56
4:F:199:PHE:HD2	4:F:221:LEU:HG	1.70	0.56
2:D:294:GLN:O	2:D:297:ASP:HB3	2.05	0.56
1:A:34:GLY:HA3	1:A:60:LYS:HD3	1.86	0.56
1:C:221:ARG:HG3	1:C:221:ARG:HH11	1.69	0.56
2:B:191:VAL:HG11	2:B:425:MET:HE3	1.87	0.56
1:A:34:GLY:O	1:A:61:HIS:N	2.34	0.56
1:C:335:ILE:CG2	1:C:341:ILE:HD11	2.35	0.56
4:F:74:LYS:HB3	4:F:181:VAL:HG11	1.88	0.56
1:C:36:MET:HB3	1:C:61:HIS:CE1	2.41	0.56
2:D:75:MET:HE3	2:D:92:PHE:HD2	1.70	0.56
2:B:195:VAL:HG11	2:B:424:ASN:HD21	1.72	0.55
1:C:252:LEU:C	1:C:254:GLU:H	2.13	0.55
1:C:180:ALA:HA	2:D:258:ASN:OD1	2.06	0.55
2:D:191:VAL:O	2:D:195:VAL:HG23	2.06	0.55
4:F:377:LYS:HG2	4:F:379:HIS:CD2	2.41	0.55
2:B:123:ARG:O	2:B:127:GLU:HG2	2.07	0.55
2:B:191:VAL:HG21	2:B:425:MET:CE	2.35	0.55
1:A:285:GLN:HG2	1:A:372[B]:GLN:CG	2.36	0.55
2:D:65:ALA:C	2:D:66:ILE:HD12	2.31	0.55
4:F:37:PHE:CZ	4:F:40:MET:HE3	2.40	0.55
4:F:279:LEU:HD12	4:F:283:ILE:HB	1.87	0.55
1:A:340:SER:C	1:A:341:ILE:HD12	2.31	0.55
1:C:63:PRO:HG2	1:C:87:PHE:CE2	2.42	0.55
4:F:269:GLN:HA	4:F:272:MET:HG3	1.87	0.55
2:B:191:VAL:CG1	2:B:425:MET:HE3	2.36	0.55
4:F:163:SER:HB3	4:F:169:LEU:HD21	1.88	0.55
1:A:339:ARG:HB3	1:A:341:ILE:CD1	2.38	0.54
1:A:357:TYR:CE2	3:E:17:GLY:HA2	2.41	0.54
4:F:4:PHE:HE1	4:F:6:VAL:HG23	1.72	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:162:ILE:HD12	4:F:163:SER:N	2.21	0.54
2:B:195:VAL:HG11	2:B:424:ASN:ND2	2.22	0.54
1:A:187:SER:CB	1:A:391:LEU:HD21	2.36	0.54
2:D:161:TYR:HB3	2:D:164:ARG:HG3	1.90	0.54
1:A:33:ASP:O	1:A:60:LYS:HD3	2.07	0.54
1:C:301:GLN:HE22	1:C:307:PRO:CG	2.20	0.54
2:D:192:HIS:CE1	2:D:424:ASN:HD22	2.24	0.54
1:C:27:GLU:CD	1:C:320:ARG:HH22	2.15	0.54
2:D:105:LYS:HE2	2:D:110:GLU:OE1	2.07	0.54
2:D:217:LEU:HD11	2:D:276:THR:O	2.07	0.54
4:F:338:CYS:HB3	4:F:343:TYR:CE1	2.43	0.54
2:B:11:GLN:HG3	2:B:74:THR:CG2	2.38	0.54
1:A:409:VAL:HA	1:A:413:MET:O	2.07	0.54
1:C:108:TYR:O	1:C:112:LYS:HG2	2.07	0.54
2:D:135:PHE:CB	2:D:166:MET:HE1	2.22	0.54
3:E:26:PRO:HB2	3:E:27:PRO:HD2	1.89	0.54
2:D:159:GLU:HG3	3:E:123:LEU:HD13	1.89	0.54
1:A:231:ILE:O	1:A:235:VAL:HG23	2.07	0.54
2:D:223:THR:HG23	2:D:226:ASP:N	2.23	0.54
2:D:387:LEU:HD23	2:D:387:LEU:C	2.32	0.54
2:B:165:ILE:HG21	2:B:252:LEU:HB3	1.89	0.54
1:C:335:ILE:HG22	1:C:341:ILE:CD1	2.38	0.54
3:E:96:MET:HE3	3:E:96:MET:HA	1.90	0.54
2:D:295:MET:SD	2:D:375:ALA:HB1	2.48	0.53
4:F:244:CYS:O	4:F:246:GLN:N	2.38	0.53
4:F:244:CYS:C	4:F:246:GLN:H	2.16	0.53
1:A:348:PRO:CB	3:E:23:ILE:HD12	2.36	0.53
4:F:216:TYR:CZ	4:F:218:GLU:HB2	2.43	0.53
2:B:402:LYS:HE2	2:B:415:GLU:OE1	2.08	0.53
4:F:86:GLU:CD	4:F:86:GLU:H	2.16	0.53
1:A:76:ASP:OD1	1:A:79:ARG:HD2	2.09	0.53
1:A:296:PHE:CE2	1:A:377:MET:HE1	2.44	0.53
1:A:72:PRO:HA	1:A:94:THR:CG2	2.33	0.53
1:C:88:HIS:HE1	1:C:90:GLU:HG3	1.73	0.53
2:D:141:LEU:HD22	2:D:172:MET:SD	2.49	0.53
4:F:160:ILE:HD13	4:F:160:ILE:H	1.73	0.53
1:A:39:ASP:OD1	1:A:41:THR:N	2.42	0.53
1:A:83:TYR:HD2	1:A:86:LEU:HD22	1.74	0.53
1:A:298:PRO:HA	1:A:301:GLN:CD	2.34	0.53
1:C:1:MET:C	1:C:2:ARG:HG3	2.34	0.53
1:C:4[A]:CYS:SG	1:C:136:LEU:HG	2.48	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:192:HIS:ND1	2:D:421:ALA:HA	2.24	0.53
1:A:412:GLY:HA3	3:E:57:ALA:HB1	1.92	0.52
1:C:313:MET:HE1	1:C:435:VAL:HG21	1.92	0.52
2:D:259:MET:HE1	2:D:314:THR:HB	1.92	0.52
2:B:134:GLY:HA2	2:B:164:ARG:HB3	1.91	0.52
2:B:284:ARG:HH11	2:B:284:ARG:CG	2.22	0.52
1:A:285:GLN:CG	1:A:372[B]:GLN:HG3	2.39	0.52
2:B:169:PHE:CE2	2:B:235:MET:HG2	2.45	0.52
1:C:363[A]:VAL:HG13	1:C:364:PRO:HD2	1.91	0.52
2:B:124:LYS:CA	2:B:127:GLU:HG2	2.35	0.52
2:B:234:THR:O	2:B:238:VAL:HG13	2.09	0.52
1:A:221:ARG:NE	2:B:329:ASP:OD2	2.42	0.52
4:F:96:GLU:O	4:F:183:GLN:HA	2.10	0.52
4:F:10:ASN:OD1	4:F:10:ASN:N	2.43	0.52
2:B:416:MET:HA	2:B:416:MET:CE	2.39	0.52
1:C:28:HIS:O	1:C:36:MET:HE3	2.10	0.52
2:D:325:MET:SD	2:D:355:VAL:HG21	2.50	0.52
4:F:36:ARG:HB3	2:B:337:ASN:OD1	2.10	0.52
4:F:244:CYS:SG	4:F:245:ILE:N	2.82	0.52
2:B:292:THR:CG2	2:B:335:VAL:HG21	2.39	0.52
1:C:406:HIS:CG	2:D:263:PRO:HD3	2.44	0.52
8:C:504:A1EPT:C33	2:B:222:PRO:CD	2.85	0.52
2:D:414:ASP:N	2:D:414:ASP:OD1	2.41	0.52
1:C:12:ALA:HB3	1:C:140:SER:HB3	1.92	0.52
3:E:131:GLU:OE1	3:E:131:GLU:HA	2.09	0.52
4:F:100:ILE:HD13	4:F:170:LEU:HD21	1.92	0.52
1:C:1:MET:CG	1:C:2:ARG:H	2.23	0.51
2:D:82:PRO:O	2:D:83:PHE:HB2	2.10	0.51
1:C:358:GLN:HB2	10:C:602:HOH:O	2.11	0.51
2:D:28:HIS:CE1	2:D:243:ARG:HB3	2.45	0.51
4:F:185:TYR:OH	4:F:198:LYS:NZ	2.43	0.51
2:D:7:ILE:O	2:D:137:LEU:HA	2.10	0.51
3:E:68:LEU:HD23	3:E:68:LEU:C	2.35	0.51
2:B:215:ARG:HH11	2:B:215:ARG:CB	2.22	0.51
1:C:337:THR:C	1:C:338:LYS:HG2	2.35	0.51
2:D:23:VAL:HG21	2:D:232:SER:OG	2.10	0.51
2:D:248:LEU:HD13	2:D:352:LYS:HB3	1.93	0.51
2:B:253:ARG:O	2:B:257:VAL:HG23	2.10	0.51
1:C:349:THR:C	10:C:603:HOH:O	2.53	0.51
4:F:224:SER:OG	4:F:238:CYS:HA	2.10	0.51
4:F:225:SER:CB	4:F:260:ASN:HD21	2.21	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:191:VAL:HG21	2:D:425:MET:HE2	1.91	0.51
3:E:82:VAL:HG11	2:B:108:TYR:CG	2.45	0.51
4:F:85:PRO:HG2	4:F:86:GLU:OE2	2.11	0.51
2:B:282:GLN:HA	2:B:282:GLN:OE1	2.10	0.51
1:A:36:MET:HB3	1:A:61:HIS:CE1	2.46	0.51
1:C:107:HIS:CD2	1:C:152:LEU:HB2	2.45	0.51
2:D:227:LEU:O	2:D:230:LEU:N	2.41	0.51
2:D:306:ASP:HB3	2:D:309:HIS:ND1	2.25	0.51
2:B:21:TRP:CZ3	2:B:63:PRO:HB3	2.46	0.51
2:B:287:THR:N	2:B:290:GLU:OE1	2.41	0.51
4:F:75:ALA:HB1	4:F:99:VAL:HG12	1.93	0.51
1:A:426:ALA:O	1:A:430:LYS:HE3	2.11	0.51
2:B:416:MET:HE2	2:B:416:MET:CA	2.40	0.51
1:A:3:GLU:HG2	1:A:64:ARG:NE	2.26	0.50
1:A:415:GLU:O	1:A:418:PHE:HB2	2.11	0.50
2:D:102:ASN:HB3	2:D:105:LYS:HG3	1.93	0.50
2:D:301:MET:HE1	2:D:377:PHE:CD2	2.46	0.50
1:C:282:TYR:O	1:C:283:HIS:O	2.27	0.50
1:C:117:LEU:HD11	1:C:121:ARG:NH2	2.27	0.50
1:C:398:MET:HE3	2:D:347:ILE:HG23	1.93	0.50
1:C:271:THR:HG23	1:C:300:ASN:O	2.12	0.50
4:F:160:ILE:O	4:F:161:LEU:HB2	2.12	0.50
4:F:280:GLU:CA	4:F:284[B]:LEU:HD12	2.40	0.50
1:A:107:HIS:HD2	1:A:152:LEU:HB2	1.75	0.50
2:D:324:SER:HB3	2:D:327:GLU:HB2	1.94	0.50
1:C:248:LEU:HD12	1:C:357:TYR:CE2	2.47	0.50
4:F:236:LYS:HD3	4:F:240:LEU:HD12	1.93	0.50
1:A:7:ILE:HG23	1:A:66[A]:VAL:HG13	1.94	0.50
4:F:231:ALA:O	4:F:232:ASN:CB	2.59	0.50
2:B:424:ASN:O	2:B:427:ASP:HB2	2.12	0.50
2:D:136:GLN:HA	2:D:167:ASN:O	2.12	0.50
1:C:71:GLU:HG2	1:C:98:ASP:HB3	1.94	0.50
4:F:160:ILE:HD13	4:F:160:ILE:N	2.25	0.50
2:D:147:SER:O	2:D:151:THR:HG23	2.12	0.49
4:F:148:ILE:O	4:F:182:ILE:HA	2.12	0.49
4:F:166:ALA:O	4:F:168:GLU:N	2.45	0.49
8:C:504:A1EPT:C33	2:B:222:PRO:CG	2.89	0.49
2:B:11:GLN:HA	2:B:74:THR:HG21	1.93	0.49
1:A:98:ASP:C	1:A:98:ASP:OD1	2.55	0.49
1:A:119:LEU:HD11	1:A:156:ARG:HB3	1.94	0.49
1:C:335:ILE:O	1:C:339:ARG:HB2	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:21:TRP:CZ3	2:D:63:PRO:HB3	2.47	0.49
2:D:286:LEU:HD23	2:D:286:LEU:N	2.22	0.49
2:D:2:ARG:HD2	2:D:131:CYS:SG	2.52	0.49
2:B:171:VAL:HA	2:B:204:ILE:O	2.12	0.49
2:D:94:PHE:HD1	2:D:94:PHE:O	1.95	0.49
2:D:274:PRO:HB3	2:D:286:LEU:CD2	2.41	0.49
2:B:56:ALA:HB3	2:B:60:LYS:HB2	1.95	0.49
1:A:2:ARG:O	1:A:51[B]:THR:HG23	2.12	0.49
1:C:21:TRP:CE3	1:C:63:PRO:HB3	2.47	0.49
2:D:172:MET:HE2	2:D:387:LEU:HD21	1.93	0.49
2:D:274:PRO:HD2	2:D:371:LEU:HD13	1.94	0.49
1:C:165:SER:HA	1:C:199:ASP:OD2	2.12	0.49
1:C:324:VAL:HG22	1:C:327:ASP:CG	2.37	0.49
1:C:325:PRO:HB3	8:C:504:A1EPT:C48	2.43	0.49
2:B:36:TYR:CZ	2:B:38:GLY:CA	2.93	0.49
2:B:308:ARG:HA	2:B:342:TYR:CE1	2.48	0.49
2:B:390:ARG:O	2:B:394:GLN:HG3	2.13	0.49
2:B:396:THR:HG21	2:B:400:ARG:HH21	1.78	0.49
1:A:119:LEU:HD11	1:A:156:ARG:CB	2.43	0.49
2:D:191:VAL:CG1	2:D:425:MET:HG3	2.42	0.49
2:D:310:GLY:HA2	2:D:436:GLN:OE1	2.12	0.49
1:A:56:THR:HG23	1:A:58:ALA:H	1.78	0.48
2:D:18:ALA:O	2:D:22:GLU:HG3	2.13	0.48
2:B:234:THR:HG21	2:B:270:PRO:HB2	1.93	0.48
1:A:285:GLN:HG2	1:A:372[B]:GLN:CD	2.38	0.48
2:D:75:MET:HE1	2:D:93:VAL:H	1.78	0.48
2:B:30:ILE:HD12	2:B:30:ILE:N	2.28	0.48
2:B:200:GLU:OE2	2:B:256:ALA:HB2	2.13	0.48
1:A:1:MET:HE2	1:A:50:ASN:CB	2.42	0.48
2:D:287:THR:O	2:D:290:GLU:N	2.46	0.48
1:A:339:ARG:HB3	1:A:341:ILE:HD11	1.94	0.48
4:F:162:ILE:HD12	4:F:163:SER:H	1.79	0.48
1:A:329:ASN:HD21	3:E:20:PHE:HE2	1.61	0.48
1:C:108:TYR:CD2	3:E:108:ASN:CG	2.92	0.48
3:E:86:ALA:HB2	2:B:411:GLU:C	2.38	0.48
2:D:30:ILE:HG22	2:D:30:ILE:O	2.14	0.48
2:B:195:VAL:HG12	2:B:196:GLU:HG2	1.94	0.48
1:A:341:ILE:HD12	1:A:341:ILE:N	2.28	0.48
2:D:191:VAL:HG21	2:D:425:MET:CE	2.44	0.48
2:B:205:ASP:HB3	2:B:303:ALA:HA	1.94	0.48
1:A:1:MET:HE2	1:A:50:ASN:HB3	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:76:ASP:OD1	2:D:76:ASP:N	2.47	0.48
2:D:115:VAL:HG13	2:D:116:ASP:N	2.28	0.48
2:D:416:MET:O	2:D:418:PHE:N	2.46	0.48
3:E:58:GLU:O	3:E:58:GLU:HG2	2.12	0.48
4:F:314:LEU:HD23	4:F:336:PRO:HG2	1.96	0.48
1:A:25:CYS:HB3	1:A:30:ILE:O	2.14	0.48
1:C:336:LYS:NZ	10:C:601:HOH:O	2.17	0.48
2:D:31:ASP:OD2	2:D:33:THR:HG23	2.14	0.48
2:D:109:THR:HG21	2:D:411:GLU:HB3	1.95	0.48
2:B:89:PRO:C	2:B:91:ASN:H	2.22	0.48
2:B:295:MET:SD	2:B:375:ALA:HB1	2.53	0.48
1:A:96:LYS:HD2	1:A:96:LYS:N	2.29	0.47
1:A:221:ARG:HG2	2:B:325:MET:HB2	1.95	0.47
4:F:170:LEU:HD23	4:F:173:ILE:CD1	2.43	0.47
4:F:186:LEU:CD2	4:F:320:MET:HE3	2.44	0.47
2:B:2:ARG:H	2:B:131:CYS:HB3	1.79	0.47
1:A:113:GLU:O	1:A:113:GLU:HG3	2.14	0.47
1:A:234:ILE:O	1:A:238:ILE:HG13	2.14	0.47
2:D:75:MET:HE2	2:D:94:PHE:HD2	1.79	0.47
2:D:416:MET:HE2	2:D:416:MET:CA	2.28	0.47
1:C:255:PHE:CD1	1:C:316:CYS:HB3	2.50	0.47
2:D:103:TRP:CD1	2:D:148:GLY:HA2	2.50	0.47
2:D:297:ASP:CG	2:D:299:LYS:HE3	2.39	0.47
2:D:396:THR:C	2:D:398:MET:H	2.22	0.47
1:C:334:THR:O	1:C:335:ILE:C	2.57	0.47
2:D:70:LEU:H	2:D:145:THR:HG21	1.78	0.47
2:D:72:PRO:HG2	2:D:96:GLN:OE1	2.14	0.47
2:D:259:MET:HE2	2:D:314:THR:HB	1.97	0.47
4:F:135:TYR:CD2	4:F:166:ALA:HB2	2.49	0.47
2:B:146:GLY:O	2:B:150:GLY:HA3	2.14	0.47
1:A:249:ASN:OD1	1:A:258:ASN:ND2	2.45	0.47
1:A:67:PHE:HD1	1:A:67:PHE:N	2.12	0.47
1:A:383:ALA:O	1:A:386:GLU:HG3	2.14	0.47
1:C:114:ILE:O	1:C:114:ILE:HG12	2.14	0.47
1:C:313:MET:HE3	1:C:346:TRP:HZ2	1.80	0.47
1:C:325:PRO:HB3	8:C:504:A1EPT:C43	2.45	0.47
2:D:66:ILE:HD11	2:D:125:GLU:HG3	1.96	0.47
2:D:295:MET:HE3	2:D:377:PHE:CB	2.32	0.47
2:D:382:THR:HA	2:D:432:TYR:HD1	1.80	0.47
4:F:338:CYS:HB3	4:F:343:TYR:CZ	2.50	0.47
4:F:338:CYS:SG	4:F:339:ALA:N	2.88	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:67:PHE:N	1:A:67:PHE:CD1	2.82	0.47
1:C:250:VAL:HG21	10:C:604:HOH:O	2.15	0.47
2:D:93:VAL:HG21	2:D:121:VAL:HG21	1.97	0.47
4:F:69:ASP:OD1	4:F:69:ASP:N	2.44	0.47
1:C:1:MET:H1	1:C:1:MET:HE3	1.79	0.47
1:C:334:THR:HG23	1:C:338:LYS:HE2	1.97	0.47
4:F:88:SER:OG	4:F:89:GLU:N	2.46	0.47
2:B:31:ASP:C	2:B:33:THR:N	2.73	0.47
1:A:7:ILE:HG12	1:A:66[A]:VAL:CG1	2.45	0.47
2:D:69:ASP:OD2	2:D:74:THR:OG1	2.33	0.47
2:D:119:LEU:CA	2:D:122:VAL:HG23	2.45	0.47
2:D:234:THR:O	2:D:237:GLY:N	2.48	0.47
4:F:28:LYS:HD3	4:F:30:LEU:CD2	2.45	0.47
1:A:1:MET:HE2	1:A:50:ASN:C	2.40	0.46
1:A:76:ASP:HA	1:A:79:ARG:CG	2.44	0.46
1:C:313:MET:HE3	1:C:435:VAL:CB	2.41	0.46
1:C:344:VAL:HG21	1:C:346:TRP:CE2	2.50	0.46
2:D:214:PHE:O	2:D:218:LYS:HA	2.15	0.46
3:E:9:ILE:HG22	3:E:10:GLU:CG	2.28	0.46
4:F:146:VAL:C	4:F:147:TRP:CD1	2.93	0.46
1:C:112:LYS:HG3	1:C:113:GLU:N	2.29	0.46
1:C:252:LEU:O	1:C:254:GLU:N	2.45	0.46
2:D:210:TYR:CE1	2:D:222:PRO:HG3	2.49	0.46
4:F:75:ALA:HB1	4:F:99:VAL:CG1	2.45	0.46
4:F:272:MET:HE2	4:F:272:MET:HB3	1.81	0.46
1:C:93:ILE:CD1	1:C:121:ARG:HG3	2.42	0.46
2:D:322:ARG:O	2:D:323:MET:HB3	2.14	0.46
1:C:93:ILE:CG2	1:C:114:ILE:HD11	2.46	0.46
2:D:71:GLU:HB2	2:D:98:GLY:HA2	1.97	0.46
2:D:191:VAL:HB	2:D:425:MET:HE3	1.96	0.46
2:D:316:ALA:HB3	2:D:378:ILE:HB	1.98	0.46
2:B:36:TYR:C	2:B:37:HIS:ND1	2.72	0.46
2:B:325:MET:HB3	2:B:325:MET:HE3	1.45	0.46
1:A:258:ASN:O	1:A:314:ALA:HB1	2.15	0.46
4:F:162:ILE:HG13	4:F:233:PHE:HB2	1.96	0.46
2:B:308:ARG:HG2	2:B:342:TYR:OH	2.16	0.46
1:A:83:TYR:CD2	1:A:86:LEU:HD22	2.50	0.46
4:F:34:ASN:OD1	4:F:35:PRO:HD2	2.16	0.46
2:B:203:CYS:SG	2:B:267:PHE:HB3	2.56	0.46
1:A:23:LEU:HD23	1:A:236:SER:HB2	1.97	0.46
1:C:255:PHE:CD1	1:C:352:LYS:HD3	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:413:MET:HE2	1:A:418:PHE:CE2	2.51	0.46
3:E:24:LEU:N	3:E:24:LEU:HD12	2.30	0.46
1:A:110:ILE:O	1:A:110:ILE:HG22	2.14	0.46
8:C:504:A1EPT:C02	8:C:504:A1EPT:C11	2.59	0.46
4:F:160:ILE:HG12	4:F:161:LEU:H	1.78	0.46
4:F:322:ASP:C	4:F:322:ASP:OD1	2.59	0.46
1:A:401:LYS:HE3	2:B:438:ALA:HB1	1.99	0.46
1:C:285:GLN:HG2	1:C:372:GLN:OE1	2.16	0.46
2:D:248:LEU:HD23	2:D:354:ALA:CB	2.41	0.46
4:F:233:PHE:CD1	4:F:233:PHE:N	2.84	0.46
2:B:135:PHE:CD1	2:B:135:PHE:N	2.85	0.45
1:A:56:THR:HG23	1:A:58:ALA:N	2.31	0.45
1:C:16:ILE:CD1	1:C:171:ILE:HD11	2.47	0.45
1:C:39:ASP:C	1:C:40:LYS:HD3	2.40	0.45
1:C:93:ILE:HG22	1:C:114:ILE:HD11	1.97	0.45
2:D:31:ASP:OD1	2:D:31:ASP:N	2.49	0.45
2:B:9:ALA:HA	2:B:68:VAL:O	2.15	0.45
1:A:56:THR:HG22	1:A:60:LYS:CB	2.46	0.45
1:C:63:PRO:HD3	1:C:86:LEU:HG	1.98	0.45
2:D:174:SER:HB2	2:D:207:GLU:N	2.31	0.45
2:D:275:LEU:HD23	2:D:275:LEU:HA	1.79	0.45
4:F:224:SER:HA	4:F:246:GLN:NE2	2.30	0.45
1:C:1:MET:O	1:C:2:ARG:CZ	2.63	0.45
1:C:108:TYR:CD2	3:E:105:MET:CE	3.00	0.45
1:C:221:ARG:HG3	1:C:221:ARG:NH1	2.31	0.45
2:D:274:PRO:CG	2:D:371:LEU:HD13	2.47	0.45
4:F:146:VAL:HG12	4:F:185:TYR:HB3	1.98	0.45
1:A:210:TYR:CE2	1:A:214:ARG:HD2	2.51	0.45
1:A:254:GLU:HG2	1:A:258:ASN:ND2	2.31	0.45
1:C:250:VAL:HG11	1:C:352:LYS:HE3	1.97	0.45
4:F:38:ASN:O	4:F:60:GLN:HA	2.16	0.45
4:F:235:ASP:OD1	4:F:235:ASP:N	2.47	0.45
2:D:104:ALA:HB1	2:D:411:GLU:HB2	1.98	0.45
2:D:405:LEU:HD23	2:D:406:HIS:N	2.32	0.45
3:E:136:ASN:O	3:E:139:LEU:HB2	2.17	0.45
1:A:146:GLY:O	1:A:150:THR:HB	2.17	0.45
1:A:234:ILE:HD13	1:A:302:MET:SD	2.57	0.45
2:B:105:LYS:HA	2:B:109:THR:OG1	2.15	0.45
2:B:107:HIS:O	2:B:152:LEU:HD22	2.17	0.45
2:D:247:GLN:HA	2:D:247:GLN:NE2	2.31	0.45
4:F:216:TYR:CE2	4:F:218:GLU:HB2	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:191:VAL:HG11	2:B:425:MET:CE	2.46	0.45
1:C:9:VAL:HG22	1:C:68[B]:VAL:CG1	2.47	0.45
8:C:504:A1EPT:C33	2:B:222:PRO:HG2	2.46	0.45
2:D:177:VAL:HG21	2:D:206:ASN:HB3	1.99	0.45
2:D:292:THR:HG22	2:D:335:VAL:HG21	1.99	0.45
4:F:100:ILE:HG21	4:F:173:ILE:CD1	2.46	0.45
2:B:136:GLN:HA	2:B:167:ASN:O	2.17	0.45
1:A:270:ALA:HB3	1:A:302:MET:CG	2.47	0.45
1:A:304:LYS:O	1:A:305:CYS:HB3	2.16	0.45
1:A:335:ILE:HD12	1:A:336:LYS:N	2.31	0.45
1:C:48:SER:HB3	1:C:243:ARG:O	2.17	0.45
2:D:171:VAL:HG12	2:D:206:ASN:HD21	1.82	0.45
2:D:401:ARG:O	2:D:403:ALA:N	2.50	0.45
3:E:23:ILE:HD11	3:E:26:PRO:HA	1.99	0.45
1:C:397:LEU:HD23	1:C:397:LEU:HA	1.81	0.44
2:D:402:LYS:O	2:D:405:LEU:HB3	2.18	0.44
4:F:220:VAL:HG12	4:F:263:PHE:CE1	2.51	0.44
2:B:141:LEU:HD12	2:B:172:MET:SD	2.57	0.44
1:A:7:ILE:HG12	1:A:66[A]:VAL:HG12	1.98	0.44
1:C:234:ILE:O	1:C:238:ILE:HD12	2.17	0.44
2:D:174:SER:HB3	2:D:206:ASN:HB2	1.99	0.44
4:F:147:TRP:O	4:F:162:ILE:HD12	2.17	0.44
4:F:236:LYS:HD3	4:F:240:LEU:CD1	2.47	0.44
2:B:284:ARG:CD	2:B:285:ALA:O	2.64	0.44
1:A:155:GLU:HG2	1:A:197:HIS:NE2	2.32	0.44
2:D:402:LYS:HB3	2:D:402:LYS:HE2	1.80	0.44
2:B:32:PRO:O	2:B:86:ILE:HG22	2.18	0.44
1:A:265:ILE:HG21	1:A:313:MET:HE1	1.99	0.44
2:D:346:TRP:CD1	2:D:346:TRP:H	2.36	0.44
4:F:201:ILE:HG12	4:F:221:LEU:CD1	2.47	0.44
1:C:192:HIS:CG	1:C:421:ALA:HA	2.53	0.44
2:B:396:THR:CG2	2:B:400:ARG:HH21	2.30	0.44
1:C:318:LEU:HD12	1:C:318:LEU:N	2.33	0.44
1:C:385:ALA:HA	1:C:388:TRP:CD1	2.53	0.44
2:D:174:SER:O	2:D:177:VAL:N	2.50	0.44
2:D:209:LEU:CB	2:D:227:LEU:HD22	2.42	0.44
3:E:9:ILE:CG2	3:E:10:GLU:N	2.81	0.44
2:D:67:LEU:HD12	2:D:67:LEU:H	1.82	0.44
2:D:185:TYR:CD1	2:D:418:PHE:HE2	2.36	0.44
2:D:211:ASP:O	2:D:215:ARG:HD2	2.18	0.44
2:D:382:THR:HA	2:D:432:TYR:CD1	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:399:PHE:CE1	2:D:418:PHE:HB3	2.52	0.44
2:B:11:GLN:HG3	2:B:74:THR:HG21	1.99	0.44
2:B:388:PHE:HD1	2:B:425:MET:HE2	1.82	0.44
1:A:234:ILE:HD13	1:A:302:MET:HE2	1.97	0.44
2:D:67:LEU:CD2	2:D:78:VAL:HG11	2.48	0.44
4:F:146:VAL:CG1	4:F:162:ILE:HD11	2.47	0.44
1:A:123:ARG:HG3	1:A:123:ARG:HH11	1.83	0.43
1:A:162:GLY:C	1:A:163:LYS:HE3	2.43	0.43
1:C:318:LEU:N	1:C:318:LEU:CD1	2.81	0.43
3:E:134:ARG:C	3:E:136:ASN:H	2.26	0.43
1:A:427:ALA:O	1:A:430:LYS:HB2	2.18	0.43
2:D:27:GLU:O	2:D:45:GLN:NE2	2.46	0.43
2:D:72:PRO:HG3	2:D:95:GLY:O	2.18	0.43
4:F:135:TYR:O	4:F:145:ASN:ND2	2.51	0.43
4:F:326:LYS:HD3	4:F:328:TRP:CZ2	2.53	0.43
1:A:1:MET:SD	1:A:1:MET:C	3.01	0.43
2:D:190:SER:O	2:D:193:GLN:N	2.51	0.43
4:F:269:GLN:NE2	4:F:273:ASP:OD2	2.50	0.43
2:B:195:VAL:CG1	2:B:424:ASN:HD21	2.32	0.43
1:C:208:ALA:HB2	1:C:304:LYS:HG3	2.00	0.43
2:D:70:LEU:HD13	2:D:110:GLU:HB3	2.00	0.43
2:D:171:VAL:HG22	2:D:204:ILE:HG21	2.01	0.43
2:D:188:THR:O	2:D:188:THR:HG22	2.19	0.43
2:B:106:GLY:O	2:B:111:GLY:HA3	2.18	0.43
1:C:40:LYS:HD3	1:C:40:LYS:N	2.34	0.43
2:D:102:ASN:OD1	2:D:104:ALA:HB3	2.18	0.43
2:D:179:ASP:C	2:D:181:VAL:H	2.24	0.43
2:D:326:LYS:O	2:D:330:GLU:HG3	2.18	0.43
4:F:101:TYR:O	4:F:128:ARG:NH1	2.51	0.43
2:B:21:TRP:CE3	2:B:63:PRO:HB3	2.53	0.43
1:A:75:ILE:O	1:A:79:ARG:HG2	2.19	0.43
1:A:281:ALA:O	1:A:282:TYR:O	2.36	0.43
1:A:439:SER:OG	4:F:70:LYS:CG	2.67	0.43
2:D:176:LYS:HB3	2:D:210:TYR:CD2	2.53	0.43
2:D:269:MET:HB2	2:D:269:MET:HE3	1.58	0.43
2:D:400:ARG:HD2	2:D:400:ARG:HA	1.52	0.43
4:F:49:PHE:HB3	4:F:66:ARG:HD2	2.01	0.43
2:B:360:PRO:O	2:B:369:ARG:C	2.61	0.43
1:A:157:LEU:C	1:A:159:VAL:H	2.27	0.43
1:A:217:LEU:O	1:A:218:ASP:C	2.61	0.43
1:C:164:LYS:HB2	1:C:164:LYS:HE2	1.76	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:415:GLU:H	2:D:415:GLU:HG2	1.44	0.43
2:B:387:LEU:C	2:B:387:LEU:HD23	2.44	0.43
1:A:233:GLN:HG3	1:A:368:LEU:CD1	2.49	0.43
1:C:395:PHE:CD1	1:C:422:ARG:HD3	2.54	0.43
1:A:179:THR:HG21	2:B:247:GLN:O	2.18	0.42
1:A:336:LYS:HD2	1:A:336:LYS:HA	1.60	0.42
1:C:242:LEU:N	1:C:242:LEU:HD23	2.34	0.42
1:C:391:LEU:HD23	1:C:391:LEU:HA	1.87	0.42
1:C:248:LEU:CD1	1:C:357:TYR:OH	2.67	0.42
1:C:325:PRO:HA	8:C:504:A1EPT:C47	2.48	0.42
2:D:292:THR:O	2:D:296:PHE:HD1	2.02	0.42
4:F:135:TYR:HE1	4:F:145:ASN:CB	2.32	0.42
4:F:168:GLU:HG3	4:F:169:LEU:N	2.34	0.42
2:B:103:TRP:HD1	2:B:147:SER:OG	2.01	0.42
1:A:202:PHE:CE1	1:A:268:PRO:HG2	2.54	0.42
1:C:83:TYR:HD2	1:C:86:LEU:HD22	1.84	0.42
2:B:153:LEU:HA	2:B:153:LEU:HD23	1.86	0.42
1:C:6:SER:O	1:C:65:ALA:HA	2.20	0.42
1:C:90:GLU:O	1:C:121:ARG:HD2	2.19	0.42
1:C:252:LEU:C	1:C:254:GLU:N	2.76	0.42
2:D:68:VAL:O	2:D:69:ASP:HB2	2.19	0.42
4:F:135:TYR:O	4:F:135:TYR:CD1	2.73	0.42
4:F:148:ILE:C	4:F:182:ILE:HD12	2.43	0.42
2:B:176:LYS:NZ	2:B:211:ASP:OD2	2.52	0.42
2:B:292:THR:CG2	2:B:335:VAL:CG2	2.98	0.42
2:B:385:GLN:OE1	2:B:389:LYS:HE3	2.19	0.42
1:C:8:HIS:CE1	1:C:17:GLY:HA2	2.55	0.42
1:C:100:ALA:HA	2:D:254:LYS:HE3	2.02	0.42
1:C:398:MET:HE2	1:C:404:PHE:CD2	2.55	0.42
4:F:75:ALA:CB	4:F:99:VAL:HG12	2.50	0.42
2:B:31:ASP:HB2	2:B:32:PRO:HD2	2.02	0.42
2:B:284:ARG:HH11	2:B:284:ARG:HG3	1.84	0.42
1:A:88:HIS:NE2	1:A:90:GLU:CB	2.82	0.42
1:A:210:TYR:CZ	1:A:222:PRO:HD2	2.55	0.42
1:C:41:THR:O	1:C:41:THR:OG1	2.36	0.42
2:D:233:ALA:HB1	2:D:272:PHE:CE2	2.55	0.42
2:D:244:PHE:HB3	2:D:245:PRO:HD2	2.02	0.42
3:E:113:GLU:O	3:E:117:ALA:N	2.47	0.42
4:F:89:GLU:C	4:F:91:CYS:N	2.77	0.42
2:B:23:VAL:HG21	2:B:232:SER:HB2	2.01	0.42
2:B:69:ASP:O	2:B:94:PHE:HA	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:324:VAL:HG22	1:A:327:ASP:OD2	2.20	0.42
1:C:252:LEU:HD12	1:C:252:LEU:O	2.20	0.42
4:F:201:ILE:HG12	4:F:221:LEU:HD11	2.00	0.42
1:A:20:CYS:N	1:A:232:SER:OG	2.53	0.42
2:D:192:HIS:C	2:D:192:HIS:CD2	2.97	0.42
4:F:98:TYR:HA	4:F:127:GLU:OE2	2.20	0.42
1:A:117:LEU:HD12	1:A:117:LEU:O	2.20	0.42
1:C:221:ARG:HG2	2:D:325:MET:CE	2.30	0.42
1:C:252:LEU:CD1	1:C:255:PHE:HB2	2.38	0.42
1:C:355:ILE:CG1	8:C:504:A1EPT:C61	2.98	0.42
3:E:121:GLU:OE1	3:E:121:GLU:HA	2.20	0.42
2:B:70:LEU:HD23	2:B:114:LEU:HD22	2.02	0.42
1:C:86:LEU:HD12	1:C:86:LEU:HA	1.74	0.42
1:C:349:THR:HG21	2:B:175:PRO:HB3	2.02	0.42
2:D:109:THR:HG21	2:D:411:GLU:OE1	2.20	0.42
4:F:201:ILE:O	4:F:318:ASP:HA	2.20	0.42
4:F:205:VAL:HG21	4:F:291:ILE:HD13	2.01	0.42
2:B:7:ILE:O	2:B:137:LEU:HA	2.19	0.42
2:B:31:ASP:CG	2:B:33:THR:HG23	2.45	0.42
2:B:195:VAL:CG2	2:B:428:LEU:HD13	2.50	0.42
1:A:56:THR:HG22	1:A:60:LYS:CA	2.48	0.41
2:D:286:LEU:N	2:D:286:LEU:CD2	2.81	0.41
4:F:99:VAL:HG23	4:F:127:GLU:HG2	2.02	0.41
2:B:36:TYR:CE1	2:B:46:LEU:HG	2.55	0.41
1:A:265:ILE:HG23	1:A:432:TYR:CE1	2.55	0.41
1:C:88:HIS:O	1:C:89:PRO:C	2.62	0.41
1:C:187:SER:HB3	1:C:391:LEU:HD13	2.02	0.41
1:C:331:ALA:O	1:C:335:ILE:HG12	2.20	0.41
1:A:88:HIS:O	1:A:89:PRO:C	2.62	0.41
1:A:270:ALA:HB3	1:A:302:MET:HG2	2.01	0.41
1:C:305:CYS:HA	1:C:386:GLU:OE1	2.20	0.41
2:D:3:GLU:O	2:D:132:LEU:HD12	2.20	0.41
2:D:210:TYR:HE1	2:D:222:PRO:CD	2.34	0.41
2:D:287:THR:OG1	2:D:289:PRO:HD2	2.20	0.41
3:E:27:PRO:O	3:E:28:SER:OG	2.31	0.41
3:E:57:ALA:O	3:E:61:ARG:HB3	2.20	0.41
4:F:203:SER:HB3	4:F:215:LEU:HD11	2.03	0.41
2:B:1:MET:HE2	2:B:1:MET:CA	2.30	0.41
1:C:108:TYR:CE2	3:E:105:MET:CE	3.04	0.41
2:D:70:LEU:HD23	2:D:70:LEU:HA	1.66	0.41
2:D:406:HIS:CD2	2:D:407:TRP:HD1	2.37	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:2:TYR:CZ	4:F:359:PHE:HB3	2.55	0.41
2:B:38:GLY:C	2:B:40:SER:N	2.78	0.41
2:D:75:MET:HE3	2:D:92:PHE:CD2	2.54	0.41
2:D:178:SER:OG	2:D:183:GLU:OE2	2.34	0.41
2:D:210:TYR:HD1	2:D:222:PRO:HG3	1.81	0.41
4:F:189:PRO:O	4:F:191:LEU:HG	2.20	0.41
1:A:215:ARG:NH2	1:A:299:ALA:O	2.53	0.41
1:A:413:MET:CE	1:A:418:PHE:CE2	3.03	0.41
3:E:100:LYS:O	3:E:103:GLN:HG3	2.21	0.41
4:F:248:GLU:O	4:F:249:TYR:CG	2.73	0.41
2:B:67:LEU:N	2:B:67:LEU:HD12	2.36	0.41
1:A:172:TYR:HB3	1:A:205:ASP:HA	2.01	0.41
1:A:265:ILE:HG23	1:A:432:TYR:CZ	2.55	0.41
1:A:346:TRP:CD1	1:A:346:TRP:H	2.39	0.41
1:C:245:ASP:HA	1:C:249:ASN:HD22	1.86	0.41
2:D:287:THR:HG23	2:D:290:GLU:CD	2.45	0.41
4:F:244:CYS:C	4:F:246:GLN:N	2.79	0.41
2:B:406:HIS:HA	2:B:409:THR:OG1	2.21	0.41
2:D:72:PRO:HD3	2:D:96:GLN:HA	2.02	0.41
2:D:102:ASN:CG	2:D:105:LYS:HG3	2.46	0.41
2:D:105:LYS:CE	2:D:110:GLU:OE1	2.69	0.41
4:F:14:TYR:HA	4:F:17:VAL:HB	2.03	0.41
1:A:40:LYS:O	1:A:42:ILE:N	2.54	0.41
1:A:234:ILE:HD13	1:A:302:MET:HE1	2.02	0.41
1:C:328:VAL:HG21	8:C:504:A1EPT:C61	2.50	0.41
2:D:28:HIS:NE2	2:D:243:ARG:HD2	2.35	0.41
2:D:103:TRP:O	2:D:104:ALA:C	2.64	0.41
2:D:210:TYR:HE1	2:D:222:PRO:HD3	1.86	0.41
2:D:274:PRO:HG2	2:D:371:LEU:HD13	2.02	0.41
2:D:286:LEU:H	2:D:286:LEU:CD2	2.21	0.41
2:D:320:ARG:O	2:D:373:MET:HA	2.20	0.41
4:F:26:GLN:OE1	4:F:361:LEU:HD23	2.21	0.41
4:F:147:TRP:HB3	4:F:182:ILE:CD1	2.45	0.41
4:F:214:TYR:CD2	4:F:353[B]:VAL:HG11	2.56	0.41
4:F:317:PHE:CD2	4:F:332:VAL:HG13	2.55	0.41
2:B:3:GLU:O	2:B:133:GLN:HG3	2.21	0.41
2:B:141:LEU:HD22	2:B:190:SER:HB3	2.02	0.41
2:B:158:ARG:NH1	2:B:196:GLU:O	2.54	0.41
2:B:249:ASN:HB3	2:B:255:LEU:HD13	2.02	0.41
2:B:282:GLN:HG3	2:B:371:LEU:CD2	2.51	0.41
1:A:68[B]:VAL:HG21	1:A:118:VAL:HG22	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:119:LEU:HD23	1:A:119:LEU:HA	1.93	0.41
1:A:401:LYS:HE2	2:B:346:TRP:CD1	2.56	0.41
1:C:68[A]:VAL:HG11	1:C:118:VAL:HG21	2.03	0.41
1:C:348:PRO:O	1:C:349:THR:C	2.64	0.41
2:D:118:VAL:HB	2:D:153:LEU:HD21	2.03	0.41
2:B:395:PHE:CD1	2:B:395:PHE:C	2.99	0.41
1:A:44:GLY:O	1:A:55:GLU:OE2	2.39	0.40
1:C:324:VAL:CG2	1:C:324:VAL:O	2.68	0.40
1:C:355:ILE:HG12	8:C:504:A1EPT:C61	2.52	0.40
2:D:168:THR:OG1	2:D:201:THR:HG23	2.22	0.40
3:E:27:PRO:HB2	3:E:28:SER:H	1.59	0.40
4:F:205:VAL:CG2	4:F:291:ILE:HD13	2.51	0.40
1:C:352:LYS:HG3	2:B:179:ASP:OD1	2.20	0.40
2:D:204:ILE:HG23	2:D:209:LEU:HD21	2.02	0.40
2:D:327:GLU:O	2:D:331:GLN:HG2	2.21	0.40
4:F:169:LEU:HD23	4:F:169:LEU:HA	1.89	0.40
1:A:74:VAL:O	1:A:77:GLU:HB2	2.21	0.40
1:A:355:ILE:O	3:E:17:GLY:HA3	2.21	0.40
2:D:165:ILE:HA	2:D:199:ASP:OD2	2.22	0.40
2:D:188:THR:O	2:D:421:ALA:HB1	2.21	0.40
4:F:218:GLU:OE1	4:F:218:GLU:HA	2.21	0.40
4:F:220:VAL:HG12	4:F:263:PHE:HE1	1.85	0.40
2:B:300:ASN:O	2:B:302:MET:HE2	2.21	0.40
1:A:311:LYS:CE	1:A:342:GLN:HG2	2.51	0.40
1:A:209:ILE:CG2	1:A:227:LEU:HD22	2.47	0.40
1:A:414:GLU:O	1:A:415:GLU:C	2.64	0.40
1:C:82:THR:O	1:C:82:THR:HG22	2.20	0.40
2:D:347:ILE:CG2	2:D:350:ASN:HB3	2.46	0.40
4:F:242:ASN:O	4:F:246:GLN:HB2	2.21	0.40
2:B:269:MET:HB3	2:B:269:MET:HE2	1.64	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	446/450 (99%)	409 (92%)	32 (7%)	5 (1%)	12 26
1	C	445/450 (99%)	419 (94%)	20 (4%)	6 (1%)	10 21
2	B	428/445 (96%)	399 (93%)	25 (6%)	4 (1%)	14 31
2	D	424/445 (95%)	372 (88%)	43 (10%)	9 (2%)	5 11
3	E	116/143 (81%)	108 (93%)	6 (5%)	2 (2%)	7 16
4	F	323/384 (84%)	287 (89%)	25 (8%)	11 (3%)	3 5
All	All	2182/2317 (94%)	1994 (91%)	151 (7%)	37 (2%)	7 16

All (37) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	41	THR
1	A	282	TYR
1	A	438	ASP
1	C	283	HIS
1	C	349	THR
4	F	230	SER
4	F	232	ASN
4	F	248	GLU
2	B	74	THR
2	D	143	GLY
2	D	180	THR
2	D	181	VAL
2	D	402	LYS
2	D	417	GLU
3	E	27	PRO
4	F	88	SER
4	F	167	SER
4	F	245	ILE
2	B	280	SER
1	C	41	THR
4	F	160	ILE
4	F	175	GLU
2	B	32	PRO
2	D	323	MET
2	D	360	PRO
4	F	161	LEU
1	A	305	CYS

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Mol	Chain	Res	Type
1	C	253	THR
1	C	284	GLU
1	C	348	PRO
4	F	247	LYS
2	D	69	ASP
3	E	25	LYS
2	D	98	GLY
1	A	114	ILE
4	F	102	PRO
2	B	73	GLY

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	378/378 (100%)	341 (90%)	37 (10%)	6 13
1	C	378/378 (100%)	352 (93%)	26 (7%)	13 28
2	B	369/383 (96%)	349 (95%)	20 (5%)	18 39
2	D	369/383 (96%)	328 (89%)	41 (11%)	5 10
3	E	108/127 (85%)	94 (87%)	14 (13%)	3 6
4	F	303/342 (89%)	268 (88%)	35 (12%)	4 9
All	All	1905/1991 (96%)	1732 (91%)	173 (9%)	8 16

All (173) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	26	LEU
1	A	41	THR
1	A	60	LYS
1	A	62	VAL
1	A	67	PHE
1	A	71	GLU
1	A	74	VAL
1	A	79	ARG

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Mol	Chain	Res	Type
1	A	88	HIS
1	A	90	GLU
1	A	91	GLN
1	A	96	LYS
1	A	112	LYS
1	A	113	GLU
1	A	118	VAL
1	A	132	LEU
1	A	136[A]	LEU
1	A	136[B]	LEU
1	A	150	THR
1	A	163	LYS
1	A	176	GLN
1	A	177	VAL
1	A	179	THR
1	A	203	MET
1	A	218	ASP
1	A	220	GLU
1	A	229	ARG
1	A	232	SER
1	A	251	ASP
1	A	257	THR
1	A	259	LEU
1	A	280	LYS
1	A	286	LEU
1	A	301	GLN
1	A	420[A]	GLU
1	A	420[B]	GLU
1	A	430	LYS
1	C	1	MET
1	C	2	ARG
1	C	48	SER
1	C	71	GLU
1	C	97	GLU
1	C	120[A]	ASP
1	C	120[B]	ASP
1	C	158	SER
1	C	188	ILE
1	C	215	ARG
1	C	230	LEU
1	C	234	ILE
1	C	238	ILE

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Mol	Chain	Res	Type
1	C	242	LEU
1	C	248	LEU
1	C	253	THR
1	C	285	GLN
1	C	286	LEU
1	C	290	GLU
1	C	313	MET
1	C	318	LEU
1	C	324	VAL
1	C	353	VAL
1	C	368	LEU
1	C	379	SER
1	C	381	THR
2	D	1	MET
2	D	11	GLN
2	D	24	ILE
2	D	26	ASP
2	D	30	ILE
2	D	33	THR
2	D	35	SER
2	D	46	LEU
2	D	59	ASN
2	D	67	LEU
2	D	75	MET
2	D	76	ASP
2	D	94	PHE
2	D	110	GLU
2	D	117	SER
2	D	121	VAL
2	D	122	VAL
2	D	138	THR
2	D	140	SER
2	D	164	ARG
2	D	177	VAL
2	D	182	VAL
2	D	196	GLU
2	D	207	GLU
2	D	248	LEU
2	D	286	LEU
2	D	287	THR
2	D	325	MET
2	D	335	VAL

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Mol	Chain	Res	Type
2	D	345	GLU
2	D	352	LYS
2	D	393	GLU
2	D	400	ARG
2	D	401	ARG
2	D	405	LEU
2	D	409	THR
2	D	414	ASP
2	D	415	GLU
2	D	425	MET
2	D	429	VAL
2	D	434	GLN
3	E	18	GLN
3	E	19	SER
3	E	23	ILE
3	E	47	LEU
3	E	53	LYS
3	E	54	LEU
3	E	61	ARG
3	E	89	GLU
3	E	105	MET
3	E	116	LEU
3	E	126	LYS
3	E	128	LYS
3	E	133	VAL
3	E	136	ASN
4	F	10	ASN
4	F	12	SER
4	F	45	ASN
4	F	89	GLU
4	F	125	THR
4	F	126	ASP
4	F	128	ARG
4	F	160	ILE
4	F	161	LEU
4	F	162	ILE
4	F	163	SER
4	F	173	ILE
4	F	179	VAL
4	F	180	HIS
4	F	181	VAL
4	F	182	ILE

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Mol	Chain	Res	Type
4	F	186	LEU
4	F	198	LYS
4	F	225	SER
4	F	226	GLU
4	F	233	PHE
4	F	238	CYS
4	F	241	THR
4	F	266	GLU
4	F	272	MET
4	F	277[A]	THR
4	F	277[B]	THR
4	F	284[A]	LEU
4	F	284[B]	LEU
4	F	285	LEU
4	F	286	GLN
4	F	320	MET
4	F	332	VAL
4	F	340	GLN
4	F	372	THR
2	B	1	MET
2	B	15	GLN
2	B	19	LYS
2	B	33	THR
2	B	57	THR
2	B	62	VAL
2	B	77	SER
2	B	86	ILE
2	B	195	VAL
2	B	238	VAL
2	B	240	THR
2	B	284	ARG
2	B	295	MET
2	B	324	SER
2	B	325	MET
2	B	334	ASN
2	B	341	SER
2	B	415	GLU
2	B	423[A]	SER
2	B	423[B]	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	35	GLN
1	A	107	HIS
1	A	309	HIS
1	C	11	GLN
1	C	301	GLN
1	C	356	ASN
1	C	393	HIS
2	D	6	HIS
2	D	136	GLN
2	D	206	ASN
2	D	336	GLN
2	D	424	ASN
3	E	103	GLN
4	F	243	HIS
4	F	260	ASN
4	F	333	ASN
2	B	15	GLN
2	B	193	GLN
2	B	331	GLN
2	B	339	ASN

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

Of 9 ligands modelled in this entry, 4 are monoatomic - leaving 5 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
5	GTP	A	501	6	26,34,34	1.12	2 (7%)	32,54,54	1.63	7 (21%)
9	GDP	D	501	-	24,30,30	0.94	1 (4%)	30,47,47	1.33	4 (13%)
5	GTP	C	501	-	26,34,34	1.12	2 (7%)	32,54,54	1.57	7 (21%)
8	A1EPT	C	504	-	65,69,69	7.59	36 (55%)	82,111,111	2.58	24 (29%)
9	GDP	B	501	-	24,30,30	0.93	1 (4%)	30,47,47	1.33	4 (13%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	GTP	A	501	6	-	7/18/38/38	0/3/3/3
9	GDP	D	501	-	-	0/12/32/32	0/3/3/3
5	GTP	C	501	-	-	7/18/38/38	0/3/3/3
8	A1EPT	C	504	-	-	12/40/133/133	0/7/9/9
9	GDP	B	501	-	-	0/12/32/32	0/3/3/3

All (42) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	C	504	A1EPT	C11-C12	-24.88	1.00	1.55
8	C	504	A1EPT	C10-N09	-20.08	0.96	1.47
8	C	504	A1EPT	C08-N09	-18.21	1.05	1.47
8	C	504	A1EPT	C18-C13	16.86	1.60	1.39
8	C	504	A1EPT	C11-C10	14.58	1.80	1.52
8	C	504	A1EPT	C18-N01	12.99	1.63	1.39
8	C	504	A1EPT	C16-C15	12.78	1.61	1.39
8	C	504	A1EPT	C05-C06	-12.37	1.27	1.51
8	C	504	A1EPT	C14-C15	12.03	1.57	1.39
8	C	504	A1EPT	C14-C13	11.88	1.57	1.39
8	C	504	A1EPT	C17-C16	10.58	1.58	1.38
8	C	504	A1EPT	C47-C48	10.25	1.57	1.41
8	C	504	A1EPT	C03-C04	-8.92	1.29	1.53
8	C	504	A1EPT	C03-C23	8.65	1.73	1.52
8	C	504	A1EPT	C17-C18	8.48	1.53	1.39
8	C	504	A1EPT	C47-C46	8.31	1.51	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	C	504	A1EPT	O28-C04	8.12	1.61	1.44
8	C	504	A1EPT	C12-C02	8.12	1.84	1.55
8	C	504	A1EPT	C44-C43	7.59	1.57	1.42
8	C	504	A1EPT	C44-C45	7.29	1.52	1.36
8	C	504	A1EPT	C19-N09	7.24	1.59	1.47
8	C	504	A1EPT	C06-C07	-6.56	1.20	1.32
8	C	504	A1EPT	C08-C07	6.40	1.65	1.49
8	C	504	A1EPT	C45-C46	6.06	1.50	1.38
8	C	504	A1EPT	O58-C56	5.62	1.44	1.33
8	C	504	A1EPT	O25-C23	4.99	1.42	1.33
8	C	504	A1EPT	C02-N01	-4.84	1.36	1.47
8	C	504	A1EPT	C51-C56	4.70	1.57	1.53
5	C	501	GTP	C5-C6	-4.00	1.39	1.47
5	A	501	GTP	C5-C6	-3.98	1.39	1.47
8	C	504	A1EPT	C12-C19	-3.57	1.42	1.55
8	C	504	A1EPT	C12-C13	-3.57	1.45	1.51
8	C	504	A1EPT	C41-C42	3.11	1.57	1.52
8	C	504	A1EPT	O28-C29	2.95	1.41	1.35
9	D	501	GDP	C6-N1	-2.37	1.34	1.37
8	C	504	A1EPT	C42-C50	2.31	1.42	1.39
9	B	501	GDP	C6-N1	-2.30	1.34	1.37
5	C	501	GTP	C2-N3	2.24	1.38	1.33
5	A	501	GTP	C2-N3	2.21	1.38	1.33
8	C	504	A1EPT	O60-C46	2.09	1.41	1.37
8	C	504	A1EPT	C34-C35	2.03	1.58	1.53
8	C	504	A1EPT	O32-C16	2.01	1.40	1.37

All (46) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	C	504	A1EPT	C11-C12-C13	-8.81	96.29	112.35
8	C	504	A1EPT	C11-C12-C02	8.65	128.64	112.34
8	C	504	A1EPT	O32-C16-C15	8.29	125.06	116.58
8	C	504	A1EPT	C19-C05-C06	5.98	114.40	108.28
8	C	504	A1EPT	O32-C16-C17	-5.55	114.58	124.12
8	C	504	A1EPT	O25-C23-C03	5.30	121.14	112.22
8	C	504	A1EPT	O28-C29-C30	4.18	118.79	111.09
5	A	501	GTP	PA-O3A-PB	-3.99	119.13	132.83
8	C	504	A1EPT	C14-C13-C12	3.88	135.71	129.00
8	C	504	A1EPT	C03-C02-N01	-3.81	107.57	112.81
8	C	504	A1EPT	C14-C13-C18	-3.80	117.12	120.31
8	C	504	A1EPT	O58-C56-C51	3.78	117.01	111.32

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	A	501	GTP	PB-O3B-PG	-3.66	120.27	132.83
9	B	501	GDP	PA-O3A-PB	-3.64	120.35	132.83
5	C	501	GTP	PB-O3B-PG	-3.59	120.50	132.83
8	C	504	A1EPT	C35-C52-N39	3.58	116.88	111.28
9	D	501	GDP	PA-O3A-PB	-3.48	120.89	132.83
9	D	501	GDP	C3'-C2'-C1'	3.36	106.04	100.98
8	C	504	A1EPT	C20-C05-C06	-3.36	103.99	107.99
8	C	504	A1EPT	C02-C03-C23	-3.36	100.79	110.02
8	C	504	A1EPT	C04-O28-C29	-3.35	112.48	117.65
5	C	501	GTP	PA-O3A-PB	-3.34	121.37	132.83
9	B	501	GDP	C3'-C2'-C1'	3.30	105.95	100.98
5	C	501	GTP	C5-C6-N1	3.21	119.62	113.95
5	A	501	GTP	C5-C6-N1	3.19	119.58	113.95
5	A	501	GTP	C3'-C2'-C1'	3.03	105.54	100.98
8	C	504	A1EPT	C08-C07-C06	-3.03	118.06	123.02
5	C	501	GTP	C3'-C2'-C1'	3.01	105.50	100.98
5	A	501	GTP	C8-N7-C5	3.00	108.70	102.99
5	C	501	GTP	C8-N7-C5	2.95	108.60	102.99
5	C	501	GTP	C2-N1-C6	-2.88	119.79	125.10
5	A	501	GTP	C2-N1-C6	-2.84	119.86	125.10
8	C	504	A1EPT	O24-C23-C03	-2.76	119.65	123.94
8	C	504	A1EPT	O25-C23-O24	-2.73	119.15	123.93
8	C	504	A1EPT	O28-C04-C03	2.46	110.26	106.30
8	C	504	A1EPT	O60-C46-C47	-2.41	117.86	124.43
9	B	501	GDP	C8-N7-C5	2.30	107.36	102.99
9	D	501	GDP	C8-N7-C5	2.27	107.32	102.99
8	C	504	A1EPT	C12-C02-N01	2.27	109.69	105.38
9	B	501	GDP	C5-C6-N1	2.22	117.88	113.95
9	D	501	GDP	C5-C6-N1	2.22	117.87	113.95
5	C	501	GTP	O6-C6-C5	-2.16	120.14	124.37
5	A	501	GTP	O6-C6-C5	-2.16	120.16	124.37
8	C	504	A1EPT	C17-C16-C15	-2.11	120.26	122.20
8	C	504	A1EPT	C05-C19-N09	2.09	116.13	111.72
8	C	504	A1EPT	C18-N01-C02	-2.08	106.24	109.03

There are no chirality outliers.

All (26) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	501	GTP	PB-O3B-PG-O3G
5	A	501	GTP	C5'-O5'-PA-O1A
5	A	501	GTP	C5'-O5'-PA-O2A

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Mol	Chain	Res	Type	Atoms
5	C	501	GTP	C5'-O5'-PA-O3A
5	C	501	GTP	C5'-O5'-PA-O2A
8	C	504	A1EPT	C03-C23-O25-C26
8	C	504	A1EPT	C15-C16-O32-C33
8	C	504	A1EPT	C30-C29-O28-C04
8	C	504	A1EPT	C45-C46-O60-C61
8	C	504	A1EPT	C47-C46-O60-C61
8	C	504	A1EPT	C17-C16-O32-C33
8	C	504	A1EPT	O31-C29-O28-C04
8	C	504	A1EPT	O24-C23-O25-C26
5	C	501	GTP	C3'-C4'-C5'-O5'
5	C	501	GTP	C4'-C5'-O5'-PA
5	C	501	GTP	PB-O3A-PA-O5'
8	C	504	A1EPT	C36-C37-C53-C54
5	C	501	GTP	O4'-C4'-C5'-O5'
5	A	501	GTP	C4'-C5'-O5'-PA
8	C	504	A1EPT	O55-C37-C53-C54
5	C	501	GTP	PA-O3A-PB-O1B
5	A	501	GTP	PB-O3B-PG-O1G
5	A	501	GTP	PB-O3B-PG-O2G
5	A	501	GTP	C5'-O5'-PA-O3A
8	C	504	A1EPT	C04-C03-C23-O24
8	C	504	A1EPT	C04-C03-C23-O25

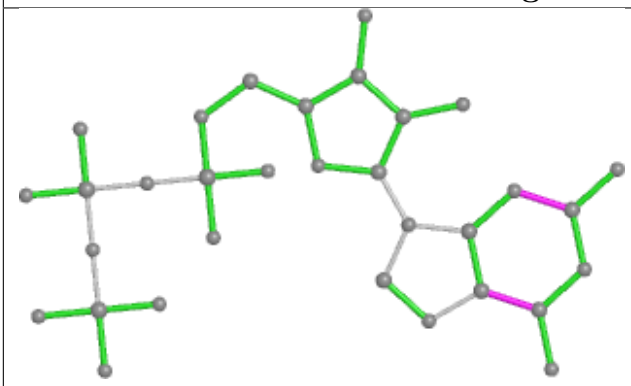
There are no ring outliers.

1 monomer is involved in 16 short contacts:

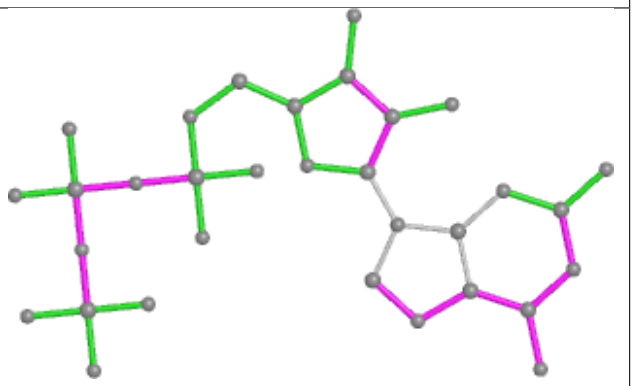
Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	C	504	A1EPT	16	0

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

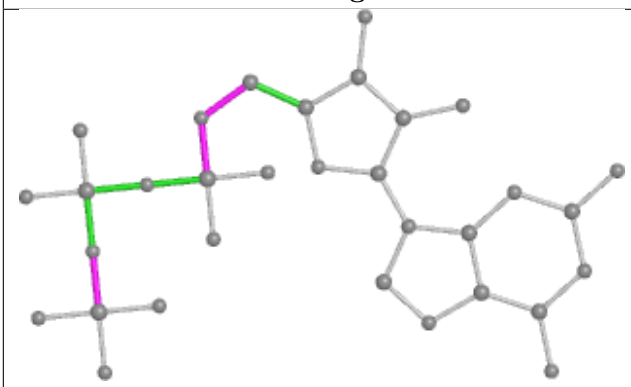
Ligand GTP A 501



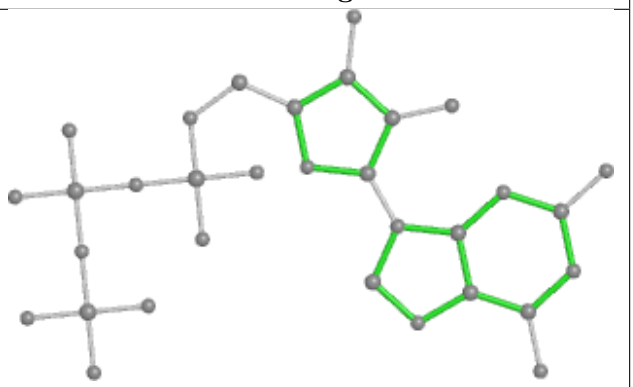
Bond lengths



Bond angles

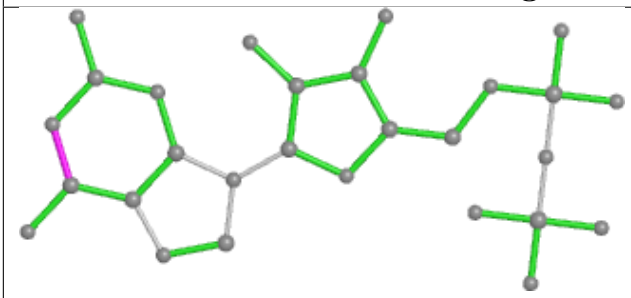


Torsions

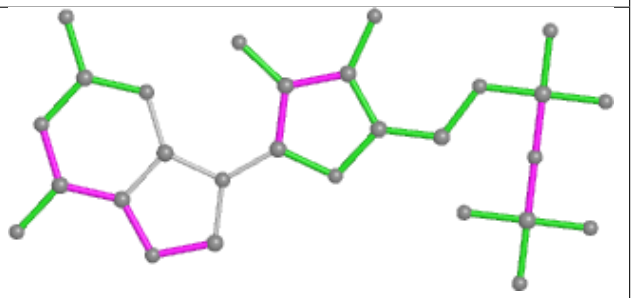


Rings

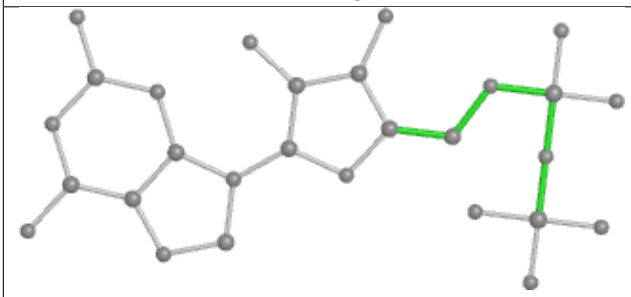
Ligand GDP D 501



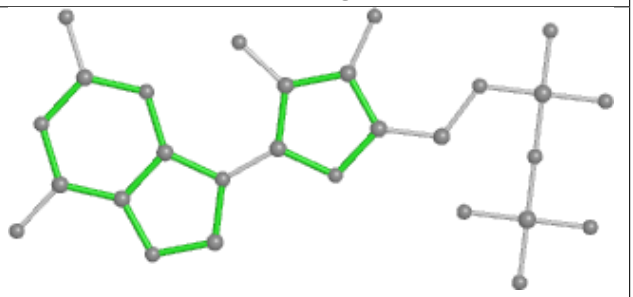
Bond lengths



Bond angles

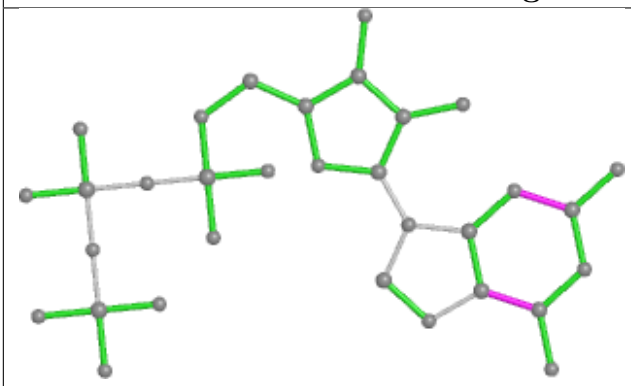


Torsions

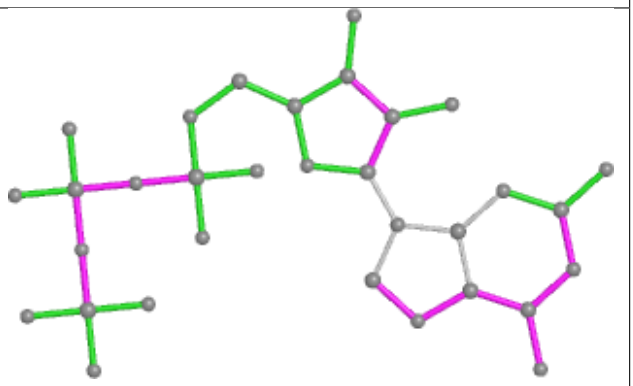


Rings

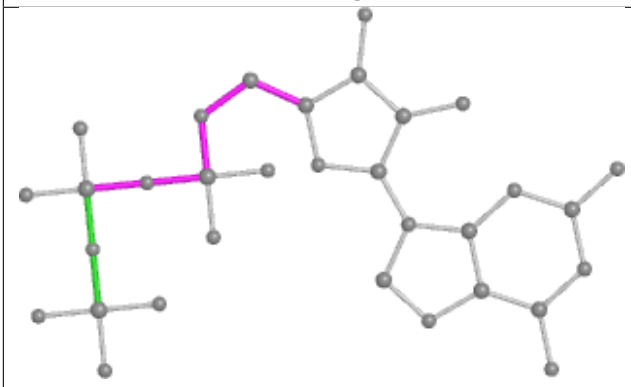
Ligand GTP C 501



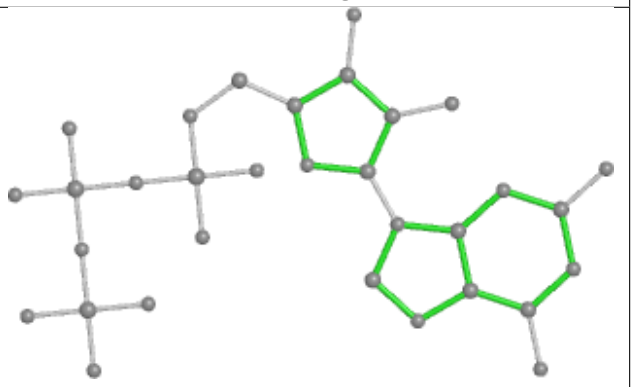
Bond lengths



Bond angles

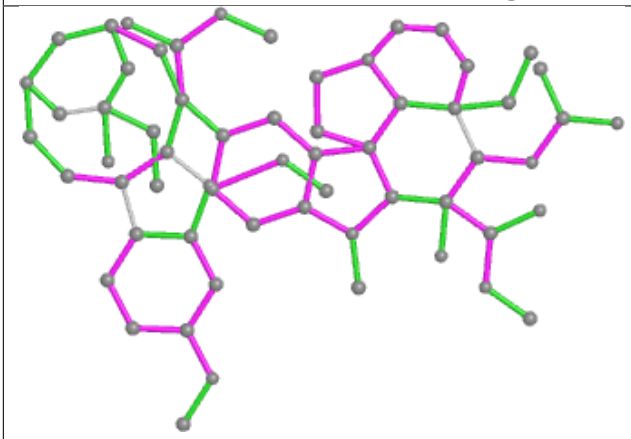


Torsions

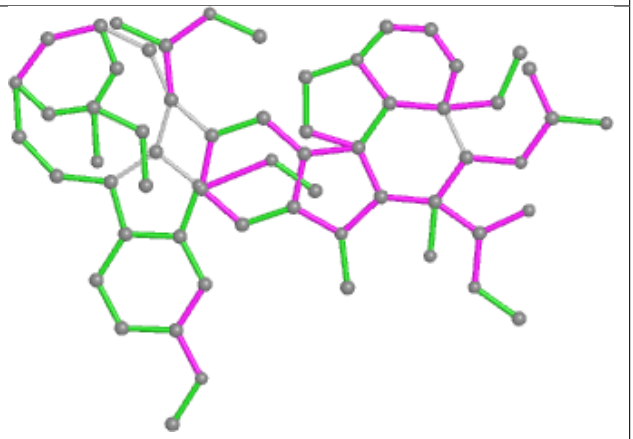


Rings

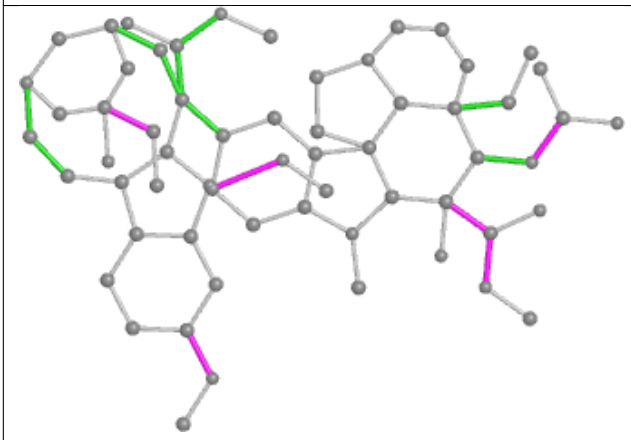
Ligand A1EPT C 504



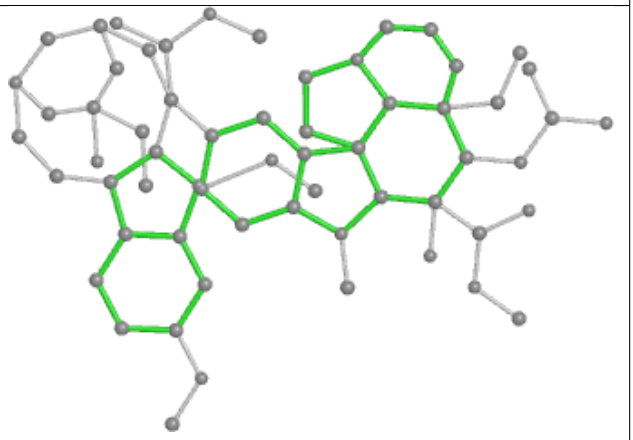
Bond lengths



Bond angles

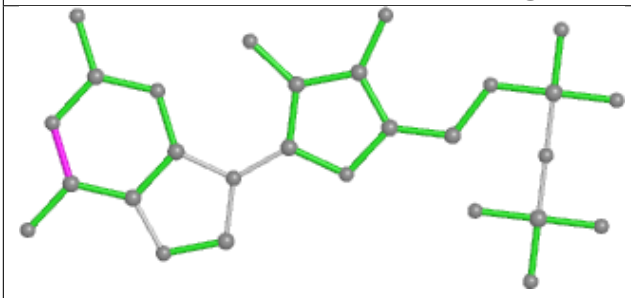


Torsions

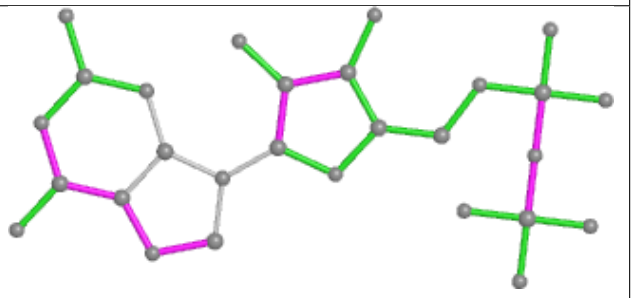


Rings

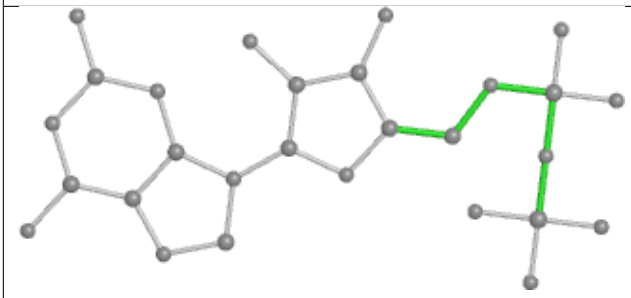
Ligand GDP B 501



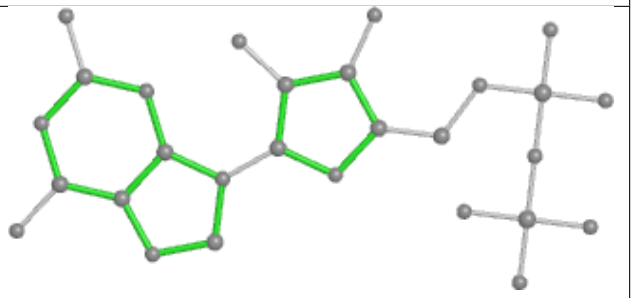
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} 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	439/450 (97%)	0.20	10 (2%)	61	55	26, 45, 69, 104	9 (2%)
1	C	440/450 (97%)	-0.01	19 (4%)	40	34	20, 39, 63, 77	7 (1%)
2	B	428/445 (96%)	0.08	14 (3%)	49	43	21, 43, 77, 120	4 (0%)
2	D	424/445 (95%)	1.02	63 (14%)	7	5	34, 64, 93, 113	7 (1%)
3	E	120/143 (83%)	0.94	17 (14%)	7	6	35, 59, 83, 101	0
4	F	331/384 (86%)	0.89	56 (16%)	5	4	34, 64, 115, 125	4 (1%)
All	All	2182/2317 (94%)	0.44	179 (8%)	19	16	20, 50, 91, 125	31 (1%)

All (179) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
4	F	233	PHE	6.1
2	B	283	TYR	5.7
2	D	285	ALA	5.5
4	F	231	ALA	5.5
3	E	140	LYS	5.3
1	A	282	TYR	5.2
4	F	250	SER	5.0
4	F	245	ILE	5.0
4	F	180	HIS	4.8
4	F	125	THR	4.7
4	F	144	GLY	4.7
4	F	159	GLY	4.7
4	F	161	LEU	4.4
1	A	439	SER	4.2
2	B	280	SER	4.2
4	F	179	VAL	4.2
3	E	59	GLU	4.1
4	F	160	ILE	4.1
2	D	220	THR	4.1

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Mol	Chain	Res	Type	RSRZ
2	D	98	GLY	4.1
4	F	149	ALA	4.1
3	E	6	MET	4.0
4	F	244	CYS	4.0
4	F	232	ASN	4.0
4	F	173	ILE	4.0
2	B	1	MET	3.9
2	D	11	GLN	3.9
4	F	162	ILE	3.8
2	D	276	THR	3.7
2	D	1	MET	3.7
2	B	57	THR	3.7
2	D	37	HIS	3.6
1	C	247	ALA	3.6
1	A	281	ALA	3.6
2	D	56	ALA	3.5
2	D	88	ARG	3.4
2	D	82	PRO	3.4
4	F	169	LEU	3.4
4	F	103	THR	3.4
2	B	58	GLY	3.4
2	D	284	ARG	3.3
4	F	372	THR	3.3
2	D	370	GLY	3.3
2	D	369	ARG	3.2
2	D	57	THR	3.2
1	C	440	VAL	3.2
2	D	219	LEU	3.1
1	A	283	HIS	3.1
3	E	14	CYS	3.1
4	F	101	TYR	3.1
4	F	90	SER	3.1
1	A	262	TYR	3.0
4	F	259	GLY	3.0
4	F	236	LYS	3.0
4	F	166	ALA	3.0
2	D	87	PHE	2.9
2	D	32	PRO	2.9
2	D	216	THR	2.9
4	F	1	MET	2.9
2	D	404	PHE	2.9
1	C	251	ASP	2.9

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Mol	Chain	Res	Type	RSRZ
2	D	405	LEU	2.8
2	D	174	SER	2.8
2	D	142	GLY	2.8
2	D	127	GLU	2.8
2	D	357	ASP	2.8
2	D	42	LEU	2.8
2	D	144	GLY	2.8
2	B	82	PRO	2.8
4	F	132	LEU	2.7
2	B	279	GLY	2.7
2	D	94	PHE	2.7
3	E	139	LEU	2.7
4	F	130	VAL	2.7
2	D	305	CYS	2.7
4	F	240	LEU	2.7
4	F	234	GLN	2.7
2	D	99	ALA	2.7
4	F	135	TYR	2.7
4	F	238	CYS	2.7
3	E	28	SER	2.7
1	C	280	LYS	2.6
4	F	137	ARG	2.6
2	D	406	HIS	2.6
1	C	253	THR	2.6
2	D	372	LYS	2.6
1	C	341	ILE	2.6
2	D	86	ILE	2.6
1	A	358	GLN	2.6
4	F	320	MET	2.6
1	A	88	HIS	2.5
1	C	284	GLU	2.5
4	F	235	ASP	2.5
1	C	285	GLN	2.5
2	D	295	MET	2.5
2	D	97	SER	2.5
2	B	74	THR	2.5
3	E	44	ASP	2.5
3	E	115	HIS	2.5
2	D	96	GLN	2.5
1	C	350	GLY	2.5
2	D	291	LEU	2.5
2	B	277	SER	2.5

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Mol	Chain	Res	Type	RSRZ
2	D	441	ASP	2.5
4	F	134	ALA	2.4
1	A	41	THR	2.4
2	D	214	PHE	2.4
4	F	89	GLU	2.4
1	C	248	LEU	2.4
2	D	275	LEU	2.4
2	D	83	PHE	2.4
2	D	229	HIS	2.4
2	D	85	GLN	2.4
2	B	56	ALA	2.4
2	D	130	ASP	2.3
4	F	172	PHE	2.3
4	F	165	GLU	2.3
2	D	286	LEU	2.3
2	B	284	ARG	2.3
1	C	95	GLY	2.3
4	F	167	SER	2.3
2	B	127	GLU	2.3
2	D	66	ILE	2.3
2	D	65	ALA	2.3
2	D	321	GLY	2.3
3	E	47	LEU	2.3
4	F	92	THR	2.3
4	F	229	ASN	2.3
4	F	242	ASN	2.3
3	E	122	ARG	2.3
1	A	437	VAL	2.3
4	F	181	VAL	2.3
2	D	213	CYS	2.3
1	C	232	SER	2.2
2	D	402	LYS	2.2
4	F	131	PHE	2.2
2	D	15	GLN	2.2
1	A	438	ASP	2.2
2	D	414	ASP	2.2
1	C	218	ASP	2.2
4	F	178	GLN	2.2
4	F	220	VAL	2.2
1	C	283	HIS	2.2
3	E	126	LYS	2.2
2	B	219	LEU	2.2

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Mol	Chain	Res	Type	RSRZ
3	E	15	THR	2.2
1	C	356	ASN	2.2
3	E	138	GLU	2.2
3	E	23	ILE	2.2
4	F	100	ILE	2.2
3	E	75	LYS	2.2
4	F	239	HIS	2.2
2	D	387	LEU	2.1
1	C	290	GLU	2.1
4	F	331	GLU	2.1
1	C	308	ARG	2.1
2	D	89	PRO	2.1
4	F	227	PRO	2.1
4	F	258	GLU	2.1
2	D	218	LYS	2.1
2	D	407	TRP	2.1
1	C	348	PRO	2.1
1	C	349	THR	2.1
2	D	409	THR	2.1
4	F	373	SER	2.1
2	D	16	ILE	2.1
2	D	13	GLY	2.0
2	D	81	GLY	2.0
2	B	282	GLN	2.0
4	F	97	SER	2.0
3	E	50	ILE	2.0
2	D	206	ASN	2.0
4	F	145	ASN	2.0
2	D	182	VAL	2.0
3	E	48	GLU	2.0
2	D	128	SER	2.0
4	F	230	SER	2.0
2	D	322	ARG	2.0
4	F	255	ARG	2.0

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

LIGAND-RSR INFOmissingINFO

6.5 Other polymers (i)

There are no such residues in this entry.