Full wwPDB X-ray Structure Validation Report (i)

Sep 3, 2023 – 08:40 PM EDT

PDB ID	:	3SWD
Title	:	E. coli MurA in complex with UDP-N-acetylmuramic acid and covalent adduct of PEP with Cys115
Authors	:	Zhu, J.-Y.; Schonbrunn, E.
Deposited on	:	2011-07-13
Resolution	:	2.50 Å(reported)

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

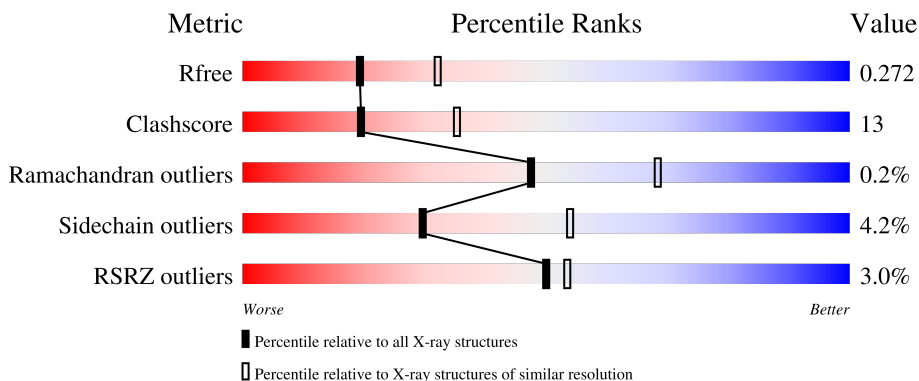|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35

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 2.50 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		0.272
Clashscore		13
Ramachandran outliers		0.2%
Sidechain outliers		4.2%
RSRZ outliers		3.0%

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	4661 (2.50-2.50)
Clashscore	141614	5346 (2.50-2.50)
Ramachandran outliers	138981	5231 (2.50-2.50)
Sidechain outliers	138945	5233 (2.50-2.50)
RSRZ outliers	127900	4559 (2.50-2.50)

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	418	% 80% 19% •
1	B	418	4% 79% 20% •
1	C	418	81% 17% •
1	D	418	81% 18% •
1	E	418	% 81% 18% •

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Mol	Chain	Length	Quality of chain
1	F	418	.% / 78% / 21%
1	G	418	3% / 81% / 17%
1	H	418	.% / 79% / 19%
1	I	418	10% / 78% / 20%
1	J	418	.% / 57% / 39%
1	K	418	.% / 62% / 34%
1	L	418	13% / 80% / 18%

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
1	IAS	E	67	-	X	-	-
1	IAS	I	67	-	-	X	-
1	IAS	K	67	-	-	X	-

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 39035 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 UDP-N-acetylglucosamine 1-carboxyvinyltransferase.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	418	Total	C	N	O	P	S	0	0	0
			3143	1970	556	600	1	16			
1	B	418	Total	C	N	O	P	S	0	0	0
			3143	1970	556	600	1	16			
1	C	418	Total	C	N	O	P	S	0	0	0
			3143	1970	556	600	1	16			
1	D	418	Total	C	N	O	P	S	0	0	0
			3143	1970	556	600	1	16			
1	E	418	Total	C	N	O	P	S	0	0	0
			3143	1970	556	600	1	16			
1	F	418	Total	C	N	O	P	S	0	0	0
			3143	1970	556	600	1	16			
1	G	418	Total	C	N	O	P	S	0	0	0
			3143	1970	556	600	1	16			
1	H	418	Total	C	N	O	P	S	0	0	0
			3143	1970	556	600	1	16			
1	I	418	Total	C	N	O	P	S	0	0	0
			3143	1970	556	600	1	16			
1	J	418	Total	C	N	O	P	S	0	0	0
			3143	1970	556	600	1	16			
1	K	418	Total	C	N	O	P	S	0	0	0
			3143	1970	556	600	1	16			
1	L	418	Total	C	N	O	P	S	0	0	0
			3143	1970	556	600	1	16			

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	67	IAS	ASN	engineered mutation	UNP P0A749
B	67	IAS	ASN	engineered mutation	UNP P0A749
C	67	IAS	ASN	engineered mutation	UNP P0A749
D	67	IAS	ASN	engineered mutation	UNP P0A749
E	67	IAS	ASN	engineered mutation	UNP P0A749

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Chain	Residue	Modelled	Actual	Comment	Reference
F	67	IAS	ASN	engineered mutation	UNP P0A749
G	67	IAS	ASN	engineered mutation	UNP P0A749
H	67	IAS	ASN	engineered mutation	UNP P0A749
I	67	IAS	ASN	engineered mutation	UNP P0A749
J	67	IAS	ASN	engineered mutation	UNP P0A749
K	67	IAS	ASN	engineered mutation	UNP P0A749
L	67	IAS	ASN	engineered mutation	UNP P0A749

- Molecule 2 is (2R)-2-{[(2R,3R,4R,5S,6R)-3-(acetylamino)-2-{[(S)-{[(R)-{[(2R,3S,4R,5R)-5-(2,4-dioxo-3,4-dihydropyrimidin-1(2H)-yl)-3,4-dihydroxytetrahydrofuran-2-yl]methoxy}(hydroxy)phosphoryl]oxy}(hydroxy)phosphoryl]oxy}-5-hydroxy-6-(hydroxymethyl)tetrahydro-2H-pyran-4-yl]oxy}propanoic acid (three-letter code: EPZ) (formula: $C_{20}H_{31}N_3O_{19}P_2$).
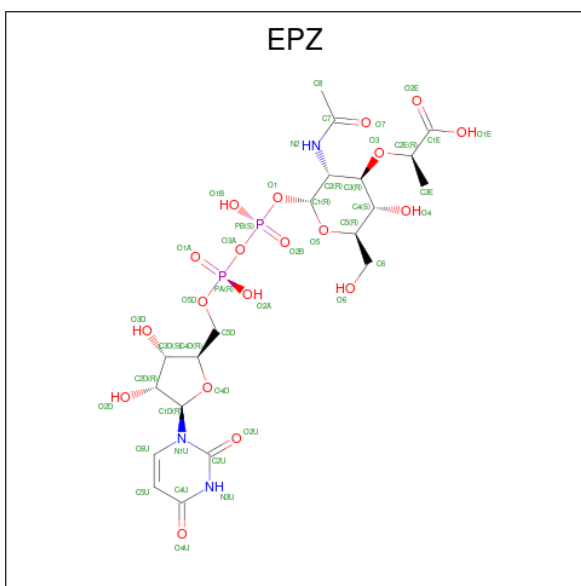
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			44	20	3	19	2		
2	B	1	Total	C	N	O	P	0	0
			44	20	3	19	2		
2	C	1	Total	C	N	O	P	0	0
			44	20	3	19	2		
2	D	1	Total	C	N	O	P	0	0
			44	20	3	19	2		
2	E	1	Total	C	N	O	P	0	0
			44	20	3	19	2		
2	F	1	Total	C	N	O	P	0	0
			44	20	3	19	2		

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	G	1	Total	C	N	O	P	0	0
			44	20	3	19	2		
2	H	1	Total	C	N	O	P	0	0
			44	20	3	19	2		
2	I	1	Total	C	N	O	P	0	0
			44	20	3	19	2		
2	J	1	Total	C	N	O	P	0	0
			44	20	3	19	2		
2	K	1	Total	C	N	O	P	0	0
			44	20	3	19	2		
2	L	1	Total	C	N	O	P	0	0
			44	20	3	19	2		

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	76	Total	O	0	0
			76	76		
3	B	58	Total	O	0	0
			58	58		
3	C	105	Total	O	0	0
			105	105		
3	D	104	Total	O	0	0
			104	104		
3	E	86	Total	O	0	0
			86	86		
3	F	63	Total	O	0	0
			63	63		
3	G	47	Total	O	0	0
			47	47		
3	H	73	Total	O	0	0
			73	73		
3	I	42	Total	O	0	0
			42	42		
3	J	45	Total	O	0	0
			45	45		
3	K	60	Total	O	0	0
			60	60		
3	L	32	Total	O	0	0
			32	32		

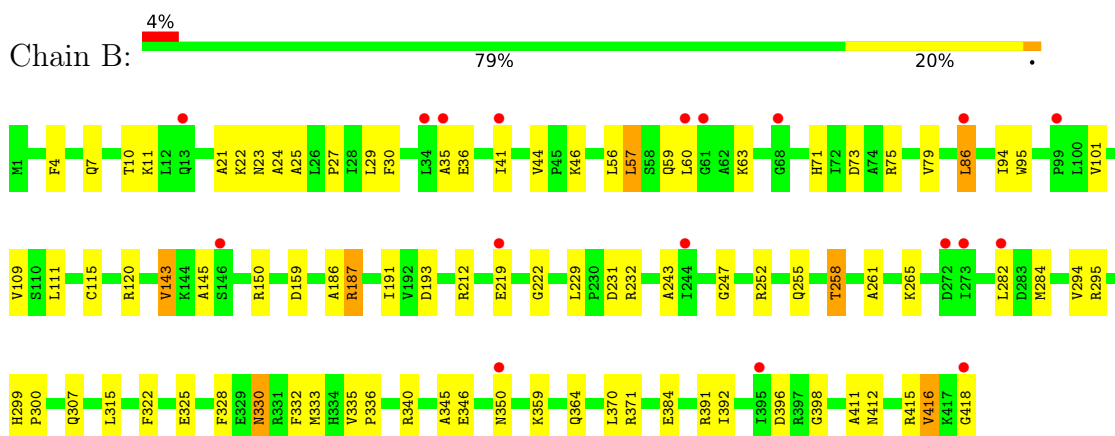# 3 Residue-property plots ⓘ

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.
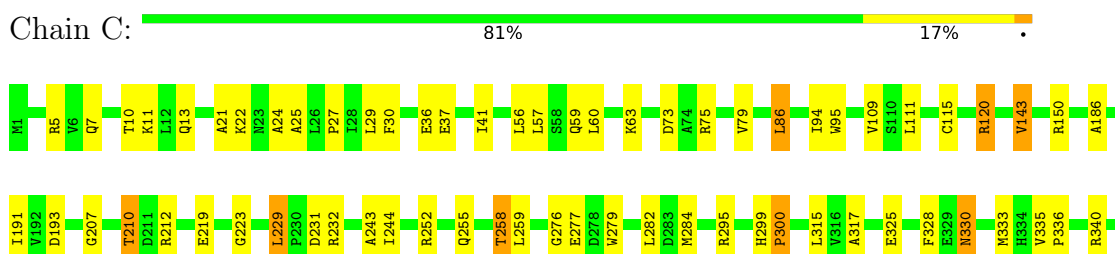
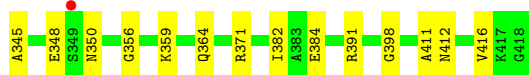• Molecule 1: UDP-N-acetylglucosamine 1-carboxyvinyltransferase

Chain A:

• Molecule 1: UDP-N-acetylglucosamine 1-carboxyvinyltransferase

Chain B:

• Molecule 1: UDP-N-acetylglucosamine 1-carboxyvinyltransferase

Chain C:

A345 E348 S349 N350 G356 K359 Q364 R371 I382 A383 E384 R391 G398 A411 N412 V416 K417 G418

• Molecule 1: UDP-N-acetylglucosamine 1-carboxyvinyltransferase

Chain D:
81%   18%

M1 Q7 T10 A21 K22 N23 A24 A25 L26 P27 I28 L29 F30 E36 E37 I41 V44 L47 L56 L57 S58 Q59 L60 K63 D73 A74 R75 V79 L86 R91 I94 V101 Q108 Q109 S110 L111 C115 R120 V143 K144 A145

S146 V147 R150 L151 K152 D159 A186 I191 V192 D193 R212 E219 G223 L229 P230 D231 R232 A243 I244 R252 Q255 T258 V262 L282 D283 M284 H299 P300 Q307 L315 E325 F328 E329 N330 M333 H334 V335 P336 R340

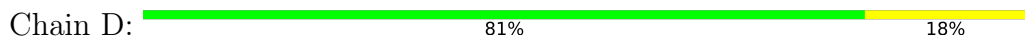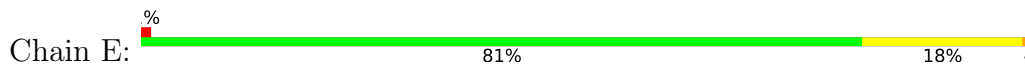A345 K359 Q364 R371 I382 A383 E384 R391 D396 R397 G398 A411 N412 R415 V416 K417 G418

• Molecule 1: UDP-N-acetylglucosamine 1-carboxyvinyltransferase

Chain E:
%
81%   18%

M1 Q7 T10 G20 A21 K22 N23 A24 P27 F30 E37 P38 V39 E40 I41 Q42 N43 V44 L56 L57 S58 Q59 L60 K63 D67 D73 V79 L86 I94 W95 V101 V109 S110 L111 C115 R120 V143 K144 A145 R150

V157 M158 D159 E183 A186 R187 I191 V192 D193 R212 E219 G223 L229 P230 D231 R232 A243 I250 C251 R252 Q255 T258 L259 K265 L282 D283 M284 H299 P300 L315 V316 A317 F322 E325 F328 E329 N330 M333 H334 V335 P336

R340 A345 G356 K359 Q364 R371 E384 R391 D396 R397 G398 R401 I402 E403 D404 A411 N412 R415 V416 K417 G418

• Molecule 1: UDP-N-acetylglucosamine 1-carboxyvinyltransferase

Chain F:
%
78%   21%

M1 Q7 T10 K11 A21 K22 N23 A24 P27 F30 E36 E37 I41 Q42 L56 L57 S58 Q59 L60 K63 R66 D67 G68 S69 V70 H71 I72 D73 A74 R75 V79 L86 R91 I94 W95 V101 V109 S110 L111 C115 R120

V143 K144 A145 R150 H155 E177 I181 N184 A185 A186 I191 V192 D193 Q208 R212 E219 G223 G224 V225 L229 P230 D231 R232 A243 G247 R252 Q255 T258 L259 K265 L266 R267 G276 W279 L282 D283 M284 K287

H299 P300 Q307 L315 V316 A317 F322 E325 F328 E329 N330 M333 H334 V335 P336 R340 A345 E348 G356 K359 Q364 R371 C381 E384 R391 D396 R397 G398 R401 A411 N412 R415 V416 K417 G418

• Molecule 1: UDP-N-acetylglucosamine 1-carboxyvinyltransferase

Chain G:
3%
81%   17%

• Molecule 1: UDP-N-acetylglucosamine 1-carboxyvinyltransferase

Chain H:

• Molecule 1: UDP-N-acetylglucosamine 1-carboxyvinyltransferase

Chain I:

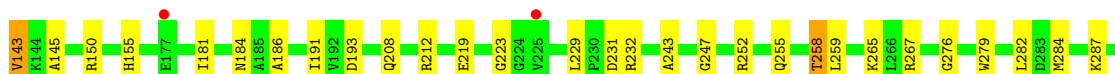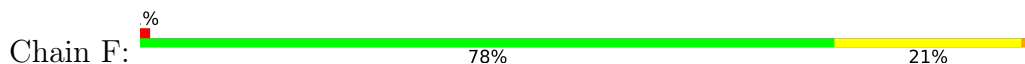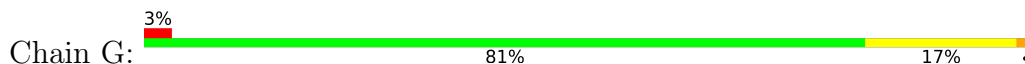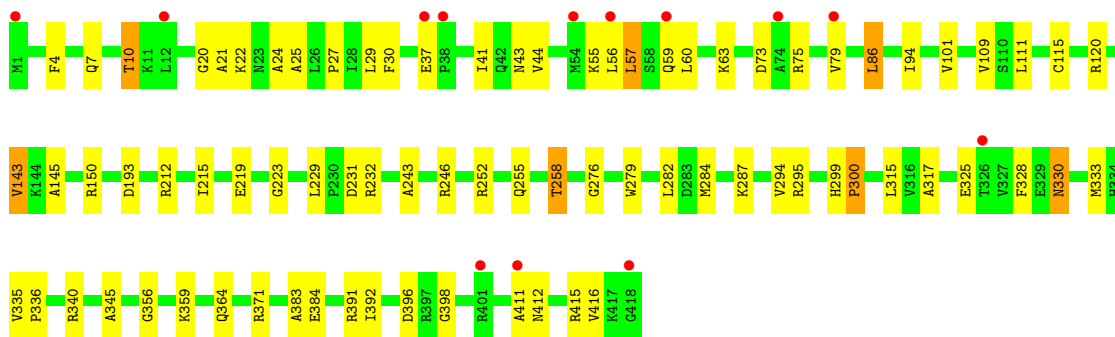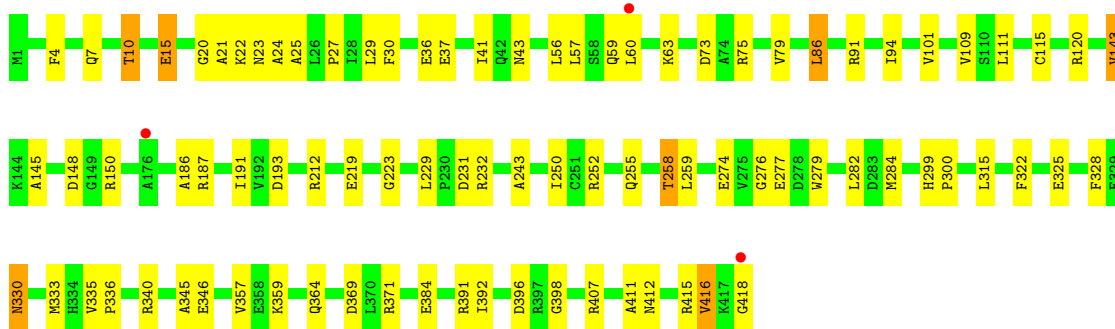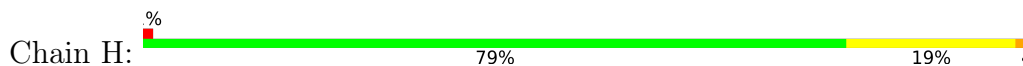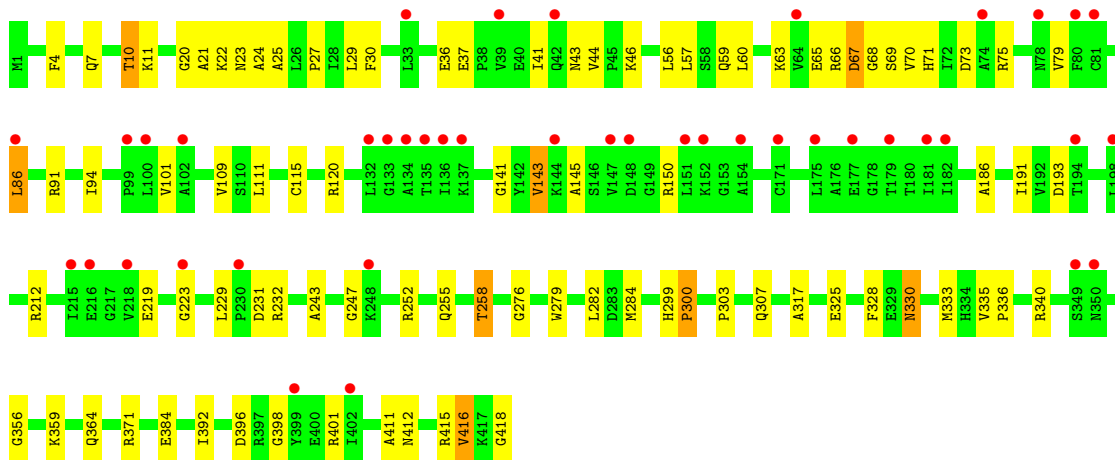• Molecule 1: UDP-N-acetylglucosamine 1-carboxyvinyltransferase

Chain J:

• Molecule 1: UDP-N-acetylglucosamine 1-carboxyvinyltransferase

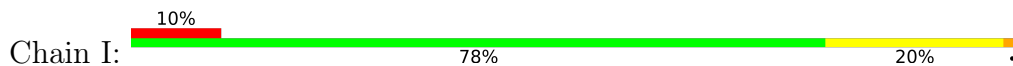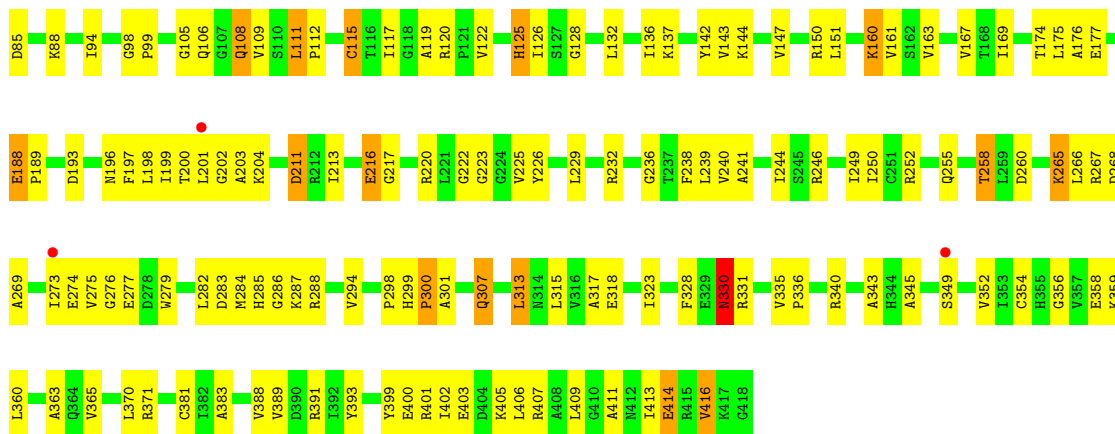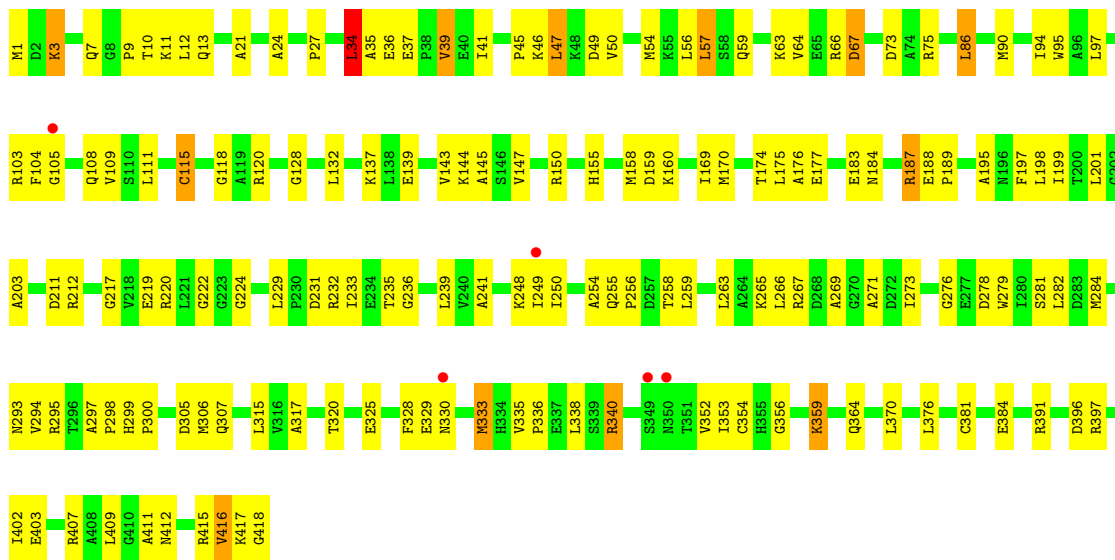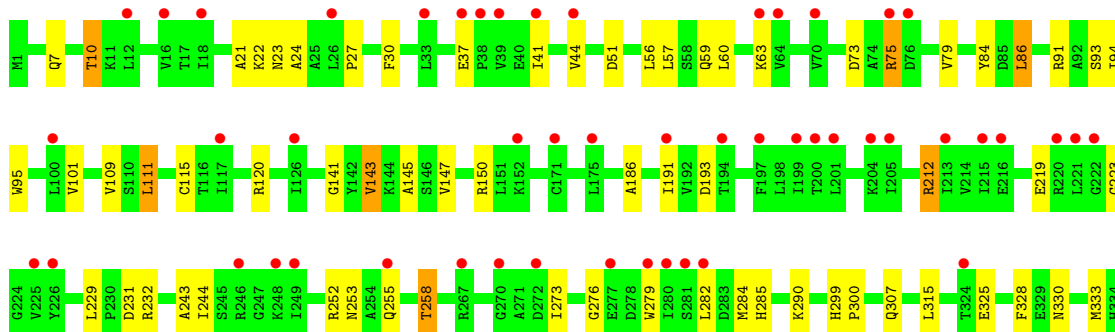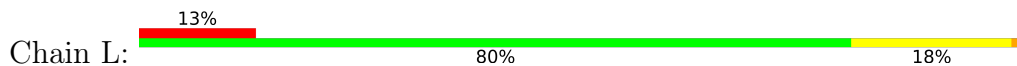• Molecule 1: UDP-N-acetylglucosamine 1-carboxyvinyltransferase

V335 P336 R340 A345 N350 T351 K359 G362 A363 Q364 R371 L378 I382 A383 E384 R391 D396 R397 G398 A411 N412 R415 V416 K417 G418
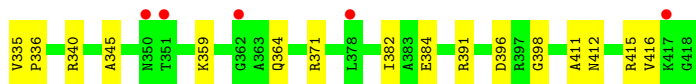
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	84.51Å 120.91Å 139.73Å 111.52° 104.44° 90.19°	Depositor
Resolution (Å)	47.48 – 2.50 47.48 – 2.50	Depositor EDS
% Data completeness (in resolution range)	97.5 (47.48-2.50) 97.6 (47.48-2.50)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.49 (at 2.51Å)	Xtriage
Refinement program	CNS 1.3	Depositor
R, R_{free}	0.226 , 0.280 0.219 , 0.272	Depositor DCC
R_{free} test set	8367 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	46.9	Xtriage
Anisotropy	0.141	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 54.8	EDS
L-test for twinning[2]	$< \lvert L \rvert > = 0.49, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	39035	wwPDB-VP
Average B, all atoms (Å^2)	57.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 9.08% 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 $< \lvert L \rvert >$, $< L^2 >$ 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: QPA, IAS, EPZ

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	0.56	0/3161	0.97	3/4278 (0.1%)
1	B	0.55	0/3161	0.90	2/4278 (0.0%)
1	C	0.61	1/3161 (0.0%)	0.92	4/4278 (0.1%)
1	D	0.62	0/3161	1.09	6/4278 (0.1%)
1	E	0.58	0/3161	0.91	2/4278 (0.0%)
1	F	0.59	3/3161 (0.1%)	0.92	2/4278 (0.0%)
1	G	0.56	0/3161	0.90	2/4278 (0.0%)
1	H	0.59	0/3161	0.92	2/4278 (0.0%)
1	I	0.55	0/3161	0.91	2/4278 (0.0%)
1	J	0.70	2/3161 (0.1%)	1.01	0/4278
1	K	0.72	0/3161	1.00	2/4278 (0.0%)
1	L	0.52	0/3161	1.07	7/4278 (0.2%)
All	All	0.60	6/37932 (0.0%)	0.96	34/51336 (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	K	0	2

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	J	381	CYS	CB-SG	-5.45	1.73	1.81
1	J	330	ASN	CG-OD1	5.32	1.35	1.24
1	C	350	ASN	CG-OD1	5.14	1.35	1.24
1	F	381	CYS	CB-SG	-5.10	1.73	1.81
1	F	184	ASN	CG-OD1	5.04	1.35	1.24
1	F	42	GLN	CD-OE1	5.01	1.34	1.24

All (34) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	L	75	ARG	NE-CZ-NH1	-20.39	110.11	120.30
1	D	120	ARG	NE-CZ-NH1	-20.14	110.23	120.30
1	D	212	ARG	NE-CZ-NH1	-19.88	110.36	120.30
1	L	75	ARG	NE-CZ-NH2	19.34	129.97	120.30
1	L	212	ARG	NE-CZ-NH1	-19.15	110.73	120.30
1	L	212	ARG	NE-CZ-NH2	18.74	129.67	120.30
1	A	212	ARG	NE-CZ-NH1	-18.43	111.09	120.30
1	D	212	ARG	NE-CZ-NH2	18.29	129.44	120.30
1	D	120	ARG	NE-CZ-NH2	18.07	129.33	120.30
1	A	212	ARG	NE-CZ-NH2	17.89	129.25	120.30
1	L	212	ARG	CD-NE-CZ	9.63	137.08	123.60
1	C	212	ARG	NE-CZ-NH2	-9.61	115.50	120.30
1	I	212	ARG	NE-CZ-NH2	-9.55	115.52	120.30
1	H	212	ARG	NE-CZ-NH2	-9.48	115.56	120.30
1	A	212	ARG	CD-NE-CZ	9.38	136.73	123.60
1	D	212	ARG	CD-NE-CZ	9.23	136.53	123.60
1	F	212	ARG	NE-CZ-NH1	9.07	124.83	120.30
1	B	212	ARG	NE-CZ-NH2	-9.05	115.78	120.30
1	I	212	ARG	NE-CZ-NH1	9.05	124.82	120.30
1	E	212	ARG	NE-CZ-NH2	-9.05	115.78	120.30
1	B	212	ARG	NE-CZ-NH1	8.99	124.80	120.30
1	F	212	ARG	NE-CZ-NH2	-8.89	115.86	120.30
1	G	212	ARG	NE-CZ-NH2	-8.54	116.03	120.30
1	H	212	ARG	NE-CZ-NH1	8.25	124.42	120.30
1	E	212	ARG	NE-CZ-NH1	8.24	124.42	120.30
1	L	75	ARG	CD-NE-CZ	7.91	134.67	123.60
1	D	120	ARG	CD-NE-CZ	7.61	134.26	123.60
1	C	212	ARG	NE-CZ-NH1	7.48	124.04	120.30
1	G	212	ARG	NE-CZ-NH1	7.40	124.00	120.30
1	K	34	LEU	CA-CB-CG	6.96	131.30	115.30
1	C	120	ARG	NE-CZ-NH1	6.05	123.33	120.30
1	L	75	ARG	CG-CD-NE	5.28	122.89	111.80
1	K	417	LYS	N-CA-C	5.24	125.14	111.00
1	C	120	ARG	NE-CZ-NH2	-5.16	117.72	120.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	K	187	ARG	Sidechain
1	K	340	ARG	Sidechain

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3143	0	3210	66	1
1	B	3143	0	3211	77	0
1	C	3143	0	3210	64	0
1	D	3143	0	3210	60	0
1	E	3143	0	3211	76	0
1	F	3143	0	3211	82	0
1	G	3143	0	3211	66	0
1	H	3143	0	3210	73	0
1	I	3143	0	3211	74	1
1	J	3143	0	3211	171	0
1	K	3143	0	3211	152	0
1	L	3143	0	3210	65	0
2	A	44	0	28	0	0
2	B	44	0	28	2	0
2	C	44	0	28	1	0
2	D	44	0	28	0	0
2	E	44	0	28	0	0
2	F	44	0	28	0	0
2	G	44	0	28	1	0
2	H	44	0	28	0	0
2	I	44	0	28	2	0
2	J	44	0	28	2	0
2	K	44	0	28	3	0
2	L	44	0	28	1	0
3	A	76	0	0	4	0
3	B	58	0	0	7	0
3	C	105	0	0	4	0
3	D	104	0	0	7	0
3	E	86	0	0	5	0
3	F	63	0	0	4	0
3	G	47	0	0	5	0
3	H	73	0	0	5	0
3	I	42	0	0	4	0
3	J	45	0	0	10	0
3	K	60	0	0	5	0
3	L	32	0	0	5	0
All	All	39035	0	38863	984	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 13.

All (984) 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:11:LYS:NZ	1:C:13:GLN:OE1	1.75	1.18
1:J:405:LYS:O	1:J:409:LEU:HD12	1.46	1.13
1:E:403:GLU:HG3	3:E:660:HOH:O	1.46	1.13
1:K:66:ARG:HG3	1:K:67:IAS:OXT	1.51	1.09
1:K:370:LEU:HD11	1:K:397:ARG:HB2	1.39	1.04
1:K:233:ILE:HA	1:K:306:MET:HE2	1.40	1.04
1:K:45:PRO:HG2	1:K:47:LEU:HD11	1.51	0.92
1:I:60:LEU:HA	1:I:79:VAL:HG13	1.52	0.91
1:D:60:LEU:HA	1:D:79:VAL:HG13	1.53	0.91
1:F:60:LEU:HA	1:F:79:VAL:HG13	1.50	0.91
1:K:174:THR:HG21	1:K:198:LEU:HD13	1.53	0.90
1:L:60:LEU:HA	1:L:79:VAL:HG13	1.51	0.90
1:B:150:ARG:HH12	1:B:219:GLU:HA	1.35	0.90
1:C:150:ARG:HH12	1:C:219:GLU:HA	1.36	0.90
1:C:60:LEU:HA	1:C:79:VAL:HG13	1.53	0.90
1:G:60:LEU:HA	1:G:79:VAL:HG13	1.53	0.90
1:H:60:LEU:HA	1:H:79:VAL:HG13	1.53	0.90
1:E:60:LEU:HA	1:E:79:VAL:HG13	1.52	0.90
1:B:60:LEU:HA	1:B:79:VAL:HG13	1.52	0.89
1:J:294:VAL:HB	1:J:323:ILE:HD13	1.52	0.89
1:J:60:LEU:HA	1:J:79:VAL:CG1	2.03	0.89
1:L:150:ARG:HH12	1:L:219:GLU:HA	1.36	0.89
1:E:150:ARG:HH12	1:E:219:GLU:HA	1.37	0.88
1:I:150:ARG:HH12	1:I:219:GLU:HA	1.38	0.88
1:A:150:ARG:HH12	1:A:219:GLU:HA	1.39	0.88
1:A:60:LEU:HA	1:A:79:VAL:HG13	1.54	0.88
1:F:150:ARG:HH12	1:F:219:GLU:HA	1.38	0.87
1:D:150:ARG:HH12	1:D:219:GLU:HA	1.39	0.87
1:H:150:ARG:HH12	1:H:219:GLU:HA	1.41	0.86
1:J:405:LYS:O	1:J:409:LEU:CD1	2.22	0.86
1:H:219:GLU:HG2	3:H:663:HOH:O	1.74	0.86
1:K:3:LYS:NZ	1:K:418:GLY:C	2.30	0.85
1:G:150:ARG:HH12	1:G:219:GLU:HA	1.43	0.83
1:K:183:GLU:OE1	1:K:212:ARG:HB2	1.79	0.83
1:K:255:GLN:O	1:K:258:THR:HG22	1.79	0.82
1:J:41:ILE:O	1:J:69:SER:HB2	1.79	0.82
1:K:46:LYS:HG2	1:K:66:ARG:NH2	1.95	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:47:LEU:HD21	1:J:400:GLU:N	1.96	0.81
1:L:273:ILE:HB	3:L:622:HOH:O	1.79	0.80
1:H:15:GLU:OE2	1:H:252:ARG:NH1	2.15	0.80
1:J:59:GLN:O	1:J:79:VAL:HG11	1.80	0.79
1:A:303:PRO:HA	3:A:625:HOH:O	1.82	0.79
1:K:407:ARG:HA	1:K:411:ALA:HB3	1.65	0.78
1:E:404:ASP:OD1	1:J:277:GLU:HB3	1.84	0.78
1:H:274:GLU:HG2	3:H:665:HOH:O	1.84	0.77
1:K:295:ARG:HH11	1:K:295:ARG:HG3	1.50	0.77
1:K:108:GLN:HG2	1:K:144:LYS:NZ	2.00	0.77
1:C:207:GLY:O	1:C:210:THR:HG23	1.85	0.76
1:D:232:ARG:HB3	1:D:258:THR:CG2	2.15	0.76
1:F:66:ARG:HB3	1:F:70:VAL:HG22	1.65	0.76
1:I:232:ARG:HB3	1:I:258:THR:HG21	1.67	0.76
1:J:11:LYS:HE3	1:J:13:GLN:OE1	1.85	0.76
1:J:315:LEU:HD22	1:J:343:ALA:HB1	1.68	0.75
1:L:232:ARG:HB3	1:L:258:THR:HG21	1.68	0.75
1:H:232:ARG:HB3	1:H:258:THR:CG2	2.16	0.75
1:D:232:ARG:HB3	1:D:258:THR:HG21	1.69	0.75
1:I:120:ARG:HD2	3:I:621:HOH:O	1.85	0.75
1:K:36:GLU:HB2	1:K:220:ARG:NH2	2.02	0.75
1:I:232:ARG:HB3	1:I:258:THR:CG2	2.16	0.75
1:K:39:VAL:HG23	1:K:224:GLY:H	1.51	0.75
1:K:56:LEU:HD12	1:K:86:LEU:HD23	1.68	0.75
1:K:109:VAL:O	1:K:143:VAL:HG12	1.85	0.75
1:K:233:ILE:HA	1:K:306:MET:CE	2.16	0.74
1:A:232:ARG:HB3	1:A:258:THR:CG2	2.18	0.74
1:J:24:ALA:O	1:J:27:PRO:HD2	1.87	0.74
1:L:232:ARG:HB3	1:L:258:THR:CG2	2.17	0.74
1:G:232:ARG:HB3	1:G:258:THR:CG2	2.18	0.74
1:E:401:ARG:HG2	1:J:277:GLU:CD	2.06	0.74
1:J:8:GLY:HA3	1:J:383:ALA:O	1.87	0.74
1:C:232:ARG:HB3	1:C:258:THR:HG21	1.70	0.74
1:A:232:ARG:HB3	1:A:258:THR:HG21	1.68	0.73
1:B:232:ARG:HB3	1:B:258:THR:CG2	2.19	0.73
1:G:232:ARG:HB3	1:G:258:THR:HG21	1.71	0.73
1:J:22:LYS:HD3	1:J:371:ARG:HH21	1.54	0.73
1:J:199:ILE:O	1:J:202:GLY:N	2.22	0.73
1:F:330:ASN:HB3	1:G:330:ASN:ND2	2.04	0.73
1:F:66:ARG:HB3	1:F:70:VAL:CG2	2.19	0.72
1:K:39:VAL:HG23	1:K:224:GLY:N	2.05	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:187:ARG:NH1	1:K:300:PRO:HD3	2.03	0.72
1:J:335:VAL:HB	1:J:336:PRO:HD3	1.69	0.72
2:L:501:EPZ:H5DA	2:L:501:EPZ:H6U	1.69	0.72
1:H:232:ARG:HB3	1:H:258:THR:HG21	1.70	0.72
1:F:401:ARG:HG2	3:F:649:HOH:O	1.89	0.72
1:D:159:ASP:OD1	1:F:265:LYS:HE2	1.88	0.72
1:C:232:ARG:HB3	1:C:258:THR:CG2	2.20	0.71
1:D:252:ARG:HD2	3:D:640:HOH:O	1.90	0.71
1:B:232:ARG:HB3	1:B:258:THR:HG21	1.71	0.71
1:F:232:ARG:HB3	1:F:258:THR:HG21	1.71	0.71
1:J:117:ILE:HG22	1:J:331:ARG:HG3	1.72	0.71
1:F:232:ARG:HB3	1:F:258:THR:CG2	2.20	0.71
1:B:333:MET:O	1:B:336:PRO:HD2	1.90	0.71
1:G:333:MET:O	1:G:336:PRO:HD2	1.90	0.71
1:J:34:LEU:HD22	1:J:175:LEU:HD12	1.72	0.70
1:K:330:ASN:HB3	3:L:632:HOH:O	1.90	0.70
1:J:60:LEU:HD23	1:J:79:VAL:HG13	1.71	0.70
1:C:11:LYS:HE2	3:C:676:HOH:O	1.91	0.70
1:I:67:IAS:OD1	1:I:69:SER:N	2.24	0.70
1:J:109:VAL:O	1:J:143:VAL:HG13	1.91	0.70
1:K:115:QPA:H9	1:K:115:QPA:O13	1.91	0.69
1:K:57:LEU:HB3	1:K:64:VAL:HG21	1.73	0.69
1:J:161:VAL:HA	3:J:621:HOH:O	1.92	0.69
1:B:322:PHE:CE1	1:H:346:GLU:HG3	2.27	0.69
1:J:174:THR:HG21	1:J:198:LEU:HD13	1.74	0.69
1:J:238:PHE:O	1:J:241:ALA:HB3	1.92	0.69
1:H:369:ASP:HB2	3:H:629:HOH:O	1.93	0.68
1:C:333:MET:O	1:C:336:PRO:HD2	1.93	0.68
1:E:232:ARG:HB3	1:E:258:THR:CG2	2.23	0.68
1:B:265:LYS:HE2	1:E:159:ASP:OD1	1.94	0.68
1:E:232:ARG:HB3	1:E:258:THR:HG21	1.73	0.68
1:G:24:ALA:O	1:G:27:PRO:HD2	1.94	0.68
1:A:24:ALA:O	1:A:27:PRO:HD2	1.94	0.68
1:D:59:GLN:O	1:D:79:VAL:HG11	1.94	0.67
1:I:333:MET:O	1:I:336:PRO:HD2	1.93	0.67
1:A:120:ARG:HD2	3:A:662:HOH:O	1.95	0.67
1:K:10:THR:HG22	1:K:381:CYS:O	1.93	0.67
1:K:66:ARG:CG	1:K:67:IAS:OXT	2.36	0.67
1:B:59:GLN:O	1:B:79:VAL:HG11	1.95	0.67
1:H:120:ARG:HD3	1:H:328:PHE:CE1	2.29	0.67
1:J:299:HIS:ND1	1:J:300:PRO:HA	2.11	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:340:ARG:NH1	1:C:364:GLN:O	2.28	0.66
1:K:67:IAS:C	1:K:67:IAS:OD1	2.40	0.66
1:L:24:ALA:O	1:L:27:PRO:HD2	1.96	0.66
1:J:22:LYS:HB3	1:J:371:ARG:NH2	2.10	0.66
1:D:333:MET:O	1:D:336:PRO:HD2	1.96	0.66
1:E:59:GLN:O	1:E:79:VAL:HG11	1.96	0.66
1:H:15:GLU:HG3	1:H:250:ILE:HB	1.78	0.66
1:F:67:IAS:OD1	1:F:69:SER:N	2.29	0.66
1:G:59:GLN:O	1:G:79:VAL:HG11	1.96	0.66
1:H:59:GLN:O	1:H:79:VAL:HG11	1.96	0.65
1:J:38:PRO:HD3	1:J:75:ARG:HH21	1.60	0.65
1:C:59:GLN:O	1:C:79:VAL:HG11	1.96	0.65
1:K:50:VAL:O	1:K:54:MET:HG3	1.95	0.65
1:F:59:GLN:O	1:F:79:VAL:HG11	1.96	0.65
1:K:250:ILE:HD13	1:K:281:SER:HB2	1.79	0.65
1:G:340:ARG:NH1	1:G:364:GLN:O	2.30	0.65
1:A:120:ARG:HD3	1:A:328:PHE:CE1	2.31	0.65
1:L:59:GLN:O	1:L:79:VAL:HG11	1.96	0.64
1:B:120:ARG:HD3	1:B:328:PHE:CE1	2.32	0.64
1:B:187:ARG:HD3	3:B:619:HOH:O	1.97	0.64
1:F:255:GLN:O	1:F:258:THR:HB	1.98	0.64
1:G:120:ARG:HD3	1:G:328:PHE:CE1	2.33	0.64
1:J:111:LEU:HD23	1:J:112:PRO:HD2	1.77	0.64
1:K:139:GLU:HG3	1:K:144:LYS:HD2	1.78	0.64
1:L:333:MET:O	1:L:336:PRO:HD2	1.98	0.64
1:D:47:LEU:HA	3:D:671:HOH:O	1.96	0.64
1:K:250:ILE:HD13	1:K:281:SER:CB	2.28	0.64
1:L:255:GLN:O	1:L:258:THR:HB	1.98	0.64
1:J:117:ILE:CG2	1:J:331:ARG:HG3	2.27	0.64
1:K:340:ARG:NH1	1:L:84:TYR:CE1	2.65	0.64
1:D:24:ALA:O	1:D:27:PRO:HD2	1.98	0.64
1:J:402:ILE:O	1:J:406:LEU:HB2	1.98	0.64
1:K:128:GLY:HA3	1:K:169:ILE:HD11	1.79	0.64
1:K:299:HIS:CG	1:K:300:PRO:HA	2.32	0.64
1:E:330:ASN:ND2	1:H:330:ASN:HB3	2.12	0.64
1:K:3:LYS:HZ3	1:K:418:GLY:C	2.00	0.64
1:L:120:ARG:HD3	1:L:328:PHE:CE1	2.33	0.64
1:L:335:VAL:HB	1:L:336:PRO:HD3	1.80	0.64
1:B:24:ALA:O	1:B:27:PRO:HD2	1.98	0.64
1:E:330:ASN:HB3	1:H:330:ASN:ND2	2.13	0.64
1:J:120:ARG:HD2	3:J:637:HOH:O	1.97	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:255:GLN:O	1:C:258:THR:HB	1.98	0.64
1:E:120:ARG:HD3	1:E:328:PHE:CE1	2.32	0.63
1:H:333:MET:O	1:H:336:PRO:HD2	1.98	0.63
1:K:97:LEU:HB2	1:K:109:VAL:HG21	1.80	0.63
1:E:401:ARG:HG2	1:J:277:GLU:OE2	1.98	0.63
1:J:287:LYS:HE2	1:J:287:LYS:HA	1.79	0.63
1:K:150:ARG:NH2	1:K:177:GLU:HG2	2.13	0.63
1:I:59:GLN:O	1:I:79:VAL:HG11	1.98	0.63
1:K:3:LYS:HB2	1:K:416:VAL:HG22	1.79	0.63
1:A:255:GLN:O	1:A:258:THR:HB	1.99	0.63
1:D:262:VAL:HG23	3:D:610:HOH:O	1.97	0.63
1:J:232:ARG:HB3	1:J:258:THR:HG23	1.79	0.63
1:F:333:MET:O	1:F:336:PRO:HD2	1.99	0.63
1:B:346:GLU:HG3	1:H:322:PHE:CE1	2.35	0.62
1:E:250:ILE:HG12	3:E:620:HOH:O	2.00	0.62
1:J:60:LEU:HA	1:J:79:VAL:HG13	1.81	0.62
1:D:152:LYS:HD2	3:D:650:HOH:O	1.98	0.62
1:D:255:GLN:O	1:D:258:THR:HB	1.98	0.62
1:J:211:ASP:OD2	1:K:187:ARG:NH1	2.31	0.62
1:K:12:LEU:HD12	1:K:241:ALA:HB1	1.80	0.62
1:D:10:THR:HG21	1:D:411:ALA:HA	1.81	0.62
1:D:335:VAL:HB	1:D:336:PRO:HD3	1.81	0.62
1:F:267:ARG:NH1	3:F:617:HOH:O	2.31	0.62
1:J:288:ARG:NH1	1:J:318:GLU:HB2	2.15	0.62
1:A:59:GLN:O	1:A:79:VAL:HG11	1.99	0.62
1:J:25:ALA:O	1:J:29:LEU:HD13	2.00	0.62
1:K:232:ARG:HB2	1:K:259:LEU:HD21	1.81	0.62
1:K:233:ILE:CA	1:K:306:MET:HE2	2.25	0.62
1:J:41:ILE:N	1:J:41:ILE:HD12	2.15	0.62
1:J:47:LEU:HD21	1:J:399:TYR:C	2.20	0.62
1:J:42:GLN:HA	1:J:69:SER:HB3	1.82	0.62
1:B:159:ASP:OD1	1:E:265:LYS:HE2	1.99	0.62
1:C:120:ARG:HD3	1:C:328:PHE:CE1	2.35	0.62
1:I:303:PRO:HB3	3:I:636:HOH:O	2.00	0.62
1:J:150:ARG:NH2	1:J:177:GLU:HB3	2.15	0.62
1:A:333:MET:O	1:A:336:PRO:HD2	1.99	0.61
2:B:501:EPZ:H5DA	2:B:501:EPZ:H6U	1.81	0.61
1:F:66:ARG:HB2	1:F:70:VAL:HG23	1.81	0.61
1:J:323:ILE:HB	1:J:352:VAL:CG1	2.29	0.61
1:K:118:GLY:HA3	3:K:629:HOH:O	2.00	0.61
1:A:330:ASN:HB3	1:B:330:ASN:ND2	2.15	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:24:ALA:O	1:E:27:PRO:HD2	2.00	0.61
1:B:255:GLN:O	1:B:258:THR:HB	2.00	0.61
1:C:359:LYS:HE2	1:C:384:GLU:HB2	1.82	0.61
1:F:340:ARG:NH1	1:F:364:GLN:O	2.33	0.61
1:C:335:VAL:HB	1:C:336:PRO:HD3	1.83	0.61
1:G:359:LYS:HE2	1:G:384:GLU:HB2	1.83	0.61
1:K:137:LYS:HE2	1:K:139:GLU:OE1	2.01	0.61
1:D:359:LYS:HE2	1:D:384:GLU:HB2	1.83	0.61
1:F:330:ASN:ND2	1:G:330:ASN:HB3	2.16	0.61
1:K:12:LEU:CD1	1:K:241:ALA:HB1	2.30	0.61
1:A:10:THR:HG21	1:A:411:ALA:HA	1.82	0.61
1:C:120:ARG:HD2	3:C:694:HOH:O	2.00	0.61
1:K:105:GLY:HA2	1:K:147:VAL:HG12	1.83	0.61
1:E:359:LYS:HE2	1:E:384:GLU:HB2	1.82	0.61
1:G:150:ARG:NH2	3:G:635:HOH:O	2.34	0.61
1:F:42:GLN:HG2	1:F:69:SER:OG	2.01	0.60
1:A:56:LEU:HB2	1:A:86:LEU:HD22	1.83	0.60
1:F:120:ARG:HD3	1:F:328:PHE:CE1	2.35	0.60
2:K:501:EPZ:H5DA	2:K:501:EPZ:H6U	1.82	0.60
1:E:404:ASP:OD2	1:J:277:GLU:HG2	2.02	0.60
1:B:46:LYS:NZ	3:B:615:HOH:O	2.34	0.60
1:E:333:MET:O	1:E:336:PRO:HD2	2.01	0.60
1:H:255:GLN:O	1:H:258:THR:HB	2.02	0.60
1:C:10:THR:HG21	1:C:411:ALA:HA	1.82	0.60
1:H:340:ARG:NH1	1:H:364:GLN:O	2.34	0.60
1:J:204:LYS:CB	1:J:216:GLU:HB3	2.32	0.60
1:J:276:GLY:HA3	1:J:279:TRP:NE1	2.17	0.60
1:K:258:THR:HG21	3:K:625:HOH:O	2.02	0.60
1:J:3:LYS:HD3	1:J:388:VAL:CG1	2.32	0.60
1:J:126:ILE:HG23	1:J:136:ILE:HD12	1.83	0.60
1:B:359:LYS:HE2	1:B:384:GLU:HB2	1.83	0.60
1:I:120:ARG:HD3	1:I:328:PHE:CE1	2.37	0.60
1:B:10:THR:HG21	1:B:411:ALA:HA	1.84	0.59
1:G:255:GLN:O	1:G:258:THR:HB	2.02	0.59
1:K:370:LEU:CD1	1:K:397:ARG:HB2	2.24	0.59
1:B:322:PHE:HE1	1:H:346:GLU:HG3	1.67	0.59
1:I:335:VAL:HB	1:I:336:PRO:HD3	1.85	0.59
1:J:406:LEU:O	1:J:411:ALA:HB3	2.01	0.59
1:I:359:LYS:HE2	1:I:384:GLU:HB2	1.85	0.59
1:C:60:LEU:HA	1:C:79:VAL:CG1	2.31	0.59
1:F:24:ALA:O	1:F:27:PRO:HD2	2.03	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:255:GLN:O	1:I:258:THR:HB	2.02	0.59
1:K:220:ARG:HG3	1:K:220:ARG:HH11	1.66	0.59
2:I:501:EPZ:H5DA	2:I:501:EPZ:H6U	1.85	0.59
1:F:66:ARG:CB	1:F:70:VAL:CG2	2.80	0.59
1:F:335:VAL:HB	1:F:336:PRO:HD3	1.85	0.59
1:K:402:ILE:HG23	1:K:403:GLU:N	2.18	0.59
1:J:236:GLY:O	1:J:240:VAL:HG23	2.03	0.58
1:L:10:THR:HG21	1:L:411:ALA:HA	1.83	0.58
1:L:37:GLU:HB2	1:L:223:GLY:N	2.17	0.58
1:I:340:ARG:NH1	1:I:364:GLN:O	2.36	0.58
1:J:255:GLN:O	1:J:258:THR:HB	2.03	0.58
2:J:501:EPZ:H5DA	2:J:501:EPZ:H6U	1.85	0.58
1:K:94:ILE:HA	1:K:109:VAL:HG11	1.84	0.58
1:G:56:LEU:HB2	1:G:86:LEU:HD22	1.86	0.58
1:H:24:ALA:O	1:H:27:PRO:HD2	2.03	0.58
1:D:109:VAL:O	1:D:143:VAL:HG13	2.02	0.58
1:G:383:ALA:HB3	3:G:623:HOH:O	2.02	0.58
1:K:340:ARG:HH21	1:L:141:GLY:HA3	1.68	0.58
1:F:10:THR:HG21	1:F:411:ALA:HA	1.85	0.58
1:A:109:VAL:O	1:A:143:VAL:HG13	2.04	0.58
1:C:11:LYS:NZ	1:C:13:GLN:CD	2.56	0.58
1:K:333:MET:O	1:K:336:PRO:HD2	2.04	0.58
1:J:22:LYS:HB3	1:J:371:ARG:HH21	1.67	0.58
1:L:73:ASP:OD1	1:L:75:ARG:HD3	2.03	0.58
1:E:255:GLN:O	1:E:258:THR:HB	2.04	0.57
1:H:120:ARG:HD3	1:H:328:PHE:HE1	1.69	0.57
1:J:267:ARG:NH1	3:J:639:HOH:O	2.36	0.57
1:K:340:ARG:HG2	1:L:111:LEU:HB3	1.85	0.57
1:L:359:LYS:HE2	1:L:384:GLU:HB2	1.85	0.57
1:A:359:LYS:HE2	1:A:384:GLU:HB2	1.86	0.57
1:F:66:ARG:CB	1:F:70:VAL:HG23	2.34	0.57
1:F:359:LYS:HE2	1:F:384:GLU:HB2	1.85	0.57
1:I:24:ALA:O	1:I:27:PRO:HD2	2.05	0.57
1:I:66:ARG:O	1:I:67:IAS:C	2.52	0.57
1:H:359:LYS:HE2	1:H:384:GLU:HB2	1.85	0.57
1:C:325:GLU:HG2	1:C:328:PHE:O	2.03	0.57
1:J:204:LYS:HB2	1:J:216:GLU:HB3	1.84	0.57
1:L:109:VAL:O	1:L:143:VAL:HG13	2.05	0.57
1:E:109:VAL:O	1:E:143:VAL:HG13	2.04	0.57
1:H:325:GLU:HG2	1:H:328:PHE:O	2.04	0.57
1:J:232:ARG:HB3	1:J:258:THR:CG2	2.35	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:252:ARG:HG3	1:J:252:ARG:HH11	1.69	0.57
1:A:335:VAL:HB	1:A:336:PRO:HD3	1.85	0.56
1:B:71:HIS:HD2	3:B:644:HOH:O	1.86	0.56
1:J:22:LYS:HD3	1:J:371:ARG:NH2	2.19	0.56
1:K:266:LEU:O	1:K:269:ALA:N	2.38	0.56
1:K:340:ARG:NH1	1:K:364:GLN:O	2.38	0.56
1:B:335:VAL:HB	1:B:336:PRO:HD3	1.87	0.56
1:J:266:LEU:O	1:J:269:ALA:HB3	2.05	0.56
1:B:71:HIS:CD2	3:B:644:HOH:O	2.58	0.56
1:G:325:GLU:HG2	1:G:328:PHE:O	2.04	0.56
1:J:240:VAL:O	1:J:244:ILE:HG12	2.06	0.56
1:J:391:ARG:HD2	1:J:393:TYR:HE2	1.69	0.56
1:B:56:LEU:HB2	1:B:86:LEU:HD22	1.87	0.56
1:G:10:THR:HG21	1:G:411:ALA:HA	1.86	0.56
1:G:55:LYS:NZ	3:G:614:HOH:O	2.33	0.56
1:J:267:ARG:HD2	3:J:639:HOH:O	2.05	0.56
1:J:55:LYS:NZ	3:J:625:HOH:O	2.30	0.56
1:K:276:GLY:HA3	1:K:279:TRP:CE2	2.41	0.56
1:L:325:GLU:HG2	1:L:328:PHE:O	2.06	0.56
1:F:359:LYS:NZ	1:F:384:GLU:OE1	2.36	0.56
1:H:10:THR:HG21	1:H:411:ALA:HA	1.87	0.56
1:K:143:VAL:O	1:K:143:VAL:HG13	2.06	0.56
1:J:406:LEU:O	1:J:411:ALA:CB	2.53	0.55
1:K:254:ALA:O	1:K:278:ASP:HA	2.06	0.55
1:K:47:LEU:CD1	1:K:50:VAL:HG23	2.36	0.55
1:I:109:VAL:O	1:I:143:VAL:HG13	2.06	0.55
1:J:246:ARG:NH2	1:J:288:ARG:HD2	2.20	0.55
1:L:290:LYS:HB3	3:L:626:HOH:O	2.05	0.55
1:C:24:ALA:O	1:C:27:PRO:HD2	2.05	0.55
1:H:109:VAL:O	1:H:143:VAL:HG13	2.07	0.55
1:K:325:GLU:HG2	1:K:328:PHE:O	2.07	0.55
1:E:56:LEU:HB2	1:E:86:LEU:HD22	1.88	0.55
1:J:85:ASP:HA	1:J:88:LYS:HE2	1.88	0.55
1:J:3:LYS:HD3	1:J:388:VAL:HG12	1.89	0.55
1:K:340:ARG:NH2	1:L:141:GLY:HA3	2.22	0.55
1:K:407:ARG:CA	1:K:411:ALA:HB3	2.36	0.55
1:I:330:ASN:HB3	1:J:330:ASN:OD1	2.07	0.55
1:L:340:ARG:NH1	1:L:364:GLN:O	2.40	0.55
1:D:56:LEU:HB2	1:D:86:LEU:HD22	1.88	0.55
1:E:10:THR:HG21	1:E:411:ALA:HA	1.88	0.55
1:E:335:VAL:HB	1:E:336:PRO:HD3	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:10:THR:HG21	1:I:411:ALA:HA	1.89	0.55
1:L:299:HIS:CG	1:L:300:PRO:HA	2.42	0.55
1:A:325:GLU:HG2	1:A:328:PHE:O	2.08	0.54
1:D:37:GLU:HB2	1:D:223:GLY:N	2.22	0.54
1:B:340:ARG:NH1	1:B:364:GLN:O	2.40	0.54
1:G:299:HIS:ND1	1:G:300:PRO:HA	2.23	0.54
1:K:3:LYS:HZ1	1:K:418:GLY:C	2.10	0.54
1:G:109:VAL:O	1:G:143:VAL:HG13	2.07	0.54
1:J:5:ARG:HD2	1:J:414:GLU:OE1	2.08	0.54
1:K:11:LYS:HD2	1:K:13:GLN:OE1	2.07	0.54
1:B:299:HIS:CG	1:B:300:PRO:HA	2.43	0.54
1:E:37:GLU:HB2	1:E:223:GLY:N	2.23	0.54
1:E:150:ARG:NH1	1:E:219:GLU:HA	2.17	0.54
1:E:330:ASN:OD1	1:H:330:ASN:OD1	2.26	0.54
1:A:252:ARG:HG3	1:A:252:ARG:HH11	1.73	0.54
1:H:335:VAL:HB	1:H:336:PRO:HD3	1.89	0.54
1:J:299:HIS:CG	1:J:300:PRO:HA	2.43	0.54
1:C:150:ARG:NH1	1:C:219:GLU:HA	2.16	0.54
1:F:299:HIS:CG	1:F:300:PRO:HA	2.43	0.54
1:J:128:GLY:HA3	1:J:169:ILE:CD1	2.38	0.54
1:K:27:PRO:HG3	1:K:95:TRP:CZ3	2.42	0.54
1:L:56:LEU:HB2	1:L:86:LEU:HD22	1.90	0.54
1:L:252:ARG:HG3	1:L:252:ARG:HH11	1.73	0.54
1:C:37:GLU:HB2	1:C:223:GLY:N	2.23	0.53
1:G:120:ARG:HD3	1:G:328:PHE:HE1	1.72	0.53
1:G:335:VAL:HB	1:G:336:PRO:HD3	1.89	0.53
1:A:37:GLU:HB2	1:A:223:GLY:N	2.24	0.53
1:K:235:THR:O	1:K:239:LEU:HG	2.07	0.53
1:D:325:GLU:HG2	1:D:328:PHE:O	2.07	0.53
1:K:36:GLU:O	1:K:37:GLU:HG2	2.08	0.53
1:I:65:GLU:HG3	1:I:71:HIS:HB2	1.90	0.53
1:B:60:LEU:HA	1:B:79:VAL:CG1	2.32	0.53
1:G:37:GLU:HB2	1:G:223:GLY:N	2.23	0.53
1:G:60:LEU:HA	1:G:79:VAL:CG1	2.35	0.53
2:G:501:EPZ:H6U	2:G:501:EPZ:H5DA	1.89	0.53
1:E:252:ARG:HH11	1:E:252:ARG:HG3	1.72	0.53
1:I:67:IAS:CG	1:I:69:SER:N	2.72	0.53
1:J:282:LEU:HD23	1:J:283:ASP:N	2.23	0.53
1:A:56:LEU:HB2	1:A:86:LEU:CD2	2.39	0.53
1:A:371:ARG:NH2	3:A:608:HOH:O	2.40	0.53
1:B:261:ALA:HB3	3:B:604:HOH:O	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:150:ARG:NH1	1:L:219:GLU:HA	2.16	0.53
1:D:299:HIS:CG	1:D:300:PRO:HA	2.44	0.53
1:I:37:GLU:HB2	1:I:223:GLY:N	2.23	0.53
1:K:183:GLU:OE2	1:K:212:ARG:HD2	2.08	0.53
1:B:299:HIS:ND1	1:B:300:PRO:HA	2.24	0.53
1:E:219:GLU:HG2	3:E:661:HOH:O	2.08	0.53
1:E:359:LYS:NZ	1:E:384:GLU:OE1	2.33	0.53
1:K:120:ARG:HD3	1:K:328:PHE:CE1	2.44	0.53
1:L:371:ARG:NH1	1:L:398:GLY:O	2.42	0.53
2:C:501:EPZ:H5DA	2:C:501:EPZ:H6U	1.91	0.52
1:D:63:LYS:HB2	1:D:73:ASP:HB3	1.91	0.52
1:E:325:GLU:HG2	1:E:328:PHE:O	2.09	0.52
1:J:46:LYS:HB2	1:J:400:GLU:HG3	1.90	0.52
1:C:109:VAL:O	1:C:143:VAL:HG13	2.09	0.52
1:F:252:ARG:HG3	1:F:252:ARG:HH11	1.74	0.52
1:K:24:ALA:O	1:K:27:PRO:HD2	2.10	0.52
1:K:150:ARG:HH21	1:K:177:GLU:HG2	1.72	0.52
1:E:340:ARG:NH1	1:E:364:GLN:O	2.42	0.52
1:F:330:ASN:CG	1:G:330:ASN:CG	2.68	0.52
1:H:252:ARG:HG3	1:H:252:ARG:HH11	1.75	0.52
1:A:340:ARG:NH1	1:A:364:GLN:O	2.42	0.52
1:B:265:LYS:CE	1:E:159:ASP:OD1	2.58	0.52
1:I:46:LYS:HG2	1:I:66:ARG:NH2	2.25	0.52
1:J:176:ALA:O	1:J:217:GLY:HA3	2.10	0.52
1:J:196:ASN:HB2	1:J:226:TYR:OH	2.10	0.52
1:C:5:ARG:NH1	3:C:614:HOH:O	2.29	0.52
1:J:42:GLN:OE1	1:J:225:VAL:HG11	2.09	0.52
1:K:187:ARG:NH1	1:K:300:PRO:CD	2.72	0.52
1:J:128:GLY:HA3	1:J:169:ILE:HD11	1.91	0.52
1:E:120:ARG:HD3	1:E:328:PHE:HE1	1.71	0.52
1:E:299:HIS:ND1	1:E:300:PRO:HA	2.24	0.52
1:K:108:GLN:HG2	1:K:144:LYS:CE	2.40	0.52
1:A:330:ASN:ND2	1:B:330:ASN:HB3	2.24	0.52
1:H:56:LEU:HB2	1:H:86:LEU:HD22	1.91	0.52
1:I:325:GLU:HG2	1:I:328:PHE:O	2.10	0.52
1:H:282:LEU:C	1:H:282:LEU:HD23	2.30	0.52
1:J:73:ASP:CG	1:J:75:ARG:HG2	2.31	0.52
1:F:60:LEU:HA	1:F:79:VAL:CG1	2.32	0.51
1:H:37:GLU:HB2	1:H:223:GLY:N	2.26	0.51
1:K:1:MET:CE	1:K:391:ARG:HB3	2.39	0.51
1:K:183:GLU:O	1:K:184:ASN:CB	2.58	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:60:LEU:HA	1:E:79:VAL:CG1	2.34	0.51
1:J:163:VAL:O	1:J:167:VAL:HG23	2.09	0.51
1:J:315:LEU:HD21	1:J:345:ALA:HB2	1.92	0.51
1:K:338:LEU:HD21	1:K:376:LEU:HD23	1.92	0.51
1:E:21:ALA:HA	1:E:231:ASP:HB2	1.92	0.51
1:I:60:LEU:HA	1:I:79:VAL:CG1	2.33	0.51
1:I:359:LYS:NZ	1:I:384:GLU:OE1	2.41	0.51
1:J:401:ARG:O	1:J:405:LYS:HG3	2.11	0.51
1:K:254:ALA:O	1:K:256:PRO:HD3	2.11	0.51
1:K:353:ILE:HD12	1:K:353:ILE:N	2.25	0.51
1:A:22:LYS:NZ	1:A:23:ASN:OD1	2.44	0.51
1:B:150:ARG:NH1	1:B:219:GLU:HA	2.16	0.51
1:C:56:LEU:HB2	1:C:86:LEU:HD22	1.91	0.51
1:J:122:VAL:HG23	1:J:122:VAL:O	2.10	0.51
1:L:120:ARG:HD3	1:L:328:PHE:HE1	1.74	0.51
1:F:150:ARG:NH1	1:F:219:GLU:HA	2.18	0.51
1:K:407:ARG:HG3	1:K:411:ALA:O	2.10	0.51
1:B:120:ARG:HD3	1:B:328:PHE:HE1	1.74	0.51
1:G:359:LYS:NZ	1:G:384:GLU:OE1	2.40	0.51
1:J:136:ILE:HG22	1:J:137:LYS:N	2.25	0.51
1:J:213:ILE:HD11	3:J:618:HOH:O	2.09	0.51
1:A:396:ASP:OD2	1:A:415:ARG:NH2	2.44	0.51
1:B:21:ALA:HA	1:B:231:ASP:HB2	1.91	0.51
1:H:359:LYS:NZ	1:H:384:GLU:OE1	2.37	0.51
1:J:391:ARG:HD2	1:J:393:TYR:CE2	2.46	0.51
1:A:346:GLU:HG3	1:E:322:PHE:HE1	1.76	0.51
1:C:252:ARG:HG3	1:C:252:ARG:HH11	1.76	0.51
1:A:288:ARG:HB2	3:D:690:HOH:O	2.11	0.51
1:B:36:GLU:O	1:B:75:ARG:HG2	2.11	0.51
1:J:22:LYS:HE3	1:J:370:LEU:HD12	1.92	0.51
1:L:285:HIS:CD2	3:L:623:HOH:O	2.62	0.51
1:I:41:ILE:N	1:I:41:ILE:HD12	2.26	0.51
1:J:197:PHE:O	1:J:200:THR:HB	2.10	0.51
1:J:299:HIS:CE1	1:J:300:PRO:HA	2.46	0.51
1:K:195:ALA:O	1:K:199:ILE:HG13	2.10	0.51
1:C:299:HIS:CG	1:C:300:PRO:HA	2.46	0.50
1:D:21:ALA:HA	1:D:231:ASP:HB2	1.93	0.50
1:F:109:VAL:O	1:F:143:VAL:HG13	2.11	0.50
1:G:63:LYS:HB2	1:G:73:ASP:HB3	1.93	0.50
1:A:282:LEU:C	1:A:282:LEU:HD23	2.32	0.50
1:E:299:HIS:CG	1:E:300:PRO:HA	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:21:ALA:HA	1:F:231:ASP:HB2	1.93	0.50
1:H:299:HIS:CG	1:H:300:PRO:HA	2.46	0.50
1:J:94:ILE:HA	1:J:109:VAL:HG11	1.92	0.50
1:K:295:ARG:HG3	1:K:295:ARG:NH1	2.24	0.50
1:L:150:ARG:HH12	1:L:219:GLU:CA	2.17	0.50
1:A:41:ILE:HD12	1:A:41:ILE:N	2.25	0.50
1:A:120:ARG:HD3	1:A:328:PHE:HE1	1.73	0.50
1:B:30:PHE:HE1	1:B:56:LEU:HD23	1.77	0.50
1:C:282:LEU:C	1:C:282:LEU:HD23	2.32	0.50
1:I:67:IAS:OD1	1:I:69:SER:O	2.29	0.50
1:K:66:ARG:HG3	1:K:67:IAS:N	2.25	0.50
1:K:103:ARG:HD3	1:K:104:PHE:CZ	2.46	0.50
1:K:297:ALA:HB1	1:K:298:PRO:HD2	1.94	0.50
1:F:56:LEU:HB2	1:F:86:LEU:HD22	1.92	0.50
1:G:21:ALA:HA	1:G:231:ASP:HB2	1.92	0.50
1:J:98:GLY:O	1:J:99:PRO:C	2.49	0.50
1:J:119:ALA:O	1:J:120:ARG:HG2	2.11	0.50
1:K:75:ARG:HG2	3:K:603:HOH:O	2.11	0.50
1:C:295:ARG:NH2	1:F:348:GLU:OE1	2.41	0.50
1:F:330:ASN:OD1	1:G:330:ASN:OD1	2.29	0.50
1:G:56:LEU:HB2	1:G:86:LEU:CD2	2.41	0.50
1:J:60:LEU:HD22	1:J:79:VAL:O	2.11	0.50
1:G:396:ASP:OD2	1:G:415:ARG:NH2	2.45	0.50
1:K:340:ARG:NH1	1:L:84:TYR:HE1	2.08	0.50
1:E:56:LEU:HB2	1:E:86:LEU:CD2	2.42	0.50
1:F:67:IAS:OD1	1:F:69:SER:O	2.30	0.50
1:I:56:LEU:HB2	1:I:86:LEU:HD22	1.92	0.50
1:K:271:ALA:HB1	1:K:282:LEU:HG	1.94	0.50
1:A:63:LYS:HB2	1:A:73:ASP:HB3	1.93	0.50
1:H:41:ILE:HD12	1:H:41:ILE:N	2.26	0.50
1:I:401:ARG:HA	3:I:619:HOH:O	2.11	0.50
1:J:111:LEU:HD23	1:J:112:PRO:CD	2.41	0.50
1:L:299:HIS:ND1	1:L:300:PRO:HA	2.27	0.50
1:F:37:GLU:HB2	1:F:223:GLY:N	2.27	0.50
1:F:325:GLU:HG2	1:F:328:PHE:O	2.11	0.50
1:I:299:HIS:CG	1:I:300:PRO:HA	2.46	0.50
1:J:5:ARG:NH1	1:J:416:VAL:HG11	2.27	0.50
1:K:233:ILE:HD12	1:K:305:ASP:HB2	1.93	0.50
1:G:252:ARG:HG3	1:G:252:ARG:HH11	1.76	0.49
1:G:299:HIS:CG	1:G:300:PRO:HA	2.47	0.49
1:J:37:GLU:HB2	1:J:222:GLY:C	2.33	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:299:HIS:ND1	1:F:300:PRO:HA	2.26	0.49
1:F:371:ARG:NH1	1:F:398:GLY:O	2.45	0.49
1:I:282:LEU:HD23	1:I:282:LEU:C	2.33	0.49
1:J:5:ARG:NH1	1:J:5:ARG:HB2	2.27	0.49
1:C:120:ARG:HD3	1:C:328:PHE:HE1	1.76	0.49
1:C:348:GLU:HG3	1:F:322:PHE:CE2	2.47	0.49
1:E:404:ASP:OD2	1:J:277:GLU:CG	2.60	0.49
1:G:7:GLN:HB2	1:G:412:ASN:HB3	1.94	0.49
1:I:66:ARG:C	1:I:67:IAS:OXT	2.45	0.49
1:K:66:ARG:NE	1:K:67:IAS:OXT	2.44	0.49
1:K:297:ALA:HB1	1:K:298:PRO:CD	2.42	0.49
1:A:22:LYS:HD2	1:A:398:GLY:HA2	1.95	0.49
1:C:330:ASN:ND2	1:D:330:ASN:HB3	2.27	0.49
1:E:404:ASP:OD2	1:J:277:GLU:OE1	2.31	0.49
1:J:407:ARG:HA	1:J:411:ALA:HB3	1.94	0.49
1:K:27:PRO:HG3	1:K:95:TRP:CH2	2.48	0.49
1:K:97:LEU:HB2	1:K:109:VAL:CG2	2.42	0.49
1:B:94:ILE:HA	1:B:109:VAL:HG11	1.94	0.49
1:C:7:GLN:HB2	1:C:412:ASN:HB3	1.93	0.49
1:J:5:ARG:HH12	1:J:416:VAL:HG11	1.77	0.49
1:J:307:GLN:HG2	1:J:323:ILE:HG21	1.95	0.49
1:D:56:LEU:HB2	1:D:86:LEU:CD2	2.43	0.49
1:I:66:ARG:O	1:I:67:IAS:OXT	2.30	0.49
1:I:67:IAS:OD1	1:I:68:GLY:C	2.51	0.49
1:J:108:GLN:HG2	1:J:144:LYS:HE2	1.95	0.49
1:K:24:ALA:C	1:K:27:PRO:HD2	2.33	0.49
1:A:359:LYS:NZ	1:A:384:GLU:OE1	2.39	0.49
1:K:21:ALA:HA	1:K:231:ASP:HB2	1.93	0.49
1:B:325:GLU:HG2	1:B:328:PHE:O	2.11	0.49
1:D:94:ILE:HA	1:D:109:VAL:HG11	1.95	0.49
1:H:63:LYS:HB2	1:H:73:ASP:HB3	1.95	0.49
1:L:51:ASP:HB3	3:L:628:HOH:O	2.13	0.49
1:G:22:LYS:HD2	1:G:398:GLY:HA2	1.95	0.49
1:H:299:HIS:ND1	1:H:300:PRO:HA	2.28	0.49
1:I:63:LYS:HB2	1:I:73:ASP:HB3	1.95	0.49
1:B:350:ASN:OD1	3:B:618:HOH:O	2.20	0.48
1:C:330:ASN:HB3	1:D:330:ASN:ND2	2.27	0.48
1:D:299:HIS:ND1	1:D:300:PRO:HA	2.28	0.48
1:F:120:ARG:HD3	1:F:328:PHE:HE1	1.78	0.48
1:J:29:LEU:O	1:J:32:ALA:HB3	2.12	0.48
1:L:63:LYS:HB2	1:L:73:ASP:HB3	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:396:ASP:OD2	1:D:415:ARG:NH2	2.45	0.48
1:F:186:ALA:HB3	1:F:191:ILE:CD1	2.44	0.48
1:F:396:ASP:OD2	1:F:415:ARG:NH2	2.44	0.48
1:I:299:HIS:ND1	1:I:300:PRO:HA	2.28	0.48
1:J:201:LEU:HD22	1:J:223:GLY:HA2	1.96	0.48
1:L:21:ALA:HA	1:L:231:ASP:HB2	1.95	0.48
1:L:396:ASP:OD2	1:L:415:ARG:NH2	2.44	0.48
1:C:56:LEU:HB2	1:C:86:LEU:CD2	2.43	0.48
1:E:94:ILE:HA	1:E:109:VAL:HG11	1.96	0.48
1:H:56:LEU:HB2	1:H:86:LEU:CD2	2.44	0.48
1:B:35:ALA:HB1	1:B:222:GLY:O	2.13	0.48
1:D:150:ARG:NH1	1:D:219:GLU:HA	2.19	0.48
1:E:330:ASN:CG	1:H:330:ASN:CG	2.72	0.48
1:I:252:ARG:HG3	1:I:252:ARG:HH11	1.78	0.48
1:J:150:ARG:CZ	1:J:177:GLU:HB3	2.43	0.48
1:J:340:ARG:HH12	1:J:363:ALA:HB1	1.79	0.48
1:K:158:MET:O	1:K:159:ASP:C	2.52	0.48
1:A:299:HIS:CG	1:A:300:PRO:HA	2.49	0.48
1:B:109:VAL:O	1:B:143:VAL:HG13	2.13	0.48
1:K:155:HIS:CE1	3:K:653:HOH:O	2.67	0.48
1:A:94:ILE:HA	1:A:109:VAL:HG11	1.94	0.48
1:D:232:ARG:CB	1:D:258:THR:CG2	2.91	0.48
1:E:7:GLN:HB2	1:E:412:ASN:HB3	1.96	0.48
1:H:21:ALA:HA	1:H:231:ASP:HB2	1.94	0.48
1:K:233:ILE:O	1:K:306:MET:HE1	2.14	0.48
1:B:396:ASP:OD2	1:B:415:ARG:NH2	2.46	0.48
1:D:340:ARG:NH1	1:D:364:GLN:O	2.46	0.48
1:F:7:GLN:HB2	1:F:412:ASN:HB3	1.96	0.48
1:F:36:GLU:O	1:F:75:ARG:HG2	2.14	0.48
1:F:94:ILE:HA	1:F:109:VAL:HG11	1.95	0.48
1:H:94:ILE:HA	1:H:109:VAL:HG11	1.94	0.48
1:H:232:ARG:CB	1:H:258:THR:CG2	2.90	0.48
1:L:30:PHE:HE1	1:L:56:LEU:HD23	1.79	0.48
1:L:56:LEU:HB2	1:L:86:LEU:CD2	2.42	0.48
1:L:22:LYS:HD2	1:L:398:GLY:HA2	1.96	0.48
1:E:30:PHE:HE1	1:E:56:LEU:HD23	1.78	0.47
1:G:287:LYS:HE2	3:G:646:HOH:O	2.13	0.47
1:K:36:GLU:C	1:K:37:GLU:HG2	2.34	0.47
1:L:60:LEU:HA	1:L:79:VAL:CG1	2.33	0.47
1:A:150:ARG:NH1	1:A:219:GLU:HA	2.19	0.47
1:A:346:GLU:HG3	1:E:322:PHE:CE1	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:94:ILE:HA	1:G:109:VAL:HG11	1.94	0.47
1:J:62:ALA:O	1:J:64:VAL:HG23	2.13	0.47
1:L:315:LEU:HD21	1:L:345:ALA:HB2	1.97	0.47
1:A:330:ASN:CG	1:B:330:ASN:CG	2.72	0.47
1:B:63:LYS:HB2	1:B:73:ASP:HB3	1.95	0.47
1:D:371:ARG:NH1	1:D:398:GLY:O	2.46	0.47
1:J:143:VAL:HG22	1:J:143:VAL:O	2.13	0.47
1:J:403:GLU:CB	1:J:413:ILE:HD13	2.44	0.47
1:C:348:GLU:CD	1:F:322:PHE:CE2	2.88	0.47
1:I:150:ARG:NH1	1:I:219:GLU:HA	2.18	0.47
1:J:33:LEU:HD21	1:J:57:LEU:HD12	1.97	0.47
1:J:198:LEU:O	1:J:203:ALA:CB	2.62	0.47
1:K:35:ALA:HB1	1:K:222:GLY:O	2.15	0.47
1:B:56:LEU:HB2	1:B:86:LEU:CD2	2.45	0.47
1:B:282:LEU:C	1:B:282:LEU:HD23	2.35	0.47
1:J:265:LYS:HE2	1:J:268:ASP:OD2	2.15	0.47
1:J:365:VAL:CG2	1:J:389:VAL:HG22	2.44	0.47
1:K:402:ILE:CG2	1:K:403:GLU:N	2.78	0.47
1:C:63:LYS:HB2	1:C:73:ASP:HB3	1.95	0.47
1:E:22:LYS:HD2	1:E:398:GLY:HA2	1.96	0.47
1:G:41:ILE:N	1:G:41:ILE:HD12	2.30	0.47
1:J:136:ILE:CG2	1:J:137:LYS:N	2.78	0.47
1:J:142:TYR:CB	1:J:144:LYS:HE3	2.45	0.47
1:K:47:LEU:HD12	1:K:50:VAL:HG23	1.97	0.47
1:K:315:LEU:HD23	1:K:354:CYS:HB3	1.97	0.47
1:E:63:LYS:HB2	1:E:73:ASP:HB3	1.97	0.47
3:E:681:HOH:O	1:J:277:GLU:HB2	2.15	0.47
1:G:150:ARG:NH1	1:G:219:GLU:HA	2.22	0.47
1:G:371:ARG:NH1	1:G:398:GLY:O	2.48	0.47
1:J:60:LEU:CD2	1:J:79:VAL:HG13	2.44	0.47
1:D:186:ALA:HB3	1:D:191:ILE:CD1	2.45	0.47
1:H:36:GLU:O	1:H:75:ARG:HG2	2.15	0.47
1:I:396:ASP:OD2	1:I:415:ARG:NH2	2.48	0.47
1:K:236:GLY:HA3	1:K:306:MET:HE1	1.96	0.47
1:L:282:LEU:C	1:L:282:LEU:HD23	2.35	0.47
1:E:317:ALA:O	1:E:356:GLY:HA3	2.15	0.46
1:K:108:GLN:HG2	1:K:144:LYS:HZ2	1.80	0.46
1:L:94:ILE:HA	1:L:109:VAL:HG11	1.97	0.46
1:F:63:LYS:HB2	1:F:73:ASP:HB3	1.96	0.46
1:I:22:LYS:HD2	1:I:398:GLY:HA2	1.97	0.46
1:D:282:LEU:HD23	1:D:282:LEU:C	2.36	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:56:LEU:HB2	1:I:86:LEU:CD2	2.45	0.46
1:K:139:GLU:HG3	1:K:144:LYS:CD	2.44	0.46
1:A:36:GLU:O	1:A:75:ARG:HG2	2.16	0.46
1:B:22:LYS:HD2	1:B:398:GLY:HA2	1.97	0.46
1:C:232:ARG:CB	1:C:258:THR:CG2	2.92	0.46
1:F:56:LEU:HB2	1:F:86:LEU:CD2	2.45	0.46
1:J:147:VAL:HG13	1:J:147:VAL:O	2.15	0.46
1:C:94:ILE:HA	1:C:109:VAL:HG11	1.98	0.46
1:C:371:ARG:NH1	1:C:398:GLY:O	2.48	0.46
1:G:232:ARG:CB	1:G:258:THR:CG2	2.93	0.46
1:G:243:ALA:HA	1:G:284:MET:HG3	1.98	0.46
1:H:60:LEU:HA	1:H:79:VAL:CG1	2.35	0.46
1:J:22:LYS:O	1:J:26:LEU:HD13	2.15	0.46
1:J:147:VAL:HG21	1:J:151:LEU:HD23	1.97	0.46
1:J:313:LEU:C	1:J:313:LEU:HD23	2.36	0.46
1:K:105:GLY:HA2	1:K:147:VAL:CG1	2.45	0.46
1:L:143:VAL:HG22	1:L:143:VAL:O	2.14	0.46
1:L:232:ARG:CB	1:L:258:THR:CG2	2.91	0.46
1:H:371:ARG:NH1	1:H:398:GLY:O	2.48	0.46
1:I:22:LYS:NZ	1:I:23:ASN:OD1	2.48	0.46
1:K:56:LEU:HB2	1:K:86:LEU:HD23	1.97	0.46
1:A:60:LEU:HA	1:A:79:VAL:CG1	2.36	0.46
1:D:143:VAL:O	1:D:143:VAL:HG22	2.16	0.46
1:E:371:ARG:NH1	1:E:398:GLY:O	2.48	0.46
1:F:22:LYS:HD2	1:F:398:GLY:HA2	1.97	0.46
1:H:4:PHE:CD2	1:H:392:ILE:HG21	2.51	0.46
1:C:36:GLU:O	1:C:75:ARG:HG2	2.16	0.46
1:E:41:ILE:N	1:E:41:ILE:HD12	2.31	0.46
1:K:197:PHE:CZ	1:K:201:LEU:HD11	2.51	0.46
1:K:276:GLY:HA3	1:K:279:TRP:NE1	2.31	0.46
1:A:371:ARG:NH1	1:A:398:GLY:O	2.48	0.46
1:D:359:LYS:NZ	1:D:384:GLU:OE1	2.46	0.46
1:J:204:LYS:HB3	1:J:216:GLU:HB3	1.97	0.46
1:B:370:LEU:HD21	2:B:501:EPZ:O2E	2.15	0.46
1:E:359:LYS:CE	1:E:384:GLU:HB2	2.46	0.46
1:G:282:LEU:C	1:G:282:LEU:HD23	2.36	0.46
1:H:416:VAL:HG23	1:H:418:GLY:H	1.81	0.46
1:J:120:ARG:HD3	1:J:328:PHE:CE1	2.51	0.46
1:J:406:LEU:C	1:J:411:ALA:HB3	2.36	0.46
1:B:186:ALA:HB3	1:B:191:ILE:CD1	2.46	0.45
1:G:41:ILE:HG22	1:G:44:VAL:CG2	2.46	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:67:IAS:OD1	1:F:68:GLY:C	2.54	0.45
1:I:143:VAL:O	1:I:143:VAL:HG22	2.16	0.45
1:I:371:ARG:NH1	1:I:398:GLY:O	2.49	0.45
1:J:125:HIS:HE1	3:J:626:HOH:O	1.98	0.45
1:J:358:GLU:OE1	1:J:359:LYS:HG2	2.15	0.45
1:A:317:ALA:O	1:A:356:GLY:HA3	2.16	0.45
1:B:41:ILE:N	1:B:41:ILE:HD12	2.31	0.45
1:C:244:ILE:HD12	1:C:382:ILE:HD13	1.99	0.45
1:I:94:ILE:HA	1:I:109:VAL:HG11	1.97	0.45
1:J:188:GLU:OE1	3:J:619:HOH:O	2.21	0.45
1:J:283:ASP:OD2	1:J:285:HIS:CE1	2.69	0.45
1:D:22:LYS:NZ	1:D:23:ASN:OD1	2.47	0.45
1:F:282:LEU:C	1:F:282:LEU:HD23	2.36	0.45
1:I:67:IAS:CG	1:I:69:SER:H	2.29	0.45
1:J:56:LEU:O	1:J:60:LEU:HG	2.17	0.45
1:J:199:ILE:HA	1:J:203:ALA:H	1.82	0.45
1:B:232:ARG:CB	1:B:258:THR:CG2	2.92	0.45
1:H:232:ARG:HD3	1:H:258:THR:HG23	1.99	0.45
1:K:317:ALA:O	1:K:356:GLY:HA3	2.16	0.45
1:K:407:ARG:C	1:K:409:LEU:H	2.20	0.45
1:D:315:LEU:HD21	1:D:345:ALA:HB2	1.97	0.45
1:F:41:ILE:HD12	1:F:41:ILE:N	2.32	0.45
1:K:359:LYS:HD3	1:K:384:GLU:HB2	1.99	0.45
1:A:30:PHE:HE1	1:A:56:LEU:HD23	1.81	0.45
1:C:276:GLY:HA3	1:C:279:TRP:NE1	2.31	0.45
1:F:22:LYS:NZ	1:F:23:ASN:OD1	2.50	0.45
1:H:143:VAL:HG22	1:H:143:VAL:O	2.16	0.45
1:I:141:GLY:HA3	1:J:340:ARG:NH2	2.32	0.45
1:I:232:ARG:CB	1:I:258:THR:CG2	2.90	0.45
1:D:371:ARG:NH2	3:D:644:HOH:O	2.50	0.45
1:J:201:LEU:CD2	1:J:223:GLY:HA2	2.47	0.45
1:J:249:ILE:HG12	1:J:250:ILE:N	2.32	0.45
1:A:276:GLY:HA3	1:A:279:TRP:NE1	2.32	0.45
1:D:7:GLN:HB2	1:D:412:ASN:HB3	1.99	0.45
1:K:1:MET:O	1:K:3:LYS:HE3	2.16	0.45
1:K:220:ARG:HG3	1:K:220:ARG:NH1	2.31	0.45
1:C:348:GLU:CG	1:F:322:PHE:CE2	3.00	0.45
1:G:359:LYS:CE	1:G:384:GLU:HB2	2.47	0.45
1:K:335:VAL:HB	1:K:336:PRO:HD3	1.99	0.45
1:A:21:ALA:HA	1:A:231:ASP:HB2	1.98	0.44
1:B:243:ALA:HA	1:B:284:MET:HG3	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:371:ARG:NH1	1:B:398:GLY:O	2.49	0.44
1:D:244:ILE:HD12	1:D:382:ILE:HD13	1.99	0.44
1:H:396:ASP:OD2	1:H:415:ARG:NH2	2.48	0.44
1:J:36:GLU:OE2	1:J:220:ARG:NE	2.50	0.44
1:K:396:ASP:OD2	1:K:415:ARG:NH2	2.48	0.44
1:L:41:ILE:N	1:L:41:ILE:HD12	2.32	0.44
1:D:41:ILE:HG22	1:D:44:VAL:CG2	2.47	0.44
1:E:315:LEU:HD21	1:E:345:ALA:HB2	1.99	0.44
1:K:90:MET:HB2	1:K:397:ARG:NH2	2.32	0.44
1:K:271:ALA:HB2	1:K:284:MET:SD	2.56	0.44
1:F:276:GLY:HA3	1:F:279:TRP:NE1	2.31	0.44
1:K:370:LEU:HD12	1:K:370:LEU:HA	1.51	0.44
1:D:22:LYS:HD2	1:D:398:GLY:HA2	1.99	0.44
1:K:63:LYS:HB2	1:K:73:ASP:HB3	2.00	0.44
1:B:7:GLN:HB2	1:B:412:ASN:HB3	1.99	0.44
1:E:150:ARG:HH12	1:E:219:GLU:CA	2.20	0.44
1:F:243:ALA:HA	1:F:284:MET:HG3	1.98	0.44
1:I:186:ALA:HB3	1:I:191:ILE:CD1	2.48	0.44
1:L:24:ALA:C	1:L:27:PRO:HD2	2.37	0.44
1:A:7:GLN:HB2	1:A:412:ASN:HB3	2.00	0.44
1:A:330:ASN:OD1	1:B:330:ASN:OD1	2.35	0.44
1:B:252:ARG:HG3	1:B:252:ARG:HH11	1.81	0.44
1:C:59:GLN:O	1:C:79:VAL:CG1	2.66	0.44
1:C:299:HIS:ND1	1:C:300:PRO:HA	2.33	0.44
1:G:24:ALA:C	1:G:27:PRO:HD2	2.38	0.44
1:H:30:PHE:HE1	1:H:56:LEU:HD23	1.83	0.44
1:I:25:ALA:O	1:I:29:LEU:HD13	2.17	0.44
1:C:27:PRO:HG3	1:C:95:TRP:CH2	2.52	0.44
1:E:282:LEU:C	1:E:282:LEU:HD23	2.37	0.44
1:B:332:PHE:N	3:B:609:HOH:O	2.51	0.44
1:D:159:ASP:OD1	1:F:265:LYS:CE	2.63	0.44
1:D:243:ALA:HA	1:D:284:MET:HG3	1.98	0.44
1:J:61:GLY:HA3	1:J:77:VAL:HA	2.00	0.44
1:L:27:PRO:HG3	1:L:95:TRP:CH2	2.52	0.44
1:L:276:GLY:HA3	1:L:279:TRP:NE1	2.33	0.44
1:A:354:CYS:HB2	3:A:626:HOH:O	2.18	0.44
1:C:21:ALA:HA	1:C:231:ASP:HB2	1.98	0.44
1:C:243:ALA:HA	1:C:284:MET:HG3	2.00	0.44
1:D:41:ILE:HD12	1:D:41:ILE:N	2.33	0.44
1:D:252:ARG:HG3	1:D:252:ARG:HH11	1.82	0.44
1:G:30:PHE:HE1	1:G:56:LEU:HD23	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:276:GLY:HA3	1:I:279:TRP:NE1	2.33	0.44
1:J:24:ALA:C	1:J:27:PRO:HD2	2.37	0.44
1:K:49:ASP:OD2	1:K:370:LEU:HD21	2.17	0.44
1:K:108:GLN:HG2	1:K:144:LYS:HZ1	1.79	0.44
1:A:25:ALA:O	1:A:29:LEU:HD13	2.18	0.43
1:D:59:GLN:O	1:D:79:VAL:CG1	2.63	0.43
1:I:36:GLU:O	1:I:75:ARG:HG2	2.18	0.43
1:J:317:ALA:O	1:J:356:GLY:HA3	2.18	0.43
1:K:7:GLN:HB2	1:K:412:ASN:CG	2.38	0.43
1:A:299:HIS:ND1	1:A:300:PRO:HA	2.33	0.43
1:B:24:ALA:C	1:B:27:PRO:HD2	2.38	0.43
1:H:186:ALA:HB3	1:H:191:ILE:CD1	2.47	0.43
1:I:101:VAL:HG21	1:I:145:ALA:HB3	2.00	0.43
1:J:115:QPA:H9	1:J:115:QPA:O13	2.18	0.43
1:J:244:ILE:CG2	1:J:313:LEU:HA	2.47	0.43
1:K:265:LYS:HE2	1:K:293:ASN:O	2.18	0.43
1:L:359:LYS:NZ	1:L:384:GLU:OE1	2.42	0.43
1:A:4:PHE:CD2	1:A:392:ILE:HG21	2.53	0.43
1:D:108:GLN:HG3	1:D:144:LYS:HG2	2.00	0.43
1:E:59:GLN:O	1:E:79:VAL:CG1	2.65	0.43
1:E:396:ASP:OD2	1:E:415:ARG:NH2	2.51	0.43
1:H:20:GLY:HA3	1:H:43:ASN:O	2.18	0.43
1:I:30:PHE:HE1	1:I:56:LEU:HD23	1.82	0.43
1:J:58:SER:C	1:J:60:LEU:N	2.71	0.43
1:J:60:LEU:O	1:J:79:VAL:HG12	2.19	0.43
1:K:267:ARG:HG3	1:K:273:ILE:HD12	2.00	0.43
1:K:370:LEU:HD23	2:K:501:EPZ:O2E	2.18	0.43
1:A:315:LEU:HD21	1:A:345:ALA:HB2	2.00	0.43
1:D:60:LEU:HA	1:D:79:VAL:CG1	2.35	0.43
1:K:187:ARG:HH12	1:K:300:PRO:CD	2.30	0.43
1:L:7:GLN:HB2	1:L:412:ASN:HB3	2.00	0.43
1:L:60:LEU:CA	1:L:79:VAL:HG13	2.37	0.43
1:C:22:LYS:HD2	1:C:398:GLY:HA2	1.99	0.43
1:J:41:ILE:HG22	1:J:44:VAL:CG2	2.49	0.43
1:B:22:LYS:NZ	1:B:23:ASN:OD1	2.48	0.43
1:C:41:ILE:N	1:C:41:ILE:HD12	2.34	0.43
1:E:186:ALA:HB3	1:E:191:ILE:CD1	2.48	0.43
1:F:232:ARG:CB	1:F:258:THR:CG2	2.93	0.43
1:I:41:ILE:O	1:I:69:SER:HA	2.17	0.43
1:J:5:ARG:CB	1:J:5:ARG:HH11	2.31	0.43
1:J:142:TYR:HB2	1:J:144:LYS:HE3	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:232:ARG:CB	1:A:258:THR:CG2	2.92	0.43
1:G:4:PHE:CD2	1:G:392:ILE:HG21	2.53	0.43
1:H:22:LYS:NZ	1:H:23:ASN:OD1	2.51	0.43
1:J:41:ILE:HD12	1:J:41:ILE:H	1.83	0.43
1:J:57:LEU:HB3	1:J:64:VAL:HG21	2.01	0.43
1:J:276:GLY:HA3	1:J:279:TRP:CE2	2.54	0.43
1:K:198:LEU:O	1:K:203:ALA:HB3	2.18	0.43
1:D:30:PHE:HE1	1:D:56:LEU:HD23	1.84	0.43
1:E:232:ARG:CB	1:E:258:THR:CG2	2.96	0.43
1:F:27:PRO:HG3	1:F:95:TRP:CH2	2.54	0.43
1:G:101:VAL:HG21	1:G:145:ALA:CB	2.49	0.43
1:H:357:VAL:HG13	3:H:602:HOH:O	2.17	0.43
1:K:183:GLU:O	1:K:184:ASN:HB3	2.19	0.43
1:A:143:VAL:HG22	1:A:143:VAL:O	2.19	0.43
1:G:412:ASN:HA	3:G:608:HOH:O	2.18	0.43
1:I:7:GLN:HB2	1:I:412:ASN:HB3	2.01	0.43
1:I:21:ALA:HA	1:I:231:ASP:HB2	2.01	0.43
1:J:46:LYS:N	1:J:400:GLU:OE1	2.34	0.43
1:B:4:PHE:CD2	1:B:392:ILE:HG21	2.54	0.43
1:F:359:LYS:CE	1:F:384:GLU:HB2	2.49	0.43
1:H:7:GLN:HB2	1:H:412:ASN:HB3	2.00	0.43
1:K:34:LEU:HD22	1:K:175:LEU:HD12	2.00	0.43
1:K:94:ILE:HD12	1:K:109:VAL:HG11	2.01	0.43
1:L:59:GLN:O	1:L:79:VAL:CG1	2.65	0.43
1:B:232:ARG:HD3	1:B:258:THR:HG23	2.01	0.42
1:F:317:ALA:O	1:F:356:GLY:HA3	2.19	0.42
1:H:150:ARG:HH12	1:H:219:GLU:CA	2.22	0.42
1:D:232:ARG:HD3	1:D:258:THR:HG23	2.00	0.42
1:G:20:GLY:HA3	1:G:43:ASN:O	2.19	0.42
1:G:276:GLY:HA3	1:G:279:TRP:NE1	2.34	0.42
1:I:330:ASN:OD1	1:J:330:ASN:CB	2.67	0.42
1:J:41:ILE:HG22	1:J:44:VAL:HG23	2.01	0.42
1:J:120:ARG:CD	3:J:637:HOH:O	2.60	0.42
2:J:501:EPZ:H5DA	2:J:501:EPZ:C6U	2.48	0.42
1:K:169:ILE:O	1:K:170:MET:C	2.57	0.42
1:D:36:GLU:O	1:D:75:ARG:HG2	2.19	0.42
1:G:294:VAL:HG12	1:G:295:ARG:N	2.34	0.42
1:I:59:GLN:O	1:I:79:VAL:CG1	2.66	0.42
1:J:3:LYS:HB2	1:J:389:VAL:O	2.19	0.42
2:K:501:EPZ:H5DA	2:K:501:EPZ:C6U	2.48	0.42
1:L:101:VAL:HG21	1:L:145:ALA:HB3	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:101:VAL:HG21	1:B:145:ALA:CB	2.50	0.42
1:C:186:ALA:HB3	1:C:191:ILE:CD1	2.49	0.42
1:C:258:THR:HG22	1:C:259:LEU:HG	2.00	0.42
1:D:147:VAL:O	1:D:147:VAL:HG13	2.18	0.42
1:F:24:ALA:C	1:F:27:PRO:HD2	2.40	0.42
1:F:70:VAL:O	1:F:70:VAL:HG12	2.18	0.42
1:G:25:ALA:O	1:G:29:LEU:HD13	2.19	0.42
1:I:20:GLY:HA3	1:I:43:ASN:O	2.19	0.42
1:K:188:GLU:HA	1:K:189:PRO:HD3	1.88	0.42
1:L:186:ALA:HB3	1:L:191:ILE:CD1	2.49	0.42
1:A:141:GLY:HA3	1:B:340:ARG:NH2	2.34	0.42
1:F:59:GLN:O	1:F:79:VAL:CG1	2.64	0.42
1:G:59:GLN:O	1:G:79:VAL:CG1	2.65	0.42
2:I:501:EPZ:H5DA	2:I:501:EPZ:C6U	2.50	0.42
1:J:220:ARG:HG3	1:J:220:ARG:HH11	1.83	0.42
1:K:315:LEU:HD23	1:K:315:LEU:HA	1.86	0.42
1:A:101:VAL:HG21	1:A:145:ALA:HB3	2.01	0.42
1:B:359:LYS:NZ	1:B:384:GLU:OE1	2.45	0.42
1:E:20:GLY:HA3	1:E:43:ASN:O	2.19	0.42
1:F:11:LYS:HE2	1:F:247:GLY:HA2	2.02	0.42
1:F:258:THR:HG22	1:F:259:LEU:HG	2.01	0.42
1:G:57:LEU:HD12	1:G:57:LEU:HA	1.88	0.42
1:G:246:ARG:HG2	1:G:287:LYS:O	2.20	0.42
1:H:59:GLN:O	1:H:79:VAL:CG1	2.65	0.42
1:J:198:LEU:HD23	1:J:198:LEU:HA	1.84	0.42
1:K:1:MET:HE1	1:K:391:ARG:HB3	2.00	0.42
1:K:352:VAL:HG13	1:K:352:VAL:O	2.19	0.42
1:E:183:GLU:OE2	1:E:212:ARG:NH1	2.53	0.42
1:F:150:ARG:HH12	1:F:219:GLU:CA	2.21	0.42
1:I:416:VAL:HG23	1:I:418:GLY:H	1.84	0.42
1:J:5:ARG:NH1	1:J:5:ARG:CB	2.83	0.42
1:J:58:SER:C	1:J:60:LEU:H	2.23	0.42
1:B:261:ALA:HA	1:E:157:VAL:HG11	2.02	0.42
1:C:150:ARG:HH12	1:C:219:GLU:CA	2.20	0.42
1:C:330:ASN:CG	1:D:330:ASN:CG	2.78	0.42
1:F:208:GLN:OE1	1:F:208:GLN:N	2.47	0.42
1:G:317:ALA:O	1:G:356:GLY:HA3	2.20	0.42
1:H:243:ALA:HA	1:H:284:MET:HG3	2.02	0.42
1:K:137:LYS:HE2	1:K:139:GLU:CD	2.40	0.42
1:L:22:LYS:NZ	1:L:23:ASN:OD1	2.47	0.42
1:A:24:ALA:C	1:A:27:PRO:HD2	2.39	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:220:ARG:HH11	1:A:220:ARG:HG3	1.85	0.42
1:B:359:LYS:CE	1:B:384:GLU:HB2	2.50	0.42
1:C:315:LEU:HD21	1:C:345:ALA:HB2	2.02	0.42
1:H:24:ALA:C	1:H:27:PRO:HD2	2.39	0.42
1:H:101:VAL:HG21	1:H:145:ALA:HB3	2.02	0.42
1:H:150:ARG:NH1	1:H:219:GLU:HA	2.21	0.42
1:J:189:PRO:HD3	1:J:299:HIS:CD2	2.55	0.42
1:L:243:ALA:HA	1:L:284:MET:HG3	2.01	0.42
1:C:24:ALA:C	1:C:27:PRO:HD2	2.40	0.42
1:D:24:ALA:C	1:D:27:PRO:HD2	2.41	0.42
1:D:25:ALA:O	1:D:29:LEU:HD13	2.20	0.42
1:I:11:LYS:HE2	1:I:247:GLY:HA2	2.02	0.42
1:J:105:GLY:HA2	1:J:147:VAL:CG1	2.49	0.42
1:J:273:ILE:HG22	1:J:274:GLU:N	2.35	0.42
1:K:259:LEU:HD23	3:K:606:HOH:O	2.20	0.42
1:B:41:ILE:HG22	1:B:44:VAL:CG2	2.50	0.41
1:F:101:VAL:HG21	1:F:145:ALA:CB	2.50	0.41
1:J:160:LYS:HD3	1:K:295:ARG:HE	1.84	0.41
1:H:232:ARG:CD	1:H:258:THR:HG23	2.50	0.41
1:H:315:LEU:HD21	1:H:345:ALA:HB2	2.02	0.41
1:I:243:ALA:HA	1:I:284:MET:HG3	2.02	0.41
1:J:39:VAL:CG2	1:J:40:GLU:N	2.83	0.41
1:J:108:GLN:CG	1:J:144:LYS:HE2	2.51	0.41
1:J:402:ILE:HG12	1:J:406:LEU:CD1	2.51	0.41
1:B:101:VAL:HG21	1:B:145:ALA:HB3	2.02	0.41
1:F:287:LYS:HA	1:H:148:ASP:OD2	2.20	0.41
1:F:150:ARG:HB2	3:F:632:HOH:O	2.20	0.41
1:H:276:GLY:HA3	1:H:279:TRP:NE1	2.35	0.41
1:H:407:ARG:HG3	3:H:643:HOH:O	2.19	0.41
1:I:317:ALA:O	1:I:356:GLY:HA3	2.20	0.41
1:C:25:ALA:O	1:C:29:LEU:HD13	2.21	0.41
1:C:317:ALA:O	1:C:356:GLY:HA3	2.20	0.41
1:G:101:VAL:HG21	1:G:145:ALA:HB3	2.02	0.41
1:I:41:ILE:HG22	1:I:44:VAL:CG2	2.51	0.41
1:L:93:SER:C	1:L:95:TRP:N	2.74	0.41
1:C:30:PHE:HE1	1:C:56:LEU:HD23	1.85	0.41
1:C:359:LYS:NZ	1:C:384:GLU:OE1	2.43	0.41
1:F:371:ARG:NH2	3:F:612:HOH:O	2.54	0.41
1:G:315:LEU:HD21	1:G:345:ALA:HB2	2.01	0.41
1:I:4:PHE:CD2	1:I:392:ILE:HG21	2.55	0.41
1:J:239:LEU:HB3	1:J:282:LEU:HD12	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:265:LYS:HE2	1:K:294:VAL:HG22	2.01	0.41
1:L:101:VAL:HG21	1:L:145:ALA:CB	2.50	0.41
1:L:147:VAL:O	1:L:147:VAL:HG13	2.19	0.41
1:L:232:ARG:HD3	1:L:258:THR:HG23	2.03	0.41
1:C:229:LEU:HA	3:C:666:HOH:O	2.20	0.41
1:E:24:ALA:C	1:E:27:PRO:HD2	2.41	0.41
1:I:44:VAL:HG12	1:I:66:ARG:HH12	1.86	0.41
1:I:120:ARG:HD3	1:I:328:PHE:HE1	1.81	0.41
1:J:60:LEU:HA	1:J:79:VAL:HG12	1.95	0.41
1:K:233:ILE:CD1	1:K:305:ASP:HB2	2.49	0.41
1:A:232:ARG:HD3	1:A:258:THR:HG23	2.03	0.41
1:B:11:LYS:HE2	1:B:247:GLY:HA2	2.02	0.41
1:D:252:ARG:NH2	3:D:616:HOH:O	2.52	0.41
1:E:258:THR:HG22	1:E:259:LEU:HG	2.02	0.41
1:F:30:PHE:HE1	1:F:56:LEU:HD23	1.84	0.41
1:G:215:ILE:N	1:G:215:ILE:HD12	2.36	0.41
1:H:101:VAL:HG21	1:H:145:ALA:CB	2.51	0.41
1:I:330:ASN:OD1	1:J:330:ASN:HB3	2.20	0.41
1:J:22:LYS:N	3:J:607:HOH:O	2.53	0.41
1:J:402:ILE:HG12	1:J:406:LEU:HD12	2.01	0.41
1:A:101:VAL:HG21	1:A:145:ALA:CB	2.51	0.41
1:B:143:VAL:HG22	1:B:143:VAL:O	2.20	0.41
1:B:294:VAL:HG12	1:B:295:ARG:N	2.36	0.41
1:B:416:VAL:HG23	1:B:418:GLY:H	1.85	0.41
1:C:243:ALA:HA	1:C:284:MET:CG	2.51	0.41
1:E:243:ALA:HA	1:E:284:MET:CG	2.51	0.41
1:F:66:ARG:CB	1:F:70:VAL:HG22	2.43	0.41
1:H:22:LYS:HD2	1:H:398:GLY:HA2	2.02	0.41
1:J:132:LEU:HD23	1:J:132:LEU:HA	1.88	0.41
1:K:34:LEU:HD22	1:K:175:LEU:CD1	2.50	0.41
1:K:41:ILE:N	1:K:41:ILE:HD12	2.36	0.41
1:K:232:ARG:HB2	1:K:259:LEU:CD2	2.49	0.41
1:K:295:ARG:NH1	1:K:295:ARG:CG	2.84	0.41
1:K:320:THR:HG23	1:K:354:CYS:O	2.21	0.41
1:L:41:ILE:HG22	1:L:44:VAL:CG2	2.50	0.41
1:L:244:ILE:HD12	1:L:382:ILE:HD13	2.02	0.41
1:B:315:LEU:HD21	1:B:345:ALA:HB2	2.03	0.41
1:E:150:ARG:HB2	3:E:676:HOH:O	2.20	0.41
1:E:232:ARG:HD3	1:E:258:THR:HG23	2.03	0.41
1:I:66:ARG:HD2	1:I:70:VAL:HG22	2.03	0.41
1:J:188:GLU:OE2	1:J:299:HIS:HB2	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:176:ALA:O	1:K:217:GLY:HA3	2.21	0.41
1:A:41:ILE:HG22	1:A:44:VAL:CG2	2.51	0.40
1:A:348:GLU:HG3	1:E:322:PHE:CE2	2.56	0.40
1:E:101:VAL:HG21	1:E:145:ALA:HB3	2.03	0.40
1:E:330:ASN:CG	1:H:330:ASN:HB3	2.41	0.40
1:F:315:LEU:HD21	1:F:345:ALA:HB2	2.02	0.40
1:G:294:VAL:CG1	1:G:295:ARG:N	2.84	0.40
1:H:258:THR:HG22	1:H:259:LEU:HG	2.03	0.40
1:H:359:LYS:CE	1:H:384:GLU:HB2	2.49	0.40
1:I:101:VAL:HG21	1:I:145:ALA:CB	2.50	0.40
1:B:25:ALA:O	1:B:29:LEU:HD13	2.21	0.40
1:B:27:PRO:HG3	1:B:95:TRP:CH2	2.57	0.40
1:E:41:ILE:HG22	1:E:44:VAL:CG2	2.50	0.40
1:F:101:VAL:HG21	1:F:145:ALA:HB3	2.02	0.40
1:F:143:VAL:O	1:F:143:VAL:HG22	2.21	0.40
1:H:25:ALA:O	1:H:29:LEU:HD13	2.21	0.40
1:J:284:MET:C	1:J:286:GLY:H	2.25	0.40
1:K:9:PRO:HD3	1:K:384:GLU:HA	2.02	0.40
1:K:132:LEU:HD11	1:K:169:ILE:HG23	2.02	0.40
1:A:27:PRO:HG3	1:A:95:TRP:CH2	2.56	0.40
1:A:359:LYS:CE	1:A:384:GLU:HB2	2.51	0.40
1:B:57:LEU:HD12	1:B:57:LEU:HA	1.88	0.40
1:C:277:GLU:O	1:C:277:GLU:HG2	2.22	0.40
1:E:27:PRO:HG3	1:E:95:TRP:CH2	2.56	0.40
1:F:243:ALA:HA	1:F:284:MET:CG	2.52	0.40
1:G:232:ARG:HD3	1:G:258:THR:HG23	2.04	0.40
1:J:76:ASP:O	1:J:77:VAL:C	2.59	0.40
1:J:298:PRO:O	1:J:301:ALA:HB3	2.21	0.40
1:K:249:ILE:HG12	1:K:250:ILE:N	2.36	0.40
1:K:263:LEU:HD23	1:K:263:LEU:HA	1.98	0.40
1:A:126:ILE:HG23	1:A:136:ILE:HD12	2.04	0.40
1:B:59:GLN:O	1:B:79:VAL:CG1	2.66	0.40
1:B:159:ASP:OD1	1:E:265:LYS:CE	2.69	0.40
1:E:27:PRO:HG3	1:E:95:TRP:CZ3	2.56	0.40
1:E:30:PHE:CE1	1:E:56:LEU:HD23	2.56	0.40
1:G:143:VAL:O	1:G:143:VAL:HG22	2.20	0.40
1:G:243:ALA:HA	1:G:284:MET:CG	2.50	0.40
1:H:277:GLU:O	1:H:277:GLU:HG2	2.21	0.40
1:I:371:ARG:NH2	3:I:626:HOH:O	2.54	0.40
1:D:101:VAL:HG21	1:D:145:ALA:HB3	2.03	0.40
1:F:155:HIS:HD2	1:F:181:ILE:HB	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:243:ALA:HA	1:I:284:MET:CG	2.52	0.40
1:K:97:LEU:HD11	1:K:145:ALA:HB3	2.04	0.40
1:K:236:GLY:HA3	1:K:306:MET:CE	2.52	0.40
1:L:252:ARG:O	1:L:253:ASN:HB2	2.21	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:A:414:GLU:OE1	1:I:46:LYS:NZ[1_666]	2.06	0.14

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	413/418 (99%)	396 (96%)	15 (4%)	2 (0%)	29	48
1	B	413/418 (99%)	400 (97%)	13 (3%)	0	100	100
1	C	413/418 (99%)	398 (96%)	15 (4%)	0	100	100
1	D	413/418 (99%)	397 (96%)	15 (4%)	1 (0%)	47	68
1	E	413/418 (99%)	396 (96%)	17 (4%)	0	100	100
1	F	413/418 (99%)	396 (96%)	16 (4%)	1 (0%)	47	68
1	G	413/418 (99%)	397 (96%)	16 (4%)	0	100	100
1	H	413/418 (99%)	397 (96%)	15 (4%)	1 (0%)	47	68
1	I	413/418 (99%)	394 (95%)	18 (4%)	1 (0%)	47	68
1	J	413/418 (99%)	368 (89%)	43 (10%)	2 (0%)	29	48
1	K	413/418 (99%)	378 (92%)	33 (8%)	2 (0%)	29	48
1	L	413/418 (99%)	397 (96%)	15 (4%)	1 (0%)	47	68
All	All	4956/5016 (99%)	4714 (95%)	231 (5%)	11 (0%)	47	68

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	L	91	ARG
1	A	91	ARG
1	D	91	ARG
1	H	91	ARG
1	K	329	GLU
1	F	91	ARG
1	I	91	ARG
1	J	260	ASP
1	J	313	LEU
1	A	329	GLU
1	K	333	MET

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	329/329 (100%)	317 (96%)	12 (4%)	35	61
1	B	329/329 (100%)	317 (96%)	12 (4%)	35	61
1	C	329/329 (100%)	317 (96%)	12 (4%)	35	61
1	D	329/329 (100%)	317 (96%)	12 (4%)	35	61
1	E	329/329 (100%)	317 (96%)	12 (4%)	35	61
1	F	329/329 (100%)	317 (96%)	12 (4%)	35	61
1	G	329/329 (100%)	316 (96%)	13 (4%)	31	56
1	H	329/329 (100%)	316 (96%)	13 (4%)	31	56
1	I	329/329 (100%)	317 (96%)	12 (4%)	35	61
1	J	329/329 (100%)	304 (92%)	25 (8%)	13	25
1	K	329/329 (100%)	313 (95%)	16 (5%)	25	47
1	L	329/329 (100%)	316 (96%)	13 (4%)	31	56
All	All	3948/3948 (100%)	3784 (96%)	164 (4%)	30	54

All (164) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	57	LEU
1	A	86	LEU
1	A	111	LEU
1	A	143	VAL
1	A	193	ASP
1	A	212	ARG
1	A	229	LEU
1	A	258	THR
1	A	307	GLN
1	A	330	ASN
1	A	391	ARG
1	A	416	VAL
1	B	57	LEU
1	B	86	LEU
1	B	111	LEU
1	B	143	VAL
1	B	187	ARG
1	B	193	ASP
1	B	229	LEU
1	B	258	THR
1	B	307	GLN
1	B	330	ASN
1	B	391	ARG
1	B	416	VAL
1	C	57	LEU
1	C	86	LEU
1	C	111	LEU
1	C	143	VAL
1	C	193	ASP
1	C	210	THR
1	C	229	LEU
1	C	258	THR
1	C	300	PRO
1	C	330	ASN
1	C	391	ARG
1	C	416	VAL
1	D	57	LEU
1	D	86	LEU
1	D	111	LEU
1	D	143	VAL
1	D	193	ASP
1	D	212	ARG
1	D	229	LEU

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Mol	Chain	Res	Type
1	D	258	THR
1	D	307	GLN
1	D	330	ASN
1	D	391	ARG
1	D	416	VAL
1	E	10	THR
1	E	57	LEU
1	E	86	LEU
1	E	111	LEU
1	E	143	VAL
1	E	187	ARG
1	E	193	ASP
1	E	229	LEU
1	E	258	THR
1	E	330	ASN
1	E	391	ARG
1	E	416	VAL
1	F	10	THR
1	F	57	LEU
1	F	86	LEU
1	F	111	LEU
1	F	143	VAL
1	F	193	ASP
1	F	229	LEU
1	F	258	THR
1	F	307	GLN
1	F	330	ASN
1	F	391	ARG
1	F	416	VAL
1	G	10	THR
1	G	57	LEU
1	G	75	ARG
1	G	86	LEU
1	G	111	LEU
1	G	143	VAL
1	G	193	ASP
1	G	229	LEU
1	G	258	THR
1	G	300	PRO
1	G	330	ASN
1	G	391	ARG
1	G	416	VAL

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Mol	Chain	Res	Type
1	H	10	THR
1	H	15	GLU
1	H	57	LEU
1	H	86	LEU
1	H	111	LEU
1	H	143	VAL
1	H	187	ARG
1	H	193	ASP
1	H	229	LEU
1	H	258	THR
1	H	330	ASN
1	H	391	ARG
1	H	416	VAL
1	I	10	THR
1	I	57	LEU
1	I	86	LEU
1	I	111	LEU
1	I	143	VAL
1	I	193	ASP
1	I	229	LEU
1	I	258	THR
1	I	300	PRO
1	I	307	GLN
1	I	330	ASN
1	I	416	VAL
1	J	39	VAL
1	J	55	LYS
1	J	57	LEU
1	J	63	LYS
1	J	106	GLN
1	J	108	GLN
1	J	111	LEU
1	J	125	HIS
1	J	160	LYS
1	J	188	GLU
1	J	193	ASP
1	J	211	ASP
1	J	216	GLU
1	J	229	LEU
1	J	258	THR
1	J	265	LYS
1	J	275	VAL

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Mol	Chain	Res	Type
1	J	300	PRO
1	J	307	GLN
1	J	330	ASN
1	J	349	SER
1	J	354	CYS
1	J	360	LEU
1	J	414	GLU
1	J	416	VAL
1	K	3	LYS
1	K	34	LEU
1	K	39	VAL
1	K	47	LEU
1	K	57	LEU
1	K	59	GLN
1	K	86	LEU
1	K	111	LEU
1	K	160	LYS
1	K	211	ASP
1	K	219	GLU
1	K	229	LEU
1	K	248	LYS
1	K	307	GLN
1	K	359	LYS
1	K	416	VAL
1	L	10	THR
1	L	57	LEU
1	L	86	LEU
1	L	111	LEU
1	L	143	VAL
1	L	193	ASP
1	L	212	ARG
1	L	229	LEU
1	L	258	THR
1	L	307	GLN
1	L	330	ASN
1	L	391	ARG
1	L	416	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	155	HIS

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Mol	Chain	Res	Type
1	C	155	HIS
1	E	106	GLN
1	F	155	HIS
1	G	155	HIS
1	H	155	HIS
1	I	155	HIS
1	K	307	GLN
1	L	155	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

24 non-standard protein/DNA/RNA residues 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	#$|Z| > 2$
1	IAS	E	67	1	6,7,8	1.80	2 (33%)	6,8,10	3.66	3 (50%)
1	QPA	B	115	1	10,15,16	3.79	4 (40%)	9,22,24	1.43	1 (11%)
1	IAS	L	67	1	6,7,8	0.84	0	6,8,10	1.18	0
1	QPA	F	115	1	10,15,16	3.85	4 (40%)	9,22,24	1.54	1 (11%)
1	QPA	J	115	1	10,15,16	3.74	4 (40%)	9,22,24	1.68	1 (11%)
1	QPA	L	115	1	10,15,16	3.62	4 (40%)	9,22,24	1.45	1 (11%)
1	QPA	A	115	1	10,15,16	3.99	4 (40%)	9,22,24	1.58	1 (11%)
1	IAS	F	67	1	6,7,8	1.51	1 (16%)	6,8,10	3.60	2 (33%)
1	IAS	B	67	1	6,7,8	0.85	0	6,8,10	1.24	0
1	IAS	A	67	1	6,7,8	0.92	0	6,8,10	1.21	0
1	IAS	H	67	1	6,7,8	1.00	0	6,8,10	1.27	0
1	QPA	C	115	1	10,15,16	3.54	4 (40%)	9,22,24	1.42	1 (11%)
1	QPA	G	115	1	10,15,16	3.60	5 (50%)	9,22,24	1.53	1 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	QPA	I	115	1	10,15,16	4.12	4 (40%)	9,22,24	1.40	1 (11%)
1	IAS	K	67	1	6,7,8	1.86	2 (33%)	6,8,10	3.84	4 (66%)
1	IAS	C	67	1	6,7,8	0.97	0	6,8,10	1.25	0
1	IAS	G	67	1	6,7,8	0.93	0	6,8,10	1.14	0
1	IAS	I	67	1	6,7,8	1.59	1 (16%)	6,8,10	3.68	3 (50%)
1	QPA	D	115	1	10,15,16	3.76	5 (50%)	9,22,24	1.58	1 (11%)
1	QPA	E	115	1	10,15,16	3.92	4 (40%)	9,22,24	1.40	1 (11%)
1	QPA	K	115	1	10,15,16	3.87	5 (50%)	9,22,24	1.65	1 (11%)
1	IAS	J	67	1	6,7,8	1.02	0	6,8,10	1.18	0
1	QPA	H	115	1	10,15,16	3.65	4 (40%)	9,22,24	1.44	1 (11%)
1	IAS	D	67	1	6,7,8	1.07	0	6,8,10	1.21	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
1	IAS	E	67	1	-	4/7/7/8	-
1	QPA	B	115	1	-	1/9/20/22	-
1	IAS	L	67	1	-	2/7/7/8	-
1	QPA	F	115	1	-	1/9/20/22	-
1	QPA	J	115	1	-	1/9/20/22	-
1	QPA	L	115	1	-	0/9/20/22	-
1	QPA	A	115	1	-	1/9/20/22	-
1	IAS	F	67	1	-	3/7/7/8	-
1	IAS	B	67	1	-	2/7/7/8	-
1	IAS	A	67	1	-	2/7/7/8	-
1	IAS	H	67	1	-	0/7/7/8	-
1	QPA	C	115	1	-	1/9/20/22	-
1	QPA	G	115	1	-	1/9/20/22	-
1	QPA	I	115	1	-	1/9/20/22	-
1	IAS	K	67	1	-	1/7/7/8	-
1	IAS	C	67	1	-	2/7/7/8	-
1	IAS	G	67	1	-	2/7/7/8	-
1	IAS	I	67	1	-	2/7/7/8	-
1	QPA	D	115	1	-	1/9/20/22	-
1	QPA	E	115	1	-	1/9/20/22	-
1	QPA	K	115	1	-	0/9/20/22	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	IAS	J	67	1	-	4/7/7/8	-
1	QPA	H	115	1	-	1/9/20/22	-
1	IAS	D	67	1	-	1/7/7/8	-

All (57) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	I	115	QPA	P2-O14	9.75	1.77	1.59
1	A	115	QPA	P2-O14	9.56	1.77	1.59
1	E	115	QPA	P2-O14	8.79	1.75	1.59
1	J	115	QPA	P2-O14	8.67	1.75	1.59
1	F	115	QPA	P2-O14	8.60	1.75	1.59
1	K	115	QPA	P2-O14	8.56	1.75	1.59
1	D	115	QPA	P2-O14	8.54	1.75	1.59
1	B	115	QPA	P2-O14	8.36	1.75	1.59
1	L	115	QPA	P2-O14	8.18	1.74	1.59
1	G	115	QPA	P2-O14	7.65	1.73	1.59
1	C	115	QPA	P2-O14	7.63	1.73	1.59
1	H	115	QPA	P2-O14	7.56	1.73	1.59
1	D	115	QPA	P2-O13	5.85	1.69	1.50
1	F	115	QPA	P2-O13	5.76	1.69	1.50
1	E	115	QPA	O9-C10	5.72	1.40	1.22
1	I	115	QPA	P2-O13	5.62	1.68	1.50
1	H	115	QPA	P2-O13	5.59	1.68	1.50
1	B	115	QPA	P2-O13	5.56	1.68	1.50
1	G	115	QPA	P2-O13	5.44	1.68	1.50
1	K	115	QPA	O9-C10	5.40	1.39	1.22
1	E	115	QPA	P2-O13	5.39	1.67	1.50
1	B	115	QPA	O9-C10	5.36	1.39	1.22
1	H	115	QPA	O9-C10	5.34	1.39	1.22
1	C	115	QPA	P2-O13	5.30	1.67	1.50
1	A	115	QPA	P2-O13	5.29	1.67	1.50
1	K	115	QPA	P2-O13	5.28	1.67	1.50
1	I	115	QPA	O9-C10	5.25	1.39	1.22
1	J	115	QPA	P2-O13	5.17	1.67	1.50
1	F	115	QPA	O9-C10	5.17	1.38	1.22
1	L	115	QPA	O9-C10	5.15	1.38	1.22
1	A	115	QPA	O9-C10	5.13	1.38	1.22
1	G	115	QPA	O9-C10	5.03	1.38	1.22
1	L	115	QPA	P2-O13	4.97	1.66	1.50
1	C	115	QPA	O9-C10	4.92	1.38	1.22
1	J	115	QPA	O9-C10	4.80	1.37	1.22

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	115	QPA	O9-C10	4.25	1.35	1.22
1	K	67	IAS	CB-CA	-3.64	1.45	1.54
1	H	115	QPA	P2-O11	3.44	1.68	1.54
1	E	67	IAS	CB-CA	-3.33	1.46	1.54
1	I	67	IAS	CB-CA	-3.18	1.46	1.54
1	K	115	QPA	P2-O11	3.14	1.66	1.54
1	J	115	QPA	P2-O11	3.14	1.66	1.54
1	E	115	QPA	P2-O11	3.13	1.66	1.54
1	F	115	QPA	P2-O11	3.02	1.66	1.54
1	B	115	QPA	P2-O11	2.99	1.66	1.54
1	A	115	QPA	P2-O11	2.94	1.66	1.54
1	D	115	QPA	P2-O11	2.93	1.66	1.54
1	F	67	IAS	CB-CA	-2.84	1.47	1.54
1	L	115	QPA	P2-O11	2.77	1.65	1.54
1	C	115	QPA	P2-O11	2.68	1.65	1.54
1	I	115	QPA	P2-O11	2.62	1.64	1.54
1	G	115	QPA	P2-O11	2.48	1.64	1.54
1	G	115	QPA	CB-CA	2.33	1.59	1.53
1	K	115	QPA	CB-CA	2.21	1.58	1.53
1	E	67	IAS	OXT-C	-2.14	1.23	1.30
1	K	67	IAS	OXT-C	-2.08	1.23	1.30
1	D	115	QPA	CB-CA	2.01	1.58	1.53

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	I	67	IAS	OXT-C-O	7.77	141.73	124.09
1	K	67	IAS	OXT-C-O	7.39	140.87	124.09
1	F	67	IAS	OXT-C-O	7.23	140.50	124.09
1	E	67	IAS	OXT-C-O	6.98	139.94	124.09
1	F	67	IAS	O-C-CA	-4.97	104.61	122.14
1	E	67	IAS	O-C-CA	-4.67	105.64	122.14
1	K	67	IAS	O-C-CA	-4.38	106.68	122.14
1	K	115	QPA	CB-SG-C8	4.37	112.98	103.27
1	A	115	QPA	CB-SG-C8	4.16	112.50	103.27
1	J	115	QPA	CB-SG-C8	4.10	112.38	103.27
1	D	115	QPA	CB-SG-C8	4.08	112.32	103.27
1	F	115	QPA	CB-SG-C8	4.07	112.30	103.27
1	G	115	QPA	CB-SG-C8	3.98	112.10	103.27
1	H	115	QPA	CB-SG-C8	3.82	111.76	103.27
1	B	115	QPA	CB-SG-C8	3.70	111.49	103.27
1	L	115	QPA	CB-SG-C8	3.68	111.44	103.27

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	115	QPA	CB-SG-C8	3.66	111.40	103.27
1	I	115	QPA	CB-SG-C8	3.66	111.39	103.27
1	C	115	QPA	CB-SG-C8	3.51	111.06	103.27
1	I	67	IAS	O-C-CA	-3.25	110.66	122.14
1	K	67	IAS	CB-CA-C	-2.64	97.60	111.83
1	E	67	IAS	CB-CA-C	-2.04	100.80	111.83
1	I	67	IAS	CB-CA-C	-2.02	100.91	111.83
1	K	67	IAS	CA-CB-CG	-2.01	105.81	114.50

There are no chirality outliers.

All (35) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	E	67	IAS	N-CA-CB-CG
1	J	67	IAS	O-C-CA-N
1	J	67	IAS	OXT-C-CA-N
1	F	67	IAS	OXT-C-CA-CB
1	J	67	IAS	O-C-CA-CB
1	J	67	IAS	OXT-C-CA-CB
1	I	67	IAS	C-CA-CB-CG
1	A	115	QPA	C8-O14-P2-O11
1	C	115	QPA	C8-O14-P2-O11
1	D	115	QPA	C8-O14-P2-O11
1	E	115	QPA	C8-O14-P2-O11
1	I	115	QPA	C8-O14-P2-O11
1	F	67	IAS	O-C-CA-CB
1	G	67	IAS	O-C-CA-CB
1	G	67	IAS	OXT-C-CA-CB
1	I	67	IAS	CA-CB-CG-OD1
1	K	67	IAS	CA-CB-CG-OD1
1	J	115	QPA	C8-O14-P2-O11
1	A	67	IAS	O-C-CA-CB
1	A	67	IAS	OXT-C-CA-CB
1	B	67	IAS	O-C-CA-CB
1	C	67	IAS	O-C-CA-CB
1	E	67	IAS	O-C-CA-CB
1	L	67	IAS	O-C-CA-CB
1	B	67	IAS	OXT-C-CA-CB
1	D	67	IAS	OXT-C-CA-CB
1	E	67	IAS	OXT-C-CA-CB
1	L	67	IAS	OXT-C-CA-CB
1	F	67	IAS	CA-CB-CG-OD1

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Mol	Chain	Res	Type	Atoms
1	E	67	IAS	C-CA-CB-CG
1	C	67	IAS	OXT-C-CA-CB
1	B	115	QPA	C8-O14-P2-O11
1	F	115	QPA	C8-O14-P2-O11
1	G	115	QPA	C8-O14-P2-O11
1	H	115	QPA	C8-O14-P2-O11

There are no ring outliers.

5 monomers are involved in 18 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	J	115	QPA	1	0
1	F	67	IAS	3	0
1	K	67	IAS	5	0
1	I	67	IAS	8	0
1	K	115	QPA	1	0

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

12 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#$|Z| > 2$	Counts	RMSZ	#$|Z| > 2$
2	EPZ	J	501	-	43,46,46	1.33	7 (16%)	60,69,69	1.62	7 (11%)
2	EPZ	G	501	-	43,46,46	1.33	6 (13%)	60,69,69	1.63	9 (15%)
2	EPZ	D	501	-	43,46,46	1.48	10 (23%)	60,69,69	1.64	9 (15%)
2	EPZ	I	501	-	43,46,46	1.31	8 (18%)	60,69,69	1.49	7 (11%)
2	EPZ	H	501	-	43,46,46	1.44	6 (13%)	60,69,69	1.55	8 (13%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
2	EPZ	E	501	-	43,46,46	1.39	7 (16%)	60,69,69	1.59	11 (18%)
2	EPZ	K	501	-	43,46,46	1.41	7 (16%)	60,69,69	1.65	6 (10%)
2	EPZ	B	501	-	43,46,46	1.38	6 (13%)	60,69,69	1.64	8 (13%)
2	EPZ	A	501	-	43,46,46	1.46	9 (20%)	60,69,69	1.56	9 (15%)
2	EPZ	L	501	-	43,46,46	1.32	4 (9%)	60,69,69	1.64	9 (15%)
2	EPZ	F	501	-	43,46,46	1.62	9 (20%)	60,69,69	1.59	8 (13%)
2	EPZ	C	501	-	43,46,46	1.50	8 (18%)	60,69,69	1.66	8 (13%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	EPZ	J	501	-	-	5/34/71/71	0/3/3/3
2	EPZ	G	501	-	-	5/34/71/71	0/3/3/3
2	EPZ	D	501	-	-	4/34/71/71	0/3/3/3
2	EPZ	I	501	-	-	5/34/71/71	0/3/3/3
2	EPZ	H	501	-	-	7/34/71/71	0/3/3/3
2	EPZ	E	501	-	-	4/34/71/71	0/3/3/3
2	EPZ	K	501	-	-	6/34/71/71	0/3/3/3
2	EPZ	B	501	-	-	7/34/71/71	0/3/3/3
2	EPZ	A	501	-	-	5/34/71/71	0/3/3/3
2	EPZ	L	501	-	-	5/34/71/71	0/3/3/3
2	EPZ	F	501	-	-	7/34/71/71	0/3/3/3
2	EPZ	C	501	-	-	4/34/71/71	0/3/3/3

All (87) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	K	501	EPZ	C2U-N1U	4.49	1.45	1.38
2	B	501	EPZ	C2U-N1U	4.31	1.45	1.38
2	F	501	EPZ	C2U-N1U	4.13	1.45	1.38
2	H	501	EPZ	C2U-N1U	3.85	1.44	1.38
2	A	501	EPZ	C2U-N1U	3.49	1.44	1.38
2	L	501	EPZ	C2U-N1U	3.33	1.43	1.38
2	C	501	EPZ	C6U-C5U	3.24	1.42	1.35
2	A	501	EPZ	C2E-C1E	3.22	1.57	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	501	EPZ	C6U-C5U	3.16	1.42	1.35
2	D	501	EPZ	PB-O1B	-3.13	1.40	1.55
2	F	501	EPZ	PB-O1B	-3.13	1.40	1.55
2	C	501	EPZ	C2U-N1U	3.11	1.43	1.38
2	L	501	EPZ	PB-O1B	-3.03	1.41	1.55
2	F	501	EPZ	PB-O2B	-2.96	1.40	1.50
2	C	501	EPZ	O5D-C5D	-2.94	1.33	1.44
2	H	501	EPZ	PB-O1B	-2.93	1.41	1.55
2	G	501	EPZ	C6U-C5U	2.93	1.41	1.35
2	G	501	EPZ	PB-O1B	-2.89	1.41	1.55
2	D	501	EPZ	PA-O1A	-2.75	1.41	1.50
2	A	501	EPZ	PB-O1B	-2.75	1.42	1.55
2	D	501	EPZ	C2U-N1U	2.74	1.42	1.38
2	H	501	EPZ	C3-C2	2.73	1.57	1.53
2	J	501	EPZ	C2U-N1U	2.70	1.42	1.38
2	F	501	EPZ	PA-O2A	-2.70	1.42	1.55
2	E	501	EPZ	PB-O1B	-2.69	1.42	1.55
2	A	501	EPZ	C6U-C5U	2.68	1.41	1.35
2	F	501	EPZ	C6U-C5U	2.66	1.41	1.35
2	C	501	EPZ	PB-O1B	-2.63	1.43	1.55
2	B	501	EPZ	C6U-C5U	2.62	1.41	1.35
2	E	501	EPZ	PB-O1	-2.61	1.53	1.60
2	F	501	EPZ	PB-O1	-2.60	1.53	1.60
2	J	501	EPZ	PB-O1B	-2.60	1.43	1.55
2	I	501	EPZ	PB-O1B	-2.59	1.43	1.55
2	D	501	EPZ	C3-C2	2.59	1.57	1.53
2	D	501	EPZ	PB-O2B	-2.59	1.41	1.50
2	B	501	EPZ	PB-O1B	-2.57	1.43	1.55
2	C	501	EPZ	PA-O2A	-2.57	1.43	1.55
2	G	501	EPZ	O5D-C5D	-2.57	1.34	1.44
2	F	501	EPZ	C3-C2	2.55	1.57	1.53
2	K	501	EPZ	PB-O1B	-2.52	1.43	1.55
2	J	501	EPZ	O5D-C5D	-2.48	1.35	1.44
2	C	501	EPZ	O4U-C4U	-2.45	1.19	1.24
2	K	501	EPZ	PA-O2A	-2.44	1.43	1.55
2	D	501	EPZ	PA-O2A	-2.42	1.44	1.55
2	I	501	EPZ	PB-O1	-2.39	1.54	1.60
2	C	501	EPZ	PB-O2B	-2.39	1.42	1.50
2	F	501	EPZ	O3-C3	-2.36	1.37	1.43
2	D	501	EPZ	C6U-C5U	2.36	1.40	1.35
2	J	501	EPZ	O4-C4	-2.35	1.37	1.43
2	B	501	EPZ	O3-C3	-2.34	1.37	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	501	EPZ	O3-C3	-2.32	1.37	1.43
2	I	501	EPZ	O3-C3	-2.32	1.37	1.43
2	G	501	EPZ	PB-O2B	-2.31	1.42	1.50
2	K	501	EPZ	C6U-C5U	2.31	1.40	1.35
2	J	501	EPZ	O1E-C1E	-2.30	1.23	1.30
2	F	501	EPZ	O2D-C2D	-2.30	1.37	1.43
2	B	501	EPZ	O5D-C5D	-2.28	1.36	1.44
2	L	501	EPZ	PA-O2A	-2.27	1.44	1.55
2	E	501	EPZ	O3-C3	-2.26	1.38	1.43
2	D	501	EPZ	O5D-C5D	-2.25	1.36	1.44
2	I	501	EPZ	PA-O2A	-2.24	1.44	1.55
2	A	501	EPZ	PA-O2A	-2.24	1.44	1.55
2	K	501	EPZ	C3-C2	2.23	1.56	1.53
2	E	501	EPZ	PA-O2A	-2.21	1.44	1.55
2	K	501	EPZ	PA-O1A	-2.20	1.43	1.50
2	B	501	EPZ	PA-O2A	-2.19	1.45	1.55
2	I	501	EPZ	O1E-C1E	-2.18	1.23	1.30
2	I	501	EPZ	C2U-N1U	2.17	1.41	1.38
2	A	501	EPZ	PB-O2B	-2.17	1.43	1.50
2	J	501	EPZ	PA-O2A	-2.16	1.45	1.55
2	C	501	EPZ	C3-C2	2.15	1.56	1.53
2	H	501	EPZ	O5D-C5D	-2.14	1.36	1.44
2	E	501	EPZ	C2U-N1U	2.13	1.41	1.38
2	H	501	EPZ	C6U-C5U	2.13	1.40	1.35
2	K	501	EPZ	O5D-C5D	-2.11	1.36	1.44
2	G	501	EPZ	C2U-N1U	2.10	1.41	1.38
2	L	501	EPZ	O2D-C2D	-2.09	1.38	1.43
2	A	501	EPZ	O2D-C2D	-2.07	1.38	1.43
2	A	501	EPZ	PB-O1	-2.07	1.55	1.60
2	E	501	EPZ	O4U-C4U	-2.06	1.20	1.24
2	G	501	EPZ	O4U-C4U	-2.06	1.20	1.24
2	A	501	EPZ	O3-C3	-2.05	1.38	1.43
2	J	501	EPZ	PB-O1	-2.04	1.55	1.60
2	I	501	EPZ	C6U-C5U	2.04	1.39	1.35
2	D	501	EPZ	O1E-C1E	-2.03	1.23	1.30
2	I	501	EPZ	O4-C4	-2.02	1.38	1.43
2	H	501	EPZ	PB-O1	-2.01	1.55	1.60

All (99) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	L	501	EPZ	C4U-N3U-C2U	-5.34	119.53	126.58

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	501	EPZ	C4U-N3U-C2U	-5.09	119.86	126.58
2	K	501	EPZ	C4U-N3U-C2U	-5.07	119.90	126.58
2	F	501	EPZ	C4U-N3U-C2U	-5.06	119.91	126.58
2	G	501	EPZ	C4U-N3U-C2U	-5.05	119.91	126.58
2	D	501	EPZ	C4U-N3U-C2U	-4.91	120.11	126.58
2	I	501	EPZ	C4U-N3U-C2U	-4.91	120.11	126.58
2	J	501	EPZ	C4U-N3U-C2U	-4.88	120.14	126.58
2	C	501	EPZ	C4U-N3U-C2U	-4.73	120.33	126.58
2	E	501	EPZ	N3U-C2U-N1U	4.66	121.08	114.89
2	G	501	EPZ	N3U-C2U-N1U	4.62	121.03	114.89
2	D	501	EPZ	N3U-C2U-N1U	4.56	120.95	114.89
2	A	501	EPZ	C4U-N3U-C2U	-4.51	120.63	126.58
2	C	501	EPZ	N3U-C2U-N1U	4.50	120.86	114.89
2	H	501	EPZ	C4U-N3U-C2U	-4.45	120.70	126.58
2	C	501	EPZ	C5U-C4U-N3U	4.41	121.43	114.84
2	E	501	EPZ	C4U-N3U-C2U	-4.37	120.82	126.58
2	F	501	EPZ	N3U-C2U-N1U	4.36	120.68	114.89
2	B	501	EPZ	N3U-C2U-N1U	4.30	120.60	114.89
2	L	501	EPZ	C5U-C4U-N3U	4.29	121.25	114.84
2	B	501	EPZ	C5U-C4U-N3U	4.27	121.23	114.84
2	H	501	EPZ	C5U-C4U-N3U	4.25	121.20	114.84
2	J	501	EPZ	N3U-C2U-N1U	4.21	120.48	114.89
2	K	501	EPZ	O4D-C4D-C5D	-4.20	95.57	109.37
2	K	501	EPZ	N3U-C2U-N1U	4.18	120.44	114.89
2	I	501	EPZ	N3U-C2U-N1U	4.16	120.42	114.89
2	I	501	EPZ	C5U-C4U-N3U	4.15	121.05	114.84
2	E	501	EPZ	C5U-C4U-N3U	4.07	120.93	114.84
2	J	501	EPZ	C5U-C4U-N3U	4.06	120.92	114.84
2	C	501	EPZ	O4D-C4D-C5D	-4.04	96.08	109.37
2	G	501	EPZ	C5U-C4U-N3U	4.02	120.86	114.84
2	A	501	EPZ	N3U-C2U-N1U	3.97	120.17	114.89
2	H	501	EPZ	N3U-C2U-N1U	3.96	120.15	114.89
2	L	501	EPZ	N3U-C2U-N1U	3.96	120.14	114.89
2	K	501	EPZ	C5U-C4U-N3U	3.90	120.68	114.84
2	J	501	EPZ	O4D-C4D-C5D	-3.84	96.75	109.37
2	D	501	EPZ	C5U-C4U-N3U	3.82	120.55	114.84
2	H	501	EPZ	O4D-C4D-C5D	-3.66	97.34	109.37
2	F	501	EPZ	C5U-C4U-N3U	3.64	120.28	114.84
2	A	501	EPZ	C5U-C4U-N3U	3.60	120.23	114.84
2	J	501	EPZ	O5D-C5D-C4D	3.56	121.23	108.99
2	D	501	EPZ	O4D-C4D-C5D	-3.55	97.69	109.37
2	A	501	EPZ	O4D-C4D-C5D	-3.55	97.70	109.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	501	EPZ	O4D-C4D-C5D	-3.50	97.87	109.37
2	B	501	EPZ	O5D-C5D-C4D	3.44	120.85	108.99
2	K	501	EPZ	O5D-C5D-C4D	3.39	120.66	108.99
2	F	501	EPZ	O4D-C4D-C5D	-3.33	98.43	109.37
2	L	501	EPZ	O4D-C1D-N1U	3.22	115.73	108.36
2	B	501	EPZ	O4D-C4D-C5D	-3.22	98.77	109.37
2	F	501	EPZ	O4U-C4U-C5U	-3.15	119.61	125.16
2	A	501	EPZ	O5D-C5D-C4D	3.12	119.73	108.99
2	E	501	EPZ	O4D-C4D-C5D	-3.05	99.35	109.37
2	D	501	EPZ	O5D-C5D-C4D	3.00	119.30	108.99
2	D	501	EPZ	O5-C1-O1	-2.88	107.60	111.36
2	B	501	EPZ	O4U-C4U-C5U	-2.87	120.12	125.16
2	L	501	EPZ	O4U-C4U-C5U	-2.84	120.17	125.16
2	E	501	EPZ	O2U-C2U-N1U	-2.84	119.01	122.79
2	L	501	EPZ	O4D-C4D-C5D	-2.81	100.12	109.37
2	K	501	EPZ	O4U-C4U-C5U	-2.79	120.26	125.16
2	I	501	EPZ	O4U-C4U-C5U	-2.78	120.26	125.16
2	G	501	EPZ	O5D-C5D-C4D	2.78	118.54	108.99
2	A	501	EPZ	O1E-C1E-O2E	-2.77	117.79	124.09
2	G	501	EPZ	O2U-C2U-N1U	-2.76	119.12	122.79
2	J	501	EPZ	O1E-C1E-O2E	-2.73	117.88	124.09
2	J	501	EPZ	O4U-C4U-C5U	-2.69	120.43	125.16
2	E	501	EPZ	O5D-C5D-C4D	2.68	118.20	108.99
2	I	501	EPZ	O4D-C4D-C5D	-2.65	100.67	109.37
2	D	501	EPZ	O2U-C2U-N1U	-2.52	119.44	122.79
2	L	501	EPZ	O5D-C5D-C4D	2.51	117.64	108.99
2	I	501	EPZ	O5D-C5D-C4D	2.51	117.62	108.99
2	C	501	EPZ	O5D-C5D-C4D	2.50	117.59	108.99
2	B	501	EPZ	C6U-N1U-C2U	-2.49	117.80	120.99
2	A	501	EPZ	O4U-C4U-C5U	-2.46	120.84	125.16
2	F	501	EPZ	C6U-N1U-C2U	-2.43	117.89	120.99
2	F	501	EPZ	O1E-C1E-O2E	-2.41	118.62	124.09
2	H	501	EPZ	O4U-C4U-C5U	-2.41	120.92	125.16
2	C	501	EPZ	O1E-C1E-O2E	-2.38	118.68	124.09
2	H	501	EPZ	O1E-C1E-O2E	-2.37	118.70	124.09
2	D	501	EPZ	O4U-C4U-C5U	-2.36	121.02	125.16
2	H	501	EPZ	O5D-C5D-C4D	2.35	117.06	108.99
2	C	501	EPZ	O4U-C4U-C5U	-2.34	121.04	125.16
2	E	501	EPZ	O4U-C4U-C5U	-2.32	121.07	125.16
2	G	501	EPZ	O1E-C1E-O2E	-2.29	118.90	124.09
2	G	501	EPZ	O4U-C4U-C5U	-2.23	121.24	125.16
2	E	501	EPZ	O1E-C1E-O2E	-2.21	119.07	124.09

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	E	501	EPZ	C1D-N1U-C6U	2.20	125.64	120.84
2	A	501	EPZ	C3E-C2E-C1E	2.18	112.88	109.28
2	L	501	EPZ	O5-C1-O1	-2.14	108.56	111.36
2	B	501	EPZ	O3A-PB-O1	-2.14	98.16	102.48
2	E	501	EPZ	O3D-C3D-C2D	-2.09	105.08	111.82
2	A	501	EPZ	C6U-N1U-C2U	-2.08	118.33	120.99
2	C	501	EPZ	O1-PB-O2B	-2.08	101.67	109.47
2	L	501	EPZ	O1E-C1E-O2E	-2.05	119.42	124.09
2	G	501	EPZ	C1D-N1U-C6U	2.05	125.32	120.84
2	I	501	EPZ	O1E-C1E-O2E	-2.05	119.44	124.09
2	H	501	EPZ	C6U-N1U-C2U	-2.04	118.39	120.99
2	F	501	EPZ	O5D-C5D-C4D	2.02	115.96	108.99
2	E	501	EPZ	O5-C5-C6	2.02	111.47	106.44
2	D	501	EPZ	O1E-C1E-O2E	-2.02	119.50	124.09

There are no chirality outliers.

All (64) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	501	EPZ	O1E-C1E-C2E-O3
2	A	501	EPZ	O2E-C1E-C2E-O3
2	F	501	EPZ	O4D-C4D-C5D-O5D
2	H	501	EPZ	C3E-C2E-O3-C3
2	L	501	EPZ	O1E-C1E-C2E-O3
2	L	501	EPZ	O2E-C1E-C2E-O3
2	A	501	EPZ	O4D-C4D-C5D-O5D
2	B	501	EPZ	O4D-C4D-C5D-O5D
2	C	501	EPZ	O4D-C4D-C5D-O5D
2	D	501	EPZ	O4D-C4D-C5D-O5D
2	E	501	EPZ	O4D-C4D-C5D-O5D
2	G	501	EPZ	O4D-C4D-C5D-O5D
2	H	501	EPZ	O4D-C4D-C5D-O5D
2	I	501	EPZ	O4D-C4D-C5D-O5D
2	J	501	EPZ	O4D-C4D-C5D-O5D
2	K	501	EPZ	O4D-C4D-C5D-O5D
2	L	501	EPZ	O4D-C4D-C5D-O5D
2	F	501	EPZ	C3D-C4D-C5D-O5D
2	I	501	EPZ	C4-C5-C6-O6
2	D	501	EPZ	C3D-C4D-C5D-O5D
2	I	501	EPZ	O5-C5-C6-O6
2	H	501	EPZ	C3D-C4D-C5D-O5D
2	H	501	EPZ	C4-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
2	J	501	EPZ	O2E-C1E-C2E-O3
2	B	501	EPZ	C3E-C2E-O3-C3
2	C	501	EPZ	C3E-C2E-O3-C3
2	D	501	EPZ	C3E-C2E-O3-C3
2	F	501	EPZ	C3E-C2E-O3-C3
2	G	501	EPZ	C3E-C2E-O3-C3
2	E	501	EPZ	C3D-C4D-C5D-O5D
2	G	501	EPZ	C3D-C4D-C5D-O5D
2	C	501	EPZ	C3D-C4D-C5D-O5D
2	A	501	EPZ	C3D-C4D-C5D-O5D
2	K	501	EPZ	C3D-C4D-C5D-O5D
2	B	501	EPZ	PB-O3A-PA-O1A
2	J	501	EPZ	PB-O3A-PA-O1A
2	H	501	EPZ	O5-C5-C6-O6
2	J	501	EPZ	O1E-C1E-C2E-O3
2	B	501	EPZ	C1E-C2E-O3-C3
2	H	501	EPZ	C1E-C2E-O3-C3
2	K	501	EPZ	O1E-C1E-C2E-C3E
2	I	501	EPZ	C3E-C2E-O3-C3
2	F	501	EPZ	C1-O1-PB-O3A
2	B	501	EPZ	C3D-C4D-C5D-O5D
2	B	501	EPZ	PB-O3A-PA-O2A
2	E	501	EPZ	PA-O3A-PB-O2B
2	F	501	EPZ	PA-O3A-PB-O2B
2	K	501	EPZ	O2E-C1E-C2E-C3E
2	A	501	EPZ	C5D-O5D-PA-O1A
2	B	501	EPZ	C5D-O5D-PA-O1A
2	C	501	EPZ	C5D-O5D-PA-O1A
2	D	501	EPZ	C5D-O5D-PA-O1A
2	E	501	EPZ	C5D-O5D-PA-O1A
2	F	501	EPZ	C5D-O5D-PA-O1A
2	G	501	EPZ	C5D-O5D-PA-O1A
2	H	501	EPZ	C5D-O5D-PA-O1A
2	I	501	EPZ	C5D-O5D-PA-O1A
2	J	501	EPZ	C5D-O5D-PA-O1A
2	K	501	EPZ	C5D-O5D-PA-O1A
2	L	501	EPZ	C5D-O5D-PA-O1A
2	F	501	EPZ	O2E-C1E-C2E-O3
2	G	501	EPZ	O2E-C1E-C2E-O3
2	K	501	EPZ	O1E-C1E-C2E-O3
2	L	501	EPZ	C3D-C4D-C5D-O5D

There are no ring outliers.

7 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	J	501	EPZ	2	0
2	G	501	EPZ	1	0
2	I	501	EPZ	2	0
2	K	501	EPZ	3	0
2	B	501	EPZ	2	0
2	L	501	EPZ	1	0
2	C	501	EPZ	1	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 EPZ J 501

Bond lengths

Bond angles

Torsions

Rings

Ligand EPZ G 501

Bond lengths

Bond angles

Torsions

Rings

Ligand EPZ D 501

Bond lengths

Bond angles

Torsions

Rings

Ligand EPZ I 501

Bond lengths

Bond angles

Torsions

Rings

Ligand EPZ H 501

Bond lengths

Bond angles

Torsions

Rings

Ligand EPZ E 501

Bond lengths

Bond angles

Torsions

Rings

Ligand EPZ K 501

Bond lengths

Bond angles

Torsions

Rings

Ligand EPZ B 501

Bond lengths

Bond angles

Torsions

Rings

Ligand EPZ A 501

Bond lengths

Bond angles

Torsions

Rings

Ligand EPZ L 501

Bond lengths

Bond angles

Torsions

Rings

Ligand EPZ F 501

Bond lengths

Bond angles

Torsions

Rings

Ligand EPZ C 501

Bond lengths

Bond angles

Torsions

Rings

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(Å^2)	Q<0.9
1	A	416/418 (99%)	-0.17	4 (0%)	82	84	36, 54, 76, 97	0
1	B	416/418 (99%)	0.23	18 (4%)	35	38	37, 61, 83, 100	0
1	C	416/418 (99%)	-0.23	1 (0%)	95	95	30, 47, 69, 95	0
1	D	416/418 (99%)	-0.31	0	100	100	25, 47, 68, 95	0
1	E	416/418 (99%)	-0.12	3 (0%)	87	89	30, 50, 72, 102	0
1	F	416/418 (99%)	-0.05	3 (0%)	87	89	29, 53, 77, 100	0
1	G	416/418 (99%)	0.11	13 (3%)	49	52	33, 60, 83, 104	0
1	H	416/418 (99%)	-0.24	3 (0%)	87	89	34, 50, 70, 95	0
1	I	416/418 (99%)	0.44	42 (10%)	7	6	39, 67, 93, 110	0
1	J	416/418 (99%)	-0.15	5 (1%)	79	80	37, 58, 79, 100	0
1	K	416/418 (99%)	-0.25	5 (1%)	79	80	29, 50, 73, 88	0
1	L	416/418 (99%)	0.69	55 (13%)	3	3	43, 72, 94, 120	0
All	All	4992/5016 (99%)	-0.00	152 (3%)	50	53	25, 55, 83, 120	0

All (152) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	L	221	LEU	8.8
1	L	222	GLY	8.2
1	L	215	ILE	7.0
1	I	215	ILE	6.8
1	I	81	CYS	5.8
1	I	216	GLU	5.5
1	L	205	ILE	5.5
1	B	395	ILE	5.1
1	I	134	ALA	5.0
1	B	418	GLY	5.0
1	L	37	GLU	4.9

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Mol	Chain	Res	Type	RSRZ
1	L	39	VAL	4.9
1	I	99	PRO	4.9
1	I	177	GLU	4.9
1	L	216	GLU	4.8
1	I	181	ILE	4.7
1	L	213	ILE	4.6
1	L	12	LEU	4.5
1	L	277	GLU	4.5
1	L	201	LEU	4.2
1	G	56	LEU	4.0
1	I	136	ILE	4.0
1	H	418	GLY	4.0
1	L	38	PRO	4.0
1	G	59	GLN	3.9
1	I	152	LYS	3.8
1	I	148	ASP	3.8
1	E	57	LEU	3.8
1	B	273	ILE	3.7
1	I	132	LEU	3.7
1	L	204	LYS	3.7
1	J	273	ILE	3.6
1	B	86	LEU	3.6
1	I	248	LYS	3.5
1	B	146	SER	3.5
1	L	41	ILE	3.4
1	L	279	TRP	3.4
1	G	74	ALA	3.4
1	I	133	GLY	3.4
1	L	270	GLY	3.4
1	B	60	LEU	3.4
1	I	100	LEU	3.3
1	L	220	ARG	3.3
1	I	230	PRO	3.3
1	B	13	GLN	3.2
1	J	72	ILE	3.1
1	L	197	PHE	3.1
1	L	199	ILE	3.1
1	G	418	GLY	3.1
1	F	225	VAL	3.1
1	I	80	PHE	3.0
1	F	72	ILE	3.0
1	L	64	VAL	2.9

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Mol	Chain	Res	Type	RSRZ
1	L	152	LYS	2.9
1	L	282	LEU	2.9
1	I	78	ASN	2.9
1	H	60	LEU	2.9
1	L	200	THR	2.8
1	L	272	ASP	2.8
1	L	70	VAL	2.8
1	I	154	ALA	2.8
1	B	244	ILE	2.7
1	L	175	LEU	2.7
1	I	74	ALA	2.7
1	L	26	LEU	2.7
1	L	44	VAL	2.7
1	A	147	VAL	2.6
1	I	171	CYS	2.6
1	L	225	VAL	2.6
1	I	135	THR	2.6
1	L	76	ASP	2.6
1	G	54	MET	2.6
1	I	102	ALA	2.6
1	I	86	LEU	2.6
1	J	201	LEU	2.6
1	I	349	SER	2.6
1	G	12	LEU	2.6
1	E	39	VAL	2.5
1	K	330	ASN	2.5
1	L	226	TYR	2.5
1	L	281	SER	2.5
1	L	117	ILE	2.5
1	G	79	VAL	2.4
1	K	349	SER	2.4
1	L	16	VAL	2.4
1	B	219	GLU	2.4
1	I	39	VAL	2.4
1	L	63	LYS	2.4
1	H	176	ALA	2.4
1	B	68	GLY	2.4
1	I	350	ASN	2.4
1	L	350	ASN	2.4
1	G	401	ARG	2.4
1	K	249	ILE	2.4
1	L	18	ILE	2.4

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Mol	Chain	Res	Type	RSRZ
1	L	249	ILE	2.4
1	I	42	GLN	2.3
1	L	267	ARG	2.3
1	L	255	GLN	2.3
1	I	402	ILE	2.3
1	I	33	LEU	2.3
1	I	151	LEU	2.3
1	L	100	LEU	2.3
1	G	1	MET	2.3
1	B	35	ALA	2.3
1	I	198	LEU	2.3
1	B	272	ASP	2.3
1	I	194	THR	2.3
1	L	417	LYS	2.3
1	I	223	GLY	2.3
1	I	182	ILE	2.3
1	I	179	THR	2.3
1	G	37	GLU	2.3
1	L	351	THR	2.2
1	K	350	ASN	2.2
1	L	75	ARG	2.2
1	E	223	GLY	2.2
1	C	349	SER	2.2
1	G	326	THR	2.2
1	B	282	LEU	2.2
1	I	399	TYR	2.2
1	J	349	SER	2.2
1	I	64	VAL	2.2
1	L	126	ILE	2.2
1	L	191	ILE	2.2
1	B	350	ASN	2.2
1	B	61	GLY	2.2
1	L	362	GLY	2.2
1	L	246	ARG	2.2
1	A	9	PRO	2.1
1	B	99	PRO	2.1
1	F	177	GLU	2.1
1	J	74	ALA	2.1
1	L	194	THR	2.1
1	L	171	CYS	2.1
1	B	41	ILE	2.1
1	G	411	ALA	2.1

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Mol	Chain	Res	Type	RSRZ
1	I	137	LYS	2.1
1	I	175	LEU	2.1
1	L	248	LYS	2.1
1	I	218	VAL	2.1
1	L	33	LEU	2.1
1	L	378	LEU	2.1
1	K	105	GLY	2.1
1	I	144	LYS	2.1
1	G	38	PRO	2.0
1	I	147	VAL	2.0
1	L	324	THR	2.0
1	A	133	GLY	2.0
1	A	418	GLY	2.0
1	B	34	LEU	2.0
1	L	280	ILE	2.0

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

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(Å²)	Q<0.9
1	IAS	I	67	8/9	0.65	0.27	79,89,111,120	0
1	IAS	L	67	8/9	0.82	0.26	81,89,99,102	0
1	IAS	A	67	8/9	0.89	0.15	50,56,66,69	0
1	IAS	G	67	8/9	0.90	0.18	64,67,75,77	0
1	QPA	B	115	16/17	0.91	0.12	46,64,92,95	0
1	QPA	A	115	16/17	0.92	0.22	49,62,92,92	0
1	IAS	C	67	8/9	0.92	0.15	61,69,72,72	0
1	IAS	D	67	8/9	0.92	0.15	42,54,62,62	0
1	QPA	I	115	16/17	0.93	0.15	46,65,92,92	0
1	IAS	F	67	8/9	0.93	0.13	52,64,76,80	0
1	QPA	E	115	16/17	0.93	0.15	42,62,77,80	0
1	IAS	B	67	8/9	0.93	0.19	66,72,84,90	0
1	IAS	K	67	8/9	0.93	0.14	59,61,65,71	0
1	QPA	F	115	16/17	0.93	0.20	41,60,80,86	0
1	QPA	H	115	16/17	0.94	0.17	40,63,76,77	0
1	QPA	L	115	16/17	0.94	0.15	50,65,81,85	0
1	IAS	H	67	8/9	0.94	0.20	53,66,80,88	0
1	QPA	K	115	16/17	0.95	0.18	36,57,80,80	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
1	IAS	J	67	8/9	0.95	0.13	53,75,79,84	0
1	QPA	C	115	16/17	0.95	0.19	38,62,79,83	0
1	IAS	E	67	8/9	0.95	0.08	41,53,62,78	0
1	QPA	D	115	16/17	0.96	0.17	30,51,68,68	0
1	QPA	G	115	16/17	0.96	0.15	41,58,76,79	0
1	QPA	J	115	16/17	0.98	0.15	37,55,84,103	0

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
2	EPZ	I	501	44/44	0.94	0.17	38,58,68,84	0
2	EPZ	G	501	44/44	0.96	0.18	31,48,65,67	0
2	EPZ	L	501	44/44	0.96	0.18	25,60,76,99	0
2	EPZ	D	501	44/44	0.97	0.14	25,43,58,70	0
2	EPZ	A	501	44/44	0.97	0.17	28,46,60,63	0
2	EPZ	H	501	44/44	0.97	0.14	27,44,58,66	0
2	EPZ	B	501	44/44	0.97	0.13	27,51,73,82	0
2	EPZ	J	501	44/44	0.97	0.14	30,45,64,70	0
2	EPZ	K	501	44/44	0.97	0.14	27,43,60,66	0
2	EPZ	C	501	44/44	0.97	0.16	28,40,57,66	0
2	EPZ	E	501	44/44	0.98	0.16	31,44,60,82	0
2	EPZ	F	501	44/44	0.98	0.16	20,38,59,78	0

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

Electron density around EPZ I 501:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
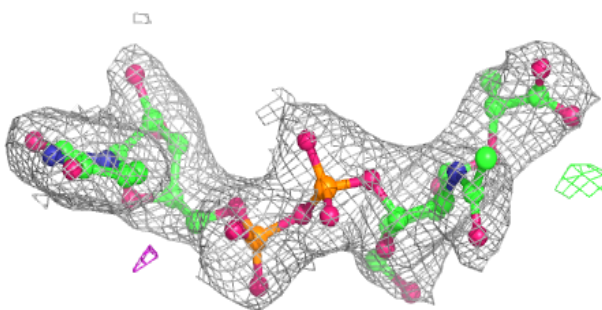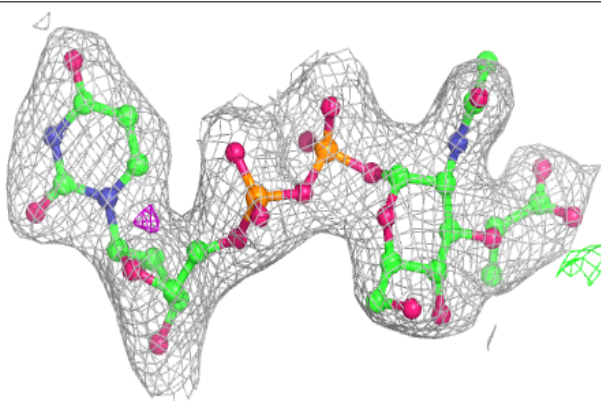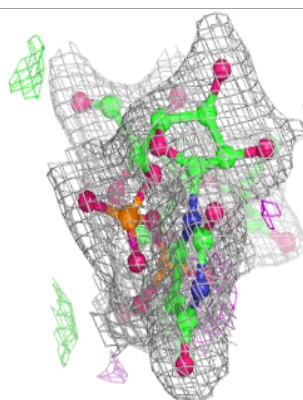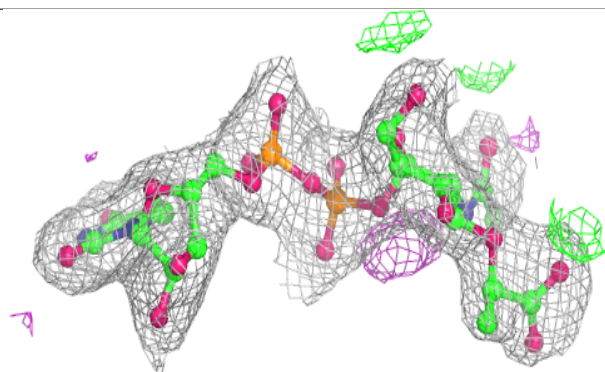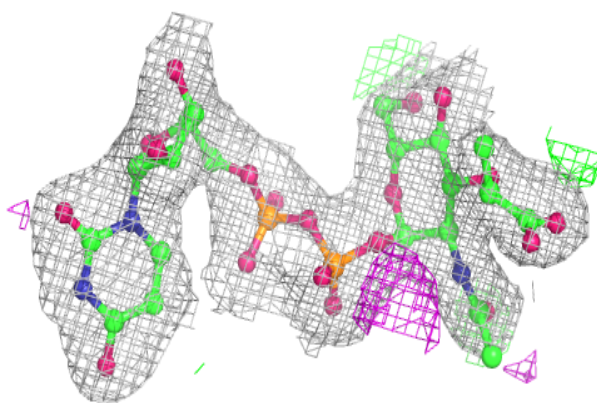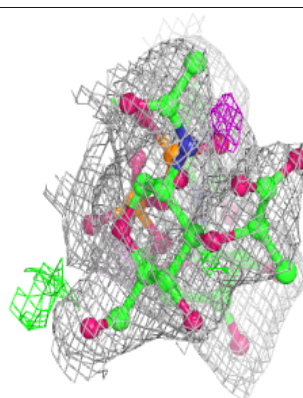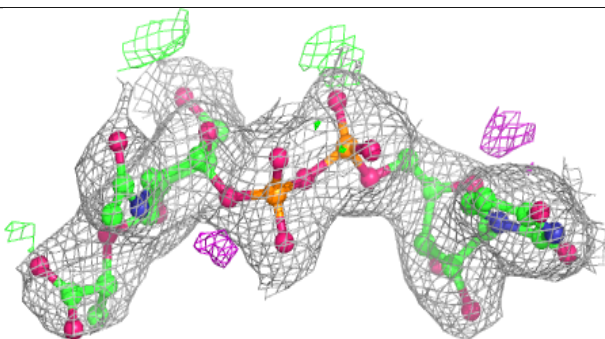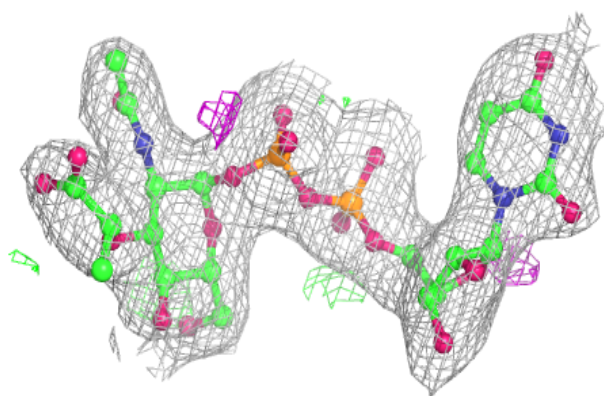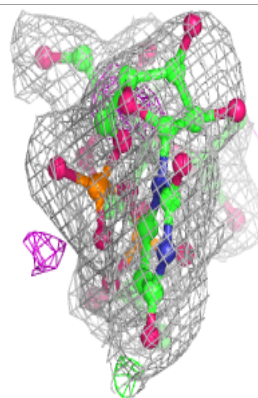and green (positive)
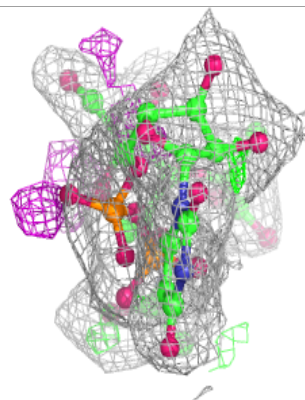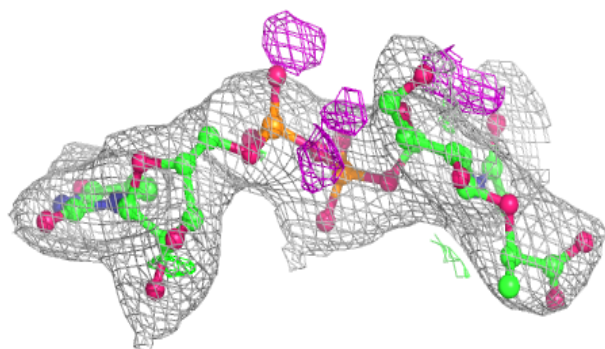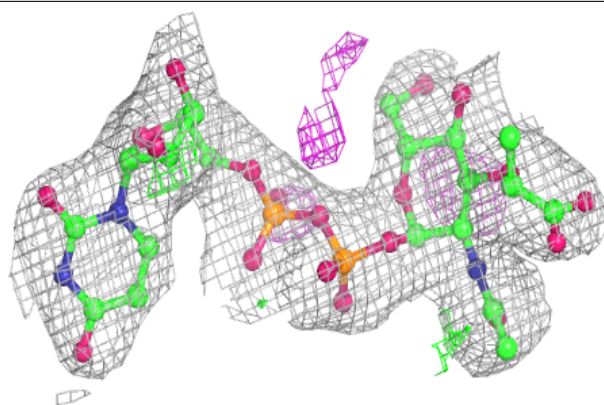
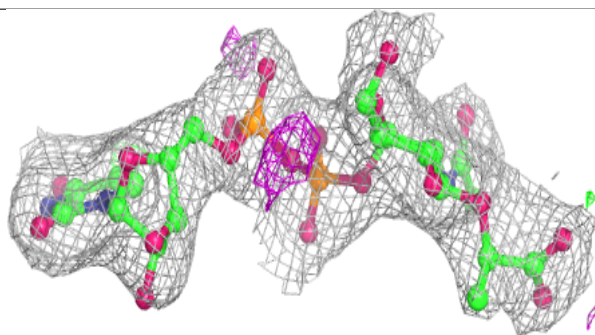**Electron density around EPZ G 501:**

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
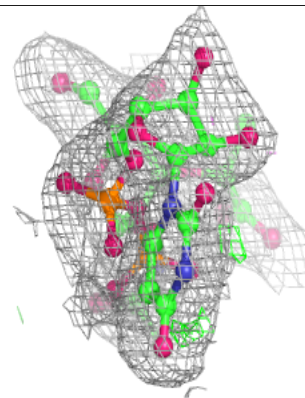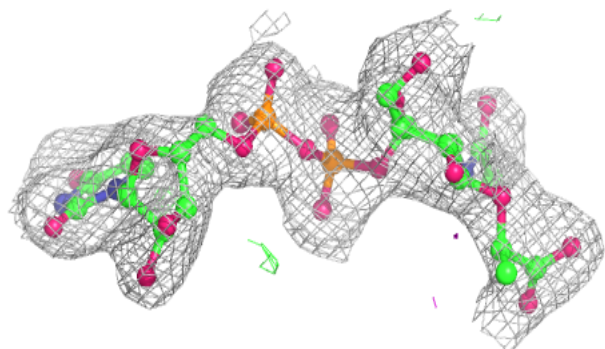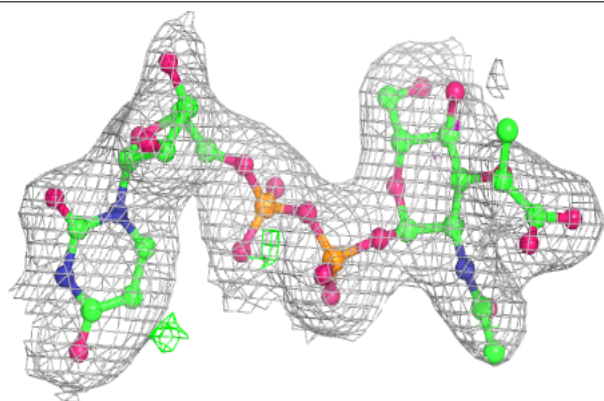
Electron density around EPZ L 501:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
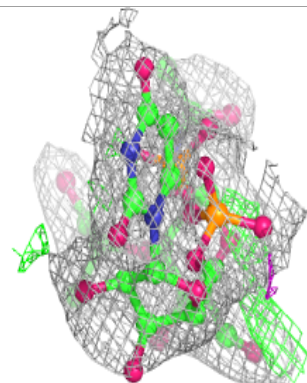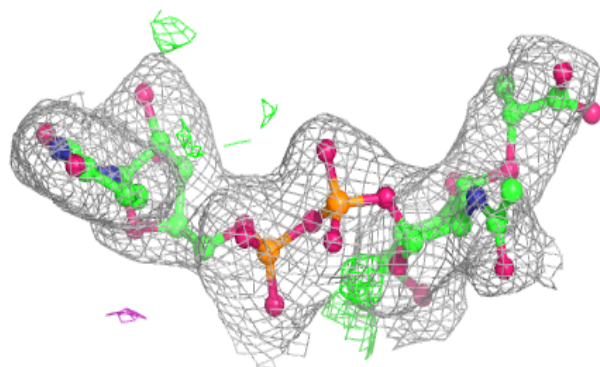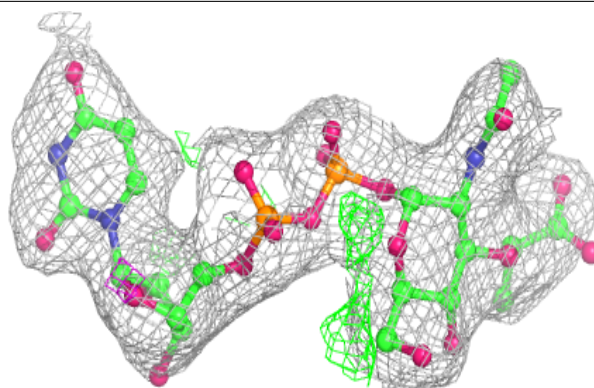
Electron density around EPZ D 501:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
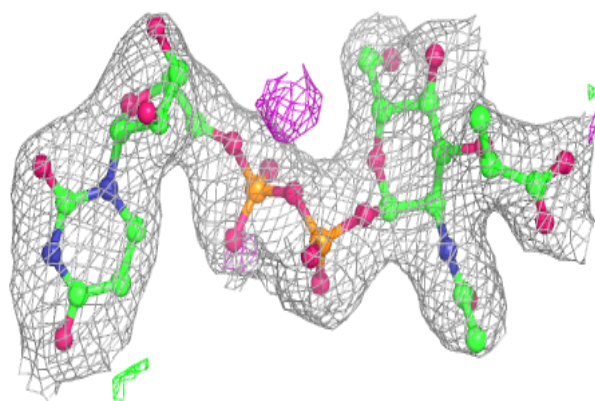$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
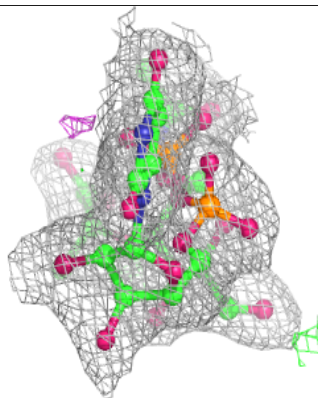and green (positive)
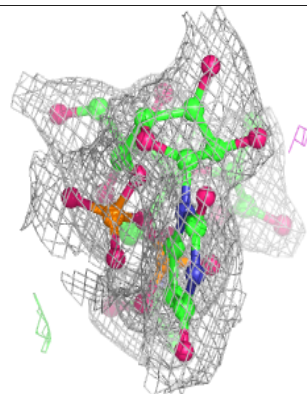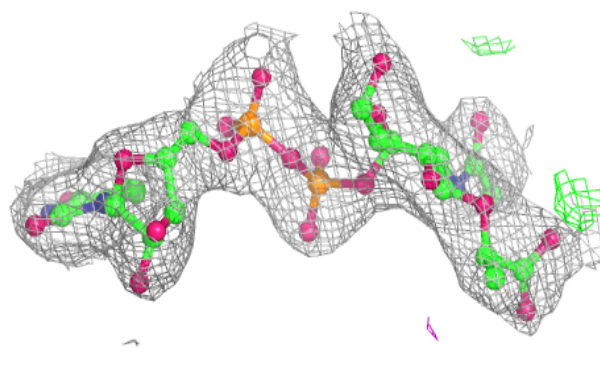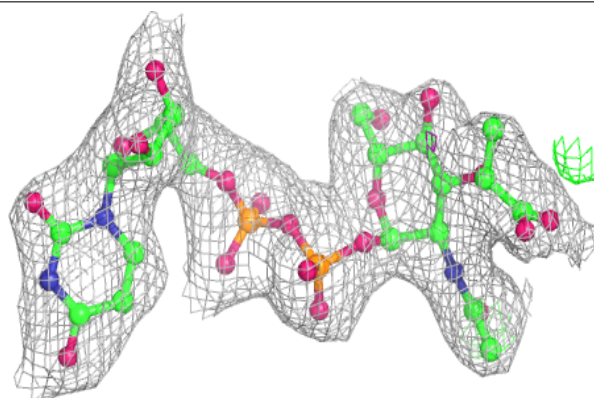
Electron density around EPZ A 501:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
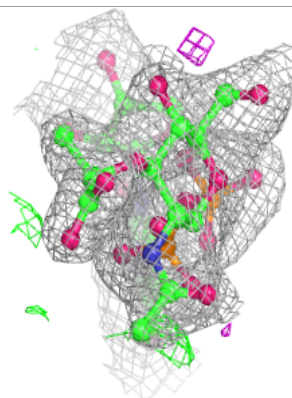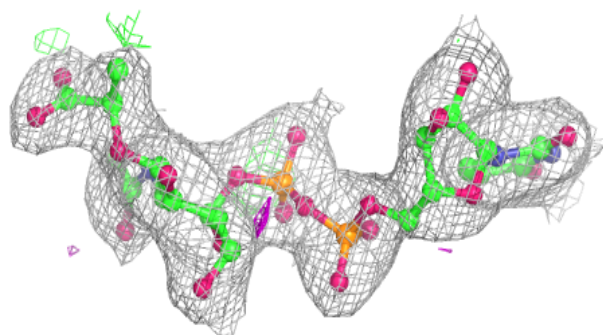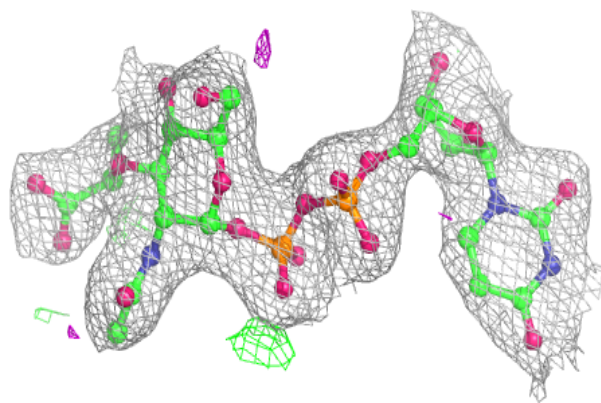
Electron density around EPZ H 501:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
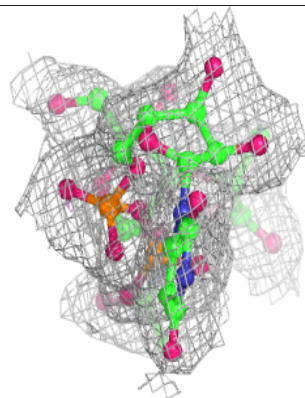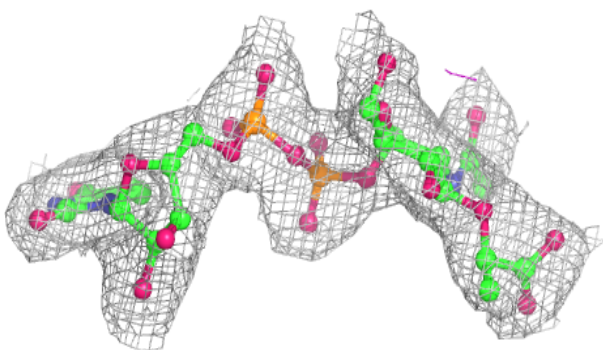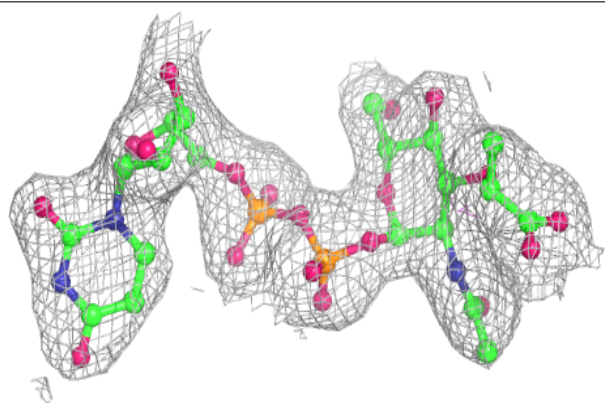
Electron density around EPZ B 501:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
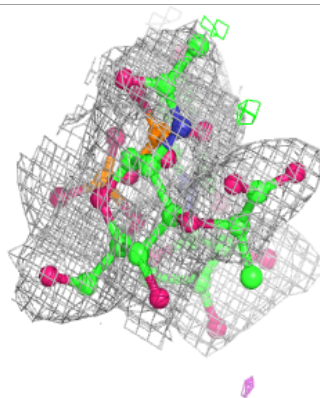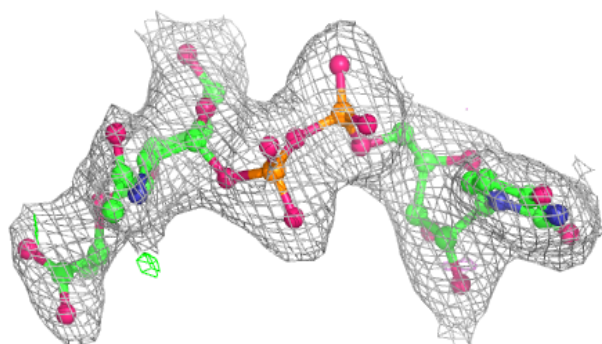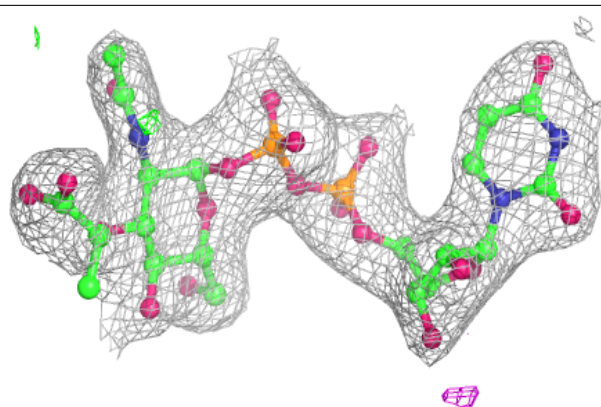
Electron density around EPZ J 501:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
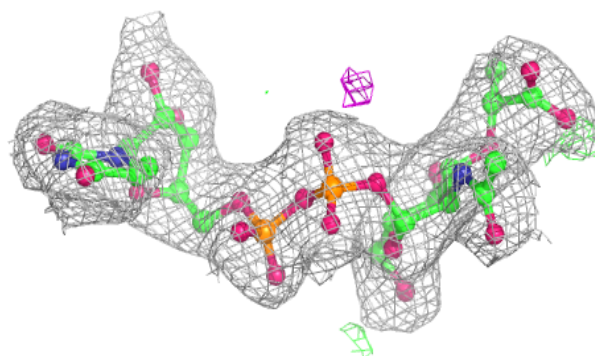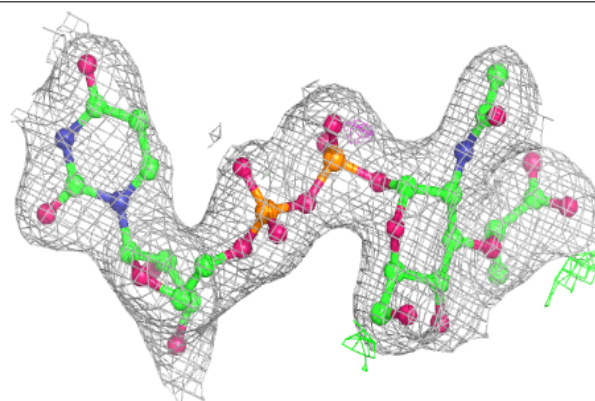and green (positive)
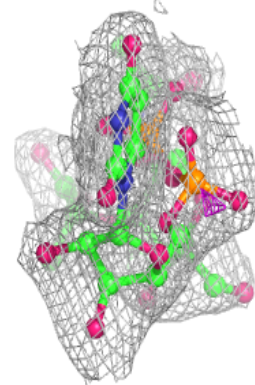
Electron density around EPZ K 501:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

Electron density around EPZ C 501:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

Electron density around EPZ E 501:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

Electron density around EPZ F 501:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

6.5 Other polymers ⓘ

There are no such residues in this entry.