



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 27, 2023 – 01:56 AM EDT

PDB ID : 3G1H
Title : Crystal structure of orotidine 5'-monophosphate decarboxylase from Methanobacterium thermoautotrophicum complexed with 5,6-dihydrouridine 5'-monophosphate
Authors : Fedorov, A.A.; Fedorov, E.V.; Chan, K.K.; Gerlt, J.A.; Almo, S.C.
Deposited on : 2009-01-29
Resolution : 2.30 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-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

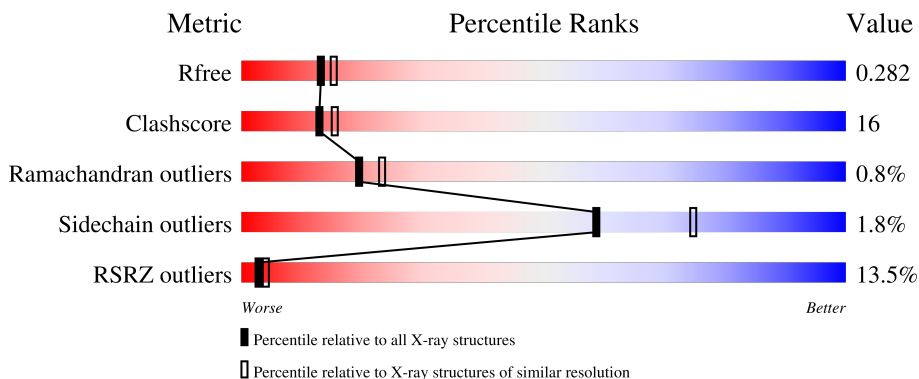
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.30 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	5042 (2.30-2.30)
Clashscore	141614	5643 (2.30-2.30)
Ramachandran outliers	138981	5575 (2.30-2.30)
Sidechain outliers	138945	5575 (2.30-2.30)
RSRZ outliers	127900	4938 (2.30-2.30)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	228	
1	B	228	
1	C	228	
1	D	228	

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Mol	Chain	Length	Quality of chain
1	E	228	
1	F	228	
1	G	228	
1	H	228	
1	I	228	
1	J	228	
1	K	228	
1	L	228	
1	M	228	

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 21877 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 Orotidine 5'-phosphate decarboxylase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	221	Total 1679	C 1054	N 295	O 318	S 12	0	0	0
1	B	216	Total 1638	C 1029	N 287	O 311	S 11	0	0	0
1	C	218	Total 1653	C 1039	N 289	O 313	S 12	0	0	0
1	D	215	Total 1630	C 1025	N 286	O 308	S 11	0	0	0
1	E	217	Total 1646	C 1034	N 288	O 312	S 12	0	0	0
1	F	217	Total 1646	C 1034	N 288	O 312	S 12	0	0	0
1	G	217	Total 1646	C 1034	N 288	O 312	S 12	0	0	0
1	H	216	Total 1638	C 1029	N 287	O 311	S 11	0	0	0
1	I	212	Total 1607	C 1011	N 282	O 304	S 10	0	0	0
1	J	218	Total 1653	C 1039	N 289	O 313	S 12	0	0	0
1	K	216	Total 1638	C 1029	N 287	O 311	S 11	0	0	0
1	L	216	Total 1638	C 1029	N 287	O 311	S 11	0	0	0
1	M	217	Total 1646	C 1034	N 288	O 312	S 12	0	0	0

There are 13 discrepancies between the modelled and reference sequences:

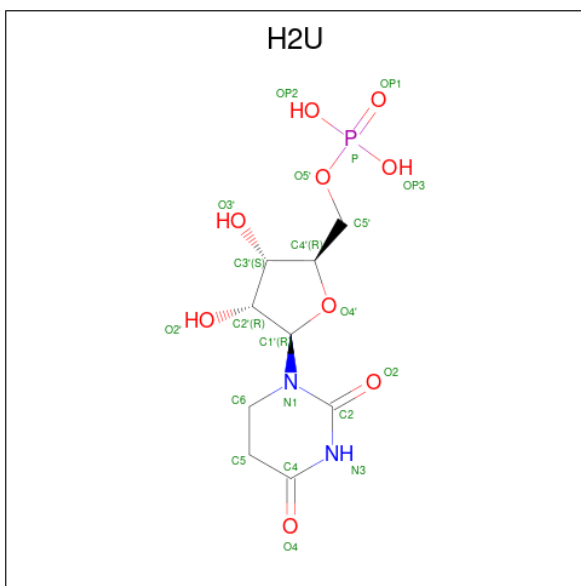
Chain	Residue	Modelled	Actual	Comment	Reference
A	101	PRO	ARG	engineered mutation	UNP O26232
B	101	PRO	ARG	engineered mutation	UNP O26232
C	101	PRO	ARG	engineered mutation	UNP O26232

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Chain	Residue	Modelled	Actual	Comment	Reference
D	101	PRO	ARG	engineered mutation	UNP O26232
E	101	PRO	ARG	engineered mutation	UNP O26232
F	101	PRO	ARG	engineered mutation	UNP O26232
G	101	PRO	ARG	engineered mutation	UNP O26232
H	101	PRO	ARG	engineered mutation	UNP O26232
I	101	PRO	ARG	engineered mutation	UNP O26232
J	101	PRO	ARG	engineered mutation	UNP O26232
K	101	PRO	ARG	engineered mutation	UNP O26232
L	101	PRO	ARG	engineered mutation	UNP O26232
M	101	PRO	ARG	engineered mutation	UNP O26232

- Molecule 2 is 5,6-DIHYDROURIDINE-5'-MONOPHOSPHATE (three-letter code: H2U) (formula: C₉H₁₅N₂O₉P).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
2	A	1	Total	C	N	O	P	0	0
			21	9	2	9	1		
2	B	1	Total	C	N	O	P	0	0
			21	9	2	9	1		
2	C	1	Total	C	N	O	P	0	0
			21	9	2	9	1		
2	D	1	Total	C	N	O	P	0	0
			21	9	2	9	1		
2	E	1	Total	C	N	O	P	0	0
			21	9	2	9	1		
2	F	1	Total	C	N	O	P	0	0
			21	9	2	9	1		

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	G	1	Total	C	N	O	P	0	0
			21	9	2	9	1		
2	H	1	Total	C	N	O	P	0	0
			21	9	2	9	1		
2	I	1	Total	C	N	O	P	0	0
			21	9	2	9	1		
2	J	1	Total	C	N	O	P	0	0
			21	9	2	9	1		
2	K	1	Total	C	N	O	P	0	0
			21	9	2	9	1		
2	L	1	Total	C	N	O	P	0	0
			21	9	2	9	1		
2	M	1	Total	C	N	O	P	0	0
			21	9	2	9	1		

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	45	Total	O	0	0
			45	45		
3	B	26	Total	O	0	0
			26	26		
3	C	44	Total	O	0	0
			44	44		
3	D	26	Total	O	0	0
			26	26		
3	E	9	Total	O	0	0
			9	9		
3	F	10	Total	O	0	0
			10	10		
3	G	7	Total	O	0	0
			7	7		
3	H	3	Total	O	0	0
			3	3		
3	I	14	Total	O	0	0
			14	14		
3	J	27	Total	O	0	0
			27	27		
3	K	4	Total	O	0	0
			4	4		
3	L	1	Total	O	0	0
			1	1		

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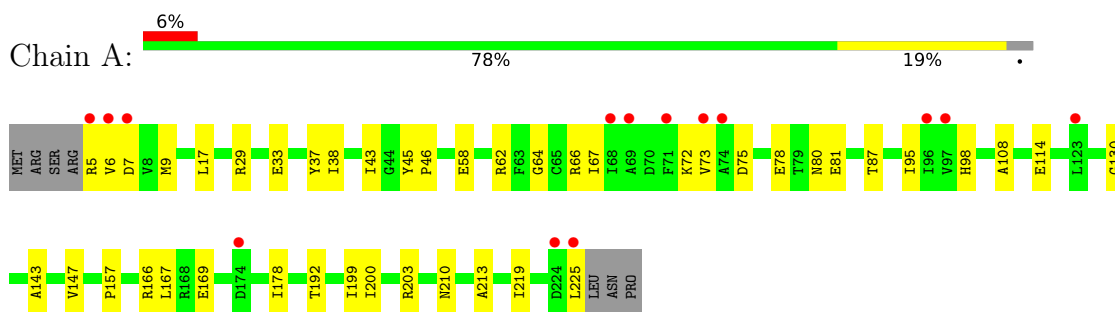
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	M	30	Total	O	0	0
			30	30		

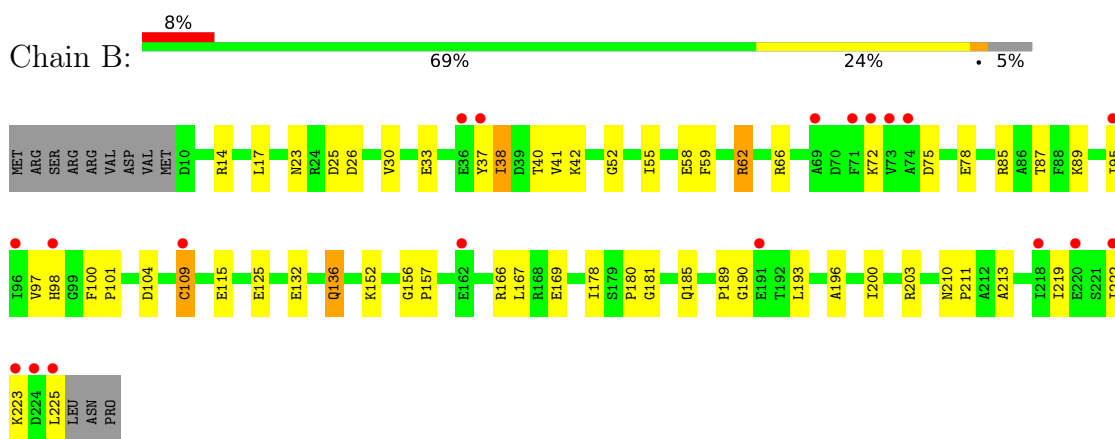
3 Residue-property plots [i](#)

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

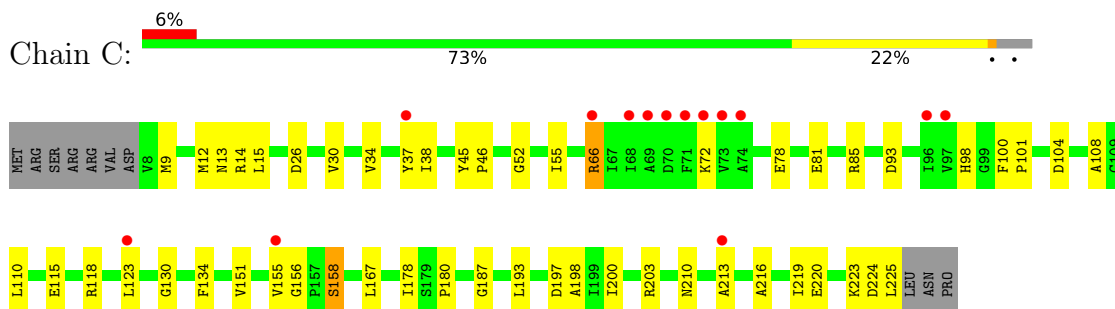
- Molecule 1: Orotidine 5'-phosphate decarboxylase



- Molecule 1: Orotidine 5'-phosphate decarboxylase

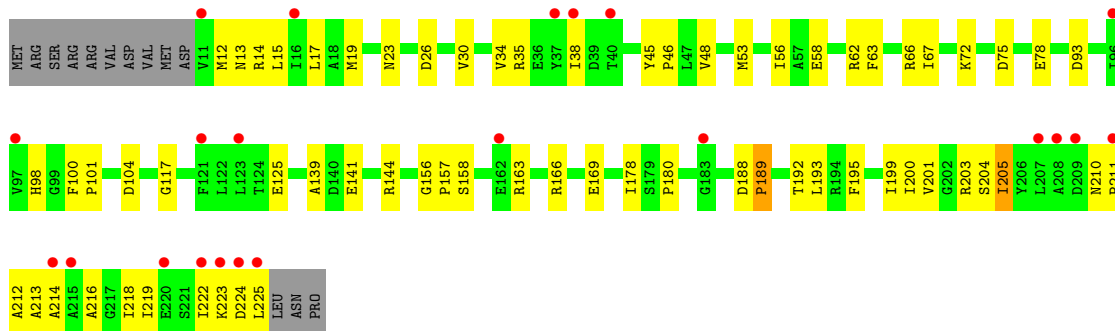


- Molecule 1: Orotidine 5'-phosphate decarboxylase



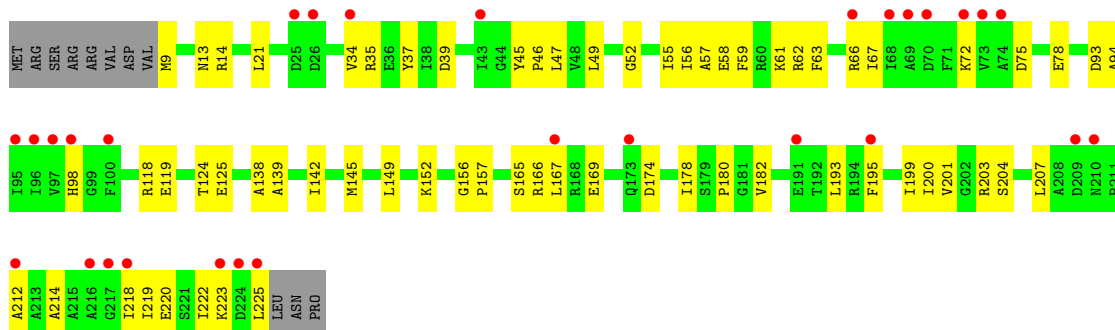
- Molecule 1: Orotidine 5'-phosphate decarboxylase

Chain D: 



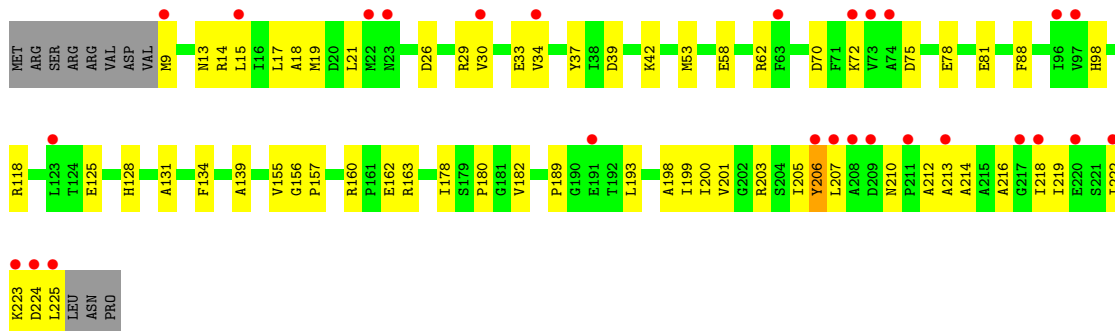
• Molecule 1: Orotidine 5'-phosphate decarboxylase

Chain E: 



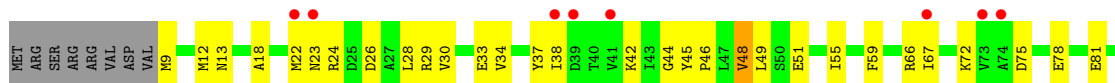
• Molecule 1: Orotidine 5'-phosphate decarboxylase

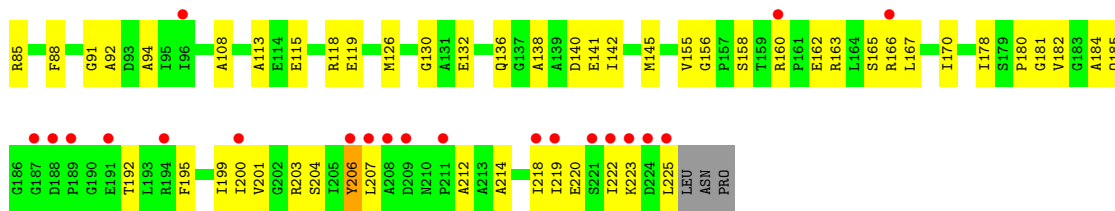
Chain F: 



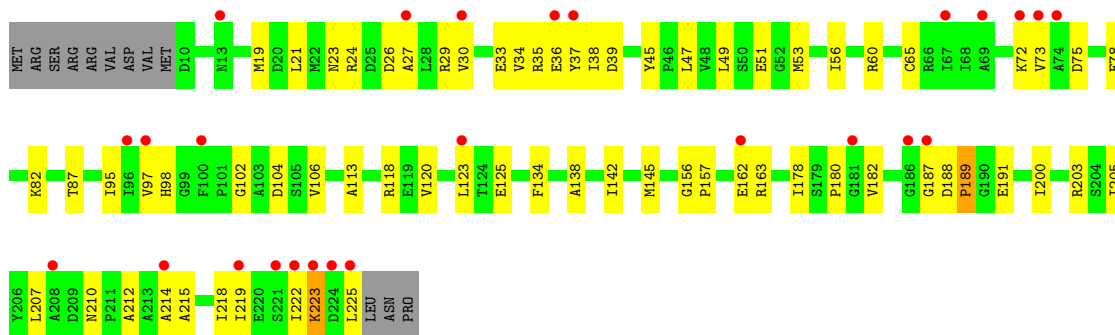
• Molecule 1: Orotidine 5'-phosphate decarboxylase

Chain G: 

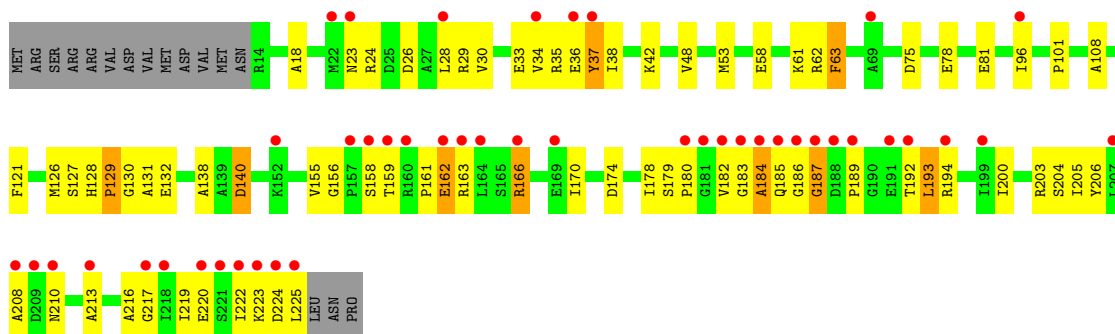




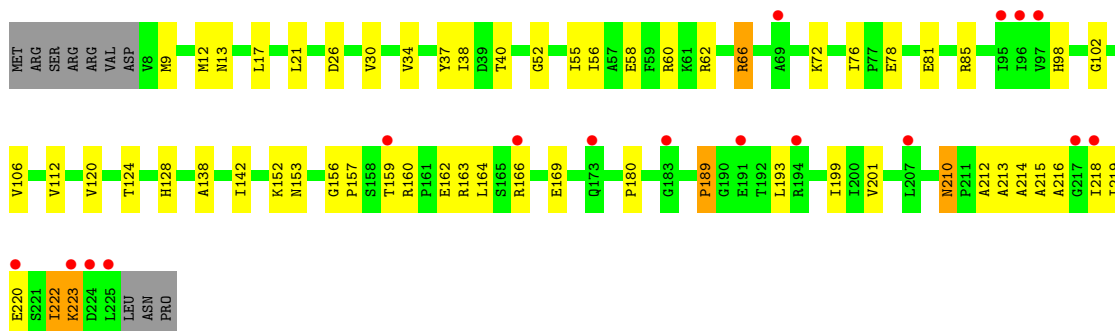
● Molecule 1: Orotidine 5'-phosphate decarboxylase



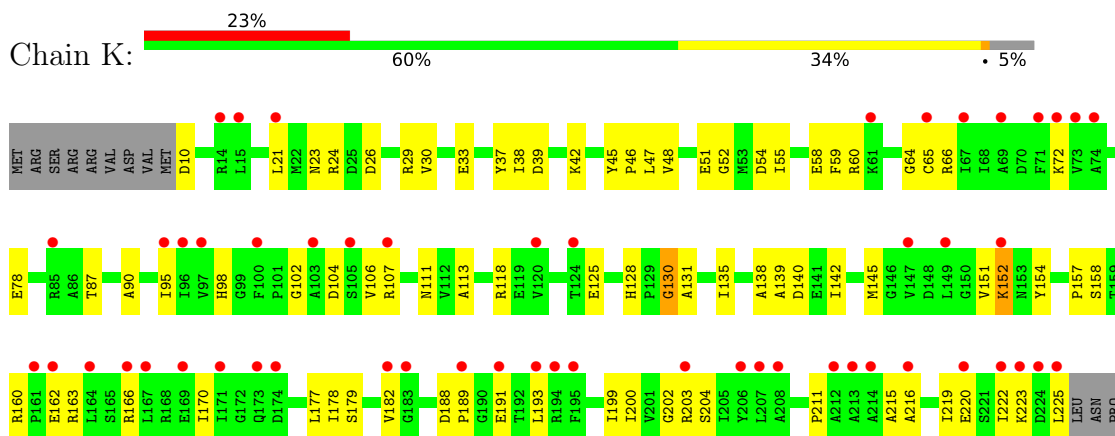
● Molecule 1: Orotidine 5'-phosphate decarboxylase



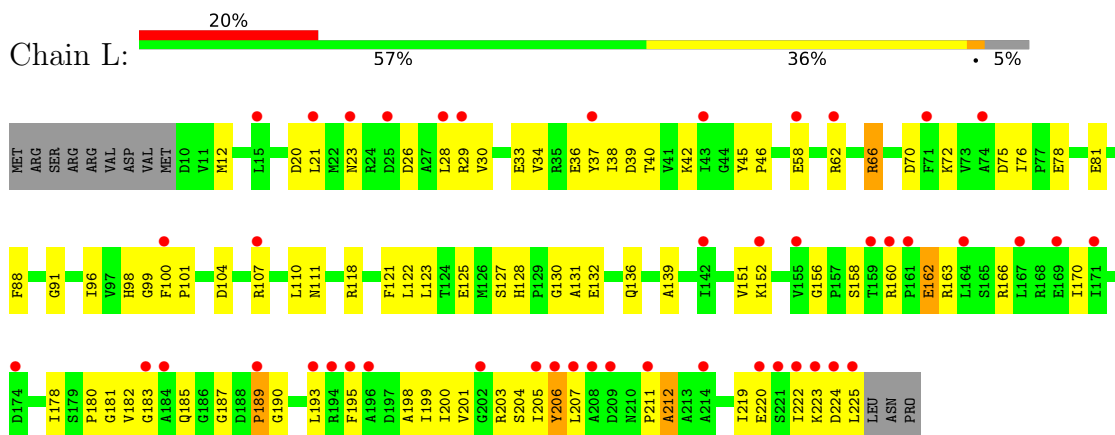
● Molecule 1: Orotidine 5'-phosphate decarboxylase



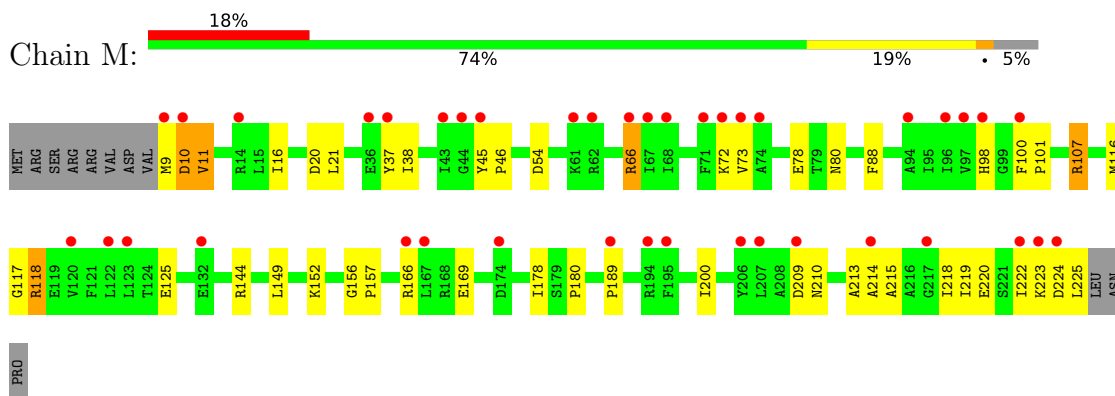
- Molecule 1: Orotidine 5'-phosphate decarboxylase



- Molecule 1: Orotidine 5'-phosphate decarboxylase



- Molecule 1: Orotidine 5'-phosphate decarboxylase



4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	147.90Å 101.80Å 192.83Å 90.00° 91.59° 90.00°	Depositor
Resolution (Å)	24.76 – 2.30 39.92 – 2.09	Depositor EDS
% Data completeness (in resolution range)	100.0 (24.76-2.30) 96.7 (39.92-2.09)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.05 (at 2.10Å)	Xtrriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.243 , 0.285 0.237 , 0.282	Depositor DCC
R_{free} test set	8123 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å ²)	45.5	Xtrriage
Anisotropy	0.292	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 53.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	0.009 for -h,-k,l	Xtrriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	21877	wwPDB-VP
Average B, all atoms (Å ²)	63.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.67% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: H2U

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	0.47	0/1702	0.70	1/2296 (0.0%)
1	B	0.48	1/1661 (0.1%)	0.63	0/2241
1	C	0.45	0/1676	0.65	0/2261
1	D	0.42	0/1653	0.62	0/2230
1	E	0.34	0/1669	0.58	0/2251
1	F	0.38	0/1669	0.60	0/2251
1	G	0.33	0/1669	0.57	0/2251
1	H	0.34	0/1661	0.56	0/2241
1	I	0.34	0/1630	0.59	0/2199
1	J	0.38	0/1676	0.60	0/2261
1	K	0.30	0/1661	0.52	0/2241
1	L	0.30	0/1661	0.52	0/2241
1	M	0.53	1/1669 (0.1%)	1.27	6/2251 (0.3%)
All	All	0.40	2/21657 (0.0%)	0.67	7/29215 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	109	CYS	CB-SG	7.00	1.94	1.82
1	M	11	VAL	CB-CG2	5.01	1.63	1.52

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	M	144	ARG	NE-CZ-NH1	-29.35	105.63	120.30
1	M	66	ARG	CA-CB-CG	26.22	171.07	113.40
1	M	144	ARG	NE-CZ-NH2	24.90	132.75	120.30
1	M	118	ARG	CG-CD-NE	18.51	150.67	111.80
1	M	144	ARG	CD-NE-CZ	13.57	142.60	123.60
1	M	144	ARG	CG-CD-NE	-7.40	96.26	111.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	167	LEU	CA-CB-CG	5.84	128.73	115.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1679	0	1695	36	0
1	B	1638	0	1651	54	0
1	C	1653	0	1669	48	0
1	D	1630	0	1647	60	0
1	E	1646	0	1660	53	0
1	F	1646	0	1660	55	0
1	G	1646	0	1660	75	0
1	H	1638	0	1651	53	0
1	I	1607	0	1623	75	0
1	J	1653	0	1669	55	0
1	K	1638	0	1651	67	1
1	L	1638	0	1651	84	0
1	M	1646	0	1660	44	0
2	A	21	0	13	0	0
2	B	21	0	13	0	0
2	C	21	0	13	1	0
2	D	21	0	13	2	0
2	E	21	0	13	0	0
2	F	21	0	13	1	0
2	G	21	0	13	1	0
2	H	21	0	13	0	0
2	I	21	0	13	2	0
2	J	21	0	13	0	0
2	K	21	0	13	0	0
2	L	21	0	13	0	0
2	M	21	0	13	2	0
3	A	45	0	0	0	0
3	B	26	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	C	44	0	0	2	0
3	D	26	0	0	1	0
3	E	9	0	0	2	0
3	F	10	0	0	0	0
3	G	7	0	0	0	0
3	H	3	0	0	1	0
3	I	14	0	0	3	0
3	J	27	0	0	1	0
3	K	4	0	0	0	0
3	L	1	0	0	0	0
3	M	30	0	0	5	0
All	All	21877	0	21716	713	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 16.

All (713) 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:M:116:MET:HE2	3:M:248:HOH:O	1.40	1.18
1:J:58:GLU:HG2	1:J:62:ARG:HD2	1.43	0.99
1:B:23:ASN:HD22	1:B:26:ASP:H	1.05	0.98
1:A:5:ARG:HG3	1:A:6:VAL:H	1.30	0.96
1:K:189:PRO:HB3	1:K:222:ILE:HD11	1.52	0.91
1:B:23:ASN:ND2	1:B:26:ASP:H	1.67	0.90
1:F:34:VAL:HG12	1:F:212:ALA:HA	1.57	0.86
1:G:222:ILE:HG23	1:G:225:LEU:HD12	1.56	0.85
1:G:34:VAL:HG12	1:G:212:ALA:HA	1.59	0.84
1:M:116:MET:CE	3:M:248:HOH:O	2.11	0.82
1:H:163:ARG:HA	1:H:163:ARG:HH11	1.45	0.81
1:I:156:GLY:O	1:I:180:PRO:HD2	1.80	0.81
1:J:163:ARG:HH11	1:J:163:ARG:HA	1.47	0.80
1:C:15:LEU:HD22	1:C:38:ILE:HG21	1.63	0.80
1:E:78:GLU:HG2	1:F:203:ARG:HH12	1.48	0.78
1:H:189:PRO:HB3	1:H:222:ILE:HD11	1.66	0.78
1:I:155:VAL:HG22	1:I:178:ILE:HD11	1.67	0.78
1:M:9:MET:HG3	1:M:9:MET:O	1.84	0.77
1:M:189:PRO:HB3	1:M:222:ILE:HD11	1.66	0.77
1:E:78:GLU:HG2	1:F:203:ARG:NH1	1.99	0.76
1:I:61:LYS:HD2	3:I:247:HOH:O	1.84	0.76
1:H:73:VAL:HB	1:H:97:VAL:HG13	1.68	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:219:ILE:HG22	1:J:223:LYS:NZ	2.02	0.74
1:A:37:TYR:HB3	1:A:219:ILE:CD1	2.15	0.74
1:F:131:ALA:HB3	1:F:160:ARG:HH22	1.53	0.74
1:G:26:ASP:HA	1:G:29:ARG:HH12	1.52	0.73
1:G:220:GLU:OE1	1:G:223:LYS:HD3	1.88	0.73
1:I:220:GLU:OE1	1:I:223:LYS:HD3	1.88	0.73
1:H:205:ILE:HD11	1:H:218:ILE:HD12	1.70	0.73
1:K:26:ASP:HA	1:K:29:ARG:NH1	2.04	0.73
1:I:183:GLY:HA3	1:I:204:SER:OG	1.89	0.72
1:D:30:VAL:HG13	1:D:211:PRO:HB3	1.70	0.72
1:E:203:ARG:NH1	1:F:78:GLU:HG2	2.05	0.72
1:K:72:LYS:HB3	1:K:98:HIS:CD2	2.24	0.72
1:B:189:PRO:HB3	1:B:222:ILE:HD11	1.71	0.72
1:B:210:ASN:ND2	1:B:213:ALA:HB2	2.04	0.72
1:E:203:ARG:HH12	1:F:78:GLU:HG2	1.54	0.72
1:A:5:ARG:CG	1:A:6:VAL:H	2.02	0.72
1:I:219:ILE:O	1:I:223:LYS:HG3	1.90	0.72
1:K:26:ASP:HA	1:K:29:ARG:HH12	1.55	0.72
1:B:23:ASN:HD22	1:B:26:ASP:N	1.84	0.71
1:I:189:PRO:HB3	1:I:222:ILE:HD11	1.70	0.71
1:I:162:GLU:HA	3:I:230:HOH:O	1.89	0.71
1:B:33:GLU:HG3	3:B:239:HOH:O	1.89	0.71
1:H:163:ARG:HA	1:H:163:ARG:NH1	2.05	0.71
1:D:178:ILE:HD12	1:D:200:ILE:HD11	1.72	0.71
1:H:35:ARG:NH1	1:H:39:ASP:HA	2.06	0.71
1:M:220:GLU:OE1	1:M:223:LYS:HD3	1.92	0.70
1:G:115:GLU:O	1:G:115:GLU:HG2	1.89	0.70
1:L:201:VAL:HG13	1:L:204:SER:HB2	1.73	0.70
1:D:125:GLU:HB3	1:D:157:PRO:HD3	1.73	0.70
1:K:102:GLY:O	1:K:106:VAL:HG23	1.91	0.69
1:H:156:GLY:O	1:H:180:PRO:HD2	1.92	0.69
1:K:10:ASP:HB3	1:K:66:ARG:HH12	1.57	0.69
1:G:178:ILE:HD12	1:G:200:ILE:HD11	1.73	0.69
1:F:37:TYR:HB3	1:F:219:ILE:HD11	1.73	0.69
1:D:144:ARG:HH12	1:D:166:ARG:NH2	1.91	0.69
1:G:26:ASP:HA	1:G:29:ARG:NH1	2.08	0.68
1:I:184:ALA:HB1	1:I:203:ARG:HE	1.58	0.68
1:J:220:GLU:HA	1:J:223:LYS:HG2	1.75	0.68
1:M:210:ASN:ND2	1:M:213:ALA:HB2	2.08	0.68
1:B:23:ASN:HB3	1:B:26:ASP:HB2	1.74	0.68
1:L:180:PRO:HB3	1:L:200:ILE:HD12	1.74	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:10:ASP:OD2	1:M:11:VAL:O	2.09	0.68
1:A:37:TYR:HB3	1:A:219:ILE:HD12	1.75	0.68
1:G:166:ARG:O	1:G:170:ILE:HG13	1.94	0.68
1:E:35:ARG:NH1	1:E:39:ASP:HA	2.08	0.68
1:H:178:ILE:HD12	1:H:200:ILE:HD11	1.75	0.67
1:L:203:ARG:HB3	1:L:207:LEU:HD12	1.77	0.67
1:F:223:LYS:C	1:F:225:LEU:H	1.97	0.67
1:I:48:VAL:HG11	1:I:53:MET:SD	2.34	0.67
1:D:205:ILE:HD11	1:D:218:ILE:HD12	1.75	0.67
1:M:219:ILE:O	1:M:223:LYS:HG3	1.94	0.67
1:E:9:MET:HB2	3:E:249:HOH:O	1.93	0.67
1:B:210:ASN:HD22	1:B:213:ALA:HB2	1.60	0.66
1:H:182:VAL:HA	1:H:187:GLY:HA3	1.76	0.66
1:H:38:ILE:HD12	1:H:38:ILE:O	1.96	0.66
1:I:180:PRO:HB3	1:I:200:ILE:HD12	1.76	0.66
1:G:49:LEU:HD22	1:H:53:MET:SD	2.36	0.66
1:B:178:ILE:HD12	1:B:200:ILE:HD11	1.76	0.66
1:G:113:ALA:HB1	1:G:118:ARG:O	1.95	0.65
1:I:158:SER:HB2	1:I:179:SER:C	2.17	0.65
1:J:37:TYR:CZ	1:J:216:ALA:HB2	2.31	0.65
1:K:104:ASP:OD1	1:L:130:GLY:HA3	1.96	0.65
1:J:38:ILE:HD12	1:J:40:THR:O	1.96	0.65
1:L:152:LYS:NZ	1:L:152:LYS:HB3	2.12	0.65
1:L:21:LEU:HD23	1:L:26:ASP:HB3	1.79	0.64
1:H:182:VAL:HG13	1:H:187:GLY:O	1.97	0.64
1:I:58:GLU:O	1:I:62:ARG:HG2	1.97	0.64
1:F:58:GLU:O	1:F:62:ARG:HB2	1.97	0.64
1:J:124:THR:HG22	1:J:142:ILE:HG22	1.78	0.64
1:M:10:ASP:OD2	1:M:11:VAL:N	2.31	0.64
1:C:110:LEU:HD21	1:C:151:VAL:HG22	1.79	0.64
1:I:180:PRO:HA	1:I:200:ILE:HB	1.79	0.63
1:G:24:ARG:HB2	1:G:51:GLU:HG3	1.79	0.63
1:J:81:GLU:HG3	1:J:112:VAL:CG2	2.28	0.63
1:C:210:ASN:HD22	1:C:213:ALA:HB2	1.63	0.63
1:L:201:VAL:CG1	1:L:204:SER:HB2	2.29	0.63
1:L:34:VAL:HG13	1:L:211:PRO:O	1.99	0.63
1:H:37:TYR:HB3	1:H:219:ILE:HD11	1.81	0.63
1:I:159:THR:O	1:I:161:PRO:HD3	1.99	0.63
1:I:159:THR:HG21	1:I:185:GLN:HE21	1.63	0.62
1:J:17:LEU:HB3	1:J:38:ILE:CD1	2.30	0.62
1:K:42:LYS:HD3	1:K:200:ILE:HD13	1.80	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:81:GLU:HG3	1:A:108:ALA:HB1	1.80	0.62
1:C:26:ASP:O	1:C:30:VAL:HG23	2.00	0.62
1:D:201:VAL:CG1	1:D:204:SER:HB2	2.30	0.61
1:K:23:ASN:ND2	1:K:26:ASP:H	1.97	0.61
1:A:225:LEU:HD22	1:A:225:LEU:H	1.65	0.61
1:F:156:GLY:O	1:F:180:PRO:HD2	2.00	0.61
1:L:26:ASP:O	1:L:30:VAL:HG23	2.00	0.61
1:D:144:ARG:HH12	1:D:166:ARG:HH21	1.45	0.61
1:D:100:PHE:CG	1:D:101:PRO:HD3	2.36	0.61
1:I:216:ALA:O	1:I:220:GLU:HG2	2.01	0.61
1:G:24:ARG:O	1:G:28:LEU:HG	2.01	0.61
1:D:219:ILE:O	1:D:223:LYS:HG3	2.01	0.61
1:C:37:TYR:CE2	1:C:216:ALA:HB2	2.36	0.61
1:G:141:GLU:HG2	1:H:134:PHE:HE2	1.65	0.60
1:I:29:ARG:O	1:I:33:GLU:HG3	2.01	0.60
1:K:178:ILE:HD12	1:K:200:ILE:HD11	1.82	0.60
1:F:131:ALA:HB3	1:F:160:ARG:NH2	2.15	0.60
1:K:188:ASP:HB3	1:K:191:GLU:HB3	1.83	0.60
1:L:42:LYS:HE2	1:L:70:ASP:OD2	2.01	0.60
1:J:220:GLU:HA	1:J:223:LYS:CG	2.32	0.60
1:E:118:ARG:CZ	1:G:118:ARG:HH21	2.14	0.60
1:J:72:LYS:HB3	1:J:98:HIS:CD2	2.37	0.60
1:B:17:LEU:CB	1:B:38:ILE:HD13	2.31	0.59
1:D:139:ALA:HB3	1:D:163:ARG:HH21	1.67	0.59
1:I:182:VAL:HA	1:I:186:GLY:O	2.02	0.59
1:A:72:LYS:HB3	1:A:98:HIS:CD2	2.37	0.59
1:L:128:HIS:CE1	1:L:131:ALA:HB2	2.37	0.59
1:G:23:ASN:ND2	1:G:26:ASP:OD2	2.35	0.59
1:G:92:ALA:O	1:G:118:ARG:HD3	2.02	0.59
1:C:178:ILE:HD12	1:C:200:ILE:HD11	1.84	0.59
1:E:214:ALA:O	1:E:218:ILE:HG13	2.03	0.59
1:G:142:ILE:O	1:G:145:MET:HB3	2.02	0.59
1:M:37:TYR:HB3	1:M:219:ILE:HD11	1.83	0.59
1:E:220:GLU:OE1	1:E:223:LYS:HD2	2.02	0.59
1:J:17:LEU:CB	1:J:38:ILE:HD13	2.32	0.59
1:M:117:GLY:O	1:M:118:ARG:NH1	2.35	0.59
1:D:26:ASP:O	1:D:30:VAL:HG23	2.02	0.58
1:G:132:GLU:HG2	1:G:136:GLN:NE2	2.17	0.58
1:L:127:SER:HA	1:L:160:ARG:HH12	1.67	0.58
1:A:62:ARG:HG2	1:A:62:ARG:HH11	1.67	0.58
1:A:178:ILE:HD12	1:A:200:ILE:HD11	1.83	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:215:ALA:O	1:H:219:ILE:HG13	2.03	0.58
1:C:66:ARG:HG3	1:C:66:ARG:HH11	1.68	0.58
1:I:24:ARG:O	1:I:28:LEU:HD13	2.03	0.58
1:C:156:GLY:O	1:C:180:PRO:HD2	2.04	0.58
1:E:145:MET:O	1:E:149:LEU:HG	2.04	0.58
1:C:210:ASN:ND2	1:C:213:ALA:HB2	2.19	0.58
1:L:118:ARG:HG2	1:L:118:ARG:HH11	1.69	0.58
1:D:34:VAL:HG12	1:D:212:ALA:HA	1.85	0.57
1:K:158:SER:HB2	1:K:179:SER:OG	2.04	0.57
1:F:72:LYS:HB3	1:F:98:HIS:CD2	2.39	0.57
1:L:156:GLY:O	1:L:180:PRO:HD2	2.04	0.57
1:M:156:GLY:O	1:M:180:PRO:HD2	2.03	0.57
1:B:132:GLU:HG2	1:B:136:GLN:NE2	2.20	0.57
1:B:190:GLY:HA2	1:B:225:LEU:HD21	1.85	0.57
1:E:13:ASN:HD22	1:E:219:ILE:HG23	1.69	0.57
1:F:125:GLU:HB3	1:F:157:PRO:HD3	1.85	0.57
1:G:37:TYR:HB3	1:G:219:ILE:HD11	1.84	0.57
1:I:158:SER:HB2	1:I:179:SER:O	2.03	0.57
1:K:37:TYR:HB3	1:K:219:ILE:HD11	1.84	0.57
1:E:152:LYS:NZ	1:E:152:LYS:HB3	2.19	0.57
1:K:21:LEU:O	1:K:47:LEU:HD13	2.04	0.57
1:G:141:GLU:HG2	1:H:134:PHE:CE2	2.39	0.57
1:I:127:SER:HB3	1:I:159:THR:OG1	2.05	0.57
1:K:23:ASN:HD22	1:K:26:ASP:CG	2.07	0.57
1:L:220:GLU:OE1	1:L:223:LYS:HD3	2.05	0.56
1:G:55:ILE:HD11	1:G:59:PHE:HE1	1.69	0.56
1:J:166:ARG:HG3	1:J:166:ARG:HH11	1.68	0.56
1:A:43:ILE:HD12	1:A:67:ILE:HD12	1.88	0.56
1:B:219:ILE:O	1:B:223:LYS:HG3	2.04	0.56
1:E:193:LEU:HD11	1:E:222:ILE:HD12	1.87	0.56
1:F:29:ARG:HG2	1:F:33:GLU:OE2	2.05	0.56
1:L:38:ILE:C	1:L:38:ILE:HD12	2.26	0.56
1:L:189:PRO:O	1:L:193:LEU:HG	2.06	0.56
1:E:118:ARG:NH2	1:G:118:ARG:HE	2.03	0.56
1:H:56:ILE:O	1:H:60:ARG:HG3	2.06	0.56
1:I:158:SER:HB3	1:I:180:PRO:O	2.05	0.56
1:A:203:ARG:NH1	1:B:78:GLU:HG2	2.20	0.56
1:J:120:VAL:O	1:J:153:ASN:HB2	2.05	0.56
1:C:14:ARG:NH2	1:M:209:ASP:OD1	2.38	0.56
1:D:201:VAL:HG13	1:D:204:SER:HB2	1.88	0.56
1:D:56:ILE:HG23	1:D:67:ILE:HG21	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:21:LEU:O	1:E:47:LEU:HD13	2.06	0.56
1:A:203:ARG:HH12	1:B:78:GLU:HG2	1.72	0.55
1:B:38:ILE:HD11	1:B:41:VAL:HG22	1.88	0.55
1:L:193:LEU:HD12	1:L:225:LEU:HD12	1.88	0.55
1:J:156:GLY:O	1:J:180:PRO:HD2	2.07	0.55
1:K:38:ILE:C	1:K:38:ILE:HD12	2.26	0.55
1:L:219:ILE:O	1:L:223:LYS:HG3	2.06	0.55
1:E:125:GLU:O	1:E:157:PRO:HD3	2.06	0.55
1:D:12:MET:HG2	1:D:13:ASN:HD22	1.72	0.55
1:L:36:GLU:HG3	1:L:37:TYR:CD1	2.41	0.55
1:C:225:LEU:N	1:C:225:LEU:HD12	2.22	0.55
1:E:61:LYS:HE3	1:G:9:MET:HA	1.87	0.55
1:K:193:LEU:CD2	1:K:199:ILE:HG23	2.37	0.55
1:H:29:ARG:HG2	1:H:33:GLU:OE2	2.07	0.55
1:L:127:SER:HA	1:L:160:ARG:NH1	2.21	0.55
1:D:139:ALA:HB3	1:D:163:ARG:NH2	2.21	0.55
1:K:130:GLY:HA3	1:L:104:ASP:OD1	2.07	0.55
1:D:72:LYS:NZ	2:D:229:H2U:H62	2.22	0.55
1:J:37:TYR:OH	1:J:216:ALA:HB2	2.07	0.55
1:J:56:ILE:O	1:J:60:ARG:HG3	2.07	0.55
1:M:10:ASP:OD2	1:M:11:VAL:C	2.45	0.54
1:M:107:ARG:NH2	1:M:149:LEU:CD2	2.69	0.54
1:A:37:TYR:HB3	1:A:219:ILE:HD11	1.89	0.54
1:C:203:ARG:NH1	1:D:78:GLU:HG2	2.22	0.54
1:K:131:ALA:HB3	1:K:160:ARG:HH22	1.73	0.54
1:J:220:GLU:C	1:J:222:ILE:H	2.09	0.54
1:L:98:HIS:CE1	1:L:123:LEU:HD23	2.43	0.54
1:M:20:ASP:HA	3:M:230:HOH:O	2.06	0.54
1:J:210:ASN:OD1	1:J:213:ALA:HB2	2.07	0.54
1:D:166:ARG:O	1:D:169:GLU:HB3	2.06	0.54
1:H:203:ARG:HB3	1:H:207:LEU:HD12	1.89	0.54
1:G:192:THR:HG21	1:G:199:ILE:HG22	1.89	0.54
1:H:23:ASN:HD21	1:H:26:ASP:CG	2.10	0.54
1:A:64:GLY:HA2	1:J:66:ARG:HE	1.73	0.54
1:C:178:ILE:HG22	1:C:198:ALA:HB3	1.90	0.53
1:L:190:GLY:HA2	1:L:193:LEU:HD12	1.90	0.53
1:D:210:ASN:OD1	1:D:213:ALA:HB2	2.09	0.53
1:F:214:ALA:O	1:F:218:ILE:HG13	2.08	0.53
1:G:132:GLU:HG3	1:G:160:ARG:NH2	2.23	0.53
1:D:193:LEU:HD12	1:D:222:ILE:HD13	1.91	0.53
1:E:166:ARG:O	1:E:169:GLU:HG2	2.08	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:203:ARG:HG2	1:E:207:LEU:CD1	2.39	0.53
1:G:34:VAL:O	1:G:38:ILE:HG12	2.08	0.53
1:A:17:LEU:HB2	1:A:38:ILE:HD13	1.89	0.53
1:G:29:ARG:HG2	1:G:33:GLU:OE2	2.09	0.53
1:I:203:ARG:HG3	2:I:229:H2U:OP2	2.09	0.53
1:A:29:ARG:HG2	1:A:33:GLU:OE2	2.09	0.53
1:C:38:ILE:HD12	1:C:38:ILE:C	2.29	0.53
1:G:24:ARG:HB2	1:G:51:GLU:CG	2.39	0.53
1:K:151:VAL:HB	1:K:154:TYR:OH	2.08	0.53
1:L:100:PHE:CG	1:L:101:PRO:HD3	2.44	0.53
1:M:9:MET:O	1:M:9:MET:CG	2.56	0.53
1:H:214:ALA:O	1:H:218:ILE:HG13	2.09	0.52
1:K:10:ASP:HB3	1:K:66:ARG:NH1	2.22	0.52
1:K:158:SER:OG	1:K:182:VAL:HG22	2.09	0.52
1:M:152:LYS:NZ	1:M:152:LYS:HB3	2.24	0.52
1:K:23:ASN:ND2	1:K:26:ASP:OD2	2.41	0.52
1:L:38:ILE:HD12	1:L:38:ILE:O	2.09	0.52
1:J:102:GLY:O	1:J:106:VAL:HG23	2.09	0.52
1:I:129:PRO:O	1:I:131:ALA:N	2.43	0.52
1:C:9:MET:HB2	3:C:300:HOH:O	2.08	0.52
1:C:72:LYS:HB3	1:C:98:HIS:CD2	2.45	0.52
1:B:23:ASN:HD21	1:B:25:ASP:HB2	1.75	0.52
1:C:85:ARG:NH1	1:C:115:GLU:OE2	2.43	0.52
1:K:189:PRO:CB	1:K:222:ILE:HD11	2.32	0.52
1:C:15:LEU:HD22	1:C:38:ILE:CG2	2.37	0.52
1:I:163:ARG:HB3	1:I:163:ARG:NH1	2.25	0.52
1:L:158:SER:HB3	1:L:182:VAL:HG13	1.91	0.52
1:L:162:GLU:N	1:L:162:GLU:OE1	2.43	0.52
1:F:37:TYR:CZ	1:F:216:ALA:HB2	2.45	0.52
1:G:59:PHE:CB	1:G:67:ILE:HD11	2.40	0.52
1:J:193:LEU:HD21	1:J:199:ILE:HG23	1.92	0.51
1:A:72:LYS:HE2	1:B:75:ASP:CG	2.30	0.51
1:B:17:LEU:HB3	1:B:38:ILE:HD13	1.91	0.51
1:E:14:ARG:HH21	1:E:193:LEU:HD22	1.75	0.51
1:H:30:VAL:O	1:H:34:VAL:HG22	2.10	0.51
1:L:158:SER:CB	1:L:182:VAL:HG13	2.40	0.51
1:E:37:TYR:HB3	1:E:219:ILE:HD11	1.92	0.51
1:J:189:PRO:HB3	1:J:222:ILE:HD11	1.93	0.51
1:L:96:ILE:HG12	1:L:121:PHE:HB2	1.92	0.51
1:E:124:THR:HG22	1:E:142:ILE:HG22	1.92	0.51
1:I:37:TYR:N	1:I:37:TYR:CD1	2.78	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:72:LYS:HB3	1:B:98:HIS:CD2	2.45	0.51
1:F:21:LEU:HD13	1:F:26:ASP:HB3	1.91	0.51
1:G:24:ARG:HB2	1:G:51:GLU:CD	2.31	0.51
1:G:206:TYR:CD1	1:G:207:LEU:HG	2.45	0.51
1:J:17:LEU:HB2	1:J:38:ILE:HD13	1.91	0.51
1:J:214:ALA:O	1:J:218:ILE:HG13	2.11	0.51
1:C:12:MET:HG2	1:C:13:ASN:ND2	2.25	0.51
1:E:201:VAL:CG1	1:E:204:SER:HB3	2.40	0.51
1:H:23:ASN:HA	1:H:51:GLU:OE2	2.11	0.51
1:I:38:ILE:O	1:I:38:ILE:HD12	2.10	0.51
1:F:193:LEU:HD12	1:F:222:ILE:HG21	1.91	0.51
1:I:121:PHE:HB3	1:I:155:VAL:HG23	1.92	0.51
1:M:166:ARG:O	1:M:169:GLU:HG2	2.10	0.51
1:E:14:ARG:NH2	1:E:193:LEU:HD22	2.26	0.50
1:E:56:ILE:HG23	1:E:67:ILE:HG21	1.94	0.50
1:F:72:LYS:NZ	2:F:229:H2U:H62	2.27	0.50
1:F:219:ILE:O	1:F:223:LYS:HB2	2.11	0.50
1:J:193:LEU:HD11	1:J:222:ILE:HD13	1.93	0.50
1:F:162:GLU:HG2	1:F:163:ARG:N	2.25	0.50
1:L:42:LYS:HD3	1:L:200:ILE:HG21	1.93	0.50
1:L:206:TYR:CE1	1:L:207:LEU:HG	2.46	0.50
1:B:210:ASN:ND2	1:B:213:ALA:CB	2.72	0.50
1:J:222:ILE:O	1:J:222:ILE:HG22	2.11	0.50
1:L:33:GLU:OE1	1:L:211:PRO:HD2	2.11	0.50
1:G:192:THR:CG2	1:G:199:ILE:HG22	2.42	0.50
1:I:183:GLY:O	1:I:184:ALA:HB2	2.11	0.50
1:K:29:ARG:O	1:K:33:GLU:HG3	2.11	0.50
1:M:38:ILE:HD12	1:M:38:ILE:C	2.32	0.50
1:E:34:VAL:HG12	1:E:212:ALA:HA	1.93	0.50
1:H:98:HIS:CE1	1:H:123:LEU:HD23	2.46	0.50
1:J:26:ASP:O	1:J:30:VAL:HG23	2.12	0.50
1:A:225:LEU:HD22	1:A:225:LEU:N	2.26	0.50
1:B:14:ARG:NH2	1:B:196:ALA:O	2.44	0.50
1:L:45:TYR:N	1:L:46:PRO:HD2	2.26	0.50
1:A:5:ARG:CG	1:A:6:VAL:N	2.73	0.50
1:F:205:ILE:HD11	1:F:218:ILE:HD12	1.94	0.50
1:D:38:ILE:O	1:D:38:ILE:HD12	2.12	0.50
1:J:166:ARG:O	1:J:169:GLU:HB3	2.12	0.50
1:L:26:ASP:HA	1:L:29:ARG:HH12	1.77	0.50
1:L:30:VAL:HG13	1:L:211:PRO:HB3	1.94	0.50
1:L:203:ARG:HA	1:L:206:TYR:CE1	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:158:SER:HB2	1:I:179:SER:HB3	1.94	0.50
1:K:87:THR:HG21	1:K:95:ILE:HD12	1.93	0.50
1:L:58:GLU:O	1:L:62:ARG:HB2	2.11	0.50
1:D:23:ASN:OD1	3:D:248:HOH:O	2.19	0.49
1:E:165:SER:HB2	1:E:195:PHE:CZ	2.48	0.49
1:F:223:LYS:C	1:F:225:LEU:N	2.65	0.49
1:I:23:ASN:ND2	1:I:26:ASP:OD2	2.44	0.49
1:M:107:ARG:NH2	1:M:149:LEU:HD23	2.28	0.49
1:F:210:ASN:HB3	1:F:213:ALA:HB3	1.94	0.49
1:G:23:ASN:HD22	1:G:26:ASP:CG	2.13	0.49
1:B:193:LEU:HD11	1:B:222:ILE:HD13	1.94	0.49
1:D:193:LEU:HG	1:D:199:ILE:HG23	1.95	0.49
1:D:222:ILE:O	1:D:225:LEU:HD13	2.11	0.49
1:K:102:GLY:HA3	1:L:130:GLY:O	2.12	0.49
1:K:128:HIS:NE2	1:L:101:PRO:O	2.42	0.49
1:K:55:ILE:HD12	1:K:58:GLU:OE1	2.12	0.49
1:G:59:PHE:HB3	1:G:67:ILE:HD11	1.94	0.49
1:K:95:ILE:O	1:K:95:ILE:HG23	2.11	0.49
1:E:66:ARG:HE	1:E:93:ASP:CG	2.16	0.49
1:F:17:LEU:HD21	1:F:19:MET:HE2	1.93	0.49
1:I:36:GLU:HB2	1:I:37:TYR:CD1	2.48	0.49
1:L:182:VAL:HG21	1:L:199:ILE:HB	1.93	0.49
1:G:214:ALA:O	1:G:218:ILE:HG13	2.13	0.49
1:I:163:ARG:HA	1:I:163:ARG:HH11	1.78	0.49
1:I:225:LEU:HD12	1:I:225:LEU:N	2.28	0.49
1:B:42:LYS:HE2	1:B:200:ILE:HG21	1.95	0.49
1:C:14:ARG:HH11	1:C:193:LEU:HD22	1.76	0.49
1:I:48:VAL:CG1	1:I:53:MET:SD	3.01	0.49
1:I:184:ALA:HB1	1:I:203:ARG:NE	2.26	0.49
1:I:224:ASP:HB3	1:I:225:LEU:HD12	1.94	0.49
1:A:192:THR:HG21	1:A:199:ILE:HG22	1.95	0.48
1:G:132:GLU:HG3	1:G:160:ARG:HH21	1.79	0.48
1:I:75:ASP:CG	1:J:72:LYS:HE2	2.33	0.48
1:M:178:ILE:HD12	1:M:200:ILE:HD11	1.95	0.48
1:H:118:ARG:HH12	1:L:91:GLY:HA2	1.77	0.48
1:D:38:ILE:HD12	1:D:38:ILE:C	2.34	0.48
1:F:155:VAL:HA	1:F:178:ILE:O	2.13	0.48
1:G:72:LYS:HE2	1:H:75:ASP:CG	2.34	0.48
1:I:128:HIS:HB3	1:J:76:ILE:HG22	1.96	0.48
1:K:154:TYR:O	1:K:177:LEU:HD12	2.13	0.48
1:L:166:ARG:O	1:L:170:ILE:HG13	2.12	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:178:ILE:HG22	1:L:198:ALA:HB3	1.96	0.48
1:L:189:PRO:HG2	1:L:190:GLY:H	1.78	0.48
1:M:9:MET:HB2	1:M:66:ARG:HH21	1.78	0.48
1:E:58:GLU:O	1:E:62:ARG:HB2	2.14	0.48
1:I:193:LEU:HD11	1:I:222:ILE:HD13	1.95	0.48
1:K:106:VAL:HG21	1:K:145:MET:CE	2.43	0.48
1:A:5:ARG:HG3	1:A:6:VAL:N	2.13	0.48
1:G:130:GLY:HA3	1:H:104:ASP:OD1	2.14	0.48
1:G:166:ARG:NH1	1:G:170:ILE:HG12	2.28	0.48
1:E:225:LEU:N	1:E:225:LEU:HD12	2.28	0.48
1:I:158:SER:CA	1:I:179:SER:HB3	2.44	0.48
1:I:162:GLU:CD	1:I:163:ARG:HG2	2.34	0.48
1:B:166:ARG:NH1	1:B:169:GLU:OE2	2.46	0.47
1:D:45:TYR:N	1:D:46:PRO:CD	2.77	0.47
1:D:58:GLU:O	1:D:62:ARG:HB2	2.13	0.47
1:I:36:GLU:HB2	1:I:37:TYR:CE1	2.48	0.47
1:L:181:GLY:O	1:L:185:GLN:HB2	2.13	0.47
1:B:87:THR:HG21	1:B:95:ILE:HD12	1.96	0.47
1:J:81:GLU:HG2	1:J:85:ARG:HH12	1.79	0.47
1:B:100:PHE:CG	1:B:101:PRO:HD3	2.50	0.47
1:I:34:VAL:C	1:I:36:GLU:H	2.17	0.47
1:L:193:LEU:HD11	1:L:222:ILE:HG12	1.96	0.47
1:G:26:ASP:O	1:G:30:VAL:HG23	2.15	0.47
1:D:205:ILE:HG12	1:D:214:ALA:CB	2.45	0.47
1:J:215:ALA:O	1:J:219:ILE:HG13	2.14	0.47
1:L:139:ALA:HB3	1:L:163:ARG:HH21	1.79	0.47
1:J:17:LEU:CB	1:J:38:ILE:CD1	2.91	0.47
1:B:85:ARG:NH1	1:B:115:GLU:OE1	2.37	0.47
1:C:72:LYS:HE2	1:D:75:ASP:CG	2.34	0.47
1:I:18:ALA:HB2	1:I:200:ILE:CG2	2.45	0.47
1:J:162:GLU:HG2	1:J:163:ARG:N	2.30	0.47
1:J:219:ILE:HG22	1:J:223:LYS:HZ1	1.79	0.47
1:L:182:VAL:HA	1:L:187:GLY:HA3	1.97	0.47
1:D:156:GLY:O	1:D:180:PRO:HD2	2.14	0.47
1:H:182:VAL:HA	1:H:187:GLY:CA	2.44	0.47
1:M:72:LYS:HB3	1:M:98:HIS:CD2	2.50	0.47
1:M:215:ALA:O	1:M:219:ILE:HG13	2.15	0.47
1:A:9:MET:HE2	1:A:66:ARG:HD3	1.97	0.47
1:D:48:VAL:HG11	1:D:53:MET:SD	2.55	0.47
1:F:223:LYS:O	1:F:225:LEU:N	2.45	0.47
1:I:213:ALA:O	1:I:216:ALA:HB3	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:201:VAL:HG11	1:L:205:ILE:HG13	1.96	0.47
1:E:94:ALA:HB2	1:E:119:GLU:HB2	1.96	0.47
1:H:145:MET:HA	3:H:315:HOH:O	2.14	0.47
1:I:162:GLU:OE2	1:I:163:ARG:HG2	2.14	0.47
1:G:44:GLY:O	1:G:48:VAL:HG13	2.14	0.46
1:I:159:THR:C	1:I:161:PRO:HD3	2.36	0.46
1:J:138:ALA:O	1:J:142:ILE:HG13	2.16	0.46
1:K:45:TYR:N	1:K:46:PRO:CD	2.77	0.46
1:K:125:GLU:O	1:K:157:PRO:HG3	2.15	0.46
1:K:162:GLU:HG2	1:K:163:ARG:N	2.30	0.46
1:K:188:ASP:HB3	1:K:191:GLU:CB	2.45	0.46
1:C:66:ARG:HH11	1:C:66:ARG:CG	2.28	0.46
1:D:15:LEU:HG	1:D:38:ILE:HG21	1.96	0.46
1:D:78:GLU:H	1:D:78:GLU:CD	2.19	0.46
1:I:158:SER:HB2	1:I:179:SER:CB	2.45	0.46
1:C:210:ASN:HB3	3:C:243:HOH:O	2.14	0.46
1:G:162:GLU:HG2	1:G:163:ARG:N	2.29	0.46
1:H:19:MET:HG3	1:H:47:LEU:HD22	1.97	0.46
1:C:52:GLY:O	1:C:55:ILE:HG22	2.15	0.46
1:C:224:ASP:C	1:C:225:LEU:HD12	2.36	0.46
1:K:39:ASP:O	1:K:65:CYS:HB2	2.14	0.46
1:L:28:LEU:HD11	1:L:58:GLU:OE1	2.15	0.46
1:C:78:GLU:CD	1:C:78:GLU:H	2.19	0.46
1:E:138:ALA:HB1	1:F:134:PHE:CD2	2.50	0.46
1:H:36:GLU:HG3	1:H:37:TYR:CD1	2.50	0.46
1:I:138:ALA:C	1:I:140:ASP:N	2.68	0.46
1:J:159:THR:O	1:J:160:ARG:HG2	2.15	0.46
1:L:110:LEU:HD21	1:L:151:VAL:HG22	1.97	0.46
1:D:225:LEU:HD12	1:D:225:LEU:N	2.29	0.46
1:E:13:ASN:HD22	1:E:219:ILE:CG2	2.28	0.46
1:E:178:ILE:HD12	1:E:200:ILE:HD11	1.98	0.46
1:G:22:MET:SD	1:H:82:LYS:HB3	2.56	0.46
1:L:20:ASP:HB2	1:L:206:TYR:OH	2.16	0.46
1:B:89:LYS:O	1:D:117:GLY:HA3	2.15	0.46
1:F:162:GLU:HG2	1:F:163:ARG:HG2	1.96	0.46
1:G:158:SER:OG	1:G:182:VAL:HG22	2.16	0.46
1:L:181:GLY:HA2	1:L:185:GLN:NE2	2.31	0.46
1:F:18:ALA:HB2	1:F:200:ILE:CG2	2.46	0.46
1:G:132:GLU:HG2	1:G:136:GLN:HE22	1.79	0.46
1:J:78:GLU:CD	1:J:78:GLU:H	2.18	0.46
1:D:35:ARG:HD3	1:D:63:PHE:HB3	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:182:VAL:HG21	1:E:199:ILE:HB	1.98	0.46
1:G:158:SER:HB3	1:G:180:PRO:O	2.15	0.46
1:J:52:GLY:O	1:J:55:ILE:HG22	2.16	0.46
1:L:182:VAL:HA	1:L:187:GLY:CA	2.45	0.46
1:M:88:PHE:CD1	1:M:118:ARG:HG3	2.51	0.46
1:D:17:LEU:HD21	1:D:19:MET:HE3	1.97	0.46
1:F:37:TYR:CD2	1:F:219:ILE:HD12	2.50	0.46
1:G:165:SER:HA	1:G:195:PHE:CD2	2.51	0.46
1:L:224:ASP:O	1:L:225:LEU:HD23	2.16	0.46
1:F:78:GLU:H	1:F:78:GLU:CD	2.19	0.45
1:G:78:GLU:CD	1:G:78:GLU:H	2.20	0.45
1:H:24:ARG:NH1	1:H:24:ARG:HG2	2.31	0.45
1:I:193:LEU:CD1	1:I:222:ILE:HD13	2.46	0.45
1:K:188:ASP:OD2	1:K:191:GLU:HB2	2.16	0.45
1:B:181:GLY:HA2	1:B:185:GLN:NE2	2.31	0.45
1:B:222:ILE:HG22	1:B:222:ILE:O	2.15	0.45
1:D:213:ALA:O	1:D:216:ALA:HB3	2.16	0.45
1:I:101:PRO:O	1:J:128:HIS:NE2	2.50	0.45
1:A:143:ALA:O	1:A:147:VAL:HG23	2.16	0.45
1:C:85:ARG:HH12	1:C:115:GLU:CD	2.15	0.45
1:D:12:MET:HG2	1:D:13:ASN:ND2	2.31	0.45
1:E:59:PHE:O	1:E:63:PHE:HD1	1.98	0.45
1:H:138:ALA:O	1:H:142:ILE:HG13	2.17	0.45
1:L:30:VAL:HG11	1:L:206:TYR:CB	2.46	0.45
1:F:9:MET:HG3	1:F:9:MET:O	2.16	0.45
1:F:222:ILE:C	1:F:222:ILE:HD12	2.37	0.45
1:J:17:LEU:HB3	1:J:38:ILE:HD13	1.98	0.45
1:K:78:GLU:H	1:K:78:GLU:CD	2.19	0.45
1:L:152:LYS:HB3	1:L:152:LYS:HZ2	1.80	0.45
1:A:58:GLU:O	1:A:62:ARG:HB2	2.17	0.45
1:B:210:ASN:HD22	1:B:213:ALA:CB	2.29	0.45
1:C:158:SER:OG	1:C:187:GLY:HA3	2.16	0.45
1:C:78:GLU:HG2	1:D:203:ARG:NH1	2.31	0.45
1:G:85:ARG:HG3	1:G:85:ARG:HH11	1.82	0.45
1:L:132:GLU:HG2	1:L:136:GLN:OE1	2.17	0.45
1:B:17:LEU:HB3	1:B:38:ILE:CD1	2.46	0.45
1:C:123:LEU:HA	1:C:155:VAL:HB	1.99	0.45
1:G:9:MET:HE2	1:G:66:ARG:NH1	2.32	0.45
1:I:180:PRO:HB3	1:I:200:ILE:CD1	2.46	0.45
1:L:107:ARG:HG3	1:L:111:ASN:HD21	1.81	0.45
1:B:223:LYS:C	1:B:225:LEU:H	2.20	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:34:VAL:C	1:I:36:GLU:N	2.70	0.45
1:C:220:GLU:HA	1:C:220:GLU:OE1	2.17	0.45
1:D:17:LEU:HD21	1:D:19:MET:CE	2.47	0.45
1:D:58:GLU:HG2	1:D:62:ARG:HD2	1.99	0.45
1:E:14:ARG:NE	1:E:193:LEU:HD22	2.32	0.45
1:G:201:VAL:CG1	1:G:204:SER:HB2	2.47	0.45
1:I:78:GLU:H	1:I:78:GLU:CD	2.21	0.45
1:A:130:GLY:HA3	1:B:104:ASP:OD1	2.16	0.44
1:D:72:LYS:HB3	1:D:98:HIS:CD2	2.53	0.44
1:E:118:ARG:HH12	1:G:91:GLY:HA2	1.81	0.44
1:D:224:ASP:C	1:D:225:LEU:HD12	2.37	0.44
1:E:14:ARG:HE	1:E:193:LEU:HD22	1.82	0.44
1:F:17:LEU:HD21	1:F:19:MET:CE	2.47	0.44
1:G:24:ARG:HG2	1:G:24:ARG:HH11	1.82	0.44
1:C:14:ARG:NH1	1:C:197:ASP:O	2.51	0.44
1:E:45:TYR:N	1:E:46:PRO:CD	2.80	0.44
1:H:24:ARG:HG2	1:H:24:ARG:HH11	1.82	0.44
1:J:17:LEU:HB3	1:J:38:ILE:HD11	1.99	0.44
1:J:163:ARG:HA	1:J:163:ARG:NH1	2.25	0.44
1:K:215:ALA:O	1:K:219:ILE:HG13	2.18	0.44
1:L:26:ASP:HA	1:L:29:ARG:NH1	2.33	0.44
1:M:72:LYS:NZ	2:M:229:H2U:H62	2.32	0.44
1:E:72:LYS:HE2	1:F:75:ASP:CG	2.37	0.44
1:G:18:ALA:HA	1:G:42:LYS:HB3	2.00	0.44
1:G:33:GLU:O	1:G:212:ALA:HB2	2.17	0.44
1:J:157:PRO:O	1:J:164:LEU:HD13	2.17	0.44
1:L:125:GLU:HB2	1:L:139:ALA:HB1	1.98	0.44
1:B:78:GLU:CD	1:B:78:GLU:H	2.21	0.44
1:C:78:GLU:HG2	1:D:203:ARG:HH12	1.83	0.44
1:J:166:ARG:HG3	1:J:166:ARG:NH1	2.32	0.44
1:K:125:GLU:HA	1:K:135:ILE:CG2	2.48	0.44
1:F:88:PHE:CD1	1:F:118:ARG:HG3	2.53	0.44
1:F:128:HIS:O	1:F:131:ALA:HB3	2.18	0.44
1:K:219:ILE:O	1:K:223:LYS:HG3	2.17	0.44
1:L:78:GLU:CD	1:L:78:GLU:H	2.20	0.44
1:C:66:ARG:NH1	1:C:93:ASP:HB3	2.33	0.44
1:E:75:ASP:CG	1:F:72:LYS:HE2	2.38	0.44
1:G:45:TYR:N	1:G:46:PRO:CD	2.80	0.44
1:K:128:HIS:HB3	1:L:76:ILE:HG22	1.99	0.44
1:B:17:LEU:HB2	1:B:38:ILE:HD13	1.97	0.44
1:B:222:ILE:O	1:B:225:LEU:HB2	2.16	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:205:ILE:HG12	1:D:214:ALA:HB3	2.00	0.44
1:D:219:ILE:HG22	1:D:223:LYS:HG3	2.00	0.44
1:E:9:MET:CB	3:E:249:HOH:O	2.60	0.44
1:F:139:ALA:HB3	1:F:163:ARG:HH22	1.83	0.44
1:G:94:ALA:HB2	1:G:119:GLU:HB2	2.00	0.44
1:H:19:MET:HG3	1:H:47:LEU:CD2	2.48	0.44
1:I:138:ALA:C	1:I:140:ASP:H	2.21	0.44
1:M:107:ARG:HH21	1:M:149:LEU:CD2	2.30	0.44
1:D:203:ARG:C	1:D:205:ILE:H	2.21	0.44
1:J:34:VAL:HG12	1:J:212:ALA:HA	1.98	0.44
1:A:166:ARG:NH1	1:A:169:GLU:HG3	2.33	0.43
1:B:38:ILE:O	1:B:38:ILE:HG13	2.15	0.43
1:C:81:GLU:HG3	1:C:108:ALA:HB1	2.00	0.43
1:E:78:GLU:CD	1:E:78:GLU:H	2.21	0.43
1:G:206:TYR:CE1	1:G:207:LEU:HG	2.53	0.43
1:I:180:PRO:CA	1:I:200:ILE:HB	2.47	0.43
1:K:222:ILE:HG22	1:K:222:ILE:O	2.18	0.43
1:L:183:GLY:HA3	1:L:204:SER:OG	2.18	0.43
1:L:193:LEU:CD1	1:L:222:ILE:HG23	2.48	0.43
1:K:60:ARG:O	1:K:64:GLY:N	2.47	0.43
1:K:78:GLU:HG2	1:L:203:ARG:HH12	1.83	0.43
1:B:125:GLU:HG2	1:B:157:PRO:HG3	2.00	0.43
1:C:14:ARG:NH1	1:C:193:LEU:HD22	2.33	0.43
1:D:72:LYS:CE	2:D:229:H2U:H62	2.48	0.43
1:G:156:GLY:O	1:G:180:PRO:HD2	2.18	0.43
1:G:166:ARG:HH12	1:G:170:ILE:HG12	1.83	0.43
1:H:35:ARG:HH12	1:H:39:ASP:HA	1.80	0.43
1:I:192:THR:C	1:I:194:ARG:H	2.21	0.43
1:K:138:ALA:O	1:K:142:ILE:HG13	2.18	0.43
1:K:166:ARG:HG3	1:K:170:ILE:HD11	2.00	0.43
1:C:220:GLU:HA	1:C:223:LYS:HB2	2.00	0.43
1:H:21:LEU:HD12	1:H:27:ALA:HA	2.01	0.43
1:K:225:LEU:HD12	1:K:225:LEU:N	2.33	0.43
1:L:72:LYS:HB3	1:L:98:HIS:CD2	2.54	0.43
1:D:66:ARG:HG2	1:D:93:ASP:CB	2.48	0.43
1:E:139:ALA:O	1:E:142:ILE:HB	2.17	0.43
1:F:178:ILE:HA	1:F:198:ALA:O	2.19	0.43
1:F:182:VAL:HG11	1:F:189:PRO:HG3	2.00	0.43
1:G:75:ASP:CG	1:H:72:LYS:HE2	2.38	0.43
1:H:23:ASN:OD1	1:H:26:ASP:OD1	2.36	0.43
1:J:152:LYS:HE2	1:J:152:LYS:HB3	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:106:VAL:HG21	1:K:145:MET:HE3	1.99	0.43
1:L:42:LYS:HD2	1:L:200:ILE:HD13	1.99	0.43
1:L:206:TYR:CD1	1:L:207:LEU:HG	2.53	0.43
1:H:34:VAL:HG12	1:H:212:ALA:HA	1.99	0.43
1:I:219:ILE:O	1:I:223:LYS:N	2.51	0.43
1:J:81:GLU:CG	1:J:85:ARG:HH12	2.31	0.43
1:L:40:THR:HG23	1:L:66:ARG:HB2	2.00	0.43
1:M:72:LYS:CE	2:M:229:H2U:H62	2.48	0.43
1:B:132:GLU:HG2	1:B:136:GLN:HE21	1.83	0.43
1:E:57:ALA:O	1:E:61:LYS:HD3	2.18	0.43
1:G:219:ILE:O	1:G:223:LYS:HG3	2.18	0.43
1:I:182:VAL:HG13	1:I:187:GLY:O	2.19	0.43
1:L:100:PHE:N	1:L:101:PRO:CD	2.82	0.43
1:E:201:VAL:HG13	1:E:204:SER:HB3	2.01	0.43
1:F:206:TYR:CD1	1:F:207:LEU:HG	2.54	0.43
1:G:182:VAL:HG21	1:G:199:ILE:HB	2.01	0.43
1:H:78:GLU:CD	1:H:78:GLU:H	2.22	0.43
1:I:81:GLU:HG3	1:I:108:ALA:HB1	2.00	0.43
1:I:126:MET:HA	2:I:229:H2U:O4	2.19	0.43
1:D:193:LEU:HG	1:D:199:ILE:CG2	2.48	0.43
1:E:13:ASN:ND2	1:E:219:ILE:HD13	2.34	0.43
1:H:162:GLU:HG2	1:H:163:ARG:N	2.33	0.43
1:C:45:TYR:N	1:C:46:PRO:CD	2.82	0.42
1:F:30:VAL:O	1:F:34:VAL:HG22	2.18	0.42
1:F:206:TYR:CD1	1:F:206:TYR:C	2.92	0.42
1:H:102:GLY:O	1:H:106:VAL:HG23	2.19	0.42
1:I:217:GLY:O	1:I:220:GLU:HB2	2.19	0.42
1:L:29:ARG:HG2	1:L:33:GLU:OE2	2.19	0.42
1:G:181:GLY:HA2	1:G:185:GLN:HB2	2.01	0.42
1:M:220:GLU:C	1:M:222:ILE:H	2.23	0.42
1:B:52:GLY:O	1:B:55:ILE:HG22	2.18	0.42
1:G:184:ALA:HB1	1:G:203:ARG:HE	1.85	0.42
1:I:26:ASP:OD1	1:I:29:ARG:NH1	2.52	0.42
1:J:220:GLU:OE1	1:J:223:LYS:HD2	2.19	0.42
1:A:75:ASP:CG	1:B:72:LYS:HE2	2.40	0.42
1:A:78:GLU:H	1:A:78:GLU:CD	2.22	0.42
1:A:87:THR:HG21	1:A:95:ILE:HD12	2.02	0.42
1:B:30:VAL:HG13	1:B:211:PRO:HG2	2.01	0.42
1:B:37:TYR:HB3	1:B:219:ILE:HD11	2.02	0.42
1:B:97:VAL:HG21	1:B:109:CYS:SG	2.59	0.42
1:B:156:GLY:O	1:B:180:PRO:HD2	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:113:ALA:HB2	1:H:120:VAL:HG23	2.01	0.42
1:C:158:SER:HB3	1:C:180:PRO:O	2.20	0.42
1:L:118:ARG:HH11	1:L:118:ARG:CG	2.31	0.42
1:B:38:ILE:HD12	1:B:40:THR:O	2.19	0.42
1:G:138:ALA:O	1:G:142:ILE:HG13	2.19	0.42
1:H:36:GLU:HG3	1:H:37:TYR:CE1	2.53	0.42
1:K:202:GLY:O	1:K:204:SER:N	2.53	0.42
1:L:88:PHE:CD1	1:L:118:ARG:HG3	2.54	0.42
1:M:54:ASP:HA	3:M:240:HOH:O	2.20	0.42
1:B:152:LYS:NZ	1:B:152:LYS:HB3	2.35	0.42
1:C:30:VAL:O	1:C:34:VAL:HG22	2.19	0.42
1:C:85:ARG:NH1	1:C:115:GLU:CD	2.73	0.42
1:G:155:VAL:HA	1:G:178:ILE:O	2.19	0.42
1:I:203:ARG:HG2	1:I:206:TYR:OH	2.20	0.42
1:M:11:VAL:CG1	3:M:234:HOH:O	2.67	0.42
1:M:72:LYS:O	1:M:73:VAL:C	2.58	0.42
1:C:134:PHE:HE2	1:D:141:GLU:HB3	1.84	0.42
1:D:158:SER:HB2	1:D:192:THR:OG1	2.20	0.42
1:H:45:TYR:O	1:H:49:LEU:HB2	2.19	0.42
1:M:78:GLU:CD	1:M:78:GLU:H	2.22	0.42
1:C:130:GLY:HA3	1:D:104:ASP:OD1	2.20	0.42
1:D:188:ASP:HA	1:D:189:PRO:HD3	1.92	0.42
1:E:49:LEU:HB3	1:F:53:MET:HE2	2.01	0.42
1:I:208:ALA:C	1:I:210:ASN:H	2.22	0.42
1:L:12:MET:N	1:L:39:ASP:OD1	2.49	0.42
1:M:45:TYR:N	1:M:46:PRO:CD	2.82	0.42
1:A:210:ASN:ND2	1:A:213:ALA:HB2	2.34	0.42
1:E:52:GLY:O	1:E:55:ILE:HG22	2.19	0.42
1:G:12:MET:O	1:G:13:ASN:HB2	2.20	0.42
1:G:126:MET:HA	2:G:229:H2U:O4	2.20	0.42
1:I:42:LYS:NZ	3:I:303:HOH:O	2.52	0.42
1:L:30:VAL:HG11	1:L:206:TYR:HB3	2.02	0.42
1:L:201:VAL:CG1	1:L:205:ILE:HG13	2.50	0.42
1:B:166:ARG:HA	1:B:169:GLU:HG2	2.02	0.41
1:C:100:PHE:HB3	1:C:101:PRO:HD3	2.02	0.41
1:D:193:LEU:CD2	1:D:199:ILE:HG23	2.49	0.41
1:F:182:VAL:CG1	1:F:189:PRO:HG3	2.50	0.41
1:K:152:LYS:CB	1:K:152:LYS:NZ	2.83	0.41
1:M:214:ALA:O	1:M:218:ILE:HG13	2.20	0.41
1:A:225:LEU:H	1:A:225:LEU:CD2	2.32	0.41
1:M:100:PHE:HB3	1:M:101:PRO:HD3	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:78:GLU:HG2	1:B:203:ARG:NH1	2.35	0.41
1:B:33:GLU:OE1	1:B:211:PRO:HD2	2.20	0.41
1:B:100:PHE:N	1:B:101:PRO:CD	2.82	0.41
1:I:96:ILE:HD13	1:I:155:VAL:HG21	2.02	0.41
1:J:193:LEU:CD2	1:J:199:ILE:HG23	2.50	0.41
1:M:118:ARG:HH11	1:M:118:ARG:HD3	1.77	0.41
1:D:14:ARG:HH21	1:D:193:LEU:HD22	1.86	0.41
1:E:156:GLY:O	1:E:180:PRO:HD2	2.21	0.41
1:L:34:VAL:HG12	1:L:212:ALA:HA	2.02	0.41
1:M:10:ASP:OD2	1:M:10:ASP:C	2.57	0.41
1:B:58:GLU:O	1:B:62:ARG:HB2	2.20	0.41
1:E:124:THR:OG1	1:E:167:LEU:HD13	2.19	0.41
1:F:206:TYR:CE1	1:F:207:LEU:HG	2.55	0.41
1:G:88:PHE:O	1:G:91:GLY:N	2.42	0.41
1:H:104:ASP:OD1	1:H:104:ASP:N	2.54	0.41
1:K:72:LYS:HE2	1:L:75:ASP:CG	2.40	0.41
1:K:87:THR:O	1:K:90:ALA:HB3	2.19	0.41
1:K:162:GLU:OE1	1:K:163:ARG:HG2	2.20	0.41
1:M:11:VAL:HG21	1:M:16:ILE:HD11	2.02	0.41
1:C:72:LYS:NZ	2:C:229:H2U:H62	2.35	0.41
1:I:30:VAL:HG11	1:I:206:TYR:HA	2.02	0.41
1:I:166:ARG:O	1:I:170:ILE:HG13	2.21	0.41
1:I:216:ALA:O	1:I:219:ILE:HG12	2.21	0.41
1:K:24:ARG:HB2	1:K:51:GLU:OE1	2.21	0.41
1:K:26:ASP:O	1:K:30:VAL:HG23	2.20	0.41
1:D:193:LEU:HD21	1:D:199:ILE:HG23	2.02	0.41
1:M:73:VAL:HG12	1:M:80:ASN:OD1	2.20	0.41
1:M:125:GLU:HB3	1:M:157:PRO:HD3	2.03	0.41
1:F:26:ASP:O	1:F:30:VAL:HG23	2.20	0.41
1:G:223:LYS:C	1:G:225:LEU:H	2.24	0.41
1:L:29:ARG:O	1:L:33:GLU:HG3	2.20	0.41
1:A:5:ARG:HB3	1:A:7:ASP:OD1	2.21	0.41
1:C:37:TYR:HD2	1:C:219:ILE:HD12	1.86	0.41
1:C:118:ARG:NH1	1:F:118:ARG:NH2	2.69	0.41
1:F:42:LYS:CG	1:F:70:ASP:HB2	2.51	0.41
1:F:193:LEU:HD21	1:F:199:ILE:HG12	2.02	0.41
1:G:81:GLU:HG3	1:G:108:ALA:HB1	2.02	0.41
1:I:34:VAL:HG11	1:I:205:ILE:CG2	2.51	0.41
1:I:35:ARG:NE	1:I:63:PHE:O	2.53	0.41
1:K:48:VAL:O	1:K:52:GLY:N	2.52	0.41
1:K:113:ALA:HB1	1:K:118:ARG:O	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:37:TYR:CZ	1:K:216:ALA:HB2	2.55	0.41
1:K:162:GLU:CG	1:K:163:ARG:N	2.84	0.41
1:L:99:GLY:CA	1:L:122:LEU:HD11	2.51	0.41
1:A:81:GLU:HG2	1:A:108:ALA:O	2.21	0.40
1:F:15:LEU:HD11	1:F:201:VAL:HG23	2.02	0.40
1:G:160:ARG:O	1:G:163:ARG:HB2	2.21	0.40
1:K:33:GLU:OE1	1:K:211:PRO:HG2	2.21	0.40
1:L:78:GLU:O	1:L:81:GLU:HB2	2.20	0.40
1:L:125:GLU:HB2	1:L:139:ALA:CB	2.50	0.40
1:C:104:ASP:OD1	1:C:104:ASP:N	2.51	0.40
1:D:193:LEU:CD1	1:D:222:ILE:HD13	2.52	0.40
1:G:45:TYR:O	1:G:46:PRO:C	2.59	0.40
1:G:59:PHE:HB2	1:G:67:ILE:HD11	2.03	0.40
1:H:223:LYS:C	1:H:225:LEU:H	2.25	0.40
1:J:21:LEU:HD23	1:J:21:LEU:HA	1.92	0.40
1:J:201:VAL:HG11	1:J:218:ILE:CD1	2.51	0.40
1:K:220:GLU:C	1:K:222:ILE:H	2.25	0.40
1:M:21:LEU:HD23	1:M:21:LEU:HA	1.93	0.40
1:F:128:HIS:O	1:F:131:ALA:CB	2.70	0.40
1:H:35:ARG:NH1	1:H:65:CYS:HB3	2.37	0.40
1:H:87:THR:HG21	1:H:95:ILE:HD12	2.03	0.40
1:K:104:ASP:OD1	1:K:104:ASP:N	2.55	0.40
1:H:125:GLU:O	1:H:157:PRO:HD3	2.21	0.40
1:H:188:ASP:HB3	1:H:191:GLU:HB2	2.03	0.40
1:J:9:MET:HB2	3:J:236:HOH:O	2.20	0.40
1:K:107:ARG:O	1:K:111:ASN:OD1	2.39	0.40
1:K:154:TYR:O	1:K:177:LEU:HA	2.22	0.40
1:K:193:LEU:HD21	1:K:199:ILE:HG23	2.04	0.40
1:M:224:ASP:C	1:M:225:LEU:HD12	2.41	0.40
1:A:45:TYR:O	1:A:46:PRO:C	2.58	0.40
1:A:73:VAL:HG12	1:A:80:ASN:OD1	2.22	0.40
1:E:13:ASN:ND2	1:E:219:ILE:CG2	2.85	0.40
1:F:37:TYR:HD2	1:F:219:ILE:HD12	1.86	0.40
1:I:38:ILE:HD12	1:I:38:ILE:C	2.41	0.40
1:J:12:MET:O	1:J:13:ASN:HB2	2.22	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:K:118:ARG:NH1	1:K:118:ARG:NH1[2_354]	2.08	0.12

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	219/228 (96%)	214 (98%)	5 (2%)	0	100	100
1	B	214/228 (94%)	202 (94%)	12 (6%)	0	100	100
1	C	216/228 (95%)	206 (95%)	10 (5%)	0	100	100
1	D	213/228 (93%)	201 (94%)	10 (5%)	2 (1%)	17	20
1	E	215/228 (94%)	198 (92%)	17 (8%)	0	100	100
1	F	215/228 (94%)	195 (91%)	16 (7%)	4 (2%)	8	7
1	G	215/228 (94%)	198 (92%)	17 (8%)	0	100	100
1	H	214/228 (94%)	200 (94%)	12 (6%)	2 (1%)	17	20
1	I	210/228 (92%)	183 (87%)	22 (10%)	5 (2%)	6	4
1	J	216/228 (95%)	196 (91%)	18 (8%)	2 (1%)	17	20
1	K	214/228 (94%)	191 (89%)	19 (9%)	4 (2%)	8	7
1	L	214/228 (94%)	194 (91%)	18 (8%)	2 (1%)	17	20
1	M	215/228 (94%)	205 (95%)	10 (5%)	0	100	100
All	All	2790/2964 (94%)	2583 (93%)	186 (7%)	21 (1%)	19	23

All (21) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	I	184	ALA
1	F	14	ARG
1	I	130	GLY
1	K	203	ARG
1	F	39	ASP
1	F	224	ASP
1	H	189	PRO
1	I	129	PRO
1	J	189	PRO
1	K	130	GLY

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Mol	Chain	Res	Type
1	L	212	ALA
1	F	13	ASN
1	J	222	ILE
1	K	139	ALA
1	D	189	PRO
1	H	223	LYS
1	I	187	GLY
1	D	205	ILE
1	I	193	LEU
1	K	54	ASP
1	L	189	PRO

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	175/182 (96%)	173 (99%)	2 (1%)	73	86
1	B	170/182 (93%)	164 (96%)	6 (4%)	36	50
1	C	172/182 (94%)	169 (98%)	3 (2%)	60	76
1	D	169/182 (93%)	168 (99%)	1 (1%)	86	94
1	E	171/182 (94%)	169 (99%)	2 (1%)	71	84
1	F	171/182 (94%)	169 (99%)	2 (1%)	71	84
1	G	171/182 (94%)	167 (98%)	4 (2%)	50	67
1	H	170/182 (93%)	169 (99%)	1 (1%)	86	94
1	I	166/182 (91%)	159 (96%)	7 (4%)	30	42
1	J	172/182 (94%)	169 (98%)	3 (2%)	60	76
1	K	170/182 (93%)	167 (98%)	3 (2%)	59	75
1	L	170/182 (93%)	165 (97%)	5 (3%)	42	58
1	M	171/182 (94%)	169 (99%)	2 (1%)	71	84
All	All	2218/2366 (94%)	2177 (98%)	41 (2%)	59	75

All (41) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	114	GLU
1	A	157	PRO
1	B	38	ILE
1	B	59	PHE
1	B	62	ARG
1	B	66	ARG
1	B	136	GLN
1	B	167	LEU
1	C	66	ARG
1	C	158	SER
1	C	167	LEU
1	D	195	PHE
1	E	98	HIS
1	E	174	ASP
1	F	81	GLU
1	F	206	TYR
1	G	48	VAL
1	G	140	ASP
1	G	167	LEU
1	G	206	TYR
1	H	210	ASN
1	I	37	TYR
1	I	63	PHE
1	I	132	GLU
1	I	140	ASP
1	I	162	GLU
1	I	166	ARG
1	I	174	ASP
1	J	66	ARG
1	J	210	ASN
1	J	223	LYS
1	K	59	PHE
1	K	140	ASP
1	K	152	LYS
1	L	23	ASN
1	L	66	ARG
1	L	162	GLU
1	L	195	PHE
1	L	206	TYR
1	M	10	ASP
1	M	107	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (23) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	23	ASN
1	B	136	GLN
1	B	210	ASN
1	C	210	ASN
1	D	13	ASN
1	D	23	ASN
1	D	173	GLN
1	D	210	ASN
1	E	13	ASN
1	E	185	GLN
1	F	13	ASN
1	G	23	ASN
1	G	136	GLN
1	H	210	ASN
1	I	23	ASN
1	I	185	GLN
1	J	210	ASN
1	K	23	ASN
1	K	185	GLN
1	L	98	HIS
1	L	111	ASN
1	M	98	HIS
1	M	210	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

13 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	H2U	C	229	-	22,22,22	1.60	6 (27%)	28,33,33	1.90	5 (17%)
2	H2U	F	229	-	22,22,22	1.69	5 (22%)	28,33,33	1.90	5 (17%)
2	H2U	J	229	-	22,22,22	1.71	4 (18%)	28,33,33	1.92	5 (17%)
2	H2U	D	229	-	22,22,22	1.69	5 (22%)	28,33,33	1.90	5 (17%)
2	H2U	M	229	-	22,22,22	1.70	4 (18%)	28,33,33	1.91	5 (17%)
2	H2U	L	229	-	22,22,22	1.69	5 (22%)	28,33,33	1.92	5 (17%)
2	H2U	H	229	-	22,22,22	1.68	5 (22%)	28,33,33	1.91	5 (17%)
2	H2U	K	229	-	22,22,22	1.70	5 (22%)	28,33,33	1.91	5 (17%)
2	H2U	I	229	-	22,22,22	1.70	5 (22%)	28,33,33	1.93	5 (17%)
2	H2U	B	229	-	22,22,22	1.65	5 (22%)	28,33,33	1.88	5 (17%)
2	H2U	G	229	-	22,22,22	1.62	5 (22%)	28,33,33	1.88	5 (17%)
2	H2U	A	229	-	22,22,22	1.73	5 (22%)	28,33,33	1.86	5 (17%)
2	H2U	E	229	-	22,22,22	1.62	5 (22%)	28,33,33	1.89	5 (17%)

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. '2' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	H2U	C	229	-	-	4/10/39/39	0/2/2/2
2	H2U	F	229	-	-	3/10/39/39	0/2/2/2
2	H2U	J	229	-	-	3/10/39/39	0/2/2/2
2	H2U	D	229	-	-	3/10/39/39	0/2/2/2
2	H2U	M	229	-	-	3/10/39/39	0/2/2/2
2	H2U	L	229	-	-	3/10/39/39	0/2/2/2
2	H2U	H	229	-	-	3/10/39/39	0/2/2/2
2	H2U	K	229	-	-	3/10/39/39	0/2/2/2
2	H2U	I	229	-	-	3/10/39/39	0/2/2/2
2	H2U	B	229	-	-	3/10/39/39	0/2/2/2
2	H2U	G	229	-	-	3/10/39/39	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	H2U	A	229	-	-	3/10/39/39	0/2/2/2
2	H2U	E	229	-	-	3/10/39/39	0/2/2/2

All (64) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	229	H2U	C2-N1	3.89	1.41	1.35
2	J	229	H2U	C2-N1	3.79	1.41	1.35
2	D	229	H2U	C2-N1	3.74	1.41	1.35
2	K	229	H2U	C2-N1	3.67	1.40	1.35
2	F	229	H2U	C2-N1	3.66	1.40	1.35
2	I	229	H2U	C2-N1	3.57	1.40	1.35
2	L	229	H2U	C2-N1	3.55	1.40	1.35
2	A	229	H2U	O4'-C4'	3.52	1.52	1.45
2	H	229	H2U	C2-N1	3.49	1.40	1.35
2	M	229	H2U	C2-N1	3.47	1.40	1.35
2	M	229	H2U	O4'-C4'	3.34	1.52	1.45
2	G	229	H2U	C2-N1	3.32	1.40	1.35
2	K	229	H2U	O4'-C1'	3.18	1.49	1.42
2	D	229	H2U	O4'-C4'	3.13	1.52	1.45
2	F	229	H2U	O4'-C1'	3.11	1.49	1.42
2	E	229	H2U	C2-N1	3.10	1.40	1.35
2	B	229	H2U	C2-N1	3.10	1.40	1.35
2	M	229	H2U	O4'-C1'	3.09	1.49	1.42
2	B	229	H2U	O4'-C1'	3.08	1.49	1.42
2	I	229	H2U	O4'-C1'	3.06	1.49	1.42
2	H	229	H2U	O4'-C1'	3.05	1.49	1.42
2	B	229	H2U	P-OP2	3.03	1.66	1.54
2	H	229	H2U	O4'-C4'	3.03	1.51	1.45
2	J	229	H2U	O4'-C1'	3.02	1.49	1.42
2	L	229	H2U	O4'-C4'	3.01	1.51	1.45
2	I	229	H2U	O4'-C4'	3.01	1.51	1.45
2	K	229	H2U	O4'-C4'	3.00	1.51	1.45
2	L	229	H2U	O4'-C1'	3.00	1.49	1.42
2	E	229	H2U	O4'-C1'	2.99	1.49	1.42
2	F	229	H2U	O4'-C4'	2.96	1.51	1.45
2	L	229	H2U	P-OP2	2.95	1.66	1.54
2	E	229	H2U	O4'-C4'	2.94	1.51	1.45
2	D	229	H2U	O4'-C1'	2.94	1.49	1.42
2	I	229	H2U	P-OP2	2.92	1.66	1.54
2	G	229	H2U	O4'-C1'	2.91	1.48	1.42
2	C	229	H2U	O4'-C1'	2.91	1.48	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	229	H2U	O4'-C4'	2.89	1.51	1.45
2	J	229	H2U	O4'-C4'	2.87	1.51	1.45
2	E	229	H2U	P-OP2	2.86	1.65	1.54
2	G	229	H2U	O4'-C4'	2.82	1.51	1.45
2	K	229	H2U	P-OP2	2.82	1.65	1.54
2	C	229	H2U	P-OP2	2.80	1.65	1.54
2	D	229	H2U	P-OP2	2.79	1.65	1.54
2	G	229	H2U	P-OP2	2.77	1.65	1.54
2	F	229	H2U	P-OP2	2.76	1.65	1.54
2	J	229	H2U	P-OP2	2.71	1.65	1.54
2	H	229	H2U	P-OP2	2.71	1.65	1.54
2	M	229	H2U	P-OP2	2.70	1.65	1.54
2	C	229	H2U	O4'-C4'	2.69	1.51	1.45
2	C	229	H2U	C2-N1	2.67	1.39	1.35
2	A	229	H2U	O4'-C1'	2.67	1.48	1.42
2	A	229	H2U	P-OP2	2.45	1.64	1.54
2	B	229	H2U	C1'-N1	2.31	1.51	1.46
2	A	229	H2U	C6-N1	2.23	1.50	1.47
2	F	229	H2U	C1'-N1	2.20	1.50	1.46
2	I	229	H2U	C1'-N1	2.19	1.50	1.46
2	L	229	H2U	C1'-N1	2.15	1.50	1.46
2	C	229	H2U	C2'-C3'	-2.15	1.47	1.53
2	D	229	H2U	C1'-N1	2.15	1.50	1.46
2	K	229	H2U	C1'-N1	2.14	1.50	1.46
2	C	229	H2U	C6-N1	2.11	1.50	1.47
2	H	229	H2U	C1'-N1	2.10	1.50	1.46
2	G	229	H2U	C1'-N1	2.10	1.50	1.46
2	E	229	H2U	C1'-N1	2.03	1.50	1.46

All (65) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	I	229	H2U	C4-N3-C2	-5.96	120.85	125.79
2	C	229	H2U	C4-N3-C2	-5.94	120.86	125.79
2	J	229	H2U	C4-N3-C2	-5.93	120.88	125.79
2	L	229	H2U	C4-N3-C2	-5.93	120.88	125.79
2	K	229	H2U	C4-N3-C2	-5.91	120.89	125.79
2	H	229	H2U	C4-N3-C2	-5.88	120.92	125.79
2	M	229	H2U	C4-N3-C2	-5.87	120.92	125.79
2	F	229	H2U	C4-N3-C2	-5.85	120.94	125.79
2	D	229	H2U	C4-N3-C2	-5.80	120.98	125.79
2	E	229	H2U	C4-N3-C2	-5.79	120.99	125.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	229	H2U	C4-N3-C2	-5.75	121.02	125.79
2	G	229	H2U	C4-N3-C2	-5.70	121.06	125.79
2	A	229	H2U	C4-N3-C2	-5.62	121.13	125.79
2	M	229	H2U	N3-C2-N1	4.69	121.61	116.65
2	H	229	H2U	N3-C2-N1	4.69	121.61	116.65
2	J	229	H2U	N3-C2-N1	4.69	121.61	116.65
2	I	229	H2U	N3-C2-N1	4.68	121.60	116.65
2	K	229	H2U	N3-C2-N1	4.67	121.59	116.65
2	F	229	H2U	N3-C2-N1	4.65	121.57	116.65
2	L	229	H2U	N3-C2-N1	4.65	121.57	116.65
2	D	229	H2U	N3-C2-N1	4.64	121.56	116.65
2	C	229	H2U	N3-C2-N1	4.63	121.55	116.65
2	G	229	H2U	N3-C2-N1	4.58	121.49	116.65
2	A	229	H2U	N3-C2-N1	4.56	121.48	116.65
2	E	229	H2U	N3-C2-N1	4.56	121.47	116.65
2	B	229	H2U	N3-C2-N1	4.56	121.47	116.65
2	G	229	H2U	P-O5'-C5'	-4.11	106.97	118.30
2	H	229	H2U	P-O5'-C5'	-4.10	106.99	118.30
2	K	229	H2U	P-O5'-C5'	-4.10	107.00	118.30
2	L	229	H2U	P-O5'-C5'	-4.10	107.00	118.30
2	I	229	H2U	P-O5'-C5'	-4.09	107.04	118.30
2	E	229	H2U	P-O5'-C5'	-4.08	107.04	118.30
2	D	229	H2U	P-O5'-C5'	-4.05	107.14	118.30
2	J	229	H2U	P-O5'-C5'	-4.04	107.17	118.30
2	F	229	H2U	P-O5'-C5'	-4.04	107.18	118.30
2	M	229	H2U	P-O5'-C5'	-4.02	107.22	118.30
2	B	229	H2U	P-O5'-C5'	-4.01	107.24	118.30
2	C	229	H2U	P-O5'-C5'	-3.97	107.35	118.30
2	A	229	H2U	P-O5'-C5'	-3.88	107.61	118.30
2	C	229	H2U	O2-C2-N1	-2.99	119.35	123.11
2	I	229	H2U	C5-C4-N3	2.99	120.00	116.65
2	A	229	H2U	O2-C2-N1	-2.98	119.37	123.11
2	M	229	H2U	O2-C2-N1	-2.98	119.37	123.11
2	K	229	H2U	O2-C2-N1	-2.98	119.37	123.11
2	M	229	H2U	C5-C4-N3	2.97	119.99	116.65
2	F	229	H2U	O2-C2-N1	-2.97	119.38	123.11
2	J	229	H2U	O2-C2-N1	-2.97	119.38	123.11
2	D	229	H2U	C5-C4-N3	2.96	119.97	116.65
2	I	229	H2U	O2-C2-N1	-2.96	119.39	123.11
2	L	229	H2U	O2-C2-N1	-2.96	119.39	123.11
2	D	229	H2U	O2-C2-N1	-2.95	119.40	123.11
2	L	229	H2U	C5-C4-N3	2.95	119.97	116.65

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	229	H2U	C5-C4-N3	2.95	119.96	116.65
2	B	229	H2U	O2-C2-N1	-2.94	119.42	123.11
2	J	229	H2U	C5-C4-N3	2.94	119.95	116.65
2	E	229	H2U	O2-C2-N1	-2.92	119.44	123.11
2	G	229	H2U	O2-C2-N1	-2.92	119.44	123.11
2	H	229	H2U	C5-C4-N3	2.92	119.93	116.65
2	H	229	H2U	O2-C2-N1	-2.92	119.44	123.11
2	A	229	H2U	C5-C4-N3	2.92	119.93	116.65
2	B	229	H2U	C5-C4-N3	2.91	119.92	116.65
2	E	229	H2U	C5-C4-N3	2.90	119.91	116.65
2	K	229	H2U	C5-C4-N3	2.87	119.87	116.65
2	G	229	H2U	C5-C4-N3	2.86	119.86	116.65
2	C	229	H2U	C5-C4-N3	2.82	119.82	116.65

There are no chirality outliers.

All (40) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	229	H2U	O4'-C1'-N1-C6
2	B	229	H2U	O4'-C1'-N1-C6
2	C	229	H2U	O4'-C1'-N1-C6
2	D	229	H2U	O4'-C1'-N1-C6
2	E	229	H2U	O4'-C1'-N1-C6
2	F	229	H2U	O4'-C1'-N1-C6
2	G	229	H2U	O4'-C1'-N1-C6
2	H	229	H2U	O4'-C1'-N1-C6
2	I	229	H2U	O4'-C1'-N1-C6
2	J	229	H2U	O4'-C1'-N1-C6
2	K	229	H2U	O4'-C1'-N1-C6
2	L	229	H2U	O4'-C1'-N1-C6
2	M	229	H2U	O4'-C1'-N1-C6
2	C	229	H2U	O4'-C1'-N1-C2
2	E	229	H2U	O4'-C1'-N1-C2
2	K	229	H2U	O4'-C1'-N1-C2
2	J	229	H2U	O4'-C1'-N1-C2
2	A	229	H2U	O4'-C1'-N1-C2
2	B	229	H2U	O4'-C1'-N1-C2
2	D	229	H2U	O4'-C1'-N1-C2
2	F	229	H2U	O4'-C1'-N1-C2
2	G	229	H2U	O4'-C1'-N1-C2
2	H	229	H2U	O4'-C1'-N1-C2
2	I	229	H2U	O4'-C1'-N1-C2

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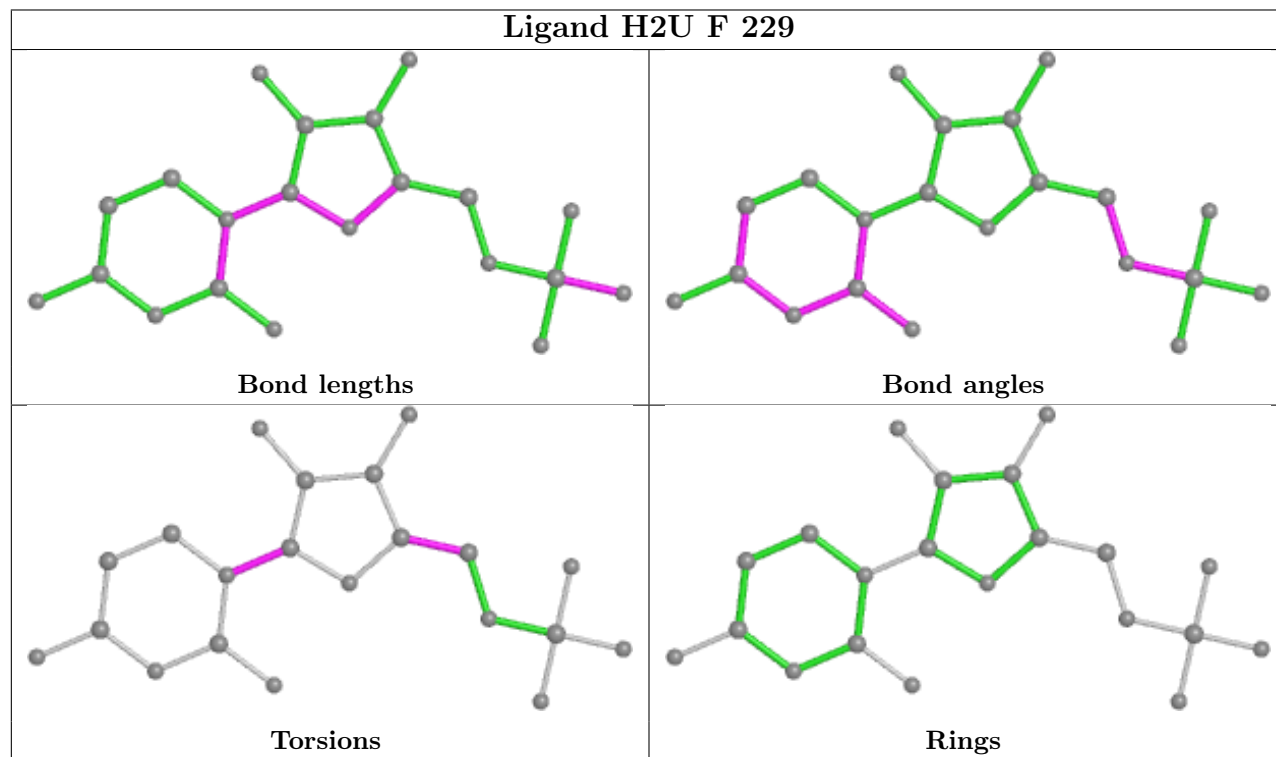
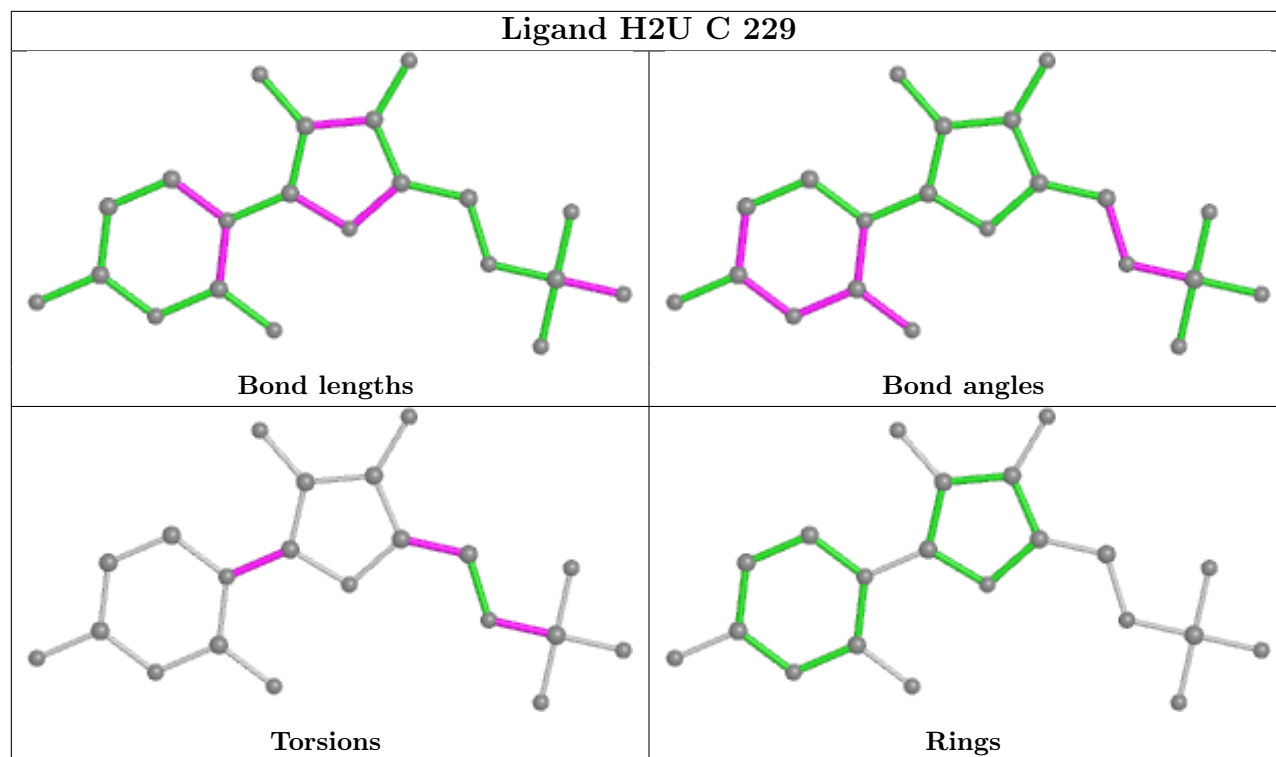
Mol	Chain	Res	Type	Atoms
2	L	229	H2U	O4'-C1'-N1-C2
2	M	229	H2U	O4'-C1'-N1-C2
2	C	229	H2U	C5'-O5'-P-OP2
2	A	229	H2U	O4'-C4'-C5'-O5'
2	B	229	H2U	O4'-C4'-C5'-O5'
2	D	229	H2U	O4'-C4'-C5'-O5'
2	E	229	H2U	O4'-C4'-C5'-O5'
2	F	229	H2U	O4'-C4'-C5'-O5'
2	G	229	H2U	O4'-C4'-C5'-O5'
2	H	229	H2U	O4'-C4'-C5'-O5'
2	I	229	H2U	O4'-C4'-C5'-O5'
2	J	229	H2U	O4'-C4'-C5'-O5'
2	K	229	H2U	O4'-C4'-C5'-O5'
2	L	229	H2U	O4'-C4'-C5'-O5'
2	M	229	H2U	O4'-C4'-C5'-O5'
2	C	229	H2U	O4'-C4'-C5'-O5'

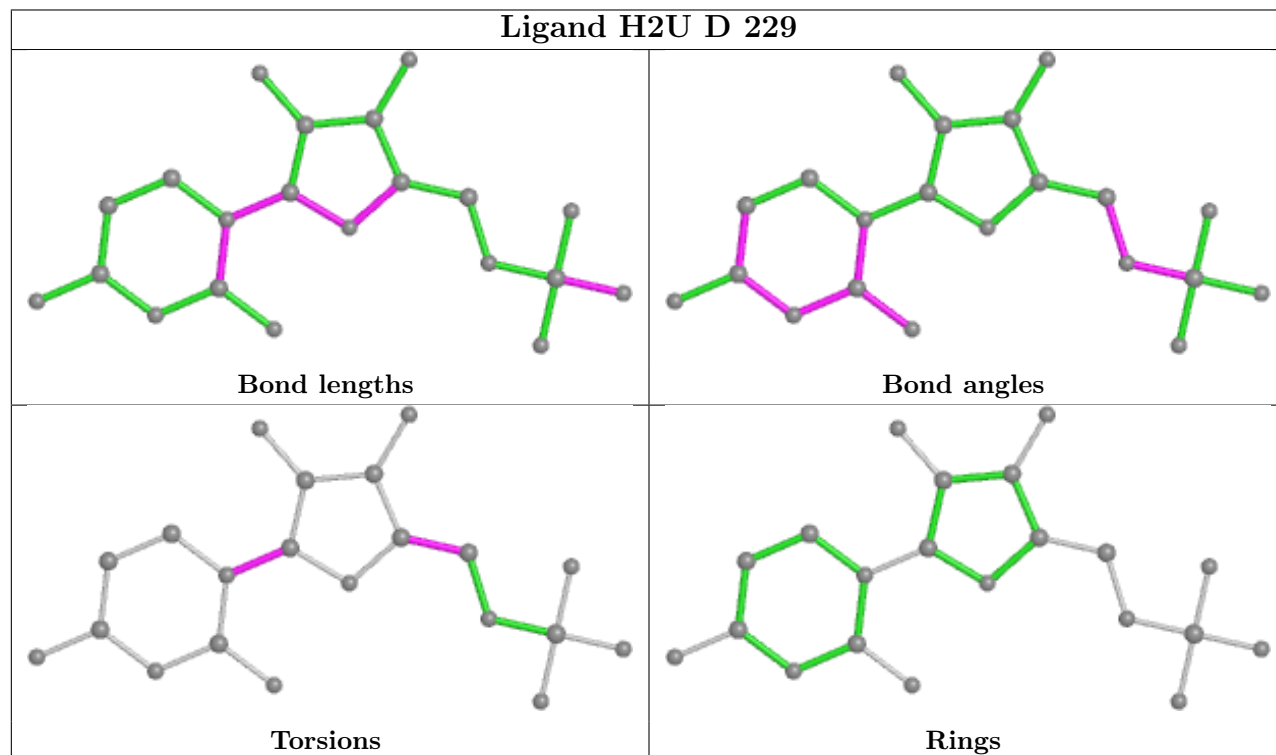
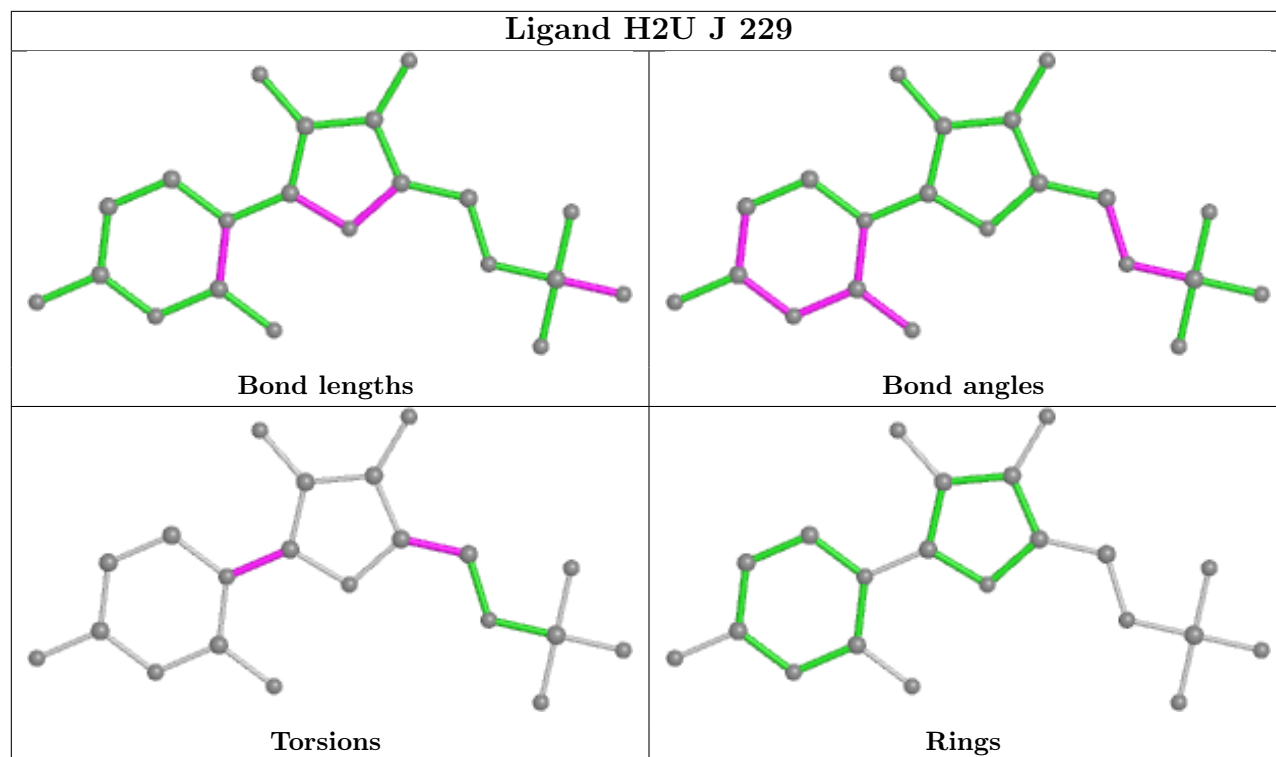
There are no ring outliers.

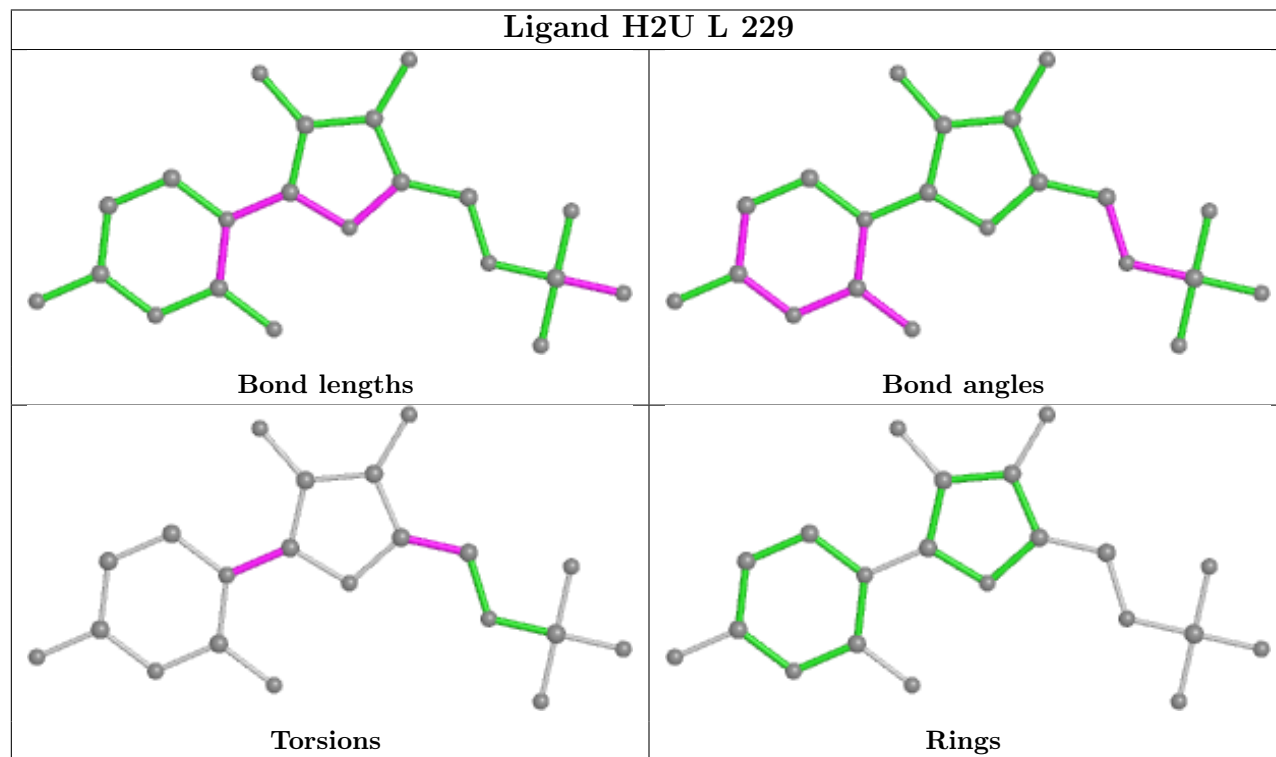
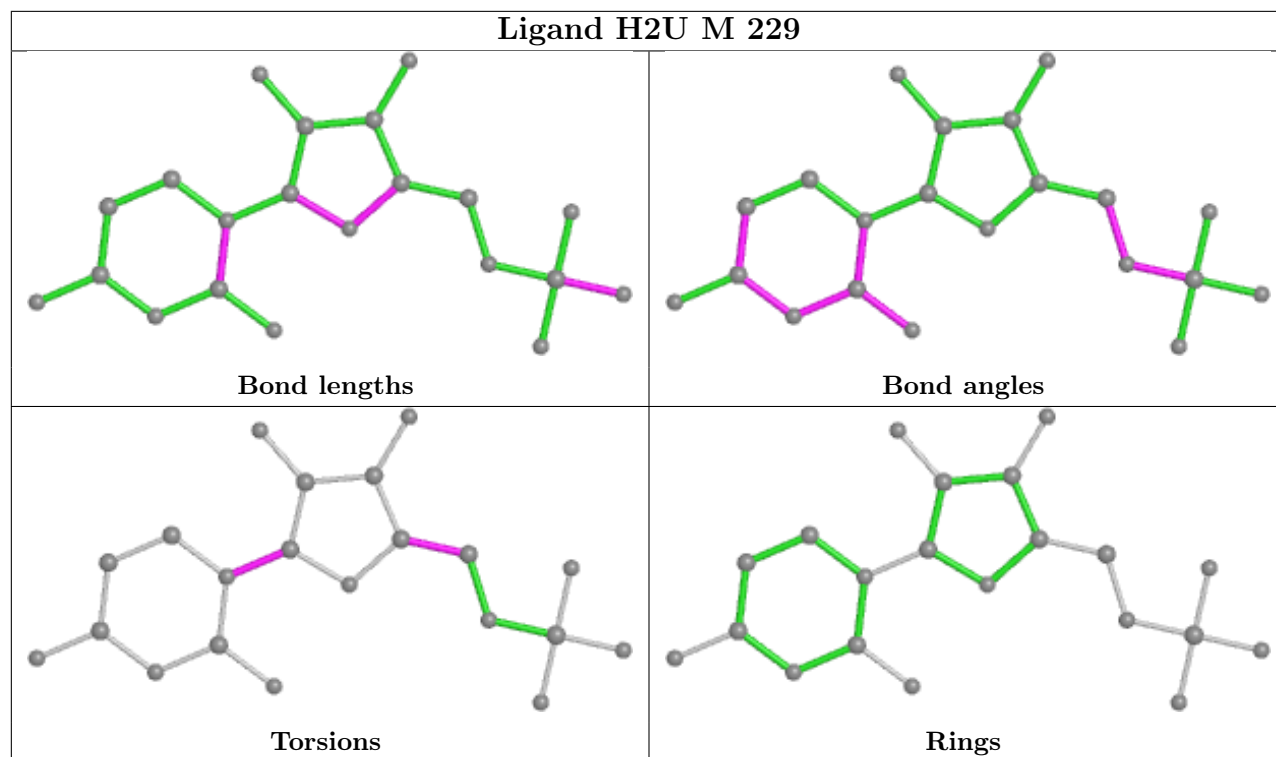
6 monomers are involved in 9 short contacts:

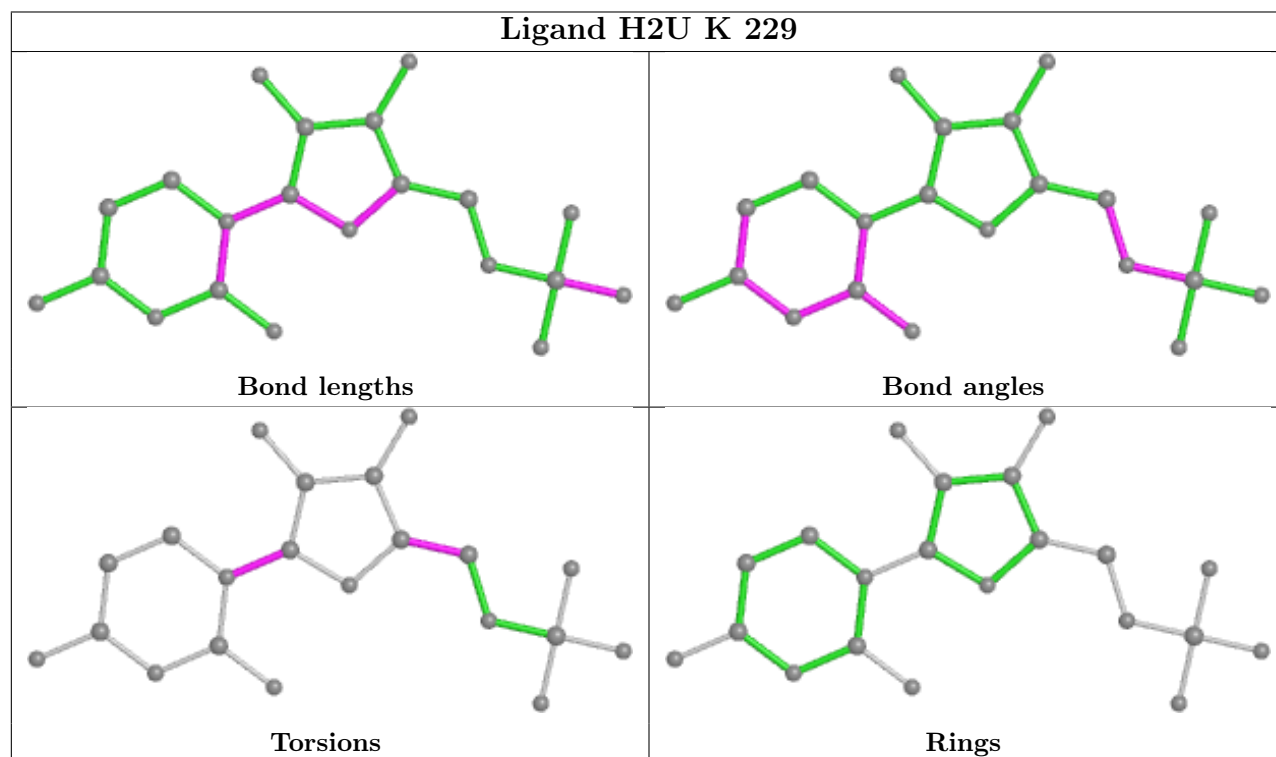
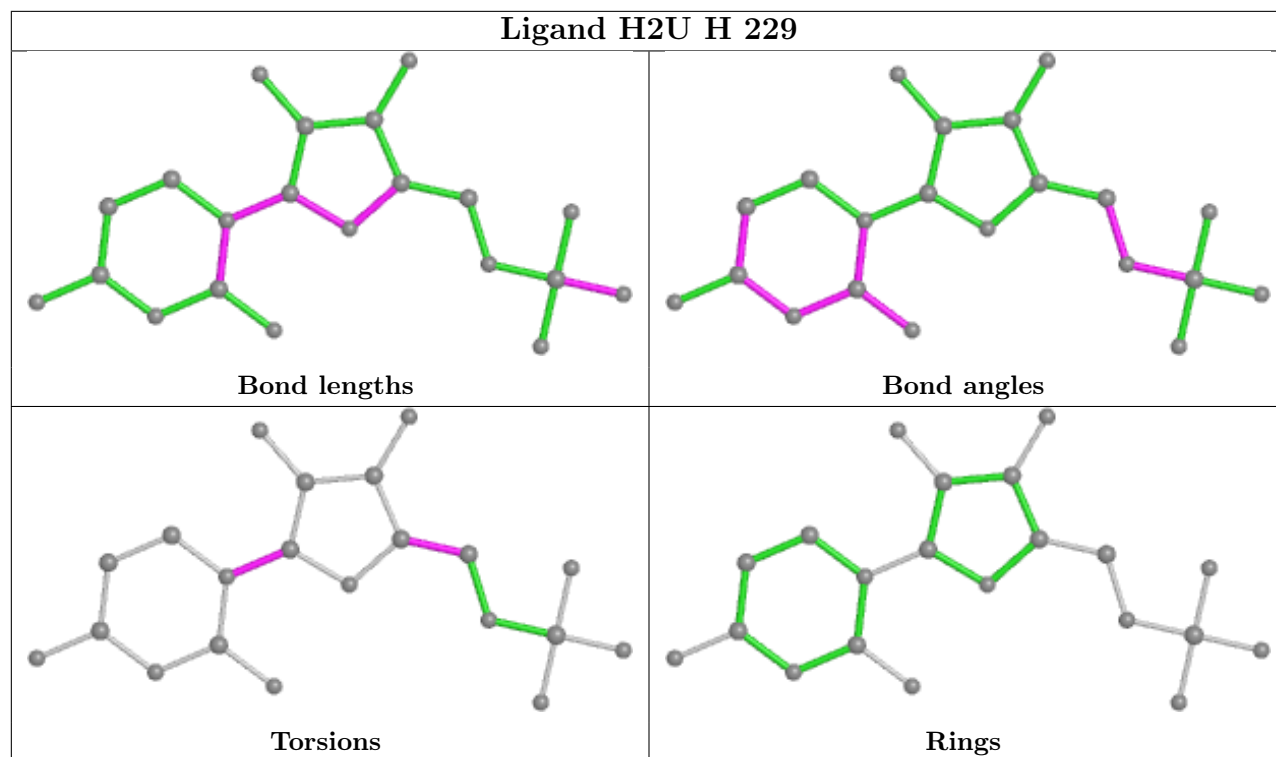
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	229	H2U	1	0
2	F	229	H2U	1	0
2	D	229	H2U	2	0
2	M	229	H2U	2	0
2	I	229	H2U	2	0
2	G	229	H2U	1	0

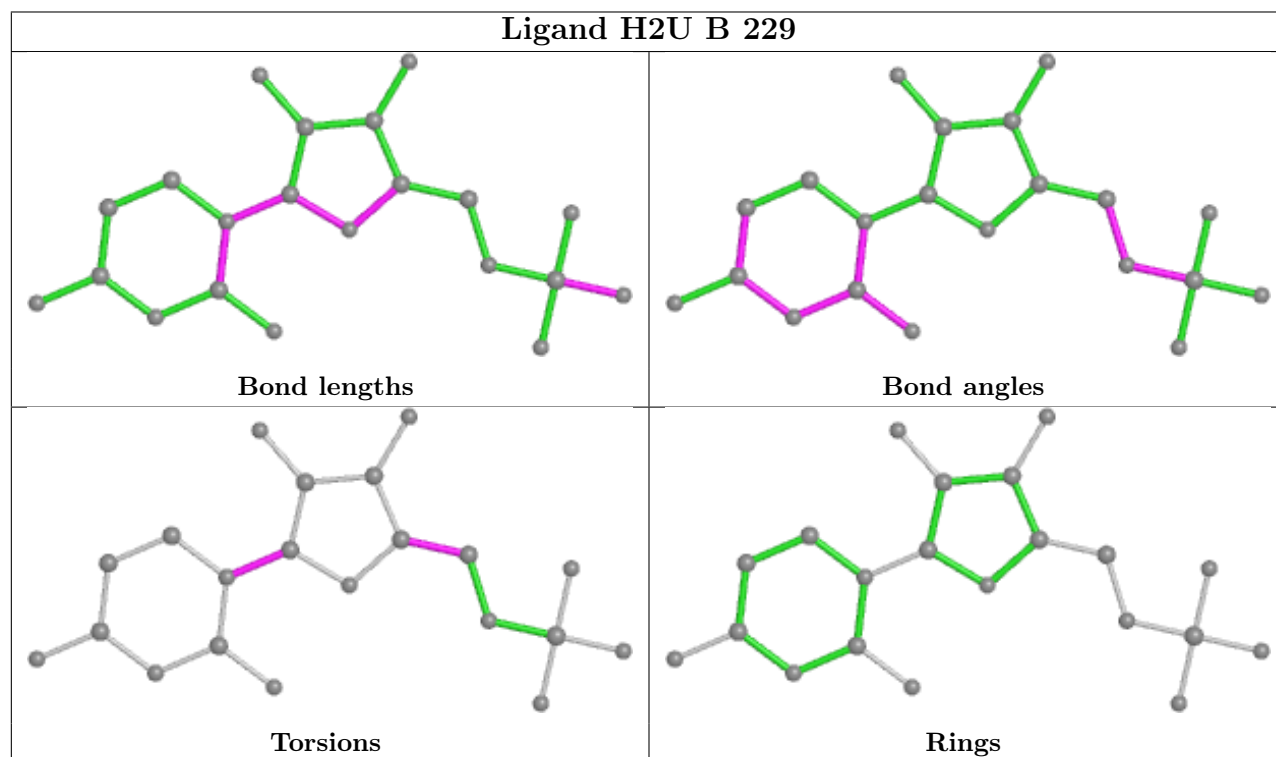
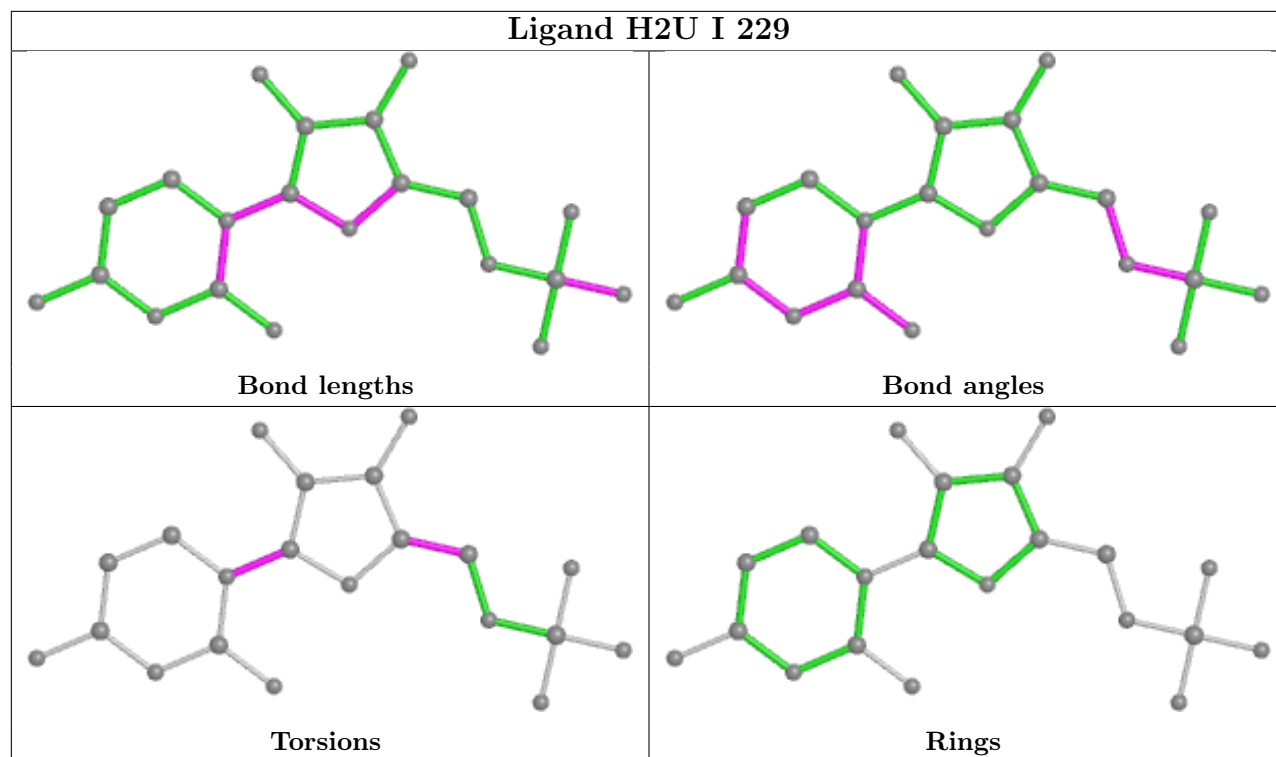
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 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.

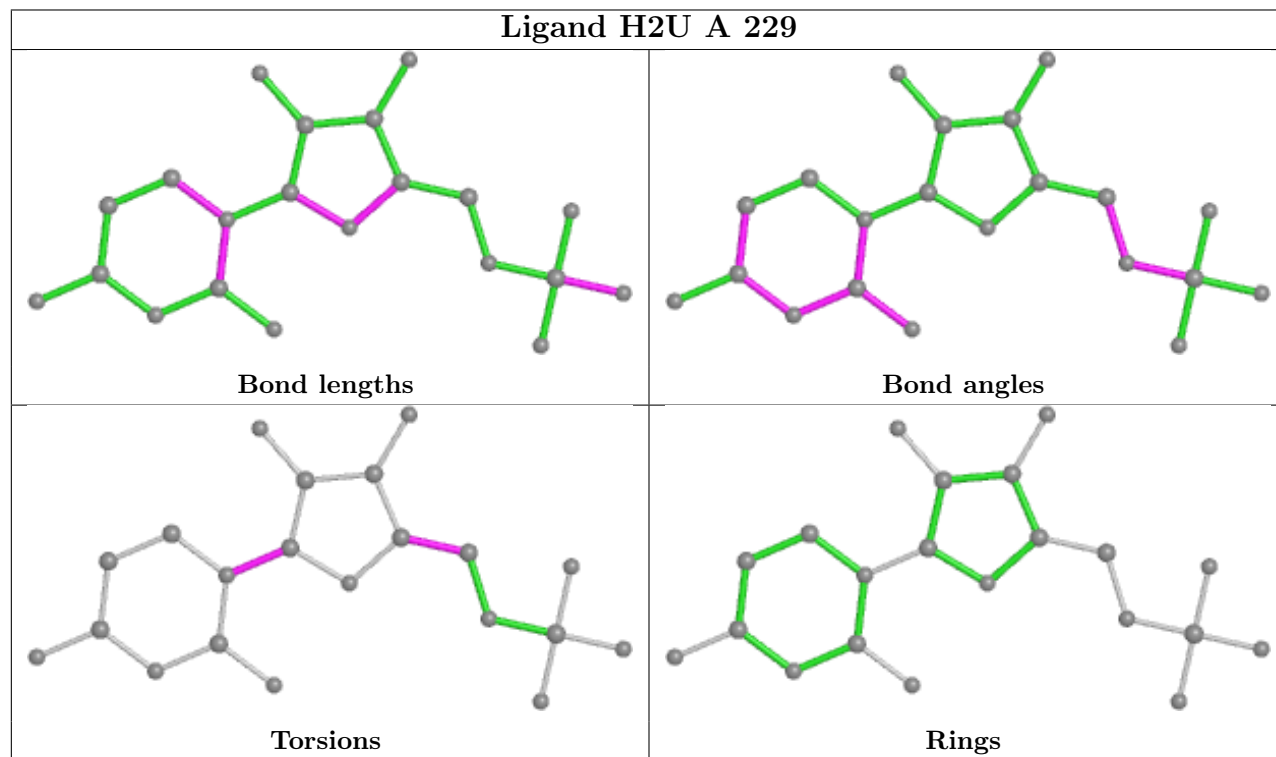
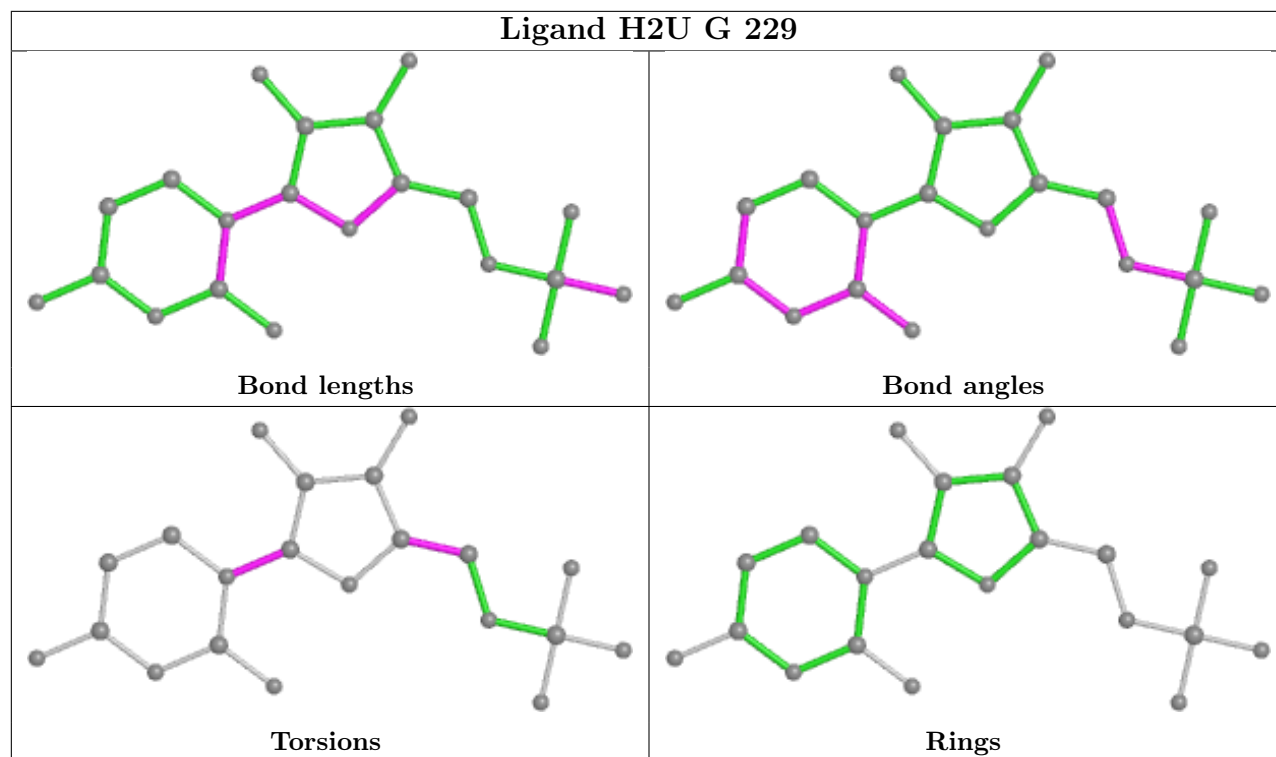


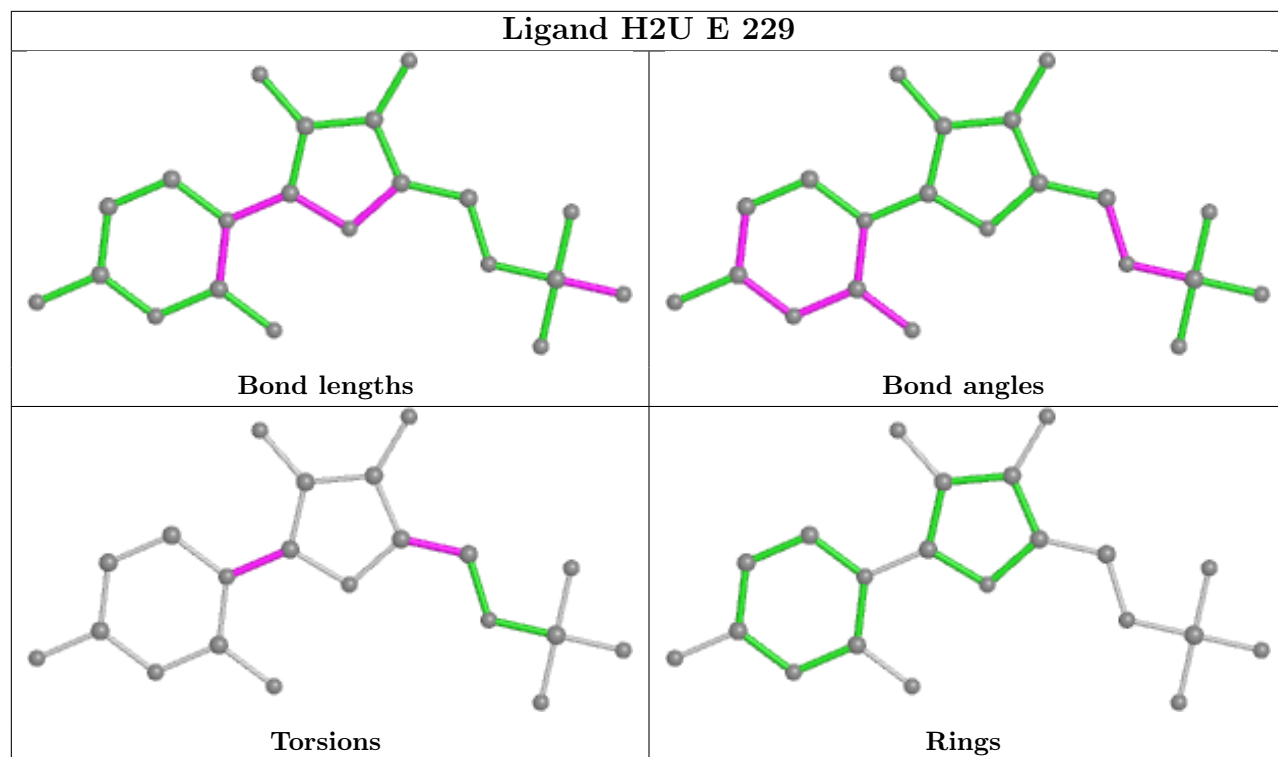












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	221/228 (96%)	0.15	14 (6%) 20 25	26, 39, 59, 91	0
1	B	216/228 (94%)	0.33	19 (8%) 10 13	28, 47, 71, 102	0
1	C	218/228 (95%)	0.22	14 (6%) 19 25	29, 42, 71, 90	0
1	D	215/228 (94%)	0.62	22 (10%) 6 9	31, 52, 95, 124	0
1	E	217/228 (95%)	0.67	29 (13%) 3 4	46, 66, 85, 107	0
1	F	217/228 (95%)	0.58	27 (12%) 4 5	37, 62, 95, 114	0
1	G	217/228 (95%)	0.82	29 (13%) 3 4	50, 66, 105, 134	0
1	H	216/228 (94%)	0.73	26 (12%) 4 6	46, 67, 99, 124	0
1	I	212/228 (92%)	1.17	45 (21%) 0 1	36, 66, 139, 152	0
1	J	218/228 (95%)	0.45	17 (7%) 13 17	32, 58, 89, 112	0
1	K	216/228 (94%)	1.19	53 (24%) 0 0	62, 83, 103, 114	0
1	L	216/228 (94%)	1.17	46 (21%) 0 1	56, 90, 113, 130	0
1	M	217/228 (95%)	1.04	40 (18%) 1 1	32, 56, 86, 117	0
All	All	2816/2964 (95%)	0.70	381 (13%) 3 4	26, 61, 103, 152	0

All (381) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	L	225	LEU	9.6
1	I	159	THR	9.6
1	D	225	LEU	9.0
1	A	225	LEU	8.6
1	M	224	ASP	7.5
1	H	224	ASP	7.3
1	I	185	GLN	6.9
1	H	225	LEU	6.9
1	I	183	GLY	6.8

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Mol	Chain	Res	Type	RSRZ
1	G	222	ILE	6.6
1	I	225	LEU	6.3
1	I	186	GLY	6.2
1	L	21	LEU	6.2
1	L	208	ALA	6.1
1	I	37	TYR	6.0
1	L	142	ILE	5.8
1	F	220	GLU	5.8
1	L	159	THR	5.8
1	L	161	PRO	5.7
1	I	181	GLY	5.7
1	G	208	ALA	5.6
1	K	74	ALA	5.5
1	A	5	ARG	5.4
1	I	223	LYS	5.4
1	I	164	LEU	5.2
1	F	218	ILE	5.2
1	G	209	ASP	5.2
1	L	193	LEU	5.1
1	D	222	ILE	5.1
1	H	223	LYS	5.1
1	I	189	PRO	5.1
1	L	207	LEU	5.1
1	I	217	GLY	5.0
1	M	195	PHE	5.0
1	K	224	ASP	5.0
1	I	209	ASP	4.9
1	G	207	LEU	4.9
1	I	207	LEU	4.9
1	A	7	ASP	4.9
1	B	222	ILE	4.9
1	L	222	ILE	4.9
1	I	184	ALA	4.8
1	M	9	MET	4.8
1	K	73	VAL	4.8
1	L	167	LEU	4.8
1	B	224	ASP	4.7
1	E	167	LEU	4.6
1	I	221	SER	4.6
1	I	180	PRO	4.6
1	I	188	ASP	4.6
1	L	211	PRO	4.6

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Mol	Chain	Res	Type	RSRZ
1	D	209	ASP	4.6
1	D	208	ALA	4.5
1	J	225	LEU	4.5
1	G	218	ILE	4.5
1	K	147	VAL	4.5
1	E	96	ILE	4.4
1	M	14	ARG	4.4
1	I	222	ILE	4.4
1	L	224	ASP	4.4
1	G	225	LEU	4.4
1	M	223	LYS	4.3
1	H	181	GLY	4.3
1	I	194	ARG	4.3
1	I	182	VAL	4.3
1	K	195	PHE	4.2
1	K	206	TYR	4.2
1	D	224	ASP	4.2
1	K	216	ALA	4.2
1	H	37	TYR	4.2
1	E	97	VAL	4.1
1	F	207	LEU	4.1
1	K	220	GLU	4.1
1	H	187	GLY	4.1
1	J	224	ASP	4.0
1	K	207	LEU	4.0
1	E	224	ASP	4.0
1	L	164	LEU	4.0
1	L	221	SER	4.0
1	F	224	ASP	4.0
1	I	163	ARG	4.0
1	L	71	PHE	3.9
1	F	9	MET	3.9
1	F	225	LEU	3.9
1	F	208	ALA	3.9
1	I	162	GLU	3.9
1	L	195	PHE	3.9
1	G	206	TYR	3.9
1	F	217	GLY	3.8
1	B	109	CYS	3.8
1	D	11	VAL	3.8
1	K	120	VAL	3.8
1	K	15	LEU	3.8

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Mol	Chain	Res	Type	RSRZ
1	E	223	LYS	3.8
1	M	100	PHE	3.8
1	H	222	ILE	3.8
1	K	96	ILE	3.8
1	K	97	VAL	3.8
1	I	220	GLU	3.7
1	K	189	PRO	3.7
1	K	208	ALA	3.7
1	G	23	ASN	3.7
1	K	222	ILE	3.7
1	G	224	ASP	3.7
1	J	159	THR	3.7
1	H	219	ILE	3.7
1	K	152	LYS	3.7
1	L	209	ASP	3.6
1	L	174	ASP	3.6
1	D	207	LEU	3.6
1	C	96	ILE	3.6
1	L	184	ALA	3.5
1	H	100	PHE	3.5
1	D	215	ALA	3.5
1	J	218	ILE	3.5
1	K	174	ASP	3.5
1	B	96	ILE	3.5
1	H	30	VAL	3.5
1	K	213	ALA	3.4
1	G	41	VAL	3.4
1	E	66	ARG	3.4
1	G	221	SER	3.4
1	K	167	LEU	3.4
1	I	166	ARG	3.3
1	H	74	ALA	3.3
1	D	211	PRO	3.3
1	B	37	TYR	3.3
1	M	222	ILE	3.3
1	M	96	ILE	3.3
1	A	6	VAL	3.3
1	D	220	GLU	3.3
1	H	123	LEU	3.2
1	A	224	ASP	3.2
1	K	182	VAL	3.2
1	K	71	PHE	3.2

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Mol	Chain	Res	Type	RSRZ
1	K	183	GLY	3.2
1	K	193	LEU	3.2
1	H	186	GLY	3.2
1	G	188	ASP	3.2
1	M	97	VAL	3.2
1	L	194	ARG	3.2
1	M	43	ILE	3.1
1	E	100	PHE	3.1
1	K	225	LEU	3.1
1	A	96	ILE	3.1
1	F	222	ILE	3.1
1	L	206	TYR	3.1
1	I	36	GLU	3.1
1	I	187	GLY	3.1
1	C	66	ARG	3.1
1	C	69	ALA	3.1
1	L	196	ALA	3.1
1	B	220	GLU	3.1
1	I	22	MET	3.1
1	G	38	ILE	3.1
1	L	205	ILE	3.0
1	L	214	ALA	3.0
1	C	73	VAL	3.0
1	H	73	VAL	3.0
1	J	191	GLU	3.0
1	I	160	ARG	3.0
1	E	216	ALA	3.0
1	J	97	VAL	3.0
1	G	74	ALA	2.9
1	C	74	ALA	2.9
1	H	208	ALA	2.9
1	C	68	ILE	2.9
1	D	96	ILE	2.9
1	I	218	ILE	2.9
1	C	37	TYR	2.9
1	F	23	ASN	2.9
1	K	21	LEU	2.9
1	F	74	ALA	2.9
1	I	208	ALA	2.9
1	K	95	ILE	2.9
1	G	160	ARG	2.9
1	M	166	ARG	2.9

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Mol	Chain	Res	Type	RSRZ
1	L	152	LYS	2.8
1	M	194	ARG	2.8
1	I	192	THR	2.8
1	C	70	ASP	2.8
1	H	97	VAL	2.8
1	L	25	ASP	2.8
1	M	66	ARG	2.8
1	M	189	PRO	2.8
1	C	155	VAL	2.8
1	I	191	GLU	2.8
1	B	225	LEU	2.8
1	L	223	LYS	2.8
1	M	72	LYS	2.8
1	H	69	ALA	2.8
1	K	166	ARG	2.8
1	K	214	ALA	2.7
1	L	15	LEU	2.7
1	J	96	ILE	2.7
1	K	72	LYS	2.7
1	C	72	LYS	2.7
1	K	107	ARG	2.7
1	I	96	ILE	2.7
1	I	199	ILE	2.7
1	E	69	ALA	2.7
1	J	166	ARG	2.7
1	E	173	GLN	2.7
1	G	211	PRO	2.7
1	L	107	ARG	2.7
1	M	209	ASP	2.7
1	E	74	ALA	2.7
1	C	97	VAL	2.7
1	K	149	LEU	2.7
1	F	22	MET	2.7
1	K	162	GLU	2.7
1	F	209	ASP	2.7
1	E	25	ASP	2.6
1	G	96	ILE	2.6
1	H	27	ALA	2.6
1	E	225	LEU	2.6
1	M	71	PHE	2.6
1	F	211	PRO	2.6
1	J	223	LYS	2.6

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Mol	Chain	Res	Type	RSRZ
1	K	169	GLU	2.6
1	E	210	ASN	2.6
1	K	103	ALA	2.6
1	K	14	ARG	2.6
1	K	223	LYS	2.6
1	G	166	ARG	2.6
1	H	96	ILE	2.6
1	K	173	GLN	2.6
1	M	73	VAL	2.6
1	E	68	ILE	2.6
1	K	124	THR	2.6
1	E	73	VAL	2.6
1	G	187	GLY	2.6
1	M	10	ASP	2.6
1	B	191	GLU	2.6
1	E	191	GLU	2.6
1	G	223	LYS	2.6
1	B	72	LYS	2.6
1	B	74	ALA	2.5
1	L	23	ASN	2.5
1	M	214	ALA	2.5
1	F	72	LYS	2.5
1	M	174	ASP	2.5
1	B	71	PHE	2.5
1	L	100	PHE	2.5
1	A	69	ALA	2.5
1	M	45	TYR	2.5
1	E	217	GLY	2.5
1	M	207	LEU	2.5
1	E	195	PHE	2.5
1	I	169	GLU	2.5
1	H	72	LYS	2.5
1	M	167	LEU	2.5
1	C	123	LEU	2.5
1	L	28	LEU	2.5
1	I	34	VAL	2.4
1	K	85	ARG	2.4
1	M	217	GLY	2.4
1	L	43	ILE	2.4
1	H	36	GLU	2.4
1	D	214	ALA	2.4
1	M	74	ALA	2.4

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Mol	Chain	Res	Type	RSRZ
1	I	224	ASP	2.4
1	G	219	ILE	2.4
1	H	162	GLU	2.4
1	M	36	GLU	2.4
1	D	223	LYS	2.4
1	G	73	VAL	2.4
1	E	26	ASP	2.4
1	M	37	TYR	2.4
1	M	68	ILE	2.4
1	B	162	GLU	2.4
1	L	37	TYR	2.4
1	M	122	LEU	2.4
1	K	61	LYS	2.4
1	L	74	ALA	2.4
1	F	73	VAL	2.4
1	I	210	ASN	2.4
1	L	220	GLU	2.4
1	L	29	ARG	2.4
1	L	202	GLY	2.4
1	L	160	ARG	2.3
1	D	38	ILE	2.3
1	H	214	ALA	2.3
1	J	194	ARG	2.3
1	K	65	CYS	2.3
1	L	169	GLU	2.3
1	F	223	LYS	2.3
1	K	171	ILE	2.3
1	I	157	PRO	2.3
1	D	37	TYR	2.3
1	A	71	PHE	2.3
1	F	34	VAL	2.3
1	L	183	GLY	2.3
1	B	36	GLU	2.3
1	H	67	ILE	2.3
1	I	213	ALA	2.3
1	B	73	VAL	2.3
1	E	218	ILE	2.3
1	L	171	ILE	2.3
1	G	22	MET	2.2
1	E	98	HIS	2.2
1	G	67	ILE	2.2
1	M	132	GLU	2.2

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Mol	Chain	Res	Type	RSRZ
1	I	152	LYS	2.2
1	K	164	LEU	2.2
1	E	209	ASP	2.2
1	A	74	ALA	2.2
1	I	69	ALA	2.2
1	I	28	LEU	2.2
1	F	191	GLU	2.2
1	L	58	GLU	2.2
1	C	71	PHE	2.2
1	J	69	ALA	2.2
1	K	212	ALA	2.2
1	F	96	ILE	2.2
1	J	95	ILE	2.2
1	K	191	GLU	2.2
1	M	61	LYS	2.2
1	K	161	PRO	2.2
1	D	162	GLU	2.2
1	J	173	GLN	2.2
1	K	67	ILE	2.2
1	L	189	PRO	2.2
1	M	98	HIS	2.2
1	E	95	ILE	2.2
1	A	123	LEU	2.2
1	F	15	LEU	2.2
1	B	223	LYS	2.1
1	D	183	GLY	2.2
1	E	34	VAL	2.1
1	M	62	ARG	2.1
1	F	63	PHE	2.1
1	G	191	GLU	2.1
1	D	123	LEU	2.1
1	M	206	TYR	2.1
1	A	73	VAL	2.1
1	A	68	ILE	2.1
1	G	200	ILE	2.1
1	H	13	ASN	2.1
1	I	23	ASN	2.1
1	K	105	SER	2.1
1	F	213	ALA	2.1
1	H	221	SER	2.1
1	L	62	ARG	2.1
1	M	123	LEU	2.1

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Mol	Chain	Res	Type	RSRZ
1	K	69	ALA	2.1
1	G	189	PRO	2.1
1	B	95	ILE	2.1
1	M	67	ILE	2.1
1	J	220	GLU	2.1
1	B	69	ALA	2.1
1	M	94	ALA	2.1
1	M	120	VAL	2.1
1	K	100	PHE	2.1
1	B	218	ILE	2.1
1	E	43	ILE	2.1
1	B	98	HIS	2.1
1	E	70	ASP	2.1
1	G	194	ARG	2.1
1	C	213	ALA	2.1
1	A	97	VAL	2.1
1	D	16	ILE	2.0
1	J	207	LEU	2.0
1	E	212	ALA	2.0
1	J	183	GLY	2.0
1	D	97	VAL	2.0
1	F	30	VAL	2.0
1	L	155	VAL	2.0
1	F	206	TYR	2.0
1	E	72	LYS	2.0
1	D	40	THR	2.0
1	M	44	GLY	2.0
1	A	174	ASP	2.0
1	G	39	ASP	2.0
1	K	194	ARG	2.0
1	K	203	ARG	2.0
1	F	97	VAL	2.0
1	D	121	PHE	2.0
1	F	123	LEU	2.0
1	J	217	GLY	2.0
1	I	158	SER	2.0

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

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

6.3 Carbohydrates

There are no monosaccharides in this entry.

6.4 Ligands

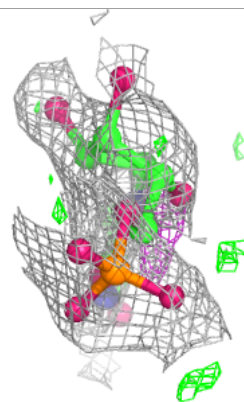
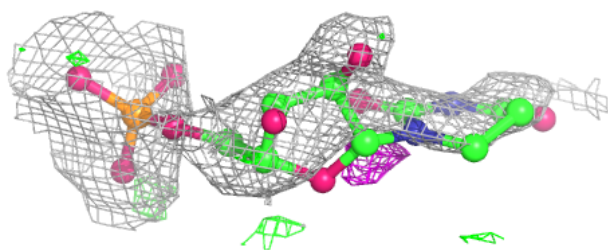
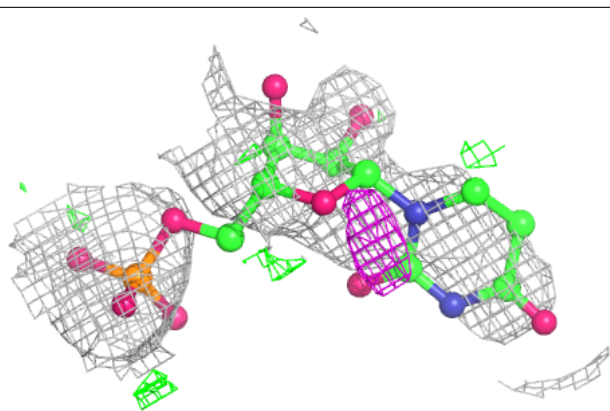
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	H2U	I	229	21/21	0.63	0.32	137,138,138,139	0
2	H2U	L	229	21/21	0.73	0.25	118,119,123,124	0
2	H2U	F	229	21/21	0.80	0.17	57,64,69,70	0
2	H2U	K	229	21/21	0.89	0.16	72,75,77,78	0
2	H2U	J	229	21/21	0.89	0.20	64,67,69,70	0
2	H2U	M	229	21/21	0.89	0.18	59,66,68,70	0
2	H2U	G	229	21/21	0.91	0.17	64,66,75,76	0
2	H2U	D	229	21/21	0.92	0.14	54,58,65,66	0
2	H2U	H	229	21/21	0.93	0.13	64,68,78,79	0
2	H2U	E	229	21/21	0.94	0.16	57,59,64,64	0
2	H2U	C	229	21/21	0.94	0.21	37,39,48,51	0
2	H2U	B	229	21/21	0.94	0.15	42,45,52,54	0
2	H2U	A	229	21/21	0.96	0.18	31,37,40,43	0

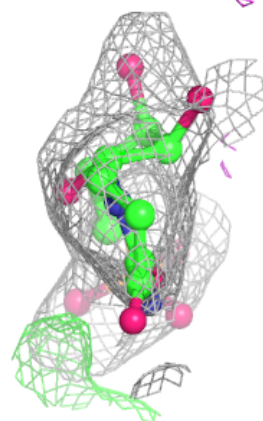
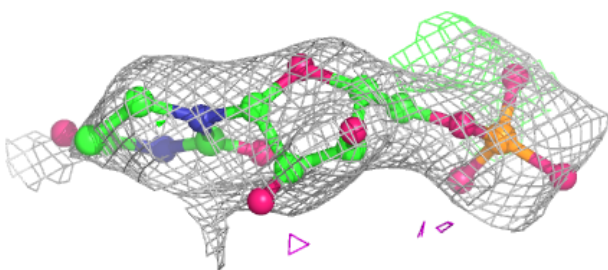
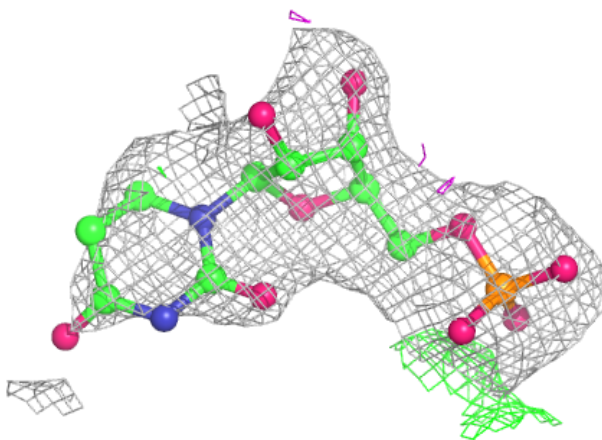
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around H2U I 229:

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

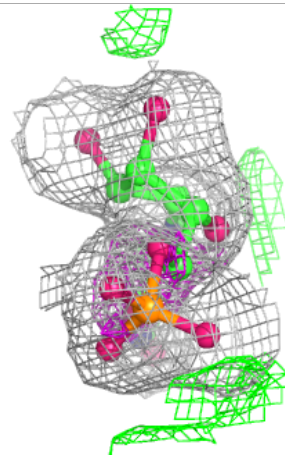
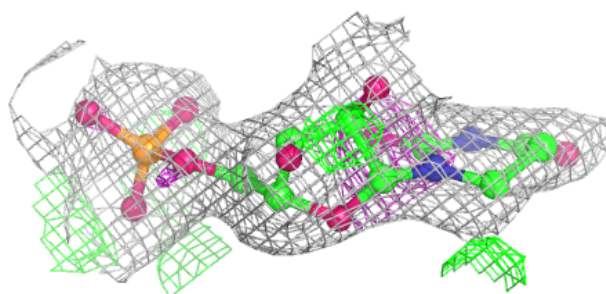
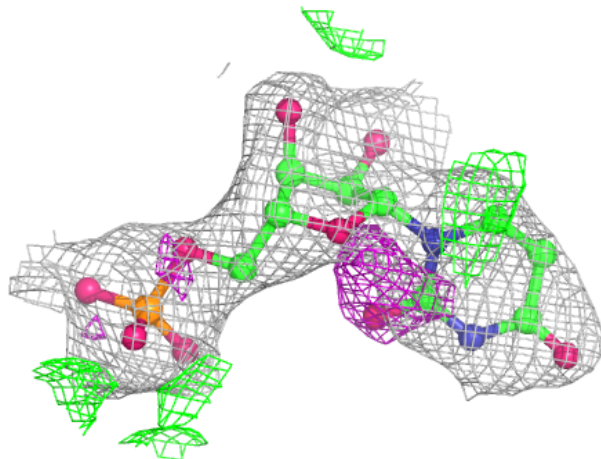
**Electron density around H2U L 229:**

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



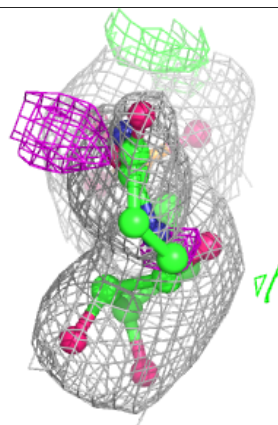
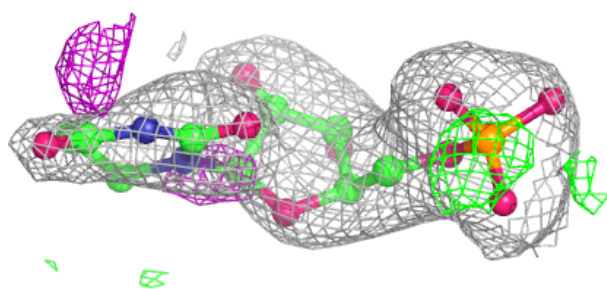
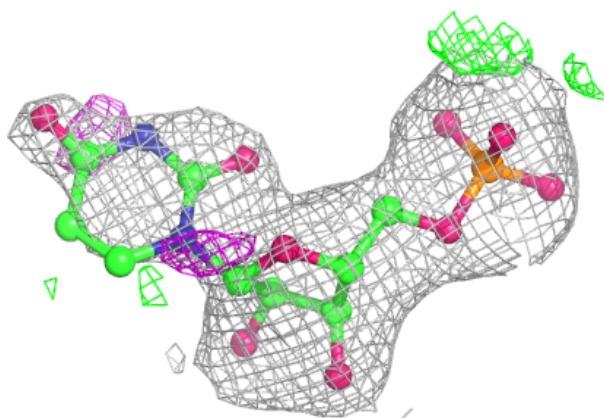
Electron density around H2U F 229:

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

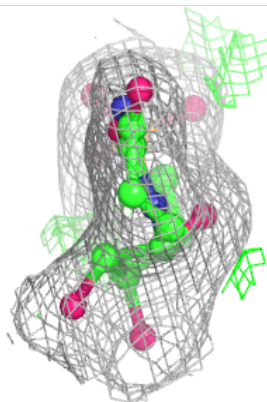
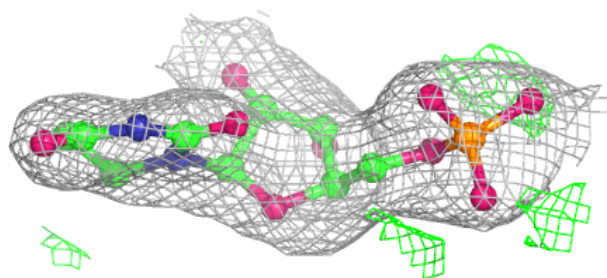
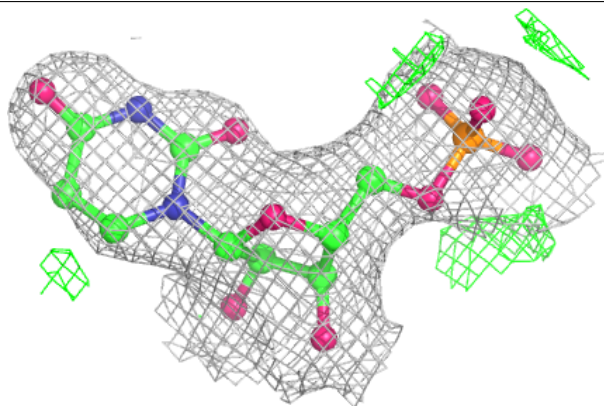


Electron density around H2U K 229:

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

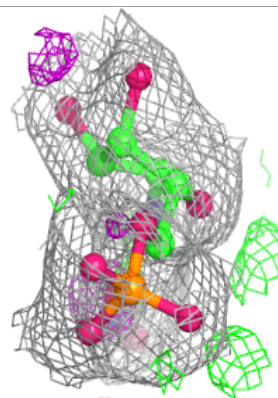
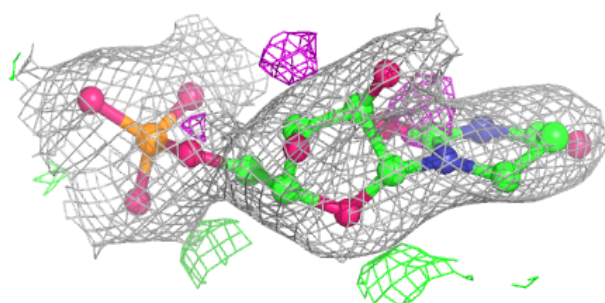
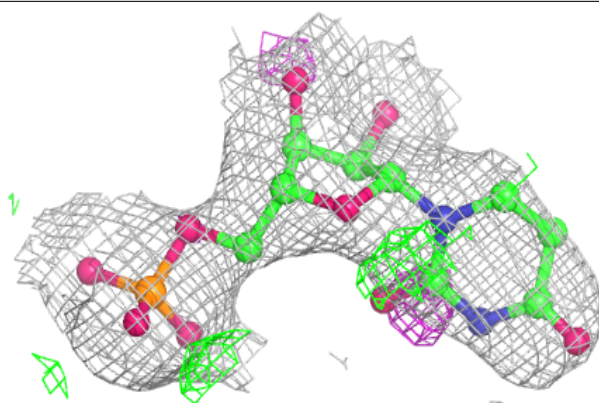
**Electron density around H2U J 229:**

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

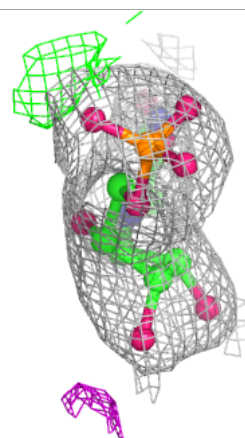
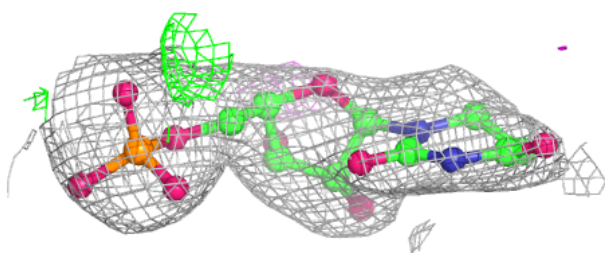
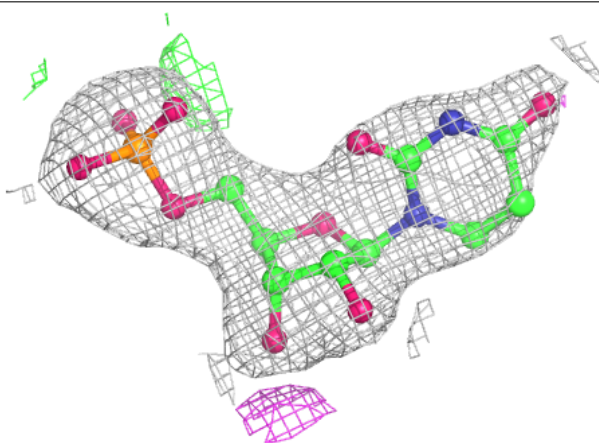


Electron density around H2U M 229:

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

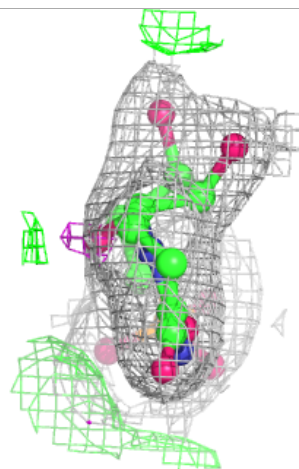
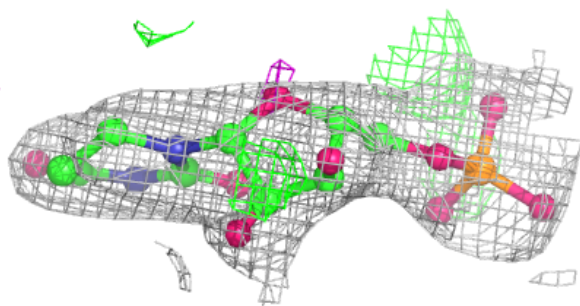
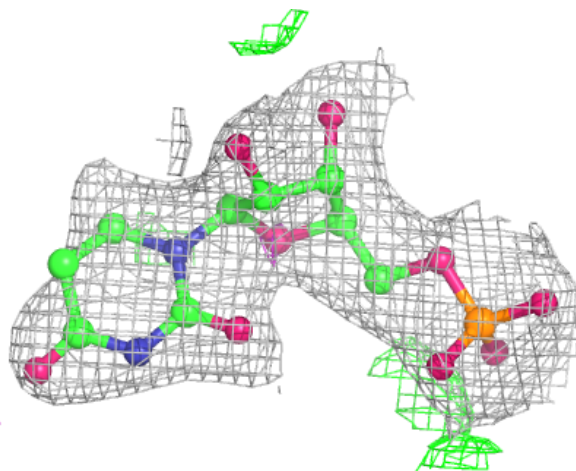
**Electron density around H2U G 229:**

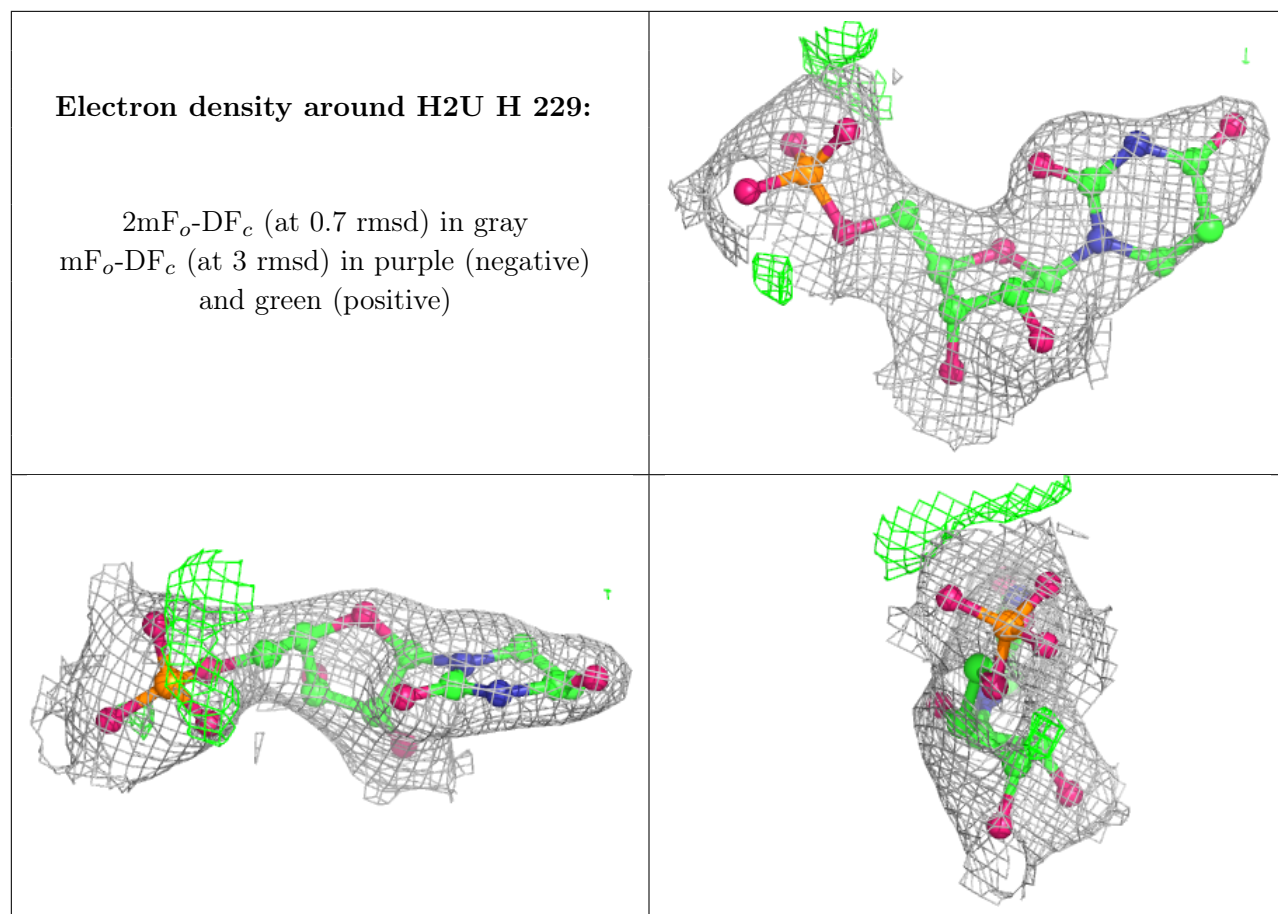
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around H2U D 229:

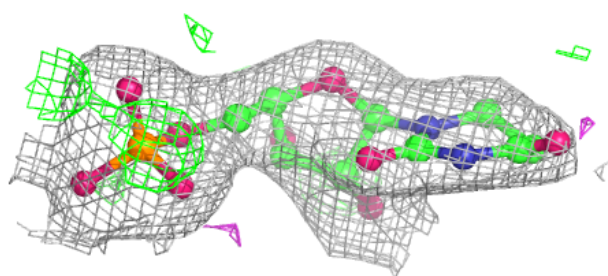
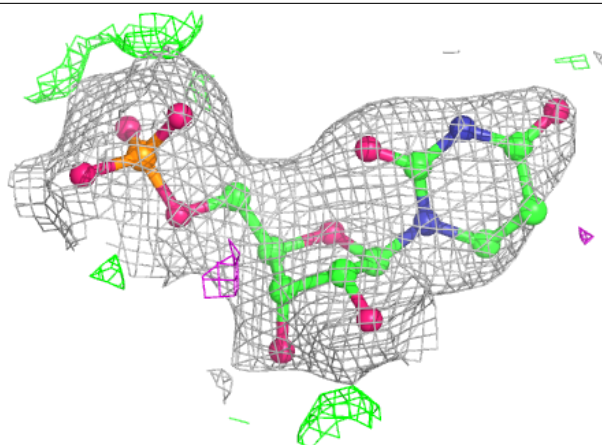
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



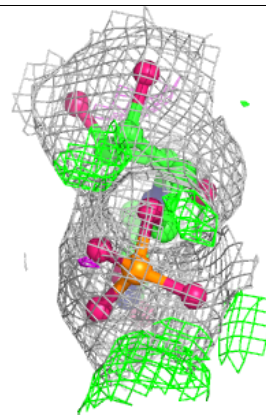
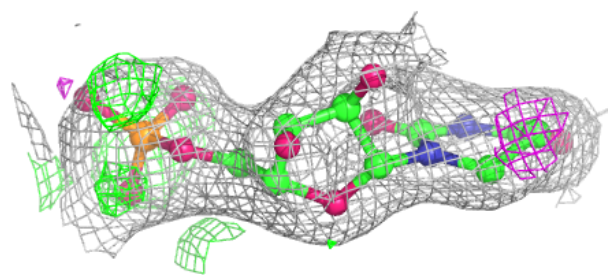
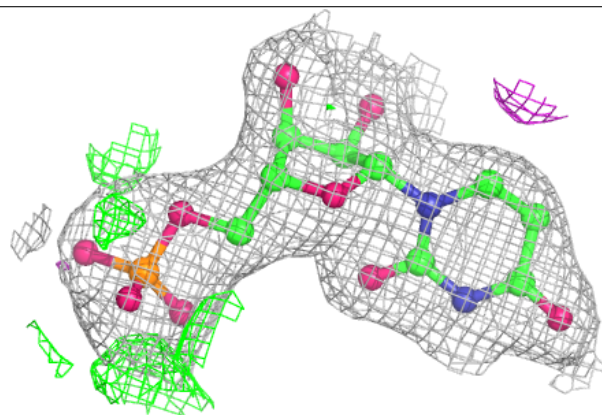


Electron density around H2U E 229:

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

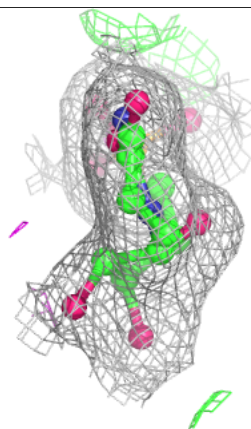
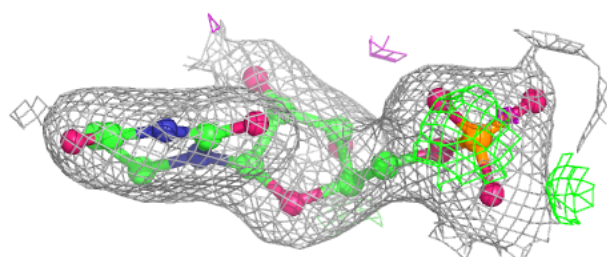
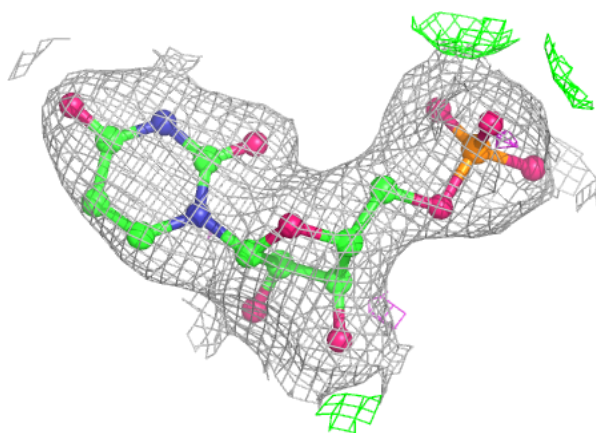
**Electron density around H2U C 229:**

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

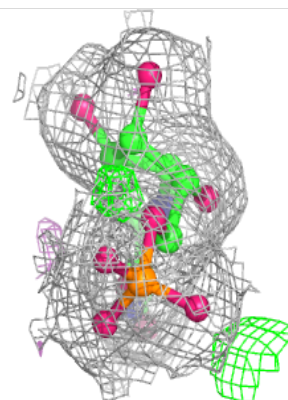
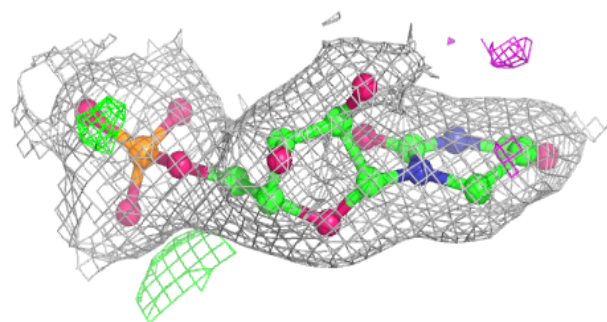
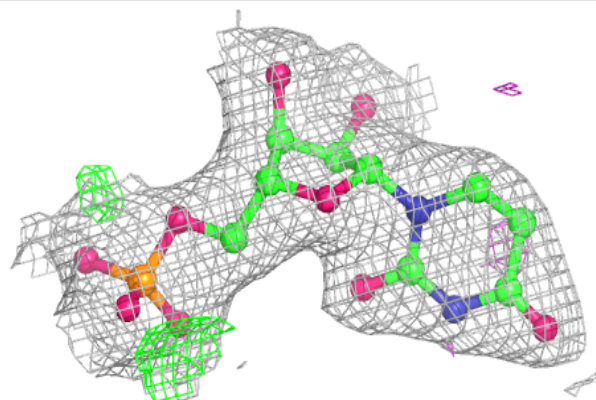


Electron density around H2U B 229:

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

**Electron density around H2U A 229:**

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



6.5 Other polymers [i](#)

There are no such residues in this entry.