Full wwPDB X-ray Structure Validation Report ⓘ

Dec 21, 2023 – 04:15 PM EST

PDB ID	:	8TBU
Title	:	Structure of human erythrocyte pyruvate kinase in complex with an allosteric activator Compound 12
Authors	:	Jin, L.; Padyana, A.
Deposited on	:	2023-06-29
Resolution	:	2.35 Å(reported)

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

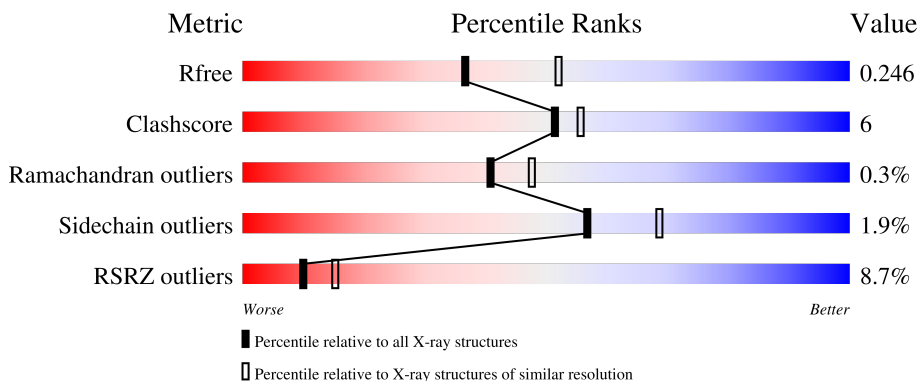|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 2.35 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.
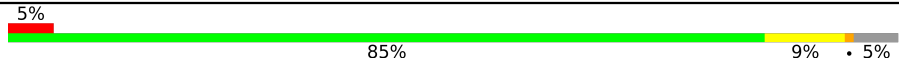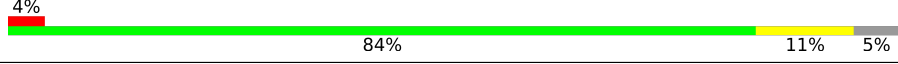
Metric	Percentile Ranks	Value
Rfree		0.246
Clashscore		6
Ramachandran outliers		0.3%
Sidechain outliers		1.9%
RSRZ outliers		8.7%

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	1164 (2.36-2.36)
Clashscore	141614	1232 (2.36-2.36)
Ramachandran outliers	138981	1211 (2.36-2.36)
Sidechain outliers	138945	1212 (2.36-2.36)
RSRZ outliers	127900	1150 (2.36-2.36)

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	544	12% / 78% / 15% · 6%
1	B	544	10% / 75% / 11% 14%
1	C	544	6% / 72% / 9% 18%
1	D	544	8% / 84% / 10% 5%
1	E	544	9% / 62% / 16% · 21%

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Mol	Chain	Length	Quality of chain
1	F	544	5% / 85% / 9% / 5%
1	G	544	7% / 65% / 13% / 22%
1	H	544	4% / 84% / 11% / 5%

2 Entry composition ⓘ

There are 7 unique types of molecules in this entry. The entry contains 30849 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 Pyruvate kinase PKLR.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	509	Total	C	N	O	S	0	1	0
			3851	2420	696	717	18			
1	B	468	Total	C	N	O	S	0	0	0
			3546	2228	641	659	18			
1	C	446	Total	C	N	O	S	0	1	0
			3392	2133	611	630	18			
1	D	515	Total	C	N	O	S	0	0	0
			3895	2448	703	726	18			
1	E	429	Total	C	N	O	S	0	0	0
			3260	2048	592	602	18			
1	F	518	Total	C	N	O	S	0	0	0
			3912	2457	707	730	18			
1	G	426	Total	C	N	O	S	0	0	0
			3239	2035	586	600	18			
1	H	518	Total	C	N	O	S	0	0	0
			3912	2457	707	730	18			

There are 152 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	31	MET	-	initiating methionine	UNP P30613
A	32	GLY	-	expression tag	UNP P30613
A	33	SER	-	expression tag	UNP P30613
A	34	SER	-	expression tag	UNP P30613
A	35	HIS	-	expression tag	UNP P30613
A	36	HIS	-	expression tag	UNP P30613
A	37	HIS	-	expression tag	UNP P30613
A	38	HIS	-	expression tag	UNP P30613
A	39	HIS	-	expression tag	UNP P30613
A	40	HIS	-	expression tag	UNP P30613
A	41	SER	-	expression tag	UNP P30613
A	42	SER	-	expression tag	UNP P30613
A	43	GLY	-	expression tag	UNP P30613

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Chain	Residue	Modelled	Actual	Comment	Reference
A	44	LEU	-	expression tag	UNP P30613
A	45	VAL	-	expression tag	UNP P30613
A	46	PRO	-	expression tag	UNP P30613
A	47	ARG	-	expression tag	UNP P30613
A	48	GLY	-	expression tag	UNP P30613
A	49	SER	-	expression tag	UNP P30613
B	31	MET	-	initiating methionine	UNP P30613
B	32	GLY	-	expression tag	UNP P30613
B	33	SER	-	expression tag	UNP P30613
B	34	SER	-	expression tag	UNP P30613
B	35	HIS	-	expression tag	UNP P30613
B	36	HIS	-	expression tag	UNP P30613
B	37	HIS	-	expression tag	UNP P30613
B	38	HIS	-	expression tag	UNP P30613
B	39	HIS	-	expression tag	UNP P30613
B	40	HIS	-	expression tag	UNP P30613
B	41	SER	-	expression tag	UNP P30613
B	42	SER	-	expression tag	UNP P30613
B	43	GLY	-	expression tag	UNP P30613
B	44	LEU	-	expression tag	UNP P30613
B	45	VAL	-	expression tag	UNP P30613
B	46	PRO	-	expression tag	UNP P30613
B	47	ARG	-	expression tag	UNP P30613
B	48	GLY	-	expression tag	UNP P30613
B	49	SER	-	expression tag	UNP P30613
C	31	MET	-	initiating methionine	UNP P30613
C	32	GLY	-	expression tag	UNP P30613
C	33	SER	-	expression tag	UNP P30613
C	34	SER	-	expression tag	UNP P30613
C	35	HIS	-	expression tag	UNP P30613
C	36	HIS	-	expression tag	UNP P30613
C	37	HIS	-	expression tag	UNP P30613
C	38	HIS	-	expression tag	UNP P30613
C	39	HIS	-	expression tag	UNP P30613
C	40	HIS	-	expression tag	UNP P30613
C	41	SER	-	expression tag	UNP P30613
C	42	SER	-	expression tag	UNP P30613
C	43	GLY	-	expression tag	UNP P30613
C	44	LEU	-	expression tag	UNP P30613
C	45	VAL	-	expression tag	UNP P30613
C	46	PRO	-	expression tag	UNP P30613
C	47	ARG	-	expression tag	UNP P30613

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Chain	Residue	Modelled	Actual	Comment	Reference
C	48	GLY	-	expression tag	UNP P30613
C	49	SER	-	expression tag	UNP P30613
D	31	MET	-	initiating methionine	UNP P30613
D	32	GLY	-	expression tag	UNP P30613
D	33	SER	-	expression tag	UNP P30613
D	34	SER	-	expression tag	UNP P30613
D	35	HIS	-	expression tag	UNP P30613
D	36	HIS	-	expression tag	UNP P30613
D	37	HIS	-	expression tag	UNP P30613
D	38	HIS	-	expression tag	UNP P30613
D	39	HIS	-	expression tag	UNP P30613
D	40	HIS	-	expression tag	UNP P30613
D	41	SER	-	expression tag	UNP P30613
D	42	SER	-	expression tag	UNP P30613
D	43	GLY	-	expression tag	UNP P30613
D	44	LEU	-	expression tag	UNP P30613
D	45	VAL	-	expression tag	UNP P30613
D	46	PRO	-	expression tag	UNP P30613
D	47	ARG	-	expression tag	UNP P30613
D	48	GLY	-	expression tag	UNP P30613
D	49	SER	-	expression tag	UNP P30613
E	31	MET	-	initiating methionine	UNP P30613
E	32	GLY	-	expression tag	UNP P30613
E	33	SER	-	expression tag	UNP P30613
E	34	SER	-	expression tag	UNP P30613
E	35	HIS	-	expression tag	UNP P30613
E	36	HIS	-	expression tag	UNP P30613
E	37	HIS	-	expression tag	UNP P30613
E	38	HIS	-	expression tag	UNP P30613
E	39	HIS	-	expression tag	UNP P30613
E	40	HIS	-	expression tag	UNP P30613
E	41	SER	-	expression tag	UNP P30613
E	42	SER	-	expression tag	UNP P30613
E	43	GLY	-	expression tag	UNP P30613
E	44	LEU	-	expression tag	UNP P30613
E	45	VAL	-	expression tag	UNP P30613
E	46	PRO	-	expression tag	UNP P30613
E	47	ARG	-	expression tag	UNP P30613
E	48	GLY	-	expression tag	UNP P30613
E	49	SER	-	expression tag	UNP P30613
F	31	MET	-	initiating methionine	UNP P30613
F	32	GLY	-	expression tag	UNP P30613

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Chain	Residue	Modelled	Actual	Comment	Reference
F	33	SER	-	expression tag	UNP P30613
F	34	SER	-	expression tag	UNP P30613
F	35	HIS	-	expression tag	UNP P30613
F	36	HIS	-	expression tag	UNP P30613
F	37	HIS	-	expression tag	UNP P30613
F	38	HIS	-	expression tag	UNP P30613
F	39	HIS	-	expression tag	UNP P30613
F	40	HIS	-	expression tag	UNP P30613
F	41	SER	-	expression tag	UNP P30613
F	42	SER	-	expression tag	UNP P30613
F	43	GLY	-	expression tag	UNP P30613
F	44	LEU	-	expression tag	UNP P30613
F	45	VAL	-	expression tag	UNP P30613
F	46	PRO	-	expression tag	UNP P30613
F	47	ARG	-	expression tag	UNP P30613
F	48	GLY	-	expression tag	UNP P30613
F	49	SER	-	expression tag	UNP P30613
G	31	MET	-	initiating methionine	UNP P30613
G	32	GLY	-	expression tag	UNP P30613
G	33	SER	-	expression tag	UNP P30613
G	34	SER	-	expression tag	UNP P30613
G	35	HIS	-	expression tag	UNP P30613
G	36	HIS	-	expression tag	UNP P30613
G	37	HIS	-	expression tag	UNP P30613
G	38	HIS	-	expression tag	UNP P30613
G	39	HIS	-	expression tag	UNP P30613
G	40	HIS	-	expression tag	UNP P30613
G	41	SER	-	expression tag	UNP P30613
G	42	SER	-	expression tag	UNP P30613
G	43	GLY	-	expression tag	UNP P30613
G	44	LEU	-	expression tag	UNP P30613
G	45	VAL	-	expression tag	UNP P30613
G	46	PRO	-	expression tag	UNP P30613
G	47	ARG	-	expression tag	UNP P30613
G	48	GLY	-	expression tag	UNP P30613
G	49	SER	-	expression tag	UNP P30613
H	31	MET	-	initiating methionine	UNP P30613
H	32	GLY	-	expression tag	UNP P30613
H	33	SER	-	expression tag	UNP P30613
H	34	SER	-	expression tag	UNP P30613
H	35	HIS	-	expression tag	UNP P30613
H	36	HIS	-	expression tag	UNP P30613

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Chain	Residue	Modelled	Actual	Comment	Reference
H	37	HIS	-	expression tag	UNP P30613
H	38	HIS	-	expression tag	UNP P30613
H	39	HIS	-	expression tag	UNP P30613
H	40	HIS	-	expression tag	UNP P30613
H	41	SER	-	expression tag	UNP P30613
H	42	SER	-	expression tag	UNP P30613
H	43	GLY	-	expression tag	UNP P30613
H	44	LEU	-	expression tag	UNP P30613
H	45	VAL	-	expression tag	UNP P30613
H	46	PRO	-	expression tag	UNP P30613
H	47	ARG	-	expression tag	UNP P30613
H	48	GLY	-	expression tag	UNP P30613
H	49	SER	-	expression tag	UNP P30613

- Molecule 2 is 6-[(4-hydroxyphenyl)methyl]-2,4-dimethyl-4,6-dihydro-5H-[1,3]thiazolo[5',4':4, 5]pyrrolo[2,3-d]pyridazin-5-one (three-letter code: I0R) (formula: $C_{16}H_{14}N_4O_2S$) (labeled as "Ligand of Interest" by depositor).
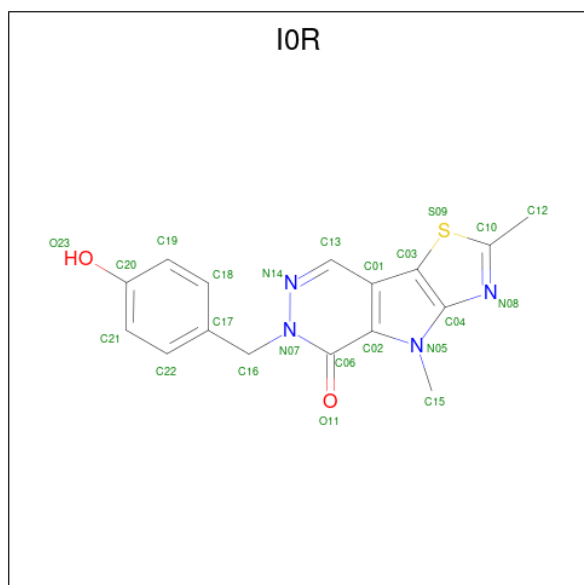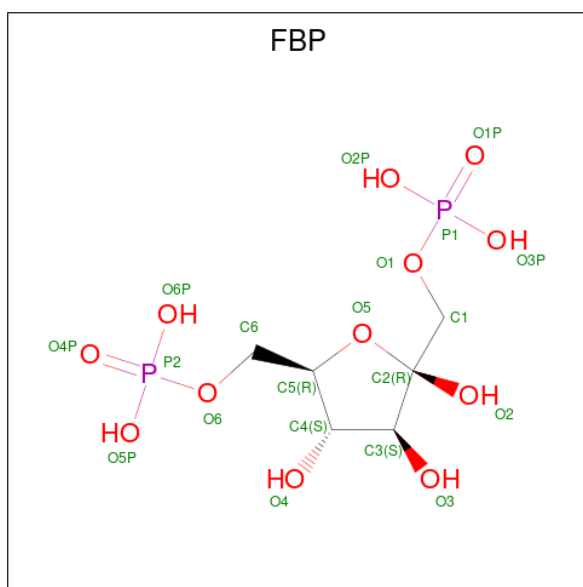

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	S	0	0
			23	16	4	2	1		
2	D	1	Total	C	N	O	S	0	0
			23	16	4	2	1		
2	F	1	Total	C	N	O	S	0	0
			23	16	4	2	1		
2	H	1	Total	C	N	O	S	0	0
			23	16	4	2	1		

- Molecule 3 is PYRUVIC ACID (three-letter code: PYR) (formula: $C_3H_4O_3$).
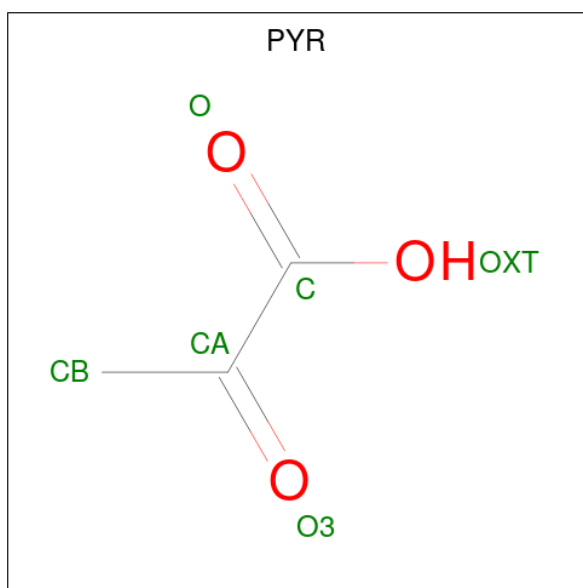
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total 6	C 3	O 3	0	0
3	B	1	Total 6	C 3	O 3	0	0
3	C	1	Total 6	C 3	O 3	0	0
3	E	1	Total 6	C 3	O 3	0	0
3	F	1	Total 6	C 3	O 3	0	0
3	G	1	Total 6	C 3	O 3	0	0

- Molecule 4 is 1,6-di-O-phosphono-beta-D-fructofuranose (three-letter code: FBP) (formula: $C_6H_{14}O_{12}P_2$).

FBP

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total 20	C 6	O 12	P 2	0	0
4	B	1	Total 20	C 6	O 12	P 2	0	0
4	C	1	Total 20	C 6	O 12	P 2	0	0
4	D	1	Total 20	C 6	O 12	P 2	0	0
4	E	1	Total 20	C 6	O 12	P 2	0	0
4	F	1	Total 20	C 6	O 12	P 2	0	0
4	G	1	Total 20	C 6	O 12	P 2	0	0
4	H	1	Total 20	C 6	O 12	P 2	0	0

- Molecule 5 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total 1	Mn 1	0	0
5	B	1	Total 1	Mn 1	0	0
5	C	1	Total 1	Mn 1	0	0
5	D	1	Total 1	Mn 1	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	E	1	Total 1	Mn 1	0	0
5	F	1	Total 1	Mn 1	0	0
5	G	1	Total 1	Mn 1	0	0
5	H	1	Total 1	Mn 1	0	0

- Molecule 6 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	1	Total 1	K 1	0	0
6	D	1	Total 1	K 1	0	0

- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	208	Total 208	O 208	0	0
7	B	191	Total 191	O 191	0	0
7	C	189	Total 189	O 189	0	0
7	D	252	Total 252	O 252	0	0
7	E	93	Total 93	O 93	0	0
7	F	244	Total 244	O 244	0	0
7	G	109	Total 109	O 109	0	0
7	H	258	Total 258	O 258	0	0

3 Residue-property plots ⓘ

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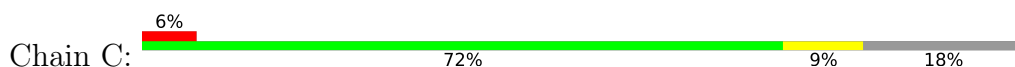
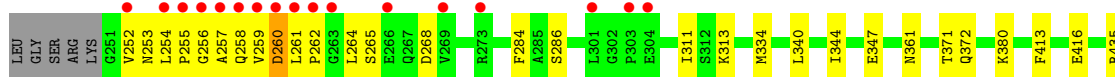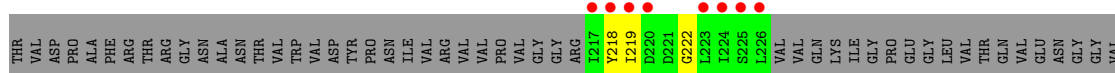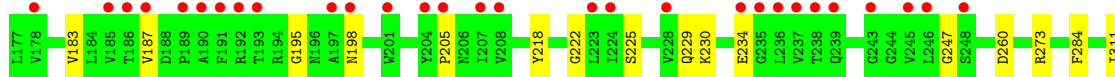• Molecule 1: Pyruvate kinase PKLR

• Molecule 1: Pyruvate kinase PKLR

• Molecule 1: Pyruvate kinase PKLR

• Molecule 1: Pyruvate kinase PKLR

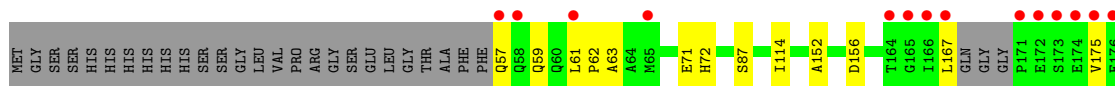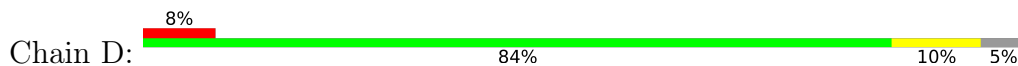Chain D:

• Molecule 1: Pyruvate kinase PKLR

Chain E:

R531 R532 R543 I567 M568 R569 V570 L571 S574

• Molecule 1: Pyruvate kinase PKLR

Chain F:

5%

85%   9% • 5%

MET GLY SER SER HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER GLU LEU GLY THR ALA PHE Q57 Q58 Q59 L73 D79 V83 A84 A85 R86 S98 R103 L104 K105 S140 L146 S147 Y148 V151 T164 G165 I166 L167 Q168 G169 G170

P171 E172 S173 E174 V175 E176 L177 V178 K179 G180 S181 Q182 V202 D203 Y204 V210 R216 L223 I224 N242 G243 G244 V245 L246 G247 S248 A257 Q258 L264 F284 V297 I311 K321 R322 F323 I333 L340 I344 K354 V368 P383 S389

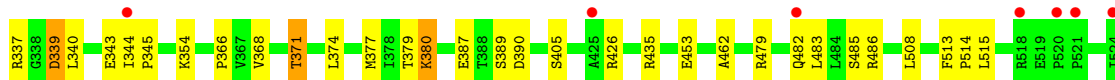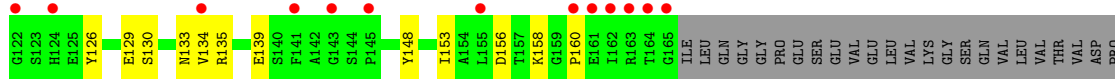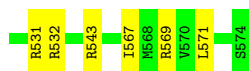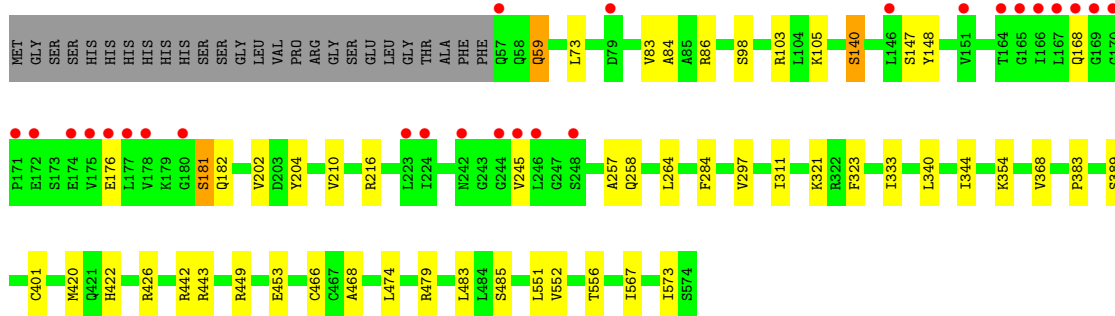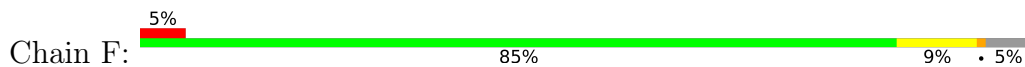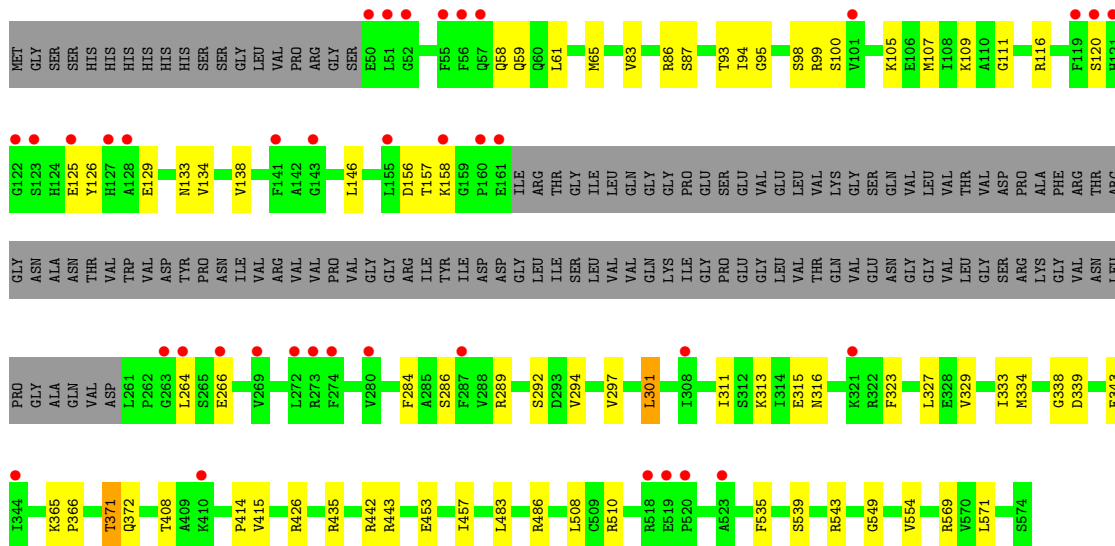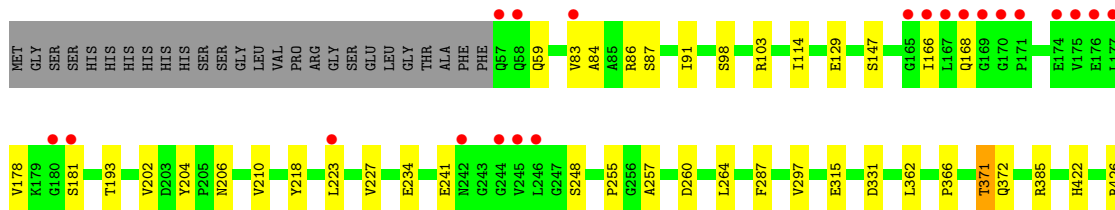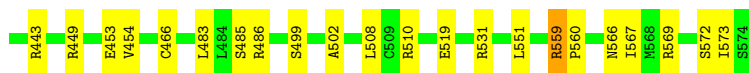C401 M420 Q421 H422 R426 R442 R443 R449 E453 C466 C467 A468 L474 R479 L483 L484 S485 L551 V552 T556 I567 I573 S574

• Molecule 1: Pyruvate kinase PKLR

Chain G:

7%

65%   13%   22%

MET GLY SER SER HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER E50 L51 G52 F55 F56 Q57 Q58 Q59 Q60 L61 M65 V83 R86 S87 T93 I94 G95 S98 R99 S100 V101 K105 E106 M107 I108 K109 A110 G111 R116 F119 S120 H121

G122 S123 H124 E125 Y126 H127 A128 E129 N133 V134 V138 F141 A142 G143 L146 L155 D156 T157 K158 G159 P160 E161 ILE ARG THR GLY ILE LEU GLN GLY GLY PRO GLU SER GLU VAL GLU VAL LYS GLY SER GLN VAL LEU VAL THR VAL ASP PRO ALA PHE ARG THR ARG

GLY ASN ALA ASN THR VAL TRP VAL ASP TYR VAL ASN PRO ASN ILE VAL ARG VAL VAL PRO VAL GLY LEU ILE SER VAL VAL GLN LYS ILE GLY PRO GLU GLY LEU VAL THR GLN VAL GLU GLY ASN GLY GLY VAL LEU GLY LEU VAL GLY SER ARG LYS GLY VAL ASN LEU

PRO GLY ALA GLN VAL ASP L261 P262 G263 L264 S265 E266 V269 L272 R273 F274 V280 F284 A285 S286 F287 V288 R289 S292 D293 V294 V297 L301 I308 I311 S312 K313 I314 E315 N316 K321 F323 L327 E328 V329 I333 M334 G338 D339 E343

I344 K365 P366 T371 Q372 T408 A409 K410 P414 V415 R426 R435 R442 R443 E453 I457 L483 R486 L508 C509 R510 R518 E519 P520 A523 F535 S539 R543 G549 V554 R569 V570 L571 S574

• Molecule 1: Pyruvate kinase PKLR

Chain H:

4%

84%   11% 5%

MET GLY SER SER HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER GLU LEU GLY THR ALA PHE Q57 Q58 Q59 V83 A84 A85 R86 S87 I91 S98 R103 I114 E129 S147 G165 I166 L167 Q168 G169 G170 P171 E174 V175 E176 L177

V178 K179 G180 S181 T193 V202 D203 Y204 P205 N206 V210 Y218 L223 V227 E234 E241 N242 G243 G244 V245 L246 G247 S248 P255 G256 A257 D260 L264 F287 V297 E315 D331 L362 P366 T371 Q372 R385 H422 R426

R443 R449 E453 V454 C466 L483 L484 S485 R486 S499 A502 L508 C509 R510 E519 R531 L551 R559 P560 N566 I567 M568 R569 S572 I573 S574

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	110.32Å 122.84Å 378.58Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.88 – 2.35 50.02 – 2.35	Depositor EDS
% Data completeness (in resolution range)	99.6 (49.88-2.35) 99.6 (50.02-2.35)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	7.08 (at 2.34Å)	Xtriage
Refinement program	PHENIX 1.17.1_3660	Depositor
R, R_{free}	0.202 , 0.246 0.202 , 0.246	Depositor DCC
R_{free} test set	10680 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å^2)	41.4	Xtriage
Anisotropy	0.043	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 46.2	EDS
L-test for twinning[2]	$< |L| > = 0.48, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	30849	wwPDB-VP
Average B, all atoms (Å^2)	54.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 67.46 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 5.1305e-06. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: MN, PYR, I0R, FBP, K

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	0.26	0/3916	0.45	1/5308 (0.0%)
1	B	0.26	0/3601	0.44	0/4875
1	C	0.25	0/3450	0.43	0/4668
1	D	0.25	0/3958	0.43	0/5365
1	E	0.25	0/3314	0.43	0/4483
1	F	0.26	0/3976	0.44	0/5391
1	G	0.25	0/3293	0.42	0/4455
1	H	0.25	0/3976	0.44	0/5391
All	All	0.25	0/29484	0.44	1/39936 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	547	ARG	CB-CA-C	-5.20	100.01	110.40

There are no chirality outliers.

There are no planarity outliers.

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	3851	0	3928	62	0
1	B	3546	0	3606	38	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	3392	0	3445	32	0
1	D	3895	0	3972	34	0
1	E	3260	0	3316	62	0
1	F	3912	0	3986	34	0
1	G	3239	0	3288	51	0
1	H	3912	0	3986	43	0
2	A	23	0	0	0	0
2	D	23	0	0	0	0
2	F	23	0	0	0	0
2	H	23	0	0	0	0
3	A	6	0	0	0	0
3	B	6	0	0	1	0
3	C	6	0	0	0	0
3	E	6	0	0	0	0
3	F	6	0	0	0	0
3	G	6	0	0	2	0
4	A	20	0	10	0	0
4	B	20	0	10	0	0
4	C	20	0	10	0	0
4	D	20	0	10	0	0
4	E	20	0	10	1	0
4	F	20	0	10	0	0
4	G	20	0	10	0	0
4	H	20	0	10	0	0
5	A	1	0	0	0	0
5	B	1	0	0	0	0
5	C	1	0	0	0	0
5	D	1	0	0	0	0
5	E	1	0	0	0	0
5	F	1	0	0	0	0
5	G	1	0	0	0	0
5	H	1	0	0	0	0
6	A	1	0	0	0	0
6	D	1	0	0	0	0
7	A	208	0	0	4	0
7	B	191	0	0	1	0
7	C	189	0	0	1	0
7	D	252	0	0	4	0
7	E	93	0	0	1	0
7	F	244	0	0	2	0
7	G	109	0	0	0	0
7	H	258	0	0	6	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	30849	0	29607	327	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 6.

All (327) 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:D:229:GLN:O	1:D:230:LYS:HD2	1.69	0.93
1:A:182:GLN:O	1:A:198:ASN:ND2	2.01	0.92
1:A:230:LYS:HD3	1:A:237:VAL:HG21	1.55	0.86
1:C:380:LYS:NZ	7:C:701:HOH:O	2.07	0.86
1:A:185:VAL:HG12	1:A:200:VAL:HB	1.60	0.84
1:D:57:GLN:HB2	1:D:62:PRO:HD3	1.57	0.84
1:A:230:LYS:HB3	1:A:237:VAL:HB	1.61	0.83
1:G:120:SER:HA	1:G:158:LYS:HD2	1.60	0.82
1:H:59:GLN:NE2	7:H:701:HOH:O	2.13	0.81
1:E:99:ARG:NH2	1:E:126:TYR:O	2.14	0.79
1:A:176:GLU:HG2	1:A:245:VAL:HG12	1.65	0.79
1:B:317:HIS:NE2	1:B:321:LYS:NZ	2.30	0.77
1:A:178:VAL:HB	1:A:181:SER:HB3	1.68	0.74
1:A:223:LEU:HD23	1:B:382:ARG:HD3	1.69	0.74
1:E:130:SER:HA	1:E:133:ASN:HB2	1.69	0.73
1:E:344:ILE:HG12	1:E:345:PRO:HD2	1.71	0.71
1:A:79:ASP:OD2	1:B:321:LYS:HE3	1.90	0.71
1:E:99:ARG:HH22	1:E:129:GLU:HB3	1.56	0.71
1:F:264:LEU:HD21	1:F:297:VAL:HG22	1.73	0.71
1:A:567:ILE:HG12	1:C:569:ARG:HG2	1.73	0.71
1:D:229:GLN:O	1:D:230:LYS:CD	2.39	0.70
1:E:95:GLY:N	1:E:98:SER:OG	2.16	0.70
1:E:95:GLY:H	1:E:98:SER:HG	1.37	0.70
1:D:442:ARG:NH1	7:D:704:HOH:O	2.24	0.70
1:C:218:TYR:HB3	1:C:222:GLY:HA2	1.74	0.69
1:G:86:ARG:NH1	1:G:111:GLY:O	2.24	0.69
1:A:59:GLN:HG3	1:A:61:LEU:HD23	1.74	0.69
1:A:183:VAL:O	1:A:238:THR:OG1	2.09	0.69
1:A:209:ARG:NH2	1:A:209:ARG:HG3	2.07	0.68
1:H:264:LEU:HD21	1:H:297:VAL:HG22	1.75	0.67
1:A:163:ARG:HB3	1:A:249:ARG:HG3	1.75	0.67
1:C:259:VAL:HG22	1:C:260:ASP:H	1.60	0.67
1:G:58:GLN:HG3	1:G:59:GLN:HG3	1.75	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:209:ARG:HG3	1:A:209:ARG:HH21	1.60	0.66
1:B:450:ASP:OD2	1:B:479:ARG:NH2	2.29	0.66
1:D:230:LYS:HA	1:D:230:LYS:HE2	1.76	0.66
1:B:185:VAL:HG13	1:B:200:VAL:HG13	1.79	0.65
1:B:569:ARG:HG2	1:D:567:ILE:HG12	1.79	0.65
1:D:187:VAL:HG21	1:D:205:PRO:HA	1.79	0.64
1:F:552:VAL:HG21	1:F:573:ILE:HD11	1.79	0.64
1:G:99:ARG:NH2	1:G:126:TYR:O	2.31	0.63
1:C:219:ILE:HG13	1:C:252:VAL:HG22	1.80	0.63
1:A:183:VAL:HG13	1:A:198:ASN:HA	1.80	0.63
1:H:59:GLN:HG2	1:H:83:VAL:H	1.64	0.62
1:B:567:ILE:HG12	1:D:569:ARG:HG2	1.80	0.62
1:C:548:VAL:HG23	1:C:574:SER:HB2	1.81	0.62
1:E:156:ASP:HA	1:E:284:PHE:HB2	1.81	0.62
1:H:202:VAL:HG12	1:H:204:TYR:H	1.63	0.62
1:A:208:VAL:HA	1:A:236:LEU:HD11	1.81	0.62
1:A:230:LYS:HB3	1:A:237:VAL:CB	2.29	0.61
1:G:315:GLU:HB2	1:G:339:ASP:HB2	1.83	0.61
1:G:129:GLU:O	1:G:133:ASN:ND2	2.30	0.60
1:F:202:VAL:HG12	1:F:204:TYR:H	1.66	0.60
1:B:246:LEU:HD12	1:B:247:GLY:H	1.67	0.60
1:F:479:ARG:NH2	7:F:703:HOH:O	2.34	0.60
1:G:371:THR:HG22	1:G:372:GLN:HG3	1.84	0.59
1:A:209:ARG:HH21	1:A:209:ARG:CG	2.14	0.59
1:A:569:ARG:HG2	1:C:567:ILE:HG12	1.84	0.59
1:H:287:PHE:N	1:H:315:GLU:OE1	2.35	0.59
1:F:258:GLN:NE2	7:F:704:HOH:O	2.36	0.59
1:D:368:VAL:HG22	1:D:401:CYS:HB2	1.85	0.58
1:D:442:ARG:HG3	1:D:457:ILE:HD11	1.84	0.58
1:E:315:GLU:HB3	1:E:339:ASP:HB2	1.85	0.58
1:G:95:GLY:N	1:G:98:SER:OG	2.26	0.58
1:A:219:ILE:HG21	1:A:246:LEU:HD13	1.86	0.58
1:B:161:GLU:OE1	1:B:163:ARG:HD3	2.04	0.57
1:E:374:LEU:HB3	1:E:377:MET:HE2	1.86	0.57
1:H:59:GLN:CG	1:H:83:VAL:H	2.17	0.57
1:E:337:ARG:NH2	1:E:390:ASP:OD1	2.32	0.57
1:A:99:ARG:NH2	1:A:126:TYR:O	2.38	0.57
1:H:362:LEU:O	1:H:486:ARG:NH2	2.37	0.57
1:B:318:GLU:OE2	1:B:322:ARG:NE	2.38	0.57
1:G:95:GLY:H	1:G:98:SER:HG	1.52	0.57
1:D:59:GLN:HB2	1:D:61:LEU:HG	1.85	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:129:GLU:OE1	7:H:702:HOH:O	2.18	0.56
1:H:166:ILE:HA	1:H:248:SER:HB3	1.86	0.56
1:A:276:VAL:HG11	1:A:304:GLU:HG2	1.87	0.56
1:A:202:VAL:HG21	1:A:207:ILE:HG21	1.89	0.55
1:F:453:GLU:HG2	1:F:483:LEU:HD13	1.87	0.55
1:E:273:ARG:HA	1:E:276:VAL:HG22	1.88	0.55
1:A:179:LYS:C	1:A:179:LYS:HD3	2.28	0.55
1:E:261:LEU:HD23	1:E:262:PRO:CD	2.37	0.54
1:F:86:ARG:HB2	1:F:426:ARG:HG2	1.88	0.54
1:C:120:SER:HA	1:C:158:LYS:HG3	1.90	0.54
1:C:313:LYS:HD2	1:C:334:MET:SD	2.47	0.54
1:F:466:CYS:HB2	1:F:551:LEU:HD12	1.90	0.54
1:A:95:GLY:O	1:A:99:ARG:HG3	2.08	0.53
1:G:129:GLU:HG2	1:G:133:ASN:HD21	1.72	0.53
1:A:302:GLY:HA3	1:A:304:GLU:OE2	2.09	0.53
1:E:93:THR:HA	1:E:116:ARG:HB3	1.89	0.53
1:F:443:ARG:CZ	1:G:435:ARG:HD3	2.39	0.53
1:E:53:THR:O	1:E:57:GLN:HG2	2.08	0.53
1:G:157:THR:O	1:G:286:SER:OG	2.26	0.53
1:F:59:GLN:HG3	1:F:83:VAL:HG22	1.91	0.52
1:A:186:THR:HG23	1:A:234:GLU:O	2.09	0.52
1:B:286:SER:HA	1:B:313:LYS:HE2	1.90	0.52
1:E:148:TYR:O	1:E:543:ARG:NH2	2.43	0.52
1:A:185:VAL:HA	1:A:200:VAL:O	2.09	0.52
1:C:347:GLU:HG2	1:D:423:ALA:HB1	1.91	0.52
1:G:87:SER:HB3	1:G:510:ARG:HG2	1.92	0.52
1:A:114:ILE:HG12	1:A:152:ALA:HB3	1.91	0.52
1:A:304:GLU:H	1:A:304:GLU:CD	2.12	0.52
1:A:348:LYS:NZ	7:A:704:HOH:O	2.42	0.52
1:A:359:ARG:HG3	1:B:74:CYS:SG	2.50	0.52
1:G:372:GLN:NE2	1:H:385:ARG:H	2.08	0.52
1:C:439:GLU:HG2	1:C:442:ARG:NH2	2.24	0.52
1:E:261:LEU:HD23	1:E:262:PRO:HD2	1.92	0.52
1:A:58:GLN:N	7:A:706:HOH:O	2.44	0.51
1:E:99:ARG:NH2	1:E:129:GLU:HB3	2.25	0.51
1:B:225:SER:OG	1:B:242:ASN:HB3	2.11	0.51
1:E:86:ARG:HB2	1:E:426:ARG:HG2	1.94	0.50
1:E:77:ASP:OD1	1:F:321:LYS:NZ	2.45	0.50
1:F:181:SER:OG	1:F:182:GLN:N	2.45	0.50
1:F:105:LYS:HE3	1:F:140:SER:OG	2.11	0.50
1:G:442:ARG:HG2	1:G:457:ILE:HD11	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:86:ARG:HB2	1:H:426:ARG:HG2	1.93	0.50
1:E:134:VAL:HG21	1:E:153:ILE:HD11	1.94	0.50
1:D:218:TYR:HB3	1:D:222:GLY:HA2	1.93	0.50
1:A:99:ARG:HH22	1:A:129:GLU:HB2	1.77	0.49
1:B:289:ARG:NE	1:B:316:ASN:HD21	2.10	0.49
1:A:554:VAL:HG21	1:A:571:LEU:HD12	1.93	0.49
1:G:284:PHE:HD1	1:G:311:ILE:HB	1.77	0.49
1:H:371:THR:HG22	1:H:372:GLN:HG3	1.95	0.49
1:G:408:THR:HA	1:G:414:PRO:HB3	1.94	0.49
1:D:167:LEU:HD23	1:D:195:GLY:C	2.32	0.49
1:D:71:GLU:OE1	7:D:701:HOH:O	2.19	0.49
1:E:160:PRO:HB3	1:E:261:LEU:HD11	1.95	0.49
1:H:84:ALA:O	7:H:701:HOH:O	2.19	0.49
1:A:204:TYR:CZ	1:A:206:ASN:HB2	2.48	0.49
1:E:83:VAL:O	1:E:426:ARG:NH1	2.41	0.49
1:H:168:GLN:HA	1:H:168:GLN:OE1	2.12	0.49
1:A:178:VAL:HB	1:A:181:SER:CB	2.41	0.48
1:E:316:ASN:HA	1:E:343:GLU:HG2	1.95	0.48
1:G:327:LEU:O	1:G:365:LYS:NZ	2.39	0.48
1:A:315:GLU:HG2	1:A:336:ALA:HB3	1.95	0.48
1:D:114:ILE:HG12	1:D:152:ALA:HB3	1.95	0.48
1:F:368:VAL:HG22	1:F:401:CYS:HB2	1.95	0.48
1:H:366:PRO:HB3	1:H:508:LEU:O	2.14	0.48
1:A:218:TYR:HB3	1:A:222:GLY:HA2	1.95	0.48
1:E:134:VAL:CG2	1:E:153:ILE:HD11	2.44	0.48
1:E:290:LYS:HE3	1:E:293:ASP:OD1	2.14	0.48
1:B:439:GLU:OE1	1:D:443:ARG:HD3	2.13	0.48
1:H:59:GLN:NE2	7:H:708:HOH:O	2.37	0.48
1:H:234:GLU:OE1	7:H:703:HOH:O	2.20	0.48
1:A:87:SER:HB2	1:A:510:ARG:HG2	1.96	0.48
1:B:183:VAL:HG11	1:B:226:LEU:HD22	1.95	0.48
1:B:466:CYS:HB2	1:B:551:LEU:HD12	1.94	0.48
1:C:413:PHE:HB3	1:C:416:GLU:HB2	1.95	0.48
1:F:474:LEU:HD22	1:F:556:THR:HG22	1.95	0.48
1:D:247:GLY:N	7:D:713:HOH:O	2.47	0.48
1:G:372:GLN:NE2	1:H:385:ARG:HG2	2.29	0.47
1:B:83:VAL:HG12	1:B:85:ALA:H	1.79	0.47
1:B:114:ILE:HG12	1:B:152:ALA:HB3	1.97	0.47
1:C:372:GLN:OE1	1:D:385:ARG:HG2	2.14	0.47
1:A:286:SER:HA	1:A:313:LYS:HE2	1.97	0.47
1:C:347:GLU:HG3	1:D:420:MET:CE	2.44	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:86:ARG:HB3	1:G:426:ARG:CG	2.45	0.47
1:H:453:GLU:HG2	1:H:483:LEU:HD13	1.97	0.47
1:A:313:LYS:HD2	1:A:334:MET:SD	2.55	0.47
1:H:87:SER:HB3	1:H:510:ARG:HG2	1.96	0.47
1:D:167:LEU:HD22	1:D:175:VAL:HG21	1.96	0.47
1:D:348:LYS:NZ	7:D:708:HOH:O	2.35	0.47
1:F:176:GLU:HA	1:F:245:VAL:HA	1.96	0.47
1:G:93:THR:OG1	1:G:116:ARG:NH1	2.44	0.47
1:H:206:ASN:ND2	1:H:260:ASP:OD2	2.48	0.47
1:E:120:SER:HA	1:E:158:LYS:HG3	1.97	0.47
1:E:267:GLN:HA	1:E:270:ARG:HG3	1.96	0.47
1:A:466:CYS:SG	1:A:468:ALA:HB2	2.55	0.46
1:E:135:ARG:O	1:E:139:GLU:HG2	2.14	0.46
1:E:287:PHE:CE1	1:E:315:GLU:HB2	2.50	0.46
1:H:264:LEU:HD11	1:H:297:VAL:HA	1.97	0.46
1:A:186:THR:HG22	1:A:188:ASP:H	1.80	0.46
1:E:99:ARG:HG2	1:E:130:SER:HB3	1.98	0.46
1:E:293:ASP:O	1:E:297:VAL:HG23	2.14	0.46
1:F:86:ARG:HD3	1:F:422:HIS:HA	1.97	0.46
1:F:98:SER:HA	1:F:103:ARG:HG2	1.98	0.46
1:A:227:VAL:O	1:A:238:THR:HA	2.16	0.46
1:B:313:LYS:HD2	1:B:334:MET:SD	2.56	0.46
1:E:51:LEU:HD22	1:H:449:ARG:HG3	1.97	0.46
1:E:435:ARG:HD3	1:H:443:ARG:NH2	2.31	0.46
1:H:499:SER:HB3	1:H:502:ALA:HB3	1.97	0.46
1:F:442:ARG:HH21	1:G:442:ARG:NH2	2.14	0.46
1:G:313:LYS:NZ	3:G:601:PYR:O3	2.48	0.46
1:C:286:SER:HA	1:C:313:LYS:HE2	1.98	0.46
1:E:311:ILE:HD13	1:E:332:GLY:HA3	1.97	0.46
1:A:86:ARG:HD3	1:A:422:HIS:HA	1.98	0.46
1:A:218:TYR:CE1	1:A:255:PRO:HG3	2.51	0.46
1:E:334:MET:HA	1:E:368:VAL:HG13	1.98	0.46
1:E:453:GLU:HG3	1:E:483:LEU:HD22	1.97	0.46
1:E:569:ARG:NH1	1:E:571:LEU:HD11	2.31	0.46
1:A:182:GLN:O	1:A:182:GLN:HG2	2.16	0.45
1:G:313:LYS:HD2	1:G:334:MET:SD	2.55	0.45
1:E:135:ARG:NH2	1:E:278:HIS:O	2.40	0.45
1:G:120:SER:HA	1:G:158:LYS:CD	2.40	0.45
1:C:284:PHE:HD1	1:C:311:ILE:HB	1.82	0.45
1:E:315:GLU:HG2	1:E:336:ALA:HB3	1.99	0.45
1:A:102:GLU:HG3	7:A:841:HOH:O	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:383:PRO:HG3	1:F:420:MET:HG2	1.99	0.45
1:F:449:ARG:NH2	1:G:549:GLY:O	2.46	0.45
1:A:99:ARG:NH2	1:A:129:GLU:HB2	2.32	0.45
1:C:218:TYR:CE1	1:C:255:PRO:HG2	2.52	0.45
1:E:567:ILE:HB	1:H:569:ARG:HG2	1.98	0.45
1:G:134:VAL:O	1:G:138:VAL:HG23	2.17	0.45
1:A:234:GLU:OE1	1:A:234:GLU:N	2.46	0.44
1:D:183:VAL:HG22	1:D:198:ASN:HA	1.98	0.44
1:E:294:VAL:HG11	1:E:329:VAL:CG2	2.47	0.44
1:F:84:ALA:O	1:F:426:ARG:NH1	2.43	0.44
1:G:61:LEU:O	1:G:65:MET:HG2	2.17	0.44
1:G:294:VAL:HB	1:G:329:VAL:HG11	1.98	0.44
1:G:371:THR:CG2	1:G:372:GLN:HG3	2.46	0.44
1:H:466:CYS:HB2	1:H:551:LEU:HD12	1.99	0.44
1:D:63:ALA:C	1:D:72:HIS:HD1	2.20	0.44
1:F:466:CYS:SG	1:F:468:ALA:HB2	2.58	0.44
1:G:366:PRO:HB3	1:G:508:LEU:O	2.18	0.44
1:H:91:ILE:HG12	1:H:114:ILE:HB	1.99	0.44
1:H:210:VAL:CG1	1:H:257:ALA:HB1	2.47	0.44
1:C:265:SER:HB3	1:C:268:ASP:H	1.81	0.44
1:F:210:VAL:CG1	1:F:257:ALA:HB1	2.46	0.44
1:H:166:ILE:HD11	1:H:193:THR:OG1	2.18	0.44
1:B:107:MET:HG3	1:B:415:VAL:HG22	1.98	0.44
1:B:224:ILE:HG12	1:B:244:GLY:H	1.83	0.44
1:C:218:TYR:O	1:C:252:VAL:HA	2.17	0.44
1:A:183:VAL:HG13	1:A:198:ASN:CA	2.47	0.44
1:E:284:PHE:HD1	1:E:311:ILE:HB	1.82	0.44
1:E:287:PHE:CD1	1:E:315:GLU:HB2	2.53	0.44
1:E:374:LEU:HD23	1:E:387:GLU:HB3	2.00	0.44
1:H:223:LEU:HD23	1:H:223:LEU:HA	1.76	0.44
1:G:372:GLN:HE21	1:H:385:ARG:H	1.65	0.44
1:A:203:ASP:HB3	1:A:249:ARG:HH12	1.83	0.44
1:A:324:ASP:CG	1:A:359:ARG:HH21	2.21	0.44
1:B:99:ARG:NH2	1:B:126:TYR:O	2.47	0.44
1:D:156:ASP:HA	1:D:284:PHE:HB2	2.00	0.44
1:D:554:VAL:HG21	1:D:571:LEU:HD12	2.00	0.44
1:E:514:PRO:O	1:E:515:LEU:HD23	2.17	0.44
1:C:439:GLU:HG2	1:C:442:ARG:HH21	1.83	0.44
1:B:284:PHE:HB3	1:B:313:LYS:HD3	2.00	0.44
1:A:374:LEU:HD23	1:A:387:GLU:HB3	1.98	0.43
1:G:107:MET:HG2	1:G:415:VAL:HG22	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:253:ASN:C	1:C:254:LEU:HD23	2.39	0.43
1:C:453:GLU:HG2	1:C:483:LEU:HD13	1.99	0.43
1:E:366:PRO:HB3	1:E:508:LEU:O	2.19	0.43
1:C:156:ASP:HA	1:C:284:PHE:HB2	2.00	0.43
1:C:264:LEU:HD12	1:C:264:LEU:HA	1.86	0.43
1:C:284:PHE:HB3	1:C:313:LYS:HD3	2.00	0.43
1:D:87:SER:HB3	1:D:510:ARG:HG2	1.99	0.43
1:E:379:THR:OG1	1:E:380:LYS:HD2	2.18	0.43
1:E:569:ARG:HG2	1:H:567:ILE:HG12	2.00	0.43
1:F:284:PHE:HD1	1:F:311:ILE:HB	1.83	0.43
1:G:156:ASP:HA	1:G:284:PHE:HB2	2.00	0.43
1:G:158:LYS:HE2	1:G:158:LYS:HB2	1.78	0.43
1:C:261:LEU:HD23	1:C:262:PRO:HD2	2.01	0.43
1:A:184:LEU:HD11	1:A:235:GLY:HA3	2.00	0.43
1:A:499:SER:HB3	1:A:502:ALA:HB3	1.99	0.43
1:B:554:VAL:HG21	1:B:571:LEU:HD12	2.00	0.43
1:G:316:ASN:HA	1:G:343:GLU:HG2	2.01	0.43
1:A:264:LEU:HD12	1:A:264:LEU:HA	1.83	0.43
1:C:347:GLU:CD	1:C:347:GLU:H	2.22	0.43
1:G:105:LYS:O	1:G:109:LYS:HG3	2.19	0.43
1:G:59:GLN:HG2	1:G:83:VAL:HG13	2.00	0.43
1:E:479:ARG:HA	1:E:482:GLN:CG	2.48	0.43
1:G:539:SER:O	1:G:543:ARG:HG3	2.19	0.43
1:H:218:TYR:CE2	1:H:255:PRO:HG3	2.54	0.43
1:B:336:ALA:HB1	3:B:601:PYR:C	2.49	0.42
1:E:91:ILE:HG12	1:E:114:ILE:HB	1.99	0.42
1:G:94:ILE:HG23	1:G:98:SER:O	2.18	0.42
1:G:554:VAL:HG21	1:G:571:LEU:HD12	2.00	0.42
1:H:178:VAL:O	1:H:181:SER:HB3	2.19	0.42
1:D:517:TYR:CE2	1:D:519:GLU:HB2	2.55	0.42
1:C:340:LEU:O	1:C:344:ILE:HG12	2.19	0.42
1:G:129:GLU:HG2	1:G:133:ASN:ND2	2.34	0.42
1:G:297:VAL:O	1:G:301:LEU:HD12	2.19	0.42
1:B:218:TYR:O	1:B:252:VAL:HA	2.19	0.42
1:C:435:ARG:O	1:C:439:GLU:HG3	2.20	0.42
1:H:86:ARG:HD3	1:H:422:HIS:HA	2.02	0.42
1:D:330:SER:O	1:D:365:LYS:NZ	2.47	0.42
1:H:98:SER:HA	1:H:103:ARG:HG2	2.02	0.42
1:B:163:ARG:HD2	1:B:251:GLY:HA2	2.00	0.42
1:D:558:TRP:CE3	1:D:559:ARG:HB3	2.54	0.42
1:G:338:GLY:CA	1:G:371:THR:HG21	2.50	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:453:GLU:HG3	1:G:483:LEU:HD22	2.01	0.42
1:H:573:ILE:HD13	1:H:573:ILE:HA	1.78	0.42
1:A:103:ARG:NH1	7:A:712:HOH:O	2.51	0.42
1:B:201:TRP:HD1	1:B:202:VAL:N	2.18	0.42
1:C:50:GLU:O	1:C:51:LEU:HB2	2.20	0.42
1:E:354:LYS:HB3	1:F:73:LEU:HD22	2.02	0.42
1:H:559:ARG:HG2	1:H:560:PRO:HD2	2.01	0.42
1:E:160:PRO:HB3	1:E:261:LEU:CD1	2.49	0.42
1:F:264:LEU:HD11	1:F:297:VAL:HA	2.02	0.42
1:F:323:PHE:CE1	1:F:333:ILE:HG13	2.54	0.41
1:G:86:ARG:HB3	1:G:426:ARG:HG2	2.02	0.41
1:B:202:VAL:HG23	1:B:204:TYR:H	1.85	0.41
1:D:483:LEU:O	1:D:486:ARG:HG2	2.19	0.41
1:F:340:LEU:O	1:F:344:ILE:HG12	2.20	0.41
1:E:85:ALA:HB1	1:E:513:PHE:CZ	2.54	0.41
1:E:261:LEU:O	1:E:289:ARG:NH2	2.52	0.41
1:B:383:PRO:HG3	1:B:420:MET:HG2	2.02	0.41
1:A:79:ASP:OD1	1:B:317:HIS:HE1	2.02	0.41
1:B:284:PHE:HD1	1:B:311:ILE:HB	1.86	0.41
1:G:146:LEU:HD23	1:G:535:PHE:CE1	2.56	0.41
1:H:193:THR:HG22	7:H:807:HOH:O	2.20	0.41
1:D:377:MET:HA	1:D:380:LYS:O	2.21	0.41
1:E:73:LEU:HD22	1:F:354:LYS:HB3	2.03	0.41
1:A:442:ARG:HG2	1:A:457:ILE:HD11	2.02	0.41
1:B:156:ASP:HA	1:B:284:PHE:HB2	2.03	0.41
1:E:337:ARG:HB2	1:E:371:THR:HB	2.02	0.41
1:H:331:ASP:O	1:H:366:PRO:HD2	2.21	0.41
1:E:532:ARG:HH12	4:E:602:FBP:P1	2.43	0.41
1:F:551:LEU:HD23	1:F:551:LEU:HA	1.83	0.41
1:B:103:ARG:NH2	7:B:717:HOH:O	2.53	0.41
1:F:168:GLN:HA	1:F:168:GLN:OE1	2.19	0.41
1:G:323:PHE:HE1	1:G:333:ILE:HG21	1.86	0.41
1:H:227:VAL:HG23	1:H:241:GLU:HB2	2.02	0.41
1:E:340:LEU:O	1:E:344:ILE:HG22	2.21	0.41
1:F:567:ILE:HG12	1:G:569:ARG:HG2	2.02	0.41
1:G:264:LEU:HD12	1:G:264:LEU:HA	1.90	0.41
1:C:56:PHE:O	1:C:62:PRO:HD3	2.21	0.40
1:E:80:SER:HB2	7:E:772:HOH:O	2.21	0.40
1:F:573:ILE:HD13	1:F:573:ILE:HA	1.73	0.40
1:A:74:CYS:HB3	1:B:359:ARG:HG2	2.04	0.40
1:E:374:LEU:HD13	1:E:377:MET:HE1	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:462:ALA:HB1	1:H:454:VAL:HG12	2.04	0.40
1:B:289:ARG:HB3	1:B:318:GLU:HG2	2.01	0.40
1:D:284:PHE:HD1	1:D:311:ILE:HB	1.86	0.40
1:E:294:VAL:HG11	1:E:329:VAL:HG21	2.03	0.40
1:G:371:THR:OG1	3:G:601:PYR:O	2.38	0.40
1:B:461:GLU:OE1	1:D:442:ARG:HD2	2.21	0.40
1:C:256:GLY:O	1:C:258:GLN:N	2.54	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	506/544 (93%)	491 (97%)	12 (2%)	3 (1%)	25	27
1	B	458/544 (84%)	446 (97%)	10 (2%)	2 (0%)	34	38
1	C	441/544 (81%)	428 (97%)	10 (2%)	3 (1%)	22	23
1	D	511/544 (94%)	498 (98%)	12 (2%)	1 (0%)	47	56
1	E	425/544 (78%)	414 (97%)	10 (2%)	1 (0%)	47	56
1	F	516/544 (95%)	504 (98%)	12 (2%)	0	100	100
1	G	422/544 (78%)	410 (97%)	11 (3%)	1 (0%)	47	56
1	H	516/544 (95%)	509 (99%)	5 (1%)	2 (0%)	34	38
All	All	3795/4352 (87%)	3700 (98%)	82 (2%)	13 (0%)	41	47

All (13) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	257	ALA
1	E	371	THR
1	A	181	SER

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Mol	Chain	Res	Type
1	A	59	GLN
1	G	371	THR
1	B	198	ASN
1	C	371	THR
1	D	371	THR
1	A	371	THR
1	B	371	THR
1	C	51	LEU
1	H	371	THR
1	H	566	ASN

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	408/436 (94%)	401 (98%)	7 (2%)	60	72
1	B	374/436 (86%)	370 (99%)	4 (1%)	73	84
1	C	356/436 (82%)	349 (98%)	7 (2%)	55	66
1	D	413/436 (95%)	407 (98%)	6 (2%)	65	76
1	E	341/436 (78%)	329 (96%)	12 (4%)	36	44
1	F	414/436 (95%)	406 (98%)	8 (2%)	57	68
1	G	339/436 (78%)	331 (98%)	8 (2%)	49	59
1	H	414/436 (95%)	408 (99%)	6 (1%)	67	78
All	All	3059/3488 (88%)	3001 (98%)	58 (2%)	57	68

All (58) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	65	MET
1	A	192	ARG
1	A	248	SER
1	A	485	SER
1	A	486	ARG

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Mol	Chain	Res	Type
1	A	547	ARG
1	A	572	SER
1	B	103	ARG
1	B	443	ARG
1	B	486	ARG
1	B	568	MET
1	C	260	ASP
1	C	361	ASN
1	C	443	ARG
1	C	485	SER
1	C	486	ARG
1	C	531	ARG
1	C	568	MET
1	D	225	SER
1	D	234	GLU
1	D	260	ASP
1	D	273	ARG
1	D	426	ARG
1	D	562	SER
1	E	55	PHE
1	E	58	GLN
1	E	99	ARG
1	E	100	SER
1	E	316	ASN
1	E	339	ASP
1	E	380	LYS
1	E	389	SER
1	E	405	SER
1	E	485	SER
1	E	486	ARG
1	E	531	ARG
1	F	59	GLN
1	F	140	SER
1	F	147	SER
1	F	148	TYR
1	F	181	SER
1	F	216	ARG
1	F	389	SER
1	F	485	SER
1	G	100	SER
1	G	125	GLU
1	G	266	GLU

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Mol	Chain	Res	Type
1	G	289	ARG
1	G	292	SER
1	G	301	LEU
1	G	443	ARG
1	G	486	ARG
1	H	147	SER
1	H	485	SER
1	H	519	GLU
1	H	531	ARG
1	H	559	ARG
1	H	572	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	258	GLN
1	G	372	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 28 ligands modelled in this entry, 10 are monoatomic - leaving 18 for Mogul analysis.

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#$\|Z\| > 2$	Counts	RMSZ	#$\|Z\| > 2$
3	PYR	E	601	5	5,5,5	2.92	3 (60%)	3,6,6	1.60	1 (33%)
4	FBP	C	602	-	18,20,20	0.92	1 (5%)	23,32,32	0.73	0
4	FBP	H	602	-	18,20,20	0.91	1 (5%)	23,32,32	0.75	0
2	I0R	H	601	-	19,26,26	3.71	8 (42%)	24,39,39	2.63	9 (37%)
3	PYR	C	601	5	5,5,5	2.88	3 (60%)	3,6,6	1.68	1 (33%)
3	PYR	G	601	5	5,5,5	2.91	3 (60%)	3,6,6	1.64	1 (33%)
4	FBP	A	603	-	18,20,20	0.89	1 (5%)	23,32,32	0.75	0
4	FBP	D	602	-	18,20,20	0.98	1 (5%)	23,32,32	0.60	0
2	I0R	A	601	-	19,26,26	3.63	7 (36%)	24,39,39	2.58	8 (33%)
4	FBP	B	602	-	18,20,20	0.91	1 (5%)	23,32,32	0.74	0
3	PYR	B	601	5	5,5,5	2.91	3 (60%)	3,6,6	1.56	1 (33%)
3	PYR	F	602	5	5,5,5	2.90	3 (60%)	3,6,6	1.58	1 (33%)
4	FBP	E	602	-	18,20,20	0.90	1 (5%)	23,32,32	0.74	0
2	I0R	F	601	-	19,26,26	3.67	8 (42%)	24,39,39	2.63	9 (37%)
4	FBP	G	602	-	18,20,20	0.92	1 (5%)	23,32,32	0.77	0
4	FBP	F	603	-	18,20,20	0.90	1 (5%)	23,32,32	0.78	0
2	I0R	D	601	-	19,26,26	3.60	7 (36%)	24,39,39	2.58	8 (33%)
3	PYR	A	602	-	5,5,5	2.91	3 (60%)	3,6,6	1.59	1 (33%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PYR	E	601	5	-	0/4/4/4	-
4	FBP	C	602	-	-	2/13/32/32	0/1/1/1
4	FBP	H	602	-	-	2/13/32/32	0/1/1/1
2	I0R	H	601	-	-	0/4/4/4	0/4/4/4
3	PYR	C	601	5	-	0/4/4/4	-
3	PYR	G	601	5	-	0/4/4/4	-
4	FBP	A	603	-	-	6/13/32/32	0/1/1/1
4	FBP	D	602	-	-	8/13/32/32	0/1/1/1
2	I0R	A	601	-	-	0/4/4/4	0/4/4/4
4	FBP	B	602	-	-	2/13/32/32	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PYR	B	601	5	-	0/4/4/4	-
3	PYR	F	602	5	-	0/4/4/4	-
4	FBP	E	602	-	-	3/13/32/32	0/1/1/1
2	I0R	F	601	-	-	0/4/4/4	0/4/4/4
4	FBP	G	602	-	-	8/13/32/32	0/1/1/1
4	FBP	F	603	-	-	2/13/32/32	0/1/1/1
2	I0R	D	601	-	-	0/4/4/4	0/4/4/4
3	PYR	A	602	-	-	0/4/4/4	-

All (56) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	601	I0R	C13-N14	8.96	1.40	1.29
2	F	601	I0R	C13-N14	8.86	1.39	1.29
2	A	601	I0R	C13-N14	8.76	1.39	1.29
2	D	601	I0R	C13-N14	8.69	1.39	1.29
2	F	601	I0R	C01-C13	-8.14	1.33	1.44
2	H	601	I0R	C01-C13	-8.09	1.33	1.44
2	D	601	I0R	C01-C13	-7.99	1.33	1.44
2	A	601	I0R	C01-C13	-7.98	1.33	1.44
2	H	601	I0R	C16-C17	-6.66	1.39	1.51
2	A	601	I0R	C16-C17	-6.52	1.39	1.51
2	F	601	I0R	C16-C17	-6.50	1.39	1.51
2	D	601	I0R	C16-C17	-6.45	1.39	1.51
2	D	601	I0R	C02-C06	-5.75	1.34	1.46
2	A	601	I0R	C02-C06	-5.73	1.34	1.46
2	F	601	I0R	C02-C06	-5.69	1.34	1.46
2	H	601	I0R	C02-C06	-5.61	1.34	1.46
3	E	601	PYR	CA-C	-4.16	1.39	1.54
3	F	602	PYR	CA-C	-4.14	1.39	1.54
3	G	601	PYR	CA-C	-4.12	1.39	1.54
3	C	601	PYR	CA-C	-4.09	1.39	1.54
3	B	601	PYR	CA-C	-4.06	1.39	1.54
2	H	601	I0R	C10-S09	-4.05	1.61	1.73
3	A	602	PYR	CA-C	-4.04	1.39	1.54
2	F	601	I0R	C10-S09	-3.81	1.61	1.73
3	A	602	PYR	O3-CA	3.78	1.31	1.23
3	G	601	PYR	O3-CA	3.78	1.31	1.23
3	E	601	PYR	O3-CA	3.77	1.31	1.23
3	B	601	PYR	O3-CA	3.76	1.31	1.23
3	F	602	PYR	O3-CA	3.73	1.31	1.23
3	C	601	PYR	O3-CA	3.71	1.31	1.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	601	I0R	C10-S09	-3.56	1.62	1.73
2	D	601	I0R	C10-S09	-3.54	1.62	1.73
3	B	601	PYR	O-C	3.40	1.31	1.22
3	A	602	PYR	O-C	3.40	1.31	1.22
3	G	601	PYR	O-C	3.32	1.31	1.22
3	F	602	PYR	O-C	3.32	1.31	1.22
3	E	601	PYR	O-C	3.32	1.31	1.22
3	C	601	PYR	O-C	3.29	1.31	1.22
2	H	601	I0R	C06-N07	-2.96	1.34	1.37
4	C	602	FBP	O2-C2	2.81	1.45	1.40
4	G	602	FBP	O2-C2	2.79	1.45	1.40
4	H	602	FBP	O2-C2	2.78	1.45	1.40
2	F	601	I0R	C06-N07	-2.74	1.34	1.37
4	B	602	FBP	O2-C2	2.71	1.45	1.40
4	F	603	FBP	O2-C2	2.69	1.45	1.40
4	E	602	FBP	O2-C2	2.68	1.45	1.40
4	D	602	FBP	O2-C2	2.67	1.45	1.40
2	A	601	I0R	C06-N07	-2.64	1.34	1.37
4	A	603	FBP	O2-C2	2.62	1.45	1.40
2	D	601	I0R	C06-N07	-2.61	1.34	1.37
2	A	601	I0R	C12-C10	2.36	1.53	1.49
2	H	601	I0R	C12-C10	2.32	1.53	1.49
2	D	601	I0R	C12-C10	2.27	1.53	1.49
2	F	601	I0R	C12-C10	2.23	1.53	1.49
2	H	601	I0R	C04-N08	2.17	1.35	1.33
2	F	601	I0R	C04-N08	2.00	1.35	1.33

All (40) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	H	601	I0R	C02-C06-N07	5.50	120.69	113.76
2	F	601	I0R	C02-C06-N07	5.46	120.64	113.76
2	A	601	I0R	C02-C06-N07	5.44	120.61	113.76
2	D	601	I0R	C02-C06-N07	5.35	120.51	113.76
2	F	601	I0R	C17-C16-N07	-5.03	104.79	112.81
2	A	601	I0R	C15-N05-C02	4.93	129.89	124.49
2	D	601	I0R	C01-C13-N14	-4.90	119.43	125.87
2	F	601	I0R	C01-C13-N14	-4.87	119.46	125.87
2	H	601	I0R	C01-C13-N14	-4.85	119.50	125.87
2	D	601	I0R	C17-C16-N07	-4.84	105.09	112.81
2	A	601	I0R	C01-C13-N14	-4.82	119.53	125.87
2	H	601	I0R	C17-C16-N07	-4.79	105.17	112.81

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	601	I0R	C15-N05-C02	4.78	129.73	124.49
2	F	601	I0R	C16-N07-N14	4.74	120.19	114.40
2	H	601	I0R	C16-N07-N14	4.71	120.16	114.40
2	F	601	I0R	C15-N05-C02	4.65	129.59	124.49
2	A	601	I0R	C16-N07-N14	4.55	119.95	114.40
2	H	601	I0R	C15-N05-C02	4.52	129.44	124.49
2	D	601	I0R	C16-N07-N14	4.46	119.84	114.40
2	A	601	I0R	C12-C10-S09	4.30	125.89	120.12
2	A	601	I0R	C17-C16-N07	-4.08	106.30	112.81
2	D	601	I0R	C12-C10-S09	4.08	125.60	120.12
2	F	601	I0R	C12-C10-S09	3.93	125.41	120.12
2	H	601	I0R	C12-C10-S09	3.84	125.28	120.12
2	H	601	I0R	O11-C06-N07	-3.79	117.53	120.69
2	F	601	I0R	O11-C06-N07	-3.25	117.98	120.69
2	A	601	I0R	O11-C06-N07	-3.04	118.16	120.69
2	D	601	I0R	O11-C06-N07	-2.96	118.22	120.69
2	A	601	I0R	O11-C06-C02	-2.49	121.23	125.33
2	D	601	I0R	O11-C06-C02	-2.47	121.27	125.33
2	F	601	I0R	O11-C06-C02	-2.40	121.38	125.33
3	G	601	PYR	OXT-C-CA	2.34	120.39	113.97
3	E	601	PYR	OXT-C-CA	2.34	120.38	113.97
3	C	601	PYR	OXT-C-CA	2.34	120.38	113.97
3	A	602	PYR	OXT-C-CA	2.22	120.05	113.97
3	F	602	PYR	OXT-C-CA	2.19	119.97	113.97
2	H	601	I0R	O11-C06-C02	-2.16	121.78	125.33
3	B	601	PYR	OXT-C-CA	2.14	119.83	113.97
2	H	601	I0R	C13-N14-N07	2.08	118.79	117.12
2	F	601	I0R	C13-N14-N07	2.06	118.77	117.12

There are no chirality outliers.

All (33) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	603	FBP	C1-O1-P1-O2P
4	A	603	FBP	C1-O1-P1-O3P
4	A	603	FBP	C4-C5-C6-O6
4	B	602	FBP	C4-C5-C6-O6
4	C	602	FBP	C4-C5-C6-O6
4	D	602	FBP	C1-O1-P1-O2P
4	D	602	FBP	C1-O1-P1-O3P
4	D	602	FBP	O1-C1-C2-O2
4	D	602	FBP	O1-C1-C2-C3

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Mol	Chain	Res	Type	Atoms
4	D	602	FBP	O1-C1-C2-O5
4	D	602	FBP	C4-C5-C6-O6
4	F	603	FBP	C4-C5-C6-O6
4	G	602	FBP	C1-O1-P1-O1P
4	G	602	FBP	C1-O1-P1-O2P
4	G	602	FBP	C1-O1-P1-O3P
4	G	602	FBP	O1-C1-C2-O2
4	G	602	FBP	O1-C1-C2-O5
4	G	602	FBP	C4-C5-C6-O6
4	H	602	FBP	C4-C5-C6-O6
4	A	603	FBP	O5-C5-C6-O6
4	E	602	FBP	C4-C5-C6-O6
4	F	603	FBP	O5-C5-C6-O6
4	G	602	FBP	O5-C5-C6-O6
4	B	602	FBP	O5-C5-C6-O6
4	C	602	FBP	O5-C5-C6-O6
4	D	602	FBP	O5-C5-C6-O6
4	H	602	FBP	O5-C5-C6-O6
4	A	603	FBP	C1-O1-P1-O1P
4	D	602	FBP	C1-O1-P1-O1P
4	G	602	FBP	O1-C1-C2-C3
4	E	602	FBP	O5-C5-C6-O6
4	A	603	FBP	O1-C1-C2-O5
4	E	602	FBP	C6-O6-P2-O4P

There are no ring outliers.

3 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	G	601	PYR	2	0
3	B	601	PYR	1	0
4	E	602	FBP	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 FBP C 602

Bond lengths

Bond angles

Torsions

Rings

Ligand FBP H 602

Bond lengths

Bond angles

Torsions

Rings

Ligand I0R H 601

Bond lengths

Bond angles

Torsions

Rings

Ligand FBP A 603

Bond lengths

Bond angles

Torsions

Rings

Ligand FBP D 602

Bond lengths

Bond angles

Torsions

Rings

Ligand I0R A 601

Bond lengths

Bond angles

Torsions

Rings

Ligand FBP B 602

Bond lengths

Bond angles

Torsions

Rings

Ligand FBP E 602

Bond lengths

Bond angles

Torsions

Rings

Ligand I0R F 601

Bond lengths

Bond angles

Torsions

Rings

Ligand FBP G 602

Bond lengths

Bond angles

Torsions

Rings

Ligand FBP F 603

Bond lengths

Bond angles

Torsions

Rings

Ligand I0R D 601

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(Å²)	Q<0.9
1	A	509/544 (93%)	0.46	68 (13%)	3	4	30, 47, 123, 156	0
1	B	468/544 (86%)	0.38	55 (11%)	4	7	28, 44, 105, 126	0
1	C	446/544 (81%)	0.22	34 (7%)	13	21	28, 43, 87, 114	0
1	D	515/544 (94%)	0.18	43 (8%)	11	16	29, 44, 86, 107	0
1	E	429/544 (78%)	0.54	48 (11%)	5	8	31, 69, 116, 159	0
1	F	518/544 (95%)	0.12	26 (5%)	28	41	27, 44, 80, 130	0
1	G	426/544 (78%)	0.36	38 (8%)	9	14	29, 58, 101, 136	0
1	H	518/544 (95%)	0.06	21 (4%)	37	49	25, 42, 71, 127	0
All	All	3829/4352 (87%)	0.28	333 (8%)	10	15	25, 47, 100, 159	0

All (333) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	246	LEU	10.9
1	C	226	LEU	10.2
1	G	263	GLY	9.1
1	A	187	VAL	9.1
1	A	245	VAL	8.4
1	C	217	ILE	8.3
1	H	171	PRO	8.2
1	B	223	LEU	8.2
1	B	164	THR	7.9
1	C	252	VAL	7.7
1	D	57	GLN	7.6
1	A	202	VAL	7.3
1	B	201	TRP	7.3
1	C	219	ILE	7.2
1	E	162	ILE	6.9
1	B	202	VAL	6.7

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Mol	Chain	Res	Type	RSRZ
1	B	250	LYS	6.7
1	A	199	THR	6.6
1	B	228	VAL	6.6
1	B	186	THR	6.5
1	A	195	GLY	6.3
1	B	248	SER	6.2
1	A	177	LEU	6.0
1	B	259	VAL	5.9
1	A	189	PRO	5.9
1	C	263	GLY	5.9
1	E	163	ARG	5.8
1	B	246	LEU	5.7
1	D	166	ILE	5.7
1	B	249	ARG	5.7
1	A	248	SER	5.6
1	E	164	THR	5.6
1	B	163	ARG	5.5
1	F	166	ILE	5.5
1	C	256	GLY	5.4
1	C	53	THR	5.4
1	B	162	ILE	5.3
1	F	246	LEU	5.3
1	C	54	ALA	5.3
1	B	220	ASP	5.3
1	B	261	LEU	5.3
1	B	257	ALA	5.2
1	C	257	ALA	5.2
1	A	190	ALA	5.2
1	D	246	LEU	5.1
1	B	183	VAL	5.1
1	C	51	LEU	5.1
1	A	232	GLY	5.0
1	B	226	LEU	5.0
1	F	171	PRO	5.0
1	E	266	GLU	5.0
1	A	185	VAL	5.0
1	B	200	VAL	4.9
1	F	175	VAL	4.9
1	B	222	GLY	4.9
1	B	185	VAL	4.9
1	D	190	ALA	4.8
1	B	204	TYR	4.8

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Mol	Chain	Res	Type	RSRZ
1	C	56	PHE	4.8
1	E	119	PHE	4.8
1	D	245	VAL	4.8
1	A	65	MET	4.7
1	D	175	VAL	4.7
1	B	203	ASP	4.7
1	D	167	LEU	4.7
1	B	245	VAL	4.7
1	F	245	VAL	4.7
1	A	205	PRO	4.7
1	F	244	GLY	4.7
1	A	178	VAL	4.6
1	H	246	LEU	4.6
1	C	224	ILE	4.6
1	G	161	GLU	4.5
1	A	162	ILE	4.5
1	A	174	GLU	4.5
1	E	264	LEU	4.5
1	B	300	ALA	4.5
1	B	247	GLY	4.5
1	E	165	GLY	4.5
1	A	164	THR	4.4
1	B	225	SER	4.4
1	B	260	ASP	4.4
1	E	161	GLU	4.4
1	E	272	LEU	4.4
1	A	182	GLN	4.4
1	B	198	ASN	4.4
1	B	227	VAL	4.3
1	D	61	LEU	4.3
1	D	165	GLY	4.3
1	B	196	ASN	4.3
1	A	236	LEU	4.3
1	B	242	ASN	4.3
1	D	185	VAL	4.2
1	E	274	PHE	4.2
1	D	58	GLN	4.2
1	G	158	LYS	4.2
1	G	50	GLU	4.1
1	C	52	GLY	4.1
1	A	262	PRO	4.1
1	C	223	LEU	4.1

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Mol	Chain	Res	Type	RSRZ
1	B	217	ILE	4.1
1	B	262	PRO	4.1
1	D	164	THR	4.1
1	C	55	PHE	4.1
1	A	61	LEU	4.1
1	F	170	GLY	4.1
1	F	172	GLU	4.0
1	B	197	ALA	4.0
1	G	52	GLY	4.0
1	H	57	GLN	4.0
1	G	119	PHE	4.0
1	H	245	VAL	4.0
1	G	123	SER	3.9
1	F	167	LEU	3.9
1	B	219	ILE	3.9
1	A	175	VAL	3.9
1	A	259	VAL	3.8
1	C	303	PRO	3.8
1	C	259	VAL	3.8
1	A	244	GLY	3.8
1	G	51	LEU	3.8
1	E	121	HIS	3.8
1	H	166	ILE	3.8
1	C	220	ASP	3.7
1	E	94	ILE	3.7
1	G	273	ARG	3.7
1	E	155	LEU	3.7
1	A	239	GLN	3.7
1	C	218	TYR	3.7
1	C	266	GLU	3.6
1	C	258	GLN	3.6
1	E	134	VAL	3.6
1	H	167	LEU	3.6
1	F	165	GLY	3.6
1	G	272	LEU	3.6
1	E	55	PHE	3.6
1	A	230	LYS	3.6
1	A	184	LEU	3.6
1	G	122	GLY	3.6
1	G	280	VAL	3.5
1	B	184	LEU	3.5
1	E	51	LEU	3.5

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Mol	Chain	Res	Type	RSRZ
1	A	214	GLY	3.5
1	C	574	SER	3.5
1	D	171	PRO	3.5
1	A	261	LEU	3.5
1	B	549	GLY	3.4
1	A	204	TYR	3.4
1	B	244	GLY	3.4
1	G	121	HIS	3.4
1	C	225	SER	3.4
1	A	198	ASN	3.4
1	A	163	ARG	3.4
1	A	188	ASP	3.4
1	D	248	SER	3.4
1	G	55	PHE	3.3
1	B	161	GLU	3.3
1	E	518	ARG	3.3
1	A	212	PRO	3.3
1	G	125	GLU	3.3
1	G	264	LEU	3.3
1	E	122	GLY	3.3
1	A	258	GLN	3.3
1	A	176	GLU	3.3
1	D	197	ALA	3.2
1	B	221	ASP	3.2
1	G	518	ARG	3.2
1	A	196	ASN	3.2
1	E	160	PRO	3.2
1	C	254	LEU	3.2
1	E	108	ILE	3.2
1	A	243	GLY	3.2
1	H	244	GLY	3.2
1	G	523	ALA	3.2
1	A	201	TRP	3.2
1	A	194	ARG	3.2
1	A	247	GLY	3.2
1	B	195	GLY	3.1
1	A	238	THR	3.1
1	A	260	ASP	3.1
1	A	263	GLY	3.1
1	D	65	MET	3.1
1	B	199	THR	3.1
1	B	205	PRO	3.1

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Mol	Chain	Res	Type	RSRZ
1	A	143	GLY	3.1
1	A	227	VAL	3.1
1	A	186	THR	3.1
1	C	50	GLU	3.1
1	G	160	PRO	3.1
1	H	165	GLY	3.1
1	D	187	VAL	3.0
1	E	273	ARG	3.0
1	D	236	LEU	3.0
1	C	304	GLU	3.0
1	F	169	GLY	3.0
1	E	101	VAL	3.0
1	G	274	PHE	2.9
1	E	524	ILE	2.9
1	C	273	ARG	2.9
1	E	270	ARG	2.9
1	E	262	PRO	2.9
1	D	207	ILE	2.9
1	G	127	HIS	2.9
1	C	260	ASP	2.9
1	C	269	VAL	2.9
1	H	170	GLY	2.9
1	E	120	SER	2.9
1	A	58	GLN	2.9
1	D	174	GLU	2.9
1	G	266	GLU	2.9
1	G	120	SER	2.8
1	F	168	GLN	2.8
1	H	169	GLY	2.8
1	A	213	VAL	2.8
1	E	261	LEU	2.8
1	E	52	GLY	2.8
1	F	178	VAL	2.8
1	C	301	LEU	2.8
1	G	57	GLN	2.8
1	A	211	VAL	2.8
1	A	303	PRO	2.8
1	B	264	LEU	2.8
1	G	155	LEU	2.8
1	F	242	ASN	2.8
1	G	128	ALA	2.8
1	H	223	LEU	2.7

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Mol	Chain	Res	Type	RSRZ
1	B	303	PRO	2.7
1	E	520	PRO	2.7
1	A	249	ARG	2.7
1	F	176	GLU	2.7
1	E	521	PRO	2.7
1	G	101	VAL	2.7
1	H	174	GLU	2.7
1	D	235	GLY	2.7
1	D	223	LEU	2.7
1	E	56	PHE	2.7
1	D	178	VAL	2.6
1	A	217	ILE	2.6
1	D	237	VAL	2.6
1	D	234	GLU	2.6
1	F	177	LEU	2.6
1	G	287	PHE	2.6
1	F	224	ILE	2.6
1	B	251	GLY	2.6
1	B	218	TYR	2.6
1	D	204	TYR	2.6
1	B	224	ILE	2.6
1	D	243	GLY	2.5
1	D	176	GLU	2.5
1	B	243	GLY	2.5
1	E	275	GLY	2.5
1	D	201	TRP	2.5
1	E	425	ALA	2.5
1	D	186	THR	2.5
1	E	141	PHE	2.4
1	D	172	GLU	2.4
1	D	205	PRO	2.4
1	G	520	PRO	2.4
1	A	59	GLN	2.4
1	A	231	ILE	2.4
1	H	58	GLN	2.4
1	F	151	VAL	2.4
1	F	174	GLU	2.4
1	C	261	LEU	2.4
1	E	57	GLN	2.4
1	D	208	VAL	2.4
1	E	344	ILE	2.4
1	E	318	GLU	2.4

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Mol	Chain	Res	Type	RSRZ
1	F	79	ASP	2.4
1	A	233	PRO	2.4
1	D	189	PRO	2.4
1	D	191	PHE	2.4
1	E	307	GLY	2.3
1	H	180	GLY	2.3
1	A	229	GLN	2.3
1	G	143	GLY	2.3
1	E	145	PRO	2.3
1	H	83	VAL	2.3
1	B	301	LEU	2.3
1	E	265	SER	2.3
1	E	263	GLY	2.3
1	G	56	PHE	2.3
1	A	191	PHE	2.3
1	E	271	ASP	2.3
1	H	181	SER	2.2
1	A	192	ARG	2.2
1	A	207	ILE	2.2
1	A	226	LEU	2.2
1	B	256	GLY	2.2
1	F	164	THR	2.2
1	B	304	GLU	2.2
1	D	173	SER	2.2
1	A	223	LEU	2.2
1	A	237	VAL	2.2
1	D	193	THR	2.2
1	D	238	THR	2.2
1	G	410	LYS	2.2
1	F	223	LEU	2.2
1	A	206	ASN	2.2
1	A	208	VAL	2.2
1	G	308	ILE	2.2
1	C	255	PRO	2.2
1	E	322	ARG	2.1
1	H	177	LEU	2.1
1	H	168	GLN	2.1
1	A	254	LEU	2.1
1	C	548	VAL	2.1
1	G	269	VAL	2.1
1	G	141	PHE	2.1
1	G	344	ILE	2.1

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Mol	Chain	Res	Type	RSRZ
1	B	547	ARG	2.1
1	D	192	ARG	2.1
1	D	224	ILE	2.1
1	E	308	ILE	2.1
1	H	176	GLU	2.1
1	G	321	LYS	2.1
1	E	276	VAL	2.1
1	A	255	PRO	2.1
1	C	262	PRO	2.1
1	D	239	GLN	2.0
1	E	124	HIS	2.0
1	D	198	ASN	2.0
1	F	248	SER	2.0
1	G	519	GLU	2.0
1	D	228	VAL	2.0
1	H	175	VAL	2.0
1	E	143	GLY	2.0
1	E	482	GLN	2.0
1	F	57	GLN	2.0
1	H	242	ASN	2.0
1	F	146	LEU	2.0
1	B	263	GLY	2.0
1	F	180	GLY	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.

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\mathring{A}^2$)	Q<0.9
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\mathring{A}^2$)	Q<0.9
6	K	D	604	1/1	0.44	0.40	138,138,138,138	0
3	PYR	G	601	6/6	0.58	0.24	95,97,99,100	0
3	PYR	E	601	6/6	0.74	0.17	99,101,102,102	0
5	MN	F	604	1/1	0.82	0.08	123,123,123,123	0
3	PYR	A	602	6/6	0.82	0.16	60,65,69,72	0
3	PYR	B	601	6/6	0.83	0.20	63,68,75,82	0
5	MN	E	603	1/1	0.86	0.04	123,123,123,123	0
5	MN	G	603	1/1	0.87	0.04	101,101,101,101	0
4	FBP	E	602	20/20	0.89	0.15	49,56,69,70	0
5	MN	A	604	1/1	0.89	0.06	90,90,90,90	0
6	K	A	605	1/1	0.91	0.15	91,91,91,91	0
3	PYR	F	602	6/6	0.91	0.14	89,91,98,110	0
2	I0R	H	601	23/23	0.93	0.15	20,37,46,50	0
5	MN	H	603	1/1	0.93	0.22	94,94,94,94	0
3	PYR	C	601	6/6	0.93	0.17	67,70,77,86	0
4	FBP	G	602	20/20	0.93	0.15	40,52,62,69	0
2	I0R	F	601	23/23	0.94	0.14	28,39,47,48	0
2	I0R	A	601	23/23	0.95	0.12	37,44,47,48	0
5	MN	B	603	1/1	0.95	0.05	73,73,73,73	0
2	I0R	D	601	23/23	0.96	0.13	37,43,47,51	0
5	MN	C	603	1/1	0.97	0.07	61,61,61,61	0
5	MN	D	603	1/1	0.97	0.06	83,83,83,83	0
4	FBP	A	603	20/20	0.97	0.11	39,43,50,53	0
4	FBP	D	602	20/20	0.97	0.12	35,41,48,48	0
4	FBP	F	603	20/20	0.98	0.10	31,37,40,41	0
4	FBP	C	602	20/20	0.98	0.13	33,36,40,40	0
4	FBP	B	602	20/20	0.99	0.12	29,34,37,38	0
4	FBP	H	602	20/20	0.99	0.09	34,40,45,47	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 FBP E 602:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
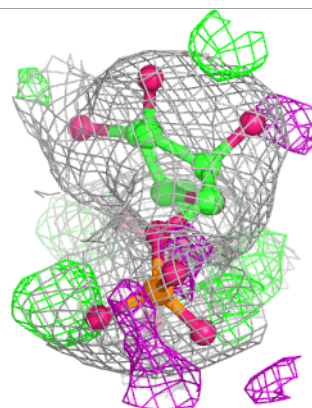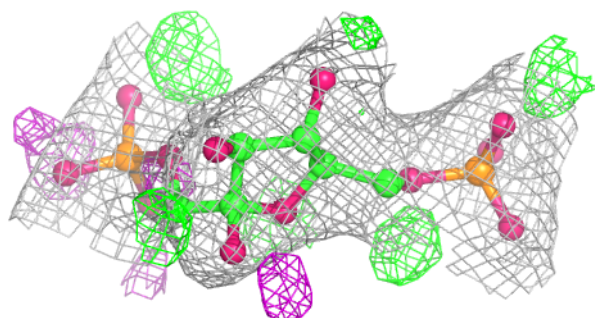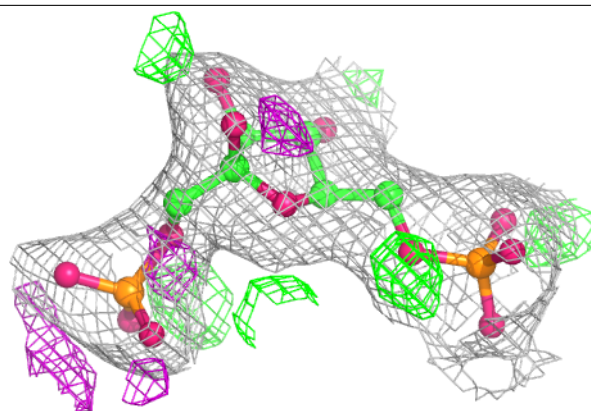
Electron density around I0R H 601:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
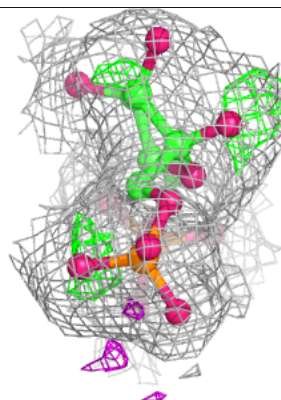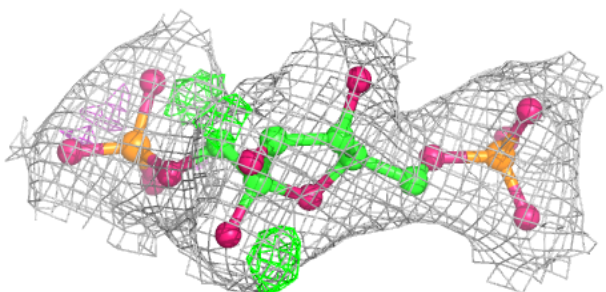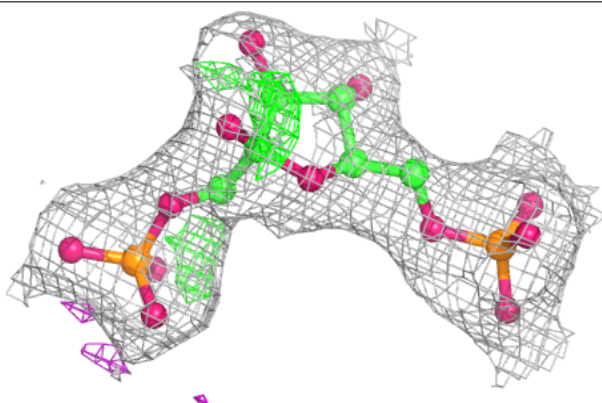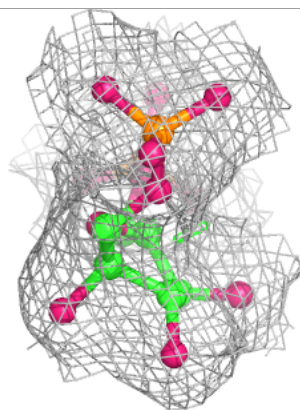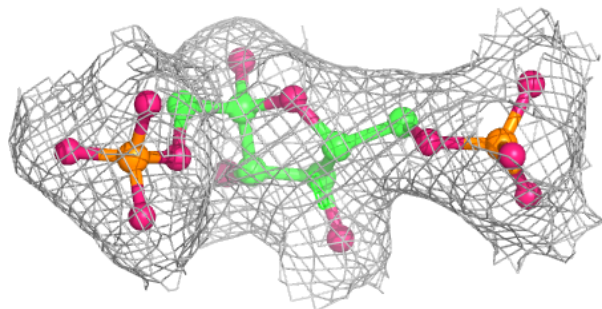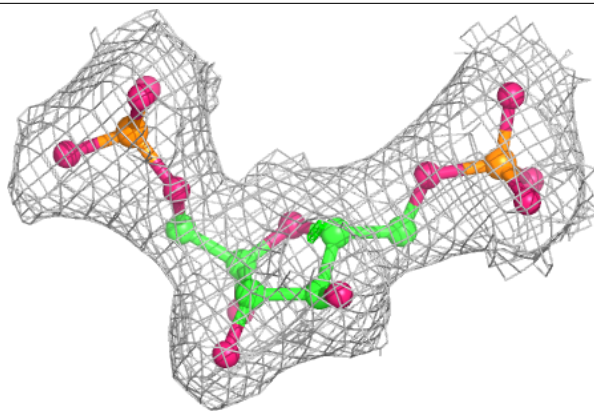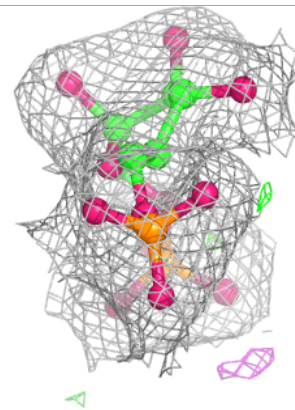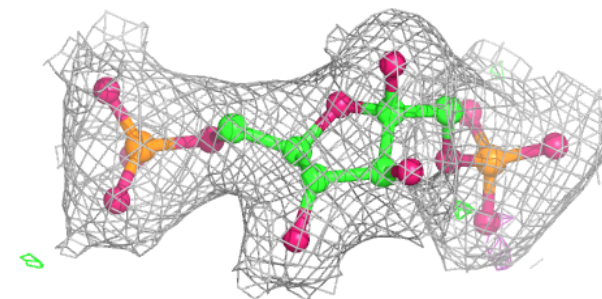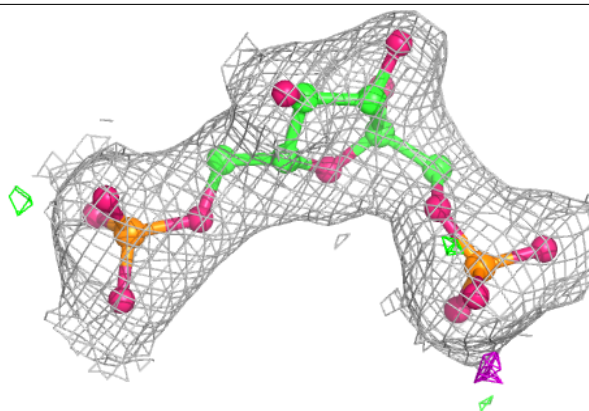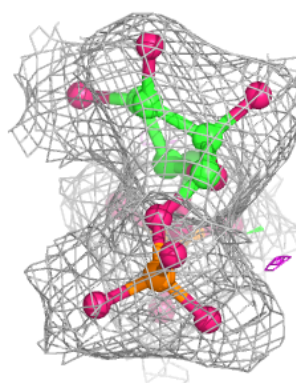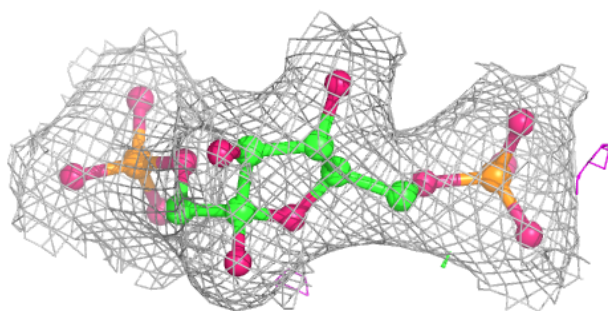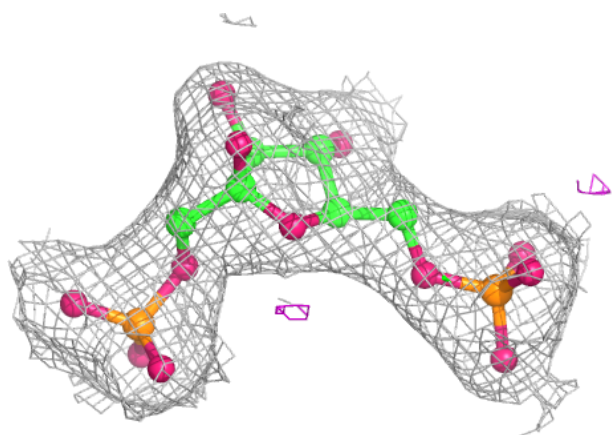and green (positive)
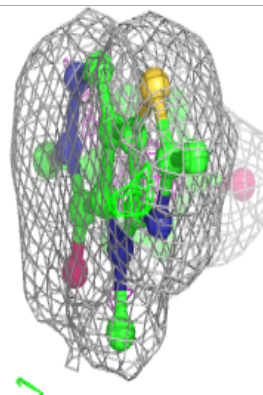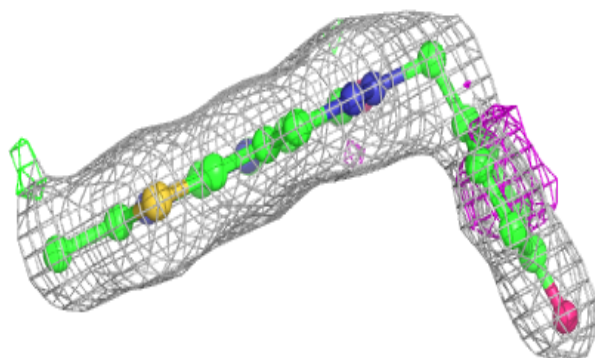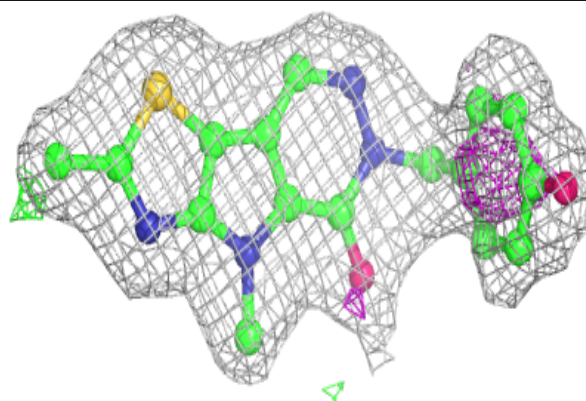
Electron density around FBP G 602:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
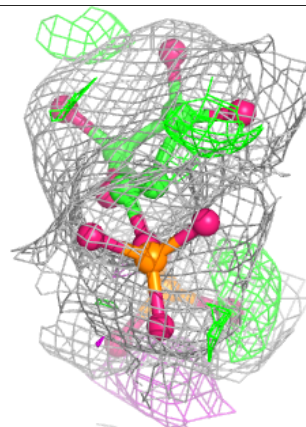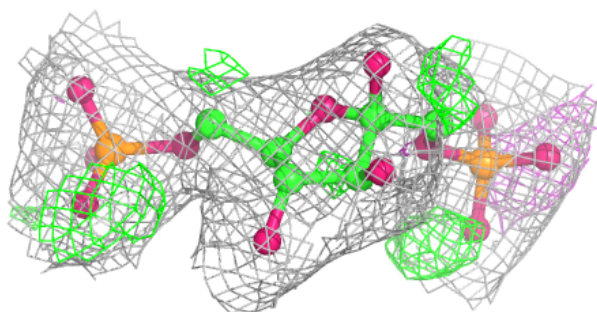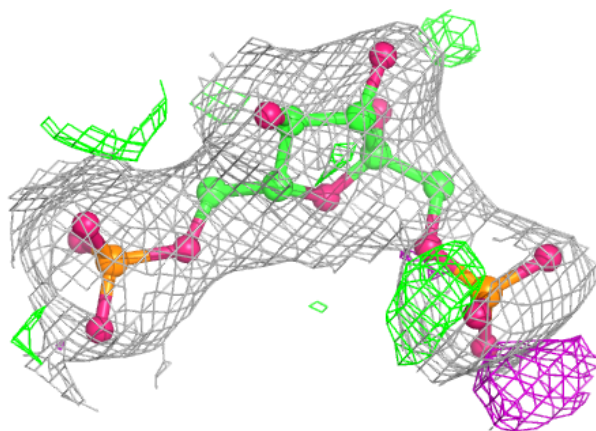
Electron density around I0R F 601:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
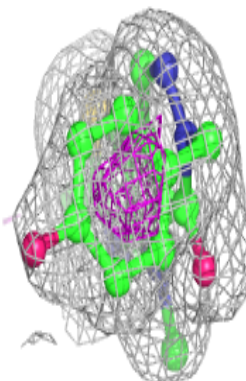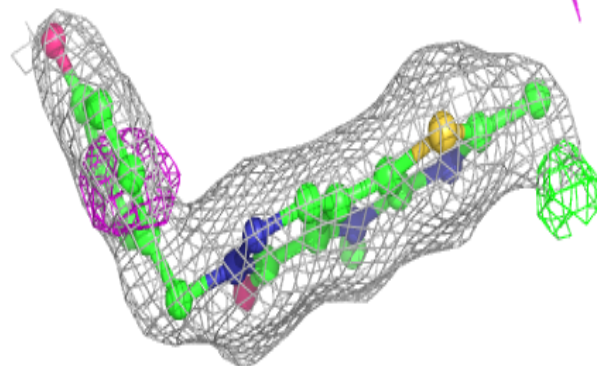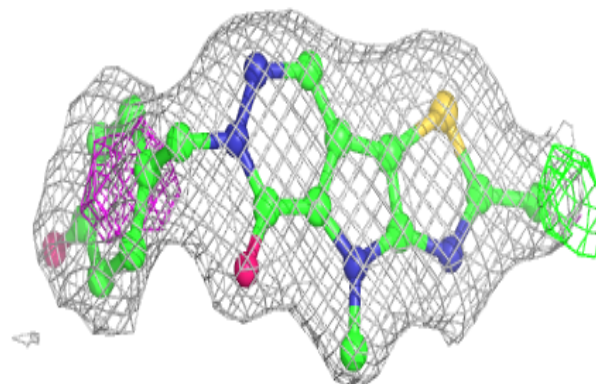
Electron density around I0R A 601:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
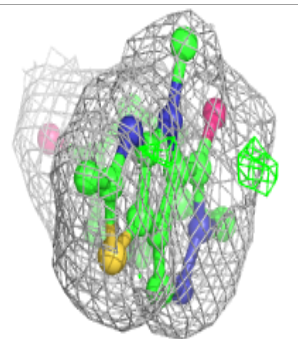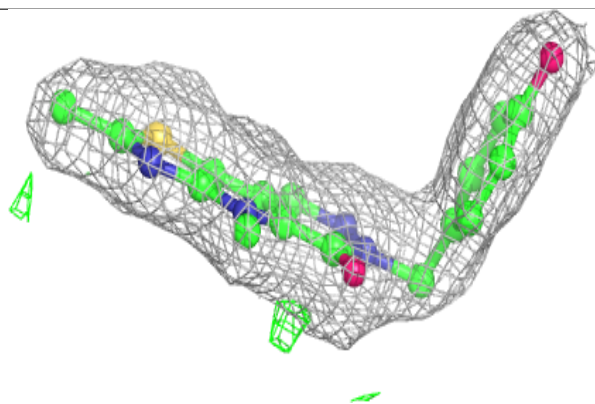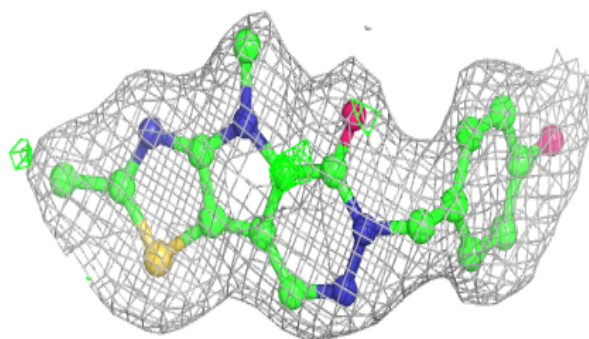
Electron density around I0R D 601:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
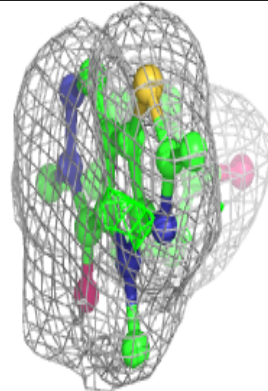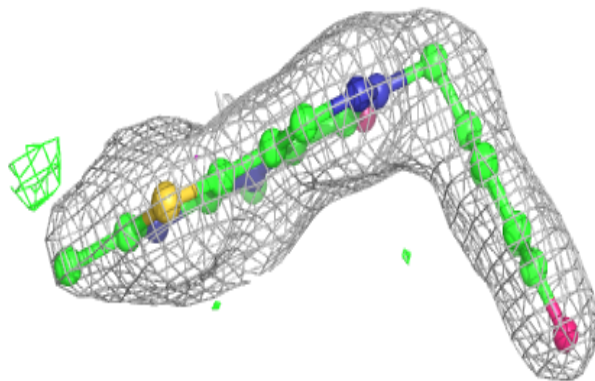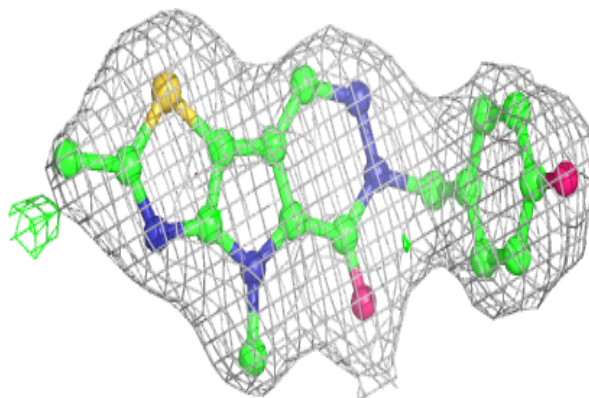
Electron density around FBP A 603:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
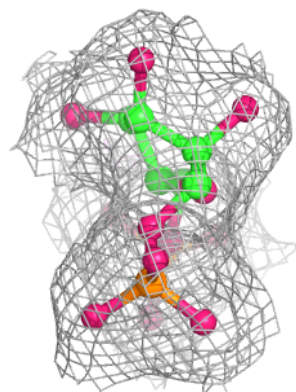mF_o-DF_c (at 3 rmsd) in purple (negative)
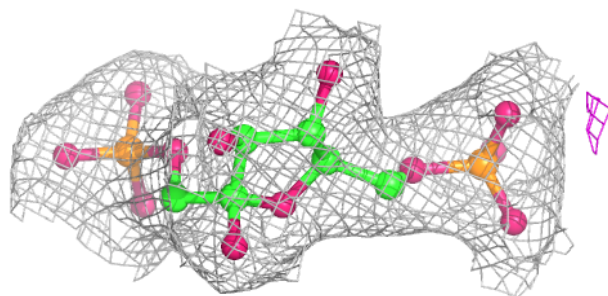and green (positive)
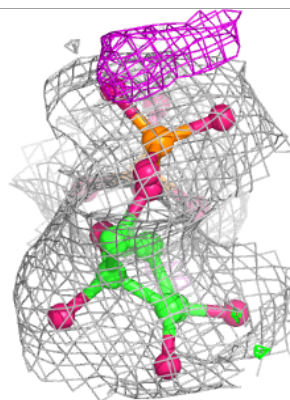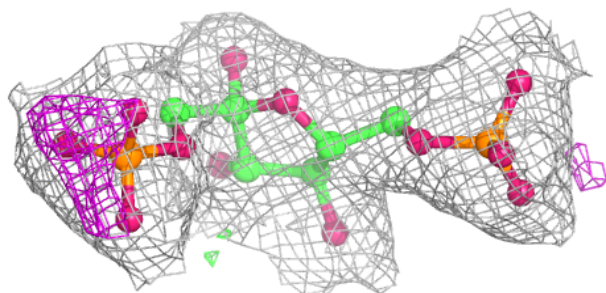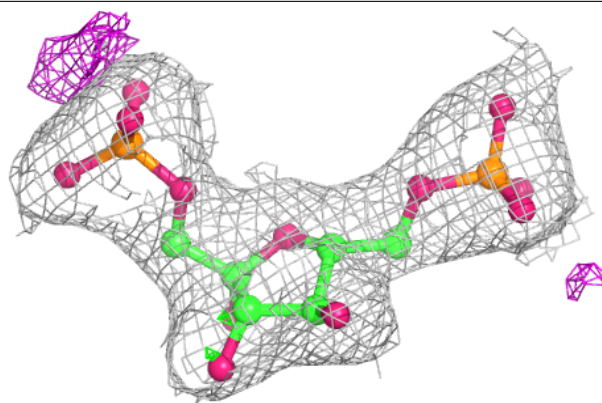
Electron density around FBP D 602:

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

Electron density around FBP F 603:

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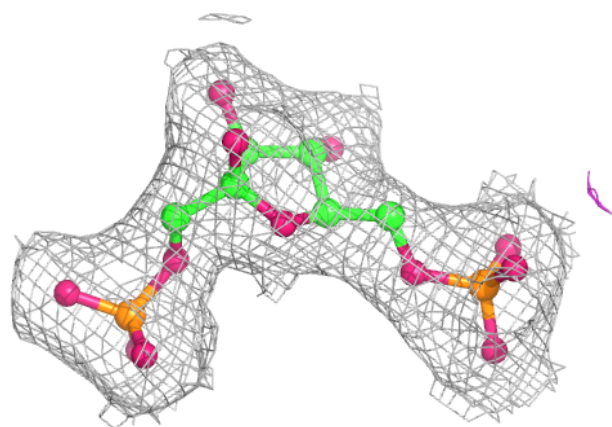and green (positive)

Electron density around FBP C 602:

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

Electron density around FBP B 602:

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 FBP H 602:

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.