Full wwPDB X-ray Structure Validation Report (i)

Jan 5, 2023 – 04:10 PM JST

PDB ID	:	8HMQ
Title	:	Crystal Structure of PKM2 mutant P403A
Authors	:	Upadhyay, S.; Kumar, A.; Patel, A.K.
Deposited on	:	2022-12-05
Resolution	:	2.50 Å(reported)

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

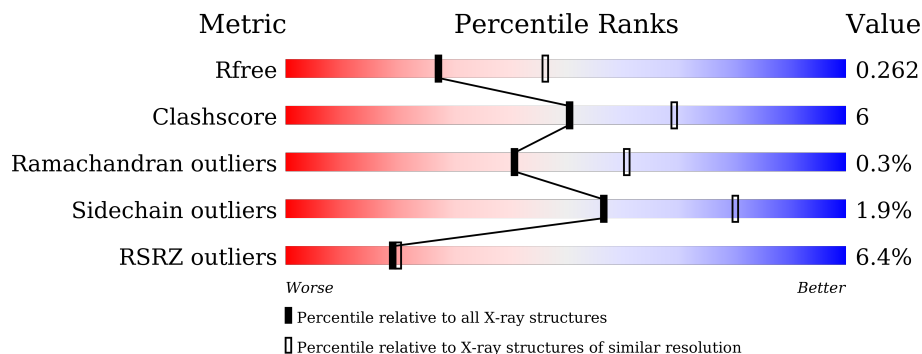|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.31.3
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.3

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 2.50 Å.

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

Metric	Percentile Ranks	Value
Rfree		0.262
Clashscore		6
Ramachandran outliers		0.3%
Sidechain outliers		1.9%
RSRZ outliers		6.4%

Worse *Better*

▌Percentile relative to all X-ray structures

▯Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	4661 (2.50-2.50)
Clashscore	141614	5346 (2.50-2.50)
Ramachandran outliers	138981	5231 (2.50-2.50)
Sidechain outliers	138945	5233 (2.50-2.50)
RSRZ outliers	127900	4559 (2.50-2.50)

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

Mol	Chain	Length	Quality of chain
1	A	551	4% / 76% / 11% / 13%
1	B	551	5% / 77% / 15% / 8%
1	C	551	6% / 72% / 15% / 12%
1	D	551	7% / 75% / 13% / 11%

2　Entry composition ⓘ

There are 7 unique types of molecules in this entry. The entry contains 14873 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 PKM.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	481	Total 3593	C 2259	N 635	O 676	S 23	0	0	0
1	B	509	Total 3800	C 2387	N 669	O 719	S 25	0	0	0
1	C	483	Total 3606	C 2273	N 632	O 677	S 24	0	0	0
1	D	489	Total 3636	C 2284	N 639	O 689	S 24	0	0	0

There are 84 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-19	MET	-	initiating methionine	UNP P14618
A	-18	GLY	-	expression tag	UNP P14618
A	-17	SER	-	expression tag	UNP P14618
A	-16	SER	-	expression tag	UNP P14618
A	-15	HIS	-	expression tag	UNP P14618
A	-14	HIS	-	expression tag	UNP P14618
A	-13	HIS	-	expression tag	UNP P14618
A	-12	HIS	-	expression tag	UNP P14618
A	-11	HIS	-	expression tag	UNP P14618
A	-10	HIS	-	expression tag	UNP P14618
A	-9	SER	-	expression tag	UNP P14618
A	-8	SER	-	expression tag	UNP P14618
A	-7	GLY	-	expression tag	UNP P14618
A	-6	LEU	-	expression tag	UNP P14618
A	-5	VAL	-	expression tag	UNP P14618
A	-4	PRO	-	expression tag	UNP P14618
A	-3	ARG	-	expression tag	UNP P14618
A	-2	GLY	-	expression tag	UNP P14618
A	-1	SER	-	expression tag	UNP P14618
A	0	HIS	-	expression tag	UNP P14618
A	403	ALA	PRO	engineered mutation	UNP P14618

Continued on next page...
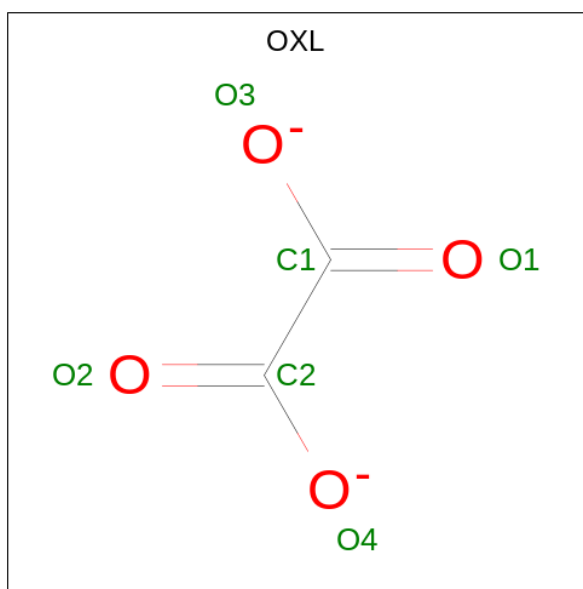
Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	-19	MET	-	initiating methionine	UNP P14618
B	-18	GLY	-	expression tag	UNP P14618
B	-17	SER	-	expression tag	UNP P14618
B	-16	SER	-	expression tag	UNP P14618
B	-15	HIS	-	expression tag	UNP P14618
B	-14	HIS	-	expression tag	UNP P14618
B	-13	HIS	-	expression tag	UNP P14618
B	-12	HIS	-	expression tag	UNP P14618
B	-11	HIS	-	expression tag	UNP P14618
B	-10	HIS	-	expression tag	UNP P14618
B	-9	SER	-	expression tag	UNP P14618
B	-8	SER	-	expression tag	UNP P14618
B	-7	GLY	-	expression tag	UNP P14618
B	-6	LEU	-	expression tag	UNP P14618
B	-5	VAL	-	expression tag	UNP P14618
B	-4	PRO	-	expression tag	UNP P14618
B	-3	ARG	-	expression tag	UNP P14618
B	-2	GLY	-	expression tag	UNP P14618
B	-1	SER	-	expression tag	UNP P14618
B	0	HIS	-	expression tag	UNP P14618
B	403	ALA	PRO	engineered mutation	UNP P14618
C	-19	MET	-	initiating methionine	UNP P14618
C	-18	GLY	-	expression tag	UNP P14618
C	-17	SER	-	expression tag	UNP P14618
C	-16	SER	-	expression tag	UNP P14618
C	-15	HIS	-	expression tag	UNP P14618
C	-14	HIS	-	expression tag	UNP P14618
C	-13	HIS	-	expression tag	UNP P14618
C	-12	HIS	-	expression tag	UNP P14618
C	-11	HIS	-	expression tag	UNP P14618
C	-10	HIS	-	expression tag	UNP P14618
C	-9	SER	-	expression tag	UNP P14618
C	-8	SER	-	expression tag	UNP P14618
C	-7	GLY	-	expression tag	UNP P14618
C	-6	LEU	-	expression tag	UNP P14618
C	-5	VAL	-	expression tag	UNP P14618
C	-4	PRO	-	expression tag	UNP P14618
C	-3	ARG	-	expression tag	UNP P14618
C	-2	GLY	-	expression tag	UNP P14618
C	-1	SER	-	expression tag	UNP P14618
C	0	HIS	-	expression tag	UNP P14618
C	403	ALA	PRO	engineered mutation	UNP P14618

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	-19	MET	-	initiating methionine	UNP P14618
D	-18	GLY	-	expression tag	UNP P14618
D	-17	SER	-	expression tag	UNP P14618
D	-16	SER	-	expression tag	UNP P14618
D	-15	HIS	-	expression tag	UNP P14618
D	-14	HIS	-	expression tag	UNP P14618
D	-13	HIS	-	expression tag	UNP P14618
D	-12	HIS	-	expression tag	UNP P14618
D	-11	HIS	-	expression tag	UNP P14618
D	-10	HIS	-	expression tag	UNP P14618
D	-9	SER	-	expression tag	UNP P14618
D	-8	SER	-	expression tag	UNP P14618
D	-7	GLY	-	expression tag	UNP P14618
D	-6	LEU	-	expression tag	UNP P14618
D	-5	VAL	-	expression tag	UNP P14618
D	-4	PRO	-	expression tag	UNP P14618
D	-3	ARG	-	expression tag	UNP P14618
D	-2	GLY	-	expression tag	UNP P14618
D	-1	SER	-	expression tag	UNP P14618
D	0	HIS	-	expression tag	UNP P14618
D	403	ALA	PRO	engineered mutation	UNP P14618

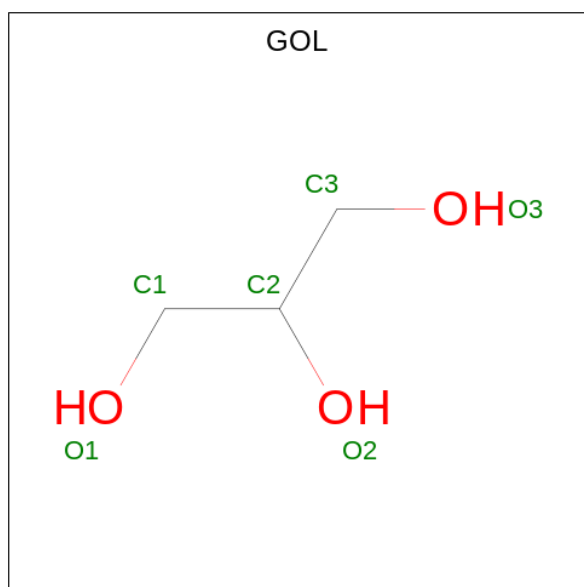- Molecule 2 is OXALATE ION (three-letter code: OXL) (formula: C_2O_4).

OXL

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	0
			6	2	4		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	B	1	Total C O 6 2 4			0	0
2	C	1	Total C O 6 2 4			0	0
2	D	1	Total C O 6 2 4			0	0

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

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

- Molecule 4 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: $C_2H_6O_2$).

EDO
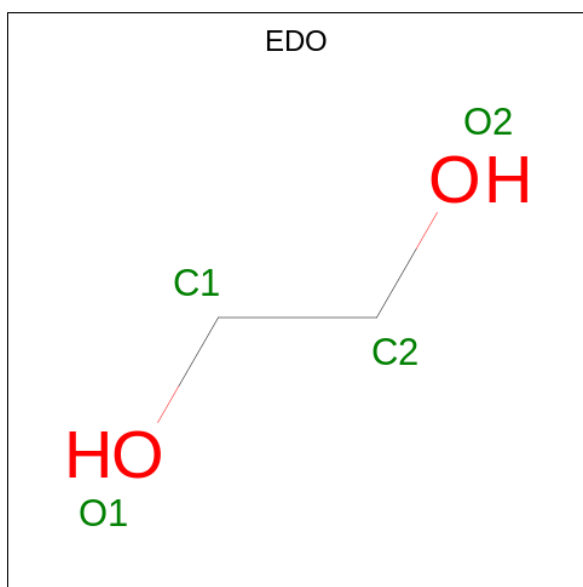
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total 4	C 2	O 2	0	0
4	A	1	Total 4	C 2	O 2	0	0
4	A	1	Total 4	C 2	O 2	0	0
4	C	1	Total 4	C 2	O 2	0	0
4	D	1	Total 4	C 2	O 2	0	0

- Molecule 5 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	3	Total 3	Mg 3	0	0
5	B	3	Total 3	Mg 3	0	0
5	C	1	Total 1	Mg 1	0	0
5	D	2	Total 2	Mg 2	0	0

- Molecule 6 is 1,6-di-O-phosphono-beta-D-fructofuranose (three-letter code: FBP) (formula: $C_6H_{14}O_{12}P_2$) (labeled as "Ligand of Interest" by depositor).
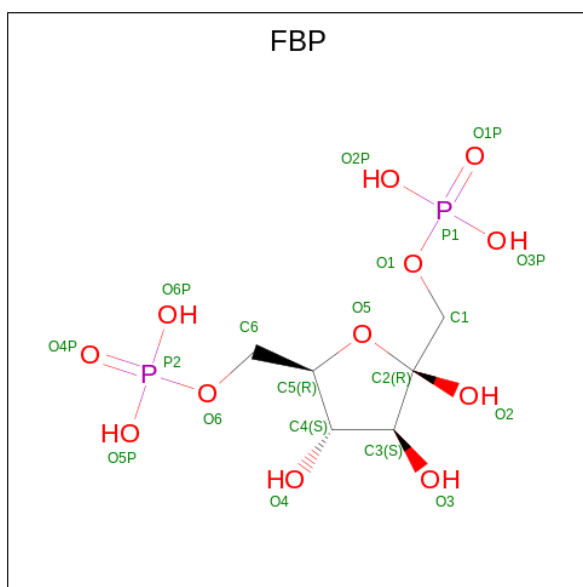
FBP

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
6	B	1	Total 20	C 6	O 12	P 2	0	0
6	C	1	Total 6	C 1	O 4	P 1	0	0
6	D	1	Total 6	C 1	O 4	P 1	0	0

- Molecule 7 is water.

| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	49	Total 49	O 49	0	0
7	B	32	Total 32	O 32	0	0
7	C	15	Total 16	O 16	0	1
7	D	14	Total 14	O 14	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.
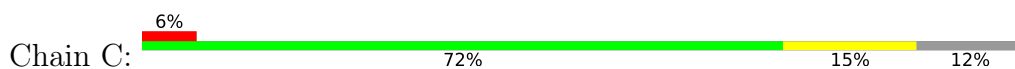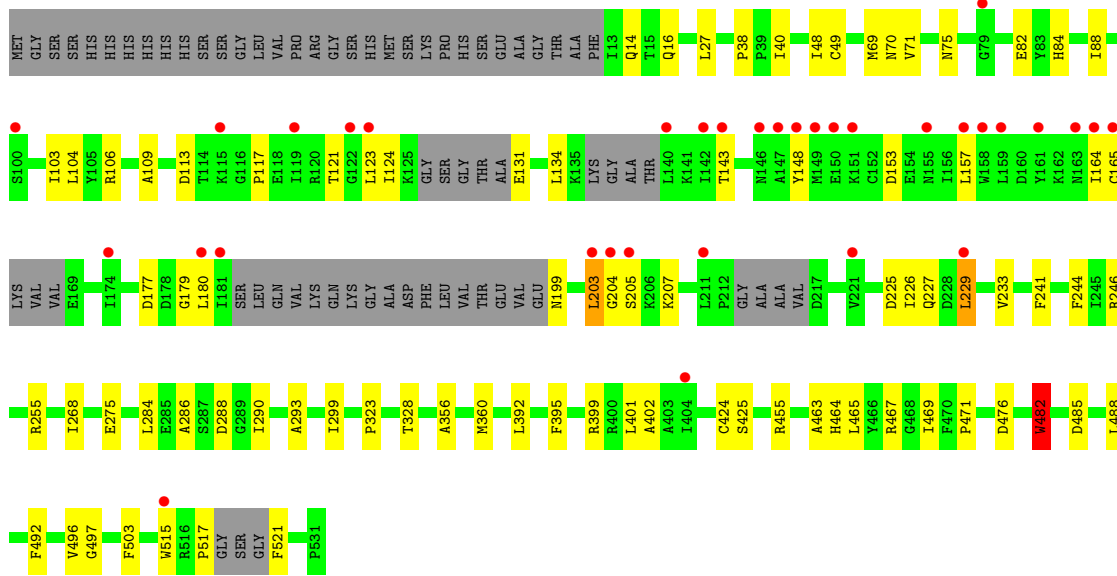
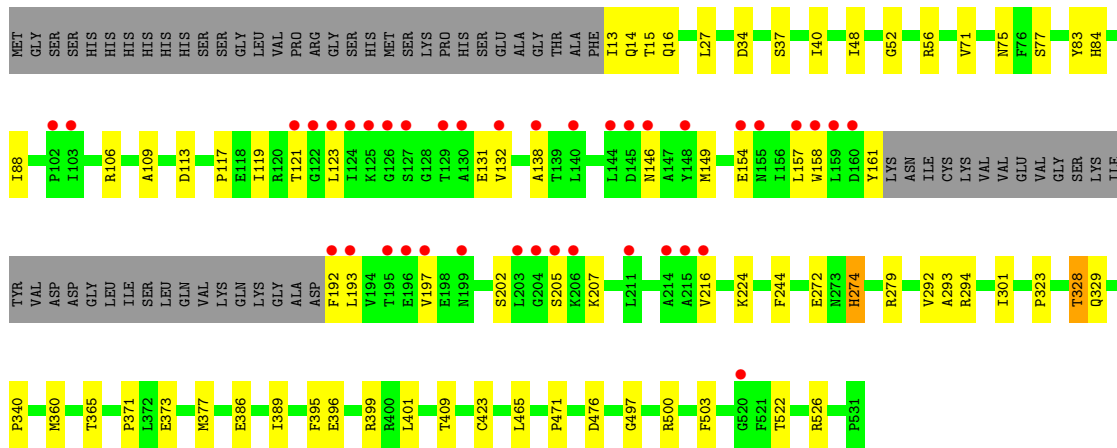- Molecule 1: Pyruvate kinase PKM
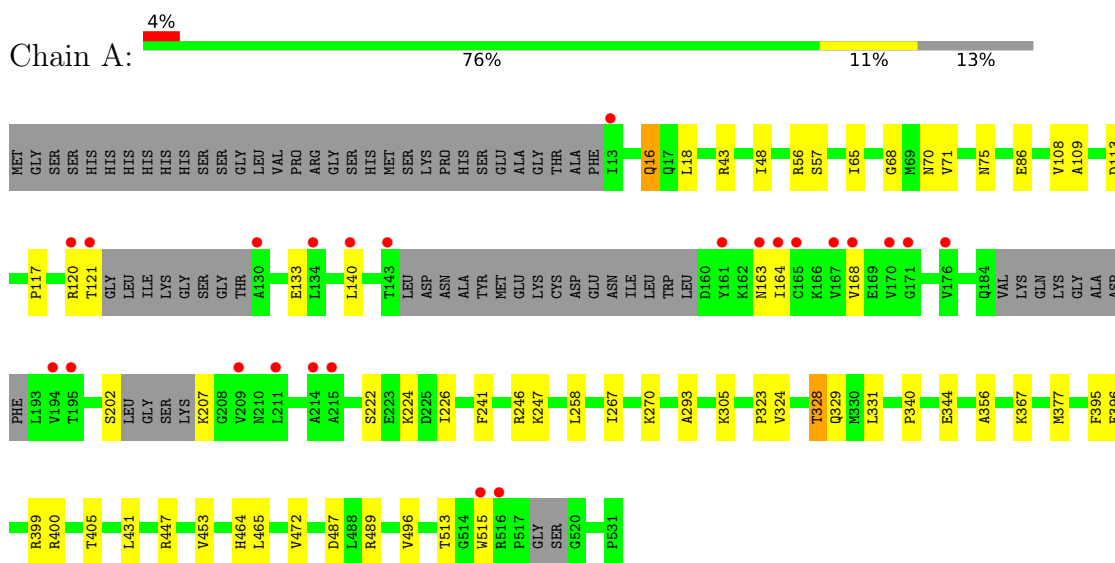
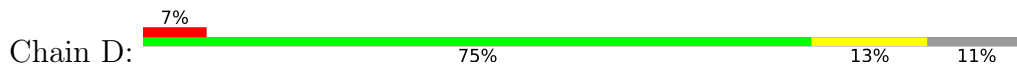Chain A:

- Molecule 1: Pyruvate kinase PKM

Chain B:

- Molecule 1: Pyruvate kinase PKM

Chain C:
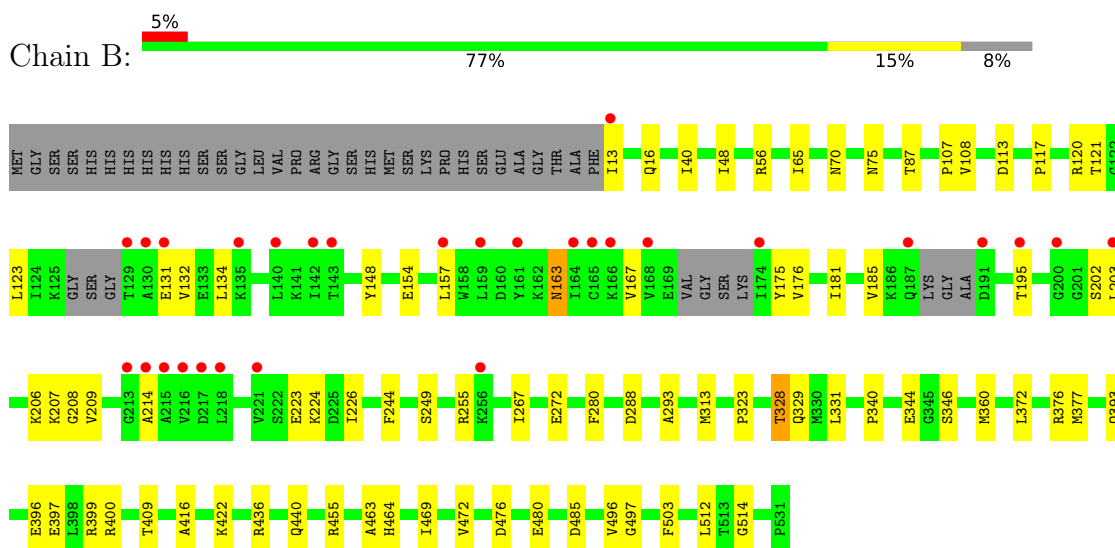
• Molecule 1: Pyruvate kinase PKM

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	99.83Å 136.84Å 149.16Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	46.73 – 2.50	Depositor
	46.73 – 2.50	EDS
% Data completeness	99.9 (46.73-2.50)	Depositor
(in resolution range)	99.9 (46.73-2.50)	EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.57 (at 2.51Å)	Xtriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.213 , 0.263	Depositor
	0.213 , 0.262	DCC
R_{free} test set	3558 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	48.3	Xtriage
Anisotropy	0.372	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 48.9	EDS
L-test for twinning[2]	$< |L| > = 0.49, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	14873	wwPDB-VP
Average B, all atoms (Å^2)	60.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.22% of the height of the origin peak. No significant pseudotranslation is detected.*

---

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

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: MG, FBP, EDO, GOL, OXL

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	0.27	0/3647	0.52	0/4938
1	B	0.28	0/3859	0.51	0/5229
1	C	0.29	0/3662	0.54	2/4963 (0.0%)
1	D	0.28	0/3695	0.52	0/5011
All	All	0.28	0/14863	0.53	2/20141 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	D	0	1

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	227	GLN	CA-CB-CG	6.04	126.70	113.40
1	C	482	TRP	CB-CG-CD2	-5.93	118.89	126.60

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	D	396	GLU	Sidechain

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3593	0	3555	33	0
1	B	3800	0	3744	48	0
1	C	3606	0	3536	50	0
1	D	3636	0	3593	46	0
2	A	6	0	0	1	0
2	B	6	0	0	0	0
2	C	6	0	0	1	0
2	D	6	0	0	0	0
3	A	12	0	16	1	0
3	B	12	0	16	2	0
3	C	6	0	8	0	0
3	D	12	0	16	0	0
4	A	12	0	18	2	0
4	C	4	0	6	1	0
4	D	4	0	6	0	0
5	A	3	0	0	0	0
5	B	3	0	0	0	0
5	C	1	0	0	0	0
5	D	2	0	0	0	0
6	B	20	0	9	1	0
6	C	6	0	0	0	0
6	D	6	0	0	0	0
7	A	49	0	0	1	0
7	B	32	0	0	0	0
7	C	16	0	0	0	0
7	D	14	0	0	0	0
All	All	14873	0	14523	168	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 (168) 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:15:THR:HG22	1:D:16:GLN:HG3	1.50	0.93

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:131:GLU:OE1	1:B:202:SER:HB3	1.70	0.91
1:A:328:THR:HG22	1:A:329:GLN:HG3	1.65	0.77
1:B:455:ARG:NH1	1:B:476:ASP:O	2.22	0.72
1:B:185:VAL:HA	1:B:195:THR:HG22	1.74	0.70
1:B:16:GLN:HG2	1:B:40:ILE:HG23	1.72	0.70
1:B:167:VAL:HG12	1:B:214:ALA:HB1	1.74	0.69
1:C:179:GLY:HA3	1:C:299:ILE:HD11	1.75	0.68
1:B:48:ILE:HB	1:B:360:MET:HG3	1.77	0.66
1:D:409:THR:HG23	1:D:522:THR:HB	1.78	0.64
1:A:121:THR:HG1	1:A:207:LYS:N	1.97	0.63
1:D:121:THR:HB	1:D:157:LEU:HD11	1.82	0.61
1:B:117:PRO:HD2	1:B:244:PHE:HB2	1.83	0.61
1:C:476:ASP:HB2	1:C:488:LEU:HD11	1.81	0.60
1:C:180:LEU:O	1:C:199:ASN:ND2	2.28	0.60
1:B:123:LEU:HD21	1:B:206:LYS:HE2	1.83	0.60
1:B:372:LEU:O	1:B:376:ARG:HG3	2.02	0.59
1:D:395:PHE:O	1:D:399:ARG:HG3	2.03	0.59
1:C:492:PHE:O	1:C:496:VAL:HG23	2.03	0.59
1:D:132:VAL:HB	1:D:154:GLU:HG3	1.85	0.59
1:D:328:THR:HG22	1:D:329:GLN:HG3	1.83	0.59
1:C:401:LEU:HD12	1:D:27:LEU:HD23	1.84	0.58
1:B:157:LEU:HD13	1:B:203:LEU:HD21	1.84	0.58
1:D:13:ILE:O	1:D:15:THR:N	2.37	0.58
1:C:48:ILE:HB	1:C:360:MET:HG3	1.86	0.57
1:C:106:ARG:NH2	1:C:471:PRO:O	2.36	0.57
1:B:409:THR:HB	1:B:440:GLN:HE22	1.70	0.57
4:C:604:EDO:H22	1:D:329:GLN:HE22	1.69	0.56
1:B:400:ARG:HD2	1:C:392:LEU:HD21	1.86	0.56
1:C:14:GLN:O	1:C:38:PRO:HD2	2.06	0.56
1:A:515:TRP:CD2	1:D:526:ARG:HD3	2.41	0.55
1:B:399:ARG:HH22	1:C:399:ARG:HH12	1.52	0.55
1:C:103:ILE:HG22	1:C:104:LEU:HD23	1.89	0.55
1:B:436:ARG:O	1:B:440:GLN:HG3	2.07	0.55
1:C:27:LEU:HD23	1:D:401:LEU:HD22	1.87	0.55
1:B:340:PRO:HG3	1:B:377:MET:HG2	1.87	0.55
1:B:280:PHE:CE1	1:B:313:MET:HG2	2.42	0.54
1:D:292:VAL:HG12	1:D:294:ARG:HG2	1.89	0.54
1:D:48:ILE:HG12	1:D:71:VAL:HB	1.90	0.54
1:D:56:ARG:HD3	1:D:83:TYR:OH	2.07	0.54
1:A:16:GLN:HG3	1:A:18:LEU:HG	1.90	0.54
1:C:123:LEU:HD23	1:C:205:SER:HB2	1.90	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:71:VAL:HG22	1:A:109:ALA:HB3	1.89	0.53
1:D:149:MET:HG2	1:D:158:TRP:CE2	2.44	0.53
1:A:133:GLU:OE2	1:A:202:SER:OG	2.27	0.53
1:D:123:LEU:HA	1:D:205:SER:HB3	1.90	0.53
1:A:431:LEU:HD22	1:A:513:THR:HG22	1.90	0.53
1:C:121:THR:HB	1:C:157:LEU:HD11	1.91	0.52
1:B:223:GLU:HA	1:B:226:ILE:HD12	1.90	0.52
1:D:117:PRO:HD2	1:D:244:PHE:HB2	1.92	0.52
1:A:222:SER:O	1:A:226:ILE:HG13	2.10	0.52
1:D:192:PHE:O	1:D:193:LEU:HD23	2.10	0.52
1:C:49:CYS:SG	1:C:69:MET:HG3	2.50	0.52
1:B:134:LEU:HD12	1:B:181:ILE:HD13	1.91	0.51
1:B:331:LEU:HD23	1:B:344:GLU:HB3	1.91	0.51
1:D:16:GLN:HG2	1:D:40:ILE:HG22	1.92	0.51
1:B:497:GLY:HA3	1:B:503:PHE:CZ	2.45	0.51
1:C:395:PHE:CZ	1:C:399:ARG:HD2	2.46	0.51
1:D:146:ASN:HA	1:D:149:MET:HG3	1.92	0.51
1:C:84:HIS:O	1:C:88:ILE:HG13	2.11	0.50
1:A:396:GLU:O	1:A:400:ARG:HG3	2.11	0.50
1:A:56:ARG:NH2	1:A:86:GLU:HB3	2.27	0.50
1:D:119:ILE:HG23	1:D:161:TYR:HB2	1.93	0.49
1:C:482:TRP:CH2	1:C:517:PRO:HA	2.47	0.49
1:D:274:HIS:CD2	1:D:301:ILE:HG22	2.47	0.49
1:B:399:ARG:HH22	1:C:399:ARG:NH1	2.10	0.49
1:C:476:ASP:CB	1:C:488:LEU:HD11	2.42	0.49
1:C:284:LEU:HD13	1:C:290:ILE:HG13	1.95	0.48
1:B:272:GLU:HG2	1:B:293:ALA:HB3	1.96	0.48
1:D:131:GLU:OE1	1:D:202:SER:OG	2.32	0.48
1:C:246:ARG:HB3	1:C:275:GLU:OE1	2.12	0.48
1:C:225:ASP:O	1:C:229:LEU:HD12	2.13	0.48
1:C:16:GLN:HG3	1:C:40:ILE:HG23	1.96	0.48
1:C:229:LEU:O	1:C:233:VAL:HG23	2.13	0.48
1:A:305:LYS:NZ	7:A:702:HOH:O	2.40	0.47
1:B:255:ARG:CZ	1:B:267:ILE:HD12	2.44	0.47
1:D:340:PRO:HG3	1:D:377:MET:HG2	1.96	0.47
1:C:241:PHE:HE1	1:C:268:ILE:HD13	1.80	0.47
1:A:472:VAL:HG11	1:A:496:VAL:HG11	1.97	0.47
1:B:464:HIS:CE1	3:B:604:GOL:H31	2.49	0.47
1:C:143:THR:HG21	1:C:148:TYR:HB2	1.97	0.47
1:D:13:ILE:N	1:D:13:ILE:HD12	2.30	0.46
1:A:43:ARG:HH21	4:A:605:EDO:H21	1.80	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:117:PRO:HG3	1:A:246:ARG:HH21	1.79	0.46
1:C:124:ILE:HG21	1:C:131:GLU:HA	1.97	0.46
1:B:75:ASN:HA	1:B:113:ASP:HB3	1.96	0.46
1:D:106:ARG:HH22	1:D:471:PRO:HD2	1.80	0.46
1:D:497:GLY:HA3	1:D:503:PHE:CZ	2.51	0.46
1:C:482:TRP:CZ2	1:C:517:PRO:HA	2.50	0.46
1:A:48:ILE:HG12	1:A:71:VAL:HB	1.98	0.46
1:A:464:HIS:CE1	3:A:603:GOL:H31	2.51	0.46
1:C:288:ASP:O	1:C:323:PRO:HD2	2.16	0.46
1:C:293:ALA:HB1	2:C:601:OXL:C1	2.46	0.45
1:D:71:VAL:HG22	1:D:109:ALA:HB3	1.97	0.45
1:A:395:PHE:CZ	1:A:399:ARG:HD3	2.51	0.45
1:D:476:ASP:N	1:D:476:ASP:OD1	2.50	0.45
1:D:13:ILE:HG22	1:D:14:GLN:H	1.82	0.45
1:C:356:ALA:O	1:C:467:ARG:NH2	2.38	0.45
1:C:455:ARG:NH2	1:C:485:ASP:OD1	2.47	0.45
1:C:482:TRP:C	1:C:482:TRP:CD1	2.88	0.45
1:B:107:PRO:O	1:B:464:HIS:NE2	2.40	0.45
1:B:464:HIS:ND1	3:B:604:GOL:H31	2.32	0.45
1:C:255:ARG:NH2	1:C:286:ALA:O	2.47	0.45
1:C:497:GLY:HA3	1:C:503:PHE:CZ	2.52	0.45
1:A:68:GLY:HA2	4:A:605:EDO:H21	1.98	0.44
1:B:132:VAL:HB	1:B:154:GLU:HG3	1.99	0.44
1:C:131:GLU:HB3	1:C:204:GLY:HA2	1.99	0.44
1:A:65:ILE:HG12	1:A:108:VAL:HG21	1.98	0.44
1:C:395:PHE:CE2	1:C:399:ARG:HD2	2.52	0.44
1:C:117:PRO:HD2	1:C:244:PHE:HB2	1.98	0.44
1:D:13:ILE:C	1:D:15:THR:H	2.21	0.44
1:D:75:ASN:HA	1:D:113:ASP:HB3	2.00	0.44
1:B:65:ILE:HG12	1:B:108:VAL:HG21	1.99	0.44
1:D:365:THR:HA	1:D:371:PRO:HB3	1.99	0.44
1:A:75:ASN:HA	1:A:113:ASP:HB3	1.99	0.44
1:B:416:ALA:HB2	1:B:512:LEU:HD21	1.98	0.44
1:B:396:GLU:HA	1:B:399:ARG:HH21	1.83	0.44
1:D:386:GLU:HA	1:D:389:ILE:HD12	1.99	0.43
1:A:241:PHE:HB3	1:A:270:LYS:HD2	2.01	0.43
1:C:164:ILE:HG23	1:C:165:CYS:H	1.83	0.43
1:C:323:PRO:HB3	1:C:465:LEU:O	2.18	0.43
1:C:463:ALA:HB1	1:C:469:ILE:HG21	2.00	0.43
1:C:299:ILE:HD13	1:C:299:ILE:HA	1.90	0.43
1:A:164:ILE:O	1:A:168:VAL:HG22	2.19	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:515:TRP:CE3	1:D:526:ARG:HD3	2.53	0.43
1:B:131:GLU:OE1	1:B:202:SER:CB	2.54	0.43
1:D:34:ASP:HB3	1:D:37:SER:HB2	1.99	0.43
1:B:163:ASN:N	1:B:163:ASN:OD1	2.51	0.43
1:A:331:LEU:HD23	1:A:344:GLU:HB3	2.00	0.42
1:B:514:GLY:HA3	6:B:602:FBP:O3	2.19	0.42
1:B:148:TYR:CD1	1:B:148:TYR:N	2.87	0.42
1:D:52:GLY:O	1:D:56:ARG:HG3	2.20	0.42
1:A:293:ALA:HB1	2:A:601:OXL:C1	2.49	0.42
1:A:453:VAL:HG11	1:A:489:ARG:HB3	2.01	0.42
1:B:463:ALA:HB1	1:B:469:ILE:HG21	2.02	0.42
1:B:422:LYS:NZ	1:C:402:ALA:HB1	2.35	0.42
1:A:340:PRO:HG3	1:A:377:MET:HG2	2.02	0.42
1:D:84:HIS:O	1:D:88:ILE:HG13	2.19	0.42
1:D:272:GLU:HG2	1:D:293:ALA:HB3	2.02	0.42
1:A:16:GLN:NE2	1:A:447:ARG:HD3	2.35	0.42
1:A:70:ASN:HB3	1:A:464:HIS:CG	2.54	0.42
1:C:75:ASN:HA	1:C:113:ASP:HB3	2.02	0.42
1:C:521:PHE:CD1	1:C:521:PHE:N	2.88	0.42
1:D:121:THR:HG23	1:D:207:LYS:O	2.19	0.42
1:C:71:VAL:HG22	1:C:109:ALA:HB3	2.02	0.42
1:C:177:ASP:OD1	1:C:207:LYS:HD2	2.20	0.42
1:B:176:VAL:HA	1:B:208:GLY:O	2.20	0.41
1:A:405:THR:O	1:D:423:CYS:HA	2.21	0.41
1:B:288:ASP:O	1:B:323:PRO:HD2	2.20	0.41
1:B:472:VAL:HG11	1:B:496:VAL:HG11	2.02	0.41
1:C:70:ASN:HB3	1:C:464:HIS:CG	2.55	0.41
1:B:393:GLN:O	1:B:397:GLU:HG3	2.20	0.41
1:D:323:PRO:HB3	1:D:465:LEU:O	2.21	0.41
1:B:56:ARG:NE	1:B:87:THR:OG1	2.52	0.41
1:D:48:ILE:HB	1:D:360:MET:HG3	2.02	0.41
1:D:146:ASN:CA	1:D:149:MET:HG3	2.50	0.41
1:B:455:ARG:NH2	1:B:485:ASP:OD1	2.53	0.41
1:C:134:LEU:HD11	1:C:203:LEU:HD13	2.03	0.41
1:A:324:VAL:HG13	1:A:356:ALA:HA	2.03	0.41
1:B:70:ASN:HB3	1:B:464:HIS:CG	2.56	0.41
1:B:121:THR:HB	1:B:157:LEU:HD11	2.02	0.41
1:A:258:LEU:HD12	1:A:267:ILE:HD11	2.03	0.40
1:A:323:PRO:HB3	1:A:465:LEU:O	2.21	0.40
1:B:120:ARG:HA	1:B:207:LYS:O	2.21	0.40
1:B:328:THR:HG22	1:B:329:GLN:HG3	2.03	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:373:GLU:OE1	1:D:373:GLU:N	2.47	0.40
1:B:175:TYR:O	1:B:209:VAL:HA	2.22	0.40
1:D:138:ALA:O	1:D:197:VAL:HG23	2.21	0.40

There are no symmetry-related clashes.

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	469/551 (85%)	460 (98%)	7 (2%)	2 (0%)	34	54
1	B	501/551 (91%)	491 (98%)	9 (2%)	1 (0%)	47	68
1	C	469/551 (85%)	458 (98%)	9 (2%)	2 (0%)	34	54
1	D	485/551 (88%)	476 (98%)	8 (2%)	1 (0%)	47	68
All	All	1924/2204 (87%)	1885 (98%)	33 (2%)	6 (0%)	41	61

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	163	ASN
1	A	328	THR
1	B	328	THR
1	C	153	ASP
1	C	328	THR
1	D	328	THR

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	368/452 (81%)	360 (98%)	8 (2%)	52	77
1	B	390/452 (86%)	384 (98%)	6 (2%)	65	85
1	C	368/452 (81%)	360 (98%)	8 (2%)	52	77
1	D	373/452 (82%)	367 (98%)	6 (2%)	62	84
All	All	1499/1808 (83%)	1471 (98%)	28 (2%)	57	80

All (28) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	16	GLN
1	A	57	SER
1	A	120	ARG
1	A	140	LEU
1	A	224	LYS
1	A	247	LYS
1	A	367	LYS
1	A	487	ASP
1	B	13	ILE
1	B	163	ASN
1	B	224	LYS
1	B	249	SER
1	B	346	SER
1	B	480	GLU
1	C	82	GLU
1	C	203	LEU
1	C	226	ILE
1	C	229	LEU
1	C	424	CYS
1	C	425	SER
1	C	482	TRP
1	C	515	TRP
1	D	77	SER
1	D	216	VAL
1	D	224	LYS
1	D	274	HIS
1	D	279	ARG
1	D	500	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such

sidechains are listed below:

Mol	Chain	Res	Type
1	A	16	GLN
1	B	146	ASN
1	B	440	GLN
1	C	78	HIS
1	C	273	ASN

5.3.3   RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5   Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6   Ligand geometry ⓘ

Of 28 ligands modelled in this entry, 9 are monoatomic - leaving 19 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	$\#|Z| > 2$
6	FBP	C	602	-	5,5,20	1.59	1 (20%)	7,7,32	0.58	0
6	FBP	B	602	-	18,20,20	3.46	5 (27%)	23,32,32	0.59	0
3	GOL	B	603	-	5,5,5	0.88	0	5,5,5	1.03	0
4	EDO	A	606	-	3,3,3	0.48	0	2,2,2	0.35	0
3	GOL	A	603	-	5,5,5	1.01	0	5,5,5	0.90	0
2	OXL	D	601	5	5,5,5	1.86	2 (40%)	6,6,6	1.38	2 (33%)
3	GOL	D	605	-	5,5,5	0.91	0	5,5,5	0.92	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#$\|Z\|>2$	Counts	RMSZ	#$\|Z\|>2$
4	EDO	A	605	-	3,3,3	0.52	0	2,2,2	0.23	0
4	EDO	C	604	-	3,3,3	0.48	0	2,2,2	0.33	0
2	OXL	C	601	5	5,5,5	1.89	2 (40%)	6,6,6	1.37	2 (33%)
3	GOL	D	603	-	5,5,5	0.81	0	5,5,5	1.06	0
4	EDO	A	604	-	3,3,3	0.46	0	2,2,2	0.32	0
3	GOL	C	603	-	5,5,5	0.80	0	5,5,5	1.09	0
4	EDO	D	604	-	3,3,3	0.50	0	2,2,2	0.22	0
3	GOL	A	602	-	5,5,5	0.88	0	5,5,5	1.02	0
6	FBP	D	602	-	5,5,20	1.62	1 (20%)	7,7,32	0.56	0
3	GOL	B	604	-	5,5,5	1.02	0	5,5,5	0.96	0
2	OXL	B	601	5	5,5,5	1.90	2 (40%)	6,6,6	1.36	2 (33%)
2	OXL	A	601	5	5,5,5	1.89	2 (40%)	6,6,6	1.39	2 (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
6	FBP	C	602	-	-	0/1/3/32	-
6	FBP	B	602	-	-	5/13/32/32	0/1/1/1
3	GOL	B	603	-	-	0/4/4/4	-
4	EDO	A	606	-	-	0/1/1/1	-
3	GOL	A	603	-	-	4/4/4/4	-
2	OXL	D	601	5	-	0/4/4/4	-
3	GOL	D	605	-	-	2/4/4/4	-
4	EDO	A	605	-	-	0/1/1/1	-
4	EDO	C	604	-	-	0/1/1/1	-
2	OXL	C	601	5	-	1/4/4/4	-
3	GOL	D	603	-	-	1/4/4/4	-
4	EDO	A	604	-	-	0/1/1/1	-
3	GOL	C	603	-	-	2/4/4/4	-
4	EDO	D	604	-	-	0/1/1/1	-
3	GOL	A	602	-	-	2/4/4/4	-
6	FBP	D	602	-	-	0/1/3/32	-
3	GOL	B	604	-	-	0/4/4/4	-
2	OXL	B	601	5	-	0/4/4/4	-
2	OXL	A	601	5	-	1/4/4/4	-

All (15) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	B	602	FBP	O5-C5	8.30	1.62	1.43
6	B	602	FBP	O5-C2	-8.29	1.30	1.43
6	B	602	FBP	C4-C5	-6.92	1.35	1.53
6	D	602	FBP	P2-O6	3.40	1.65	1.59
6	B	602	FBP	O3-C3	-3.38	1.36	1.42
6	C	602	FBP	P2-O6	3.37	1.65	1.59
2	B	601	OXL	O2-C2	3.28	1.31	1.22
2	A	601	OXL	O1-C1	3.28	1.31	1.22
2	C	601	OXL	O1-C1	3.27	1.31	1.22
2	D	601	OXL	O2-C2	3.13	1.31	1.22
2	D	601	OXL	O4-C2	-2.75	1.22	1.30
6	B	602	FBP	O4-C4	2.75	1.49	1.43
2	B	601	OXL	O4-C2	-2.68	1.22	1.30
2	C	601	OXL	O3-C1	-2.66	1.22	1.30
2	A	601	OXL	O3-C1	-2.60	1.23	1.30

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	601	OXL	O3-C1-C2	2.50	120.58	113.16
2	A	601	OXL	O3-C1-C2	2.49	120.54	113.16
2	D	601	OXL	O4-C2-C1	2.48	120.53	113.16
2	B	601	OXL	O4-C2-C1	2.44	120.42	113.16
2	A	601	OXL	O1-C1-C2	-2.05	114.20	120.78
2	D	601	OXL	O2-C2-C1	-2.03	114.28	120.78
2	B	601	OXL	O2-C2-C1	-2.01	114.33	120.78
2	C	601	OXL	O1-C1-C2	-2.01	114.34	120.78

There are no chirality outliers.

All (18) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	C	603	GOL	C1-C2-C3-O3
6	B	602	FBP	O1-C1-C2-O2
6	B	602	FBP	O1-C1-C2-C3
6	B	602	FBP	O1-C1-C2-O5
6	B	602	FBP	C4-C5-C6-O6
3	A	602	GOL	C1-C2-C3-O3
3	A	603	GOL	O1-C1-C2-C3
3	A	603	GOL	C1-C2-C3-O3
3	D	603	GOL	C1-C2-C3-O3
3	D	605	GOL	O1-C1-C2-C3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
3	C	603	GOL	O2-C2-C3-O3
6	B	602	FBP	O5-C5-C6-O6
3	A	602	GOL	O2-C2-C3-O3
3	D	605	GOL	O1-C1-C2-O2
3	A	603	GOL	O1-C1-C2-O2
3	A	603	GOL	O2-C2-C3-O3
2	A	601	OXL	O3-C1-C2-O4
2	C	601	OXL	O3-C1-C2-O4

There are no ring outliers.

7 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	B	602	FBP	1	0
3	A	603	GOL	1	0
4	A	605	EDO	2	0
4	C	604	EDO	1	0
2	C	601	OXL	1	0
3	B	604	GOL	2	0
2	A	601	OXL	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 B 602

Bond lengths

Bond angles

Torsions

Rings

Ligand FBP D 602

Bond lengths

Bond angles

Torsions

Rings
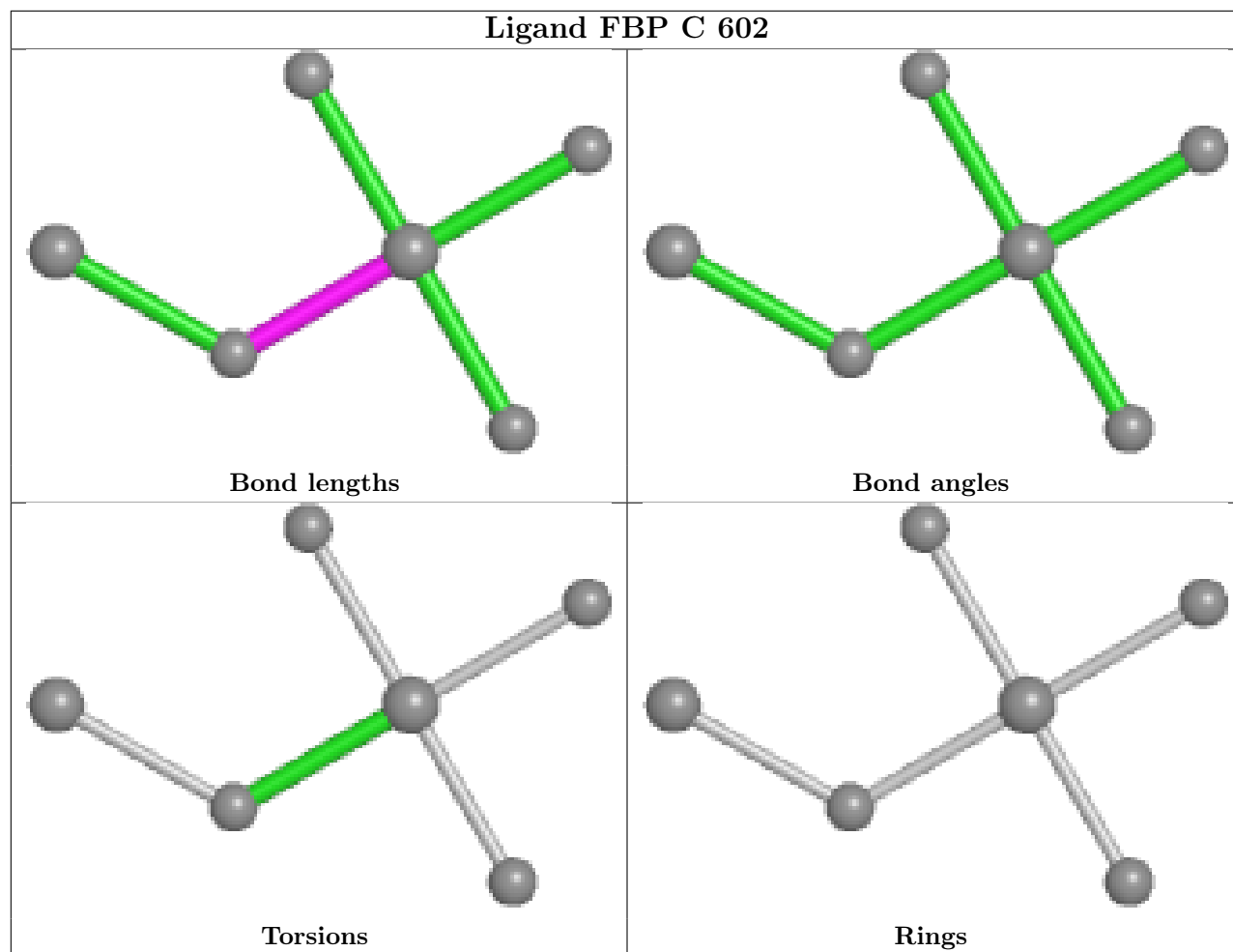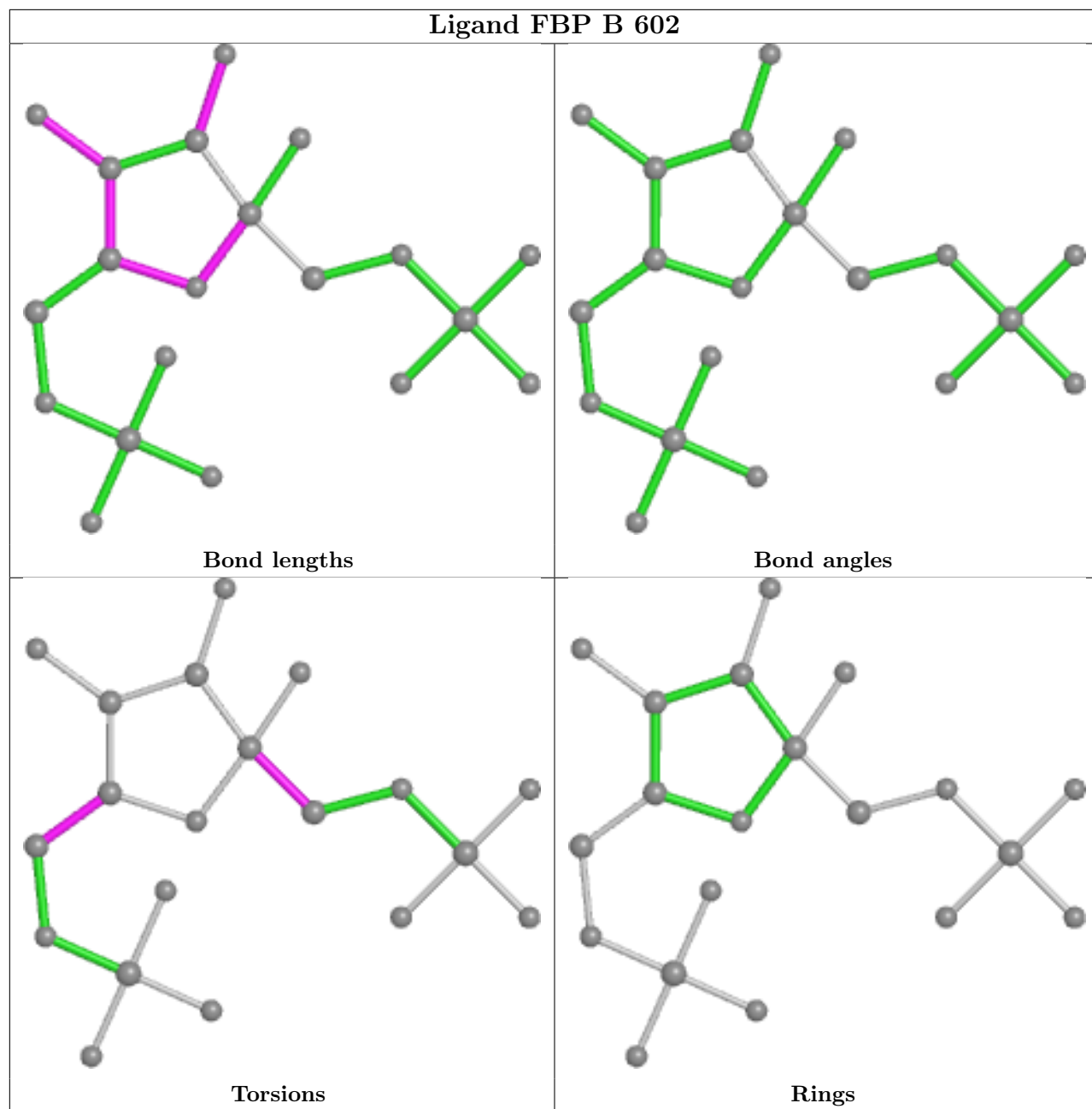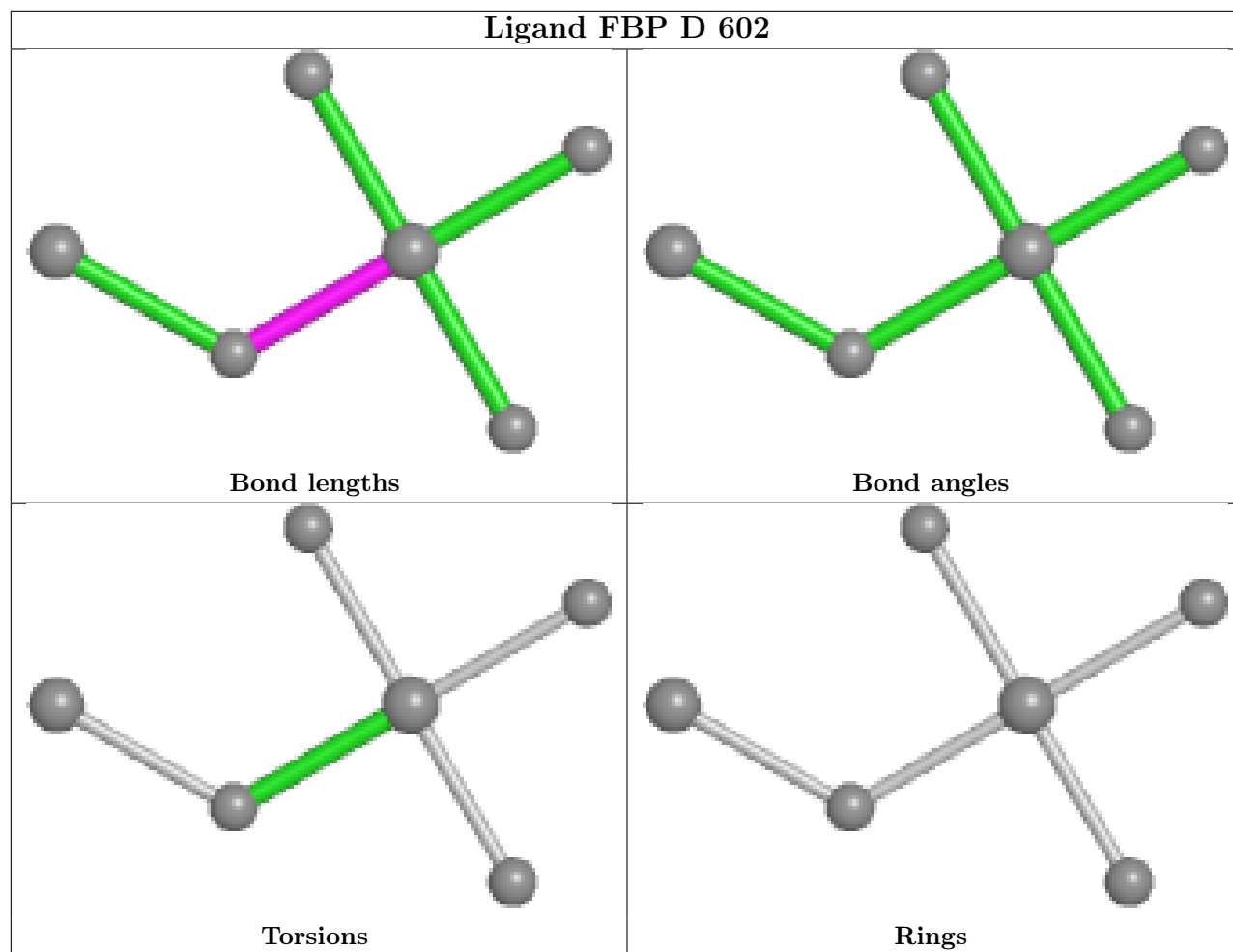
5.7　Other polymers ⓘ

There are no such residues in this entry.

5.8　Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	481/551 (87%)	0.06	24 (4%)	28	30	32, 47, 93, 125	0
1	B	509/551 (92%)	0.07	29 (5%)	23	25	34, 53, 102, 153	0
1	C	483/551 (87%)	0.38	34 (7%)	16	16	40, 64, 105, 125	0
1	D	489/551 (88%)	0.31	39 (7%)	12	12	39, 56, 109, 153	0
All	All	1962/2204 (89%)	0.20	126 (6%)	19	20	32, 55, 103, 153	0

All (126) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	204	GLY	9.4
1	B	213	GLY	8.0
1	D	195	THR	7.8
1	D	196	GLU	7.3
1	D	123	LEU	7.1
1	D	130	ALA	6.8
1	B	165	CYS	6.4
1	B	142	ILE	6.3
1	D	192	PHE	6.0
1	C	157	LEU	6.0
1	C	158	TRP	6.0
1	C	149	MET	5.9
1	B	215	ALA	5.5
1	A	167	VAL	5.4
1	A	515	TRP	5.1
1	C	122	GLY	4.9
1	B	203	LEU	4.8
1	D	122	GLY	4.8
1	C	165	CYS	4.7
1	D	140	LEU	4.6
1	B	164	ILE	4.6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	D	154	GLU	4.6
1	B	161	TYR	4.5
1	C	148	TYR	4.4
1	A	215	ALA	4.3
1	A	168	VAL	4.2
1	D	103	ILE	4.2
1	C	404	ILE	4.1
1	D	197	VAL	4.1
1	C	147	ALA	4.1
1	C	211	LEU	4.1
1	A	143	THR	4.0
1	D	155	ASN	4.0
1	A	164	ILE	4.0
1	C	205	SER	4.0
1	D	206	LYS	4.0
1	B	218	LEU	4.0
1	B	168	VAL	3.9
1	C	164	ILE	3.9
1	C	142	ILE	3.9
1	D	129	THR	3.9
1	D	216	VAL	3.9
1	D	158	TRP	3.8
1	A	170	VAL	3.8
1	B	131	GLU	3.8
1	B	135	LYS	3.6
1	D	132	VAL	3.6
1	A	171	GLY	3.6
1	D	160	ASP	3.6
1	C	161	TYR	3.5
1	B	214	ALA	3.4
1	C	155	ASN	3.4
1	D	146	ASN	3.4
1	C	143	THR	3.4
1	C	123	LEU	3.4
1	D	203	LEU	3.4
1	A	130	ALA	3.4
1	D	124	ILE	3.3
1	B	221	VAL	3.3
1	A	120	ARG	3.2
1	C	140	LEU	3.2
1	C	150	GLU	3.2
1	B	174	ILE	3.2

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	134	LEU	3.2
1	D	125	LYS	3.1
1	D	159	LEU	3.1
1	D	145	ASP	3.1
1	D	193	LEU	3.1
1	A	165	CYS	3.1
1	B	13	ILE	3.0
1	D	204	GLY	3.0
1	B	140	LEU	3.0
1	C	146	ASN	3.0
1	D	138	ALA	3.0
1	D	157	LEU	2.9
1	D	126	GLY	2.9
1	B	216	VAL	2.9
1	D	121	THR	2.9
1	C	163	ASN	2.8
1	D	127	SER	2.8
1	C	180	LEU	2.7
1	C	203	LEU	2.7
1	C	100	SER	2.7
1	B	217	ASP	2.6
1	A	121	THR	2.6
1	D	148	TYR	2.6
1	C	159	LEU	2.6
1	A	194	VAL	2.6
1	A	195	THR	2.5
1	B	129	THR	2.5
1	A	209	VAL	2.5
1	C	174	ILE	2.5
1	A	214	ALA	2.5
1	A	516	ARG	2.5
1	B	195	THR	2.5
1	D	215	ALA	2.5
1	A	140	LEU	2.5
1	A	211	LEU	2.5
1	D	199	ASN	2.5
1	D	102	PRO	2.5
1	B	157	LEU	2.4
1	C	151	LYS	2.4
1	B	187	GLN	2.4
1	B	143	THR	2.4
1	B	159	LEU	2.4

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	163	ASN	2.4
1	A	13	ILE	2.4
1	C	515	TRP	2.4
1	A	176	VAL	2.4
1	B	256	LYS	2.3
1	C	79	GLY	2.3
1	C	181	ILE	2.3
1	C	229	LEU	2.3
1	C	119	ILE	2.3
1	D	214	ALA	2.3
1	D	144	LEU	2.3
1	D	211	LEU	2.3
1	D	205	SER	2.2
1	B	191	ASP	2.2
1	B	166	LYS	2.1
1	A	161	TYR	2.1
1	C	115	LYS	2.1
1	D	520	GLY	2.1
1	C	221	VAL	2.0
1	B	130	ALA	2.0
1	B	200	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.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	GOL	D	605	6/6	0.63	0.35	64,68,70,80	0
4	EDO	D	604	4/4	0.69	0.17	65,67,69,70	0

Continued on next page...

Continued from previous page...

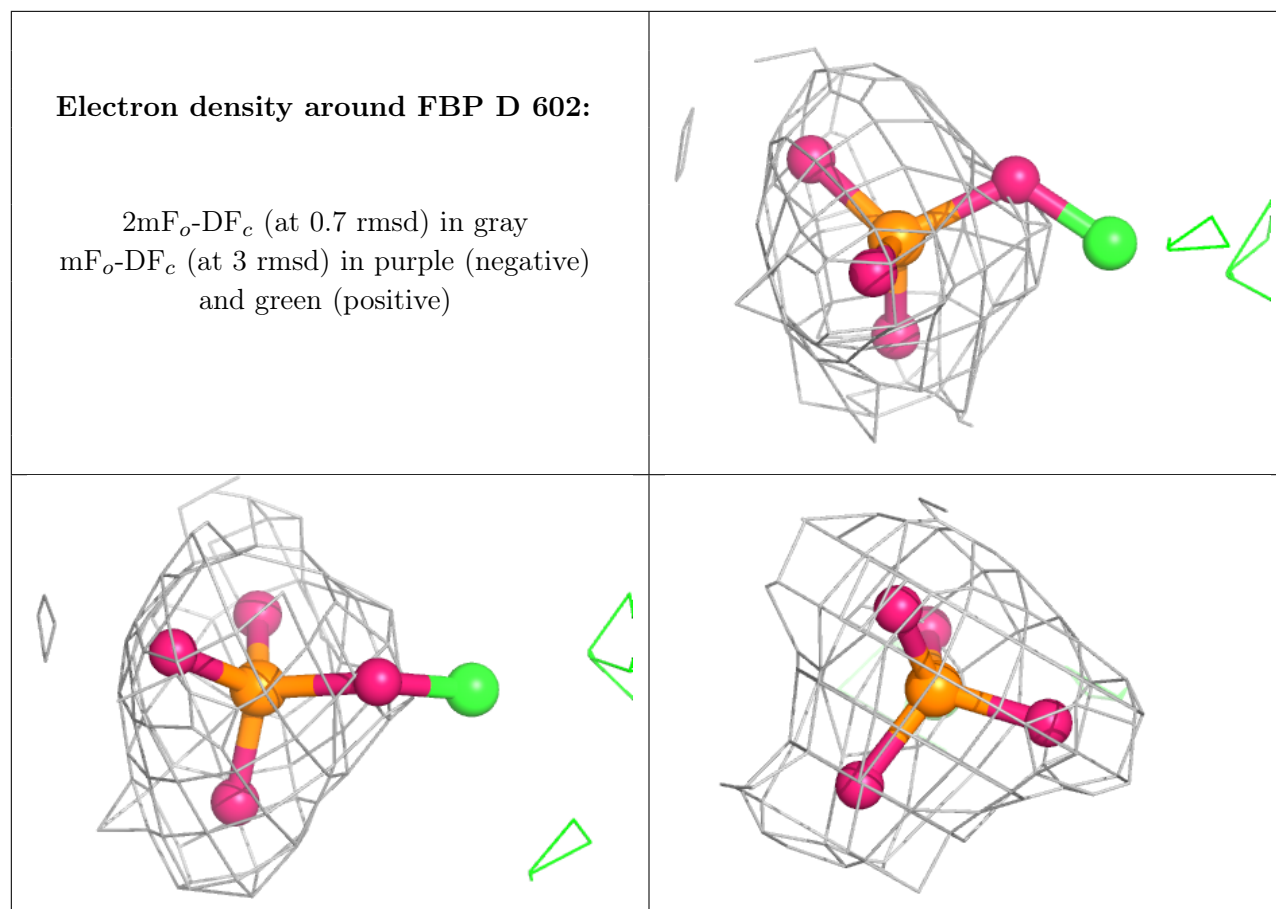| Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($Å^2$)	Q<0.9
4	EDO	A	606	4/4	0.71	0.23	71,72,75,80	0
4	EDO	C	604	4/4	0.74	0.33	57,62,68,68	0
5	MG	D	607	1/1	0.76	0.09	66,66,66,66	0
4	EDO	A	604	4/4	0.84	0.17	64,67,67,72	0
5	MG	B	606	1/1	0.85	0.13	54,54,54,54	0
3	GOL	A	602	6/6	0.85	0.38	52,64,65,67	0
5	MG	A	609	1/1	0.86	0.40	63,63,63,63	0
4	EDO	A	605	4/4	0.86	0.32	42,56,58,62	0
3	GOL	B	604	6/6	0.86	0.24	42,46,48,51	0
3	GOL	C	603	6/6	0.87	0.24	57,62,65,67	0
3	GOL	A	603	6/6	0.89	0.20	32,35,40,44	0
6	FBP	B	602	20/20	0.90	0.19	44,57,67,70	20
3	GOL	B	603	6/6	0.91	0.27	58,63,67,69	0
3	GOL	D	603	6/6	0.92	0.15	41,51,54,61	0
5	MG	C	605	1/1	0.92	0.06	62,62,62,62	0
6	FBP	D	602	6/20	0.92	0.19	51,54,64,70	6
5	MG	B	607	1/1	0.93	0.54	63,63,63,63	0
5	MG	B	605	1/1	0.93	0.18	50,50,50,50	0
5	MG	D	606	1/1	0.93	0.14	56,56,56,56	0
2	OXL	A	601	6/6	0.95	0.09	43,45,47,49	0
2	OXL	C	601	6/6	0.95	0.10	49,57,62,63	0
5	MG	A	608	1/1	0.95	0.13	54,54,54,54	0
2	OXL	D	601	6/6	0.96	0.15	50,51,52,57	0
5	MG	A	607	1/1	0.97	0.10	40,40,40,40	0
6	FBP	C	602	6/20	0.98	0.11	56,63,70,70	6
2	OXL	B	601	6/6	0.98	0.10	50,53,53,55	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.
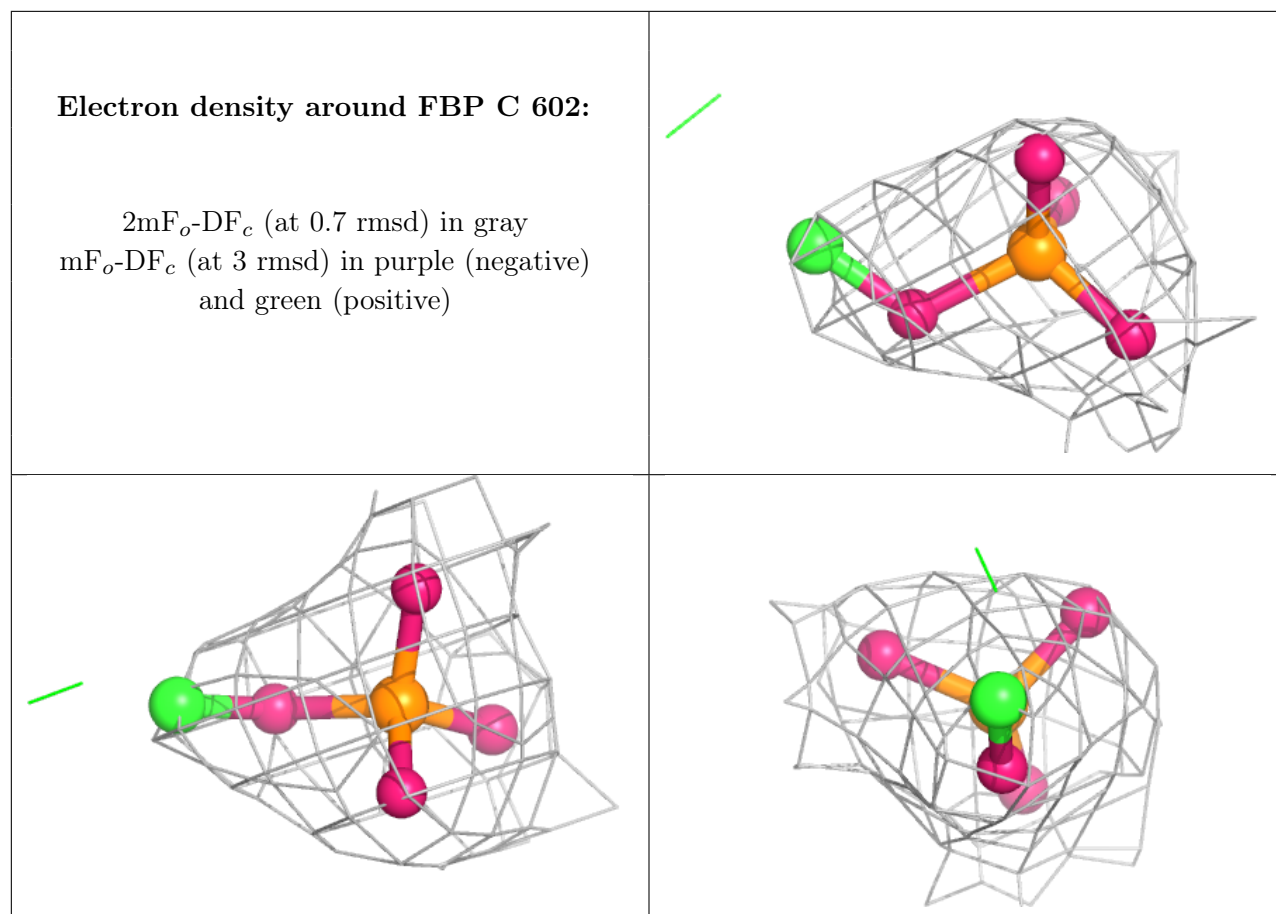
Electron density around FBP B 602:

$2mF_o$-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 D 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 FBP C 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)

6.5 Other polymers ⓘ

There are no such residues in this entry.