



# Full wwPDB X-ray Structure Validation Report ⓘ

Aug 8, 2020 – 06:18 PM BST

PDB ID : 2VGB  
Title : HUMAN ERYTHROCYTE PYRUVATE KINASE  
Authors : Valentini, G.; Chiarelli, L.; Fortin, R.; Dolzan, M.; Galizzi, A.; Abraham, D.J.;  
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Deposited on : 2007-11-12  
Resolution : 2.73 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

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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 : 2.13.1  
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) : 2.13.1

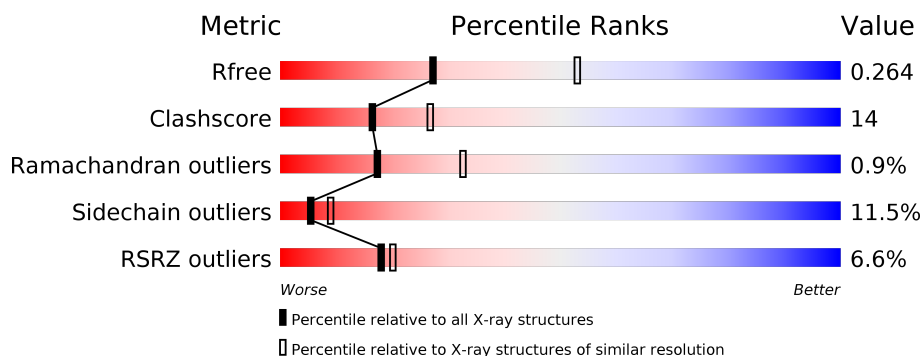
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.73 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	1271 (2.76-2.72)
Clashscore	141614	1322 (2.76-2.72)
Ramachandran outliers	138981	1297 (2.76-2.72)
Sidechain outliers	138945	1298 (2.76-2.72)
RSRZ outliers	127900	1243 (2.76-2.72)

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

Mol	Chain	Length	Quality of chain
1	A	528	
1	B	528	
1	C	528	
1	D	528	

## 2 Entry composition [i](#)

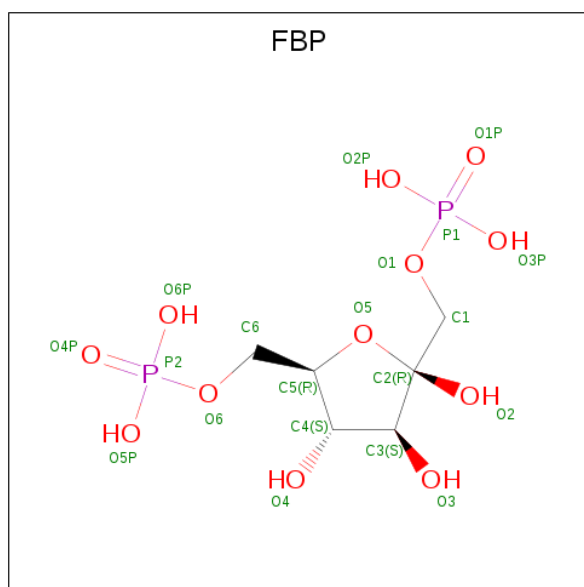
There are 6 unique types of molecules in this entry. The entry contains 15612 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 ISOZYMES R/L.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	517	Total	C	N	O	S	0	0	0
			3912	2457	709	728	18			
1	B	491	Total	C	N	O	S	0	0	0
			3719	2339	673	689	18			
1	C	517	Total	C	N	O	S	0	0	0
			3912	2457	709	728	18			
1	D	512	Total	C	N	O	S	0	0	0
			3880	2437	703	722	18			

- Molecule 2 is 1,6-di-O-phosphono-beta-D-fructofuranose (three-letter code: FBP) (formula:  $C_6H_{14}O_{12}P_2$ ).



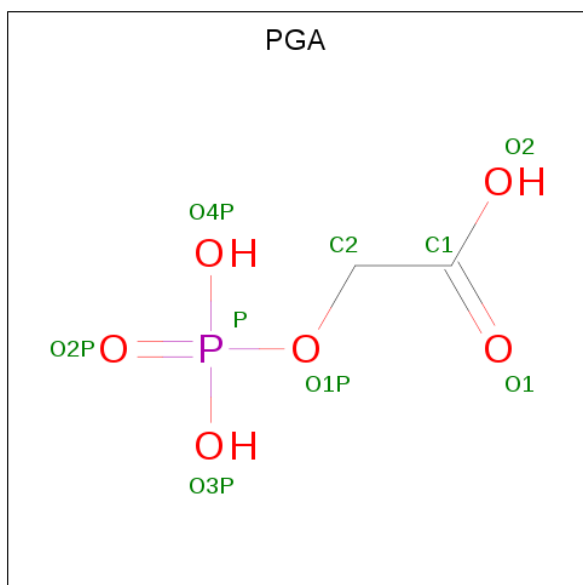
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	O	P	0	0
			20	6	12	2		
2	B	1	Total	C	O	P	0	0
			20	6	12	2		

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

- Molecule 3 is 2-PHOSPHOGLYCOLIC ACID (three-letter code: PGA) (formula:  $C_2H_5O_6P$ ).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	O	P	0	0
			9	2	6	1		
3	B	1	Total	C	O	P	0	0
			9	2	6	1		
3	C	1	Total	C	O	P	0	0
			9	2	6	1		
3	D	1	Total	C	O	P	0	0
			9	2	6	1		

- Molecule 4 is POTASSIUM ION (three-letter code: K) (formula: K).

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

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	C	1	Total K 1 1	0	0

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

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

- Molecule 6 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	12	Total O 12 12	0	0
6	B	16	Total O 16 16	0	0
6	C	20	Total O 20 20	0	0
6	D	17	Total O 17 17	0	0

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.

Chain A:

10% 64% 29%

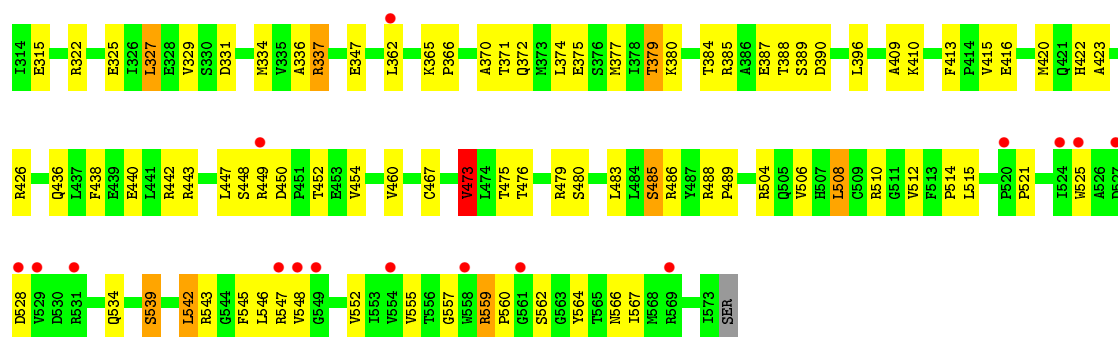
LEU THR GLN THR GLU LEU GLY THR ALA PHE Q57 Q58 Q59 Q60 L61 P62 Y65 T68 P69 H72 L75 V83 A84 A85 R86 S87 A92 R99 S100 R103 L104 G105 I108 N113 N118 S120 H121 G122 S123 H124 E125 N133 V134 R135 V138 E139 S144 L155 D156 T167 E161 I162 T164 G165 I166 Q167 Q168 G169 G170 P171 E172 S173 G180 Q182 V183 L184 V185 S187 A188 P189 R192 T193 R194 G195 N196 A197 V200 W201 V202 N206 I207 L208 R209 V210 G215 R216 I217 Y218 I219 D221 C222 L223 T224 L226 Q229 K230 I231 E234 G235 L236 T237 T238 Q239 V240 E241 N242 V245 R249 V252 N253 L254 A257 Q258 V259 D260 L261 V269 R270 D271 L272 R273 F274 G275 V276 V280 D281 I282 V283 F284 A285 S286 R289 V294 V297 R298 G302 P303 C304 R306 G305 H306 G307 T310 K313 T314 E315 L327 D331 K334 V335 A336 R337 L340 L344 E347 K348 C360 N361 L362 K365 P366 A370 T371 Q372 P373 L374 E375 S376 K377 L378 T379 K380 I384 T384 E387 T388 S389 D390 L396 K410 H422 A423 R434 R435 Q436 T437 F438 E439 E440 L441 R442 R443 L447 S448 R449 D450 V451 T452 E453 V454 V455 R559 P560 G561 S562 G563 Y564 T565 S566 T567 E568 R569 I573 SER

Chain B:

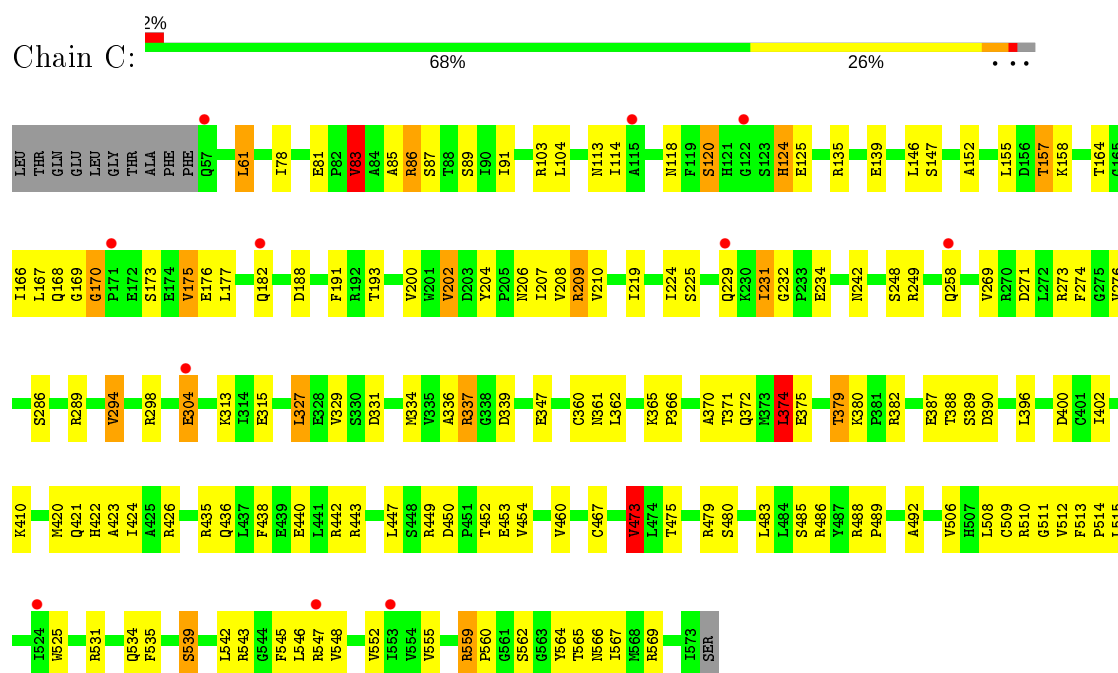
9% 63% 26% 7%

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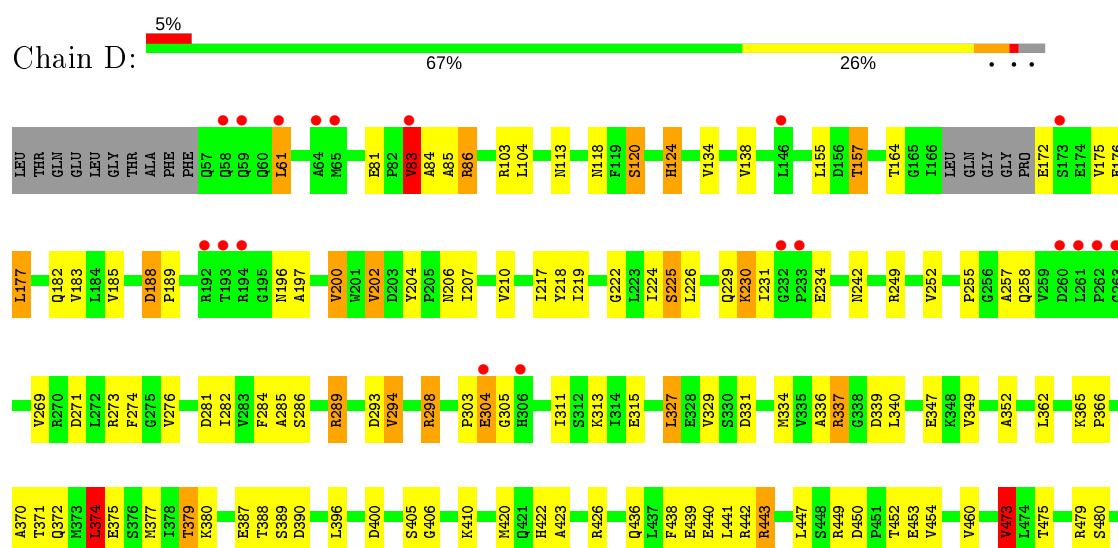
LEU THR GLN GLU LEU GLY THR ALA PHE PHE Q57 L61 A64 M65 A66 F69 H72 E81 F82 V83 A84 A85 R86 S89 P96 E102 R103 L104 R105 E106 M107 N113 I114 N118 F119 S120 H121 H124 E125 V134 R135 V138 E139 A142 G143 S144

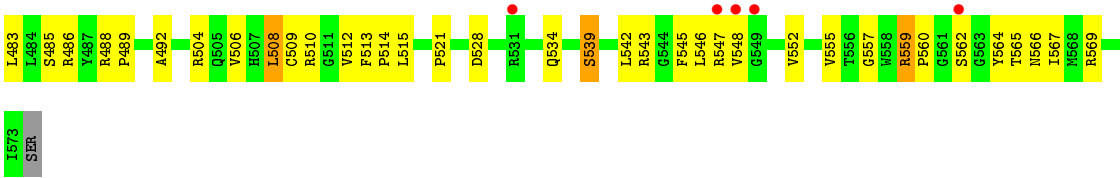


• Molecule 1: PYRUVATE KINASE ISOZYMES R/L



• Molecule 1: PYRUVATE KINASE ISOZYMES R/L





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	74.41Å 172.06Å 85.51Å 90.00° 92.46° 90.00°	Depositor
Resolution (Å)	20.00 – 2.73 25.25 – 2.73	Depositor EDS
% Data completeness (in resolution range)	96.3 (20.00-2.73) 96.3 (25.25-2.73)	Depositor EDS
$R_{merge}$	0.08	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.17 (at 2.72Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, $R_{free}$	0.227 , 0.271 0.221 , 0.264	Depositor DCC
$R_{free}$ test set	2784 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	52.0	Xtriage
Anisotropy	0.165	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.31 , 54.0	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.47$ , $\langle L^2 \rangle = 0.30$	Xtriage
Estimated twinning fraction	0.037 for h,-k,-l	Xtriage
$F_o, F_c$ correlation	0.92	EDS
Total number of atoms	15612	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	40.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.37% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

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

## 5 Model quality

### 5.1 Standard geometry

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

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	0.69	3/3976 (0.1%)	0.74	2/5390 (0.0%)
1	B	0.78	2/3776 (0.1%)	0.73	2/5115 (0.0%)
1	C	0.66	0/3976	0.77	2/5390 (0.0%)
1	D	0.66	0/3942	0.77	2/5342 (0.0%)
All	All	0.70	5/15670 (0.0%)	0.75	8/21237 (0.0%)

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	144	SER	CB-OG	27.69	1.78	1.42
1	A	410	LYS	CE-NZ	13.54	1.82	1.49
1	A	410	LYS	CD-CE	-6.44	1.35	1.51
1	A	234	GLU	CD-OE1	5.55	1.31	1.25
1	B	260	ASP	CG-OD1	5.32	1.37	1.25

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	473	VAL	CB-CA-C	-7.38	97.37	111.40
1	A	473	VAL	CB-CA-C	-6.69	98.69	111.40
1	D	473	VAL	CB-CA-C	-6.35	99.33	111.40
1	B	473	VAL	CB-CA-C	-6.27	99.48	111.40
1	D	374	LEU	CA-CB-CG	6.04	129.18	115.30
1	B	144	SER	CA-CB-OG	-5.93	95.19	111.20
1	C	374	LEU	CA-CB-CG	5.46	127.86	115.30
1	A	508	LEU	CA-CB-CG	5.26	127.41	115.30

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	3912	0	3992	130	6
1	B	3719	0	3802	116	6
1	C	3912	0	3992	110	1
1	D	3880	0	3959	120	1
2	A	20	0	10	1	0
2	B	20	0	10	3	0
2	C	20	0	10	2	0
2	D	20	0	10	2	0
3	A	9	0	2	0	0
3	B	9	0	2	0	0
3	C	9	0	2	0	0
3	D	9	0	2	0	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	C	1	0	0	0	0
4	D	1	0	0	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
6	A	12	0	0	3	0
6	B	16	0	0	2	0
6	C	20	0	0	3	0
6	D	17	0	0	0	0
All	All	15612	0	15793	446	7

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 14.

All (446) 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:A:410:LYS:NZ	1:A:410:LYS:CE	1.82	1.41
1:B:144:SER:OG	1:B:144:SER:CB	1.78	1.32
1:A:488:ARG:NH1	1:A:510:ARG:HB3	1.56	1.20

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:488:ARG:NH1	1:B:510:ARG:HB3	1.56	1.18
1:D:488:ARG:NH1	1:D:510:ARG:HB3	1.58	1.17
1:C:488:ARG:NH1	1:C:510:ARG:HB3	1.64	1.11
1:C:86:ARG:HB3	1:C:426:ARG:HG2	1.41	0.99
1:A:86:ARG:HB3	1:A:426:ARG:HG2	1.42	0.99
1:B:86:ARG:HB3	1:B:426:ARG:HG2	1.45	0.97
1:D:86:ARG:HB3	1:D:426:ARG:HG2	1.46	0.97
1:A:488:ARG:HH12	1:A:510:ARG:HB3	1.30	0.96
1:A:347:GLU:HG2	1:C:423:ALA:HB1	1.49	0.95
1:D:488:ARG:HH12	1:D:510:ARG:HB3	1.29	0.94
1:A:442:ARG:HH21	1:B:442:ARG:NH2	1.67	0.93
1:A:442:ARG:HH21	1:B:442:ARG:HH21	0.92	0.91
1:A:442:ARG:NH2	1:B:442:ARG:HH21	1.69	0.91
1:B:488:ARG:HH12	1:B:510:ARG:HB3	1.35	0.90
1:C:225:SER:HB3	1:C:242:ASN:HB2	1.53	0.90
1:B:488:ARG:NH1	1:B:510:ARG:CB	2.36	0.88
1:C:170:GLY:HA3	1:C:173:SER:OG	1.74	0.86
1:C:479:ARG:HG3	1:C:479:ARG:HH11	1.40	0.86
1:C:442:ARG:HH21	1:D:442:ARG:HH21	1.24	0.86
1:C:488:ARG:NH1	1:C:510:ARG:CB	2.39	0.85
1:D:488:ARG:NH1	1:D:510:ARG:CB	2.40	0.85
1:B:423:ALA:HB1	1:D:347:GLU:HG2	1.58	0.85
1:B:488:ARG:HH11	1:B:510:ARG:HB3	1.42	0.84
1:C:85:ALA:HB2	1:C:545:PHE:CE2	2.13	0.84
1:C:531:ARG:HD2	6:C:2018:HOH:O	1.78	0.83
1:A:488:ARG:HH11	1:A:510:ARG:HB3	1.43	0.83
1:D:506:VAL:CG1	1:D:512:VAL:HG11	2.08	0.83
1:B:347:GLU:HG2	1:D:423:ALA:HB1	1.60	0.83
1:B:506:VAL:CG1	1:B:512:VAL:HG11	2.11	0.80
1:D:488:ARG:HH12	1:D:510:ARG:CB	1.95	0.80
1:C:372:GLN:HG2	1:C:375:GLU:CG	2.11	0.79
1:D:488:ARG:HH11	1:D:510:ARG:HB3	1.48	0.79
1:A:488:ARG:NH1	1:A:510:ARG:CB	2.41	0.79
1:A:479:ARG:HG3	1:A:479:ARG:HH11	1.49	0.78
1:C:488:ARG:HH12	1:C:510:ARG:HB3	1.46	0.78
1:B:488:ARG:HH12	1:B:510:ARG:CB	1.95	0.78
1:D:315:GLU:HG2	1:D:336:ALA:CB	2.14	0.77
1:C:315:GLU:HG2	1:C:336:ALA:CB	2.16	0.76
1:D:86:ARG:HB3	1:D:426:ARG:CG	2.15	0.76
1:A:223:LEU:HD22	1:C:380:LYS:HE2	1.69	0.74
1:A:216:ARG:HD2	1:A:218:TYR:CE1	2.21	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:372:GLN:HG2	1:C:375:GLU:HG3	1.66	0.74
1:C:488:ARG:HH11	1:C:510:ARG:HB3	1.45	0.74
1:D:506:VAL:HG11	1:D:512:VAL:HG11	1.68	0.74
1:B:89:SER:OG	6:B:2001:HOH:O	2.06	0.73
1:A:423:ALA:HB1	1:C:347:GLU:HG2	1.71	0.73
1:C:506:VAL:CG1	1:C:512:VAL:HG11	2.19	0.73
1:C:488:ARG:HH12	1:C:510:ARG:CB	2.01	0.72
1:A:86:ARG:HB3	1:A:426:ARG:CG	2.20	0.72
1:C:315:GLU:HG2	1:C:336:ALA:HB3	1.70	0.72
1:A:86:ARG:HD3	1:A:422:HIS:ND1	2.04	0.71
1:B:86:ARG:HD3	1:B:422:HIS:ND1	2.04	0.71
1:C:86:ARG:HD3	1:C:422:HIS:ND1	2.05	0.71
1:A:506:VAL:CG1	1:A:512:VAL:HG11	2.20	0.71
1:B:506:VAL:CG1	1:B:512:VAL:CG1	2.69	0.71
1:A:315:GLU:HG2	1:A:336:ALA:CB	2.20	0.71
1:B:479:ARG:HG3	1:B:479:ARG:HH11	1.55	0.70
1:D:86:ARG:HD3	1:D:422:HIS:ND1	2.07	0.70
1:D:315:GLU:HG2	1:D:336:ALA:HB3	1.71	0.70
1:A:379:THR:HG22	1:A:380:LYS:HG3	1.73	0.70
1:D:506:VAL:CG1	1:D:512:VAL:CG1	2.69	0.70
1:A:488:ARG:HH12	1:A:510:ARG:CB	2.01	0.69
1:A:157:THR:HG22	1:A:286:SER:H	1.58	0.69
1:B:506:VAL:HG11	1:B:512:VAL:HG11	1.74	0.69
1:B:86:ARG:HB3	1:B:426:ARG:CG	2.21	0.69
1:C:379:THR:HG22	1:C:380:LYS:HG3	1.74	0.69
1:B:514:PRO:O	1:B:515:LEU:HD23	1.94	0.68
1:A:506:VAL:HG11	1:A:512:VAL:HG11	1.76	0.68
1:D:372:GLN:HG2	1:D:375:GLU:CG	2.24	0.67
1:A:225:SER:HB3	1:A:242:ASN:H	1.60	0.67
1:B:506:VAL:HG13	1:B:512:VAL:HG11	1.77	0.67
1:C:225:SER:CB	1:C:242:ASN:HB2	2.24	0.67
1:C:514:PRO:O	1:C:515:LEU:HD23	1.95	0.67
1:B:379:THR:HG22	1:B:380:LYS:HG3	1.77	0.66
1:D:485:SER:HB2	1:D:510:ARG:O	1.96	0.66
1:A:315:GLU:HG2	1:A:336:ALA:HB3	1.76	0.66
1:D:157:THR:HG22	1:D:286:SER:H	1.60	0.66
1:B:315:GLU:HG2	1:B:336:ALA:CB	2.25	0.66
1:B:177:LEU:HD13	1:B:183:VAL:HG21	1.77	0.66
1:C:442:ARG:NH2	1:D:442:ARG:HH21	1.95	0.66
1:D:514:PRO:O	1:D:515:LEU:HD23	1.96	0.66
1:A:347:GLU:CG	1:C:423:ALA:HB1	2.24	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:485:SER:HB2	1:A:510:ARG:O	1.96	0.65
1:B:144:SER:O	6:B:2004:HOH:O	2.14	0.65
1:C:86:ARG:HB3	1:C:426:ARG:CG	2.20	0.65
1:C:460:VAL:HG22	1:C:489:PRO:HG3	1.79	0.65
1:C:331:ASP:O	1:C:366:PRO:HD2	1.96	0.64
1:B:539:SER:O	1:B:543:ARG:HG3	1.97	0.64
1:A:223:LEU:CD2	1:C:380:LYS:HE2	2.27	0.64
1:B:144:SER:OG	1:B:144:SER:CA	2.46	0.64
1:B:269:VAL:O	1:B:273:ARG:HG2	1.99	0.63
1:C:166:ILE:HA	1:C:248:SER:HB3	1.80	0.63
1:D:372:GLN:HG2	1:D:375:GLU:HG3	1.80	0.63
1:A:506:VAL:CG1	1:A:512:VAL:CG1	2.76	0.63
1:B:315:GLU:HG2	1:B:336:ALA:HB3	1.81	0.63
1:B:164:THR:O	1:B:249:ARG:HA	1.98	0.63
1:D:506:VAL:HG13	1:D:512:VAL:HG11	1.79	0.62
1:D:315:GLU:OE2	1:D:339:ASP:OD2	2.17	0.62
1:B:485:SER:HB2	1:B:510:ARG:O	1.99	0.62
1:C:567:ILE:HG12	1:D:569:ARG:HG2	1.80	0.62
1:A:269:VAL:O	1:A:273:ARG:HG2	2.00	0.62
1:C:506:VAL:HG11	1:C:512:VAL:HG11	1.81	0.62
1:A:479:ARG:HG3	1:A:479:ARG:NH1	2.13	0.62
1:B:281:ASP:OD2	1:B:504:ARG:NE	2.32	0.62
1:B:331:ASP:O	1:B:366:PRO:HD2	2.00	0.62
1:C:269:VAL:O	1:C:273:ARG:HG2	2.00	0.61
1:D:177:LEU:HD12	1:D:183:VAL:HG21	1.82	0.61
1:C:479:ARG:NH1	1:C:479:ARG:HG3	2.09	0.61
1:D:379:THR:HG22	1:D:380:LYS:HG3	1.82	0.61
1:A:331:ASP:O	1:A:366:PRO:HD2	2.01	0.61
1:D:188:ASP:C	1:D:188:ASP:OD1	2.38	0.61
1:B:337:ARG:HD3	1:B:370:ALA:O	2.01	0.60
1:D:506:VAL:HG11	1:D:512:VAL:CG1	2.31	0.60
1:A:170:GLY:HA3	1:A:173:SER:OG	2.01	0.60
1:B:290:LYS:HB3	1:B:322:ARG:NH1	2.16	0.60
1:C:315:GLU:OE2	1:C:339:ASP:OD2	2.20	0.60
1:C:506:VAL:CG1	1:C:512:VAL:CG1	2.80	0.60
1:A:337:ARG:HD3	1:A:370:ALA:O	2.01	0.60
1:A:460:VAL:HG22	1:A:489:PRO:HG3	1.83	0.59
1:A:447:LEU:HD13	1:B:467:CYS:SG	2.41	0.59
1:C:313:LYS:HD2	1:C:334:MET:SD	2.42	0.59
1:B:372:GLN:HG2	1:B:375:GLU:CG	2.31	0.59
1:D:175:VAL:HG21	1:D:196:ASN:HA	1.85	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:175:VAL:CG1	1:D:197:ALA:HA	2.33	0.59
1:B:313:LYS:HD2	1:B:334:MET:SD	2.43	0.58
1:D:539:SER:O	1:D:543:ARG:HG3	2.02	0.58
1:B:479:ARG:NH1	1:B:479:ARG:HG3	2.17	0.58
1:C:219:ILE:HB	1:C:224:ILE:HB	1.85	0.58
1:D:204:TYR:CE1	1:D:206:ASN:HB2	2.39	0.58
1:C:157:THR:HG22	1:C:286:SER:H	1.69	0.58
1:A:450:ASP:O	1:A:454:VAL:HG23	2.03	0.58
1:B:327:LEU:HD22	1:B:365:LYS:HD2	1.86	0.58
1:A:506:VAL:HG11	1:A:512:VAL:CG1	2.34	0.58
1:B:372:GLN:HA	1:B:375:GLU:HG2	1.84	0.58
1:D:269:VAL:O	1:D:273:ARG:HG2	2.04	0.58
1:A:539:SER:O	1:A:543:ARG:HG3	2.03	0.58
1:C:146:LEU:HD23	1:C:535:PHE:CE1	2.38	0.58
1:C:485:SER:HB2	1:C:510:ARG:O	2.04	0.58
1:A:514:PRO:O	1:A:515:LEU:HD23	2.04	0.58
1:D:436:GLN:O	1:D:440:GLU:HG3	2.03	0.57
1:A:442:ARG:NH2	1:B:442:ARG:NH2	2.38	0.57
1:D:83:VAL:HG12	1:D:83:VAL:O	2.03	0.57
1:A:372:GLN:HA	1:A:375:GLU:HG2	1.87	0.57
1:B:557:GLY:HA3	2:B:580:FBP:O3	2.04	0.57
1:D:327:LEU:HD22	1:D:365:LYS:HD2	1.86	0.57
1:A:194:ARG:HB3	1:A:194:ARG:HH11	1.70	0.57
1:C:506:VAL:HG13	1:C:512:VAL:HG11	1.85	0.57
1:B:473:VAL:HG13	1:B:555:VAL:HB	1.87	0.57
1:B:506:VAL:HG11	1:B:512:VAL:CG1	2.32	0.56
1:D:177:LEU:CD1	1:D:183:VAL:HG21	2.34	0.56
1:A:83:VAL:HG12	1:A:83:VAL:O	2.04	0.56
1:D:83:VAL:CG1	1:D:83:VAL:O	2.54	0.56
1:D:172:GLU:N	1:D:172:GLU:CD	2.59	0.56
1:A:210:VAL:HG12	1:A:257:ALA:HB1	1.88	0.56
1:A:157:THR:CG2	1:A:286:SER:H	2.18	0.56
1:D:460:VAL:HG22	1:D:489:PRO:HG3	1.88	0.55
1:D:134:VAL:O	1:D:138:VAL:HG23	2.06	0.55
1:A:83:VAL:O	1:A:83:VAL:CG1	2.53	0.55
1:B:157:THR:HG22	1:B:286:SER:H	1.72	0.55
1:B:134:VAL:O	1:B:138:VAL:HG23	2.06	0.55
1:D:479:ARG:HH11	1:D:479:ARG:HG3	1.72	0.55
1:D:331:ASP:O	1:D:366:PRO:HD2	2.06	0.55
1:A:276:VAL:HG11	1:A:304:GLU:HB2	1.89	0.55
1:B:157:THR:HG22	1:B:286:SER:HB2	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:204:TYR:CE1	1:B:206:ASN:HB2	2.42	0.55
1:B:337:ARG:HH22	1:B:390:ASP:CG	2.09	0.55
1:C:276:VAL:HG11	1:C:304:GLU:HB2	1.89	0.55
1:C:372:GLN:HA	1:C:375:GLU:HG2	1.89	0.55
1:C:442:ARG:HH21	1:D:442:ARG:NH2	2.01	0.55
1:C:539:SER:O	1:C:543:ARG:HG3	2.07	0.55
1:A:162:ILE:HG22	1:A:252:VAL:HB	1.88	0.55
1:D:559:ARG:HD2	1:D:564:TYR:CD1	2.42	0.54
1:D:118:ASN:OD1	1:D:120:SER:HB2	2.06	0.54
1:B:385:ARG:HG2	1:B:385:ARG:HH11	1.72	0.54
1:D:337:ARG:HH22	1:D:390:ASP:CG	2.11	0.54
1:A:347:GLU:HG2	1:C:423:ALA:CB	2.31	0.54
1:A:208:VAL:HA	1:A:236:LEU:HD21	1.90	0.54
1:C:327:LEU:HD22	1:C:365:LYS:HD2	1.88	0.54
1:C:164:THR:O	1:C:249:ARG:HA	2.08	0.54
1:A:506:VAL:HG13	1:A:512:VAL:HG11	1.91	0.53
1:C:231:ILE:HD13	1:C:232:GLY:H	1.73	0.53
1:A:118:ASN:OD1	1:A:120:SER:HB2	2.08	0.53
1:A:465:LYS:HE3	1:B:448:SER:HB3	1.90	0.53
1:A:155:LEU:HD23	1:A:155:LEU:C	2.28	0.53
1:C:81:GLU:HA	1:C:81:GLU:OE1	2.08	0.53
1:D:164:THR:O	1:D:249:ARG:HA	2.09	0.53
1:B:436:GLN:O	1:B:440:GLU:HG3	2.08	0.53
1:C:209:ARG:HG2	1:C:209:ARG:O	2.09	0.53
1:D:219:ILE:HG12	1:D:252:VAL:HG22	1.90	0.53
1:B:460:VAL:HG22	1:B:489:PRO:HG3	1.91	0.52
1:B:118:ASN:OD1	1:B:120:SER:HB2	2.09	0.52
1:B:327:LEU:CD2	1:B:365:LYS:HD2	2.39	0.52
1:B:86:ARG:NH2	1:B:113:ASN:OD1	2.41	0.52
1:C:188:ASP:HB3	1:C:191:PHE:HD1	1.74	0.52
1:B:124:HIS:HE1	1:B:271:ASP:OD1	1.93	0.52
1:C:86:ARG:NH2	1:C:113:ASN:OD1	2.42	0.52
1:D:438:PHE:O	1:D:442:ARG:HG3	2.09	0.52
1:A:85:ALA:HB2	1:A:545:PHE:CE2	2.44	0.52
1:C:124:HIS:HE1	1:C:271:ASP:OD1	1.93	0.52
1:C:475:THR:HA	2:C:580:FBP:H61	1.92	0.51
1:A:337:ARG:HH22	1:A:390:ASP:CG	2.13	0.51
1:D:479:ARG:HG3	1:D:479:ARG:NH1	2.26	0.51
1:C:114:ILE:HG12	1:C:152:ALA:HB3	1.93	0.51
1:D:185:VAL:HG22	1:D:200:VAL:HG22	1.93	0.51
1:A:436:GLN:O	1:A:440:GLU:HG3	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:124:HIS:HE1	1:D:271:ASP:OD1	1.93	0.51
1:A:559:ARG:HD2	1:A:564:TYR:CD1	2.46	0.51
1:A:337:ARG:CD	1:A:370:ALA:O	2.58	0.51
1:B:559:ARG:HD2	1:B:564:TYR:CD1	2.46	0.51
1:D:366:PRO:HB3	1:D:508:LEU:O	2.10	0.51
1:D:366:PRO:HA	1:D:400:ASP:OD2	2.11	0.51
1:A:124:HIS:HE1	1:A:271:ASP:OD1	1.94	0.50
1:C:89:SER:OG	6:C:2001:HOH:O	2.19	0.50
1:A:185:VAL:HA	1:A:200:VAL:O	2.12	0.50
1:D:219:ILE:HB	1:D:224:ILE:HB	1.94	0.50
1:D:315:GLU:HG2	1:D:336:ALA:HB1	1.91	0.50
1:A:134:VAL:O	1:A:138:VAL:HG23	2.12	0.50
1:A:327:LEU:HD22	1:A:365:LYS:HD2	1.93	0.50
1:D:557:GLY:HA3	2:D:580:FBP:O3	2.12	0.50
1:D:175:VAL:HG13	1:D:197:ALA:HA	1.94	0.50
1:D:289:ARG:HG3	1:D:293:ASP:OD2	2.12	0.50
1:D:327:LEU:CD2	1:D:365:LYS:HD2	2.42	0.50
1:D:81:GLU:HA	1:D:81:GLU:OE1	2.11	0.50
1:C:135:ARG:O	1:C:139:GLU:HG2	2.12	0.49
1:B:275:GLY:O	1:B:280:VAL:HG22	2.11	0.49
1:A:372:GLN:HG2	1:A:375:GLU:CG	2.43	0.49
1:B:276:VAL:HG11	1:B:304:GLU:HB2	1.94	0.49
1:B:372:GLN:HG2	1:B:375:GLU:HG3	1.94	0.49
1:B:281:ASP:C	1:B:282:ILE:HG13	2.33	0.49
1:C:87:SER:CB	1:C:511:GLY:HA2	2.42	0.49
1:A:286:SER:HA	1:A:313:LYS:HE2	1.93	0.49
1:B:85:ALA:HB2	1:B:545:PHE:CE2	2.48	0.49
1:A:168:GLN:HB2	1:A:195:GLY:O	2.12	0.49
1:C:402:ILE:HG13	1:C:421:GLN:NE2	2.28	0.49
1:D:372:GLN:HA	1:D:375:GLU:HG2	1.93	0.49
1:D:86:ARG:NH2	1:D:113:ASN:OD1	2.45	0.49
1:C:168:GLN:O	1:C:169:GLY:C	2.51	0.49
1:C:436:GLN:O	1:C:440:GLU:HG3	2.13	0.49
1:C:453:GLU:HG2	1:C:483:LEU:HD13	1.95	0.49
1:B:420:MET:CE	1:D:347:GLU:HG3	2.43	0.48
1:A:313:LYS:HD2	1:A:334:MET:SD	2.53	0.48
1:B:366:PRO:HB3	1:B:508:LEU:O	2.13	0.48
1:A:186:THR:HB	1:A:188:ASP:H	1.78	0.48
1:A:206:ASN:O	1:A:210:VAL:HG23	2.14	0.48
1:A:229:GLN:NE2	1:A:239:GLN:HB2	2.29	0.48
1:C:438:PHE:O	1:C:442:ARG:HG3	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:125:GLU:H	1:A:125:GLU:CD	2.16	0.48
1:C:569:ARG:HG2	1:D:567:ILE:HG12	1.95	0.48
1:B:384:THR:OG1	1:B:387:GLU:HG3	2.13	0.48
1:C:337:ARG:CD	1:C:370:ALA:O	2.62	0.48
1:A:209:ARG:HG2	1:A:209:ARG:O	2.12	0.48
1:C:452:THR:HG23	1:C:565:THR:HB	1.95	0.47
1:A:87:SER:CB	1:A:511:GLY:HA2	2.44	0.47
1:C:337:ARG:HH22	1:C:390:ASP:CG	2.18	0.47
1:D:475:THR:HA	2:D:580:FBP:H61	1.96	0.47
1:B:476:THR:HB	2:B:580:FBP:O4P	2.13	0.47
1:B:83:VAL:O	1:B:84:ALA:HB2	2.15	0.47
1:A:225:SER:HB3	1:A:242:ASN:N	2.27	0.47
1:A:438:PHE:O	1:A:442:ARG:HG3	2.14	0.47
1:A:521:PRO:HA	1:A:528:ASP:OD1	2.13	0.47
1:A:230:LYS:HB2	1:A:237:VAL:HB	1.95	0.47
1:D:225:SER:HB3	1:D:242:ASN:HD22	1.79	0.47
1:A:315:GLU:HG2	1:A:336:ALA:HB1	1.96	0.47
1:B:207:ILE:HD11	1:B:254:LEU:HD21	1.96	0.47
1:B:347:GLU:HG3	1:D:420:MET:CE	2.44	0.47
1:B:506:VAL:HG13	1:B:512:VAL:CG1	2.40	0.47
1:C:157:THR:HG22	1:C:286:SER:HB2	1.97	0.47
1:D:271:ASP:O	1:D:274:PHE:HB3	2.15	0.47
1:A:226:LEU:HD23	1:A:240:VAL:HA	1.96	0.47
1:B:297:VAL:CG1	1:B:310:ILE:HD13	2.45	0.47
1:B:452:THR:HG22	1:B:483:LEU:HD12	1.96	0.47
1:D:452:THR:HG23	1:D:565:THR:HB	1.96	0.47
1:C:177:LEU:HD23	1:C:177:LEU:N	2.30	0.47
1:D:521:PRO:HA	1:D:528:ASP:OD1	2.15	0.47
1:C:366:PRO:HA	1:C:400:ASP:OD2	2.14	0.46
1:A:222:GLY:O	1:C:382:ARG:HG3	2.14	0.46
1:A:452:THR:HG22	1:A:483:LEU:HD12	1.96	0.46
1:C:506:VAL:HG11	1:C:512:VAL:CG1	2.44	0.46
1:B:146:LEU:CB	1:B:542:LEU:HD12	2.45	0.46
1:A:384:THR:OG1	1:A:387:GLU:HG3	2.16	0.46
1:C:467:CYS:SG	1:D:447:LEU:HD13	2.56	0.46
1:D:313:LYS:HD2	1:D:334:MET:SD	2.55	0.46
1:A:297:VAL:CG1	1:A:310:ILE:HD13	2.45	0.46
1:D:294:VAL:HG11	1:D:329:VAL:HG12	1.98	0.46
1:B:413:PHE:HB3	1:B:416:GLU:HB2	1.97	0.46
1:B:488:ARG:HH11	1:B:510:ARG:CB	2.19	0.46
1:C:231:ILE:HD13	1:C:232:GLY:N	2.31	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:337:ARG:HD3	1:C:370:ALA:O	2.16	0.46
1:A:473:VAL:HG13	1:A:555:VAL:HB	1.98	0.46
1:C:450:ASP:O	1:C:454:VAL:HG23	2.15	0.46
1:B:450:ASP:O	1:B:454:VAL:HG23	2.15	0.46
1:A:177:LEU:HD13	1:A:183:VAL:HG21	1.98	0.45
1:A:340:LEU:O	1:A:344:ILE:HG12	2.16	0.45
1:A:374:LEU:HD12	1:A:387:GLU:HB3	1.97	0.45
1:B:294:VAL:HG11	1:B:329:VAL:HG12	1.99	0.45
1:C:225:SER:HB3	1:C:242:ASN:H	1.81	0.45
1:B:83:VAL:HG12	1:B:83:VAL:O	2.16	0.45
1:C:206:ASN:O	1:C:210:VAL:HG23	2.16	0.45
1:C:488:ARG:HH12	1:C:510:ARG:HB2	1.80	0.45
1:B:521:PRO:HA	1:B:528:ASP:OD1	2.16	0.45
1:C:87:SER:HB3	1:C:511:GLY:HA2	1.99	0.45
1:A:188:ASP:HA	1:A:189:PRO:HD2	1.67	0.45
1:B:515:LEU:HD13	1:B:539:SER:CB	2.46	0.45
1:B:69:PHE:O	1:B:72:HIS:HB3	2.16	0.45
1:A:515:LEU:HD13	1:A:539:SER:CB	2.47	0.45
1:C:118:ASN:OD1	1:C:120:SER:HB2	2.17	0.45
1:C:327:LEU:CD2	1:C:365:LYS:HD2	2.46	0.45
1:C:202:VAL:HG13	1:C:204:TYR:H	1.81	0.45
1:C:515:LEU:HD13	1:C:539:SER:CB	2.47	0.45
1:A:86:ARG:NH2	1:A:113:ASN:OD1	2.49	0.45
1:A:192:ARG:HG2	1:A:192:ARG:O	2.15	0.45
1:A:184:LEU:HD11	1:A:235:GLY:HA3	1.98	0.45
1:D:473:VAL:HG13	1:D:555:VAL:HB	1.99	0.45
1:A:177:LEU:CD1	1:A:183:VAL:HG21	2.47	0.45
1:B:337:ARG:CD	1:B:370:ALA:O	2.64	0.45
1:D:286:SER:HA	1:D:313:LYS:HE2	1.99	0.45
1:A:216:ARG:O	1:A:217:ILE:HG13	2.17	0.45
1:C:559:ARG:HD2	1:C:564:TYR:CD1	2.51	0.45
1:D:276:VAL:HG11	1:D:304:GLU:HB2	1.98	0.45
1:D:303:PRO:C	1:D:305:GLY:H	2.19	0.45
1:D:85:ALA:HB2	1:D:545:PHE:CE2	2.51	0.45
1:D:229:GLN:O	1:D:230:LYS:HG2	2.17	0.45
1:A:164:THR:O	1:A:249:ARG:HA	2.16	0.44
1:B:255:PRO:C	1:B:257:ALA:H	2.19	0.44
1:B:438:PHE:O	1:B:442:ARG:HG3	2.17	0.44
1:C:559:ARG:HD3	1:C:560:PRO:O	2.18	0.44
1:D:450:ASP:O	1:D:454:VAL:HG23	2.18	0.44
1:A:68:THR:HB	1:C:440:GLU:OE2	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:473:VAL:HG13	1:C:555:VAL:HB	1.98	0.44
1:A:249:ARG:NH1	6:A:2005:HOH:O	2.25	0.44
1:A:441:LEU:O	1:A:442:ARG:C	2.57	0.44
1:C:294:VAL:HG11	1:C:329:VAL:HG12	2.00	0.43
1:B:135:ARG:O	1:B:139:GLU:HG2	2.19	0.43
1:D:506:VAL:HG13	1:D:512:VAL:CG1	2.45	0.43
1:A:175:VAL:CG1	1:A:197:ALA:HA	2.48	0.43
1:B:228:VAL:HA	1:B:238:THR:HA	2.01	0.43
1:D:337:ARG:CD	1:D:370:ALA:O	2.67	0.43
1:A:480:SER:OG	2:A:580:FBP:O6P	2.33	0.43
1:D:206:ASN:O	1:D:207:ILE:C	2.55	0.43
1:D:285:ALA:O	1:D:313:LYS:HG3	2.18	0.43
1:A:276:VAL:CG1	1:A:304:GLU:HB2	2.49	0.43
1:D:202:VAL:HG13	1:D:204:TYR:H	1.83	0.43
1:D:441:LEU:O	1:D:442:ARG:C	2.56	0.43
1:A:275:GLY:O	1:A:280:VAL:HG22	2.18	0.43
1:C:125:GLU:H	1:C:125:GLU:CD	2.21	0.43
1:C:374:LEU:HD12	1:C:387:GLU:HB3	2.00	0.43
1:B:559:ARG:HD3	1:B:560:PRO:O	2.19	0.43
1:D:439:GLU:O	1:D:443:ARG:HB2	2.17	0.43
1:A:166:ILE:HD12	1:A:166:ILE:N	2.34	0.43
1:A:167:LEU:HD12	1:A:167:LEU:HA	1.92	0.43
1:B:83:VAL:CG1	1:B:83:VAL:O	2.65	0.43
1:C:83:VAL:O	1:C:83:VAL:CG1	2.67	0.43
1:D:374:LEU:HD12	1:D:387:GLU:HB3	2.00	0.43
1:A:253:ASN:O	1:A:254:LEU:HD23	2.19	0.43
1:A:372:GLN:HG2	1:A:375:GLU:HG3	2.00	0.43
1:C:207:ILE:CG2	1:C:208:VAL:N	2.81	0.43
1:D:339:ASP:O	1:D:340:LEU:C	2.57	0.43
1:B:102:GLU:HA	1:B:102:GLU:OE1	2.18	0.43
1:B:125:GLU:H	1:B:125:GLU:CD	2.22	0.43
1:B:475:THR:HA	2:B:580:FBP:H61	2.00	0.43
1:A:281:ASP:C	1:A:282:ILE:HG13	2.39	0.42
1:D:281:ASP:OD2	1:D:504:ARG:NE	2.48	0.42
1:B:303:PRO:C	1:B:305:GLY:H	2.23	0.42
1:D:453:GLU:HG2	1:D:483:LEU:HD13	2.02	0.42
1:A:135:ARG:O	1:A:139:GLU:HG2	2.19	0.42
1:C:271:ASP:O	1:C:274:PHE:HB3	2.19	0.42
1:A:434:HIS:O	1:A:435:ARG:C	2.57	0.42
1:B:385:ARG:NH1	1:B:385:ARG:HG2	2.33	0.42
1:A:184:LEU:CD1	1:A:235:GLY:HA3	2.50	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:337:ARG:NH2	1:B:390:ASP:OD1	2.52	0.42
1:C:175:VAL:HG22	6:C:2008:HOH:O	2.19	0.42
1:D:284:PHE:HD1	1:D:311:ILE:HB	1.84	0.42
1:B:156:ASP:OD1	1:B:156:ASP:C	2.58	0.42
1:B:81:GLU:OE1	1:B:81:GLU:HA	2.20	0.42
1:C:562:SER:HB2	2:C:580:FBP:O4P	2.18	0.42
1:D:157:THR:CG2	1:D:286:SER:H	2.31	0.42
1:D:349:VAL:O	1:D:352:ALA:N	2.53	0.42
1:A:175:VAL:HG11	1:A:197:ALA:HA	2.02	0.42
1:A:230:LYS:HD3	1:A:230:LYS:HA	1.82	0.42
1:B:107:MET:HG3	1:B:415:VAL:HG22	2.02	0.42
1:C:509:CYS:O	1:C:510:ARG:C	2.56	0.42
1:A:157:THR:HG22	1:A:286:SER:CB	2.50	0.42
1:B:315:GLU:HG2	1:B:336:ALA:HB1	1.99	0.42
1:D:175:VAL:HG11	1:D:197:ALA:HA	2.01	0.42
1:D:337:ARG:HD3	1:D:370:ALA:O	2.20	0.42
1:C:435:ARG:NH1	1:D:443:ARG:HE	2.18	0.42
1:A:219:ILE:HB	1:A:224:ILE:HB	2.01	0.42
1:C:61:LEU:HA	1:C:61:LEU:HD12	1.95	0.42
1:A:104:LEU:O	1:A:108:ILE:HG13	2.19	0.41
1:B:61:LEU:HA	1:B:61:LEU:HD12	1.98	0.41
1:D:377:MET:HA	1:D:380:LYS:O	2.20	0.41
1:D:83:VAL:O	1:D:84:ALA:HB2	2.20	0.41
1:A:207:ILE:HD11	1:A:254:LEU:HD21	2.02	0.41
1:A:348:LYS:HD3	1:C:78:ILE:O	2.21	0.41
1:C:155:LEU:HD23	1:C:155:LEU:C	2.41	0.41
1:C:492:ALA:HB1	1:C:513:PHE:CE1	2.55	0.41
1:C:157:THR:HG22	1:C:286:SER:CB	2.49	0.41
1:D:255:PRO:C	1:D:257:ALA:H	2.23	0.41
1:D:281:ASP:C	1:D:282:ILE:HG13	2.41	0.41
1:B:420:MET:HE1	1:D:347:GLU:HG3	2.02	0.41
1:D:452:THR:HG22	1:D:483:LEU:HD12	2.03	0.41
1:B:146:LEU:HB3	1:B:542:LEU:HD12	2.01	0.41
1:C:525:TRP:CE2	1:C:560:PRO:HG3	2.56	0.41
1:D:492:ALA:HB1	1:D:513:PHE:CE1	2.56	0.41
1:D:515:LEU:HD13	1:D:539:SER:CB	2.51	0.41
1:D:61:LEU:HA	1:D:61:LEU:HD12	1.88	0.41
1:B:204:TYR:CE1	1:B:261:LEU:HD13	2.55	0.41
1:B:322:ARG:O	1:B:325:GLU:HG2	2.20	0.41
1:A:377:MET:HA	1:A:380:LYS:O	2.20	0.41
1:A:559:ARG:HD3	1:A:560:PRO:O	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:91:ILE:HG12	1:C:114:ILE:HB	2.02	0.41
1:B:347:GLU:HG3	1:D:420:MET:HE1	2.01	0.41
1:B:114:ILE:HG12	1:B:152:ALA:HB3	2.03	0.41
1:B:313:LYS:HD2	1:B:334:MET:CE	2.51	0.41
1:C:360:CYS:O	1:C:361:ASN:C	2.57	0.41
1:D:230:LYS:HD3	1:D:230:LYS:HA	1.80	0.41
1:D:509:CYS:O	1:D:510:ARG:C	2.59	0.41
1:A:144:SER:HB3	6:A:2003:HOH:O	2.21	0.41
1:B:157:THR:HG22	1:B:286:SER:CB	2.50	0.41
1:B:219:ILE:HB	1:B:224:ILE:HB	2.02	0.41
1:B:96:PRO:HD2	1:B:409:ALA:O	2.21	0.41
1:B:525:TRP:CE2	1:B:560:PRO:HG3	2.56	0.41
1:D:559:ARG:HD3	1:D:560:PRO:O	2.20	0.41
1:A:327:LEU:CD2	1:A:365:LYS:HD2	2.51	0.41
1:B:102:GLU:OE1	1:B:105:LYS:HD2	2.21	0.41
1:D:218:TYR:HB3	1:D:222:GLY:HA2	2.02	0.41
1:A:133:ASN:ND2	6:A:2002:HOH:O	2.54	0.41
1:B:377:MET:C	1:B:379:THR:N	2.74	0.41
1:A:271:ASP:O	1:A:274:PHE:HB3	2.21	0.40
1:A:569:ARG:HG2	1:B:567:ILE:HG12	2.03	0.40
1:A:69:PHE:O	1:A:72:HIS:HB3	2.21	0.40
1:D:155:LEU:C	1:D:155:LEU:HD23	2.41	0.40
1:A:488:ARG:HH11	1:A:510:ARG:CB	2.23	0.40
1:A:61:LEU:O	1:A:62:PRO:C	2.59	0.40
1:C:420:MET:HE3	1:C:424:ILE:HG13	2.03	0.40
1:D:315:GLU:CG	1:D:336:ALA:HB3	2.48	0.40
1:D:337:ARG:NH2	1:D:390:ASP:OD1	2.54	0.40
1:D:405:SER:O	1:D:406:GLY:C	2.60	0.40
1:A:297:VAL:HG12	1:A:310:ILE:HD13	2.04	0.40
1:A:360:CYS:O	1:A:361:ASN:C	2.59	0.40
1:A:465:LYS:HE3	1:B:448:SER:CB	2.51	0.40
1:D:188:ASP:HA	1:D:189:PRO:HD3	1.83	0.40
1:D:217:ILE:HB	1:D:226:LEU:HB2	2.02	0.40

All (7) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:306:HIS:CE1	1:B:322:ARG:NH1[1_655]	1.57	0.63
1:A:306:HIS:CE1	1:B:322:ARG:NH2[1_655]	1.63	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:306:HIS:NE2	1:B:322:ARG:NH1[1_655]	1.65	0.55
1:A:306:HIS:CE1	1:B:322:ARG:CZ[1_655]	1.67	0.53
1:A:306:HIS:NE2	1:B:322:ARG:CZ[1_655]	2.09	0.11
1:C:258:GLN:NE2	1:D:298:ARG:O[1_556]	2.17	0.03
1:A:306:HIS:ND1	1:B:322:ARG:NH2[1_655]	2.19	0.01

## 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	515/528 (98%)	476 (92%)	35 (7%)	4 (1%)	19	36
1	B	483/528 (92%)	452 (94%)	25 (5%)	6 (1%)	13	24
1	C	515/528 (98%)	482 (94%)	28 (5%)	5 (1%)	15	28
1	D	508/528 (96%)	479 (94%)	26 (5%)	3 (1%)	25	44
All	All	2021/2112 (96%)	1889 (94%)	114 (6%)	18 (1%)	17	32

All (18) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	83	VAL
1	B	83	VAL
1	C	83	VAL
1	D	83	VAL
1	A	566	ASN
1	C	447	LEU
1	C	566	ASN
1	A	371	THR
1	B	447	LEU
1	B	566	ASN
1	D	371	THR
1	D	566	ASN

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Mol	Chain	Res	Type
1	B	84	ALA
1	B	371	THR
1	C	371	THR
1	A	486	ARG
1	C	170	GLY
1	B	213	VAL

### 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	414/423 (98%)	367 (89%)	47 (11%)	5	9
1	B	394/423 (93%)	350 (89%)	44 (11%)	6	10
1	C	414/423 (98%)	366 (88%)	48 (12%)	5	9
1	D	411/423 (97%)	363 (88%)	48 (12%)	5	8
All	All	1633/1692 (96%)	1446 (88%)	187 (12%)	5	9

All (187) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	61	LEU
1	A	83	VAL
1	A	86	ARG
1	A	99	ARG
1	A	100	SER
1	A	103	ARG
1	A	104	LEU
1	A	120	SER
1	A	124	HIS
1	A	157	THR
1	A	177	LEU
1	A	182	GLN
1	A	194	ARG
1	A	200	VAL
1	A	202	VAL

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Mol	Chain	Res	Type
1	A	209	ARG
1	A	221	ASP
1	A	231	ILE
1	A	234	GLU
1	A	258	GLN
1	A	289	ARG
1	A	294	VAL
1	A	298	ARG
1	A	304	GLU
1	A	327	LEU
1	A	337	ARG
1	A	362	LEU
1	A	374	LEU
1	A	379	THR
1	A	389	SER
1	A	396	LEU
1	A	410	LYS
1	A	443	ARG
1	A	449	ARG
1	A	473	VAL
1	A	480	SER
1	A	486	ARG
1	A	508	LEU
1	A	534	GLN
1	A	539	SER
1	A	542	LEU
1	A	546	LEU
1	A	547	ARG
1	A	548	VAL
1	A	552	VAL
1	A	559	ARG
1	A	562	SER
1	B	61	LEU
1	B	83	VAL
1	B	86	ARG
1	B	103	ARG
1	B	104	LEU
1	B	120	SER
1	B	124	HIS
1	B	144	SER
1	B	157	THR
1	B	177	LEU

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Mol	Chain	Res	Type
1	B	182	GLN
1	B	202	VAL
1	B	210	VAL
1	B	258	GLN
1	B	260	ASP
1	B	289	ARG
1	B	294	VAL
1	B	298	ARG
1	B	304	GLU
1	B	327	LEU
1	B	337	ARG
1	B	362	LEU
1	B	374	LEU
1	B	379	THR
1	B	388	THR
1	B	389	SER
1	B	396	LEU
1	B	410	LYS
1	B	443	ARG
1	B	449	ARG
1	B	473	VAL
1	B	480	SER
1	B	485	SER
1	B	486	ARG
1	B	508	LEU
1	B	534	GLN
1	B	539	SER
1	B	542	LEU
1	B	546	LEU
1	B	547	ARG
1	B	548	VAL
1	B	552	VAL
1	B	559	ARG
1	B	562	SER
1	C	61	LEU
1	C	83	VAL
1	C	86	ARG
1	C	103	ARG
1	C	104	LEU
1	C	120	SER
1	C	124	HIS
1	C	147	SER

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Mol	Chain	Res	Type
1	C	157	THR
1	C	158	LYS
1	C	167	LEU
1	C	175	VAL
1	C	176	GLU
1	C	182	GLN
1	C	193	THR
1	C	200	VAL
1	C	202	VAL
1	C	209	ARG
1	C	229	GLN
1	C	231	ILE
1	C	234	GLU
1	C	289	ARG
1	C	294	VAL
1	C	298	ARG
1	C	304	GLU
1	C	327	LEU
1	C	337	ARG
1	C	362	LEU
1	C	374	LEU
1	C	379	THR
1	C	388	THR
1	C	389	SER
1	C	396	LEU
1	C	410	LYS
1	C	443	ARG
1	C	449	ARG
1	C	473	VAL
1	C	480	SER
1	C	486	ARG
1	C	508	LEU
1	C	534	GLN
1	C	539	SER
1	C	542	LEU
1	C	546	LEU
1	C	547	ARG
1	C	548	VAL
1	C	552	VAL
1	C	559	ARG
1	D	61	LEU
1	D	83	VAL

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Mol	Chain	Res	Type
1	D	86	ARG
1	D	103	ARG
1	D	104	LEU
1	D	120	SER
1	D	124	HIS
1	D	157	THR
1	D	176	GLU
1	D	177	LEU
1	D	182	GLN
1	D	188	ASP
1	D	200	VAL
1	D	202	VAL
1	D	210	VAL
1	D	225	SER
1	D	230	LYS
1	D	231	ILE
1	D	234	GLU
1	D	258	GLN
1	D	289	ARG
1	D	294	VAL
1	D	298	ARG
1	D	304	GLU
1	D	327	LEU
1	D	337	ARG
1	D	362	LEU
1	D	374	LEU
1	D	379	THR
1	D	388	THR
1	D	389	SER
1	D	396	LEU
1	D	410	LYS
1	D	443	ARG
1	D	449	ARG
1	D	473	VAL
1	D	480	SER
1	D	486	ARG
1	D	508	LEU
1	D	534	GLN
1	D	539	SER
1	D	542	LEU
1	D	546	LEU
1	D	547	ARG

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Mol	Chain	Res	Type
1	D	548	VAL
1	D	552	VAL
1	D	559	ARG
1	D	562	SER

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (24) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	124	HIS
1	A	133	ASN
1	A	168	GLN
1	A	229	GLN
1	A	421	GLN
1	A	534	GLN
1	B	124	HIS
1	B	133	ASN
1	B	242	ASN
1	B	258	GLN
1	B	421	GLN
1	B	534	GLN
1	C	124	HIS
1	C	133	ASN
1	C	229	GLN
1	C	253	ASN
1	C	421	GLN
1	C	534	GLN
1	D	124	HIS
1	D	133	ASN
1	D	182	GLN
1	D	242	ASN
1	D	258	GLN
1	D	421	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 [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 16 ligands modelled in this entry, 8 are monoatomic - leaving 8 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	PGA	D	581	5,4	5,8,8	0.67	0	6,11,11	0.78	0
3	PGA	B	581	5,4	5,8,8	0.70	0	6,11,11	0.87	0
2	FBP	C	580	-	18,20,20	1.16	1 (5%)	23,32,32	0.88	0
2	FBP	A	580	-	18,20,20	1.05	1 (5%)	23,32,32	1.04	1 (4%)
2	FBP	D	580	-	18,20,20	1.06	1 (5%)	23,32,32	1.01	1 (4%)
2	FBP	B	580	-	18,20,20	1.00	1 (5%)	23,32,32	0.88	0
3	PGA	C	581	5,4	5,8,8	0.81	0	6,11,11	0.89	0
3	PGA	A	581	5,4	5,8,8	0.88	0	6,11,11	0.82	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PGA	D	581	5,4	-	3/4/6/6	-
3	PGA	B	581	5,4	-	3/4/6/6	-
2	FBP	C	580	-	-	6/13/32/32	0/1/1/1
2	FBP	A	580	-	-	3/13/32/32	0/1/1/1
2	FBP	D	580	-	-	6/13/32/32	0/1/1/1
2	FBP	B	580	-	-	3/13/32/32	0/1/1/1
3	PGA	C	581	5,4	-	3/4/6/6	-
3	PGA	A	581	5,4	-	3/4/6/6	-

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	580	FBP	O2-C2	2.65	1.45	1.40
2	D	580	FBP	O2-C2	2.43	1.44	1.40
2	B	580	FBP	O2-C2	2.31	1.44	1.40
2	C	580	FBP	O2-C2	2.07	1.44	1.40

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	580	FBP	P2-O6-C6	2.31	124.64	118.30
2	D	580	FBP	P1-O1-C1	2.02	123.85	118.30

There are no chirality outliers.

All (30) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	D	581	PGA	C2-O1P-P-O3P
3	D	581	PGA	C2-O1P-P-O4P
3	B	581	PGA	C2-O1P-P-O2P
3	B	581	PGA	C2-O1P-P-O3P
3	B	581	PGA	C2-O1P-P-O4P
2	C	580	FBP	O5-C5-C6-O6
2	C	580	FBP	C6-O6-P2-O5P
2	C	580	FBP	C6-O6-P2-O6P
2	A	580	FBP	C1-O1-P1-O3P
2	A	580	FBP	O5-C5-C6-O6
2	D	580	FBP	C1-O1-P1-O3P
2	D	580	FBP	C6-O6-P2-O4P
2	D	580	FBP	C6-O6-P2-O5P
2	D	580	FBP	C6-O6-P2-O6P
3	C	581	PGA	C2-O1P-P-O2P
3	C	581	PGA	C2-O1P-P-O3P
3	C	581	PGA	C2-O1P-P-O4P
3	A	581	PGA	C2-O1P-P-O2P
3	A	581	PGA	C2-O1P-P-O3P
3	A	581	PGA	C2-O1P-P-O4P
2	D	580	FBP	C4-C5-C6-O6
2	D	580	FBP	O5-C5-C6-O6
2	C	580	FBP	C4-C5-C6-O6
2	A	580	FBP	C4-C5-C6-O6
3	D	581	PGA	C2-O1P-P-O2P
2	C	580	FBP	C6-O6-P2-O4P

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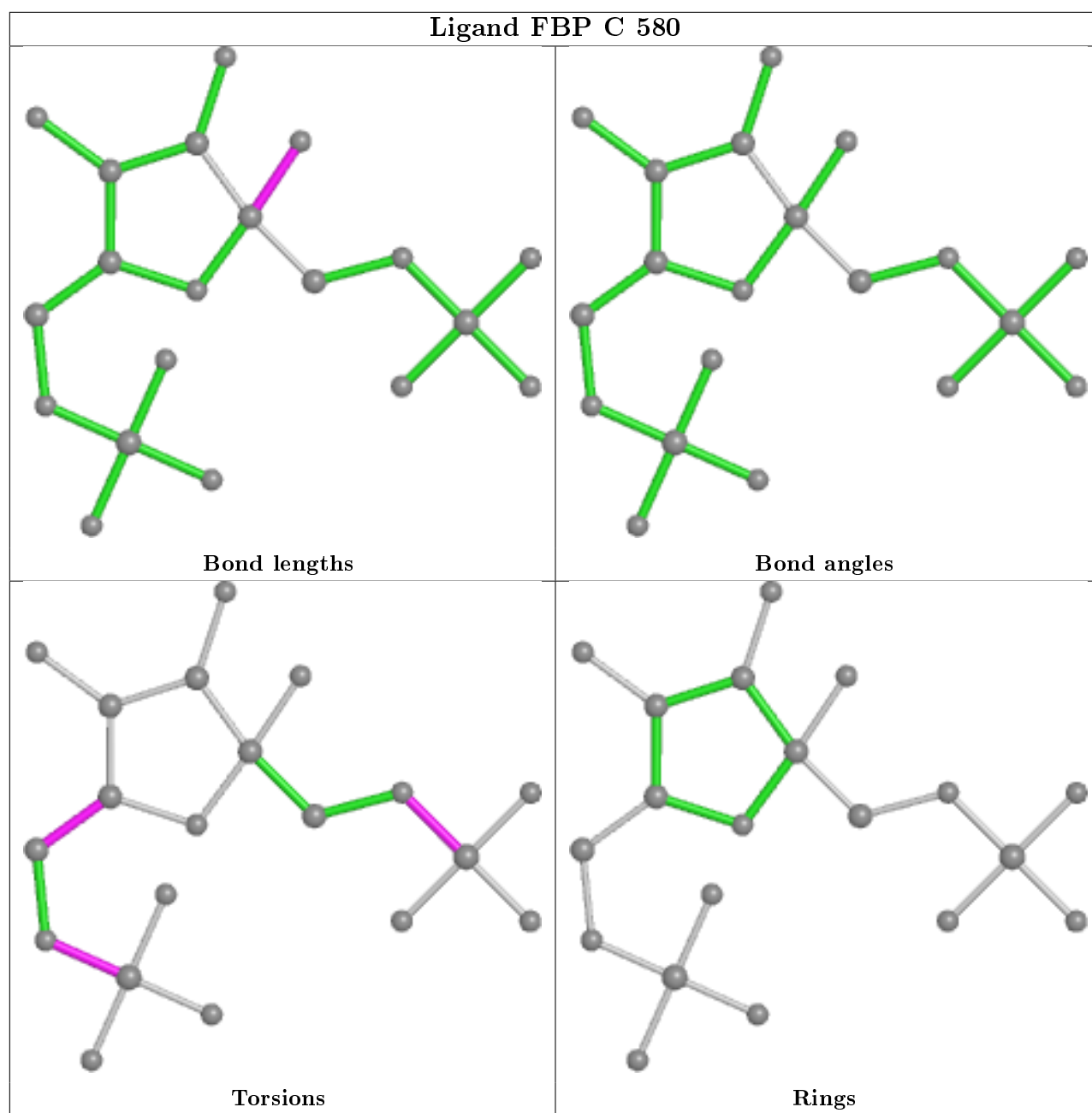
Mol	Chain	Res	Type	Atoms
2	B	580	FBP	O5-C5-C6-O6
2	C	580	FBP	C1-O1-P1-O1P
2	B	580	FBP	C6-O6-P2-O4P
2	B	580	FBP	C4-C5-C6-O6

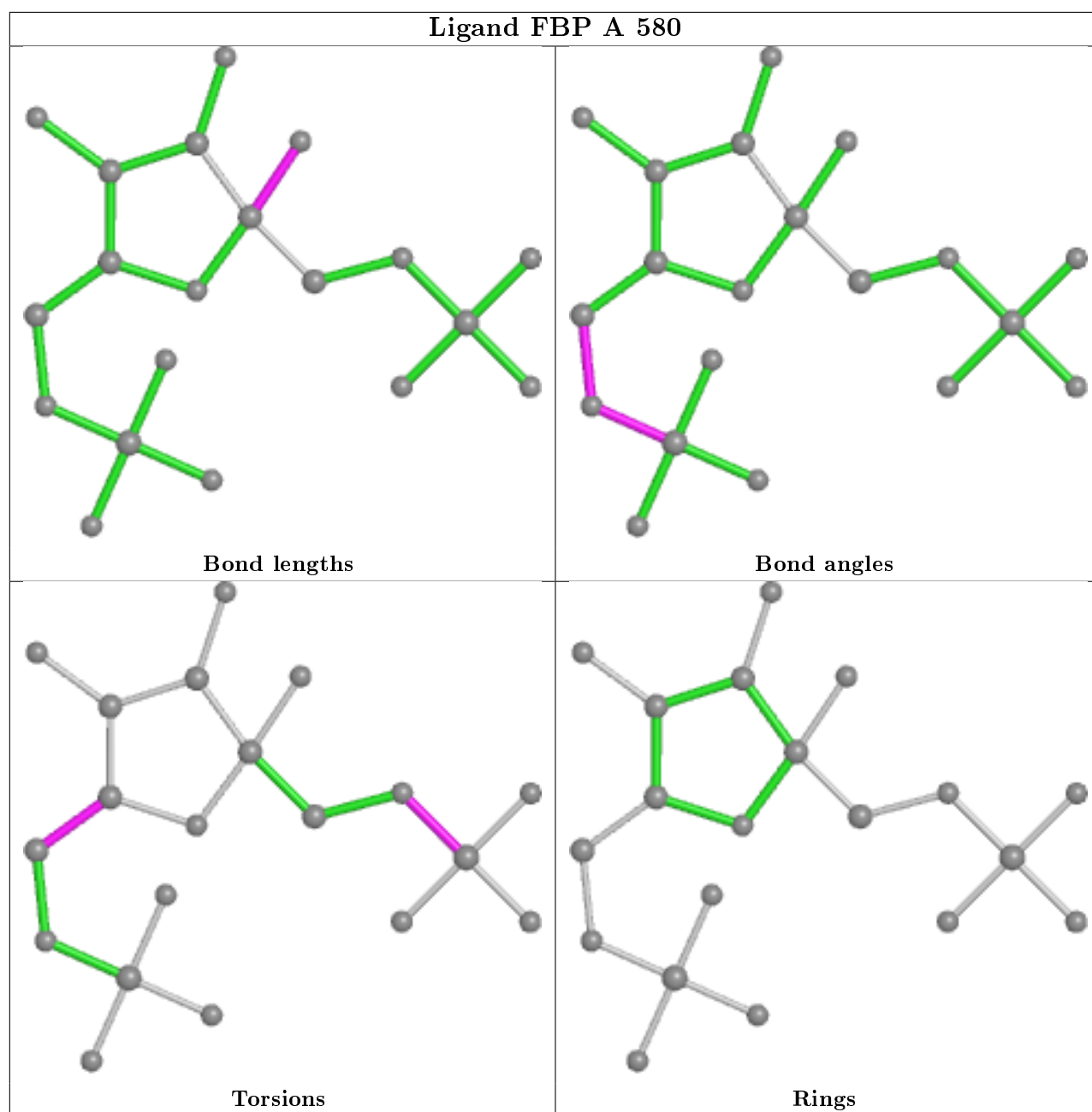
There are no ring outliers.

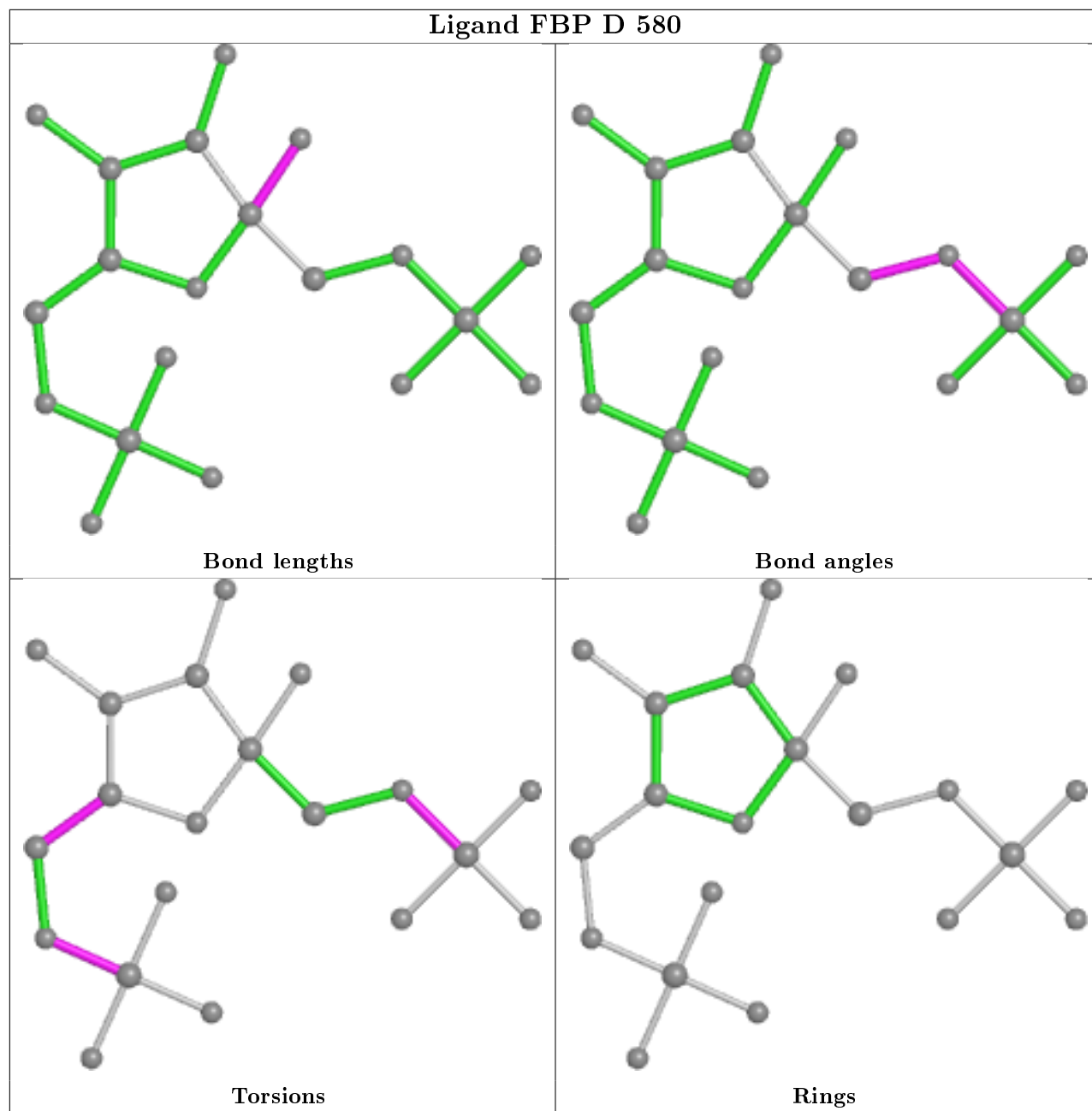
4 monomers are involved in 8 short contacts:

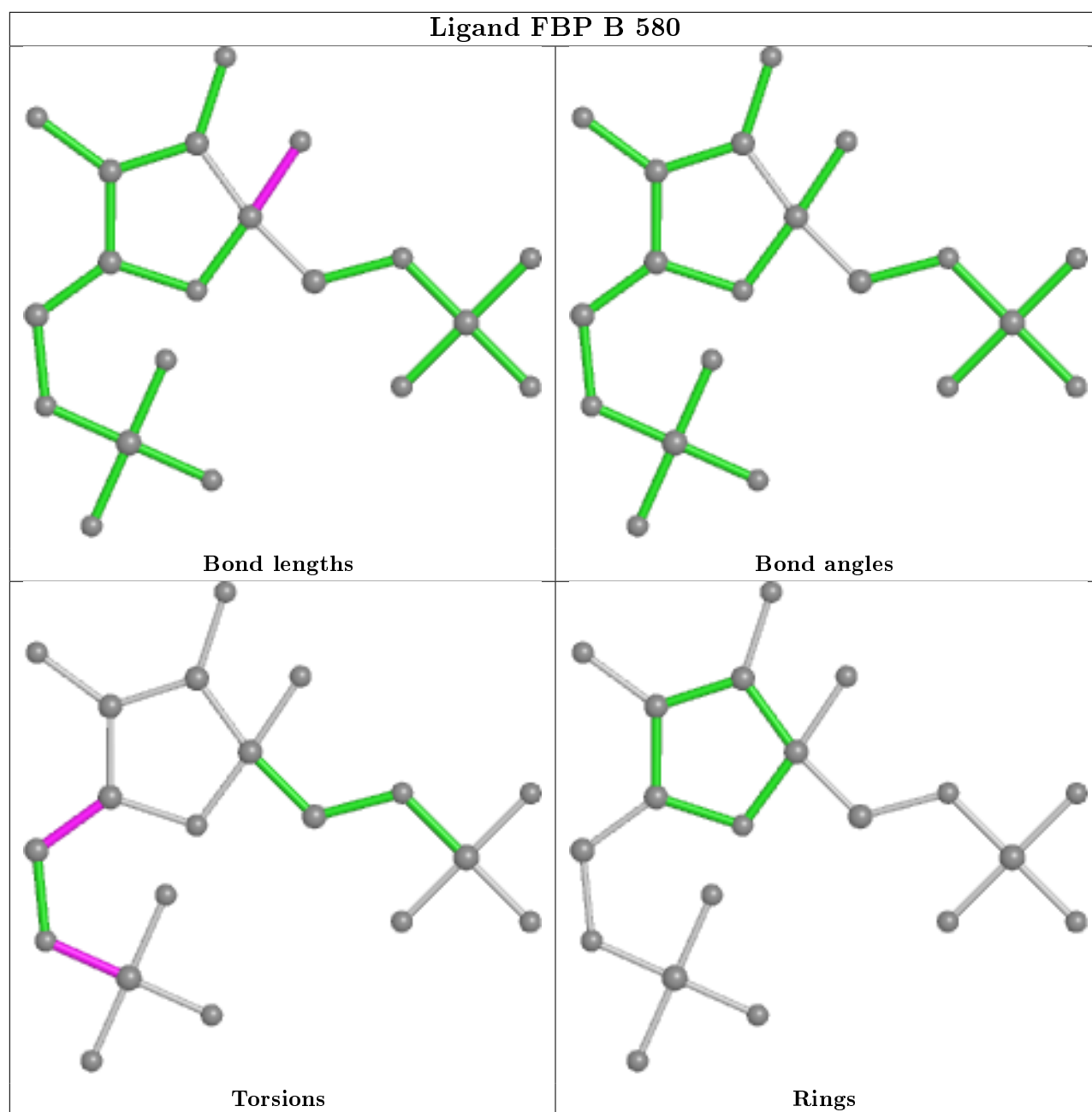
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	580	FBP	2	0
2	A	580	FBP	1	0
2	D	580	FBP	2	0
2	B	580	FBP	3	0

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









## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Fit of model and data ⓘ

### 6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	517/528 (97%)	0.32	51 (9%) 7 7	33, 40, 47, 57	0
1	B	491/528 (92%)	0.42	48 (9%) 7 7	33, 39, 47, 57	0
1	C	517/528 (97%)	-0.00	11 (2%) 63 70	33, 40, 47, 57	0
1	D	512/528 (96%)	0.07	24 (4%) 31 34	33, 40, 47, 57	0
All	All	2037/2112 (96%)	0.20	134 (6%) 18 20	33, 40, 47, 57	0

All (134) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	214	GLY	6.3
1	B	143	GLY	5.6
1	D	194	ARG	5.4
1	B	142	ALA	5.3
1	B	213	VAL	5.2
1	B	531	ARG	5.2
1	A	168	GLN	4.8
1	A	171	PRO	4.7
1	C	304	GLU	4.7
1	B	239	GLN	4.6
1	A	169	GLY	4.6
1	B	212	PRO	4.3
1	D	548	VAL	4.2
1	A	215	GLY	4.1
1	B	256	GLY	4.1
1	B	527	ASP	4.0
1	A	230	LYS	3.9
1	B	561	GLY	3.9
1	A	561	GLY	3.9
1	A	303	PRO	3.8
1	D	59	GLN	3.8

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Mol	Chain	Res	Type	RSRZ
1	A	520	PRO	3.8
1	A	524	ILE	3.8
1	A	173	SER	3.8
1	C	122	GLY	3.8
1	B	83	VAL	3.7
1	A	167	LEU	3.7
1	D	549	GLY	3.7
1	B	528	ASP	3.7
1	A	229	GLN	3.7
1	A	231	ILE	3.6
1	D	173	SER	3.6
1	B	145	PRO	3.6
1	B	524	ILE	3.5
1	B	547	ARG	3.5
1	B	66	ALA	3.4
1	A	261	LEU	3.4
1	A	209	ARG	3.4
1	A	302	GLY	3.3
1	B	548	VAL	3.3
1	D	58	GLN	3.3
1	A	528	ASP	3.3
1	D	263	GLY	3.3
1	A	123	SER	3.2
1	B	180	GLY	3.2
1	B	207	ILE	3.2
1	C	57	GLN	3.2
1	B	146	LEU	3.2
1	B	211	VAL	3.2
1	D	65	MET	3.1
1	D	306	HIS	3.1
1	B	549	GLY	3.1
1	D	547	ARG	3.0
1	A	522	GLU	3.0
1	B	181	SER	3.0
1	A	525	TRP	2.9
1	B	247	GLY	2.9
1	B	241	GLU	2.9
1	B	306	HIS	2.8
1	D	531	ARG	2.8
1	A	65	MET	2.8
1	A	239	GLN	2.8
1	B	182	GLN	2.8

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Mol	Chain	Res	Type	RSRZ
1	A	61	LEU	2.7
1	A	542	LEU	2.7
1	A	472	ILE	2.7
1	B	259	VAL	2.7
1	B	249	ARG	2.7
1	B	240	VAL	2.7
1	A	307	GLY	2.7
1	B	65	MET	2.7
1	B	558	TRP	2.7
1	D	233	PRO	2.6
1	B	210	VAL	2.6
1	A	260	ASP	2.6
1	B	362	LEU	2.6
1	B	291	ALA	2.6
1	D	61	LEU	2.6
1	A	523	ALA	2.5
1	A	180	GLY	2.5
1	A	57	GLN	2.5
1	A	259	VAL	2.5
1	B	529	VAL	2.5
1	A	170	GLY	2.5
1	A	554	VAL	2.5
1	D	304	GLU	2.5
1	A	306	HIS	2.5
1	A	531	ARG	2.5
1	A	75	LEU	2.5
1	B	166	ILE	2.4
1	C	553	ILE	2.4
1	C	115	ALA	2.4
1	A	521	PRO	2.4
1	D	146	LEU	2.4
1	D	261	LEU	2.4
1	B	121	HIS	2.4
1	A	59	GLN	2.4
1	B	520	PRO	2.4
1	C	258	GLN	2.4
1	A	161	GLU	2.4
1	D	262	PRO	2.3
1	D	83	VAL	2.3
1	A	284	PHE	2.3
1	C	171	PRO	2.3
1	A	122	GLY	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	166	ILE	2.3
1	A	125	GLU	2.2
1	B	64	ALA	2.2
1	D	562	SER	2.2
1	D	260	ASP	2.2
1	A	245	VAL	2.2
1	A	527	ASP	2.2
1	B	81	GLU	2.2
1	B	569	ARG	2.2
1	B	449	ARG	2.2
1	A	172	GLU	2.2
1	A	92	ALA	2.1
1	B	262	PRO	2.1
1	C	182	GLN	2.1
1	A	194	ARG	2.1
1	B	554	VAL	2.1
1	D	232	GLY	2.1
1	C	524	ILE	2.1
1	D	64	ALA	2.1
1	B	144	SER	2.1
1	D	192	ARG	2.1
1	C	547	ARG	2.1
1	A	121	HIS	2.1
1	B	525	TRP	2.1
1	C	229	GLN	2.0
1	A	549	GLY	2.0
1	A	568	MET	2.0
1	B	227	VAL	2.0
1	D	193	THR	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

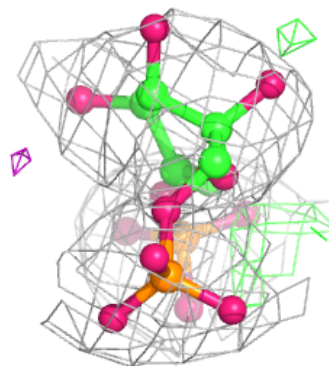
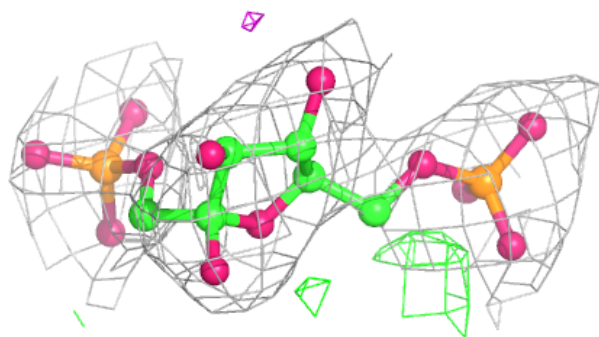
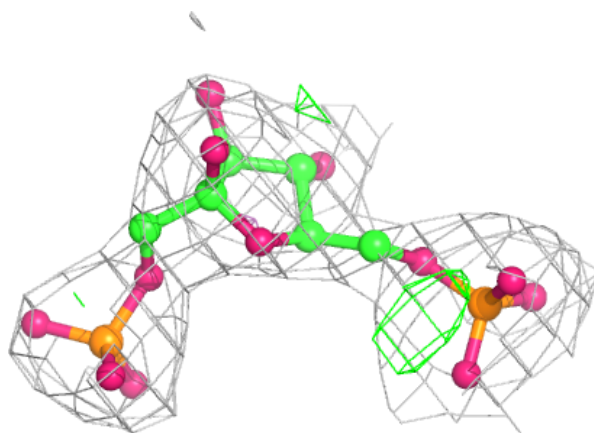
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
4	K	B	586	1/1	0.90	0.15	81,81,81,81	0
4	K	A	582	1/1	0.93	0.14	78,78,78,78	0
2	FBP	B	580	20/20	0.93	0.16	71,75,77,78	0
3	PGA	A	581	9/9	0.94	0.22	104,106,107,108	0
2	FBP	A	580	20/20	0.94	0.17	70,75,77,78	0
3	PGA	C	581	9/9	0.94	0.27	103,105,107,108	0
2	FBP	D	580	20/20	0.95	0.18	69,73,76,77	0
3	PGA	B	581	9/9	0.95	0.23	104,106,108,108	0
2	FBP	C	580	20/20	0.96	0.15	68,73,76,77	0
3	PGA	D	581	9/9	0.96	0.23	103,106,107,108	0
5	MN	B	587	1/1	0.97	0.06	64,64,64,64	0
5	MN	D	595	1/1	0.98	0.10	59,59,59,59	0
4	K	D	594	1/1	0.98	0.10	60,60,60,60	0
4	K	C	590	1/1	0.98	0.06	67,67,67,67	0
5	MN	A	583	1/1	0.98	0.06	70,70,70,70	0
5	MN	C	591	1/1	0.99	0.08	58,58,58,58	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.

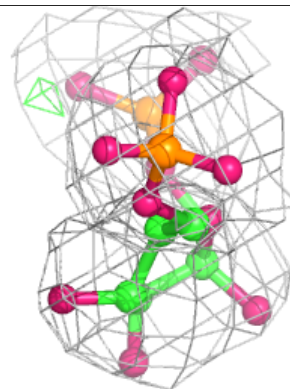
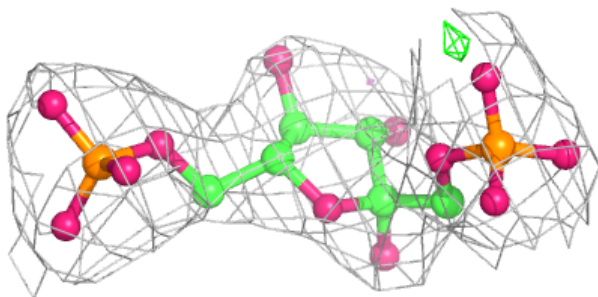
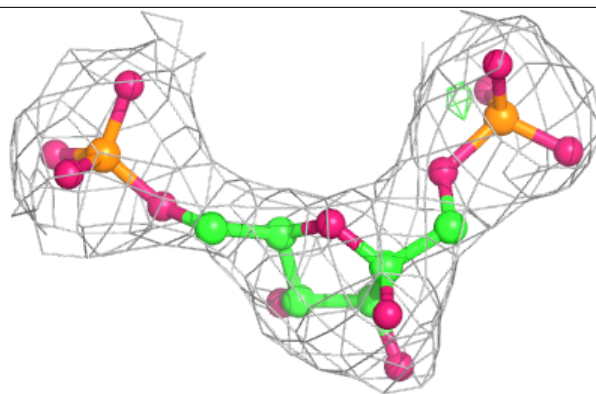
**Electron density around FBP B 580:**

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

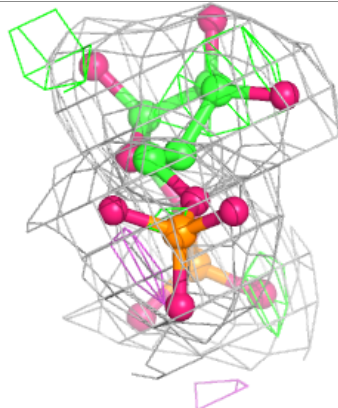
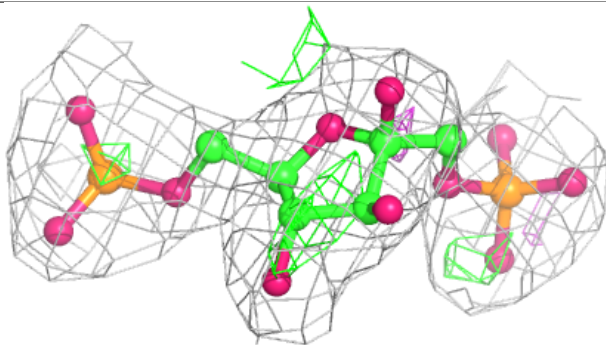
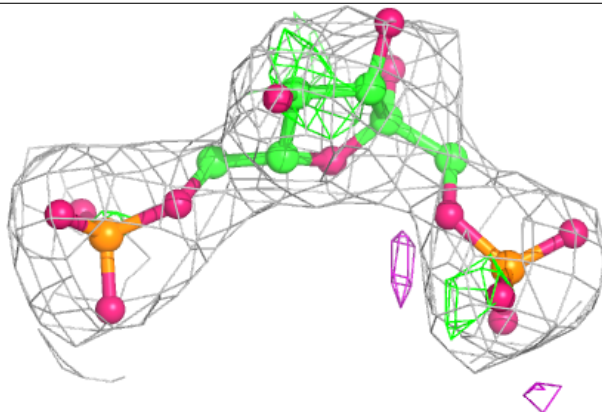


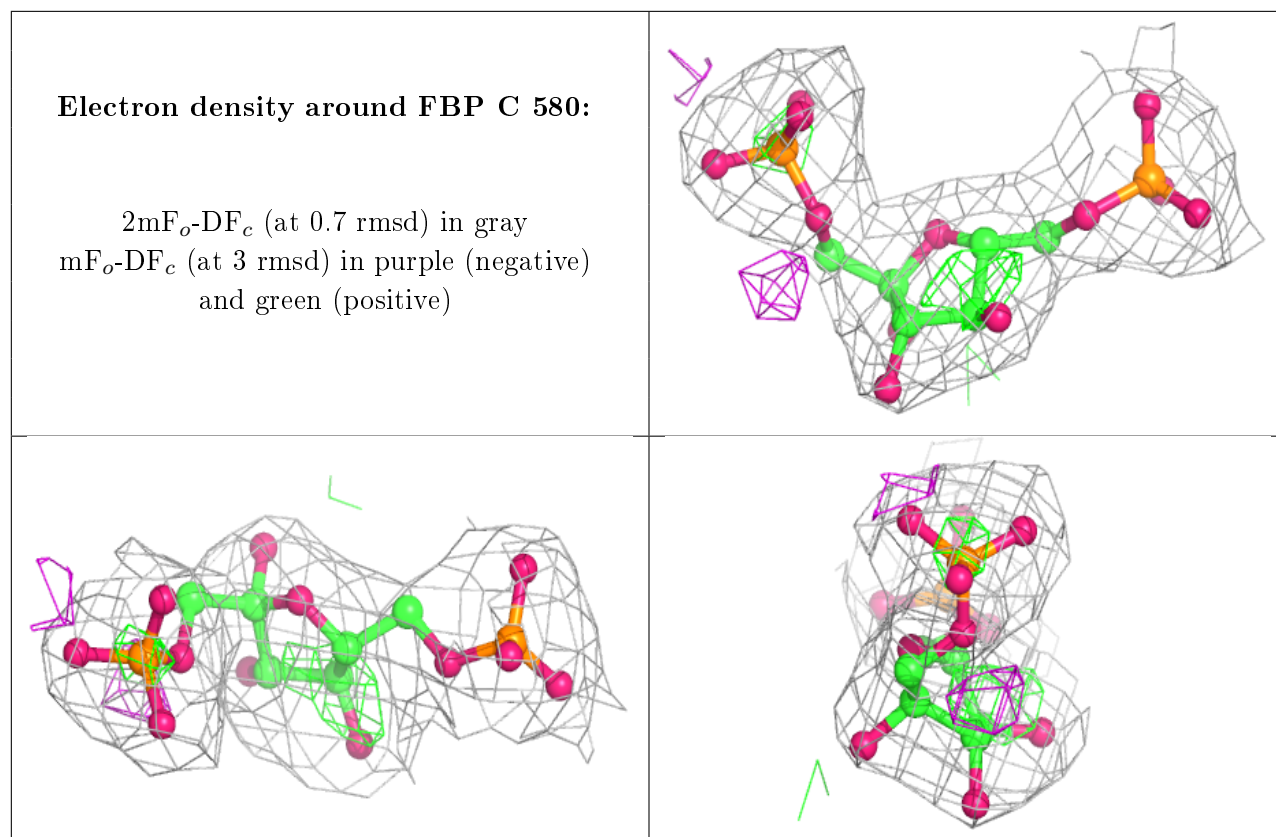
**Electron density around FBP A 580:**

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

**Electron density around FBP D 580:**

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





## 6.5 Other polymers [i](#)

There are no such residues in this entry.