



Full wwPDB X-ray Structure Validation Report ⓘ

Apr 19, 2026 – 06:30 AM UTC

PDB ID : 7K1E / pdb_00007k1e
Title : Crystal structure of human insulin degrading enzyme (IDE) in complex with compound BDM_88646
Authors : Liang, W.G.; Deprez, R.; Bosc, D.; Tang, W.
Deposited on : 2020-09-07
Resolution : 2.80 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

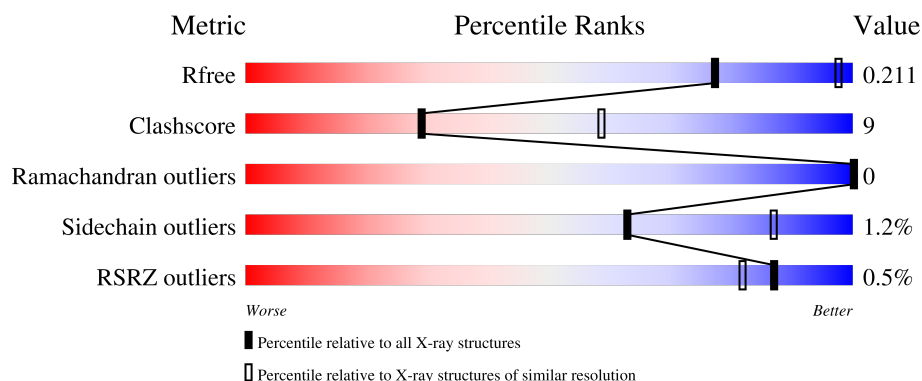
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.80 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}	180053	3866 (2.80-2.80)
Clashscore	190562	4276 (2.80-2.80)
Ramachandran outliers	187476	4196 (2.80-2.80)
Sidechain outliers	187428	4198 (2.80-2.80)
RSRZ outliers	180081	3869 (2.80-2.80)

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

Mol	Chain	Length	Quality of chain
1	A	990	77% 20% .
1	B	990	81% 15% ..

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 16116 atoms, of which 82 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 Insulin-degrading enzyme.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	957	Total	C	N	O	S	0	0	0
			7829	5042	1314	1451	22			
1	B	960	Total	C	N	O	S	0	0	0
			7848	5054	1317	1454	23			

There are 50 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	30	MET	-	initiating methionine	UNP P14735
A	31	HIS	-	expression tag	UNP P14735
A	32	HIS	-	expression tag	UNP P14735
A	33	HIS	-	expression tag	UNP P14735
A	34	HIS	-	expression tag	UNP P14735
A	35	HIS	-	expression tag	UNP P14735
A	36	HIS	-	expression tag	UNP P14735
A	37	ALA	-	expression tag	UNP P14735
A	38	ALA	-	expression tag	UNP P14735
A	39	GLY	-	expression tag	UNP P14735
A	40	ILE	-	expression tag	UNP P14735
A	41	PRO	-	expression tag	UNP P14735
A	110	LEU	CYS	engineered mutation	UNP P14735
A	171	SER	CYS	engineered mutation	UNP P14735
A	178	ALA	CYS	engineered mutation	UNP P14735
A	257	VAL	CYS	engineered mutation	UNP P14735
A	414	LEU	CYS	engineered mutation	UNP P14735
A	573	ASN	CYS	engineered mutation	UNP P14735
A	590	SER	CYS	engineered mutation	UNP P14735
A	789	SER	CYS	engineered mutation	UNP P14735
A	812	ALA	CYS	engineered mutation	UNP P14735
A	819	ALA	CYS	engineered mutation	UNP P14735
A	904	SER	CYS	engineered mutation	UNP P14735
A	966	ASN	CYS	engineered mutation	UNP P14735
A	974	ALA	CYS	engineered mutation	UNP P14735

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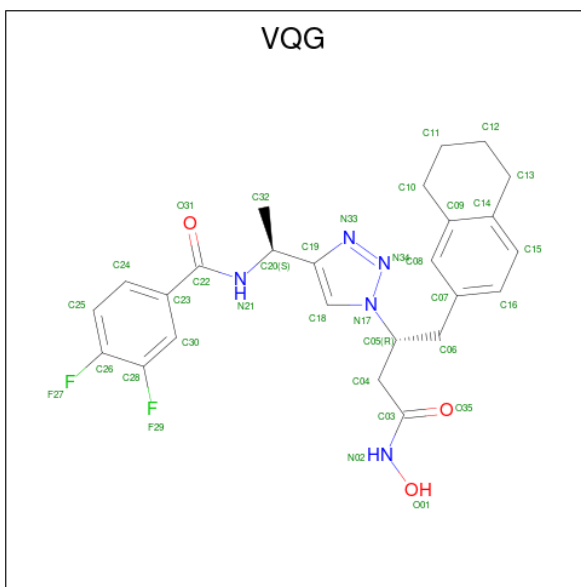
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Chain	Residue	Modelled	Actual	Comment	Reference
B	30	MET	-	initiating methionine	UNP P14735
B	31	HIS	-	expression tag	UNP P14735
B	32	HIS	-	expression tag	UNP P14735
B	33	HIS	-	expression tag	UNP P14735
B	34	HIS	-	expression tag	UNP P14735
B	35	HIS	-	expression tag	UNP P14735
B	36	HIS	-	expression tag	UNP P14735
B	37	ALA	-	expression tag	UNP P14735
B	38	ALA	-	expression tag	UNP P14735
B	39	GLY	-	expression tag	UNP P14735
B	40	ILE	-	expression tag	UNP P14735
B	41	PRO	-	expression tag	UNP P14735
B	110	LEU	CYS	engineered mutation	UNP P14735
B	171	SER	CYS	engineered mutation	UNP P14735
B	178	ALA	CYS	engineered mutation	UNP P14735
B	257	VAL	CYS	engineered mutation	UNP P14735
B	414	LEU	CYS	engineered mutation	UNP P14735
B	573	ASN	CYS	engineered mutation	UNP P14735
B	590	SER	CYS	engineered mutation	UNP P14735
B	789	SER	CYS	engineered mutation	UNP P14735
B	812	ALA	CYS	engineered mutation	UNP P14735
B	819	ALA	CYS	engineered mutation	UNP P14735
B	904	SER	CYS	engineered mutation	UNP P14735
B	966	ASN	CYS	engineered mutation	UNP P14735
B	974	ALA	CYS	engineered mutation	UNP P14735

- Molecule 2 is ZINC ION (CCD ID: ZN) (formula: Zn).

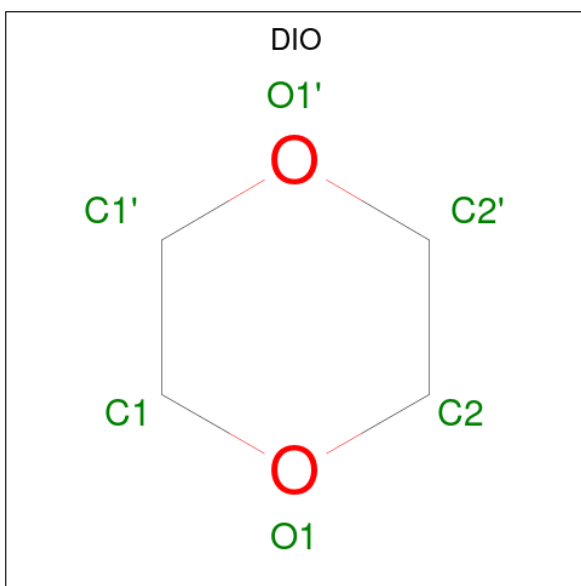
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total Zn 1 1	0	0
2	B	1	Total Zn 1 1	0	0

- Molecule 3 is 3,4-difluoro-N-[(1S)-1-{1-[(2R)-4-(hydroxyamino)-4-oxo-1-(5,6,7,8-tetrahydronaphthalen-2-yl)butan-2-yl]-1H-1,2,3-triazol-4-yl}ethyl]benzamide (CCD ID: VQG) (formula: C₂₅H₂₇F₂N₅O₃) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	F	N	O	0	0
			35	25	2	5	3		
3	B	1	Total	C	F	N	O	0	0
			35	25	2	5	3		

- Molecule 4 is 1,4-DIETHYLENE DIOXIDE (CCD ID: DIO) (formula: $C_4H_8O_2$).



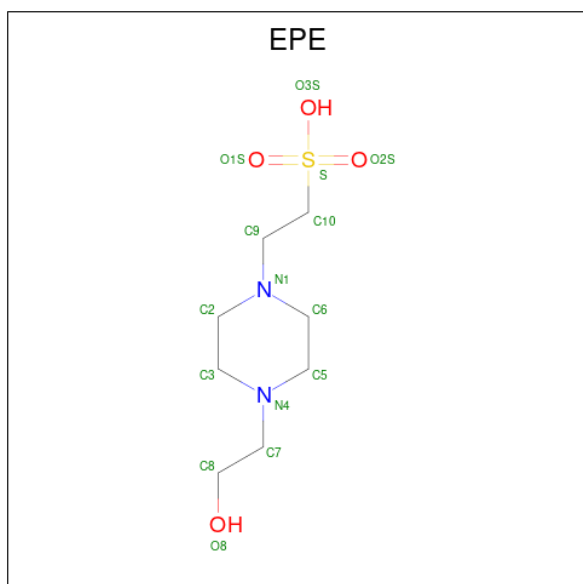
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	H	O	0	0
			14	4	8	2		
4	A	1	Total	C	H	O	0	0
			14	4	8	2		

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	H	O	0	0
			14	4	8	2		
4	B	1	Total	C	H	O	0	0
			14	4	8	2		
4	B	1	Total	C	H	O	0	0
			14	4	8	2		
4	B	1	Total	C	H	O	0	0
			14	4	8	2		

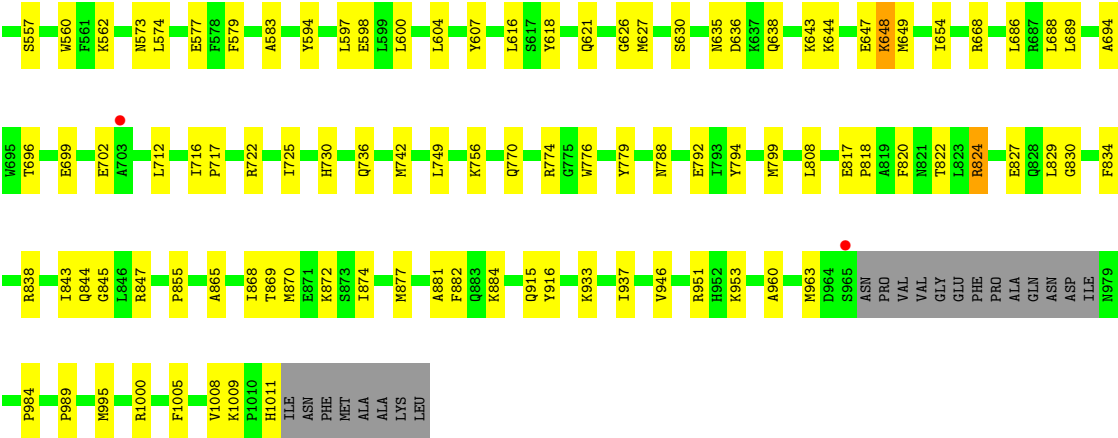
- Molecule 5 is 4-(2-HYDROXYETHYL)-1-PIPERAZINE ETHANESULFONIC ACID (CCD ID: EPE) (formula: C₈H₁₈N₂O₄S).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
5	A	1	Total	C	H	N	O	S	0	0
			32	8	17	2	4	1		
5	B	1	Total	C	H	N	O	S	0	0
			32	8	17	2	4	1		

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	68	Total	O	0	0
			68	68		
6	B	151	Total	O	0	0
			151	151		



4 Data and refinement statistics

Property	Value	Source
Space group	P 65	Depositor
Cell constants a, b, c, α , β , γ	267.88Å 267.88Å 89.61Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	43.84 – 2.80 43.84 – 2.80	Depositor EDS
% Data completeness (in resolution range)	98.6 (43.84-2.80) 92.5 (43.84-2.80)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.80 (at 2.77Å)	Xtriage
Refinement program	PHENIX (1.18.2_3874)	Depositor
R, R_{free}	0.158 , 0.209 0.165 , 0.211	Depositor DCC
R_{free} test set	2013 reflections (2.25%)	wwPDB-VP
Wilson B-factor (Å ²)	42.5	Xtriage
Anisotropy	0.020	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 39.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	0.027 for h,-h-k,-l	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	16116	wwPDB-VP
Average B, all atoms (Å ²)	42.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.73% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: VQG, EPE, ZN, DIO

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	0.54	0/8024	0.75	4/10854 (0.0%)
1	B	0.57	0/8044	0.76	1/10881 (0.0%)
All	All	0.56	0/16068	0.75	5/21735 (0.0%)

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	429	ARG	CA-C-N	-7.52	111.42	119.24
1	A	429	ARG	C-N-CA	-7.52	111.42	119.24
1	B	429	ARG	N-CA-C	-6.30	101.83	109.83
1	A	903	GLU	N-CA-C	-5.30	105.58	111.36
1	A	51	GLY	N-CA-C	5.22	118.07	112.33

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	7829	0	7769	160	0
1	B	7848	0	7788	115	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	A	35	0	0	0	0
3	B	35	0	0	0	0
4	A	18	24	24	2	0
4	B	18	24	24	1	0
5	A	15	17	17	1	0
5	B	15	17	17	0	0
6	A	68	0	0	1	0
6	B	151	0	0	4	0
All	All	16034	82	15639	272	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 9.

All (272) 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:689:LEU:HG	1:A:995:MET:HE2	1.25	1.17
1:A:689:LEU:CG	1:A:995:MET:HE2	1.80	1.10
1:A:684:TYR:CZ	1:A:688:LEU:HD11	1.87	1.08
1:A:667:MET:HE2	1:A:704:LEU:HD23	1.41	1.01
1:A:689:LEU:HG	1:A:995:MET:CE	1.93	0.98
1:A:268:THR:O	1:A:272:VAL:HG23	1.65	0.97
1:A:574:LEU:HD22	1:A:729:LEU:HD22	1.49	0.94
1:B:392:LEU:HD22	1:B:512:LYS:HE3	1.50	0.94
1:B:627:MET:HE1	1:B:649:MET:HE3	1.52	0.90
1:A:689:LEU:HD21	1:A:995:MET:HG2	1.53	0.89
1:A:820:PHE:CZ	1:A:824:ARG:HD3	2.07	0.89
1:A:815:ILE:HG22	1:A:870:MET:HE2	1.54	0.88
1:A:689:LEU:CD1	1:A:995:MET:HE2	2.05	0.87
1:B:597:LEU:HD21	1:B:627:MET:HE3	1.57	0.85
1:A:1007:LEU:HD12	1:B:1000:ARG:HG2	1.59	0.84
1:A:776:TRP:CZ3	1:A:989:PRO:HD3	2.12	0.84
1:B:507:ASP:HB3	1:B:511:LYS:HE2	1.60	0.84
1:B:688:LEU:HD13	1:B:696:THR:HG22	1.60	0.83
1:B:725:ILE:HG21	1:B:742:MET:HE1	1.60	0.83
1:A:868:ILE:HD12	1:A:984:PRO:HD3	1.64	0.80
1:A:689:LEU:CD2	1:A:995:MET:HG2	2.13	0.79
1:B:799:MET:HE3	1:B:1008:VAL:HG22	1.64	0.78
1:A:597:LEU:HD21	1:A:627:MET:HE3	1.63	0.78
1:A:996:THR:O	1:A:1000:ARG:HG2	1.84	0.78
1:A:759:LEU:HD21	1:B:702:GLU:OE1	1.83	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:684:TYR:CZ	1:A:688:LEU:CD1	2.67	0.77
1:B:285:LEU:HD12	1:B:286:PRO:HD2	1.68	0.76
1:B:507:ASP:O	1:B:511:LYS:HG2	1.86	0.76
1:B:792:GLU:OE2	1:B:847:ARG:HD2	1.87	0.74
1:A:684:TYR:CE1	1:A:688:LEU:HD11	2.22	0.73
1:A:679:HIS:O	1:A:683:MET:HG3	1.89	0.72
1:A:213:HIS:ND1	1:A:214:PRO:HD2	2.05	0.71
1:B:868:ILE:HD12	1:B:984:PRO:HD3	1.71	0.71
1:B:696:THR:OG1	1:B:699:GLU:HG3	1.91	0.70
1:A:820:PHE:CZ	1:A:824:ARG:CD	2.75	0.70
1:A:287:GLU:HG2	1:A:289:PRO:HD3	1.74	0.70
1:B:311:ARG:HH12	1:B:381:GLU:HG3	1.56	0.70
1:A:559:LEU:HD22	1:A:742:MET:HB2	1.75	0.69
1:A:959:LEU:HD22	1:A:963:MET:CE	2.23	0.68
1:B:507:ASP:HB3	1:B:511:LYS:CE	2.24	0.68
1:B:794:TYR:CE1	1:B:838:ARG:HD3	2.29	0.68
1:B:189:GLU:O	1:B:192:LYS:HG2	1.95	0.67
1:B:799:MET:CE	1:B:1008:VAL:HG22	2.24	0.67
1:B:870:MET:O	1:B:874:ILE:HG13	1.96	0.66
1:A:103:ILE:HG21	1:A:106:LEU:HD13	1.77	0.66
1:A:688:LEU:O	1:A:995:MET:SD	2.54	0.66
1:B:834:PHE:HB2	4:B:1104:DIO:H21	1.77	0.66
1:A:123:LYS:HE2	1:A:126:GLU:OE1	1.95	0.66
1:B:817:GLU:HB3	1:B:818:PRO:HD3	1.77	0.65
1:A:507:ASP:OD1	1:A:507:ASP:N	2.30	0.65
1:B:843:ILE:HG22	1:B:844:GLN:H	1.61	0.64
1:B:627:MET:CE	1:B:649:MET:HE3	2.27	0.63
1:A:820:PHE:CE1	1:A:824:ARG:HD3	2.32	0.63
1:A:685:TYR:HB2	1:A:956:VAL:HG11	1.81	0.62
1:A:995:MET:O	1:A:999:LYS:HG3	1.99	0.62
1:A:291:HIS:CD2	1:A:370:PHE:HB2	2.35	0.61
1:A:868:ILE:CD1	1:A:984:PRO:HD3	2.29	0.61
1:A:689:LEU:HD11	1:A:995:MET:HE2	1.80	0.61
1:A:574:LEU:CD2	1:A:729:LEU:HD22	2.29	0.60
1:A:599:LEU:HD23	1:A:662:ILE:HD12	1.83	0.60
1:A:49:ARG:NH2	1:A:447:GLU:OE2	2.35	0.60
1:A:147:THR:HG22	1:A:149:TYR:CE1	2.36	0.60
1:A:987:PRO:O	1:A:989:PRO:HD3	2.01	0.60
1:A:667:MET:HE1	1:A:704:LEU:HB3	1.84	0.60
1:A:959:LEU:HD22	1:A:963:MET:HE3	1.82	0.60
1:A:118:THR:HG21	1:A:167:GLN:HB2	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:799:MET:HE3	1:B:1008:VAL:CG2	2.32	0.60
1:A:327:LYS:HE2	6:A:1239:HOH:O	2.01	0.59
1:A:597:LEU:HD21	1:A:627:MET:CE	2.32	0.59
1:A:684:TYR:CE2	1:A:688:LEU:CD1	2.85	0.58
1:B:843:ILE:HG22	1:B:844:GLN:N	2.18	0.58
1:B:600:LEU:HD23	1:B:604:LEU:HD12	1.86	0.58
1:B:824:ARG:HG3	1:B:830:GLY:O	2.04	0.58
1:A:834:PHE:CG	4:A:1104:DIO:H2'1	2.39	0.57
1:A:776:TRP:CE3	1:A:989:PRO:HD3	2.40	0.57
1:B:808:LEU:HD21	1:B:845:GLY:O	2.04	0.57
1:A:291:HIS:CE1	1:A:318:PRO:HB3	2.40	0.57
1:A:667:MET:CE	1:A:704:LEU:HB3	2.35	0.57
1:A:959:LEU:HB3	1:A:963:MET:HE2	1.86	0.57
1:B:877:MET:O	1:B:933:LYS:NZ	2.36	0.57
1:A:870:MET:O	1:A:874:ILE:HG13	2.05	0.57
1:B:577:GLU:HG2	1:B:579:PHE:CZ	2.40	0.57
1:A:588:LEU:O	1:A:592:MET:HG3	2.05	0.57
1:A:996:THR:O	1:A:1000:ARG:CG	2.53	0.56
1:B:820:PHE:CZ	1:B:824:ARG:HD3	2.41	0.56
1:B:267:LEU:O	1:B:271:VAL:HG23	2.05	0.56
1:A:791:ILE:CD1	1:A:860:GLU:HG2	2.36	0.56
1:A:817:GLU:HB3	1:A:818:PRO:HD3	1.87	0.56
1:A:559:LEU:HD22	1:A:742:MET:CB	2.36	0.56
1:A:708:THR:HB	1:A:710:PRO:HD2	1.86	0.56
1:B:392:LEU:HD22	1:B:512:LYS:CE	2.31	0.55
1:A:771:LEU:HD11	1:A:954:VAL:CG2	2.37	0.55
1:A:856:PRO:HD3	1:A:963:MET:HE1	1.89	0.55
1:B:291:HIS:CD2	1:B:370:PHE:HB2	2.43	0.54
1:A:722:ARG:HG2	1:A:722:ARG:HH11	1.73	0.54
1:A:942:GLU:O	1:A:948:ALA:HB1	2.09	0.53
1:B:311:ARG:NH1	1:B:381:GLU:HG3	2.22	0.53
1:A:722:ARG:O	1:A:723:LEU:HG	2.09	0.53
1:A:722:ARG:HB3	1:A:758:LEU:CD2	2.39	0.53
1:A:565:ASP:OD1	1:A:566:LYS:HD2	2.07	0.53
1:B:77:LEU:HD21	1:B:271:VAL:HG21	1.91	0.53
1:B:90:LEU:HD21	1:B:254:MET:HG2	1.89	0.53
1:B:933:LYS:O	1:B:937:ILE:HG13	2.09	0.53
1:B:946:VAL:HA	1:B:951:ARG:CZ	2.39	0.53
1:B:794:TYR:CD1	1:B:838:ARG:HD3	2.43	0.53
1:A:214:PRO:O	1:A:217:LYS:HG3	2.08	0.52
1:B:736:GLN:HB2	6:B:1212:HOH:O	2.08	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:291:HIS:ND1	1:B:292:PRO:HD2	2.25	0.52
1:B:600:LEU:CD2	1:B:604:LEU:HD12	2.40	0.52
1:B:822:THR:O	1:B:827:GLU:HG3	2.11	0.51
1:A:275:PHE:O	1:A:278:VAL:HG23	2.11	0.51
1:B:725:ILE:CG2	1:B:742:MET:HE1	2.36	0.51
1:A:110:LEU:O	1:A:114:LEU:HD13	2.11	0.51
1:A:88:ALA:HB3	1:A:151:PHE:CE2	2.45	0.51
1:B:311:ARG:HB3	1:B:379:LEU:HB2	1.93	0.51
1:A:688:LEU:HD23	1:A:694:ALA:HB1	1.93	0.50
1:A:461:PRO:O	1:A:465:GLU:HG3	2.12	0.50
1:B:799:MET:HG2	1:B:843:ILE:CD1	2.41	0.50
1:A:771:LEU:HD11	1:A:954:VAL:HG23	1.93	0.50
1:A:776:TRP:CD1	1:A:953:LYS:HG2	2.47	0.50
1:B:686:LEU:HD23	1:B:838:ARG:NH1	2.27	0.50
1:A:834:PHE:CD1	4:A:1104:DIO:H2'1	2.46	0.50
1:B:776:TRP:CE3	1:B:989:PRO:HB3	2.46	0.50
1:B:441:LEU:HD23	1:B:449:VAL:HG11	1.93	0.50
1:B:311:ARG:HH21	1:B:668:ARG:CZ	2.24	0.50
1:A:759:LEU:HB2	1:A:762:GLN:HG3	1.93	0.50
1:B:616:LEU:HD11	1:B:638:GLN:HG2	1.95	0.49
1:B:594:TYR:CE1	1:B:598:GLU:HG3	2.47	0.49
1:B:643:LYS:HE2	1:B:647:GLU:OE1	2.12	0.49
1:B:770:GLN:HA	1:B:1005:PHE:CE2	2.47	0.49
1:A:987:PRO:O	1:A:989:PRO:CD	2.61	0.49
1:B:688:LEU:HD22	1:B:694:ALA:HB1	1.95	0.49
1:B:915:GLN:O	1:B:1011:HIS:HB2	2.12	0.49
1:A:413:GLU:OE2	1:A:527:LYS:HD2	2.12	0.49
1:A:791:ILE:HD11	1:A:860:GLU:HG2	1.93	0.49
1:B:229:ARG:HD2	6:B:1248:HOH:O	2.12	0.49
1:B:423:ARG:NH2	6:B:1202:HOH:O	2.34	0.49
1:A:689:LEU:HG	1:A:995:MET:SD	2.52	0.48
1:A:573:ASN:ND2	1:A:901:SER:HA	2.28	0.48
1:A:575:ASN:O	1:A:727:ALA:HA	2.14	0.48
1:B:71:ASN:HB2	1:B:251:SER:OG	2.12	0.48
1:B:542:LYS:H	1:B:542:LYS:HG2	1.44	0.48
1:A:604:LEU:HG	1:A:648:LYS:HD2	1.95	0.48
1:A:725:ILE:HG21	1:A:742:MET:HE1	1.95	0.48
1:B:123:LYS:HE2	1:B:126:GLU:OE1	2.14	0.48
1:B:688:LEU:CD1	1:B:696:THR:HG22	2.35	0.48
1:A:123:LYS:CE	1:A:126:GLU:OE1	2.60	0.47
1:B:123:LYS:HE3	1:B:129:GLN:OE1	2.13	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:771:LEU:HB2	1:A:952:HIS:HB3	1.95	0.47
1:B:295:GLU:OE1	1:B:295:GLU:HA	2.14	0.47
1:B:865:ALA:O	1:B:869:THR:HG23	2.15	0.47
1:A:77:LEU:HD21	1:A:271:VAL:HG21	1.97	0.47
1:B:689:LEU:HD23	1:B:995:MET:HG2	1.95	0.47
1:B:702:GLU:O	1:B:702:GLU:HG2	2.13	0.47
1:A:490:ASP:OD1	1:A:491:ARG:HG3	2.14	0.47
1:A:787:ASN:HB2	1:A:961:ARG:NH1	2.29	0.47
1:A:997:GLU:HA	1:A:1000:ARG:HG3	1.96	0.47
1:B:792:GLU:OE2	1:B:847:ARG:CD	2.58	0.47
1:B:799:MET:HB3	1:B:799:MET:HE2	1.57	0.47
1:A:74:LYS:O	1:A:255:ALA:HA	2.14	0.46
1:A:683:MET:HA	1:A:792:GLU:OE1	2.15	0.46
1:A:849:ILE:C	1:A:850:ILE:HG13	2.40	0.46
1:A:508:GLU:CG	1:A:509:VAL:N	2.78	0.46
1:A:361:GLY:HA2	1:A:374:ILE:O	2.16	0.46
1:B:547:TYR:HB3	1:B:548:PRO:HD2	1.97	0.46
1:A:508:GLU:HG2	1:A:509:VAL:N	2.31	0.46
1:A:722:ARG:HB3	1:A:758:LEU:HD23	1.98	0.46
1:B:359:LEU:C	1:B:359:LEU:HD23	2.41	0.46
1:B:318:PRO:HD2	1:B:475:ASN:O	2.16	0.46
1:B:507:ASP:CB	1:B:511:LYS:HE2	2.40	0.46
1:A:73:ILE:HG13	1:A:251:SER:HB2	1.98	0.46
1:A:119:LYS:CG	1:A:171:SER:HB2	2.46	0.46
1:B:635:ASN:O	1:B:636:ASP:C	2.58	0.46
1:B:229:ARG:HB3	1:B:230:PRO:HD3	1.97	0.45
1:A:71:ASN:HB2	1:A:251:SER:OG	2.17	0.45
1:A:76:LEU:HD23	1:A:437:ILE:HG21	1.97	0.45
1:A:139:ASN:HB3	1:A:150:TYR:CZ	2.51	0.45
1:A:578:PHE:O	1:A:626:GLY:HA3	2.17	0.45
1:B:367:ALA:HB3	1:B:370:PHE:CE1	2.50	0.45
1:B:350:LEU:HB2	1:B:356:VAL:HG22	1.97	0.45
1:A:451:THR:HB	1:A:455:LEU:HD12	1.98	0.45
1:A:600:LEU:HD11	1:A:649:MET:HA	1.99	0.45
1:B:206:LYS:HG2	1:B:215:PHE:O	2.16	0.45
1:A:933:LYS:O	1:A:937:ILE:HG13	2.17	0.45
1:B:607:TYR:CE2	1:B:644:LYS:HG2	2.52	0.45
1:B:604:LEU:HG	1:B:648:LYS:HD2	1.99	0.45
1:B:573:ASN:C	1:B:574:LEU:HD23	2.42	0.45
1:A:931:LEU:HD23	1:A:931:LEU:HA	1.76	0.44
1:A:119:LYS:HG3	1:A:171:SER:HB2	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:140:ALA:HA	1:B:148:ASN:O	2.16	0.44
1:B:287:GLU:OE1	1:B:368:ARG:HB3	2.17	0.44
1:A:118:THR:HG21	1:A:167:GLN:CB	2.46	0.44
1:A:176:GLU:HG2	1:A:238:ARG:HD2	1.98	0.44
1:A:548:PRO:HG3	1:A:907:TYR:CD2	2.52	0.44
1:B:124:GLU:HB3	6:B:1298:HOH:O	2.16	0.44
1:A:913:SER:HB2	5:A:1106:EPE:H101	1.99	0.44
1:B:350:LEU:CB	1:B:356:VAL:HG22	2.47	0.44
1:B:722:ARG:HA	1:B:756:LYS:O	2.18	0.44
1:B:749:LEU:HD23	1:B:749:LEU:HA	1.81	0.44
1:A:459:PHE:CD2	1:A:461:PRO:HD3	2.53	0.44
1:A:667:MET:HE2	1:A:704:LEU:CD2	2.30	0.44
1:A:718:GLN:O	1:A:719:LEU:C	2.59	0.43
1:B:716:ILE:HB	1:B:717:PRO:HD3	1.98	0.43
1:A:77:LEU:HD11	1:A:268:THR:HA	2.00	0.43
1:B:829:LEU:HD23	1:B:829:LEU:HA	1.80	0.43
1:A:838:ARG:O	1:A:839:ARG:HD2	2.18	0.43
1:A:257:VAL:HG23	1:A:438:ALA:HB2	2.00	0.43
1:A:627:MET:HE1	1:A:649:MET:HE3	2.01	0.43
1:A:722:ARG:HH11	1:A:722:ARG:CG	2.30	0.43
1:A:795:TYR:CE1	1:A:953:LYS:HD2	2.53	0.43
1:B:42:MET:HE3	1:B:42:MET:HB2	1.93	0.43
1:A:392:LEU:O	1:A:396:GLN:HG3	2.18	0.43
1:A:611:ALA:HB1	1:A:616:LEU:HB3	2.01	0.43
1:A:706:ASP:OD2	1:B:722:ARG:NH2	2.51	0.43
1:A:716:ILE:HB	1:A:717:PRO:HD3	2.00	0.43
1:A:988:GLN:HA	1:A:989:PRO:HD2	1.78	0.43
1:B:90:LEU:C	1:B:90:LEU:HD23	2.43	0.43
1:B:311:ARG:NH1	1:B:381:GLU:HA	2.34	0.43
1:B:882:PHE:CD1	1:B:933:LYS:HB3	2.54	0.43
1:A:552:LYS:HB3	1:A:559:LEU:HB3	2.01	0.43
1:A:251:SER:OG	1:A:280:ASN:HB2	2.20	0.42
1:A:548:PRO:HA	1:A:562:LYS:HB2	2.02	0.42
1:B:293:PHE:CE2	1:B:372:PHE:HE2	2.37	0.42
1:B:600:LEU:HD11	1:B:649:MET:HA	2.00	0.42
1:A:604:LEU:HD23	1:A:604:LEU:HA	1.77	0.42
1:A:190:HIS:O	1:A:194:VAL:HG23	2.19	0.42
1:A:293:PHE:CE2	1:A:372:PHE:HE2	2.38	0.42
1:A:311:ARG:HH22	1:A:664:GLU:CD	2.27	0.42
1:A:722:ARG:HB3	1:A:758:LEU:HD21	2.00	0.42
1:B:689:LEU:CD2	1:B:995:MET:HG2	2.49	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:788:ASN:C	1:B:960:ALA:HB2	2.43	0.42
1:B:855:PRO:HA	1:B:963:MET:HE1	2.01	0.42
1:A:776:TRP:CH2	1:A:989:PRO:HG3	2.54	0.42
1:A:882:PHE:CE2	1:A:886:ILE:HD11	2.54	0.42
1:B:245:HIS:O	1:B:249:TYR:HB2	2.19	0.42
1:B:881:ALA:O	1:B:884:LYS:HB3	2.20	0.42
1:B:872:LYS:HD2	1:B:872:LYS:HA	1.61	0.42
1:A:708:THR:CB	1:A:710:PRO:HD2	2.49	0.42
1:A:822:THR:O	1:A:827:GLU:HG3	2.20	0.42
1:A:959:LEU:CB	1:A:963:MET:HE2	2.49	0.42
1:B:417:LEU:HD23	1:B:417:LEU:HA	1.88	0.42
1:B:583:ALA:CB	1:B:626:GLY:HA2	2.49	0.42
1:A:415:LYS:HE3	1:A:457:GLU:O	2.20	0.42
1:A:684:TYR:CE2	1:A:688:LEU:HD12	2.53	0.42
1:A:776:TRP:CZ3	1:A:989:PRO:CD	2.93	0.42
1:B:618:TYR:HA	1:B:630:SER:O	2.20	0.42
1:A:66:GLY:O	1:A:67:LEU:HB3	2.19	0.42
1:A:236:ASP:CG	1:A:239:GLN:HG2	2.44	0.42
1:A:311:ARG:HA	1:A:481:VAL:O	2.20	0.42
1:B:776:TRP:HA	1:B:953:LYS:O	2.19	0.42
1:A:103:ILE:HD11	1:A:235:ILE:HG21	2.02	0.41
1:A:213:HIS:ND1	1:A:214:PRO:CD	2.81	0.41
1:B:77:LEU:HD22	1:B:267:LEU:HB3	2.02	0.41
1:B:654:ILE:HD13	1:B:712:LEU:HD23	2.01	0.41
1:A:114:LEU:HD23	1:A:168:PHE:HB3	2.01	0.41
1:A:557:SER:HA	1:A:725:ILE:O	2.20	0.41
1:A:1009:LYS:HG2	1:A:1010:PRO:O	2.21	0.41
1:B:562:LYS:O	1:B:730:HIS:HA	2.20	0.41
1:A:711:ARG:HA	1:A:711:ARG:HD2	1.79	0.41
1:B:557:SER:HA	1:B:725:ILE:O	2.19	0.41
1:A:172:PRO:HG2	1:A:174:PHE:CE2	2.56	0.41
1:A:542:LYS:HA	1:A:542:LYS:HD2	1.59	0.41
1:B:281:LYS:O	1:B:282:ASN:C	2.64	0.41
1:A:188:SER:OG	1:A:831:TYR:N	2.53	0.41
1:A:429:ARG:O	1:A:430:PRO:C	2.61	0.41
1:A:852:SER:HB3	1:A:859:LEU:HD11	2.01	0.41
1:A:894:LEU:HG	1:A:925:VAL:HG21	2.03	0.41
1:B:560:TRP:CZ2	1:B:916:TYR:CD1	3.09	0.41
1:B:779:TYR:CZ	1:B:995:MET:HE3	2.56	0.41
1:A:597:LEU:HD12	1:A:622:ASN:N	2.35	0.41
1:A:67:LEU:HD21	1:A:268:THR:HG23	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:677:GLN:HG2	1:A:786:HIS:CE1	2.57	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	953/990 (96%)	916 (96%)	37 (4%)	0	100	100
1	B	956/990 (97%)	929 (97%)	27 (3%)	0	100	100
All	All	1909/1980 (96%)	1845 (97%)	64 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	853/879 (97%)	846 (99%)	7 (1%)	73	90
1	B	855/879 (97%)	842 (98%)	13 (2%)	57	84
All	All	1708/1758 (97%)	1688 (99%)	20 (1%)	63	87

All (20) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	232	GLN
1	A	429	ARG
1	A	702	GLU
1	A	765	ARG
1	A	824	ARG
1	A	990	GLU
1	A	1000	ARG
1	B	111	GLU
1	B	243	LYS
1	B	311	ARG
1	B	412	GLN
1	B	429	ARG
1	B	465	GLU
1	B	529	GLU
1	B	542	LYS
1	B	621	GLN
1	B	648	LYS
1	B	774	ARG
1	B	824	ARG
1	B	1009	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	203	GLN
1	A	329	ASN
1	A	363	GLN
1	A	376	ASN
1	A	499	GLN
1	A	573	ASN
1	A	671	ASN
1	A	718	GLN
1	A	724	HIS
1	A	743	GLN
1	A	857	HIS
1	B	53	HIS
1	B	167	GLN
1	B	184	ASN
1	B	376	ASN
1	B	515	ASN
1	B	786	HIS
1	B	787	ASN
1	B	993	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 12 ligands modelled in this entry, 2 are monoatomic - leaving 10 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	VQG	A	1102	2	37,38,38	2.68	7 (18%)	47,53,53	1.12	5 (10%)
5	EPE	A	1106	-	15,15,15	1.00	1 (6%)	19,20,20	2.02	5 (26%)
4	DIO	A	1105	-	6,6,6	0.75	0	6,6,6	0.67	0
4	DIO	B	1104	-	6,6,6	0.75	0	6,6,6	1.33	2 (33%)
4	DIO	A	1104	-	6,6,6	0.72	0	6,6,6	1.52	1 (16%)
4	DIO	A	1103	-	6,6,6	0.71	0	6,6,6	0.70	0
5	EPE	B	1106	-	15,15,15	1.07	1 (6%)	19,20,20	1.85	4 (21%)
4	DIO	B	1103	-	6,6,6	0.72	0	6,6,6	0.65	0
4	DIO	B	1105	-	6,6,6	0.72	0	6,6,6	0.73	0
3	VQG	B	1102	2	37,38,38	3.43	7 (18%)	47,53,53	2.21	11 (23%)

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	VQG	A	1102	2	-	2/25/33/33	0/4/4/4
5	EPE	A	1106	-	-	6/9/19/19	0/1/1/1
4	DIO	A	1105	-	-	-	0/1/1/1
4	DIO	B	1104	-	-	-	0/1/1/1
4	DIO	A	1104	-	-	-	0/1/1/1
4	DIO	A	1103	-	-	-	0/1/1/1
5	EPE	B	1106	-	-	6/9/19/19	0/1/1/1
4	DIO	B	1103	-	-	-	0/1/1/1
4	DIO	B	1105	-	-	-	0/1/1/1
3	VQG	B	1102	2	-	3/25/33/33	0/4/4/4

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	1102	VQG	C03-N02	17.80	1.51	1.32
3	A	1102	VQG	C03-N02	11.90	1.45	1.32
3	B	1102	VQG	C18-C19	6.01	1.45	1.36
3	A	1102	VQG	C18-C19	5.71	1.44	1.36
3	B	1102	VQG	C22-N21	5.27	1.46	1.34
3	A	1102	VQG	C22-N21	5.03	1.45	1.34
3	A	1102	VQG	C10-C09	4.30	1.58	1.51
3	B	1102	VQG	C10-C09	4.05	1.58	1.51
5	B	1106	EPE	C10-S	3.40	1.82	1.77
3	A	1102	VQG	N17-N34	-3.25	1.31	1.35
5	A	1106	EPE	C10-S	3.23	1.82	1.77
3	B	1102	VQG	N17-N34	-2.67	1.31	1.35
3	B	1102	VQG	C19-N33	-2.47	1.32	1.36
3	B	1102	VQG	O35-C03	-2.41	1.18	1.23
3	A	1102	VQG	O35-C03	-2.34	1.18	1.23
3	A	1102	VQG	C19-N33	-2.31	1.32	1.36

All (28) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	1102	VQG	O35-C03-C04	-7.68	110.31	121.54
3	B	1102	VQG	C04-C03-N02	6.80	125.45	115.14
5	A	1106	EPE	C5-N4-C3	5.22	120.09	108.84
3	B	1102	VQG	O01-N02-C03	-5.01	112.39	119.79
3	B	1102	VQG	N17-N34-N33	4.81	111.16	107.09
5	B	1106	EPE	C5-N4-C3	4.77	119.12	108.84
5	A	1106	EPE	C6-N1-C2	4.20	117.89	108.84
5	A	1106	EPE	C7-N4-C5	3.31	120.06	111.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	B	1106	EPE	O2S-S-C10	3.19	111.55	106.73
5	A	1106	EPE	C7-N4-C3	2.89	118.93	111.24
4	A	1104	DIO	C2'-O1'-C1'	2.87	119.16	109.88
3	B	1102	VQG	C16-C15-C14	-2.85	117.66	121.39
5	B	1106	EPE	C7-N4-C3	2.71	118.47	111.24
3	B	1102	VQG	C09-C08-C07	-2.67	117.58	121.76
3	A	1102	VQG	C05-N17-N34	2.65	124.54	120.94
3	A	1102	VQG	C04-C03-N02	2.54	118.98	115.14
3	B	1102	VQG	C20-N21-C22	-2.54	115.40	121.31
5	A	1106	EPE	O1S-S-C10	2.50	110.50	106.73
3	B	1102	VQG	C24-C23-C30	2.45	122.08	119.25
3	A	1102	VQG	C18-C19-N33	-2.40	105.22	107.80
3	A	1102	VQG	N17-N34-N33	2.38	109.10	107.09
3	B	1102	VQG	C16-C07-C08	2.29	121.71	118.55
3	B	1102	VQG	C32-C20-N21	2.28	114.56	110.38
4	B	1104	DIO	C2-O1-C1	2.17	116.91	109.88
4	B	1104	DIO	O1-C1-C1'	2.17	121.23	110.93
5	B	1106	EPE	O1S-S-C10	2.15	109.98	106.73
3	B	1102	VQG	C25-C24-C23	-2.02	118.64	120.80
3	A	1102	VQG	C05-N17-C18	-2.02	125.42	128.77

There are no chirality outliers.

All (17) torsion outliers are listed below:

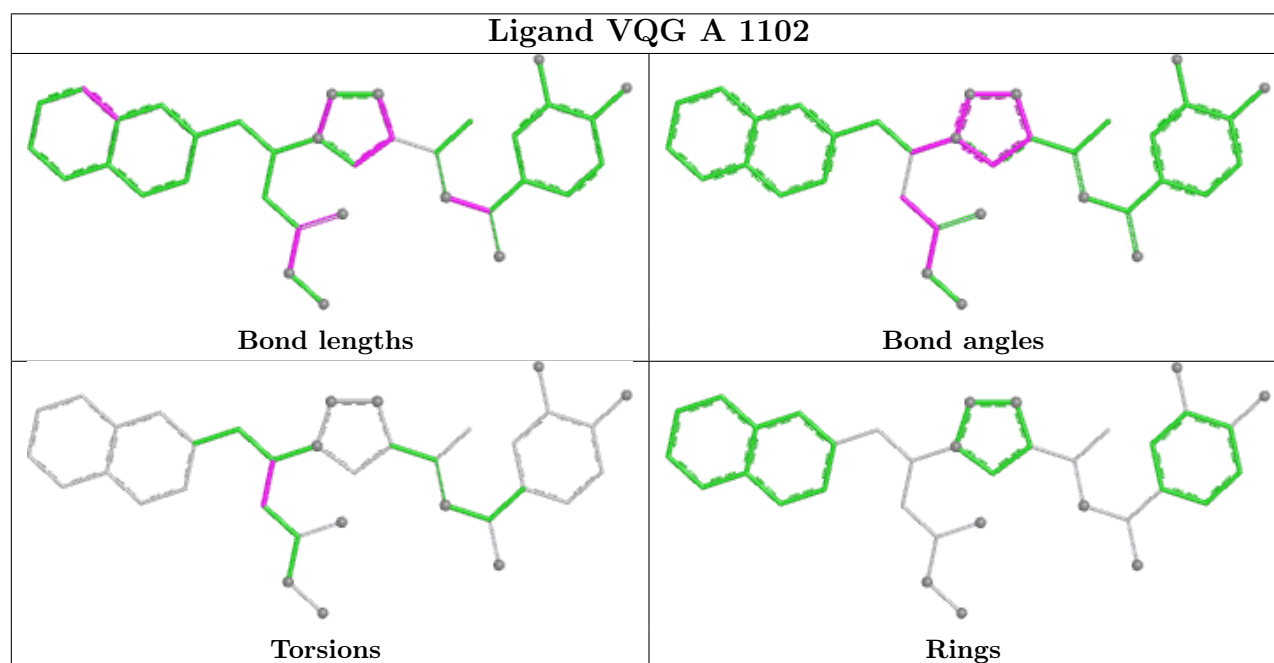
Mol	Chain	Res	Type	Atoms
3	A	1102	VQG	C03-C04-C05-C06
3	A	1102	VQG	C03-C04-C05-N17
3	B	1102	VQG	C03-C04-C05-C06
3	B	1102	VQG	C03-C04-C05-N17
5	A	1106	EPE	C9-C10-S-O2S
5	A	1106	EPE	C9-C10-S-O3S
5	B	1106	EPE	C9-C10-S-O2S
5	B	1106	EPE	C9-C10-S-O3S
5	A	1106	EPE	C10-C9-N1-C2
5	A	1106	EPE	C10-C9-N1-C6
5	B	1106	EPE	C10-C9-N1-C2
5	B	1106	EPE	C10-C9-N1-C6
5	A	1106	EPE	C9-C10-S-O1S
5	B	1106	EPE	C9-C10-S-O1S
5	B	1106	EPE	C8-C7-N4-C3
3	B	1102	VQG	N33-C19-C20-N21
5	A	1106	EPE	C8-C7-N4-C5

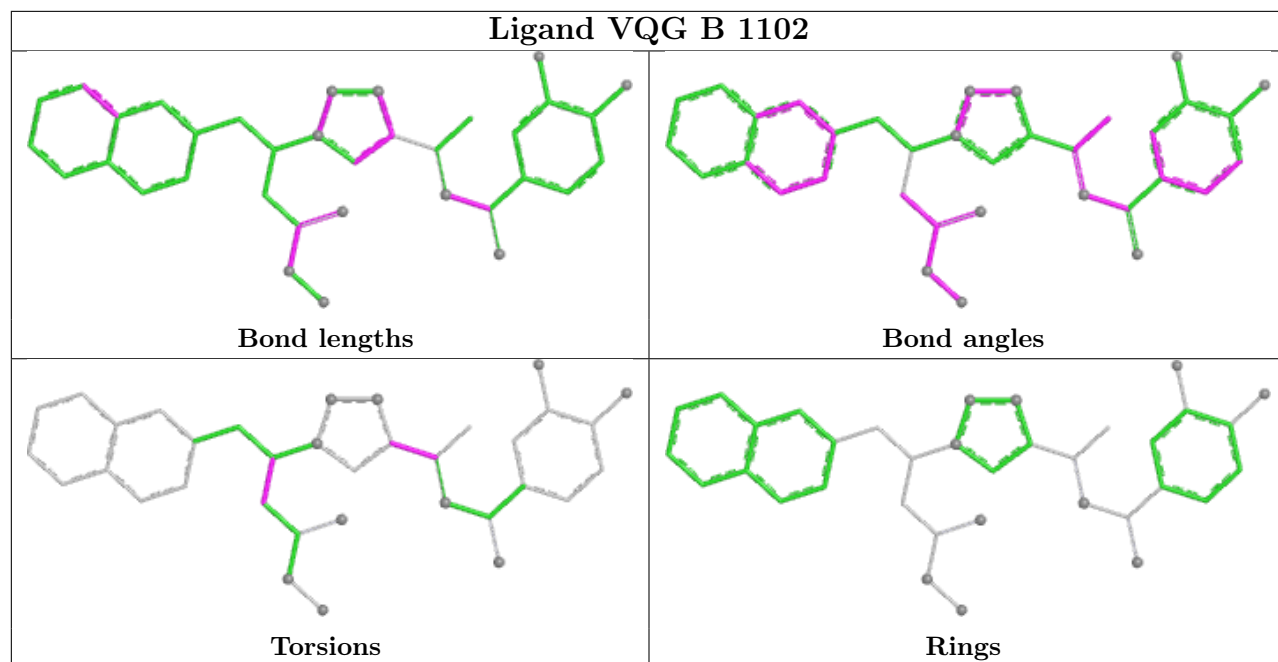
There are no ring outliers.

3 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	1106	EPE	1	0
4	B	1104	DIO	1	0
4	A	1104	DIO	2	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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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	957/990 (96%)	-0.71	6 (0%)	85 80	27, 43, 65, 100	0
1	B	960/990 (96%)	-0.88	3 (0%)	90 86	20, 35, 60, 109	0
All	All	1917/1980 (96%)	-0.79	9 (0%)	87 82	20, 39, 63, 109	0

All (9) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	1012	ILE	6.4
1	A	965	SER	3.7
1	B	965	SER	3.4
1	B	703	ALA	3.3
1	A	688	LEU	2.8
1	B	542	LYS	2.6
1	A	722	ARG	2.4
1	A	689	LEU	2.3
1	A	366	GLY	2.0

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

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,

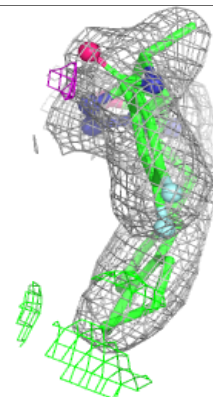
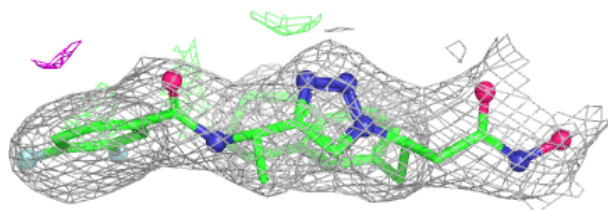
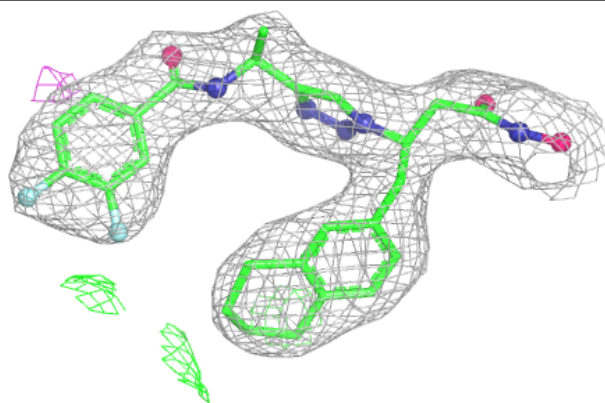
median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

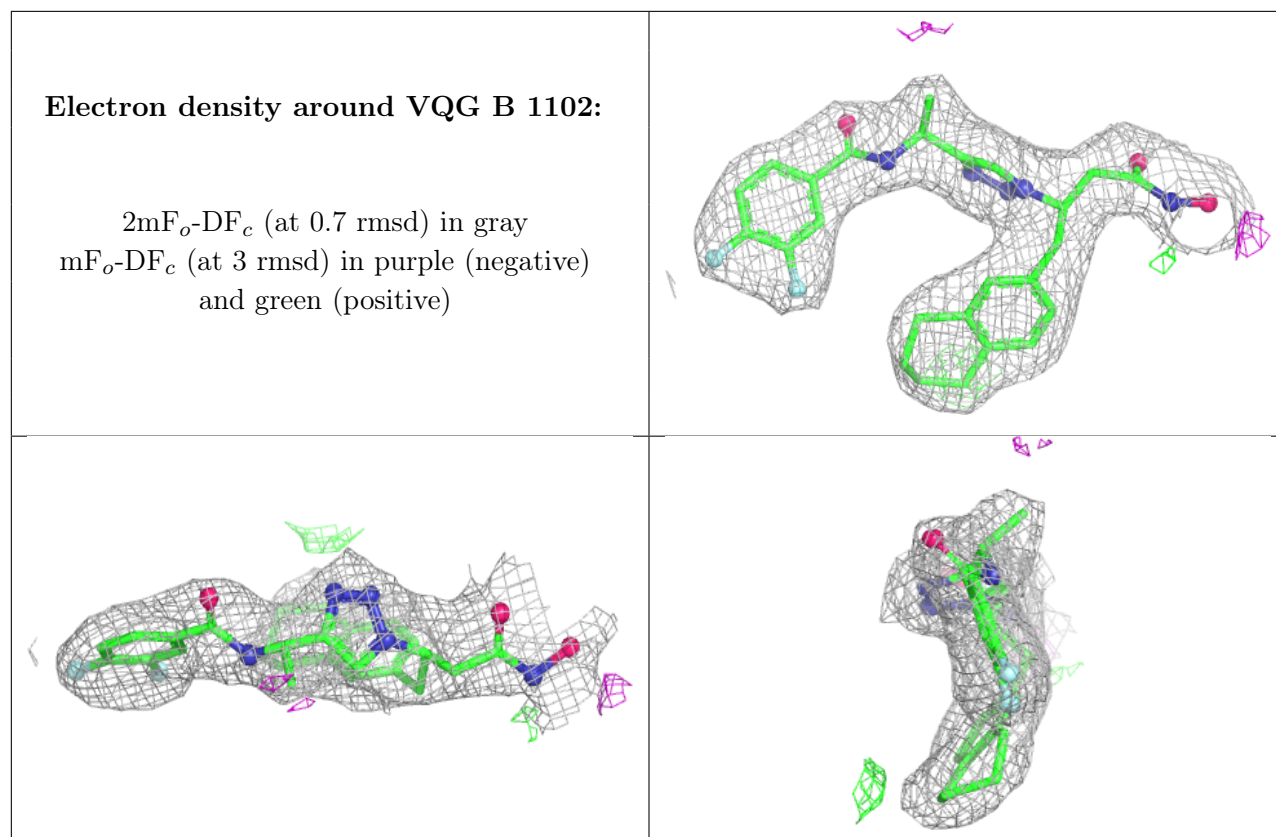
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
5	EPE	B	1106	15/15	0.87	0.16	65,96,115,117	0
5	EPE	A	1106	15/15	0.88	0.16	67,108,126,129	0
4	DIO	B	1104	6/6	0.88	0.22	41,82,123,123	0
4	DIO	A	1104	6/6	0.89	0.19	61,87,121,121	0
4	DIO	A	1105	6/6	0.93	0.14	60,82,132,132	0
4	DIO	A	1103	6/6	0.94	0.14	55,72,100,100	0
4	DIO	B	1105	6/6	0.95	0.11	46,61,97,97	0
3	VQG	A	1102	35/35	0.97	0.07	23,41,52,64	0
3	VQG	B	1102	35/35	0.98	0.06	19,35,51,69	0
4	DIO	B	1103	6/6	0.98	0.08	52,69,90,90	0
2	ZN	A	1101	1/1	1.00	0.01	42,42,42,42	0
2	ZN	B	1101	1/1	1.00	0.02	39,39,39,39	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 VQG A 1102:

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.