



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 09:17 AM UTC

PDB ID : 2VGN / pdb_00002vgn
Title : Structure of *S. cerevisiae* Dom34, a translation termination-like factor involved in RNA quality control pathways and interacting with Hbs1 (SelenoMet-labeled protein)
Authors : Graille, M.; Chaillet, M.; Van Tilbeurgh, H.
Deposited on : 2007-11-14
Resolution : 2.50 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
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

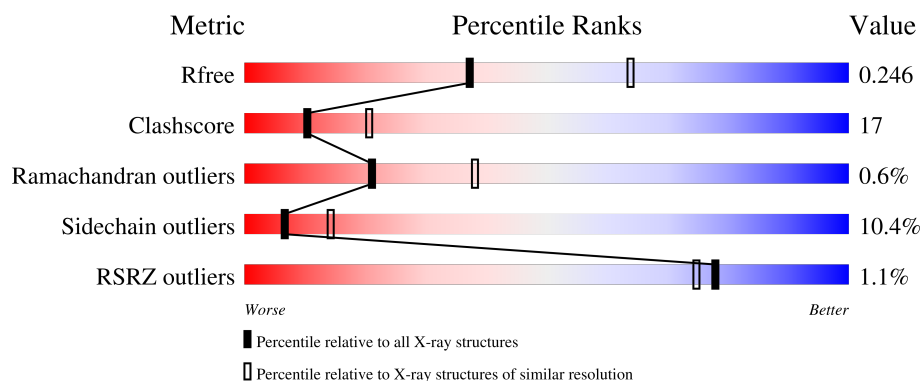
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.50 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	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	5829 (2.50-2.50)
Clashscore	190562	6492 (2.50-2.50)
Ramachandran outliers	187476	6378 (2.50-2.50)
Sidechain outliers	187428	6380 (2.50-2.50)
RSRZ outliers	180081	5833 (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 $\leq 5\%$. 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	386	
1	B	386	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	GOL	B	1383	-	-	X	-

2 Entry composition [i](#)

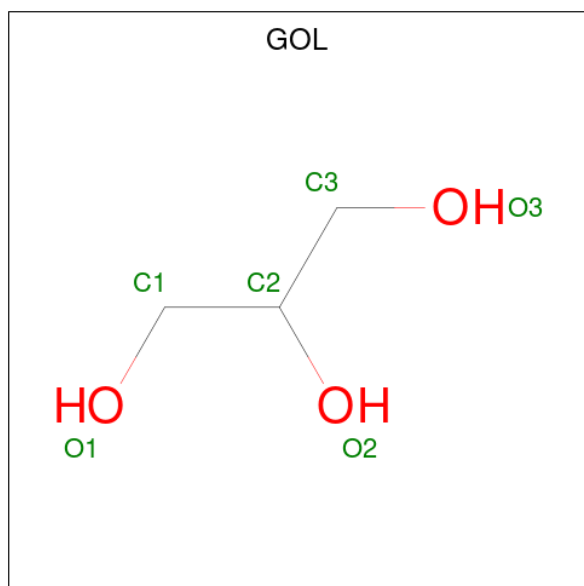
There are 4 unique types of molecules in this entry. The entry contains 6005 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 DOM34.

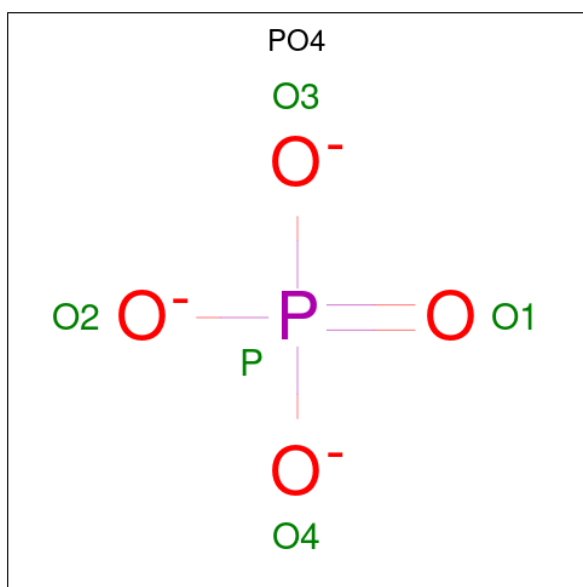
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	360	Total	C	N	O	S	Se	0	0	0
			2897	1877	447	559	5	9			
1	B	356	Total	C	N	O	S	Se	0	0	0
			2863	1857	442	550	5	9			

- Molecule 2 is GLYCEROL (CCD ID: GOL) (formula: C₃H₈O₃).



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

- Molecule 3 is PHOSPHATE ION (CCD ID: PO4) (formula: O₄P).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	B	1	Total	O	P	0	0
			5	4	1		

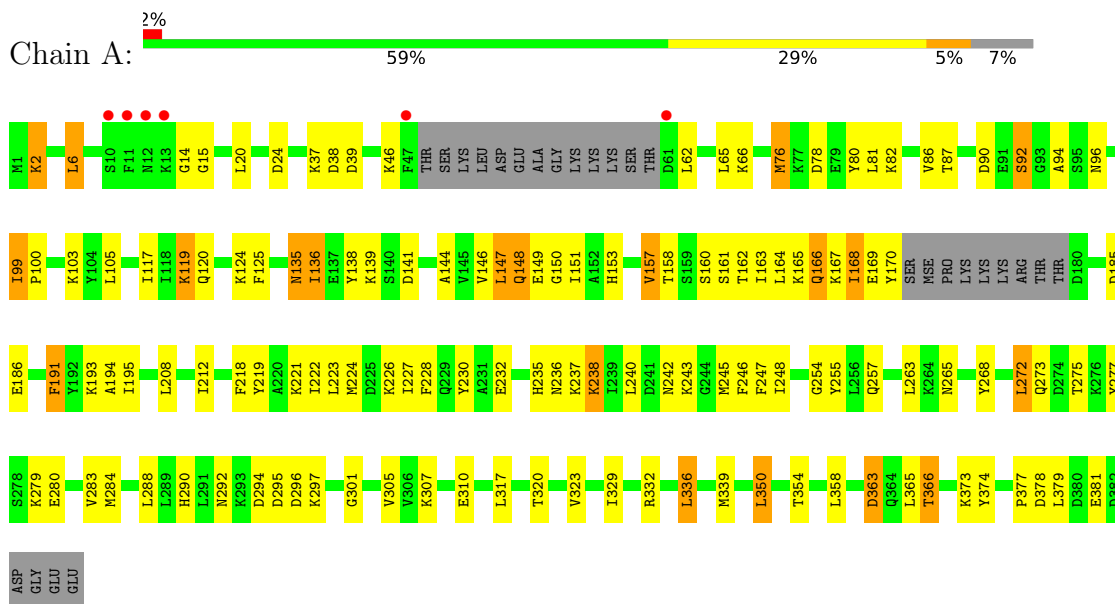
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	95	Total	O	0	0
			95	95		
4	B	133	Total	O	0	0
			133	133		

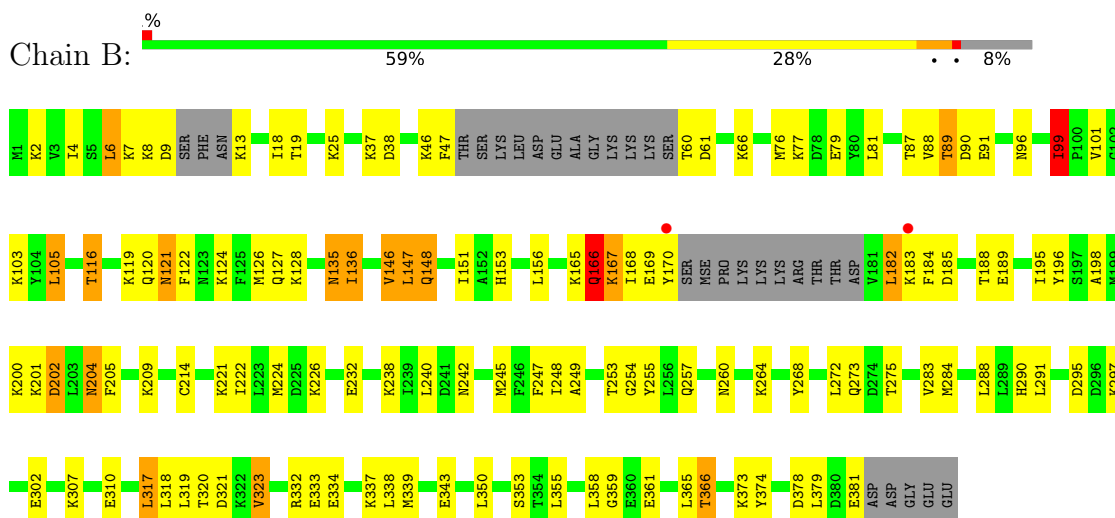
3 Residue-property plots [i](#)

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

• Molecule 1: DOM34



• Molecule 1: DOM34



4 Data and refinement statistics

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, α , β , γ	75.64Å 75.64Å 324.51Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	13.98 – 2.50 13.98 – 2.50	Depositor EDS
% Data completeness (in resolution range)	96.4 (13.98-2.50) 96.5 (13.98-2.50)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.28 (at 2.51Å)	Xtriage
Refinement program	CNS	Depositor
R, R_{free}	0.210 , 0.251 0.208 , 0.246	Depositor DCC
R_{free} test set	1864 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å ²)	32.4	Xtriage
Anisotropy	0.461	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 41.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtriage
Estimated twinning fraction	0.044 for -h,-k,l	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	6005	wwPDB-VP
Average B, all atoms (Å ²)	35.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 9.28% 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: PO4, GOL

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	0.58	0/2938	0.93	5/3937 (0.1%)
1	B	0.66	1/2902 (0.0%)	0.93	0/3887
All	All	0.62	1/5840 (0.0%)	0.93	5/7824 (0.1%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	99	ILE	CA-CB	5.56	1.61	1.54

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	148	GLN	N-CA-C	-6.08	100.29	108.86
1	A	265	ASN	CA-C-N	5.66	125.33	119.56
1	A	265	ASN	C-N-CA	5.66	125.33	119.56
1	A	350	LEU	N-CA-C	5.43	118.08	109.50
1	A	163	ILE	CB-CA-C	-5.15	104.84	111.53

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	2897	0	2944	99	0
1	B	2863	0	2922	102	0
2	B	12	0	16	7	0
3	B	5	0	0	0	0
4	A	95	0	0	2	0
4	B	133	0	0	9	0
All	All	6005	0	5882	198	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 17.

All (198) 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:87:THR:HG21	1:A:99:ILE:HD11	1.19	1.13
1:B:89:THR:HB	2:B:1382:GOL:H12	1.42	1.00
1:A:135:ASN:HD22	1:A:135:ASN:C	1.74	0.95
1:A:147:LEU:HD21	1:A:223:LEU:HD23	1.46	0.94
1:B:121:ASN:HB3	4:B:2065:HOH:O	1.71	0.89
1:B:13:LYS:HA	4:B:2008:HOH:O	1.73	0.87
1:B:25:LYS:HB3	1:B:79:GLU:HG2	1.57	0.86
1:B:88:VAL:HB	2:B:1382:GOL:H2	1.54	0.86
1:A:290:HIS:ND1	1:A:295:ASP:OD1	2.12	0.83
1:A:39:ASP:OD1	1:A:119:LYS:HE2	1.78	0.83
1:A:125:PHE:HB2	1:A:336:LEU:HD21	1.62	0.82
1:B:121:ASN:HD22	1:B:121:ASN:H	1.25	0.82
1:A:228:PHE:CZ	1:A:243:LYS:HG2	2.14	0.82
1:B:128:LYS:NZ	2:B:1383:GOL:H12	1.92	0.82
1:B:321:ASP:OD2	1:B:353:SER:HA	1.81	0.81
1:A:90:ASP:OD2	1:A:92:SER:HB2	1.79	0.80
1:A:247:PHE:HZ	1:A:268:TYR:CD1	2.00	0.78
1:A:224:MSE:HG2	1:A:248:ILE:HD11	1.66	0.77
1:B:378:ASP:HB3	1:B:381:GLU:HG2	1.65	0.77
1:B:128:LYS:HZ2	2:B:1383:GOL:H12	1.50	0.75
1:B:46:LYS:O	1:B:47:PHE:HB2	1.85	0.75
1:A:87:THR:HG21	1:A:99:ILE:CD1	2.08	0.75
1:B:185:ASP:HB3	1:B:188:THR:H	1.53	0.74
1:A:336:LEU:HD23	1:A:339:MSE:HE2	1.70	0.74
1:A:147:LEU:HD21	1:A:223:LEU:CD2	2.18	0.73
1:A:65:LEU:HD13	1:A:105:LEU:HD21	1.69	0.73
1:B:66:LYS:H	1:B:96:ASN:HD21	1.37	0.73
1:B:339:MSE:O	1:B:343:GLU:HG3	1.90	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:353:SER:O	1:B:359:GLY:HA3	1.92	0.70
1:B:355:LEU:HD12	4:B:2124:HOH:O	1.91	0.70
1:A:87:THR:CG2	1:A:99:ILE:HD11	2.11	0.69
1:B:147:LEU:HD12	1:B:147:LEU:N	2.08	0.69
1:B:253:THR:HG22	1:B:255:TYR:H	1.57	0.69
1:B:146:VAL:HG13	1:B:214:CYS:SG	2.34	0.68
1:B:151:ILE:HD13	1:B:255:TYR:CE2	2.28	0.67
1:A:284:MSE:HG3	1:A:358:LEU:HD22	1.77	0.67
1:A:6:LEU:HD12	1:A:6:LEU:C	2.20	0.67
1:A:135:ASN:C	1:A:135:ASN:ND2	2.48	0.66
1:B:166:GLN:HG2	1:B:198:ALA:HB1	1.78	0.66
1:B:121:ASN:HD22	1:B:121:ASN:N	1.91	0.66
1:B:169:GLU:O	1:B:170:TYR:HD2	1.77	0.66
1:A:242:ASN:OD1	1:A:279:LYS:HE3	1.94	0.66
1:B:302:GLU:OE1	1:B:334:GLU:OE1	2.15	0.65
1:B:284:MSE:HG3	1:B:358:LEU:HD22	1.78	0.65
1:A:148:GLN:HB2	1:A:254:GLY:HA3	1.79	0.65
1:A:168:ILE:HD12	1:A:195:ILE:HA	1.78	0.65
1:B:204:ASN:C	1:B:204:ASN:HD22	2.06	0.64
1:A:221:LYS:HG3	4:A:2064:HOH:O	1.98	0.63
1:A:222:ILE:O	1:A:226:LYS:HG2	1.99	0.62
1:A:150:GLY:HA2	1:A:170:TYR:CD2	2.34	0.62
1:A:24:ASP:OD2	1:A:139:LYS:HE3	2.01	0.61
1:A:186:GLU:HA	1:A:186:GLU:OE2	2.01	0.60
1:A:147:LEU:HD11	1:A:223:LEU:HD22	1.83	0.60
1:B:99:ILE:HD13	1:B:103:LYS:HD3	1.83	0.60
1:A:336:LEU:HD23	1:A:339:MSE:CE	2.31	0.60
1:A:365:LEU:C	1:A:366:THR:HG23	2.27	0.60
1:A:365:LEU:HD21	1:B:182:LEU:HD12	1.84	0.60
1:B:128:LYS:HZ1	2:B:1383:GOL:H12	1.68	0.59
1:B:153:HIS:CD2	1:B:254:GLY:O	2.56	0.58
1:A:247:PHE:CZ	1:A:268:TYR:CD1	2.89	0.58
1:B:153:HIS:HD2	1:B:254:GLY:O	1.86	0.58
1:B:90:ASP:HB3	4:B:2051:HOH:O	2.04	0.58
1:A:224:MSE:CG	1:A:248:ILE:HD11	2.33	0.57
1:B:169:GLU:O	1:B:170:TYR:CD2	2.57	0.57
1:A:307:LYS:O	1:A:310:GLU:HB2	2.04	0.57
1:B:222:ILE:O	1:B:226:LYS:HG2	2.04	0.56
1:A:150:GLY:HA2	1:A:170:TYR:CE2	2.40	0.56
1:A:117:ILE:HG22	1:A:119:LYS:HG2	1.87	0.56
1:B:119:LYS:HE3	1:B:126:MSE:SE	2.56	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:136:ILE:HG23	4:B:2011:HOH:O	2.06	0.55
1:B:201:LYS:HE3	1:B:202:ASP:OD2	2.06	0.55
1:A:46:LYS:HB3	1:A:62:LEU:HD23	1.88	0.55
1:A:242:ASN:O	1:A:245:MSE:HG2	2.07	0.55
1:B:365:LEU:C	1:B:366:THR:HG23	2.32	0.55
1:B:119:LYS:HD3	1:B:122:PHE:HB2	1.88	0.54
1:B:224:MSE:HG2	1:B:248:ILE:HD11	1.89	0.54
1:B:148:GLN:HB2	1:B:254:GLY:HA3	1.89	0.54
1:A:235:HIS:O	1:A:237:LYS:HG3	2.09	0.53
1:A:247:PHE:HB2	1:A:275:THR:HG21	1.91	0.53
1:A:301:GLY:O	1:A:305:VAL:HG23	2.09	0.52
1:B:350:LEU:HA	2:B:1383:GOL:H31	1.91	0.52
1:A:224:MSE:CB	1:A:248:ILE:HD11	2.40	0.52
1:A:165:LYS:O	1:A:166:GLN:HB2	2.09	0.52
1:B:9:ASP:HB3	4:B:2006:HOH:O	2.09	0.52
1:A:135:ASN:HD22	1:A:136:ILE:N	2.07	0.52
1:A:224:MSE:HE3	1:A:228:PHE:HE2	1.74	0.52
1:B:307:LYS:O	1:B:310:GLU:HB2	2.10	0.52
1:A:329:ILE:HA	1:A:332:ARG:HG2	1.91	0.51
1:B:6:LEU:HD12	1:B:7:LYS:N	2.25	0.51
1:B:260:ASN:O	1:B:264:LYS:HG3	2.09	0.51
1:A:66:LYS:H	1:A:96:ASN:HD21	1.59	0.51
1:B:184:PHE:CE1	1:B:189:GLU:HG3	2.46	0.50
1:B:253:THR:HG21	1:B:255:TYR:HB2	1.93	0.50
1:A:37:LYS:O	1:A:38:ASP:HB2	2.12	0.50
1:B:148:GLN:CD	1:B:254:GLY:H	2.19	0.50
1:A:149:GLU:HB3	1:A:219:TYR:CZ	2.46	0.50
1:B:121:ASN:N	1:B:121:ASN:ND2	2.60	0.49
1:B:224:MSE:CG	1:B:248:ILE:HD11	2.42	0.49
1:B:37:LYS:O	1:B:38:ASP:HB2	2.12	0.49
1:A:218:PHE:CZ	1:B:361:GLU:HG2	2.48	0.49
1:B:253:THR:HG22	1:B:255:TYR:N	2.27	0.49
1:B:317:LEU:HD13	1:B:319:LEU:HD11	1.93	0.49
1:B:242:ASN:O	1:B:245:MSE:HG2	2.12	0.49
1:B:87:THR:HG21	1:B:99:ILE:HD11	1.95	0.49
1:B:136:ILE:HG13	4:B:2075:HOH:O	2.12	0.48
1:A:247:PHE:HZ	1:A:268:TYR:HD1	1.57	0.48
1:A:279:LYS:O	1:A:283:VAL:HG23	2.13	0.48
1:A:149:GLU:HB3	1:A:219:TYR:CE2	2.49	0.48
1:A:185:ASP:OD2	1:A:186:GLU:N	2.47	0.48
1:B:88:VAL:CB	2:B:1382:GOL:H2	2.35	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:125:PHE:HB2	1:A:336:LEU:CD2	2.40	0.47
1:B:19:THR:OG1	1:B:116:THR:HB	2.14	0.47
1:B:7:LYS:HD2	4:B:2004:HOH:O	2.14	0.47
1:A:228:PHE:CE1	1:A:243:LYS:HG2	2.49	0.47
1:B:66:LYS:H	1:B:96:ASN:ND2	2.07	0.47
1:B:147:LEU:N	1:B:147:LEU:CD1	2.78	0.47
1:B:135:ASN:HD22	1:B:135:ASN:C	2.23	0.46
1:A:320:THR:HG21	1:A:363:ASP:OD1	2.14	0.46
1:B:249:ALA:HB1	1:B:268:TYR:CE2	2.50	0.46
1:A:76:MSE:HE3	4:A:2011:HOH:O	2.15	0.46
1:A:257:GLN:H	1:A:257:GLN:CD	2.23	0.46
1:A:242:ASN:HB2	1:A:245:MSE:HE2	1.97	0.46
1:B:6:LEU:HD22	1:B:18:ILE:HG12	1.98	0.46
1:B:247:PHE:HZ	1:B:268:TYR:CD1	2.34	0.46
1:A:157:VAL:HG11	1:A:263:LEU:HD11	1.98	0.46
1:A:238:LYS:NZ	1:A:238:LYS:HB3	2.30	0.45
1:A:6:LEU:C	1:A:6:LEU:CD1	2.89	0.45
1:A:295:ASP:O	1:A:296:ASP:HB2	2.16	0.45
1:B:333:GLU:O	1:B:337:LYS:HG3	2.17	0.45
1:A:141:ASP:C	1:A:208:LEU:HD23	2.41	0.45
1:B:247:PHE:HB2	1:B:275:THR:HG21	1.99	0.45
1:A:223:LEU:O	1:A:227:ILE:HG13	2.16	0.45
1:A:144:ALA:HA	1:A:212:ILE:O	2.16	0.45
1:A:232:GLU:HA	1:A:240:LEU:HD11	1.97	0.45
1:A:307:LYS:HB3	1:A:379:LEU:HD22	1.98	0.45
1:A:236:ASN:OD1	1:A:236:ASN:C	2.60	0.45
1:B:253:THR:CG2	1:B:255:TYR:HD1	2.30	0.45
1:A:92:SER:HB3	1:A:94:ALA:H	1.81	0.45
1:A:149:GLU:HB3	1:A:219:TYR:OH	2.17	0.45
1:B:8:LYS:HE2	1:B:127:GLN:OE1	2.15	0.45
1:B:147:LEU:HD12	1:B:147:LEU:H	1.82	0.45
1:A:80:TYR:OH	1:A:82:LYS:HE3	2.17	0.45
1:A:280:GLU:HG3	1:A:350:LEU:HD12	1.99	0.44
1:B:283:VAL:CG1	1:B:318:LEU:HD21	2.47	0.44
1:A:2:LYS:HE2	1:A:2:LYS:HB2	1.87	0.44
1:B:295:ASP:HB3	1:B:297:LYS:H	1.83	0.44
1:B:6:LEU:HD12	1:B:6:LEU:C	2.43	0.44
1:B:307:LYS:HB3	1:B:379:LEU:HD22	1.99	0.44
1:B:120:GLN:HG2	4:B:2064:HOH:O	2.17	0.44
1:B:196:TYR:CE2	1:B:200:LYS:HE2	2.53	0.44
1:B:253:THR:CG2	1:B:255:TYR:H	2.28	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:151:ILE:HD13	1:A:255:TYR:CE2	2.53	0.44
1:A:224:MSE:HE1	1:A:246:PHE:HB2	2.00	0.43
1:B:283:VAL:HG11	1:B:318:LEU:HD21	1.99	0.43
1:B:136:ILE:H	1:B:136:ILE:HG12	1.52	0.43
1:B:214:CYS:HA	1:B:249:ALA:O	2.17	0.43
1:A:377:PRO:HB2	1:A:378:ASP:OD2	2.18	0.43
1:A:193:LYS:HG2	1:A:230:TYR:CZ	2.54	0.43
1:B:290:HIS:ND1	1:B:295:ASP:OD1	2.28	0.43
1:A:191:PHE:O	1:A:194:ALA:N	2.48	0.43
1:B:204:ASN:C	1:B:204:ASN:ND2	2.76	0.43
1:A:277:TYR:HA	1:A:280:GLU:OE1	2.19	0.42
1:B:224:MSE:CB	1:B:248:ILE:HD11	2.49	0.42
1:A:14:GLY:HA3	1:A:120:GLN:O	2.18	0.42
1:B:232:GLU:HA	1:B:240:LEU:HD11	2.01	0.42
1:A:20:LEU:N	1:A:20:LEU:HD23	2.35	0.42
1:B:151:ILE:HD11	1:B:167:LYS:HE2	2.01	0.42
1:B:87:THR:HG23	1:B:105:LEU:HD12	2.01	0.42
1:B:168:ILE:HD12	1:B:195:ILE:HG12	2.02	0.42
1:A:148:GLN:HE22	1:A:255:TYR:HE1	1.68	0.42
1:A:164:LEU:HD12	1:A:165:LYS:N	2.35	0.42
1:B:238:LYS:O	1:B:242:ASN:ND2	2.53	0.42
1:A:138:TYR:O	1:A:139:LYS:C	2.63	0.42
1:A:158:THR:HG1	1:A:161:SER:H	1.65	0.42
1:B:320:THR:O	1:B:323:VAL:HG12	2.20	0.42
1:A:15:GLY:HA2	1:A:119:LYS:O	2.20	0.42
1:B:318:LEU:CD2	1:B:350:LEU:HD11	2.50	0.42
1:B:165:LYS:O	1:B:166:GLN:HB2	2.20	0.41
1:B:242:ASN:HB2	1:B:245:MSE:HE2	2.01	0.41
1:A:153:HIS:CE1	1:A:255:TYR:HA	2.55	0.41
1:A:242:ASN:CB	1:A:245:MSE:HE2	2.49	0.41
1:B:373:LYS:HB2	1:B:374:TYR:CD2	2.55	0.41
1:A:272:LEU:HD12	1:A:272:LEU:HA	1.82	0.41
1:A:295:ASP:HB3	1:A:297:LYS:H	1.85	0.41
1:A:320:THR:HB	1:A:354:THR:HG23	2.02	0.41
1:B:156:LEU:HD23	1:B:156:LEU:HA	1.89	0.41
1:B:200:LYS:HA	1:B:205:PHE:HE1	1.86	0.41
1:B:350:LEU:C	1:B:350:LEU:HD12	2.45	0.41
1:A:221:LYS:HA	1:A:248:ILE:HD13	2.03	0.41
1:A:99:ILE:HA	1:A:100:PRO:HD3	1.75	0.41
1:A:125:PHE:CB	1:A:336:LEU:HD21	2.42	0.41
1:A:292:ASN:ND2	1:B:222:ILE:HA	2.36	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:66:LYS:HG2	1:B:88:VAL:HG23	2.03	0.41
1:A:46:LYS:O	1:A:46:LYS:HG3	2.20	0.40
1:A:86:VAL:HA	1:A:103:LYS:O	2.21	0.40
1:B:291:LEU:HD12	1:B:291:LEU:HA	1.81	0.40
1:A:373:LYS:HB2	1:A:374:TYR:CD2	2.57	0.40
1:B:249:ALA:HB1	1:B:268:TYR:CZ	2.56	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	354/386 (92%)	337 (95%)	15 (4%)	2 (1%)	21	38
1	B	348/386 (90%)	330 (95%)	16 (5%)	2 (1%)	21	38
All	All	702/772 (91%)	667 (95%)	31 (4%)	4 (1%)	21	38

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	191	PHE
1	B	183	LYS
1	B	166	GLN
1	A	166	GLN

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	325/338 (96%)	295 (91%)	30 (9%)	8	19
1	B	321/338 (95%)	284 (88%)	37 (12%)	5	11
All	All	646/676 (96%)	579 (90%)	67 (10%)	7	14

All (67) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2	LYS
1	A	6	LEU
1	A	76	MSE
1	A	78	ASP
1	A	81	LEU
1	A	92	SER
1	A	99	ILE
1	A	119	LYS
1	A	124	LYS
1	A	135	ASN
1	A	136	ILE
1	A	146	VAL
1	A	147	LEU
1	A	157	VAL
1	A	160	SER
1	A	162	THR
1	A	167	LYS
1	A	168	ILE
1	A	169	GLU
1	A	238	LYS
1	A	272	LEU
1	A	273	GLN
1	A	288	LEU
1	A	294	ASP
1	A	317	LEU
1	A	323	VAL
1	A	336	LEU
1	A	363	ASP
1	A	366	THR
1	A	381	GLU
1	B	2	LYS
1	B	4	ILE
1	B	6	LEU
1	B	60	THR

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Mol	Chain	Res	Type
1	B	61	ASP
1	B	76	MSE
1	B	77	LYS
1	B	81	LEU
1	B	89	THR
1	B	91	GLU
1	B	99	ILE
1	B	101	VAL
1	B	105	LEU
1	B	116	THR
1	B	121	ASN
1	B	124	LYS
1	B	135	ASN
1	B	136	ILE
1	B	146	VAL
1	B	147	LEU
1	B	148	GLN
1	B	166	GLN
1	B	167	LYS
1	B	182	LEU
1	B	202	ASP
1	B	204	ASN
1	B	209	LYS
1	B	221	LYS
1	B	257	GLN
1	B	272	LEU
1	B	273	GLN
1	B	288	LEU
1	B	317	LEU
1	B	323	VAL
1	B	332	ARG
1	B	338	LEU
1	B	366	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (18) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	96	ASN
1	A	127	GLN
1	A	135	ASN
1	A	148	GLN
1	A	204	ASN

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Mol	Chain	Res	Type
1	A	273	GLN
1	A	345	ASN
1	A	364	GLN
1	B	96	ASN
1	B	121	ASN
1	B	135	ASN
1	B	153	HIS
1	B	204	ASN
1	B	235	HIS
1	B	242	ASN
1	B	273	GLN
1	B	292	ASN
1	B	356	HIS

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](#)

3 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
2	GOL	B	1383	-	5,5,5	0.48	0	5,5,5	0.87	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	PO4	B	1384	-	4,4,4	0.83	0	6,6,6	0.66	0
2	GOL	B	1382	-	5,5,5	0.42	0	5,5,5	0.54	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
2	GOL	B	1383	-	-	0/4/4/4	-
2	GOL	B	1382	-	-	4/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	1382	GOL	O1-C1-C2-C3
2	B	1382	GOL	C1-C2-C3-O3
2	B	1382	GOL	O2-C2-C3-O3
2	B	1382	GOL	O1-C1-C2-O2

There are no ring outliers.

2 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	1383	GOL	4	0
2	B	1382	GOL	3	0

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	351/386 (90%)	-0.31	6 (1%) 69 65	16, 35, 62, 104	0
1	B	347/386 (89%)	-0.44	2 (0%) 85 83	15, 31, 56, 80	0
All	All	698/772 (90%)	-0.38	8 (1%) 78 75	15, 33, 60, 104	0

All (8) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	11	PHE	5.8
1	A	47	PHE	3.8
1	B	170	TYR	3.0
1	A	12	ASN	3.0
1	B	183	LYS	2.5
1	A	10	SER	2.3
1	A	61	ASP	2.2
1	A	13	LYS	2.1

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
2	GOL	B	1383	6/6	0.79	0.14	33,44,48,50	0
3	PO4	B	1384	5/5	0.89	0.21	35,39,46,50	0
2	GOL	B	1382	6/6	0.92	0.16	27,31,32,35	0

6.5 Other polymers [i](#)

There are no such residues in this entry.