



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 31, 2016 – 07:33 PM GMT

PDB ID : 1G7T
Title : X-RAY STRUCTURE OF TRANSLATION INITIATION FACTOR
IF2/EIF5B COMPLEXED WITH GDPNP
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Deposited on : 2000-11-14
Resolution : 2.00 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
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Mogul : 1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk26865

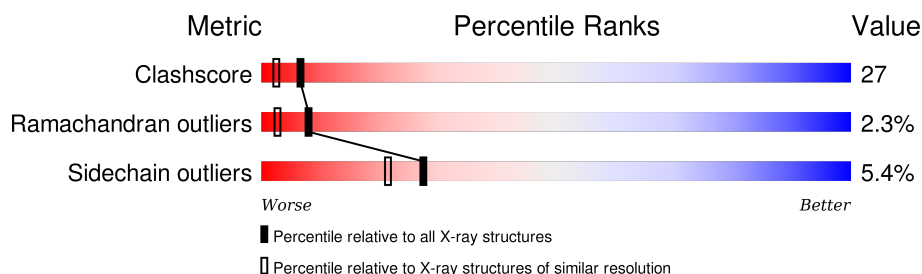
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.00 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))
Clashscore	102246	7340 (2.00-2.00)
Ramachandran outliers	100387	7248 (2.00-2.00)
Sidechain outliers	100360	7247 (2.00-2.00)

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 ≥ 3 , 2, 1 and 0 types of geometric quality criteria. 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.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	594	 56% 36% . .

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 4734 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.

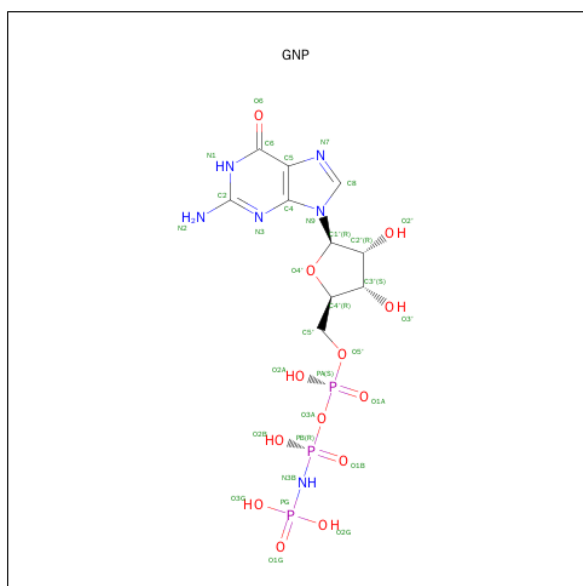
- Molecule 1 is a protein called TRANSLATION INITIATION FACTOR IF2/EIF5B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	569	Total	C	N	O	S	0	0	0
			4373	2778	741	836	18			

- Molecule 2 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total	Mg	0	0
			1	1		

- Molecule 3 is PHOSPHOAMINOPHOSPHONIC ACID-GUANYLATE ESTER (three-letter code: GNP) (formula: C₁₀H₁₇N₆O₁₃P₃).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	P	0	0
			32	10	6	13	3		

- Molecule 4 is water.

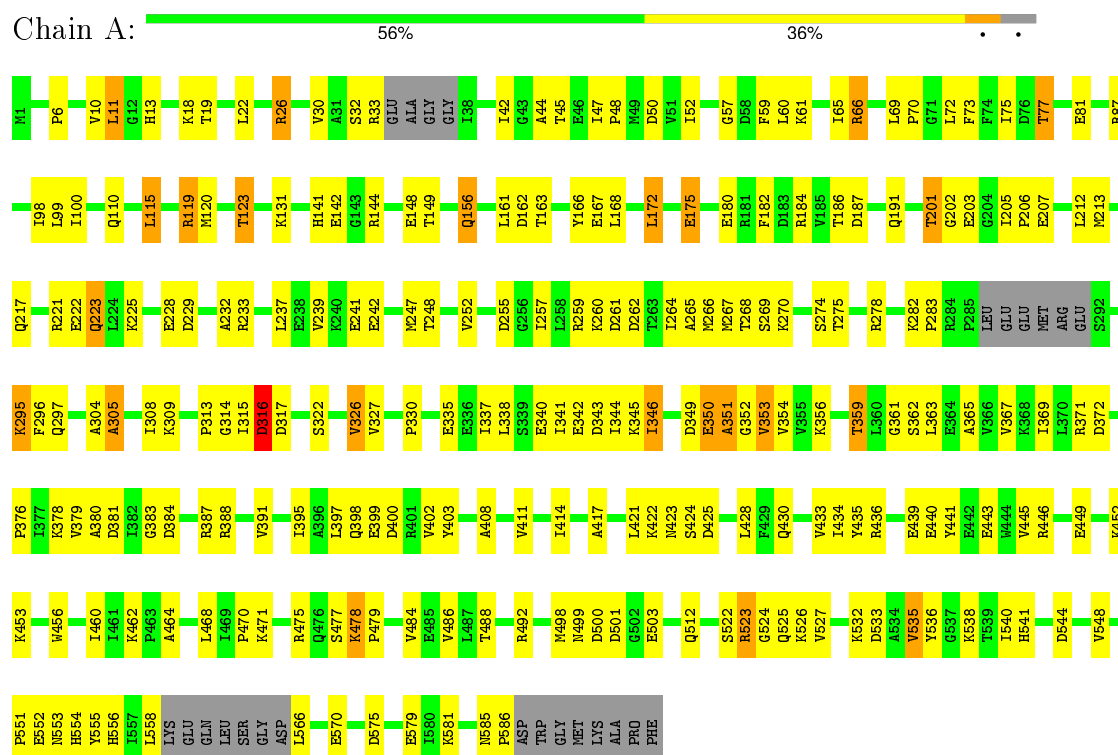
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	328	Total 328	O 328	0	0

3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

Note EDS was not executed.

- Molecule 1: TRANSLATION INITIATION FACTOR IF2/EIF5B



4 Data and refinement statistics

Xtriage (Phenix) and EDS were not executed - this section will therefore be incomplete.

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	48.80Å 53.68Å 94.93Å 105.17° 94.76° 100.17°	Depositor
Resolution (Å)	22.00 – 2.00	Depositor
% Data completeness (in resolution range)	(Not available) (22.00-2.00)	Depositor
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	CNS	Depositor
R, R_{free}	0.231 , 0.267	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	4734	wwPDB-VP
Average B, all atoms (Å ²)	43.0	wwPDB-VP

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: GNP, MG

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	0.53	2/4436 (0.0%)	0.74	3/5995 (0.1%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	222	GLU	CB-CG	-5.62	1.41	1.52
1	A	335	GLU	CB-CG	-5.24	1.42	1.52

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	586	PRO	N-CA-CB	5.44	109.83	103.30
1	A	172	LEU	CA-CB-CG	5.35	127.61	115.30
1	A	201	THR	N-CA-C	-5.11	97.20	111.00

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	4373	0	4407	239	0
2	A	1	0	0	0	0
3	A	32	0	13	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	A	328	0	0	18	0
All	All	4734	0	4420	240	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 27.

All (240) 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:141:HIS:HB2	1:A:149:THR:HG22	1.32	1.11
1:A:156:GLN:NE2	1:A:156:GLN:H	1.63	0.96
1:A:186:THR:H	1:A:191:GLN:HE22	1.04	0.95
1:A:278:ARG:HG2	1:A:278:ARG:HH11	1.29	0.94
1:A:156:GLN:HE21	1:A:156:GLN:H	1.05	0.93
1:A:186:THR:H	1:A:191:GLN:NE2	1.67	0.92
1:A:144:ARG:HD3	1:A:148:GLU:OE2	1.71	0.91
1:A:120:MET:CE	1:A:369:ILE:HG12	2.03	0.88
1:A:120:MET:HE1	1:A:369:ILE:HG12	1.54	0.88
1:A:478:LYS:HB3	1:A:479:PRO:HD3	1.59	0.83
1:A:478:LYS:HB3	1:A:479:PRO:CD	2.08	0.82
1:A:120:MET:SD	1:A:369:ILE:HG12	2.20	0.82
1:A:44:ALA:HB2	1:A:75:ILE:HD13	1.62	0.81
1:A:436:ARG:HH11	1:A:436:ARG:HG2	1.45	0.81
1:A:275:THR:HG21	1:A:314:GLY:H	1.45	0.80
1:A:369:ILE:HD12	1:A:434:ILE:HG21	1.63	0.79
1:A:156:GLN:HE21	1:A:156:GLN:N	1.79	0.79
1:A:397:LEU:HD11	1:A:425:ASP:HB3	1.64	0.79
1:A:453:LYS:O	1:A:456:TRP:HB3	1.82	0.79
1:A:18:LYS:HE3	1:A:77:THR:HG21	1.69	0.74
1:A:349:ASP:HA	1:A:378:LYS:HE2	1.71	0.73
1:A:499:ASN:ND2	1:A:500:ASP:H	1.87	0.72
1:A:268:THR:HG22	1:A:269:SER:N	2.04	0.72
1:A:408:ALA:HB1	1:A:411:VAL:HG12	1.72	0.72
1:A:359:THR:HG22	1:A:362:SER:H	1.54	0.72
1:A:345:LYS:O	1:A:380:ALA:O	2.07	0.71
1:A:343:ASP:HB3	4:A:978:HOH:O	1.90	0.71
1:A:233:ARG:HG3	4:A:1038:HOH:O	1.91	0.70
1:A:278:ARG:NH1	1:A:278:ARG:HG2	1.97	0.70
1:A:566:LEU:HD22	1:A:570:GLU:HB3	1.74	0.70
1:A:365:ALA:O	1:A:369:ILE:HG13	1.92	0.69
1:A:123:THR:HG21	4:A:736:HOH:O	1.91	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:182:PHE:CZ	1:A:207:GLU:HG2	2.27	0.69
1:A:352:GLY:O	1:A:353:VAL:HB	1.94	0.68
1:A:141:HIS:HB2	1:A:149:THR:CG2	2.17	0.68
1:A:486:VAL:HB	1:A:523:ARG:O	1.94	0.67
1:A:488:THR:HG22	4:A:863:HOH:O	1.95	0.67
1:A:248:THR:HG21	1:A:309:LYS:HZ2	1.58	0.66
1:A:248:THR:HG21	1:A:309:LYS:NZ	2.10	0.66
1:A:397:LEU:HD11	1:A:425:ASP:CB	2.27	0.65
1:A:232:ALA:H	1:A:326:VAL:HG11	1.62	0.65
1:A:436:ARG:NH1	1:A:436:ARG:HG2	2.13	0.64
1:A:369:ILE:HD12	1:A:434:ILE:CG2	2.27	0.64
1:A:268:THR:CG2	1:A:317:ASP:OD2	2.46	0.64
1:A:232:ALA:N	1:A:326:VAL:CG1	2.61	0.63
1:A:367:VAL:O	1:A:371:ARG:HG3	1.98	0.63
1:A:338:LEU:O	1:A:342:GLU:HG2	1.99	0.63
1:A:464:ALA:HB3	1:A:548:VAL:HG21	1.81	0.63
1:A:98:ILE:HD11	1:A:212:LEU:HD11	1.80	0.62
1:A:42:ILE:HD13	1:A:283:PRO:HG3	1.80	0.62
1:A:443:GLU:HA	1:A:446:ARG:HE	1.65	0.62
1:A:484:VAL:O	1:A:526:LYS:HA	2.01	0.61
1:A:73:PHE:HE2	1:A:75:ILE:HD11	1.65	0.61
1:A:346:ILE:HD11	1:A:371:ARG:HH21	1.65	0.61
1:A:556:HIS:O	1:A:558:LEU:HD12	2.00	0.61
1:A:304:ALA:O	1:A:305:ALA:CB	2.49	0.61
1:A:423:ASN:HD22	1:A:423:ASN:N	1.99	0.61
1:A:398:GLN:O	1:A:399:GLU:HB3	2.01	0.60
1:A:343:ASP:HB3	4:A:873:HOH:O	2.01	0.60
3:A:601:GNP:O3G	4:A:844:HOH:O	2.16	0.60
1:A:142:GLU:HB2	4:A:840:HOH:O	2.02	0.60
1:A:359:THR:CG2	1:A:361:GLY:H	2.14	0.59
1:A:267:MET:HG2	1:A:322:SER:HB2	1.83	0.59
1:A:32:SER:HB3	4:A:789:HOH:O	2.01	0.59
1:A:201:THR:CG2	1:A:203:GLU:HG3	2.32	0.59
1:A:186:THR:N	1:A:191:GLN:HE22	1.88	0.59
1:A:163:THR:O	1:A:167:GLU:HG3	2.03	0.59
1:A:73:PHE:CE2	1:A:75:ILE:HD11	2.38	0.58
1:A:265:ALA:C	1:A:266:MET:HG3	2.23	0.58
1:A:241:GLU:HG2	4:A:836:HOH:O	2.02	0.58
1:A:201:THR:HG22	1:A:202:GLY:N	2.18	0.58
1:A:232:ALA:N	1:A:326:VAL:HG11	2.19	0.57
1:A:187:ASP:H	1:A:191:GLN:HE21	1.51	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:201:THR:HG22	1:A:203:GLU:H	1.69	0.57
1:A:359:THR:HG22	1:A:361:GLY:N	2.19	0.57
1:A:149:THR:HG21	1:A:203:GLU:HG2	1.87	0.57
1:A:356:LYS:HE3	1:A:381:ASP:HB3	1.85	0.57
1:A:268:THR:CG2	1:A:269:SER:N	2.68	0.57
1:A:268:THR:HG22	1:A:269:SER:H	1.68	0.56
1:A:552:GLU:O	1:A:555:TYR:HB3	2.05	0.56
1:A:65:ILE:HG23	1:A:217:GLN:CD	2.25	0.56
1:A:282:LYS:HE3	4:A:758:HOH:O	2.06	0.56
1:A:478:LYS:O	1:A:479:PRO:C	2.41	0.56
1:A:340:GLU:O	1:A:343:ASP:OD2	2.23	0.56
1:A:239:VAL:HG12	1:A:247:MET:CE	2.35	0.56
1:A:13:HIS:HA	1:A:110:GLN:HB2	1.88	0.56
1:A:417:ALA:O	1:A:421:LEU:HB2	2.06	0.55
1:A:201:THR:HG22	1:A:202:GLY:H	1.71	0.55
1:A:123:THR:HB	4:A:948:HOH:O	2.06	0.55
1:A:225:LYS:C	1:A:225:LYS:HD2	2.27	0.55
1:A:353:VAL:HB	1:A:376:PRO:O	2.06	0.55
1:A:536:TYR:HA	1:A:540:ILE:HG23	1.89	0.55
1:A:304:ALA:O	1:A:305:ALA:HB3	2.07	0.54
1:A:384:ASP:HA	1:A:411:VAL:HG22	1.89	0.54
1:A:278:ARG:NE	1:A:313:PRO:HG3	2.22	0.54
1:A:464:ALA:HB3	1:A:548:VAL:CG2	2.36	0.54
1:A:65:ILE:HG21	1:A:217:GLN:HA	1.89	0.54
1:A:26:ARG:HG3	1:A:45:THR:HG23	1.89	0.54
1:A:201:THR:HG21	1:A:203:GLU:OE1	2.07	0.54
1:A:315:ILE:O	1:A:316:ASP:CB	2.55	0.54
1:A:440:GLU:O	1:A:443:GLU:HG2	2.07	0.54
1:A:144:ARG:HB2	1:A:149:THR:HG23	1.90	0.53
1:A:65:ILE:HD12	1:A:65:ILE:C	2.29	0.53
1:A:352:GLY:O	1:A:353:VAL:CB	2.57	0.53
1:A:383:GLY:C	1:A:411:VAL:HG21	2.29	0.53
1:A:305:ALA:CB	4:A:702:HOH:O	2.56	0.53
1:A:13:HIS:HD2	1:A:110:GLN:H	1.55	0.52
1:A:278:ARG:CG	1:A:278:ARG:HH11	2.12	0.52
1:A:260:LYS:CG	4:A:778:HOH:O	2.56	0.52
1:A:477:SER:OG	1:A:478:LYS:N	2.43	0.52
1:A:267:MET:HG2	1:A:322:SER:CB	2.40	0.52
1:A:541:HIS:HB2	1:A:544:ASP:OD2	2.09	0.52
1:A:268:THR:HG23	1:A:317:ASP:OD2	2.10	0.52
1:A:65:ILE:HD11	1:A:213:MET:SD	2.50	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:275:THR:CG2	1:A:314:GLY:H	2.19	0.51
1:A:346:ILE:HB	1:A:380:ALA:HB3	1.93	0.51
1:A:523:ARG:O	1:A:525:GLN:N	2.32	0.51
1:A:33:ARG:HH21	1:A:50:ASP:CG	2.14	0.51
1:A:201:THR:HG21	1:A:203:GLU:HG3	1.92	0.51
1:A:468:LEU:HD12	1:A:541:HIS:O	2.10	0.51
1:A:435:TYR:O	1:A:439:GLU:HG3	2.10	0.51
1:A:229:ASP:HB2	4:A:947:HOH:O	2.10	0.51
1:A:436:ARG:O	1:A:440:GLU:HG3	2.12	0.51
1:A:156:GLN:NE2	1:A:156:GLN:N	2.46	0.50
1:A:308:ILE:HG13	1:A:309:LYS:N	2.27	0.50
1:A:278:ARG:CZ	1:A:313:PRO:HG3	2.42	0.50
1:A:315:ILE:O	1:A:316:ASP:HB2	2.11	0.50
1:A:268:THR:CG2	1:A:269:SER:H	2.24	0.50
1:A:351:ALA:HB1	1:A:376:PRO:HB2	1.94	0.50
1:A:478:LYS:CB	1:A:479:PRO:CD	2.87	0.50
1:A:423:ASN:ND2	1:A:423:ASN:N	2.58	0.50
1:A:237:LEU:HD22	1:A:252:VAL:HG23	1.93	0.50
1:A:499:ASN:CG	1:A:500:ASP:H	2.14	0.49
1:A:352:GLY:O	1:A:376:PRO:O	2.30	0.49
1:A:119:ARG:HH11	1:A:119:ARG:HG2	1.77	0.49
1:A:61:LYS:HA	1:A:66:ARG:CZ	2.42	0.49
1:A:475:ARG:HD3	1:A:479:PRO:O	2.12	0.49
1:A:399:GLU:O	1:A:400:ASP:HB2	2.11	0.49
1:A:441:TYR:O	1:A:445:VAL:HG23	2.13	0.49
1:A:255:ASP:C	1:A:304:ALA:HB2	2.31	0.49
1:A:566:LEU:HA	1:A:570:GLU:OE1	2.11	0.49
1:A:295:LYS:HG3	1:A:296:PHE:CD1	2.48	0.48
1:A:44:ALA:CB	1:A:75:ILE:HD13	2.39	0.48
1:A:351:ALA:CB	1:A:376:PRO:HB2	2.43	0.48
1:A:120:MET:HE1	1:A:369:ILE:CG1	2.34	0.48
1:A:282:LYS:HE3	1:A:297:GLN:OE1	2.14	0.48
1:A:449:GLU:O	1:A:452:LYS:CG	2.61	0.48
1:A:327:VAL:HG11	1:A:330:PRO:HG3	1.95	0.48
1:A:460:ILE:O	1:A:462:LYS:HE3	2.13	0.48
1:A:182:PHE:CE1	1:A:207:GLU:HG2	2.48	0.48
1:A:248:THR:HG23	1:A:309:LYS:HG3	1.96	0.48
1:A:142:GLU:HG2	4:A:783:HOH:O	2.12	0.48
1:A:65:ILE:HG23	1:A:217:GLN:NE2	2.28	0.48
1:A:512:GLN:O	1:A:527:VAL:HB	2.13	0.48
1:A:345:LYS:O	1:A:380:ALA:HB3	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:408:ALA:HB1	1:A:411:VAL:CG1	2.43	0.47
1:A:337:ILE:O	1:A:341:ILE:HG12	2.14	0.47
1:A:261:ASP:HB2	4:A:884:HOH:O	2.13	0.47
1:A:359:THR:HG23	1:A:361:GLY:H	1.79	0.47
1:A:440:GLU:HA	1:A:443:GLU:CD	2.35	0.47
1:A:397:LEU:HD23	1:A:397:LEU:O	2.15	0.47
1:A:11:LEU:O	1:A:100:ILE:HG22	2.14	0.47
1:A:205:ILE:N	1:A:206:PRO:CD	2.76	0.47
1:A:387:ARG:O	1:A:391:VAL:HG23	2.16	0.47
1:A:248:THR:HG21	1:A:309:LYS:HD3	1.98	0.46
1:A:268:THR:HG22	1:A:270:LYS:H	1.80	0.46
1:A:65:ILE:HD12	1:A:66:ARG:N	2.30	0.46
1:A:26:ARG:CG	1:A:45:THR:HG23	2.46	0.46
1:A:391:VAL:O	1:A:395:ILE:HG13	2.15	0.46
1:A:44:ALA:HB2	1:A:75:ILE:CD1	2.40	0.46
1:A:343:ASP:OD2	1:A:344:ILE:HG13	2.14	0.46
1:A:141:HIS:CB	1:A:149:THR:HG22	2.24	0.46
1:A:120:MET:HE1	1:A:369:ILE:HA	1.97	0.46
1:A:65:ILE:HG23	1:A:217:GLN:OE1	2.15	0.46
1:A:59:PHE:O	1:A:59:PHE:CD2	2.68	0.46
1:A:201:THR:HG22	1:A:203:GLU:HG3	1.97	0.46
1:A:10:VAL:HG21	1:A:22:LEU:HD21	1.96	0.46
1:A:468:LEU:HD11	1:A:540:ILE:CG1	2.46	0.46
1:A:278:ARG:CG	1:A:278:ARG:NH1	2.73	0.46
1:A:387:ARG:NH2	1:A:388:ARG:HH22	2.15	0.45
1:A:443:GLU:HB2	1:A:446:ARG:HH21	1.82	0.45
1:A:350:GLU:CD	1:A:351:ALA:H	2.19	0.45
1:A:248:THR:CG2	1:A:309:LYS:NZ	2.77	0.45
1:A:445:VAL:HG12	1:A:449:GLU:OE2	2.16	0.45
1:A:558:LEU:HD12	1:A:558:LEU:H	1.81	0.45
1:A:428:LEU:HD21	1:A:430:GLN:HE21	1.82	0.45
1:A:115:LEU:CD1	1:A:175:GLU:HG2	2.47	0.45
1:A:144:ARG:HB2	1:A:149:THR:CG2	2.48	0.44
1:A:525:GLN:O	1:A:526:LYS:HB2	2.16	0.44
1:A:532:LYS:O	1:A:533:ASP:HB2	2.17	0.44
1:A:345:LYS:O	1:A:346:ILE:O	2.34	0.44
1:A:316:ASP:HB2	4:A:909:HOH:O	2.16	0.44
1:A:161:LEU:HD23	1:A:161:LEU:C	2.37	0.44
1:A:61:LYS:HA	1:A:66:ARG:NH2	2.33	0.44
1:A:52:ILE:HG22	1:A:60:LEU:HD11	1.99	0.44
1:A:248:THR:CG2	1:A:309:LYS:HG3	2.47	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:81:GLU:OE1	3:A:601:GNP:O2G	2.36	0.44
1:A:264:ILE:O	1:A:274:SER:HA	2.18	0.44
1:A:575:ASP:O	1:A:579:GLU:HG3	2.17	0.44
1:A:221:ARG:H	1:A:223:GLN:NE2	2.16	0.44
1:A:248:THR:HG21	1:A:309:LYS:CD	2.48	0.44
1:A:26:ARG:O	1:A:30:VAL:HG23	2.18	0.44
1:A:77:THR:HG23	1:A:77:THR:O	2.18	0.43
1:A:498:MET:SD	1:A:581:LYS:HD3	2.59	0.43
1:A:433:VAL:HB	1:A:436:ARG:HD2	2.00	0.43
1:A:383:GLY:O	1:A:411:VAL:HG21	2.19	0.43
1:A:414:ILE:O	1:A:417:ALA:HB3	2.19	0.43
1:A:144:ARG:NE	1:A:144:ARG:HA	2.34	0.43
1:A:275:THR:HG22	1:A:313:PRO:HD2	2.01	0.43
1:A:6:PRO:HD2	1:A:72:LEU:HD23	2.01	0.43
1:A:268:THR:HG23	1:A:317:ASP:HB3	2.01	0.42
1:A:486:VAL:HB	1:A:522:SER:O	2.19	0.42
1:A:522:SER:O	1:A:523:ARG:O	2.38	0.42
1:A:33:ARG:NH2	1:A:50:ASP:OD2	2.52	0.42
1:A:87:ARG:NH2	1:A:340:GLU:OE2	2.46	0.42
1:A:501:ASP:HB2	1:A:503:GLU:OE2	2.19	0.42
1:A:352:GLY:HA3	1:A:403:TYR:HB3	2.02	0.42
1:A:400:ASP:C	1:A:402:VAL:H	2.22	0.42
1:A:131:LYS:HG2	3:A:601:GNP:C6	2.49	0.42
1:A:239:VAL:HG12	1:A:247:MET:HE1	2.02	0.42
1:A:47:ILE:HA	1:A:48:PRO:HD3	1.80	0.42
1:A:354:VAL:HG13	1:A:379:VAL:HB	2.02	0.42
1:A:553:ASN:C	1:A:555:TYR:N	2.73	0.42
1:A:535:VAL:C	1:A:540:ILE:HG22	2.40	0.42
1:A:551:PRO:HB2	1:A:554:HIS:HB2	2.01	0.42
1:A:470:PRO:O	1:A:471:LYS:HB2	2.20	0.41
1:A:232:ALA:HB2	1:A:257:ILE:C	2.41	0.41
1:A:566:LEU:HD22	1:A:570:GLU:CB	2.46	0.41
1:A:201:THR:HG21	1:A:203:GLU:CG	2.50	0.41
1:A:65:ILE:HD11	1:A:213:MET:HG3	2.03	0.41
1:A:66:ARG:HE	1:A:66:ARG:HB3	1.59	0.41
1:A:428:LEU:HD21	1:A:430:GLN:NE2	2.35	0.41
1:A:19:THR:OG1	4:A:844:HOH:O	2.10	0.41
1:A:387:ARG:NH2	1:A:388:ARG:NH2	2.68	0.41
1:A:69:LEU:HA	1:A:70:PRO:HD3	1.90	0.40
1:A:259:ARG:O	1:A:262:ASP:HB2	2.21	0.40
1:A:166:TYR:CZ	1:A:184:ARG:NH2	2.89	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:275:THR:CG2	1:A:313:PRO:HD2	2.51	0.40
1:A:400:ASP:C	1:A:402:VAL:N	2.73	0.40
1:A:228:GLU:HG3	1:A:229:ASP:OD1	2.21	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	561/594 (94%)	516 (92%)	32 (6%)	13 (2%)	8 3

All (13) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	305	ALA
1	A	353	VAL
1	A	424	SER
1	A	523	ARG
1	A	316	ASP
1	A	346	ILE
1	A	351	ALA
1	A	478	LYS
1	A	524	GLY
1	A	538	LYS
1	A	422	LYS
1	A	585	ASN
1	A	57	GLY

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	464/507 (92%)	439 (95%)	25 (5%)	27	21

All (25) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	11	LEU
1	A	26	ARG
1	A	66	ARG
1	A	77	THR
1	A	99	LEU
1	A	115	LEU
1	A	119	ARG
1	A	123	THR
1	A	156	GLN
1	A	162	ASP
1	A	168	LEU
1	A	172	LEU
1	A	175	GLU
1	A	180	GLU
1	A	223	GLN
1	A	242	GLU
1	A	295	LYS
1	A	316	ASP
1	A	326	VAL
1	A	350	GLU
1	A	359	THR
1	A	363	LEU
1	A	372	ASP
1	A	492	ARG
1	A	535	VAL

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	13	HIS
1	A	110	GLN
1	A	156	GLN
1	A	191	GLN
1	A	223	GLN
1	A	410	ASN
1	A	423	ASN
1	A	430	GLN
1	A	499	ASN
1	A	512	GLN
1	A	541	HIS
1	A	556	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 carbohydrates in this entry.

5.6 Ligand geometry [i](#)

Of 2 ligands modelled in this entry, 1 is monoatomic - leaving 1 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	GNP	A	601	2	28,34,34	1.78	7 (25%)	33,54,54	2.37	11 (33%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	GNP	A	601	2	-	0/12/38/38	0/3/3/3

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	601	GNP	PB-O3A	-2.58	1.55	1.59
3	A	601	GNP	PB-N3B	-2.46	1.56	1.63
3	A	601	GNP	PG-N3B	-2.19	1.57	1.63
3	A	601	GNP	C8-N7	-2.16	1.30	1.34
3	A	601	GNP	C2-N1	2.33	1.39	1.35
3	A	601	GNP	C4-N3	2.76	1.40	1.35
3	A	601	GNP	C6-N1	4.94	1.42	1.33

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	601	GNP	C5-C6-N1	-7.17	113.79	123.59
3	A	601	GNP	C1'-N9-C4	-3.40	121.81	126.94
3	A	601	GNP	N3-C2-N1	-3.26	122.48	127.44
3	A	601	GNP	C6-C5-C4	-2.48	117.93	120.90
3	A	601	GNP	C2'-C1'-N9	-2.09	111.10	114.29
3	A	601	GNP	O3A-PB-N3B	2.26	112.66	106.44
3	A	601	GNP	O2G-PG-O1G	2.27	119.52	113.49
3	A	601	GNP	O2A-PA-O3A	2.32	115.61	105.09
3	A	601	GNP	C4'-O4'-C1'	3.12	113.15	109.72
3	A	601	GNP	O1B-PB-N3B	3.15	116.73	111.90
3	A	601	GNP	C6-N1-C2	5.93	124.17	115.94

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	601	GNP	3	0

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

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

EDS was not executed - this section will therefore be empty.

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

EDS was not executed - this section will therefore be empty.

6.3 Carbohydrates [i](#)

EDS was not executed - this section will therefore be empty.

6.4 Ligands [i](#)

EDS was not executed - this section will therefore be empty.

6.5 Other polymers [i](#)

EDS was not executed - this section will therefore be empty.