



Full wwPDB X-ray Structure Validation Report ⓘ

May 18, 2020 – 08:59 pm BST

PDB ID : 2NYZ
Title : Viral Chemokine Binding Protein M3 From Murine Gammaherpesvirus68 In
Complex With The C- Chemokine XCL1
Authors : Alexander-Brett, J.M.; Fremont, D.H.
Deposited on : 2006-11-21
Resolution : 2.60 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.11
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)	:	2.11

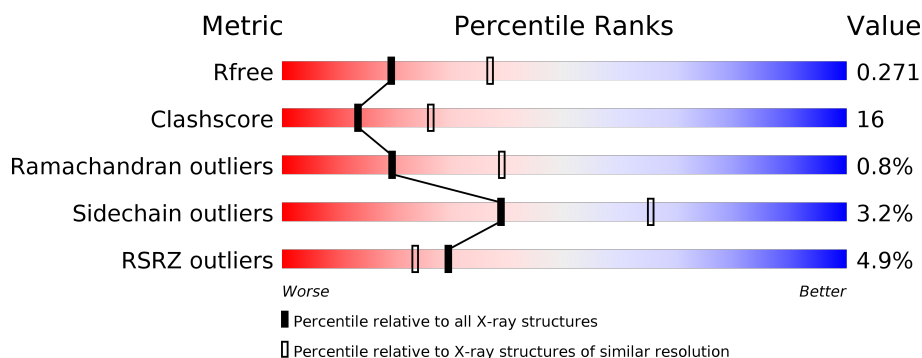
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.60 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	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

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 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	382	<div> <div>3%</div> <div> <div></div> <div>62%</div> <div>34%</div> <div>• •</div> </div> </div>
1	B	382	<div> <div>3%</div> <div> <div></div> <div>68%</div> <div>28%</div> <div>• •</div> </div> </div>
2	D	93	<div> <div>16%</div> <div> <div></div> <div>39%</div> <div>25%</div> <div>•</div> <div>34%</div> </div> </div>
2	E	93	<div> <div>8%</div> <div> <div></div> <div>46%</div> <div>24%</div> <div>•</div> <div>29%</div> </div> </div>

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 6912 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 Hypothetical protein GAMMAHV.M3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	371	Total	C	N	O	S	0	0	0
			2853	1798	463	568	24			
1	B	371	Total	C	N	O	S	0	0	0
			2853	1798	463	568	24			

- Molecule 2 is a protein called Lymphotactin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	D	61	Total	C	N	O	S	0	0	0
			485	302	93	87	3			
2	E	66	Total	C	N	O	S	0	0	0
			527	324	104	96	3			

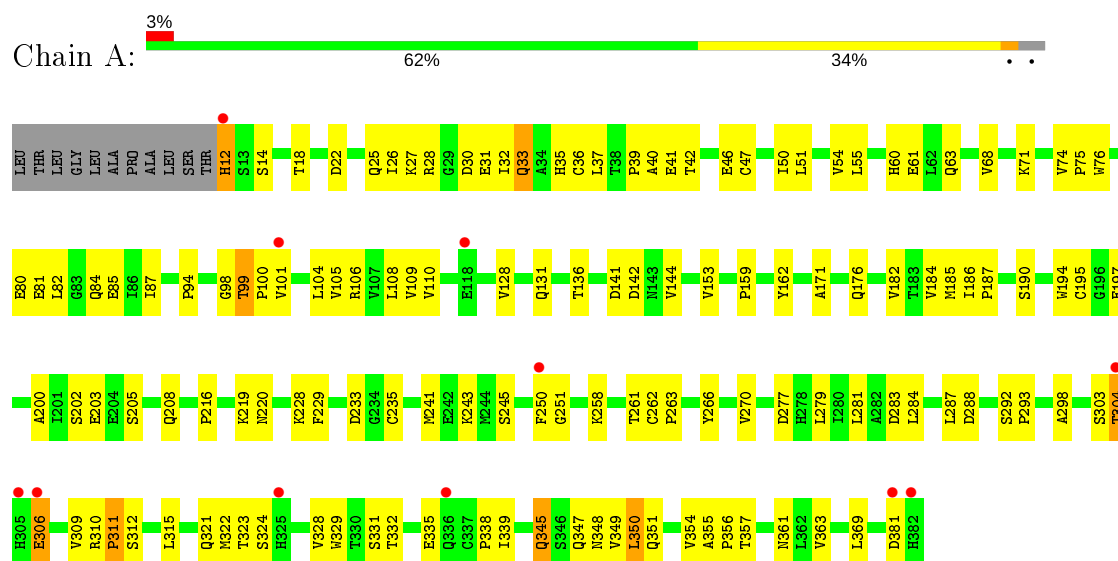
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	68	Total	O	0	0
			68	68		
3	B	102	Total	O	0	0
			102	102		
3	D	10	Total	O	0	0
			10	10		
3	E	14	Total	O	0	0
			14	14		

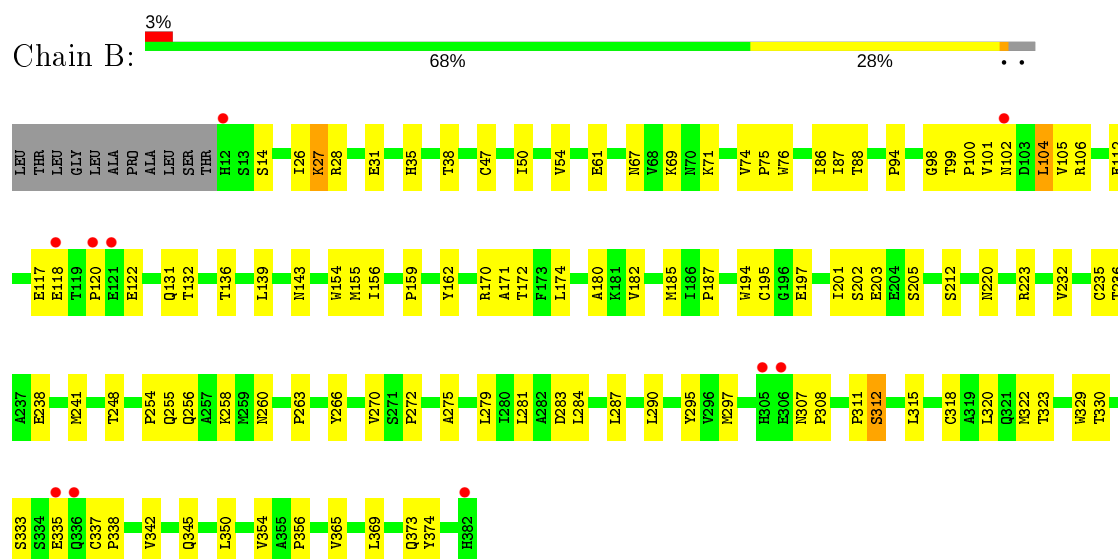
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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: Hypothetical protein GAMMAHV.M3



- Molecule 1: Hypothetical protein GAMMAHV.M3



- Molecule 2: Lymphotactin

ASN	VAL
MET	GLY
ILE	SER
GLN	GLU
THR	THR
LYS	SER
PRO	D7
THR	R8
THR	R9
GLY	T10
THR	C11
GLN	
GLN	T15
SER	
THR	
ASN	L19
THR	P20
ALA	
VAL	R23
THR	T24
LEU	K25
THR	T26
GLY	Y27
	T28
	E31
	G32
	S33
	L34
	V37
	I38
	F39
	K42
	R43
	Q44
	L45
	K46
	V47
	D50
	P51
	Q52
	V56
	R57
	D58
	V59
	V60
	R61
	S62
	M63
	D64
	R65
	R66
	S67
	ASN
	THR
	ARG
	ASN

Chain E: 

THR	VAL	GLY	GLY	GLU	VAL	SER	D7	R8	R9	T10	T15	T16	Q17	R18	L19	Y27	T28	I29	T30	E31	R35	A36	V37	R43	V47	P51	W55	V59	V60	R65	R66	S67	M68	T69	R70	N71	N72	MET	I1E	GLN	THR	LYS	PRO	THR	GLY	THR	GLN	SER	THR	ASN
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4 Data and refinement statistics

Property	Value	Source
Space group	I 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	84.37Å 103.19Å 290.94Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.95 – 2.60 19.95 – 2.57	Depositor EDS
% Data completeness (in resolution range)	90.0 (19.95-2.60) 88.6 (19.95-2.57)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.01	Depositor
$\langle I/\sigma(I) \rangle$ ¹	0.82 (at 2.56Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.219 , 0.272 0.218 , 0.271	Depositor DCC
R_{free} test set	1996 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	44.9	Xtriage
Anisotropy	0.575	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 53.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	6912	wwPDB-VP
Average B, all atoms (Å ²)	59.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.36% 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 [i](#)

5.1 Standard geometry [i](#)

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	0.38	0/2920	0.66	0/3981
1	B	0.38	0/2920	0.68	0/3981
2	D	0.30	0/490	0.63	0/660
2	E	0.32	0/532	0.60	0/717
All	All	0.37	0/6862	0.66	0/9339

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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	2853	0	2763	99	0
1	B	2853	0	2763	89	0
2	D	485	0	518	19	0
2	E	527	0	556	19	0
3	A	68	0	0	0	0
3	B	102	0	0	1	0
3	D	10	0	0	1	0
3	E	14	0	0	1	0
All	All	6912	0	6600	214	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 16.

All (214) 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:B:131:GLN:HE21	1:B:170:ARG:NH1	1.67	0.93
1:A:99:THR:HG22	1:A:101:VAL:H	1.35	0.91
1:B:131:GLN:NE2	1:B:170:ARG:HH12	1.71	0.89
1:B:131:GLN:HE21	1:B:170:ARG:HH12	0.86	0.83
1:B:235:CYS:HB3	1:B:241:MET:HE1	1.63	0.81
2:D:26:THR:HG22	2:D:27:TYR:H	1.50	0.77
1:B:284:LEU:HD21	1:B:369:LEU:HD13	1.68	0.76
2:D:37:VAL:HG23	2:D:51:PRO:HG3	1.68	0.74
1:A:306:GLU:HG3	1:A:311:PRO:HA	1.73	0.70
1:B:99:THR:HG22	1:B:101:VAL:H	1.57	0.68
1:A:31:GLU:HB3	1:A:50:ILE:HD13	1.75	0.67
1:A:202:SER:HB2	1:A:205:SER:OG	1.94	0.67
1:A:287:LEU:HB3	1:A:329:TRP:NE1	2.10	0.66
1:A:54:VAL:CG1	1:A:61:GLU:HG2	2.25	0.66
1:B:27:LYS:HB2	1:B:54:VAL:HG13	1.78	0.66
1:A:287:LEU:HD11	1:A:350:LEU:HB3	1.76	0.66
1:A:309:VAL:HA	1:B:143:ASN:HD21	1.60	0.65
1:A:41:GLU:HG2	1:A:46:GLU:HG2	1.77	0.65
1:A:99:THR:HG22	1:A:101:VAL:N	2.09	0.65
1:A:279:LEU:HG	1:A:356:PRO:HG3	1.80	0.64
1:A:250:PHE:CG	1:A:251:GLY:N	2.65	0.62
1:A:40:ALA:H	1:A:106:ARG:NH2	1.98	0.62
1:A:171:ALA:HB2	1:A:182:VAL:HG21	1.81	0.62
1:A:284:LEU:HD21	1:A:369:LEU:HD13	1.82	0.62
1:A:350:LEU:HD12	1:A:351:GLN:N	2.15	0.61
1:A:32:ILE:O	1:A:36:CYS:HB2	2.00	0.61
1:B:87:ILE:HD11	1:B:182:VAL:HG23	1.81	0.61
2:D:24:ILE:HD12	2:D:59:VAL:HG11	1.81	0.60
2:D:10:THR:HG22	2:D:11:CYS:N	2.16	0.60
1:B:345:GLN:H	1:B:345:GLN:CD	2.04	0.60
1:B:122:GLU:H	1:B:122:GLU:CD	2.04	0.60
1:B:232:VAL:HG23	3:B:464:HOH:O	2.01	0.60
1:A:99:THR:CG2	1:A:101:VAL:H	2.11	0.59
2:D:50:ASP:O	2:D:56:VAL:HG21	2.01	0.59
1:B:131:GLN:HB3	1:B:136:THR:HG23	1.84	0.59
1:A:110:VAL:HG22	1:A:153:VAL:HG22	1.84	0.59
1:B:99:THR:HG23	1:B:100:PRO:HD2	1.84	0.58
2:E:31:GLU:OE2	2:E:35:ARG:HD2	2.03	0.58
2:D:50:ASP:OD1	2:D:52:GLN:HG2	2.04	0.58
1:B:31:GLU:HB3	1:B:50:ILE:HD13	1.85	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:233:ASP:O	1:A:243:LYS:HD2	2.04	0.57
1:B:171:ALA:CB	1:B:182:VAL:HG21	2.34	0.57
1:A:235:CYS:HB3	1:A:241:MET:HE3	1.85	0.57
1:A:322:MET:HG3	1:A:329:TRP:HE3	1.69	0.57
1:B:308:PRO:O	1:B:311:PRO:HD3	2.04	0.57
1:B:279:LEU:HG	1:B:356:PRO:HG3	1.88	0.56
1:B:94:PRO:HD3	1:B:194:TRP:CE2	2.41	0.56
1:A:293:PRO:HB3	1:A:323:THR:HG22	1.87	0.55
1:B:254:PRO:HG2	1:B:255:GLN:HE22	1.72	0.55
1:A:309:VAL:HA	1:B:143:ASN:ND2	2.20	0.55
1:A:345:GLN:HA	1:A:345:GLN:OE1	2.05	0.55
1:B:220:ASN:ND2	1:B:223:ARG:HB2	2.21	0.55
1:A:328:VAL:HG22	1:A:347:GLN:NE2	2.22	0.55
1:A:51:LEU:O	1:A:55:LEU:HB2	2.07	0.55
1:B:266:TYR:CD1	1:B:356:PRO:HB3	2.42	0.54
1:B:28:ARG:HE	1:B:31:GLU:CD	2.11	0.54
1:B:86:ILE:HG12	1:B:172:THR:HG23	1.88	0.54
1:A:324:SER:HB2	1:A:329:TRP:CE2	2.42	0.54
1:B:131:GLN:NE2	1:B:170:ARG:HH22	2.05	0.54
1:A:28:ARG:HD3	1:A:54:VAL:CG2	2.37	0.54
1:B:101:VAL:HG21	1:B:312:SER:OG	2.06	0.54
1:B:350:LEU:C	1:B:350:LEU:HD12	2.29	0.53
1:B:74:VAL:HG23	1:B:75:PRO:HD2	1.90	0.53
1:A:82:LEU:HB2	1:A:84:GLN:HG3	1.89	0.53
1:A:109:VAL:HG11	1:A:128:VAL:HG11	1.90	0.53
1:B:202:SER:HB3	1:B:205:SER:OG	2.07	0.53
1:A:298:ALA:HB2	1:A:339:ILE:HG12	1.90	0.53
1:A:159:PRO:HD2	1:A:162:TYR:HD2	1.72	0.53
1:A:87:ILE:HD11	1:A:182:VAL:HG23	1.91	0.52
1:B:159:PRO:HB2	1:B:162:TYR:HD2	1.74	0.52
1:A:228:LYS:HE3	1:A:229:PHE:CE2	2.45	0.52
1:A:26:ILE:HG23	1:A:61:GLU:OE2	2.09	0.52
1:A:324:SER:HB2	1:A:329:TRP:CZ2	2.44	0.52
1:A:22:ASP:CG	1:A:25:GLN:HG2	2.30	0.52
1:B:106:ARG:HD3	1:B:155:MET:SD	2.49	0.52
1:A:266:TYR:CD1	1:A:356:PRO:HB3	2.45	0.52
2:E:65:ARG:HG2	2:E:65:ARG:HH11	1.75	0.52
1:B:117:GLU:HB3	1:B:118:GLU:OE2	2.10	0.52
1:A:287:LEU:HB3	1:A:329:TRP:CE2	2.44	0.51
1:B:174:LEU:HD22	2:D:20:PRO:HG3	1.93	0.51
1:A:35:HIS:O	1:A:47:CYS:HB2	2.09	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:287:LEU:HB3	1:B:329:TRP:NE1	2.25	0.51
1:B:275:ALA:HB2	2:E:10:THR:HG23	1.91	0.51
2:D:39:PHE:HZ	2:D:56:VAL:HG13	1.75	0.51
1:A:171:ALA:CB	1:A:182:VAL:HG21	2.41	0.51
1:A:219:LYS:HG3	1:A:381:ASP:O	2.12	0.50
1:B:248:THR:HA	1:B:374:TYR:OH	2.12	0.50
2:E:27:TYR:CZ	2:E:60:VAL:HG13	2.47	0.50
1:A:100:PRO:HA	1:B:100:PRO:HB3	1.93	0.50
1:A:12:HIS:ND1	1:A:12:HIS:N	2.60	0.50
1:B:255:GLN:HG2	1:B:290:LEU:HD13	1.94	0.50
1:A:310:ARG:N	1:A:311:PRO:HD3	2.27	0.50
1:B:171:ALA:HB2	1:B:182:VAL:HG21	1.94	0.50
1:A:81:GLU:HG3	2:E:43:ARG:NH1	2.27	0.49
1:B:236:THR:HB	1:B:238:GLU:OE2	2.12	0.49
2:D:43:ARG:HB3	3:D:99:HOH:O	2.12	0.49
2:E:9:ARG:NH2	3:E:107:HOH:O	2.44	0.49
1:B:105:VAL:HG23	1:B:187:PRO:HG2	1.94	0.49
1:A:28:ARG:HD3	1:A:54:VAL:HG22	1.95	0.48
1:B:87:ILE:O	1:B:87:ILE:HG13	2.12	0.48
1:B:98:GLY:HA2	1:B:315:LEU:HD23	1.95	0.48
2:D:23:ARG:HG3	2:D:23:ARG:HH11	1.78	0.48
1:A:99:THR:HG23	1:A:100:PRO:HD2	1.95	0.48
1:A:303:SER:HA	1:A:361:ASN:OD1	2.14	0.48
1:A:349:VAL:HG12	1:A:350:LEU:N	2.28	0.48
1:A:338:PRO:O	1:A:354:VAL:HG23	2.13	0.48
1:A:355:ALA:HB1	1:A:357:THR:HG22	1.95	0.48
1:B:99:THR:O	1:B:102:ASN:HB2	2.13	0.47
2:E:55:TRP:O	2:E:59:VAL:HG23	2.13	0.47
1:B:287:LEU:HD11	1:B:350:LEU:HB3	1.96	0.47
1:B:14:SER:HA	1:B:71:LYS:HG3	1.95	0.47
1:A:322:MET:HG2	1:A:350:LEU:HD22	1.96	0.47
1:B:99:THR:HG22	1:B:101:VAL:N	2.27	0.47
1:A:12:HIS:HD1	1:A:12:HIS:N	2.12	0.47
1:A:185:MET:HG2	1:A:195:CYS:SG	2.55	0.47
1:A:258:LYS:HB2	1:A:283:ASP:OD1	2.14	0.47
1:B:104:LEU:HD12	1:B:104:LEU:H	1.80	0.47
1:B:74:VAL:HG21	1:B:88:THR:O	2.15	0.47
1:A:322:MET:HE2	1:A:350:LEU:HB2	1.97	0.47
1:B:75:PRO:HA	1:B:201:ILE:O	2.14	0.47
1:B:281:LEU:HD13	1:B:365:VAL:HG11	1.96	0.46
2:D:10:THR:HG22	2:D:11:CYS:H	1.78	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:131:GLN:HB3	1:A:136:THR:HG23	1.97	0.46
1:A:288:ASP:OD2	1:A:348:ASN:HB2	2.16	0.46
2:E:31:GLU:HA	2:E:35:ARG:HG3	1.97	0.46
1:A:60:HIS:HB3	1:A:63:GLN:NE2	2.31	0.46
1:B:26:ILE:HG23	1:B:61:GLU:OE2	2.15	0.46
1:A:98:GLY:HA2	1:A:315:LEU:HD23	1.97	0.46
1:B:270:VAL:HG11	2:E:15:THR:HA	1.98	0.46
1:B:35:HIS:O	1:B:47:CYS:HB2	2.15	0.46
1:A:87:ILE:HG21	1:A:200:ALA:HB2	1.97	0.46
1:A:321:GLN:O	1:A:331:SER:HA	2.16	0.45
1:B:101:VAL:HG12	1:B:101:VAL:O	2.16	0.45
1:B:76:TRP:HB2	1:B:203:GLU:HG2	1.98	0.45
2:E:37:VAL:HG23	2:E:51:PRO:HG3	1.99	0.45
1:A:33:GLN:HE21	1:A:33:GLN:HB3	1.59	0.45
2:D:60:VAL:HG12	2:D:64:ASP:OD2	2.17	0.45
1:B:120:PRO:HB2	1:B:122:GLU:OE2	2.16	0.45
1:B:27:LYS:HG2	1:B:61:GLU:OE1	2.16	0.45
1:B:69:LYS:HE2	1:B:197:GLU:OE1	2.17	0.45
1:B:132:THR:HG21	1:B:162:TYR:HD1	1.82	0.45
1:B:254:PRO:HG2	1:B:255:GLN:NE2	2.31	0.45
1:B:132:THR:HG21	1:B:162:TYR:CD1	2.52	0.44
1:B:139:LEU:HD12	1:B:154:TRP:HB3	1.98	0.44
1:B:260:ASN:O	1:B:263:PRO:HD2	2.16	0.44
2:E:31:GLU:HG2	2:E:35:ARG:HG3	1.99	0.44
1:B:322:MET:HA	1:B:330:THR:O	2.17	0.44
1:A:18:THR:HG22	1:A:68:VAL:HG22	1.98	0.44
1:B:159:PRO:HB2	1:B:162:TYR:CD2	2.51	0.44
2:D:44:GLY:O	2:D:45:LEU:O	2.35	0.44
1:A:40:ALA:H	1:A:106:ARG:HH21	1.64	0.44
1:A:216:PRO:O	1:A:216:PRO:HG2	2.17	0.44
1:A:228:LYS:HE3	1:A:229:PHE:CZ	2.53	0.44
1:A:39:PRO:HA	1:A:106:ARG:HE	1.83	0.43
1:B:38:THR:O	1:B:106:ARG:HD2	2.18	0.43
2:D:24:ILE:HG23	2:D:39:PHE:HB3	2.00	0.43
2:E:29:ILE:O	2:E:29:ILE:HG22	2.18	0.43
1:B:297:MET:O	1:B:365:VAL:HA	2.17	0.43
1:A:184:VAL:HG12	1:A:186:ILE:HG13	2.00	0.43
1:A:94:PRO:HD3	1:A:194:TRP:CE2	2.54	0.43
1:A:74:VAL:HA	1:A:75:PRO:HD3	1.89	0.43
1:A:81:GLU:HG3	2:E:43:ARG:HH12	1.83	0.43
1:B:256:GLN:O	1:B:284:LEU:HD12	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:272:PRO:O	2:E:9:ARG:NH1	2.52	0.43
1:A:14:SER:HB3	1:A:208:GLN:O	2.19	0.43
1:A:310:ARG:O	1:A:312:SER:N	2.48	0.43
1:B:67:ASN:HB3	1:B:295:TYR:CZ	2.54	0.43
1:B:318:CYS:SG	1:B:338:PRO:HD2	2.59	0.42
2:D:25:LYS:HB2	2:D:42:LYS:HA	2.02	0.42
2:D:19:LEU:HD11	2:D:47:VAL:HB	2.01	0.42
1:A:41:GLU:CG	1:A:46:GLU:HG2	2.47	0.42
2:E:36:ALA:HA	2:E:51:PRO:CG	2.49	0.42
1:A:303:SER:O	1:A:304:THR:C	2.58	0.42
1:B:323:THR:O	1:B:329:TRP:HA	2.19	0.42
2:E:19:LEU:HD22	2:E:47:VAL:HG21	2.01	0.42
1:B:27:LYS:HB2	1:B:54:VAL:CG1	2.47	0.42
1:A:85:GLU:OE1	1:A:176:GLN:HG3	2.20	0.42
1:A:262:CYS:N	1:A:263:PRO:CD	2.83	0.42
1:A:263:PRO:HG2	1:A:281:LEU:HD23	2.01	0.42
1:B:223:ARG:HG3	1:B:223:ARG:NH1	2.34	0.42
2:D:24:ILE:HG22	2:D:26:THR:O	2.20	0.42
1:A:270:VAL:HG11	2:D:15:THR:HA	2.01	0.42
1:A:37:LEU:HD23	1:A:108:LEU:HD13	2.02	0.42
1:B:185:MET:HG2	1:B:195:CYS:SG	2.59	0.42
2:E:18:ARG:HG2	2:E:55:TRP:CD1	2.55	0.42
1:A:141:ASP:HA	1:A:144:VAL:HG23	2.01	0.41
1:B:101:VAL:HG21	1:B:312:SER:CB	2.49	0.41
1:B:338:PRO:O	1:B:354:VAL:HG23	2.20	0.41
1:A:315:LEU:CD1	1:A:363:VAL:HG21	2.51	0.41
1:A:309:VAL:O	1:B:156:ILE:HG13	2.20	0.41
1:A:37:LEU:HD21	1:A:108:LEU:HD22	2.01	0.41
1:A:321:GLN:HB3	1:A:332:THR:HG23	2.02	0.41
1:A:306:GLU:CG	1:A:311:PRO:HA	2.48	0.41
1:A:42:THR:HG22	1:B:307:ASN:ND2	2.35	0.41
1:B:99:THR:HG23	1:B:100:PRO:CD	2.50	0.41
1:A:76:TRP:O	1:A:203:GLU:HG3	2.20	0.41
1:B:223:ARG:HG3	1:B:223:ARG:HH11	1.84	0.41
2:E:18:ARG:HG2	2:E:55:TRP:CG	2.56	0.41
1:B:112:GLU:O	1:B:180:ALA:HA	2.20	0.41
1:A:71:LYS:HB3	1:A:197:GLU:HB3	2.02	0.41
1:A:87:ILE:O	1:A:87:ILE:HG13	2.20	0.41
1:A:219:LYS:O	1:A:220:ASN:HB2	2.21	0.40
1:A:99:THR:CG2	1:A:100:PRO:N	2.83	0.40
1:B:320:LEU:CD2	1:B:333:SER:HA	2.51	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:212:SER:HA	1:B:373:GLN:O	2.21	0.40
2:E:67:SER:O	2:E:71:ASN:HB2	2.20	0.40
1:A:241:MET:CE	1:A:262:CYS:HB3	2.51	0.40
1:B:139:LEU:N	1:B:139:LEU:HD22	2.36	0.40
1:A:87:ILE:CG1	1:A:171:ALA:HB3	2.52	0.40
1:A:105:VAL:HG23	1:A:187:PRO:HG2	2.04	0.40
1:B:258:LYS:HE3	1:B:283:ASP:OD1	2.21	0.40
1:A:99:THR:HG23	1:A:100:PRO:CD	2.52	0.40
1:B:235:CYS:HB3	1:B:241:MET:CE	2.44	0.40
2:D:10:THR:CG2	2:D:11:CYS:N	2.83	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	369/382 (97%)	329 (89%)	36 (10%)	4 (1%)	14	30
1	B	369/382 (97%)	337 (91%)	30 (8%)	2 (0%)	29	52
2	D	59/93 (63%)	49 (83%)	9 (15%)	1 (2%)	9	18
2	E	64/93 (69%)	59 (92%)	5 (8%)	0	100	100
All	All	861/950 (91%)	774 (90%)	80 (9%)	7 (1%)	19	39

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	D	45	LEU
1	A	27	LYS
1	A	304	THR
1	B	335	GLU
1	A	311	PRO

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Mol	Chain	Res	Type
1	A	335	GLU
1	B	27	LYS

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	327/335 (98%)	312 (95%)	15 (5%)	27	51
1	B	327/335 (98%)	323 (99%)	4 (1%)	71	87
2	D	56/84 (67%)	54 (96%)	2 (4%)	35	61
2	E	61/84 (73%)	57 (93%)	4 (7%)	16	33
All	All	771/838 (92%)	746 (97%)	25 (3%)	39	65

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

Mol	Chain	Res	Type
1	A	12	HIS
1	A	30	ASP
1	A	33	GLN
1	A	80	GLU
1	A	99	THR
1	A	104	LEU
1	A	142	ASP
1	A	190	SER
1	A	245	SER
1	A	261	THR
1	A	277	ASP
1	A	292	SER
1	A	306	GLU
1	A	345	GLN
1	A	350	LEU
1	B	104	LEU
1	B	312	SER
1	B	337	CYS
1	B	342	VAL

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Mol	Chain	Res	Type
2	D	27	TYR
2	D	28	THR
2	E	17	GLN
2	E	47	VAL
2	E	68	ASN
2	E	72	ASN

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	33	GLN
1	A	35	HIS
1	A	63	GLN
1	A	347	GLN
1	B	33	GLN
1	B	131	GLN
1	B	220	ASN
1	B	321	GLN
2	E	68	ASN
2	E	72	ASN

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](#)

There are no ligands in this entry.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	371/382 (97%)	-0.18	11 (2%) 50 43	30, 50, 87, 117	0
1	B	371/382 (97%)	-0.25	10 (2%) 54 48	24, 47, 88, 119	0
2	D	61/93 (65%)	1.06	15 (24%) 0 0	55, 100, 163, 168	0
2	E	66/93 (70%)	0.30	7 (10%) 6 4	38, 68, 158, 173	0
All	All	869/950 (91%)	-0.09	43 (4%) 29 23	24, 52, 105, 173	0

All (43) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	E	72	ASN	7.4
2	E	69	THR	6.5
2	D	33	SER	5.5
2	D	65	ARG	5.2
2	E	70	ARG	5.0
1	A	305	HIS	4.4
2	E	68	ASN	4.1
2	D	67	SER	4.0
1	A	382	HIS	3.9
1	B	118	GLU	3.9
1	B	382	HIS	3.7
1	B	336	GLN	3.5
2	D	64	ASP	3.5
2	D	52	GLN	3.4
1	B	306	GLU	3.4
1	B	305	HIS	3.2
1	B	120	PRO	3.2
2	E	71	ASN	3.2
1	A	304	THR	2.9
2	D	27	TYR	2.9
1	B	12	HIS	2.8

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Mol	Chain	Res	Type	RSRZ
1	A	250	PHE	2.8
2	D	32	GLY	2.7
2	D	34	LEU	2.6
1	A	118	GLU	2.6
1	B	121	GLU	2.5
2	D	8	LYS	2.5
2	E	67	SER	2.5
2	D	66	LYS	2.4
2	D	62	SER	2.3
1	B	102	ASN	2.3
1	B	335	GLU	2.3
2	D	58	ASP	2.3
2	D	31	GLU	2.3
2	D	61	ARG	2.3
1	A	12	HIS	2.2
1	A	306	GLU	2.1
2	D	63	MET	2.1
1	A	381	ASP	2.1
1	A	336	GLN	2.1
2	E	31	GLU	2.0
1	A	101	VAL	2.0
1	A	325	HIS	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 carbohydrates in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.