Full wwPDB X-ray Structure Validation Report (i)

Jun 17, 2024 – 05:31 AM EDT

PDB ID	:	3B59
Title	:	Crystal structure of the Mn(II)-bound glyoxalase from Novosphingobium aromaticivorans
Authors	:	Madegowda, M.; Eswaramoorthy, S.; Burley, S.K.; Swaminathan, S.; New York SGX Research Center for Structural Genomics (NYSGXRC)
Deposited on	:	2007-10-25
Resolution	:	2.53 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 (i) 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 (i)) were used in the production of this report:

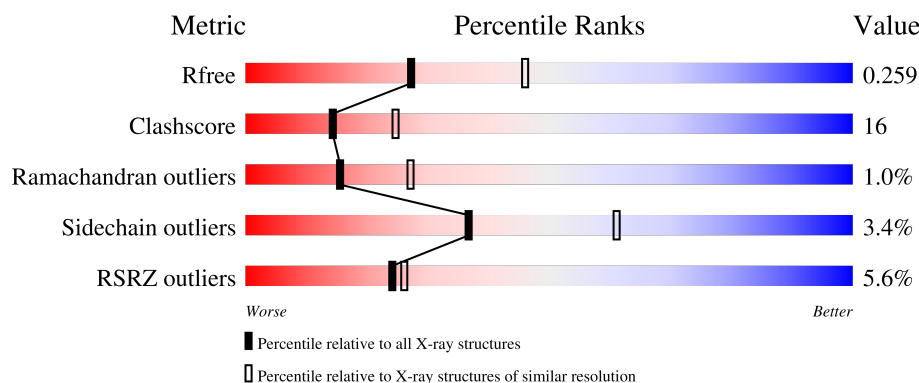|		
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	2.37.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

1   Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.53 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	Percentile Ranks	Value
Rfree		0.259
Clashscore		16
Ramachandran outliers		1.0%
Sidechain outliers		3.4%
RSRZ outliers		5.6%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	5743 (2.54-2.50)
Clashscore	141614	6463 (2.54-2.50)
Ramachandran outliers	138981	6335 (2.54-2.50)
Sidechain outliers	138945	6337 (2.54-2.50)
RSRZ outliers	127900	5630 (2.54-2.50)

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 <=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	310	4% / 68% / 28% / · ·
1	B	310	6% / 69% / 26% / · ·
1	C	310	7% / 69% / 25% / · ·
1	D	310	6% / 67% / 28% / · ·
1	E	310	5% / 65% / 30% / · ·

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	F	310	

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 14236 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 Glyoxalase/bleomycin resistance protein/dioxygenase.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	301	Total	C	N	O	S	Se	0	0	0
			2333	1482	408	432	4	7			
1	B	301	Total	C	N	O	S	Se	0	0	0
			2333	1482	408	432	4	7			
1	C	301	Total	C	N	O	S	Se	0	0	0
			2333	1482	408	432	4	7			
1	D	301	Total	C	N	O	S	Se	0	0	0
			2333	1482	408	432	4	7			
1	E	301	Total	C	N	O	S	Se	0	0	0
			2333	1482	408	432	4	7			
1	F	301	Total	C	N	O	S	Se	0	0	0
			2333	1482	408	432	4	7			

There are 66 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	MSE	-	expression tag	UNP Q2GAG3
A	2	SER	-	expression tag	UNP Q2GAG3
A	3	LEU	-	expression tag	UNP Q2GAG3
A	303	GLU	-	expression tag	UNP Q2GAG3
A	304	GLY	-	expression tag	UNP Q2GAG3
A	305	HIS	-	expression tag	UNP Q2GAG3
A	306	HIS	-	expression tag	UNP Q2GAG3
A	307	HIS	-	expression tag	UNP Q2GAG3
A	308	HIS	-	expression tag	UNP Q2GAG3
A	309	HIS	-	expression tag	UNP Q2GAG3
A	310	HIS	-	expression tag	UNP Q2GAG3
B	1	MSE	-	expression tag	UNP Q2GAG3
B	2	SER	-	expression tag	UNP Q2GAG3
B	3	LEU	-	expression tag	UNP Q2GAG3
B	303	GLU	-	expression tag	UNP Q2GAG3
B	304	GLY	-	expression tag	UNP Q2GAG3
B	305	HIS	-	expression tag	UNP Q2GAG3

Continued on next page...

W O R L D W I D E
wwPDB
PROTEIN DATA BANK

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	306	HIS	-	expression tag	UNP Q2GAG3
B	307	HIS	-	expression tag	UNP Q2GAG3
B	308	HIS	-	expression tag	UNP Q2GAG3
B	309	HIS	-	expression tag	UNP Q2GAG3
B	310	HIS	-	expression tag	UNP Q2GAG3
C	1	MSE	-	expression tag	UNP Q2GAG3
C	2	SER	-	expression tag	UNP Q2GAG3
C	3	LEU	-	expression tag	UNP Q2GAG3
C	303	GLU	-	expression tag	UNP Q2GAG3
C	304	GLY	-	expression tag	UNP Q2GAG3
C	305	HIS	-	expression tag	UNP Q2GAG3
C	306	HIS	-	expression tag	UNP Q2GAG3
C	307	HIS	-	expression tag	UNP Q2GAG3
C	308	HIS	-	expression tag	UNP Q2GAG3
C	309	HIS	-	expression tag	UNP Q2GAG3
C	310	HIS	-	expression tag	UNP Q2GAG3
D	1	MSE	-	expression tag	UNP Q2GAG3
D	2	SER	-	expression tag	UNP Q2GAG3
D	3	LEU	-	expression tag	UNP Q2GAG3
D	303	GLU	-	expression tag	UNP Q2GAG3
D	304	GLY	-	expression tag	UNP Q2GAG3
D	305	HIS	-	expression tag	UNP Q2GAG3
D	306	HIS	-	expression tag	UNP Q2GAG3
D	307	HIS	-	expression tag	UNP Q2GAG3
D	308	HIS	-	expression tag	UNP Q2GAG3
D	309	HIS	-	expression tag	UNP Q2GAG3
D	310	HIS	-	expression tag	UNP Q2GAG3
E	1	MSE	-	expression tag	UNP Q2GAG3
E	2	SER	-	expression tag	UNP Q2GAG3
E	3	LEU	-	expression tag	UNP Q2GAG3
E	303	GLU	-	expression tag	UNP Q2GAG3
E	304	GLY	-	expression tag	UNP Q2GAG3
E	305	HIS	-	expression tag	UNP Q2GAG3
E	306	HIS	-	expression tag	UNP Q2GAG3
E	307	HIS	-	expression tag	UNP Q2GAG3
E	308	HIS	-	expression tag	UNP Q2GAG3
E	309	HIS	-	expression tag	UNP Q2GAG3
E	310	HIS	-	expression tag	UNP Q2GAG3
F	1	MSE	-	expression tag	UNP Q2GAG3
F	2	SER	-	expression tag	UNP Q2GAG3
F	3	LEU	-	expression tag	UNP Q2GAG3
F	303	GLU	-	expression tag	UNP Q2GAG3

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
F	304	GLY	-	expression tag	UNP Q2GAG3
F	305	HIS	-	expression tag	UNP Q2GAG3
F	306	HIS	-	expression tag	UNP Q2GAG3
F	307	HIS	-	expression tag	UNP Q2GAG3
F	308	HIS	-	expression tag	UNP Q2GAG3
F	309	HIS	-	expression tag	UNP Q2GAG3
F	310	HIS	-	expression tag	UNP Q2GAG3

- Molecule 2 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total 1	Mn 1	0	0
2	B	1	Total 1	Mn 1	0	0
2	C	1	Total 1	Mn 1	0	0
2	D	1	Total 1	Mn 1	0	0
2	E	1	Total 1	Mn 1	0	0
2	F	1	Total 1	Mn 1	0	0

- Molecule 3 is water.

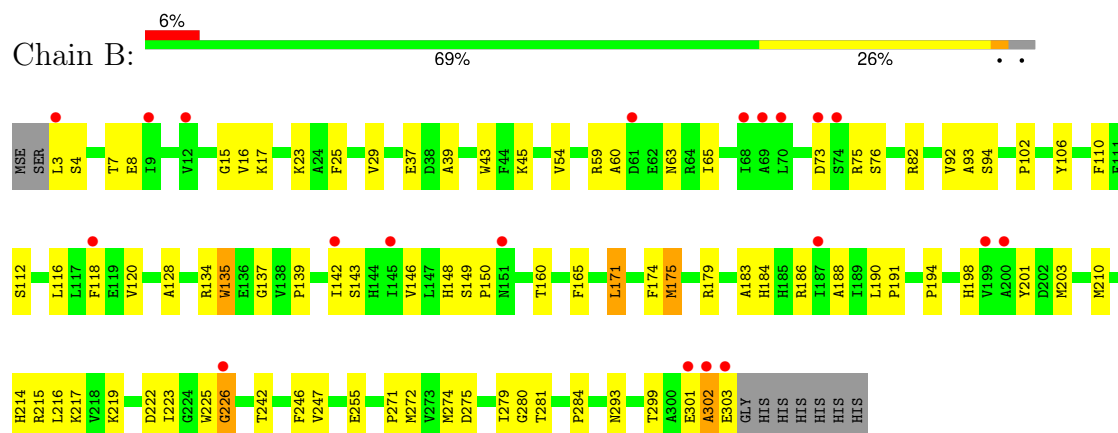| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	57	Total 57	O 57	0	0
3	B	43	Total 43	O 43	0	0
3	C	39	Total 39	O 39	0	0
3	D	41	Total 41	O 41	0	0
3	E	17	Total 17	O 17	0	0
3	F	35	Total 35	O 35	0	0

3 Residue-property plots ⓘ

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.
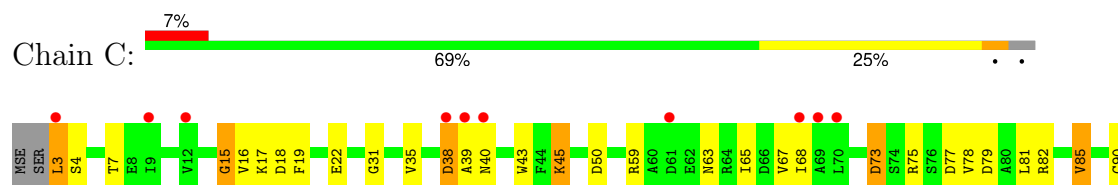
- Molecule 1: Glyoxalase/bleomycin resistance protein/dioxygenase

- Molecule 1: Glyoxalase/bleomycin resistance protein/dioxygenase

- Molecule 1: Glyoxalase/bleomycin resistance protein/dioxygenase

• Molecule 1: Glyoxalase/bleomycin resistance protein/dioxygenase
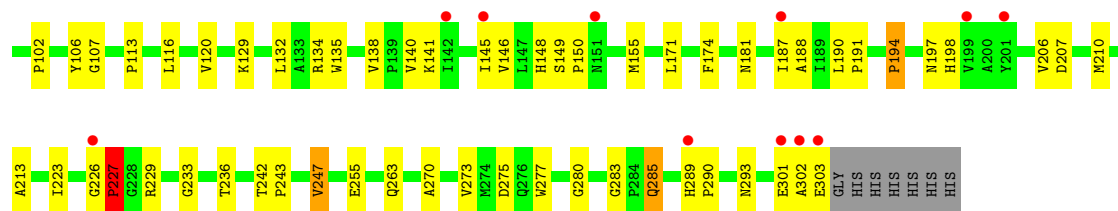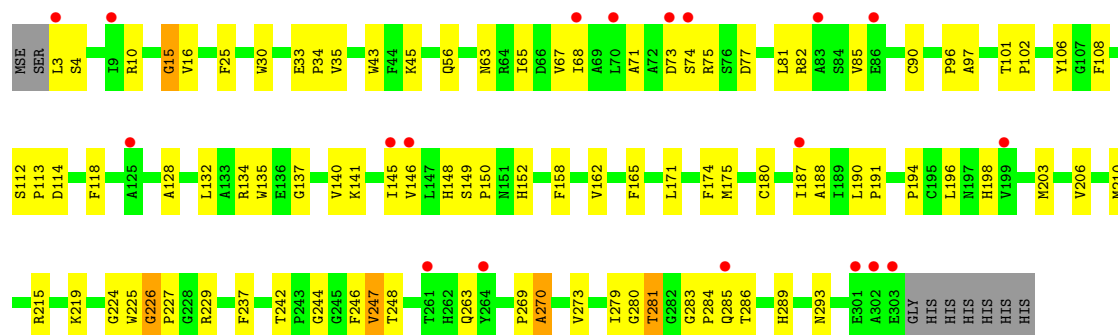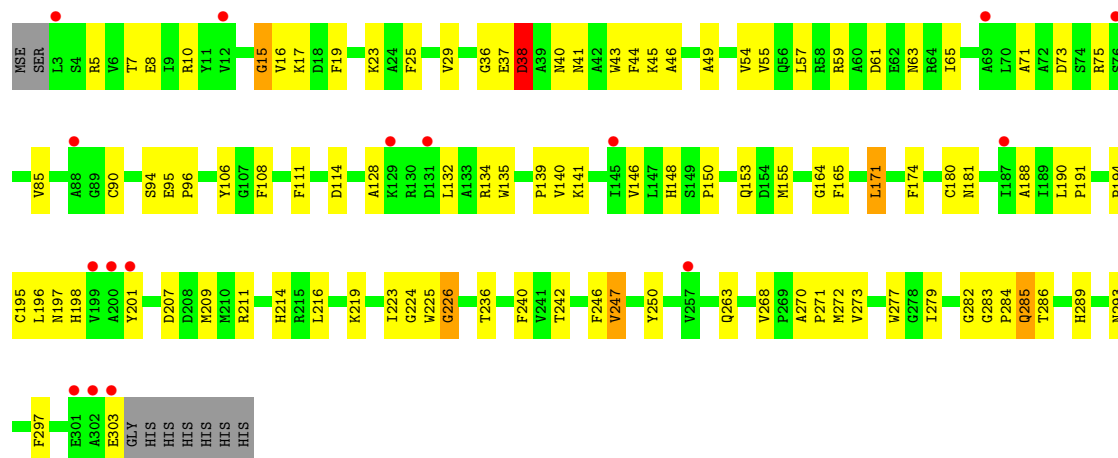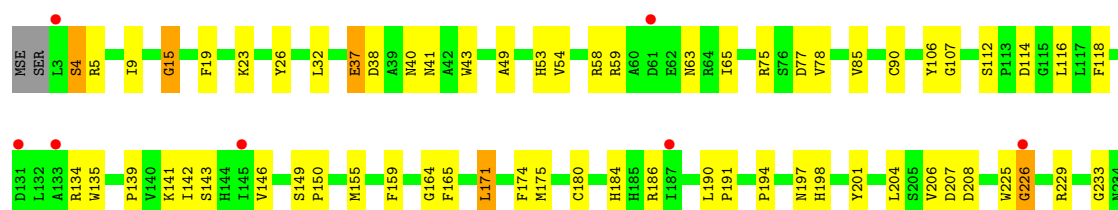

• Molecule 1: Glyoxalase/bleomycin resistance protein/dioxygenase

• Molecule 1: Glyoxalase/bleomycin resistance protein/dioxygenase

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	I 2 2 2	Depositor
Cell constants a, b, c, α, β, γ	145.00Å 168.35Å 202.79Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.57 – 2.53 30.11 – 2.52	Depositor EDS
% Data completeness (in resolution range)	96.6 (29.57-2.53) 96.3 (30.11-2.52)	Depositor EDS
R_{merge}	0.14	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.22 (at 2.54Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.218 , 0.257 0.221 , 0.259	Depositor DCC
R_{free} test set	7716 reflections (4.79%)	wwPDB-VP
Wilson B-factor (Å^2)	33.7	Xtriage
Anisotropy	0.373	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 34.8	EDS
L-test for twinning[2]	$< |L| > = 0.48, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	14236	wwPDB-VP
Average B, all atoms (Å^2)	33.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.41% of the height of the origin peak. No significant pseudotranslation is detected.*

---

[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ 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)

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

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	0.43	0/2393	0.68	2/3242 (0.1%)
1	B	0.43	0/2393	0.66	0/3242
1	C	0.43	0/2393	0.68	1/3242 (0.0%)
1	D	0.44	0/2393	0.66	1/3242 (0.0%)
1	E	0.43	0/2393	0.68	1/3242 (0.0%)
1	F	0.42	0/2393	0.66	2/3242 (0.1%)
All	All	0.43	0/14358	0.67	7/19452 (0.0%)

There are no bond length outliers.

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	15	GLY	N-CA-C	-6.05	97.98	113.10
1	C	15	GLY	N-CA-C	-5.48	99.40	113.10
1	F	15	GLY	N-CA-C	-5.37	99.67	113.10
1	F	171	LEU	N-CA-C	-5.34	96.57	111.00
1	A	283	GLY	N-CA-C	-5.25	99.96	113.10
1	A	15	GLY	N-CA-C	-5.24	100.00	113.10
1	E	15	GLY	N-CA-C	-5.21	100.08	113.10

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	2333	0	2224	70	0
1	B	2333	0	2224	66	0
1	C	2333	0	2224	67	0
1	D	2333	0	2224	78	0
1	E	2333	0	2224	87	0
1	F	2333	0	2224	75	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
2	E	1	0	0	0	0
2	F	1	0	0	0	0
3	A	57	0	0	2	0
3	B	43	0	0	1	0
3	C	39	0	0	0	0
3	D	41	0	0	0	0
3	E	17	0	0	1	0
3	F	35	0	0	3	0
All	All	14236	0	13344	424	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 (424) 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:F:65:ILE:H	1:F:293:ASN:HD21	1.03	1.00
1:B:65:ILE:H	1:B:293:ASN:HD21	1.09	0.98
1:F:4:SER:HB3	1:F:77:ASP:OD1	1.65	0.97
1:B:3:LEU:HG	1:B:4:SER:H	1.29	0.94
1:A:65:ILE:H	1:A:293:ASN:HD21	0.98	0.93
1:F:279:ILE:HD12	1:F:280:GLY:N	1.84	0.90
1:C:223:ILE:HG21	1:C:226:GLY:HA3	1.52	0.89
1:C:210:MSE:SE	1:D:279:ILE:HD11	2.23	0.89
1:D:289:HIS:NE2	1:F:272:MSE:SE	2.56	0.89
1:A:279:ILE:HD11	1:B:210:MSE:SE	2.24	0.87
1:C:146:VAL:HG22	1:C:188:ALA:HB3	1.60	0.83
1:D:16:VAL:HG12	1:D:246:PHE:HE2	1.43	0.83
1:C:65:ILE:H	1:C:293:ASN:HD21	1.24	0.83
1:A:75:ARG:HG3	1:A:106:TYR:CD2	2.14	0.82
1:C:3:LEU:HD22	1:C:4:SER:H	1.43	0.82
1:C:4:SER:HB3	1:C:77:ASP:OD1	1.80	0.82

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:174:PHE:O	1:F:191:PRO:HD3	1.81	0.81
1:B:82:ARG:NH1	1:B:92:VAL:HG21	1.96	0.80
1:F:65:ILE:H	1:F:293:ASN:ND2	1.80	0.80
1:F:270:ALA:HB3	1:F:273:VAL:HG23	1.64	0.80
1:A:7:THR:HG21	1:A:73:ASP:OD1	1.82	0.80
1:A:65:ILE:N	1:A:293:ASN:HD21	1.78	0.78
1:A:270:ALA:HB3	1:A:273:VAL:HG23	1.65	0.78
1:F:75:ARG:HG3	1:F:106:TYR:CD2	2.19	0.77
1:F:65:ILE:N	1:F:293:ASN:HD21	1.82	0.76
1:E:65:ILE:H	1:E:293:ASN:HD21	1.33	0.76
1:E:85:VAL:HG13	1:E:90:CYS:HB2	1.67	0.75
1:B:146:VAL:HG22	1:B:188:ALA:HB3	1.69	0.75
1:C:190:LEU:HD12	1:C:191:PRO:HD2	1.69	0.75
1:C:75:ARG:HG3	1:C:106:TYR:CD2	2.22	0.75
1:F:198:HIS:HB3	1:F:247:VAL:HG22	1.68	0.75
1:B:82:ARG:HH11	1:B:92:VAL:HG21	1.51	0.74
1:D:65:ILE:H	1:D:293:ASN:HD21	1.33	0.74
1:E:165:PHE:CE1	1:E:180:CYS:HB3	2.23	0.73
1:D:175:MSE:HE3	1:D:190:LEU:HD13	1.70	0.73
1:C:150:PRO:HG3	1:C:194:PRO:HD3	1.70	0.72
1:C:7:THR:HG21	1:C:73:ASP:OD1	1.89	0.72
1:F:184:HIS:HB3	1:F:254:LEU:HD11	1.71	0.72
1:E:209:MSE:HE1	1:E:236:THR:HB	1.71	0.71
1:B:284:PRO:HB2	1:E:271:PRO:HB3	1.71	0.71
1:A:174:PHE:O	1:A:191:PRO:HD3	1.90	0.71
1:B:3:LEU:HG	1:B:4:SER:N	2.05	0.71
1:E:23:LYS:HZ1	1:E:37:GLU:HG2	1.56	0.70
1:B:174:PHE:O	1:B:191:PRO:HD3	1.90	0.70
1:D:226:GLY:HA3	1:D:281:THR:H	1.56	0.70
1:B:223:ILE:HG21	1:B:226:GLY:HA2	1.72	0.70
1:E:270:ALA:HB3	1:E:273:VAL:HG23	1.72	0.70
1:F:85:VAL:HG13	1:F:90:CYS:HB2	1.73	0.69
1:C:40:ASN:HA	1:C:59:ARG:HH12	1.57	0.69
1:A:151:ASN:HB3	3:A:613:HOH:O	1.91	0.69
1:A:226:GLY:N	1:A:281:THR:O	2.24	0.68
1:E:40:ASN:OD1	1:E:59:ARG:HD2	1.93	0.68
1:D:63:ASN:ND2	1:D:244:GLY:O	2.27	0.68
1:A:82:ARG:HD3	1:A:96:PRO:HD3	1.75	0.67
1:F:290:PRO:HG2	3:F:635:HOH:O	1.93	0.67
1:B:225:TRP:O	1:B:226:GLY:O	2.13	0.67
1:D:285:GLN:HG2	1:F:272:MSE:HE2	1.76	0.67

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:279:ILE:CD1	1:B:210:MSE:SE	2.93	0.67
1:F:198:HIS:CB	1:F:247:VAL:HG22	2.24	0.67
1:D:75:ARG:HG3	1:D:106:TYR:CE2	2.30	0.67
1:D:146:VAL:HG22	1:D:188:ALA:HB3	1.77	0.67
1:D:175:MSE:HE3	1:D:190:LEU:HD22	1.78	0.66
1:E:75:ARG:HG3	1:E:106:TYR:CD2	2.30	0.66
1:E:146:VAL:HG22	1:E:188:ALA:HB3	1.77	0.66
1:F:175:MSE:HE2	1:F:190:LEU:HD22	1.78	0.65
1:B:215:ARG:O	1:B:219:LYS:HG2	1.97	0.65
1:E:132:LEU:HD12	1:E:140:VAL:HG22	1.77	0.65
1:B:255:GLU:OE2	1:B:255:GLU:HA	1.96	0.65
1:E:29:VAL:HG22	1:E:219:LYS:HD3	1.79	0.65
1:C:174:PHE:O	1:C:191:PRO:HD3	1.98	0.64
1:C:132:LEU:HD12	1:C:140:VAL:HG22	1.80	0.64
1:B:217:LYS:HE3	1:B:222:ASP:OD1	1.98	0.64
1:D:114:ASP:OD2	1:D:150:PRO:HD2	1.97	0.64
1:A:61:ASP:HB2	1:A:303:GLU:OE2	1.98	0.63
1:C:75:ARG:HG3	1:C:106:TYR:CE2	2.33	0.63
1:D:16:VAL:HG12	1:D:246:PHE:CE2	2.32	0.63
1:D:198:HIS:CB	1:D:247:VAL:HG22	2.28	0.63
1:A:225:TRP:O	1:A:226:GLY:O	2.16	0.63
1:A:271:PRO:HG2	1:A:272:MSE:H	1.64	0.62
1:D:198:HIS:HB2	1:D:247:VAL:HG22	1.79	0.62
1:C:3:LEU:HD22	1:C:4:SER:N	2.14	0.62
1:C:85:VAL:HG13	1:C:90:CYS:HB2	1.79	0.62
1:E:65:ILE:HD11	1:E:196:LEU:HD22	1.80	0.62
1:A:74:SER:HB3	1:A:77:ASP:OD2	2.00	0.62
1:A:9:ILE:HD13	1:A:145:ILE:HD12	1.82	0.61
1:A:148:HIS:CE1	1:A:190:LEU:HD23	2.35	0.61
1:E:23:LYS:NZ	1:E:37:GLU:HG2	2.15	0.61
1:F:146:VAL:HG21	1:F:198:HIS:CE1	2.35	0.61
1:D:171:LEU:HB2	1:D:175:MSE:HB3	1.83	0.61
1:F:225:TRP:CD1	1:F:283:GLY:HA2	2.36	0.61
1:D:43:TRP:CD1	1:D:56:GLN:HG3	2.36	0.61
1:B:39:ALA:O	1:B:59:ARG:NH1	2.34	0.61
1:E:139:PRO:HB3	1:E:201:TYR:HB3	1.82	0.60
1:C:16:VAL:HA	1:C:63:ASN:OD1	2.01	0.60
1:C:78:VAL:HG11	1:C:107:GLY:HA2	1.83	0.60
1:A:215:ARG:O	1:A:218:VAL:HG22	2.02	0.60
1:B:175:MSE:HG3	1:B:190:LEU:HD13	1.84	0.60
1:D:81:LEU:O	1:D:85:VAL:HG23	2.02	0.60

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:135:TRP:CH2	1:E:207:ASP:HB3	2.37	0.60
1:B:65:ILE:N	1:B:293:ASN:HD21	1.91	0.59
1:F:38:ASP:OD1	1:F:41:ASN:HB2	2.02	0.59
1:A:139:PRO:HB3	1:A:201:TYR:HB3	1.84	0.59
1:C:197:ASN:O	1:C:247:VAL:HG13	2.02	0.59
1:D:289:HIS:HD2	1:F:272:MSE:HG3	1.67	0.59
1:A:298:GLN:OE1	1:A:302:ALA:HB1	2.03	0.59
1:E:5:ARG:HB2	1:E:164:GLY:HA3	1.85	0.59
1:A:270:ALA:HB3	1:A:273:VAL:CG2	2.30	0.59
1:D:150:PRO:CG	1:D:194:PRO:HD3	2.32	0.59
1:E:65:ILE:CD1	1:E:196:LEU:HD22	2.32	0.59
1:C:135:TRP:CH2	1:C:207:ASP:HB3	2.38	0.58
1:E:225:TRP:CD1	1:E:283:GLY:HA2	2.38	0.58
1:A:134:ARG:O	1:A:135:TRP:HB2	2.04	0.58
1:E:285:GLN:OE1	1:E:285:GLN:HA	2.03	0.57
1:C:277:TRP:CZ3	1:D:210:MSE:HE3	2.39	0.57
1:F:175:MSE:HG3	1:F:190:LEU:HD13	1.85	0.57
1:F:233:GLY:O	1:F:255:GLU:HG2	2.04	0.57
1:C:150:PRO:CG	1:C:194:PRO:HD3	2.35	0.57
1:C:233:GLY:O	1:C:255:GLU:HG2	2.05	0.57
1:D:75:ARG:HG3	1:D:106:TYR:CD2	2.39	0.57
1:E:75:ARG:HG3	1:E:106:TYR:CE2	2.40	0.57
1:E:174:PHE:O	1:E:191:PRO:HD3	2.05	0.56
1:C:81:LEU:HD12	1:C:120:VAL:HG11	1.88	0.56
1:B:16:VAL:HG12	1:B:246:PHE:HE2	1.70	0.56
1:D:74:SER:HB3	1:D:77:ASP:OD2	2.05	0.56
1:B:272:MSE:O	1:B:272:MSE:HG2	2.06	0.56
1:F:150:PRO:CG	1:F:194:PRO:HD3	2.36	0.56
1:C:113:PRO:HD2	1:C:155:MSE:HE1	1.88	0.56
1:D:174:PHE:O	1:D:191:PRO:HD3	2.06	0.56
1:A:7:THR:O	1:A:8:GLU:HG2	2.06	0.55
1:A:35:VAL:HG21	1:A:45:LYS:HB3	1.89	0.55
1:D:3:LEU:HG	1:D:4:SER:H	1.70	0.55
1:B:139:PRO:HB3	1:B:201:TYR:HB3	1.88	0.55
1:C:198:HIS:CB	1:C:247:VAL:HG22	2.37	0.55
1:C:283:GLY:HA3	1:C:285:GLN:HE22	1.70	0.55
1:E:198:HIS:CB	1:E:247:VAL:HG22	2.36	0.55
1:D:226:GLY:HA3	1:D:280:GLY:HA3	1.89	0.55
1:E:111:PHE:CD1	1:E:297:PHE:HA	2.42	0.55
1:E:198:HIS:HB2	1:E:247:VAL:HG22	1.89	0.55
1:E:223:ILE:HG21	1:E:226:GLY:HA2	1.88	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:264:TYR:CD1	1:F:264:TYR:C	2.81	0.55
1:B:3:LEU:CG	1:B:4:SER:H	2.01	0.54
1:F:75:ARG:HG3	1:F:106:TYR:CE2	2.42	0.54
1:A:114:ASP:OD2	1:A:155:MSE:HE3	2.06	0.54
1:B:110:PHE:HE2	1:B:120:VAL:HG23	1.72	0.54
1:E:94:SER:O	1:E:108:PHE:HB2	2.07	0.54
1:F:15:GLY:O	1:F:63:ASN:HA	2.08	0.54
1:A:22:GLU:OE1	1:A:22:GLU:HA	2.08	0.54
1:E:54:VAL:HG23	1:E:55:VAL:HG23	1.88	0.54
1:E:75:ARG:HD2	3:E:607:HOH:O	2.06	0.54
1:A:176:CYS:O	1:A:188:ALA:HA	2.07	0.54
1:B:226:GLY:HA3	1:B:281:THR:H	1.72	0.54
1:F:134:ARG:HG2	1:F:135:TRP:CD1	2.43	0.54
1:F:155:MSE:HE3	3:F:628:HOH:O	2.07	0.54
1:B:183:ALA:O	1:B:184:HIS:C	2.46	0.54
1:C:38:ASP:OD1	1:C:40:ASN:N	2.34	0.54
1:C:223:ILE:HD13	1:C:227:PRO:HD2	1.89	0.54
1:D:196:LEU:C	1:D:196:LEU:HD23	2.28	0.54
1:D:269:PRO:O	1:D:270:ALA:HB2	2.07	0.54
1:E:165:PHE:CD1	1:E:180:CYS:HB3	2.42	0.54
1:F:235:ASN:HB3	1:F:254:LEU:HA	1.90	0.54
1:F:279:ILE:HD12	1:F:279:ILE:C	2.29	0.54
1:C:40:ASN:HA	1:C:59:ARG:NH1	2.22	0.54
1:D:65:ILE:H	1:D:293:ASN:ND2	2.05	0.54
1:F:54:VAL:HB	1:F:142:ILE:HD11	1.90	0.54
1:E:190:LEU:HD12	1:E:191:PRO:HD2	1.89	0.53
1:E:17:LYS:HD2	1:E:61:ASP:O	2.08	0.53
1:C:210:MSE:SE	1:D:279:ILE:CD1	3.01	0.53
1:D:35:VAL:CG2	1:D:45:LYS:HB2	2.38	0.53
1:A:85:VAL:CG1	1:A:90:CYS:HB2	2.39	0.53
1:A:134:ARG:HG2	1:A:135:TRP:CD1	2.43	0.53
1:A:175:MSE:HE3	1:A:190:LEU:HD13	1.89	0.53
1:C:190:LEU:CD1	1:C:191:PRO:HD2	2.38	0.53
1:E:268:VAL:O	1:E:273:VAL:HG21	2.08	0.53
1:C:22:GLU:OE1	1:C:243:PRO:HG2	2.08	0.53
1:E:150:PRO:CG	1:E:194:PRO:HD3	2.39	0.53
1:E:10:ARG:HG3	1:E:71:ALA:HB2	1.90	0.53
1:B:148:HIS:HA	1:B:190:LEU:O	2.09	0.52
1:B:299:THR:OG1	1:B:301:GLU:HB2	2.08	0.52
1:E:277:TRP:O	1:E:279:ILE:HG23	2.09	0.52
1:D:43:TRP:CE2	1:D:102:PRO:HG2	2.44	0.52

Continued on next page...

Full wwPDB X-ray Structure Validation Report

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:145:ILE:HB	1:D:187:ILE:HD13	1.92	0.52
1:E:16:VAL:CG2	1:E:19:PHE:HA	2.40	0.52
1:B:160:THR:HA	1:B:165:PHE:O	2.10	0.52
1:B:143:SER:O	1:B:186:ARG:HD3	2.10	0.52
1:C:198:HIS:HB3	1:C:247:VAL:HG22	1.91	0.52
1:D:96:PRO:O	1:D:97:ALA:HB2	2.10	0.52
1:A:75:ARG:HG3	1:A:106:TYR:CE2	2.44	0.52
1:F:272:MSE:HE1	1:F:278:GLY:HA3	1.92	0.52
1:C:301:GLU:O	1:C:303:GLU:N	2.43	0.51
1:E:61:ASP:HB2	1:E:303:GLU:OE2	2.09	0.51
1:B:75:ARG:HG2	1:B:106:TYR:CD2	2.45	0.51
1:B:112:SER:HB3	1:B:118:PHE:CE2	2.45	0.51
1:C:206:VAL:HG22	1:C:236:THR:HG21	1.92	0.51
1:D:15:GLY:O	1:D:63:ASN:HA	2.09	0.51
1:E:95:GLU:O	1:E:96:PRO:C	2.47	0.51
1:D:158:PHE:O	1:D:162:VAL:HB	2.11	0.51
1:B:198:HIS:HB3	1:B:247:VAL:HG22	1.91	0.51
1:D:165:PHE:CE1	1:D:180:CYS:HB3	2.45	0.51
1:B:134:ARG:O	1:B:135:TRP:HB2	2.11	0.51
1:D:4:SER:HB2	1:D:77:ASP:OD1	2.11	0.51
1:E:114:ASP:OD2	1:E:155:MSE:HE3	2.10	0.51
1:C:283:GLY:HA3	1:C:285:GLN:NE2	2.24	0.51
1:D:225:TRP:O	1:D:226:GLY:O	2.29	0.51
1:B:271:PRO:HD2	3:B:636:HOH:O	2.11	0.51
1:E:25:PHE:CZ	1:E:242:THR:HG22	2.46	0.51
1:A:38:ASP:OD2	1:A:38:ASP:C	2.49	0.50
1:D:225:TRP:CD1	1:D:283:GLY:HA2	2.46	0.50
1:C:270:ALA:HB3	1:C:273:VAL:HG23	1.94	0.50
1:D:65:ILE:N	1:D:293:ASN:HD21	2.06	0.50
1:E:85:VAL:CG1	1:E:90:CYS:HB2	2.38	0.50
1:E:7:THR:O	1:E:8:GLU:HG2	2.12	0.50
1:B:198:HIS:CB	1:B:247:VAL:HG22	2.42	0.50
1:C:65:ILE:N	1:C:293:ASN:HD21	2.00	0.50
1:E:41:ASN:HA	1:E:57:LEU:O	2.11	0.50
1:B:43:TRP:CE2	1:B:102:PRO:HG2	2.47	0.50
1:D:226:GLY:HA3	1:D:281:THR:N	2.24	0.50
1:A:215:ARG:O	1:A:219:LYS:HG2	2.12	0.49
1:E:15:GLY:O	1:E:63:ASN:HA	2.12	0.49
1:B:82:ARG:HD2	1:B:82:ARG:O	2.13	0.49
1:F:285:GLN:HA	1:F:285:GLN:NE2	2.27	0.49
1:A:272:MSE:CE	1:C:285:GLN:HB3	2.43	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:223:ILE:HG21	1:B:226:GLY:CA	2.41	0.49
1:B:17:LYS:HA	1:B:60:ALA:O	2.13	0.49
1:D:134:ARG:O	1:D:135:TRP:HB2	2.11	0.49
1:A:114:ASP:HB3	1:A:194:PRO:HB3	1.94	0.49
1:D:289:HIS:CD2	1:F:272:MSE:SE	3.15	0.49
1:D:289:HIS:CD2	1:F:272:MSE:HG3	2.46	0.49
1:F:150:PRO:HG2	1:F:194:PRO:HD3	1.94	0.49
1:F:40:ASN:O	1:F:58:ARG:HA	2.13	0.49
1:A:82:ARG:HH12	1:A:86:GLU:HB2	1.76	0.49
1:E:282:GLY:HA2	1:E:286:THR:HG21	1.94	0.49
1:E:25:PHE:CE2	1:E:242:THR:HG22	2.48	0.48
1:E:40:ASN:HB3	1:E:59:ARG:HB3	1.94	0.48
1:A:229:ARG:NH1	1:A:253:GLU:OE1	2.41	0.48
1:C:35:VAL:CG2	1:C:45:LYS:HB3	2.44	0.48
1:A:5:ARG:HD2	3:A:624:HOH:O	2.14	0.48
1:A:278:GLY:O	1:B:214:HIS:HD2	1.96	0.48
1:E:148:HIS:HA	1:E:190:LEU:O	2.14	0.48
1:E:150:PRO:HG2	1:E:194:PRO:HD3	1.94	0.48
1:B:171:LEU:HG	1:B:175:MSE:HE3	1.96	0.48
1:C:17:LYS:O	1:C:19:PHE:N	2.42	0.48
1:C:43:TRP:CE2	1:C:102:PRO:HG2	2.48	0.48
1:D:43:TRP:NE1	1:D:56:GLN:HG3	2.29	0.48
1:D:215:ARG:O	1:D:219:LYS:HG2	2.13	0.48
1:F:165:PHE:CE1	1:F:180:CYS:HB3	2.48	0.48
1:B:54:VAL:HB	1:B:142:ILE:HD11	1.96	0.48
1:C:31:GLY:HA3	1:C:138:VAL:HG12	1.96	0.48
1:B:279:ILE:HD12	1:B:280:GLY:N	2.29	0.48
1:A:132:LEU:HD12	1:A:140:VAL:HG22	1.96	0.47
1:E:134:ARG:O	1:E:135:TRP:HB2	2.14	0.47
1:F:225:TRP:O	1:F:226:GLY:O	2.32	0.47
1:E:90:CYS:HB3	1:E:111:PHE:O	2.14	0.47
1:A:171:LEU:HB2	1:A:175:MSE:HB3	1.96	0.47
1:F:78:VAL:HG11	1:F:107:GLY:HA2	1.96	0.47
1:B:23:LYS:NZ	1:B:37:GLU:OE1	2.42	0.47
1:B:301:GLU:OE2	1:B:301:GLU:HA	2.15	0.47
1:A:169:ASP:OD2	1:A:184:HIS:NE2	2.43	0.47
1:E:201:TYR:N	1:E:201:TYR:CD2	2.82	0.47
1:F:204:LEU:HB3	1:F:208:ASP:OD2	2.15	0.47
1:C:67:VAL:HG22	1:C:68:ILE:N	2.28	0.47
1:E:16:VAL:HG23	1:E:19:PHE:HA	1.94	0.47
1:A:16:VAL:HG13	1:A:246:PHE:HE2	1.80	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:146:VAL:HG21	1:D:198:HIS:CE1	2.49	0.47
1:A:145:ILE:HG12	1:A:199:VAL:HG22	1.97	0.47
1:C:242:THR:HB	1:C:243:PRO:HD2	1.97	0.47
1:D:227:PRO:HA	1:D:237:PHE:O	2.13	0.47
1:E:283:GLY:O	1:E:284:PRO:C	2.50	0.47
1:F:134:ARG:O	1:F:135:TRP:HB2	2.15	0.47
1:E:225:TRP:NE1	1:E:283:GLY:HA2	2.31	0.46
1:E:225:TRP:CZ2	1:E:284:PRO:HD3	2.50	0.46
1:D:114:ASP:HB3	1:D:194:PRO:HB3	1.96	0.46
1:D:175:MSE:CE	1:D:190:LEU:HD22	2.45	0.46
1:D:85:VAL:CG1	1:D:90:CYS:HB2	2.45	0.46
1:A:146:VAL:HG22	1:A:188:ALA:HB3	1.97	0.46
1:D:67:VAL:HG22	1:D:68:ILE:N	2.30	0.46
1:B:25:PHE:CE2	1:B:242:THR:HG22	2.50	0.46
1:F:296:LEU:HD13	3:F:627:HOH:O	2.15	0.46
1:A:38:ASP:OD2	1:A:39:ALA:N	2.49	0.46
1:B:225:TRP:CH2	1:B:284:PRO:HD3	2.50	0.46
1:D:206:VAL:O	1:D:210:MSE:HG2	2.16	0.46
1:B:274:MSE:HE3	1:B:274:MSE:HA	1.98	0.46
1:B:65:ILE:H	1:B:293:ASN:ND2	1.93	0.46
1:C:15:GLY:O	1:C:63:ASN:HA	2.16	0.46
1:B:171:LEU:HB2	1:B:175:MSE:HB3	1.97	0.46
1:C:213:ALA:HB1	1:C:223:ILE:HD11	1.97	0.46
1:E:23:LYS:HZ3	1:E:37:GLU:CD	2.18	0.46
1:F:225:TRP:CZ2	1:F:284:PRO:HD3	2.51	0.46
1:B:175:MSE:CG	1:B:190:LEU:HD13	2.46	0.45
1:F:19:PHE:O	1:F:23:LYS:HB2	2.15	0.45
1:E:153:GLN:OE1	1:E:153:GLN:HA	2.16	0.45
1:F:285:GLN:CA	1:F:285:GLN:HE21	2.28	0.45
1:B:15:GLY:O	1:B:63:ASN:HA	2.16	0.45
1:C:3:LEU:CD2	1:C:4:SER:H	2.22	0.45
1:E:16:VAL:HG12	1:E:246:PHE:HE2	1.80	0.45
1:E:36:GLY:O	1:E:43:TRP:HE3	1.98	0.45
1:E:171:LEU:HD22	1:E:171:LEU:HA	1.87	0.45
1:F:112:SER:HB3	1:F:118:PHE:CE2	2.52	0.45
1:B:93:ALA:O	1:B:94:SER:HB3	2.17	0.45
1:A:149:SER:HA	1:A:150:PRO:HD3	1.82	0.45
1:D:198:HIS:HB3	1:D:247:VAL:HG22	1.96	0.45
1:E:114:ASP:CG	1:E:155:MSE:HE3	2.37	0.45
1:E:23:LYS:HG3	1:E:44:PHE:HZ	1.81	0.45
1:D:149:SER:HB3	1:D:152:HIS:HA	1.98	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:150:PRO:CG	1:A:194:PRO:HD3	2.46	0.44
1:D:10:ARG:HG3	1:D:71:ALA:HB2	1.99	0.44
1:E:23:LYS:NZ	1:E:37:GLU:CG	2.81	0.44
1:E:224:GLY:O	1:E:286:THR:OG1	2.36	0.44
1:F:135:TRP:CH2	1:F:207:ASP:HB3	2.52	0.44
1:F:139:PRO:HB3	1:F:201:TYR:HB3	1.99	0.44
1:A:272:MSE:HE2	1:A:272:MSE:HA	1.99	0.44
1:D:148:HIS:HA	1:D:190:LEU:O	2.17	0.44
1:D:224:GLY:O	1:D:286:THR:OG1	2.35	0.44
1:D:226:GLY:N	1:D:281:THR:O	2.46	0.44
1:E:45:LYS:NZ	1:E:49:ALA:O	2.48	0.44
1:B:275:ASP:O	1:E:285:GLN:NE2	2.50	0.44
1:C:223:ILE:HG21	1:C:226:GLY:CA	2.36	0.44
1:D:97:ALA:HA	1:D:106:TYR:CE1	2.52	0.44
1:A:270:ALA:HB1	1:A:271:PRO:HD2	1.99	0.44
1:D:284:PRO:HB3	1:F:271:PRO:HB3	1.98	0.44
1:F:175:MSE:CG	1:F:190:LEU:HD13	2.46	0.44
1:D:82:ARG:HA	1:D:108:PHE:CZ	2.53	0.44
1:D:137:GLY:O	1:D:203:MSE:HE1	2.18	0.44
1:F:261:THR:O	1:F:262:HIS:C	2.55	0.44
1:A:81:LEU:O	1:A:85:VAL:HG23	2.18	0.44
1:E:194:PRO:O	1:E:195:CYS:HB3	2.17	0.44
1:F:225:TRP:CE2	1:F:284:PRO:HD3	2.53	0.44
1:C:198:HIS:HB2	1:C:247:VAL:HG22	2.00	0.43
1:F:9:ILE:HD11	1:F:186:ARG:O	2.17	0.43
1:A:3:LEU:HD12	1:A:3:LEU:N	2.33	0.43
1:A:85:VAL:HG13	1:A:90:CYS:HB2	2.00	0.43
1:E:198:HIS:HB3	1:E:247:VAL:HG22	2.00	0.43
1:B:272:MSE:HE2	1:E:289:HIS:CE1	2.54	0.43
1:C:65:ILE:H	1:C:293:ASN:ND2	2.03	0.43
1:D:158:PHE:CD1	1:D:162:VAL:HG21	2.53	0.43
1:B:302:ALA:O	1:B:303:GLU:C	2.57	0.43
1:E:271:PRO:HG2	1:E:272:MSE:H	1.82	0.43
1:A:223:ILE:HG12	1:A:240:PHE:CE1	2.53	0.43
1:B:225:TRP:CZ2	1:B:284:PRO:HD3	2.54	0.43
1:C:79:ASP:O	1:C:82:ARG:HB3	2.18	0.43
1:E:65:ILE:N	1:E:293:ASN:HD21	2.10	0.43
1:E:211:ARG:O	1:E:214:HIS:HB3	2.19	0.43
1:E:216:LEU:HD13	1:E:250:TYR:HE2	1.83	0.43
1:A:4:SER:HB2	1:A:77:ASP:OD1	2.19	0.43
1:A:285:GLN:NE2	1:C:275:ASP:HB3	2.34	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:271:PRO:HG2	1:F:272:MSE:H	1.83	0.43
1:B:45:LYS:NZ	1:B:128:ALA:O	2.49	0.43
1:D:284:PRO:CB	1:F:271:PRO:HB3	2.49	0.43
1:E:65:ILE:H	1:E:293:ASN:ND2	2.09	0.43
1:A:226:GLY:HA3	1:A:281:THR:H	1.83	0.43
1:E:23:LYS:HZ1	1:E:37:GLU:CG	2.30	0.43
1:F:5:ARG:HB2	1:F:164:GLY:HA3	2.00	0.43
1:F:54:VAL:HB	1:F:142:ILE:CD1	2.49	0.43
1:F:206:VAL:HG22	1:F:236:THR:HG21	2.00	0.43
1:B:179:ARG:HB3	1:B:184:HIS:O	2.18	0.42
1:E:279:ILE:HD12	1:E:279:ILE:C	2.40	0.42
1:C:134:ARG:O	1:C:135:TRP:HB2	2.20	0.42
1:E:240:PHE:O	1:E:247:VAL:HA	2.18	0.42
1:A:110:PHE:HE2	1:A:120:VAL:HG23	1.85	0.42
1:D:112:SER:HB3	1:D:118:PHE:CE2	2.54	0.42
1:F:197:ASN:O	1:F:247:VAL:HG13	2.20	0.42
1:A:94:SER:O	1:A:108:PHE:HB2	2.18	0.42
1:C:145:ILE:HB	1:C:187:ILE:HD13	2.02	0.42
1:C:148:HIS:HA	1:C:190:LEU:O	2.20	0.42
1:D:226:GLY:CA	1:D:281:THR:H	2.29	0.42
1:E:38:ASP:OD1	1:E:38:ASP:C	2.57	0.42
1:A:148:HIS:HA	1:A:190:LEU:O	2.19	0.42
1:A:82:ARG:HH11	1:A:82:ARG:HG3	1.84	0.42
1:A:94:SER:HB2	1:A:109:ARG:H	1.85	0.42
1:C:81:LEU:CD1	1:C:120:VAL:HG11	2.49	0.42
1:D:150:PRO:HG3	1:D:194:PRO:HD3	2.01	0.42
1:D:270:ALA:O	1:D:273:VAL:HB	2.20	0.42
1:F:49:ALA:HB2	1:F:141:LYS:HB3	2.01	0.42
1:A:204:LEU:HB3	1:A:208:ASP:OD2	2.20	0.42
1:C:289:HIS:HA	1:C:290:PRO:HD3	1.94	0.42
1:F:258:ASP:O	1:F:259:PHE:C	2.58	0.42
1:B:279:ILE:HD12	1:B:279:ILE:C	2.40	0.41
1:D:75:ARG:NH2	1:D:106:TYR:HB2	2.35	0.41
1:D:150:PRO:HG2	1:D:194:PRO:HD3	2.02	0.41
1:A:134:ARG:O	1:A:135:TRP:CB	2.68	0.41
1:C:226:GLY:O	1:C:280:GLY:HA3	2.20	0.41
1:F:134:ARG:HG2	1:F:135:TRP:NE1	2.34	0.41
1:B:272:MSE:HE3	1:E:289:HIS:CG	2.55	0.41
1:A:4:SER:CB	1:A:77:ASP:OD1	2.68	0.41
1:B:137:GLY:C	1:B:203:MSE:HE1	2.41	0.41
1:B:226:GLY:N	1:B:281:THR:O	2.54	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:223:ILE:CG2	1:C:226:GLY:HA3	2.37	0.41
1:E:45:LYS:HG2	1:E:46:ALA:N	2.36	0.41
1:F:26:TYR:CD2	1:F:32:LEU:HD12	2.56	0.41
1:F:285:GLN:NE2	1:F:285:GLN:CA	2.83	0.41
1:B:7:THR:O	1:B:8:GLU:HB2	2.21	0.41
1:C:134:ARG:NH1	1:C:207:ASP:OD2	2.50	0.41
1:F:279:ILE:C	1:F:279:ILE:CD1	2.89	0.41
1:B:29:VAL:HG12	1:B:216:LEU:CD1	2.51	0.41
1:C:40:ASN:OD1	1:C:59:ARG:NH1	2.54	0.41
1:C:301:GLU:C	1:C:303:GLU:H	2.23	0.41
1:F:114:ASP:HB3	1:F:194:PRO:HB3	2.03	0.41
1:A:38:ASP:OD2	1:A:40:ASN:N	2.54	0.41
1:C:50:ASP:HB3	1:C:129:LYS:HD2	2.01	0.41
1:D:45:LYS:NZ	1:D:128:ALA:O	2.50	0.41
1:F:37:GLU:HG3	1:F:38:ASP:N	2.35	0.41
1:F:43:TRP:HD1	1:F:53:HIS:CD2	2.38	0.41
1:F:149:SER:HA	1:F:150:PRO:HD3	1.85	0.41
1:C:39:ALA:O	1:C:59:ARG:NH2	2.52	0.41
1:E:23:LYS:NZ	1:E:37:GLU:CD	2.74	0.41
1:E:45:LYS:NZ	1:E:128:ALA:O	2.53	0.41
1:A:74:SER:O	1:A:77:ASP:HB2	2.21	0.41
1:E:65:ILE:HD11	1:E:196:LEU:CD2	2.49	0.40
1:D:25:PHE:CZ	1:D:242:THR:HG22	2.56	0.40
1:D:30:TRP:CZ2	1:D:248:THR:HB	2.56	0.40
1:F:143:SER:CB	1:F:251:THR:HG21	2.51	0.40
1:F:159:PHE:O	1:F:165:PHE:HB2	2.22	0.40
1:F:198:HIS:HB2	1:F:247:VAL:HG22	2.01	0.40
1:D:33:GLU:HA	1:D:34:PRO:HD3	1.90	0.40
1:D:132:LEU:HD12	1:D:140:VAL:HG22	2.03	0.40
1:F:19:PHE:CB	1:F:59:ARG:HG2	2.51	0.40
1:F:198:HIS:HB3	1:F:247:VAL:CG2	2.45	0.40
1:A:14:TYR:HB2	1:A:57:LEU:HD23	2.03	0.40
1:A:226:GLY:HA3	1:A:281:THR:N	2.36	0.40
1:B:149:SER:HA	1:B:150:PRO:HD3	1.94	0.40
1:A:293:ASN:HA	1:A:294:PRO:HD3	1.98	0.40
1:C:149:SER:HA	1:C:150:PRO:HD3	1.81	0.40
1:D:145:ILE:O	1:D:187:ILE:HA	2.22	0.40
1:E:146:VAL:HG21	1:E:198:HIS:CE1	2.56	0.40
1:E:148:HIS:NE2	1:E:197:ASN:ND2	2.56	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	299/310 (96%)	281 (94%)	17 (6%)	1 (0%)	41	59
1	B	299/310 (96%)	277 (93%)	18 (6%)	4 (1%)	12	20
1	C	299/310 (96%)	278 (93%)	16 (5%)	5 (2%)	9	15
1	D	299/310 (96%)	283 (95%)	14 (5%)	2 (1%)	22	37
1	E	299/310 (96%)	276 (92%)	20 (7%)	3 (1%)	15	27
1	F	299/310 (96%)	278 (93%)	18 (6%)	3 (1%)	15	27
All	All	1794/1860 (96%)	1673 (93%)	103 (6%)	18 (1%)	15	27

All (18) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	226	GLY
1	B	226	GLY
1	C	227	PRO
1	C	302	ALA
1	D	226	GLY
1	F	226	GLY
1	E	226	GLY
1	E	181	ASN
1	F	255	GLU
1	B	135	TRP
1	C	18	ASP
1	B	302	ALA
1	C	181	ASN
1	E	38	ASP
1	F	259	PHE
1	B	194	PRO
1	D	270	ALA
1	C	194	PRO

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	242/242 (100%)	236 (98%)	6 (2%)	47	72
1	B	242/242 (100%)	237 (98%)	5 (2%)	53	76
1	C	242/242 (100%)	229 (95%)	13 (5%)	22	40
1	D	242/242 (100%)	234 (97%)	8 (3%)	38	62
1	E	242/242 (100%)	235 (97%)	7 (3%)	42	67
1	F	242/242 (100%)	232 (96%)	10 (4%)	30	53
All	All	1452/1452 (100%)	1403 (97%)	49 (3%)	37	61

All (49) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	3	LEU
1	A	16	VAL
1	A	101	THR
1	A	216	LEU
1	A	247	VAL
1	A	263	GLN
1	B	73	ASP
1	B	76	SER
1	B	116	LEU
1	B	171	LEU
1	B	175	MSE
1	C	3	LEU
1	C	38	ASP
1	C	45	LYS
1	C	73	ASP
1	C	85	VAL
1	C	116	LEU
1	C	141	LYS
1	C	171	LEU
1	C	227	PRO
1	C	229	ARG
1	C	247	VAL

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	C	263	GLN
1	C	285	GLN
1	D	73	ASP
1	D	101	THR
1	D	113	PRO
1	D	141	LYS
1	D	229	ARG
1	D	247	VAL
1	D	263	GLN
1	D	281	THR
1	E	38	ASP
1	E	73	ASP
1	E	141	LYS
1	E	171	LEU
1	E	247	VAL
1	E	263	GLN
1	E	285	GLN
1	F	4	SER
1	F	37	GLU
1	F	116	LEU
1	F	171	LEU
1	F	229	ARG
1	F	238	SER
1	F	247	VAL
1	F	249	GLU
1	F	263	GLN
1	F	264	TYR

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	263	GLN
1	A	285	GLN
1	A	293	ASN
1	B	56	GLN
1	B	293	ASN
1	C	267	HIS
1	C	285	GLN
1	C	293	ASN
1	D	263	GLN
1	D	293	ASN
1	E	267	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	E	293	ASN
1	F	40	ASN
1	F	41	ASN
1	F	56	GLN
1	F	263	GLN
1	F	276	GLN
1	F	285	GLN
1	F	293	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 6 ligands modelled in this entry, 6 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	294/310 (94%)	0.18	13 (4%)	34	37	15, 27, 41, 62	0
1	B	294/310 (94%)	0.37	20 (6%)	17	18	15, 33, 47, 64	0
1	C	294/310 (94%)	0.36	21 (7%)	16	17	14, 32, 46, 65	0
1	D	294/310 (94%)	0.38	19 (6%)	18	20	17, 33, 46, 63	0
1	E	294/310 (94%)	0.49	16 (5%)	25	28	23, 40, 51, 65	0
1	F	294/310 (94%)	0.26	10 (3%)	45	49	19, 33, 46, 60	0
All	All	1764/1860 (94%)	0.34	99 (5%)	24	26	14, 33, 47, 65	0

All (99) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	302	ALA	6.5
1	D	303	GLU	6.0
1	E	3	LEU	5.8
1	D	302	ALA	5.3
1	B	303	GLU	5.0
1	B	302	ALA	4.8
1	A	303	GLU	4.8
1	E	303	GLU	4.8
1	F	303	GLU	4.6
1	B	145	ILE	4.5
1	C	302	ALA	4.4
1	C	303	GLU	4.3
1	F	302	ALA	4.1
1	D	145	ILE	3.9
1	E	301	GLU	3.8
1	F	145	ILE	3.7
1	F	3	LEU	3.7
1	C	145	ILE	3.7
1	A	301	GLU	3.6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	3	LEU	3.6
1	B	9	ILE	3.6
1	E	88	ALA	3.6
1	D	73	ASP	3.5
1	B	301	GLU	3.5
1	B	69	ALA	3.4
1	B	199	VAL	3.4
1	D	9	ILE	3.4
1	D	187	ILE	3.4
1	D	68	ILE	3.2
1	F	301	GLU	3.2
1	D	301	GLU	3.2
1	B	73	ASP	3.2
1	D	74	SER	3.2
1	E	302	ALA	3.1
1	C	40	ASN	3.1
1	E	145	ILE	3.0
1	F	61	ASP	3.0
1	C	301	GLU	2.9
1	B	200	ALA	2.9
1	D	70	LEU	2.8
1	C	61	ASP	2.8
1	B	74	SER	2.8
1	A	142	ILE	2.7
1	B	187	ILE	2.7
1	D	199	VAL	2.7
1	D	125	ALA	2.6
1	F	226	GLY	2.6
1	C	3	LEU	2.6
1	E	12	VAL	2.6
1	E	257	VAL	2.6
1	F	131	ASP	2.6
1	C	9	ILE	2.6
1	B	70	LEU	2.6
1	E	199	VAL	2.6
1	C	142	ILE	2.6
1	C	187	ILE	2.6
1	B	151	ASN	2.6
1	D	146	VAL	2.5
1	D	285	GLN	2.5
1	C	68	ILE	2.5
1	D	83	ALA	2.5

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	151	ASN	2.5
1	C	289	HIS	2.5
1	A	145	ILE	2.5
1	D	261	THR	2.5
1	A	226	GLY	2.5
1	F	133	ALA	2.4
1	A	12	VAL	2.4
1	D	264	TYR	2.4
1	C	12	VAL	2.4
1	B	142	ILE	2.4
1	A	199	VAL	2.3
1	C	38	ASP	2.3
1	A	146	VAL	2.3
1	C	199	VAL	2.3
1	A	200	ALA	2.3
1	E	76	SER	2.3
1	B	12	VAL	2.3
1	B	68	ILE	2.3
1	B	226	GLY	2.3
1	B	61	ASP	2.3
1	C	39	ALA	2.3
1	C	69	ALA	2.2
1	A	40	ASN	2.2
1	E	129	LYS	2.2
1	C	70	LEU	2.2
1	E	69	ALA	2.2
1	E	131	ASP	2.2
1	C	201	TYR	2.1
1	C	151	ASN	2.1
1	D	86	GLU	2.1
1	C	226	GLY	2.1
1	E	201	TYR	2.1
1	E	187	ILE	2.1
1	F	187	ILE	2.1
1	B	118	PHE	2.1
1	E	200	ALA	2.0
1	A	68	ILE	2.0
1	D	3	LEU	2.0

6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

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

Full wwPDB X-ray Structure Validation Report

6.3 Carbohydrates (i)

There are no monosaccharides 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(Å^2)	Q<0.9
2	MN	D	604	1/1	0.97	0.09	21,21,21,21	0
2	MN	C	603	1/1	0.98	0.13	25,25,25,25	0
2	MN	A	602	1/1	0.98	0.15	27,27,27,27	0
2	MN	E	606	1/1	0.98	0.11	30,30,30,30	0
2	MN	F	605	1/1	0.99	0.10	31,31,31,31	0
2	MN	B	601	1/1	1.00	0.12	21,21,21,21	0

6.5 Other polymers (i)

There are no such residues in this entry.