



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 10, 2020 – 01:44 AM BST

PDB ID : 6VGR
Title : Crystal Structure of Human Dipeptidase 3 in Complex with Fab of SC-003
Authors : Hayashi, K.; Longenecker, K.L.; Vivona, S.
Deposited on : 2020-01-08
Resolution : 2.84 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 : 2.13.1
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) : 2.13.1

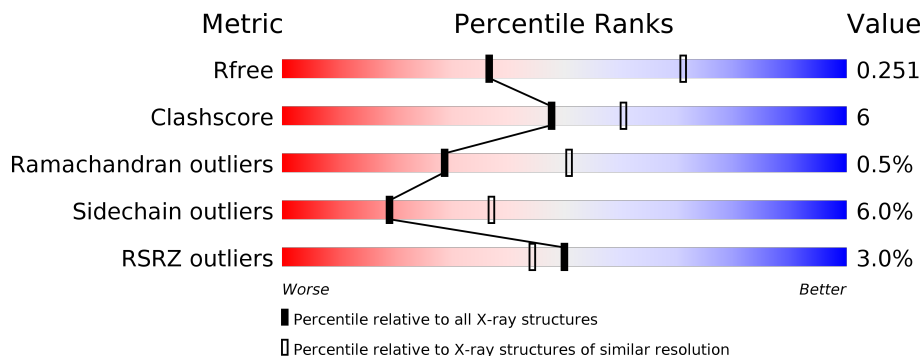
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.84 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	1031 (2.86-2.82)
Clashscore	141614	1078 (2.86-2.82)
Ramachandran outliers	138981	1050 (2.86-2.82)
Sidechain outliers	138945	1051 (2.86-2.82)
RSRZ outliers	127900	1019 (2.86-2.82)

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	488	
1	B	488	
2	C	226	
2	H	226	
3	D	215	
3	L	215	

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 12272 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 Dipeptidase 3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	350	Total 2732	C 1712	N 485	O 522	S 13	0	0	0
1	B	350	Total 2732	C 1712	N 485	O 522	S 13	0	0	0

- Molecule 2 is a protein called SC-003 Fab Heavy Chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	C	217	Total 1642	C 1041	N 271	O 324	S 6	0	0	0
2	H	217	Total 1642	C 1041	N 271	O 324	S 6	0	0	0

- Molecule 3 is a protein called SC-003 Fab Light Chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	D	214	Total 1661	C 1045	N 279	O 333	S 4	0	0	0
3	L	214	Total 1661	C 1045	N 279	O 333	S 4	0	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	58	Total 58	O 58	0	0
4	B	53	Total 53	O 53	0	0
4	C	14	Total 14	O 14	0	0
4	D	15	Total 15	O 15	0	0

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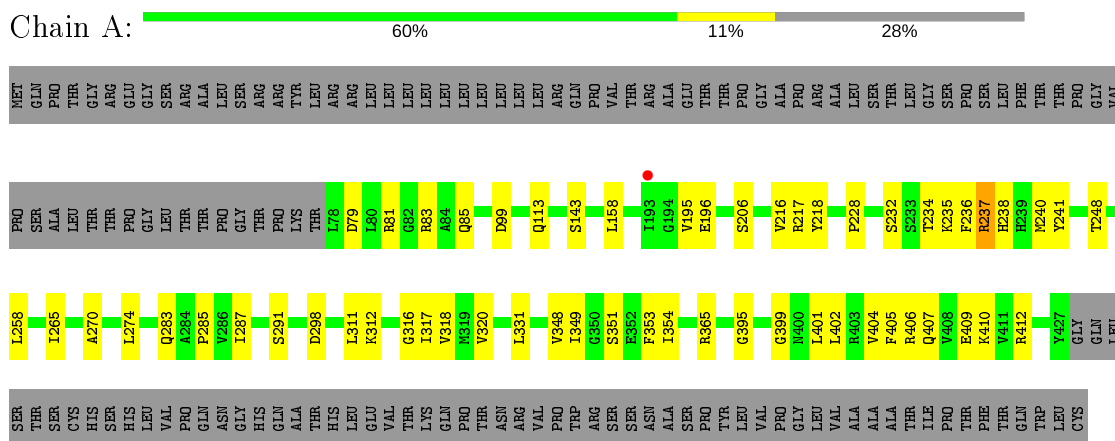
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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	H	21	Total O 21 21	0	0
4	L	41	Total O 41 41	0	0

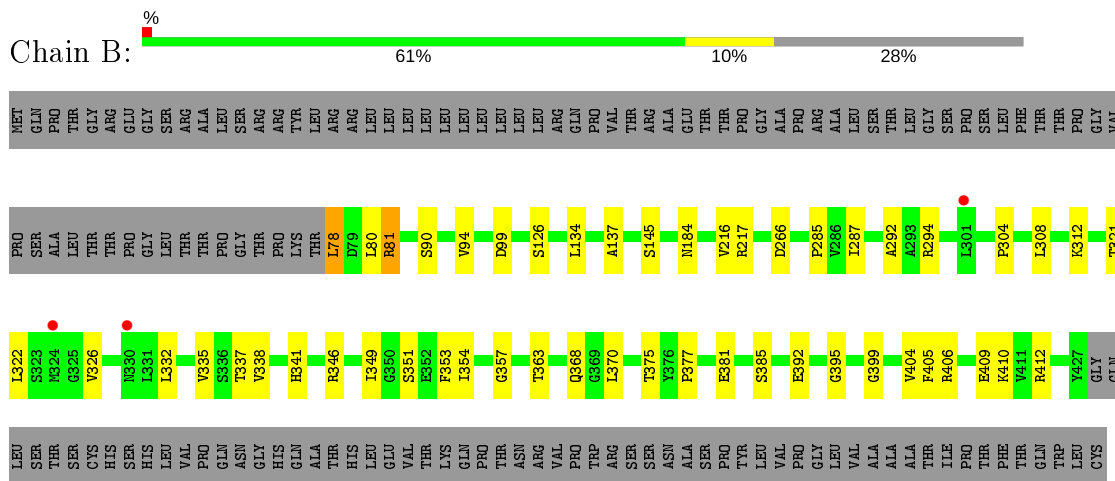
3 Residue-property plots

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.

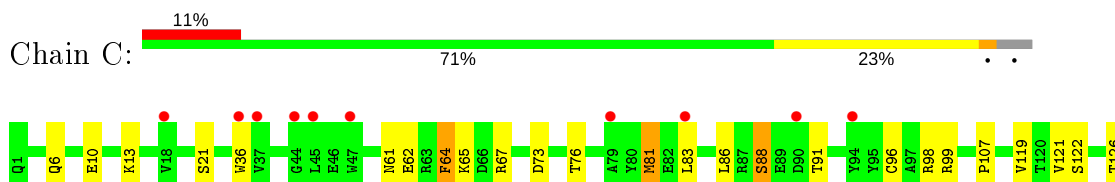
- Molecule 1: Dipeptidase 3

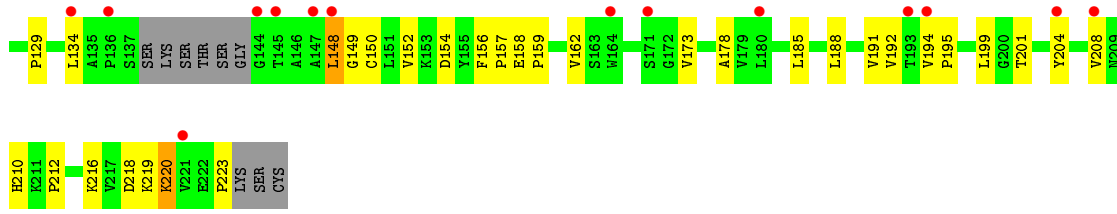


- Molecule 1: Dipeptidase 3

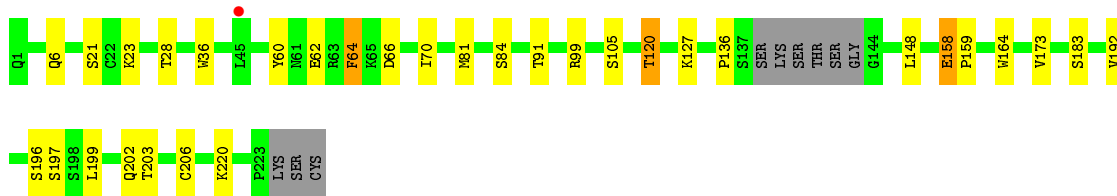
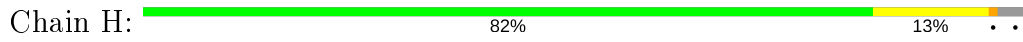


- Molecule 2: SC-003 Fab Heavy Chain

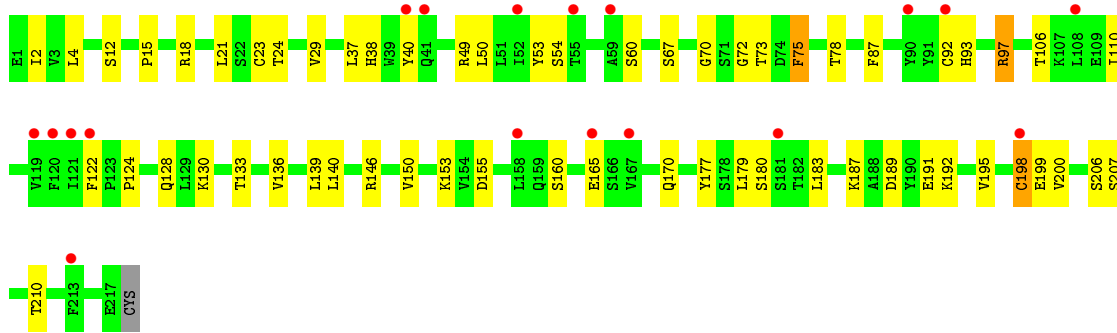
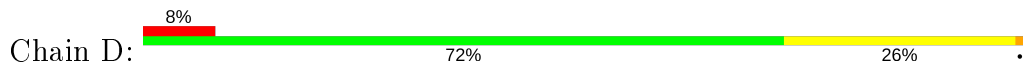




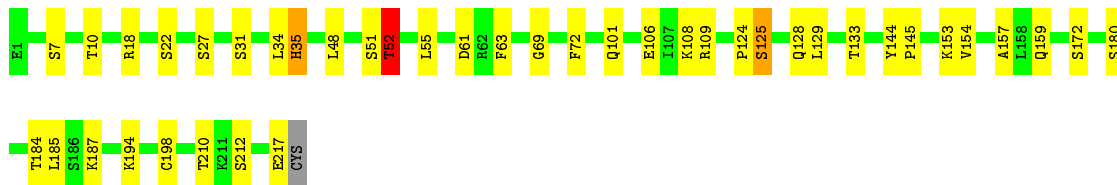
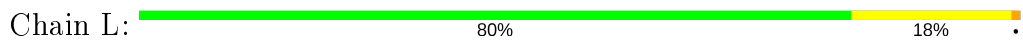
• Molecule 2: SC-003 Fab Heavy Chain



• Molecule 3: SC-003 Fab Light Chain



• Molecule 3: SC-003 Fab Light Chain



4 Data and refinement statistics

Property	Value	Source
Space group	P 63	Depositor
Cell constants a, b, c, α , β , γ	167.03Å 167.03Å 116.38Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	40.12 – 2.84 144.65 – 2.84	Depositor EDS
% Data completeness (in resolution range)	96.2 (40.12-2.84) 96.2 (144.65-2.84)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.58 (at 2.82Å)	Xtrriage
Refinement program	BUSTER 2.11.7	Depositor
R, R_{free}	0.190 , 0.248 0.191 , 0.251	Depositor DCC
R_{free} test set	2073 reflections (4.93%)	wwPDB-VP
Wilson B-factor (Å ²)	71.0	Xtrriage
Anisotropy	0.459	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 56.5	EDS
L-test for twinning ²	$\langle L \rangle = 0.51$, $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	0.024 for h,-h-k,-l	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	12272	wwPDB-VP
Average B, all atoms (Å ²)	80.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.83% 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	0.51	0/2777	0.66	0/3760
1	B	0.50	0/2777	0.66	0/3760
2	C	0.45	0/1685	0.71	0/2299
2	H	0.51	0/1685	0.70	0/2299
3	D	0.45	0/1701	0.70	0/2313
3	L	0.50	0/1701	0.69	0/2313
All	All	0.49	0/12326	0.68	0/16744

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	2732	0	2718	34	0
1	B	2732	0	2718	21	0
2	C	1642	0	1587	34	0
2	H	1642	0	1587	12	0
3	D	1661	0	1608	33	0
3	L	1661	0	1608	16	0
4	A	58	0	0	0	0
4	B	53	0	0	0	0
4	C	14	0	0	0	0
4	D	15	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	H	21	0	0	0	0
4	L	41	0	0	1	0
All	All	12272	0	11826	145	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 6.

All (145) 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)
3:D:124:PRO:HD3	3:D:136:VAL:HG12	1.52	0.90
2:C:191:VAL:HG11	3:D:139:LEU:HD11	1.57	0.84
3:D:4:LEU:HD21	3:D:92:CYS:SG	2.23	0.78
3:D:136:VAL:HG22	3:D:183:LEU:HB3	1.66	0.76
3:L:34:LEU:HB3	3:L:52:THR:HG22	1.72	0.71
1:A:283:GLN:HB3	3:D:97:ARG:HH12	1.56	0.71
3:D:153:LYS:NZ	3:D:199:GLU:HB2	2.07	0.68
3:L:31:SER:O	3:L:52:THR:HG23	1.93	0.68
3:D:187:LYS:HE2	3:D:191:GLU:HG3	1.75	0.68
2:H:203:THR:HG23	2:H:220:LYS:HE3	1.75	0.67
3:L:124:PRO:HB2	3:L:129:LEU:HD21	1.76	0.66
3:D:40:TYR:HD2	3:D:50:LEU:HA	1.61	0.65
2:C:36:TRP:CE2	2:C:81:MET:HB2	2.32	0.65
2:C:134:LEU:HB3	3:D:122:PHE:CD1	2.33	0.62
2:H:136:PRO:HG3	2:H:148:LEU:HB3	1.81	0.62
1:A:195:VAL:HG23	1:A:216:VAL:HG11	1.82	0.61
1:A:258:LEU:HD13	1:A:265:ILE:HG12	1.83	0.61
1:A:81:ARG:HE	1:A:85:GLN:NE2	1.99	0.61
2:C:199:LEU:HD12	2:C:223:PRO:HB3	1.82	0.60
1:A:283:GLN:HB3	3:D:97:ARG:NH1	2.17	0.60
1:B:395:GLY:HA2	1:B:399:GLY:HA3	1.84	0.60
3:D:198:CYS:O	3:D:210:THR:HA	2.02	0.59
2:C:156:PHE:HB2	2:C:185:LEU:HD23	1.84	0.59
3:D:40:TYR:CD2	3:D:50:LEU:HA	2.39	0.58
3:L:194:LYS:HG2	4:L:308:HOH:O	2.03	0.58
1:B:184:ASN:ND2	1:B:406:ARG:HH22	2.02	0.58
3:D:140:LEU:HD21	3:D:200:VAL:HG21	1.85	0.58
1:A:237:ARG:HA	1:A:237:ARG:HH11	1.68	0.58
2:C:194:VAL:HG22	2:C:195:PRO:HD2	1.87	0.57
2:C:81:MET:HE1	2:C:83:LEU:HB2	1.86	0.57
1:B:78:LEU:HD22	1:B:80:LEU:HB2	1.87	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:149:GLY:HA2	2:C:191:VAL:HA	1.87	0.57
1:B:346:ARG:HD2	1:B:392:GLU:OE2	2.06	0.56
3:D:15:PRO:HD3	3:D:110:ILE:HG23	1.87	0.56
1:A:287:ILE:HG22	1:A:317:ILE:HG22	1.88	0.56
3:L:34:LEU:HD22	3:L:72:PHE:CG	2.41	0.56
1:B:322:LEU:HD22	1:B:338:VAL:HG11	1.89	0.55
1:B:335:VAL:HG23	1:B:370:LEU:HD11	1.88	0.55
2:C:10:GLU:HB2	2:C:119:VAL:HG22	1.87	0.55
2:C:210:HIS:CE1	2:C:212:PRO:HG2	2.42	0.55
3:L:144:TYR:CD1	3:L:145:PRO:HA	2.42	0.55
2:C:173:VAL:HG22	2:C:192:VAL:HG22	1.87	0.55
1:A:331:LEU:HD23	1:A:331:LEU:H	1.72	0.54
3:D:38:HIS:CE1	3:D:54:SER:H	2.25	0.54
2:H:173:VAL:HG22	2:H:192:VAL:HB	1.90	0.53
3:D:146:ARG:HD2	3:D:177:TYR:CE2	2.44	0.53
2:C:158:GLU:HG2	2:C:159:PRO:HA	1.89	0.53
3:L:154:VAL:HG12	3:L:159:GLN:NE2	2.23	0.53
3:L:35:HIS:CE1	3:L:51:SER:H	2.26	0.53
3:D:4:LEU:HD21	3:D:23:CYS:SG	2.48	0.52
3:D:153:LYS:HZ1	3:D:199:GLU:HB2	1.72	0.52
3:D:70:GLY:HA3	3:D:75:PHE:HA	1.92	0.52
2:C:13:LYS:HA	2:C:122:SER:HB2	1.90	0.52
1:A:238:HIS:HB3	1:A:240:MET:CE	2.39	0.52
1:A:395:GLY:HA2	1:A:399:GLY:HA3	1.92	0.51
3:D:189:ASP:HA	3:D:192:LYS:HE2	1.92	0.51
1:B:134:LEU:HD12	1:B:377:PRO:HG3	1.91	0.51
3:D:165:GLU:HG2	3:D:179:LEU:HD21	1.93	0.51
1:B:294:ARG:NH1	1:B:304:PRO:HG3	2.24	0.51
1:B:94:VAL:HG22	1:B:137:ALA:HB3	1.92	0.50
2:C:36:TRP:CZ3	2:C:96:CYS:HB3	2.46	0.50
1:B:312:LYS:HG3	1:B:353:PHE:CZ	2.46	0.50
2:C:129:PRO:HB2	2:C:152:VAL:CG1	2.42	0.50
1:A:79:ASP:O	1:A:83:ARG:HG3	2.12	0.50
3:D:87:PHE:CD1	3:D:110:ILE:HG13	2.46	0.49
2:C:61:ASN:HB3	2:C:64:PHE:HE2	1.77	0.49
1:B:285:PRO:HB2	1:B:404:VAL:HG13	1.94	0.49
3:D:155:ASP:HA	3:D:195:VAL:HG12	1.95	0.49
1:B:308:LEU:HB3	1:B:349:ILE:HD13	1.94	0.49
1:A:285:PRO:HB2	1:A:404:VAL:HG13	1.95	0.49
1:A:351:SER:HA	1:A:354:ILE:HD12	1.93	0.48
2:C:107:PRO:HG3	3:D:53:TYR:CZ	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:L:125:SER:O	3:L:129:LEU:HG	2.14	0.48
3:L:48:LEU:HD21	3:L:63:PHE:CD1	2.49	0.48
1:A:234:THR:O	1:A:237:ARG:HB2	2.14	0.48
1:A:195:VAL:HG23	1:A:216:VAL:CG1	2.44	0.47
3:D:153:LYS:HZ3	3:D:199:GLU:HB2	1.78	0.47
1:B:351:SER:HA	1:B:354:ILE:HD12	1.96	0.47
2:C:194:VAL:CG2	2:C:195:PRO:HD2	2.44	0.47
2:C:162:VAL:HG12	2:C:208:VAL:HG22	1.95	0.47
2:H:36:TRP:CE2	2:H:81:MET:HB2	2.49	0.47
1:A:348:VAL:HG12	1:A:349:ILE:HG23	1.96	0.47
2:C:219:LYS:HD3	2:C:220:LYS:N	2.30	0.47
3:L:198:CYS:O	3:L:210:THR:HA	2.15	0.47
3:D:150:VAL:HG22	3:D:200:VAL:HG22	1.97	0.47
2:C:86:LEU:HD22	2:C:121:VAL:HG21	1.98	0.46
2:H:91:THR:HG23	2:H:120:THR:HA	1.98	0.46
2:H:164:TRP:CH2	2:H:206:CYS:HB3	2.51	0.46
1:A:237:ARG:NH1	1:A:237:ARG:HG3	2.31	0.45
3:D:136:VAL:CG2	3:D:183:LEU:HB3	2.40	0.45
1:A:217:ARG:HD3	1:A:217:ARG:HA	1.78	0.45
2:C:64:PHE:CD2	2:C:64:PHE:N	2.85	0.45
1:B:81:ARG:HD2	1:B:381:GLU:OE1	2.16	0.45
3:D:2:ILE:HD13	3:D:29:VAL:HG22	1.99	0.45
1:A:311:LEU:HD11	1:A:316:GLY:HA3	1.98	0.44
1:A:402:LEU:O	1:A:406:ARG:HG3	2.18	0.44
1:A:409:GLU:O	1:A:412:ARG:HB3	2.17	0.44
2:H:164:TRP:CZ3	2:H:206:CYS:HB3	2.52	0.44
1:A:237:ARG:HB3	1:A:238:HIS:ND1	2.32	0.44
1:A:407:GLN:OE1	1:A:410:LYS:HD3	2.18	0.44
1:B:321:THR:HA	1:B:357:GLY:O	2.17	0.44
2:C:73:ASP:CG	2:C:76:THR:HG22	2.38	0.44
2:H:60:TYR:HE1	2:H:70:ILE:HG13	1.83	0.44
1:A:235:LYS:HE3	1:A:236:PHE:CE2	2.52	0.44
3:L:128:GLN:HG2	3:L:133:THR:O	2.18	0.43
1:B:370:LEU:HA	1:B:375:THR:OG1	2.18	0.43
2:C:121:VAL:HG12	2:C:122:SER:HB3	2.00	0.43
2:C:194:VAL:HG11	2:C:204:TYR:CE2	2.53	0.43
1:B:216:VAL:O	1:B:217:ARG:HD3	2.18	0.43
1:A:270:ALA:HB1	1:A:274:LEU:HD23	1.99	0.43
2:H:6:GLN:HA	2:H:21:SER:O	2.18	0.43
1:A:238:HIS:HB3	1:A:240:MET:HE2	1.99	0.43
2:C:134:LEU:HB2	2:C:148:LEU:O	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:6:GLN:HA	2:C:21:SER:O	2.19	0.43
2:H:158:GLU:HG2	2:H:159:PRO:HA	2.01	0.43
2:H:196:SER:HA	2:H:199:LEU:CD1	2.49	0.43
3:D:124:PRO:HD3	3:D:136:VAL:CG1	2.37	0.42
3:L:55:LEU:HD11	3:L:61:ASP:HA	2.00	0.42
1:A:143:SER:HA	1:A:196:GLU:HB3	2.00	0.42
1:A:158:LEU:HD23	1:A:158:LEU:HA	1.87	0.42
2:C:129:PRO:HB2	2:C:152:VAL:HG13	2.01	0.42
2:C:88:SER:HA	2:C:121:VAL:O	2.19	0.42
3:D:24:THR:HA	3:D:73:THR:O	2.19	0.42
2:C:148:LEU:HD21	2:C:194:VAL:HG12	2.02	0.42
1:B:409:GLU:O	1:B:412:ARG:HB3	2.20	0.42
1:A:237:ARG:HH11	1:A:237:ARG:HG3	1.85	0.41
1:A:291:SER:O	1:A:320:VAL:HA	2.20	0.41
1:A:317:ILE:HG12	1:A:318:VAL:N	2.35	0.41
2:C:126:THR:HA	2:C:156:PHE:O	2.19	0.41
3:L:108:LYS:HA	3:L:144:TYR:OH	2.19	0.41
2:C:178:ALA:HB2	2:C:188:LEU:HD23	2.02	0.41
3:D:128:GLN:HG2	3:D:133:THR:O	2.20	0.41
1:B:266:ASP:HA	1:B:287:ILE:HG13	2.01	0.41
1:B:292:ALA:HB1	1:B:341:HIS:ND1	2.35	0.41
2:C:126:THR:HG22	2:C:157:PRO:HD3	2.03	0.41
1:A:401:LEU:HD13	1:A:401:LEU:C	2.41	0.41
3:L:153:LYS:HA	3:L:157:ALA:O	2.20	0.41
1:A:228:PRO:HG3	1:A:241:TYR:CZ	2.56	0.41
3:D:37:LEU:HA	3:D:93:HIS:O	2.20	0.41
3:L:109:ARG:HG3	3:L:144:TYR:CD2	2.56	0.41
1:A:312:LYS:HG3	1:A:353:PHE:CZ	2.56	0.41
1:B:78:LEU:HD22	1:B:80:LEU:H	1.86	0.40
2:C:91:THR:HA	2:C:119:VAL:O	2.22	0.40
3:D:21:LEU:HG	3:D:106:THR:HG21	2.04	0.40
2:H:64:PHE:N	2:H:64:PHE:CD1	2.89	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	348/488 (71%)	326 (94%)	21 (6%)	1 (0%)	41	61
1	B	348/488 (71%)	330 (95%)	18 (5%)	0	100	100
2	C	213/226 (94%)	198 (93%)	14 (7%)	1 (0%)	29	51
2	H	213/226 (94%)	205 (96%)	7 (3%)	1 (0%)	29	51
3	D	212/215 (99%)	198 (93%)	12 (6%)	2 (1%)	17	34
3	L	212/215 (99%)	204 (96%)	6 (3%)	2 (1%)	17	34
All	All	1546/1858 (83%)	1461 (94%)	78 (5%)	7 (0%)	29	51

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	C	154	ASP
3	L	52	THR
3	D	170	GLN
2	H	66	ASP
1	A	298	ASP
3	D	72	GLY
3	L	69	GLY

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	305/423 (72%)	296 (97%)	9 (3%)	41	65
1	B	305/423 (72%)	291 (95%)	14 (5%)	27	51
2	C	181/190 (95%)	167 (92%)	14 (8%)	13	27
2	H	181/190 (95%)	168 (93%)	13 (7%)	14	29
3	D	189/190 (100%)	175 (93%)	14 (7%)	13	29

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
3	L	189/190 (100%)	172 (91%)	17 (9%)	9 19
All	All	1350/1606 (84%)	1269 (94%)	81 (6%)	19 37

All (81) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	99	ASP
1	A	113	GLN
1	A	206	SER
1	A	218	TYR
1	A	232	SER
1	A	237	ARG
1	A	248	THR
1	A	365	ARG
1	A	405	PHE
1	B	78	LEU
1	B	81	ARG
1	B	90	SER
1	B	99	ASP
1	B	126	SER
1	B	145	SER
1	B	326	VAL
1	B	332	LEU
1	B	337	THR
1	B	363	THR
1	B	368	GLN
1	B	385	SER
1	B	405	PHE
1	B	410	LYS
2	C	62	GLU
2	C	64	PHE
2	C	65	LYS
2	C	67	ARG
2	C	81	MET
2	C	88	SER
2	C	98	ARG
2	C	99	ARG
2	C	148	LEU
2	C	150	CYS
2	C	201	THR
2	C	216	LYS
2	C	218	ASP

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Mol	Chain	Res	Type
2	C	220	LYS
3	D	12	SER
3	D	18	ARG
3	D	49	ARG
3	D	60	SER
3	D	67	SER
3	D	75	PHE
3	D	78	THR
3	D	97	ARG
3	D	130	LYS
3	D	160	SER
3	D	180	SER
3	D	198	CYS
3	D	206	SER
3	D	207	SER
2	H	23	LYS
2	H	28	THR
2	H	62	GLU
2	H	64	PHE
2	H	84	SER
2	H	99	ARG
2	H	105	SER
2	H	120	THR
2	H	127	LYS
2	H	158	GLU
2	H	183	SER
2	H	197	SER
2	H	202	GLN
3	L	7	SER
3	L	10	THR
3	L	18	ARG
3	L	22	SER
3	L	27	SER
3	L	35	HIS
3	L	52	THR
3	L	101	GLN
3	L	106	GLU
3	L	125	SER
3	L	172	SER
3	L	180	SER
3	L	184	THR
3	L	185	LEU

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Mol	Chain	Res	Type
3	L	187	LYS
3	L	212	SER
3	L	217	GLU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	85	GLN
1	A	359	ASN
1	B	151	GLN
1	B	283	GLN
3	D	104	GLN
3	D	159	GLN
3	D	214	ASN
2	H	209	ASN
3	L	151	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

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

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	350/488 (71%)	0.03	1 (0%) 94 93	47, 67, 86, 113	0
1	B	350/488 (71%)	0.03	3 (0%) 84 83	47, 67, 91, 112	0
2	C	217/226 (96%)	0.56	24 (11%) 5 3	67, 107, 155, 170	0
2	H	217/226 (96%)	-0.17	1 (0%) 91 89	49, 75, 100, 111	0
3	D	214/215 (99%)	0.36	18 (8%) 11 5	74, 103, 131, 153	0
3	L	214/215 (99%)	-0.10	0 100 100	49, 68, 96, 127	0
All	All	1562/1858 (84%)	0.11	47 (3%) 50 44	47, 75, 130, 170	0

All (47) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	C	204	TYR	5.2
2	C	147	ALA	5.1
2	C	148	LEU	4.3
2	C	18	VAL	4.0
3	D	158	LEU	3.9
2	C	193	THR	3.9
3	D	165	GLU	3.9
2	C	144	GLY	3.7
2	C	79	ALA	3.6
2	C	37	VAL	3.6
3	D	213	PHE	3.5
3	D	167	VAL	3.4
3	D	122	PHE	3.4
2	C	136	PRO	3.2
2	C	83	LEU	3.2
2	C	180	LEU	3.1
2	C	36	TRP	3.1
2	C	47	TRP	3.0
3	D	198	CYS	3.0

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Mol	Chain	Res	Type	RSRZ
3	D	119	VAL	3.0
2	C	194	VAL	2.9
2	C	164	TRP	2.8
2	C	145	THR	2.7
3	D	120	PHE	2.7
1	B	301	LEU	2.7
2	C	134	LEU	2.7
3	D	59	ALA	2.7
3	D	40	TYR	2.6
3	D	41	GLN	2.6
1	B	330	ASN	2.5
2	C	221	VAL	2.4
2	C	208	VAL	2.4
3	D	121	ILE	2.4
3	D	108	LEU	2.4
1	B	324	MET	2.3
2	H	45	LEU	2.3
3	D	55	THR	2.3
2	C	45	LEU	2.3
1	A	193	ILE	2.2
2	C	94	TYR	2.2
3	D	52	ILE	2.2
2	C	90	ASP	2.2
2	C	44	GLY	2.1
3	D	92	CYS	2.1
2	C	171	SER	2.0
3	D	90	TYR	2.0
3	D	181	SER	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 monosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers

There are no such residues in this entry.