W O R L D W I D E
wwPDB
P R O T E I N   D A T A   B A N K

Full wwPDB X-ray Structure Validation Report ⓘ

Jan 12, 2022 – 09:23 am GMT

PDB ID : 7O0H
Title : Structure of the foamy viral protease-reverse transcriptase dRH in complex
with ds DNA.
Authors : Nowak, E.; Nowacka, M.; Nowotny, M.
Deposited on : 2021-03-26
Resolution : 3.09 Å(reported)

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	:	2.24
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0267
CCP4	:	7.1.010 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.24

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 3.09 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.
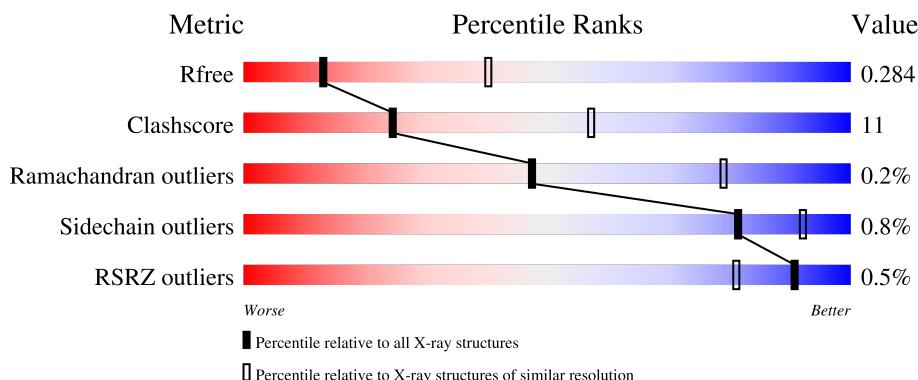
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1094 (3.10-3.10)
Clashscore	141614	1184 (3.10-3.10)
Ramachandran outliers	138981	1141 (3.10-3.10)
Sidechain outliers	138945	1141 (3.10-3.10)
RSRZ outliers	127900	1067 (3.10-3.10)

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	589	74% 23% •
1	B	589	.% 65% 23% • 11%
2	E	15	40% 60%
3	F	13	23% 77%
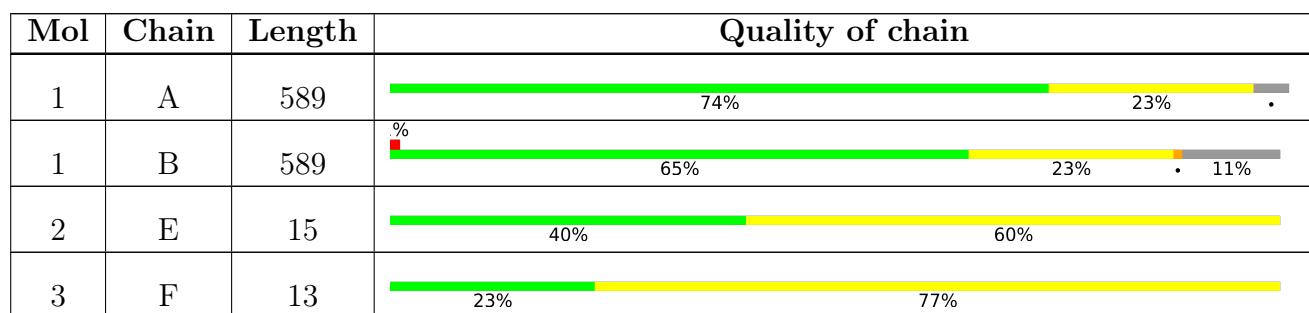
2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 8910 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 Pr125Pol.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	566	Total	C	N	O	S	0	0	0
			4445	2891	734	815	5			
1	B	523	Total	C	N	O	S	0	0	0
			3896	2522	647	722	5			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	586	LEU	UNK	conflict	UNP D5JWV1
B	586	LEU	UNK	conflict	UNP D5JWV1

- Molecule 2 is a DNA chain called DNA (5'-D(*AP*AP*CP*AP*GP*AP*GP*TP*GP*CP*GP*AP*CP*AP*C)-3').

| Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	E	15	Total	C	N	O	P	0	0	0
			307	146	64	83	14			

- Molecule 3 is a DNA chain called DNA (5'-D(*GP*TP*GP*TP*CP*GP*CP*AP*CP*TP*CP*TP*G)-3').

| Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	F	13	Total	C	N	O	P	0	0	0
			262	126	45	79	12			

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: Pr125Pol

Chain A:

• Molecule 1: Pr125Pol

Chain B:

E449 N453 V459 K460 L461 N462 A463 G468 R471 Y472 Y473 N474 K475 GLY GLY Q478 K479 P480 I481 F488 L493 K494 F495 L498 E499 K500 L501 L502 M505 L509 Q519 P520 I521 E522 V523 P526 I527 L533 Q534 K535 R541 K542 T546 R547 W548 I549

T550 W551 L552 L555 P558 R559 I560 L568 N573 V578 THR ASP LYS LYS PRO LYS MET LEU PRO ILE ILE
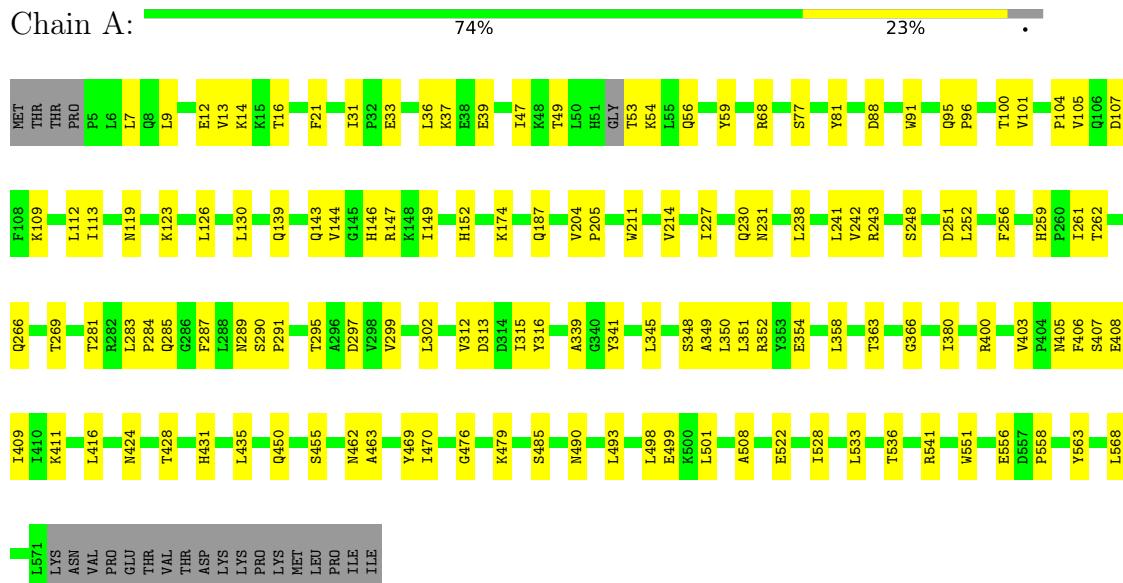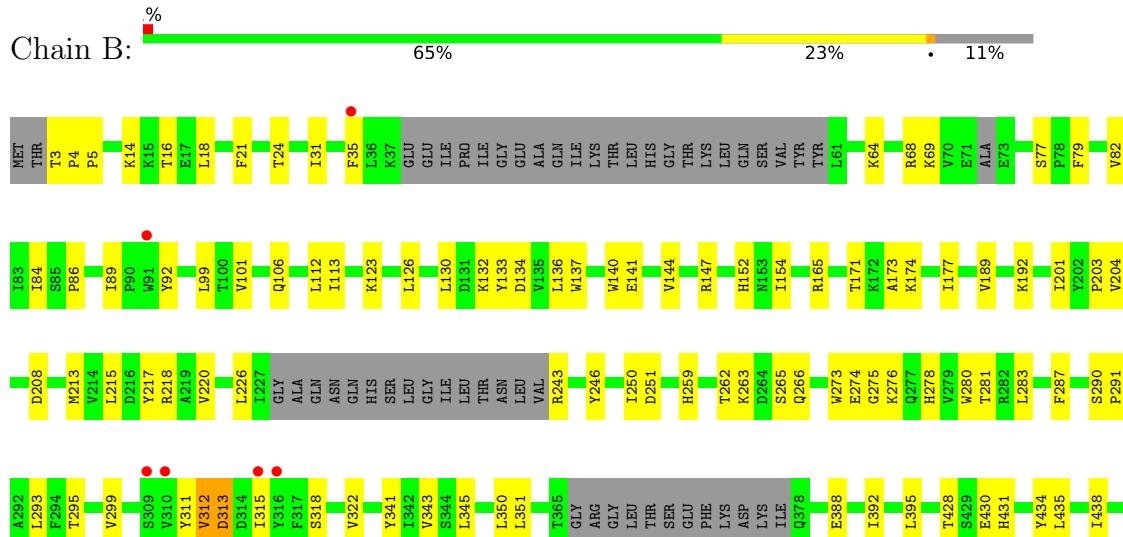
• Molecule 2: DNA (5'-D(*AP*AP*CP*AP*GP*AP*GP*TP*GP*CP*GP*AP*CP*AP*C)-3')

Chain E:

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████████████████████████          40%                    60%
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A1 A2 C3 A4 G5 A6 G7 T8 G9 A14 C15
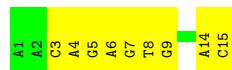
• Molecule 3: DNA (5'-D(*GP*TP*GP*TP*CP*GP*CP*AP*CP*TP*CP*TP*G)-3')

Chain F:

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████          23%                    77%
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G1 T2 G6 C7 A8 C9 T10 C11 T12 G13
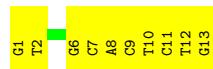
4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	158.52Å 107.56Å 118.09Å 90.00° 98.72° 90.00°	Depositor
Resolution (Å)	48.84 – 3.09 48.84 – 3.09	Depositor EDS
% Data completeness (in resolution range)	99.4 (48.84-3.09) 87.8 (48.84-3.09)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$<I/\sigma(I)>$ [1]	3.55 (at 3.07Å)	Xtriage
Refinement program	PHENIX 1.19_4092	Depositor
R, R_{free}	0.230 , 0.285 0.229 , 0.284	Depositor DCC
R_{free} test set	1786 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	74.5	Xtriage
Anisotropy	0.464	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	(Not available) , (Not available)	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	8910	wwPDB-VP
Average B, all atoms (Å^2)	104.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.63% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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 ⓘ

5.1 Standard geometry ⓘ

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	0.26	0/4559	0.50	0/6232
1	B	0.26	0/3992	0.51	0/5481
2	E	0.52	0/346	0.79	0/532
3	F	0.53	0/292	1.02	0/449
All	All	0.29	0/9189	0.55	0/12694

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 ⓘ

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	4445	0	4391	85	1
1	B	3896	0	3643	98	1
2	E	307	0	168	7	0
3	F	262	0	149	6	0
All	All	8910	0	8351	188	1

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 11.

All (188) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

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PROTEIN DATA BANK

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:470:ILE:HD13	1:A:508:ALA:HB2	1.63	0.81
1:A:498:LEU:HD21	1:A:533:LEU:HD13	1.75	0.69
1:A:238:LEU:HD11	1:A:358:LEU:HB2	1.75	0.67
1:A:259:HIS:NE2	1:A:341:TYR:OH	2.28	0.66
1:A:100:THR:HG22	1:A:101:VAL:HG23	1.78	0.66
1:A:354:GLU:HB2	1:A:363:THR:HA	1.77	0.66
1:B:99:LEU:HD12	1:B:140:TRP:HB3	1.77	0.65
1:A:241:LEU:O	1:A:450:GLN:NE2	2.30	0.64
1:A:536:THR:O	1:A:541:ARG:NH2	2.30	0.64
1:B:453:ASN:O	1:B:519:GLN:NE2	2.31	0.64
1:A:299:VAL:HG11	1:B:275:GLY:HA3	1.79	0.64
1:A:252:LEU:HB2	1:A:313:ASP:HB2	1.81	0.63
1:B:546:THR:HA	1:B:549:ILE:HD13	1.81	0.62
1:B:218:ARG:NH2	1:B:542:LYS:O	2.32	0.62
1:A:16:THR:HG21	1:B:68:ARG:HA	1.81	0.62
1:B:462:ASN:OD1	1:B:463:ALA:N	2.32	0.61
1:B:471:ARG:HH12	1:B:568:LEU:HD11	1.65	0.61
1:B:502:LEU:HD22	1:B:551:TRP:CZ2	2.35	0.61
1:A:428:THR:H	1:A:431:HIS:HB2	1.65	0.61
1:B:266:GLN:OE1	1:B:281:THR:HA	2.01	0.60
2:E:4:DA:H2'	2:E:5:DG:H8	1.66	0.60
1:A:403:VAL:HG13	1:A:406:PHE:HB2	1.82	0.60
1:B:243:ARG:N	1:B:318:SER:HG	1.99	0.60
1:A:47:ILE:HD12	1:A:56:GLN:HB2	1.84	0.60
1:A:113:ILE:HG12	1:A:126:LEU:HD22	1.82	0.60
1:B:449:GLU:OE2	1:B:478:GLN:N	2.35	0.60
1:A:119:ASN:O	1:A:123:LYS:N	2.32	0.59
2:E:4:DA:H2'	2:E:5:DG:C8	2.38	0.59
1:A:231:ASN:HB3	1:B:275:GLY:HA2	1.84	0.58
1:B:312:VAL:HG23	1:B:313:ASP:H	1.67	0.58
1:A:248:SER:HB2	1:A:350:LEU:HA	1.84	0.58
1:A:251:ASP:H	1:A:348:SER:HB3	1.68	0.58
1:A:49:THR:HG1	1:A:53:THR:N	2.02	0.57
1:B:204:VAL:HG21	1:B:546:THR:HG23	1.86	0.57
1:A:558:PRO:HG3	1:B:547:ARG:NH1	2.21	0.56
1:B:112:LEU:HD12	1:B:350:LEU:HG	1.88	0.55
1:B:144:VAL:HG11	1:B:189:VAL:HG21	1.88	0.55
1:B:428:THR:HG23	1:B:431:HIS:H	1.71	0.55
1:A:7:LEU:HD12	1:A:146:HIS:CE1	2.42	0.55
1:A:490:ASN:HA	1:A:493:LEU:HD12	1.89	0.55
1:A:68:ARG:NH1	1:A:91:TRP:CD1	2.76	0.54
1:A:408:GLU:OE2	1:A:469:TYR:OH	2.20	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:409:ILE:HD12	1:A:409:ILE:H	1.73	0.54
1:A:248:SER:HB3	1:A:351:LEU:H	1.73	0.53
1:B:192:LYS:HD3	1:B:276:LYS:HD2	1.89	0.53
3:F:10:DT:H2'	3:F:11:DC:C6	2.44	0.53
1:B:201:ILE:HD11	1:B:213:MET:HG3	1.89	0.53
1:B:14:LYS:O	1:B:16:THR:HG23	2.10	0.52
1:B:132:LYS:HG2	1:B:133:TYR:CD1	2.45	0.52
1:B:462:ASN:ND2	1:B:568:LEU:O	2.42	0.52
1:A:49:THR:HG21	1:A:54:LYS:HE2	1.91	0.52
1:A:291:PRO:O	1:A:295:THR:HG22	2.10	0.52
2:E:14:DA:H2'	2:E:15:DC:C6	2.45	0.52
1:A:269:THR:HG22	1:A:284:PRO:HG3	1.91	0.52
2:E:8:DT:H2'	2:E:9:DG:C8	2.45	0.52
1:B:126:LEU:HD23	1:B:130:LEU:HG	1.92	0.51
1:A:205:PRO:HG3	1:A:211:TRP:CZ3	2.45	0.51
1:B:126:LEU:CD1	1:B:351:LEU:HD12	2.41	0.51
1:A:405:ASN:HB2	1:A:408:GLU:HG3	1.91	0.51
1:B:177:ILE:HD13	1:B:213:MET:HB2	1.91	0.51
1:B:126:LEU:CD2	1:B:130:LEU:HG	2.40	0.51
1:A:147:ARG:HG3	1:A:149:ILE:HG23	1.93	0.51
1:A:39:GLU:HB2	1:A:59:TYR:CD2	2.46	0.50
1:A:230:GLN:HE22	1:B:165:ARG:HH11	1.57	0.50
1:A:400:ARG:NH1	1:A:407:SER:OG	2.44	0.50
1:B:113:ILE:HG23	1:B:123:LYS:HG3	1.92	0.50
1:B:136:LEU:HG	1:B:343:VAL:HG12	1.92	0.50
1:B:552:LEU:HA	1:B:555:LEU:HB2	1.93	0.50
1:A:266:GLN:O	1:A:269:THR:OG1	2.30	0.50
1:A:33:GLU:HG2	1:A:37:LYS:HE2	1.94	0.49
1:A:302:LEU:HD21	1:A:315:ILE:HD13	1.93	0.49
1:B:495:PHE:HB3	1:B:499:GLU:HB2	1.94	0.49
1:A:104:PRO:HB2	1:A:107:ASP:HB2	1.95	0.49
1:A:463:ALA:HB3	1:A:501:LEU:HD23	1.94	0.49
1:B:171:THR:HA	1:B:174:LYS:HD2	1.94	0.49
1:B:18:LEU:HD11	1:B:35:PHE:HE2	1.78	0.48
1:B:137:TRP:CE3	1:B:345:LEU:HD21	2.49	0.48
1:B:290:SER:OG	1:B:291:PRO:HD3	2.13	0.48
1:B:388:GLU:O	1:B:392:ILE:HG12	2.13	0.48
2:E:5:DG:H2'	2:E:6:DA:C8	2.48	0.48
3:F:7:DC:H2'	3:F:8:DA:C8	2.49	0.48
1:B:16:THR:HG21	1:B:35:PHE:CE1	2.48	0.48
1:B:501:LEU:HD11	1:B:526:PRO:HD2	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:471:ARG:NH1	1:B:568:LEU:HD11	2.27	0.48
2:E:3:DC:H2'	2:E:4:DA:C8	2.48	0.48
1:B:263:LYS:HA	1:B:266:GLN:HG3	1.96	0.47
1:A:39:GLU:HB2	1:A:59:TYR:HD2	1.79	0.47
1:A:354:GLU:CB	1:A:363:THR:HA	2.45	0.47
1:B:4:PRO:HG2	1:B:140:TRP:HE1	1.80	0.47
3:F:6:DG:H2'	3:F:7:DC:C6	2.49	0.47
1:B:3:THR:N	1:B:4:PRO:HD3	2.29	0.47
1:A:227:ILE:HD12	1:A:289:ASN:HB3	1.97	0.47
1:A:522:GLU:HG2	1:A:563:TYR:HE2	1.78	0.47
1:B:461:LEU:HD22	1:B:505:MET:HA	1.97	0.47
1:A:126:LEU:HD23	1:A:130:LEU:HD13	1.95	0.47
1:B:273:TRP:HB3	1:B:278:HIS:CE1	2.50	0.46
1:A:299:VAL:CG1	1:B:275:GLY:HA3	2.44	0.46
1:A:214:VAL:HG12	1:A:285:GLN:HG2	1.97	0.46
1:B:435:LEU:O	1:B:438:ILE:HG22	2.16	0.46
1:B:174:LYS:HE2	1:B:274:GLU:OE2	2.16	0.46
1:B:89:ILE:HD12	1:B:92:TYR:HB3	1.98	0.45
1:B:430:GLU:HB3	1:B:434:TYR:CZ	2.51	0.45
1:B:21:PHE:O	1:B:84:ILE:HG22	2.16	0.45
1:B:215:LEU:HD23	1:B:217:TYR:CE2	2.52	0.45
1:A:109:LYS:HD3	1:A:130:LEU:HB3	1.99	0.45
1:B:509:LEU:HD23	1:B:509:LEU:HA	1.85	0.45
1:B:147:ARG:HD3	1:B:341:TYR:CE1	2.52	0.45
1:B:474:ASN:OD1	1:B:481:ILE:HD11	2.17	0.45
3:F:9:DC:H2'	3:F:10:DT:C6	2.52	0.45
1:A:31:ILE:O	1:A:77:SER:N	2.50	0.45
1:B:263:LYS:O	1:B:266:GLN:HG3	2.17	0.45
2:E:7:DG:H2'	2:E:8:DT:C6	2.53	0.44
1:B:31:ILE:HG22	1:B:82:VAL:HG13	1.98	0.44
1:A:287:PHE:CE2	1:A:289:ASN:HB2	2.52	0.44
1:B:4:PRO:HA	1:B:5:PRO:HD3	1.80	0.44
1:B:473:TYR:CE1	1:B:480:PRO:HB3	2.53	0.44
3:F:12:DT:H2'	3:F:13:DG:C8	2.52	0.44
1:B:395:LEU:HD12	1:B:573:ASN:OD1	2.17	0.44
1:B:64:LYS:HA	1:B:69:LYS:HA	2.00	0.44
1:B:251:ASP:O	1:B:343:VAL:HG23	2.18	0.44
1:B:488:PHE:CE2	1:B:500:LYS:HB3	2.53	0.44
1:A:556:GLU:HG2	1:B:498:LEU:CD2	2.48	0.44
1:B:463:ALA:HA	1:B:468:GLY:HA2	1.99	0.44
1:A:528:ILE:HD12	1:A:528:ILE:H	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:112:LEU:HD23	1:A:112:LEU:HA	1.88	0.43
1:B:226:LEU:HD12	1:B:558:PRO:HD2	2.00	0.43
1:B:126:LEU:HD12	1:B:351:LEU:CD1	2.47	0.43
1:A:261:ILE:HG12	1:A:281:THR:O	2.19	0.43
1:B:154:ILE:HB	1:B:287:PHE:CE2	2.53	0.43
1:A:242:VAL:O	1:A:316:TYR:OH	2.33	0.43
1:A:380:ILE:HD11	1:A:435:LEU:HD11	2.01	0.43
1:A:411:LYS:O	1:A:411:LYS:HD3	2.18	0.43
1:A:152:HIS:O	1:A:262:THR:HG23	2.19	0.43
1:A:479:LYS:HD3	1:A:479:LYS:HA	1.83	0.43
1:B:24:THR:HA	1:B:86:PRO:HG2	1.99	0.43
1:A:230:GLN:HE22	1:B:165:ARG:NH1	2.17	0.42
1:A:259:HIS:HE1	1:A:297:ASP:HB3	1.84	0.42
1:A:349:ALA:HB1	1:A:352:ARG:CZ	2.49	0.42
1:B:215:LEU:HD21	1:B:280:TRP:HE1	1.84	0.42
1:A:13:VAL:HG11	1:A:31:ILE:HD11	2.00	0.42
1:B:126:LEU:HD23	1:B:126:LEU:O	2.19	0.42
1:B:147:ARG:HD2	1:B:147:ARG:HA	1.85	0.42
1:B:177:ILE:HD11	1:B:203:PRO:HB3	2.01	0.42
1:B:77:SER:OG	1:B:79:PHE:O	2.35	0.42
1:B:154:ILE:HG12	1:B:265:SER:HB2	2.00	0.42
1:B:505:MET:HE3	1:B:527:ILE:HD12	2.02	0.42
1:A:283:LEU:HD13	1:A:290:SER:HA	2.02	0.42
1:A:462:ASN:ND2	1:A:568:LEU:O	2.53	0.42
1:B:134:ASP:HA	1:B:137:TRP:CD1	2.55	0.42
1:A:14:LYS:O	1:A:16:THR:HG23	2.18	0.42
1:B:152:HIS:C	1:B:262:THR:HG23	2.40	0.42
1:A:12:GLU:HA	1:A:16:THR:O	2.20	0.41
3:F:1:DG:H2'	3:F:2:DT:C6	2.55	0.41
1:A:68:ARG:HD2	1:A:91:TRP:CZ2	2.55	0.41
1:A:256:PHE:CE2	1:A:290:SER:HB3	2.55	0.41
1:B:208:ASP:OD1	1:B:208:ASP:N	2.49	0.41
1:B:246:TYR:HE2	1:B:322:VAL:HB	1.85	0.41
1:B:459:VAL:HG13	1:B:523:VAL:HA	2.02	0.41
1:A:143:GLN:HA	1:A:187:GLN:HE22	1.84	0.41
1:A:174:LYS:HB2	1:A:174:LYS:HE2	1.80	0.41
1:A:499:GLU:HG2	1:A:551:TRP:HZ3	1.85	0.41
1:A:416:LEU:HD22	1:A:431:HIS:ND1	2.35	0.41
1:B:295:THR:O	1:B:299:VAL:HG13	2.20	0.41
1:B:311:TYR:O	1:B:313:ASP:N	2.54	0.41
1:A:95:GLN:HB3	1:A:96:PRO:HD2	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:173:ALA:O	1:B:177:ILE:HG13	2.21	0.41
1:B:217:TYR:HD1	1:B:220:VAL:HG21	1.85	0.41
1:A:21:PHE:HD2	1:A:81:TYR:CD1	2.39	0.41
1:A:36:LEU:HD13	1:A:59:TYR:CG	2.56	0.41
1:A:144:VAL:HG22	1:A:187:GLN:OE1	2.21	0.41
1:A:407:SER:HB2	1:A:485:SER:OG	2.21	0.41
1:B:130:LEU:HD23	1:B:130:LEU:HA	1.96	0.41
1:B:493:LEU:O	1:B:500:LYS:NZ	2.50	0.41
1:A:147:ARG:HD2	1:A:339:ALA:O	2.21	0.40
1:A:204:VAL:HA	1:A:205:PRO:HD3	1.94	0.40
1:A:243:ARG:NE	1:A:366:GLY:HA2	2.36	0.40
1:B:535:LYS:HA	1:B:535:LYS:HD2	1.79	0.40
1:B:171:THR:HA	1:B:174:LYS:HG3	2.02	0.40
1:B:259:HIS:HB2	1:B:283:LEU:HD12	2.04	0.40
1:A:12:GLU:HG3	1:A:16:THR:O	2.21	0.40
1:A:105:VAL:HG21	1:A:139:GLN:HG2	2.01	0.40
1:A:112:LEU:HD12	1:A:345:LEU:HD22	2.02	0.40
1:B:101:VAL:HB	1:B:141:GLU:HB2	2.04	0.40
1:B:106:GLN:HA	1:B:106:GLN:OE1	2.22	0.40
1:B:521:ILE:HB	1:B:560:ILE:HB	2.03	0.40
1:B:533:LEU:HD12	1:B:533:LEU:HA	1.87	0.40
1:B:152:HIS:CG	1:B:293:LEU:HD23	2.56	0.40
1:B:250:ILE:HG13	1:B:315:ILE:HB	2.04	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:476:GLY:O	1:B:434:TYR:OH[4_758]	1.93	0.27

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	562/589 (95%)	535 (95%)	26 (5%)	1 (0%)	47	79
1	B	511/589 (87%)	467 (91%)	43 (8%)	1 (0%)	47	79
All	All	1073/1178 (91%)	1002 (93%)	69 (6%)	2 (0%)	47	79

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	312	VAL
1	A	312	VAL

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	475/535 (89%)	471 (99%)	4 (1%)	81	92
1	B	386/535 (72%)	383 (99%)	3 (1%)	81	92
All	All	861/1070 (80%)	854 (99%)	7 (1%)	81	92

All (7) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	9	LEU
1	A	88	ASP
1	A	424	ASN
1	A	455	SER
1	B	313	ASP
1	B	541	ARG
1	B	573	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	230	GLN

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 ⓘ

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	566/589 (96%)	-0.34	0	100	100	51, 93, 136, 229	0
1	B	523/589 (88%)	-0.08	6 (1%)	80	64	50, 127, 180, 214	0
2	E	15/15 (100%)	-0.19	0	100	100	56, 74, 115, 136	0
3	F	13/13 (100%)	-0.42	0	100	100	59, 71, 118, 129	0
All	All	1117/1206 (92%)	-0.22	6 (0%)	91	81	50, 102, 169, 229	0

All (6) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	309	SER	3.1
1	B	310	VAL	3.1
1	B	91	TRP	2.5
1	B	35	PHE	2.2
1	B	316	TYR	2.1
1	B	315	ILE	2.1

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

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

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

There are no ligands in this entry.

6.5 Other polymers ⓘ

There are no such residues in this entry.