Full wwPDB X-ray Structure Validation Report ⓘ

Jun 11, 2024 – 09:53 PM EDT

PDB ID	:	1CF1
Title	:	ARRESTIN FROM BOVINE ROD OUTER SEGMENTS
Authors	:	Hirsch, J.A.; Schubert, C.; Gurevich, V.V.; Sigler, P.B.
Deposited on	:	1999-03-23
Resolution	:	2.80 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)	:	1.20.1
EDS	:	2.36.2
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)	:	2.36.2

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 2.80 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.
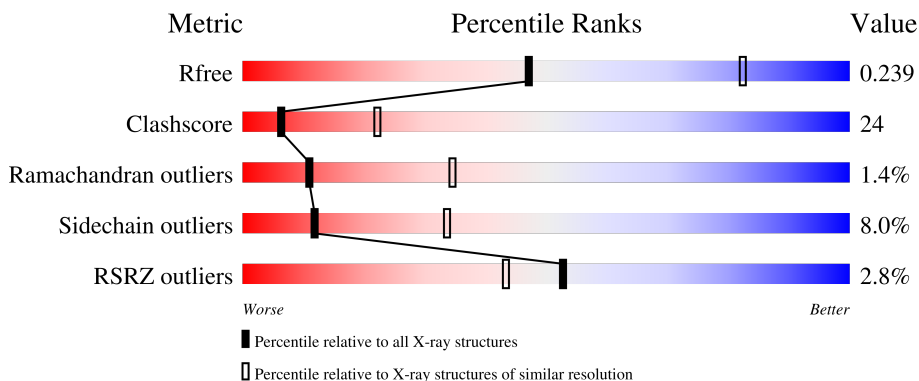
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3140 (2.80-2.80)
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (2.80-2.80)

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	404	3% / 57% 29% 5% 8%
1	B	404	2% / 55% 31% • 11%
1	C	404	3% / 57% 31% 5% • 6%
1	D	404	2% / 55% 30% 5% 9%

2   Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 11700 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 PROTEIN (ARRESTIN).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	373	Total	C	N	O	S	0	0	0
			2946	1885	496	556	9			
1	B	360	Total	C	N	O	S	0	0	0
			2839	1818	482	531	8			
1	C	380	Total	C	N	O	S	0	0	0
			2983	1908	503	563	9			
1	D	368	Total	C	N	O	S	0	0	0
			2907	1860	491	547	9			

- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	7	Total	O	0	0
			7	7		
2	B	10	Total	O	0	0
			10	10		
2	C	1	Total	O	0	0
			1	1		
2	D	7	Total	O	0	0
			7	7		

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: PROTEIN (ARRESTIN)
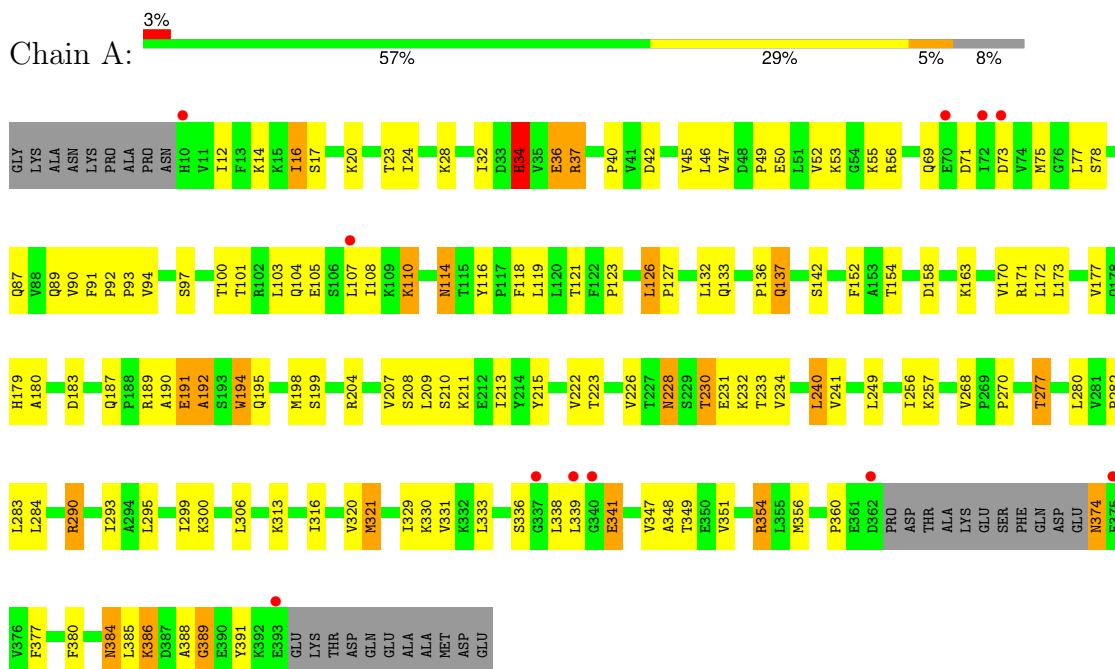
• Molecule 1: PROTEIN (ARRESTIN)

• Molecule 1: PROTEIN (ARRESTIN)

Chain C:

• Molecule 1: PROTEIN (ARRESTIN)

Chain D:
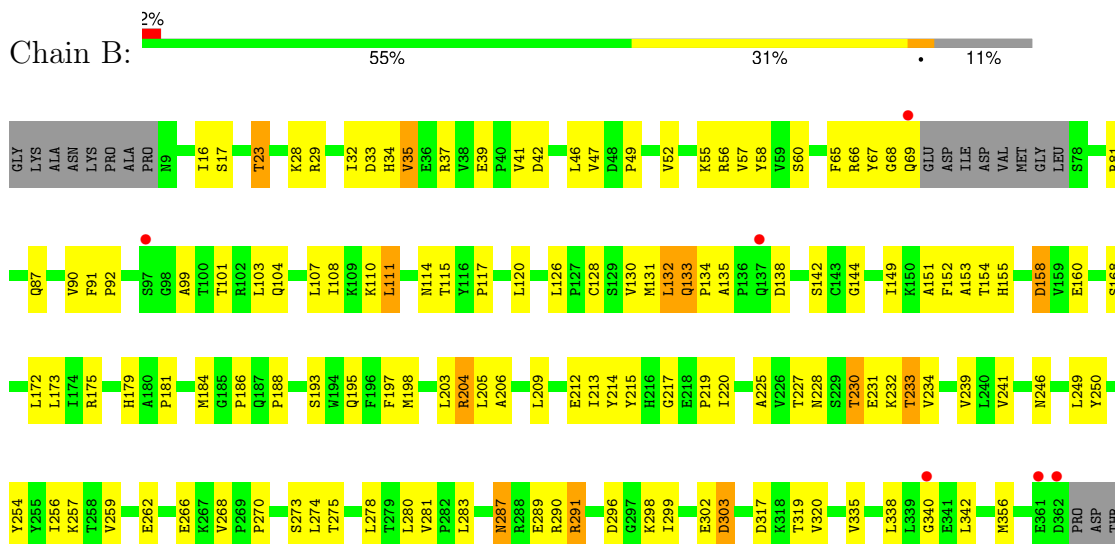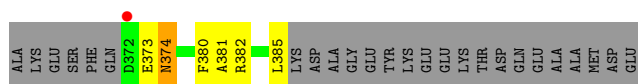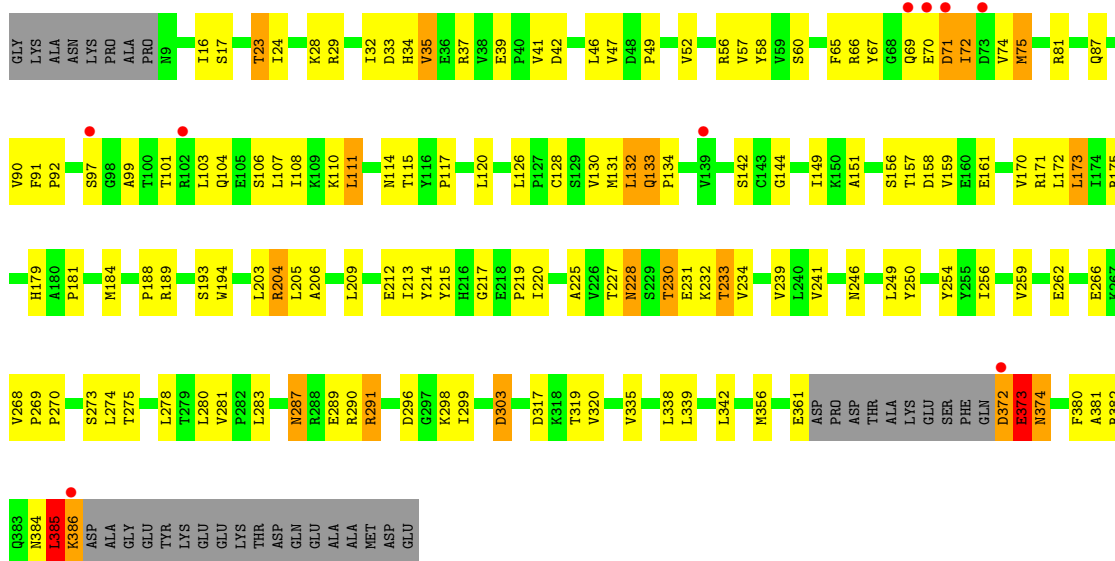
4 Data and refinement statistics (i)

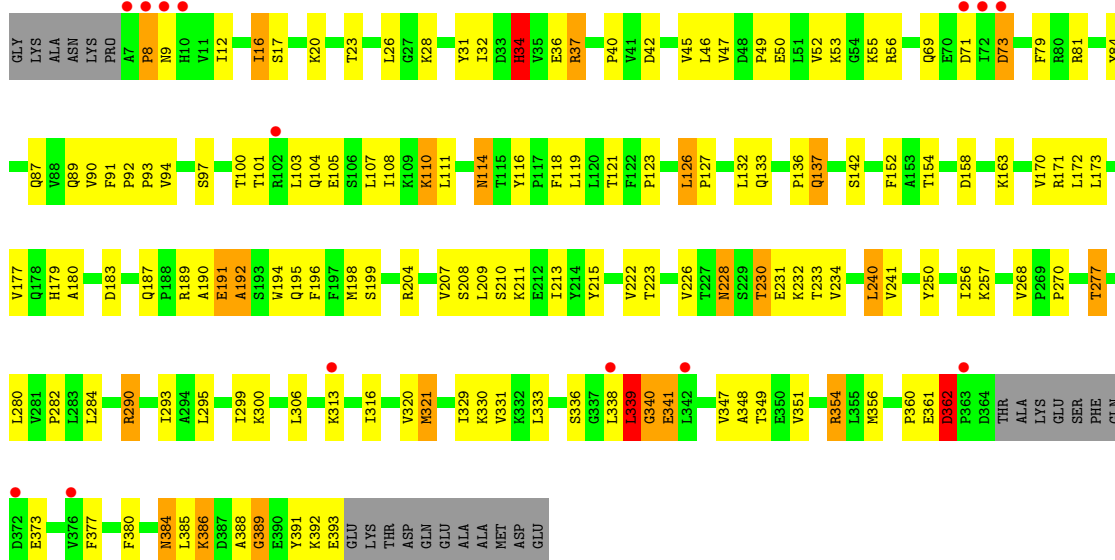| Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	168.85Å 193.19Å 191.12Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	45.00 – 2.80 44.73 – 2.81	Depositor EDS
% Data completeness (in resolution range)	91.5 (45.00-2.80) 91.6 (44.73-2.81)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.05	Depositor
$< I/\sigma(I) >$ [1]	1.29 (at 2.81Å)	Xtriage
Refinement program	CNS	Depositor
R, R_{free}	0.233 , 0.244 0.229 , 0.239	Depositor DCC
R_{free} test set	1762 reflections (2.52%)	wwPDB-VP
Wilson B-factor (Å^2)	60.7	Xtriage
Anisotropy	0.182	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 49.8	EDS
L-test for twinning[2]	$< |L| > = 0.50, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	11700	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 2.52% 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	0.41	1/3004 (0.0%)	0.68	1/4069 (0.0%)
1	B	0.45	0/2895	0.71	1/3923 (0.0%)
1	C	0.39	0/3042	0.70	3/4123 (0.1%)
1	D	0.48	1/2964 (0.0%)	0.73	3/4016 (0.1%)
All	All	0.43	2/11905 (0.0%)	0.70	8/16131 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	194	TRP	CZ3-CH2	-5.06	1.31	1.40
1	A	194	TRP	CZ3-CH2	-5.00	1.32	1.40

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	340	GLY	N-CA-C	-7.09	95.38	113.10
1	D	385	LEU	C-N-CA	-6.35	105.82	121.70
1	D	384	ASN	C-N-CA	6.12	136.99	121.70
1	C	34	HIS	N-CA-C	-5.96	94.90	111.00
1	A	34	HIS	N-CA-C	-5.81	95.32	111.00
1	C	8	PRO	N-CA-CB	5.55	109.95	103.30
1	B	34	HIS	N-CA-C	-5.21	96.92	111.00
1	D	34	HIS	N-CA-C	-5.07	97.32	111.00

There are no chirality outliers.

There are no planarity outliers.

5.2　Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen

atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2946	0	3011	147	0
1	B	2839	0	2904	137	0
1	C	2983	0	3032	157	0
1	D	2907	0	2977	139	0
2	A	7	0	0	0	0
2	B	10	0	0	1	0
2	C	1	0	0	0	0
2	D	7	0	0	0	0
All	All	11700	0	11924	568	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 24.

All (568) 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:111:LEU:HB3	1:B:115:THR:HG21	1.36	1.07
1:D:111:LEU:HB3	1:D:115:THR:HG21	1.34	1.06
1:D:385:LEU:O	1:D:386:LYS:C	1.99	0.99
1:A:191:GLU:HG3	1:A:208:SER:HB3	1.47	0.96
1:D:74:VAL:HG12	1:D:75:MET:H	1.28	0.96
1:C:101:THR:HG22	1:C:103:LEU:H	1.29	0.96
1:C:191:GLU:HG3	1:C:208:SER:HB3	1.49	0.95
1:A:101:THR:HG22	1:A:103:LEU:H	1.29	0.94
1:B:230:THR:HG23	1:B:232:LYS:H	1.34	0.93
1:D:157:THR:HG22	1:D:159:VAL:H	1.36	0.90
1:A:207:VAL:HG11	1:A:331:VAL:HG21	1.53	0.90
1:A:101:THR:HB	1:A:104:GLN:HG3	1.54	0.88
1:C:207:VAL:HG11	1:C:331:VAL:HG21	1.53	0.88
1:D:230:THR:HG23	1:D:232:LYS:H	1.38	0.88
1:A:230:THR:HG23	1:A:232:LYS:H	1.39	0.87
1:C:101:THR:HB	1:C:104:GLN:HG3	1.54	0.87
1:C:230:THR:CG2	1:C:232:LYS:H	1.89	0.86
1:C:230:THR:HG23	1:C:232:LYS:H	1.38	0.86
1:A:384:ASN:N	1:A:384:ASN:HD22	1.73	0.86
1:B:340:GLY:HA2	1:C:87:GLN:NE2	1.91	0.85
1:A:230:THR:CG2	1:A:232:LYS:H	1.88	0.85
1:C:384:ASN:N	1:C:384:ASN:HD22	1.73	0.85
1:A:16:ILE:HD11	1:A:20:LYS:HA	1.59	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:340:GLY:HA2	1:C:87:GLN:HE22	1.44	0.83
1:D:70:GLU:HB3	1:D:74:VAL:HG21	1.59	0.83
1:D:74:VAL:HG12	1:D:75:MET:N	1.94	0.82
1:C:16:ILE:HD11	1:C:20:LYS:HA	1.60	0.81
1:C:339:LEU:C	1:C:341:GLU:H	1.82	0.79
1:A:16:ILE:HD13	1:A:17:SER:N	1.97	0.79
1:C:123:PRO:HD2	1:C:126:LEU:HD22	1.65	0.79
1:D:188:PRO:HG2	1:D:209:LEU:HB2	1.66	0.77
1:C:16:ILE:HD13	1:C:17:SER:N	1.99	0.77
1:B:188:PRO:HG2	1:B:209:LEU:HB2	1.67	0.77
1:B:41:VAL:HG11	1:B:149:ILE:CD1	2.14	0.77
1:D:46:LEU:HD13	1:D:115:THR:HG22	1.67	0.77
1:D:41:VAL:HG11	1:D:149:ILE:CD1	2.14	0.77
1:B:197:PHE:CE1	1:C:84:TYR:HA	2.21	0.76
1:A:123:PRO:HD2	1:A:126:LEU:HD22	1.67	0.75
1:B:46:LEU:HD13	1:B:115:THR:HG22	1.69	0.75
1:C:187:GLN:HE22	1:C:213:ILE:H	1.34	0.74
1:A:16:ILE:CD1	1:A:20:LYS:HA	2.17	0.73
1:C:16:ILE:CD1	1:C:20:LYS:HA	2.18	0.73
1:B:55:LYS:HG2	1:B:155:HIS:HB3	1.69	0.73
1:C:93:PRO:HG3	1:C:116:TYR:CD2	2.24	0.72
1:A:234:VAL:HG22	1:A:268:VAL:HB	1.72	0.71
1:A:93:PRO:HG3	1:A:116:TYR:CD2	2.26	0.71
1:C:228:ASN:ND2	1:C:230:THR:H	1.89	0.71
1:D:28:LYS:HE3	1:D:39:GLU:OE2	1.90	0.71
1:B:28:LYS:HE3	1:B:39:GLU:OE2	1.89	0.70
1:D:74:VAL:CG1	1:D:75:MET:H	2.03	0.70
1:D:106:SER:HG	1:D:372:ASP:N	1.88	0.70
1:B:228:ASN:HD21	1:B:230:THR:HG22	1.55	0.70
1:A:187:GLN:HE22	1:A:213:ILE:H	1.40	0.70
1:A:228:ASN:ND2	1:A:230:THR:H	1.90	0.70
1:C:37:ARG:HB2	1:C:37:ARG:HH11	1.56	0.70
1:D:228:ASN:HD21	1:D:230:THR:HG22	1.57	0.69
1:D:101:THR:HG22	1:D:103:LEU:H	1.58	0.69
1:D:101:THR:HB	1:D:104:GLN:HG3	1.74	0.69
1:D:239:VAL:HG12	1:D:280:LEU:HD11	1.75	0.69
1:B:228:ASN:HD21	1:B:230:THR:CG2	2.05	0.69
1:B:184:MET:CE	1:B:213:ILE:HB	2.23	0.69
1:B:101:THR:HB	1:B:104:GLN:HG3	1.74	0.68
1:A:37:ARG:HH11	1:A:37:ARG:HB2	1.56	0.68
1:B:230:THR:HG23	1:B:232:LYS:N	2.09	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:184:MET:CE	1:D:213:ILE:HB	2.23	0.68
1:C:234:VAL:HG22	1:C:268:VAL:HB	1.75	0.68
1:B:287:ASN:N	1:B:287:ASN:HD22	1.92	0.68
1:D:287:ASN:N	1:D:287:ASN:HD22	1.92	0.68
1:A:240:LEU:CD1	1:A:330:LYS:HB3	2.24	0.68
1:D:228:ASN:HD21	1:D:230:THR:CG2	2.06	0.68
1:C:207:VAL:HG23	1:C:351:VAL:HG21	1.74	0.68
1:D:72:ILE:HD11	1:D:298:LYS:CE	2.24	0.68
1:B:101:THR:HG22	1:B:103:LEU:H	1.58	0.67
1:A:207:VAL:HG23	1:A:351:VAL:HG21	1.76	0.67
1:B:239:VAL:HG12	1:B:280:LEU:HD11	1.77	0.67
1:A:228:ASN:ND2	1:A:230:THR:HB	2.10	0.67
1:B:16:ILE:HG12	1:B:23:THR:HB	1.77	0.67
1:A:191:GLU:HG3	1:A:208:SER:CB	2.24	0.66
1:D:16:ILE:HG12	1:D:23:THR:HB	1.77	0.66
1:D:230:THR:HG23	1:D:232:LYS:N	2.10	0.66
1:C:240:LEU:CD1	1:C:330:LYS:HB3	2.25	0.66
1:C:36:GLU:O	1:C:37:ARG:HG3	1.96	0.66
1:C:52:VAL:HA	1:C:55:LYS:HD2	1.77	0.66
1:A:52:VAL:HA	1:A:55:LYS:HD2	1.77	0.66
1:B:47:VAL:HG11	1:B:52:VAL:HG11	1.78	0.66
1:B:232:LYS:NZ	1:B:342:LEU:CD1	2.58	0.66
1:C:234:VAL:HG23	1:C:234:VAL:O	1.96	0.66
1:B:131:MET:HE1	1:B:298:LYS:HD2	1.78	0.65
1:D:303:ASP:OD2	1:D:382:ARG:NH1	2.29	0.65
1:C:228:ASN:ND2	1:C:230:THR:HB	2.11	0.65
1:C:384:ASN:N	1:C:384:ASN:ND2	2.45	0.64
1:D:29:ARG:HG2	1:D:380:PHE:CE1	2.31	0.64
1:B:373:GLU:O	1:B:374:ASN:HB3	1.95	0.64
1:D:47:VAL:HG11	1:D:52:VAL:HG11	1.79	0.64
1:A:240:LEU:HD12	1:A:330:LYS:HB3	1.78	0.64
1:D:72:ILE:HD11	1:D:298:LYS:HE3	1.78	0.64
1:B:193:SER:HB3	1:B:204:ARG:HD3	1.80	0.63
1:C:97:SER:OG	1:C:118:PHE:HA	1.98	0.63
1:C:187:GLN:HE22	1:C:213:ILE:N	1.97	0.63
1:D:193:SER:HB3	1:D:204:ARG:HD3	1.81	0.63
1:C:209:LEU:HD11	1:C:329:ILE:HD12	1.79	0.63
1:A:230:THR:HG23	1:A:231:GLU:N	2.14	0.63
1:B:302:GLU:HA	1:B:385:LEU:HD13	1.80	0.63
1:B:228:ASN:ND2	1:B:230:THR:HB	2.14	0.63
1:A:313:LYS:O	1:A:316:ILE:HG12	1.98	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:222:VAL:HG22	1:C:329:ILE:HD13	1.80	0.62
1:C:290:ARG:HD3	1:C:299:ILE:HG23	1.80	0.62
1:A:77:LEU:HD13	1:A:78:SER:N	2.14	0.62
1:B:254:TYR:OH	1:B:256:ILE:HD11	1.99	0.62
1:C:32:ILE:HG13	1:C:179:HIS:CD2	2.34	0.62
1:A:97:SER:OG	1:A:118:PHE:HA	1.99	0.62
1:B:303:ASP:OD2	1:B:382:ARG:NH1	2.32	0.62
1:A:234:VAL:HG23	1:A:234:VAL:O	1.99	0.62
1:D:228:ASN:ND2	1:D:230:THR:HB	2.14	0.62
1:C:127:PRO:HB3	1:C:321:MET:HE2	1.82	0.62
1:D:70:GLU:HB3	1:D:74:VAL:CG2	2.30	0.62
1:A:290:ARG:HD3	1:A:299:ILE:HG23	1.81	0.62
1:C:230:THR:HG23	1:C:231:GLU:N	2.13	0.62
1:B:234:VAL:HB	1:B:268:VAL:HB	1.81	0.61
1:D:233:THR:HB	1:D:270:PRO:HD3	1.82	0.61
1:A:32:ILE:HG13	1:A:179:HIS:CD2	2.35	0.61
1:D:131:MET:HE1	1:D:298:LYS:HD2	1.81	0.61
1:D:254:TYR:OH	1:D:256:ILE:HD11	2.00	0.61
1:A:49:PRO:CG	1:A:114:ASN:HD22	2.14	0.61
1:C:49:PRO:CG	1:C:114:ASN:HD22	2.14	0.61
1:C:53:LYS:NZ	1:C:53:LYS:HB3	2.15	0.61
1:C:191:GLU:HG3	1:C:208:SER:CB	2.26	0.61
1:A:36:GLU:O	1:A:37:ARG:HG3	2.01	0.61
1:B:65:PHE:CD2	1:B:249:LEU:HD23	2.35	0.61
1:B:205:LEU:HD12	1:B:206:ALA:N	2.16	0.60
1:D:184:MET:HE2	1:D:213:ILE:HB	1.83	0.60
1:A:209:LEU:HD11	1:A:329:ILE:HD12	1.82	0.60
1:B:29:ARG:HG2	1:B:380:PHE:CE1	2.36	0.60
1:B:317:ASP:OD2	1:B:319:THR:HB	2.00	0.60
1:C:256:ILE:HG23	1:C:256:ILE:O	2.01	0.60
1:C:313:LYS:O	1:C:316:ILE:HG12	2.02	0.60
1:B:41:VAL:HG11	1:B:149:ILE:HD11	1.83	0.60
1:C:93:PRO:HG3	1:C:116:TYR:HD2	1.63	0.60
1:C:240:LEU:HD12	1:C:330:LYS:HB3	1.82	0.60
1:D:234:VAL:HB	1:D:268:VAL:HB	1.81	0.60
1:D:317:ASP:OD2	1:D:319:THR:HB	2.02	0.60
1:A:53:LYS:NZ	1:A:53:LYS:HB3	2.17	0.60
1:D:290:ARG:NH1	1:D:299:ILE:O	2.35	0.60
1:B:184:MET:HE3	1:B:213:ILE:HB	1.84	0.60
1:C:52:VAL:HG12	1:C:52:VAL:O	2.02	0.60
1:C:232:LYS:HD3	1:C:336:SER:O	2.02	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:92:PRO:O	1:A:94:VAL:HG23	2.03	0.59
1:A:37:ARG:HH11	1:A:37:ARG:CB	2.16	0.59
1:B:108:ILE:HD11	1:B:117:PRO:HD3	1.84	0.59
1:B:230:THR:HG23	1:B:231:GLU:N	2.17	0.59
1:B:290:ARG:NH1	1:B:299:ILE:O	2.36	0.59
1:D:159:VAL:O	1:D:159:VAL:HG12	2.01	0.59
1:A:256:ILE:HG23	1:A:256:ILE:O	2.02	0.59
1:C:28:LYS:NZ	1:C:32:ILE:HD13	2.18	0.59
1:D:41:VAL:HG11	1:D:149:ILE:HD11	1.82	0.59
1:A:28:LYS:NZ	1:A:32:ILE:HD13	2.18	0.59
1:A:93:PRO:HG3	1:A:116:TYR:HD2	1.64	0.59
1:A:46:LEU:HD12	1:A:114:ASN:O	2.03	0.59
1:C:46:LEU:HD12	1:C:114:ASN:O	2.03	0.59
1:D:74:VAL:CG1	1:D:75:MET:N	2.65	0.58
1:A:52:VAL:HG12	1:A:52:VAL:O	2.03	0.58
1:C:92:PRO:O	1:C:94:VAL:HG23	2.03	0.58
1:C:228:ASN:HD22	1:C:230:THR:H	1.51	0.58
1:D:217:GLY:HA2	1:D:283:LEU:HD21	1.86	0.58
1:A:127:PRO:HB3	1:A:321:MET:HE2	1.83	0.58
1:B:35:VAL:HG23	1:B:181:PRO:HB3	1.85	0.58
1:D:108:ILE:HD11	1:D:117:PRO:HD3	1.84	0.58
1:D:205:LEU:HD12	1:D:206:ALA:N	2.18	0.58
1:B:184:MET:HE2	1:B:213:ILE:HB	1.86	0.58
1:B:217:GLY:HA2	1:B:283:LEU:HD21	1.86	0.58
1:C:101:THR:HG22	1:C:103:LEU:N	2.11	0.58
1:A:187:GLN:HE22	1:A:213:ILE:N	2.01	0.58
1:D:373:GLU:OE1	1:D:373:GLU:HA	2.03	0.58
1:C:49:PRO:HG3	1:C:114:ASN:HD22	1.69	0.58
1:D:290:ARG:NH1	1:D:385:LEU:HD22	2.18	0.58
1:D:35:VAL:HG23	1:D:181:PRO:HB3	1.86	0.58
1:D:230:THR:HG23	1:D:231:GLU:N	2.18	0.57
1:B:289:GLU:OE1	1:B:291:ARG:HB2	2.05	0.57
1:A:49:PRO:HG3	1:A:114:ASN:HD22	1.69	0.57
1:A:222:VAL:HG22	1:A:329:ILE:HD13	1.85	0.57
1:A:256:ILE:O	1:A:257:LYS:HD3	2.05	0.57
1:B:320:VAL:HG12	1:B:320:VAL:O	2.04	0.57
1:D:65:PHE:CD2	1:D:249:LEU:HD23	2.40	0.57
1:B:233:THR:HB	1:B:270:PRO:HD3	1.85	0.56
1:C:37:ARG:HH11	1:C:37:ARG:CB	2.17	0.56
1:D:184:MET:HE3	1:D:213:ILE:HB	1.87	0.56
1:D:228:ASN:HD21	1:D:230:THR:CB	2.18	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:232:LYS:HD3	1:A:336:SER:O	2.05	0.56
1:B:228:ASN:HD21	1:B:230:THR:CB	2.18	0.56
1:D:66:ARG:NH1	1:D:71:ASP:HB3	2.20	0.56
1:A:293:ILE:HG13	1:A:295:LEU:HD21	1.87	0.56
1:B:131:MET:HE1	1:B:298:LYS:HA	1.87	0.56
1:C:385:LEU:HB3	1:C:388:ALA:HB2	1.86	0.56
1:A:385:LEU:HB3	1:A:388:ALA:HB2	1.86	0.56
1:D:131:MET:HE1	1:D:298:LYS:HA	1.87	0.56
1:C:49:PRO:CG	1:C:114:ASN:ND2	2.69	0.56
1:D:107:LEU:O	1:D:111:LEU:HB2	2.05	0.56
1:A:228:ASN:HD21	1:A:230:THR:HB	1.72	0.55
1:A:49:PRO:CG	1:A:114:ASN:ND2	2.70	0.55
1:D:32:ILE:HG12	1:D:179:HIS:CD2	2.42	0.55
1:D:131:MET:CE	1:D:298:LYS:HD2	2.36	0.55
1:D:72:ILE:O	1:D:72:ILE:HG22	2.05	0.55
1:A:228:ASN:HD22	1:A:230:THR:H	1.54	0.55
1:B:131:MET:CE	1:B:298:LYS:HD2	2.36	0.55
1:B:186:PRO:CD	1:C:73:ASP:OD2	2.54	0.55
1:D:335:VAL:HB	1:D:338:LEU:HD22	1.89	0.55
1:B:232:LYS:HZ1	1:B:342:LEU:HD11	1.71	0.55
1:D:232:LYS:NZ	1:D:342:LEU:CD1	2.70	0.55
1:B:290:ARG:NH1	1:B:385:LEU:HD21	2.22	0.55
1:C:158:ASP:HB3	1:C:163:LYS:O	2.07	0.55
1:A:158:ASP:HB3	1:A:163:LYS:O	2.06	0.55
1:D:35:VAL:CG2	1:D:181:PRO:HB3	2.36	0.55
1:D:289:GLU:OE1	1:D:291:ARG:HB2	2.06	0.55
1:A:280:LEU:HD12	1:A:280:LEU:N	2.22	0.55
1:B:132:LEU:O	1:B:132:LEU:HD23	2.07	0.54
1:C:293:ILE:HG13	1:C:295:LEU:HD21	1.88	0.54
1:A:100:THR:HG22	1:A:105:GLU:HG3	1.88	0.54
1:A:228:ASN:HD21	1:A:230:THR:CB	2.20	0.54
1:C:100:THR:HG22	1:C:105:GLU:HG3	1.88	0.54
1:C:348:ALA:HB3	1:D:273:SER:HB2	1.89	0.54
1:B:66:ARG:HH11	1:B:69:GLN:NE2	2.06	0.54
1:A:52:VAL:HG13	1:A:55:LYS:HG3	1.90	0.54
1:A:384:ASN:N	1:A:384:ASN:ND2	2.45	0.54
1:D:320:VAL:HG12	1:D:320:VAL:O	2.06	0.54
1:A:77:LEU:HD13	1:A:77:LEU:C	2.28	0.54
1:A:50:GLU:O	1:A:53:LYS:HG3	2.08	0.54
1:B:107:LEU:O	1:B:111:LEU:HB2	2.07	0.54
1:C:204:ARG:HG3	1:C:204:ARG:HH11	1.73	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:372:ASP:O	1:D:373:GLU:HB2	2.07	0.54
1:B:232:LYS:HZ3	1:B:342:LEU:CD1	2.19	0.54
1:B:35:VAL:CG2	1:B:181:PRO:HB3	2.37	0.54
1:B:262:GLU:HB2	1:B:280:LEU:HD21	1.90	0.54
1:D:262:GLU:HB2	1:D:280:LEU:HD21	1.90	0.54
1:B:287:ASN:N	1:B:287:ASN:ND2	2.55	0.54
1:A:101:THR:HG22	1:A:103:LEU:N	2.12	0.53
1:D:232:LYS:HZ3	1:D:342:LEU:CD1	2.21	0.53
1:D:287:ASN:N	1:D:287:ASN:ND2	2.55	0.53
1:C:228:ASN:HD21	1:C:230:THR:HB	1.74	0.53
1:C:230:THR:CG2	1:C:231:GLU:N	2.71	0.53
1:B:335:VAL:HB	1:B:338:LEU:HD22	1.90	0.53
1:C:87:GLN:NE2	1:C:152:PHE:HZ	2.07	0.53
1:A:207:VAL:CG1	1:A:331:VAL:HG21	2.34	0.53
1:A:230:THR:CG2	1:A:231:GLU:N	2.71	0.53
1:A:341:GLU:O	1:A:341:GLU:HG3	2.08	0.53
1:B:228:ASN:HD21	1:B:230:THR:HB	1.74	0.53
1:C:256:ILE:O	1:C:257:LYS:HD3	2.07	0.53
1:C:49:PRO:HG2	1:C:114:ASN:ND2	2.24	0.53
1:C:228:ASN:HD21	1:C:230:THR:CB	2.21	0.53
1:C:69:GLN:CG	1:C:142:SER:H	2.21	0.52
1:C:280:LEU:HD12	1:C:280:LEU:N	2.23	0.52
1:B:60:SER:HB3	1:B:87:GLN:HG3	1.90	0.52
1:C:50:GLU:O	1:C:53:LYS:HG3	2.09	0.52
1:A:49:PRO:HG2	1:A:114:ASN:ND2	2.25	0.52
1:C:234:VAL:O	1:C:234:VAL:CG2	2.57	0.52
1:C:233:THR:OG1	1:C:270:PRO:HD3	2.09	0.52
1:D:361:GLU:OE1	1:D:361:GLU:HA	2.09	0.52
1:B:212:GLU:OE1	1:B:213:ILE:HG13	2.10	0.52
1:D:60:SER:HB3	1:D:87:GLN:HG3	1.91	0.52
1:A:233:THR:OG1	1:A:270:PRO:HD3	2.08	0.52
1:D:71:ASP:OD2	1:D:298:LYS:NZ	2.39	0.52
1:B:32:ILE:HG12	1:B:179:HIS:CD2	2.45	0.52
1:A:204:ARG:HG3	1:A:204:ARG:HH11	1.74	0.51
1:B:302:GLU:HA	1:B:385:LEU:CD1	2.39	0.51
1:C:52:VAL:HG13	1:C:55:LYS:HG3	1.93	0.51
1:A:87:GLN:NE2	1:A:152:PHE:HZ	2.08	0.51
1:B:158:ASP:OD2	1:B:160:GLU:HB2	2.10	0.51
1:C:187:GLN:NE2	1:C:213:ILE:H	2.06	0.51
1:C:36:GLU:C	1:C:37:ARG:HG3	2.31	0.51
1:D:215:TYR:HA	1:D:356:MET:O	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:45:VAL:HG21	1:A:90:VAL:HG11	1.93	0.51
1:A:241:VAL:HG21	1:A:282:PRO:HG3	1.93	0.50
1:D:134:PRO:HD3	1:D:142:SER:HA	1.93	0.50
1:A:204:ARG:HG3	1:A:204:ARG:NH1	2.26	0.50
1:B:195:GLN:HB3	1:C:81:ARG:HD3	1.92	0.50
1:D:228:ASN:HD21	1:D:230:THR:HB	1.73	0.50
1:D:49:PRO:HG3	1:D:114:ASN:OD1	2.12	0.50
1:B:215:TYR:HA	1:B:356:MET:O	2.11	0.50
1:A:321:MET:CE	1:A:321:MET:HA	2.41	0.50
1:C:45:VAL:HG21	1:C:90:VAL:HG11	1.92	0.50
1:C:204:ARG:HG3	1:C:204:ARG:NH1	2.25	0.50
1:D:42:ASP:OD2	1:D:101:THR:HG21	2.12	0.50
1:A:234:VAL:O	1:A:234:VAL:CG2	2.60	0.50
1:C:321:MET:CE	1:C:321:MET:HA	2.42	0.50
1:B:197:PHE:CD1	1:C:84:TYR:HA	2.46	0.49
1:B:241:VAL:HG23	1:B:280:LEU:HD13	1.93	0.49
1:D:132:LEU:HD23	1:D:132:LEU:O	2.12	0.49
1:D:133:GLN:O	1:D:291:ARG:O	2.30	0.49
1:D:212:GLU:OE1	1:D:213:ILE:HG13	2.11	0.49
1:B:68:GLY:O	1:B:69:GLN:HB2	2.12	0.49
1:B:291:ARG:HH11	1:B:291:ARG:HG2	1.76	0.49
1:B:134:PRO:HD3	1:B:142:SER:HA	1.94	0.49
1:C:71:ASP:OD1	1:C:392:LYS:HE2	2.11	0.49
1:B:254:TYR:CE2	1:B:256:ILE:HD11	2.47	0.49
1:D:241:VAL:HG23	1:D:280:LEU:HD13	1.94	0.49
1:A:321:MET:HE2	1:A:321:MET:HA	1.94	0.49
1:B:230:THR:CG2	1:B:232:LYS:H	2.17	0.49
1:D:254:TYR:CE2	1:D:256:ILE:HD11	2.47	0.49
1:D:206:ALA:HB3	1:D:225:ALA:HB3	1.95	0.49
1:B:42:ASP:OD2	1:B:101:THR:HG21	2.12	0.49
1:A:338:LEU:O	1:A:341:GLU:HB3	2.13	0.49
1:A:34:HIS:CD2	1:A:34:HIS:H	2.29	0.49
1:A:40:PRO:HB3	1:A:121:THR:HG22	1.94	0.49
1:C:333:LEU:HB2	1:C:347:VAL:CG2	2.43	0.48
1:C:338:LEU:HD13	1:C:339:LEU:N	2.28	0.48
1:C:12:ILE:CD1	1:C:107:LEU:HD21	2.42	0.48
1:D:287:ASN:HD22	1:D:287:ASN:H	1.61	0.48
1:A:104:GLN:O	1:A:108:ILE:HG13	2.13	0.48
1:C:47:VAL:HG23	1:C:52:VAL:HG21	1.94	0.48
1:B:66:ARG:NH1	1:B:69:GLN:HE22	2.11	0.48
1:C:101:THR:C	1:C:103:LEU:N	2.67	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:196:PHE:CD2	1:D:269:PRO:HG2	2.49	0.48
1:D:70:GLU:OE1	1:D:70:GLU:HA	2.14	0.48
1:A:32:ILE:N	1:A:32:ILE:HD12	2.28	0.48
1:A:36:GLU:C	1:A:37:ARG:HG3	2.33	0.48
1:C:171:ARG:HE	1:C:173:LEU:HD11	1.77	0.48
1:C:393:GLU:OE1	1:C:393:GLU:HA	2.14	0.48
1:A:101:THR:C	1:A:103:LEU:N	2.67	0.48
1:B:65:PHE:CG	1:B:249:LEU:HD23	2.49	0.48
1:B:287:ASN:HD22	1:B:287:ASN:H	1.62	0.48
1:B:41:VAL:HG11	1:B:149:ILE:HD13	1.95	0.48
1:C:191:GLU:O	1:C:192:ALA:HB2	2.14	0.48
1:D:99:ALA:HB1	1:D:104:GLN:HB2	1.95	0.48
1:A:194:TRP:HZ3	1:A:207:VAL:HG22	1.79	0.48
1:A:234:VAL:CG2	1:A:268:VAL:HB	2.43	0.48
1:B:373:GLU:O	1:B:374:ASN:CB	2.61	0.48
1:C:104:GLN:O	1:C:108:ILE:HG13	2.14	0.48
1:C:223:THR:OG1	1:C:277:THR:HB	2.14	0.48
1:A:47:VAL:HG23	1:A:52:VAL:HG21	1.94	0.47
1:D:296:ASP:OD1	1:D:296:ASP:C	2.52	0.47
1:A:354:ARG:NH1	1:A:354:ARG:HG3	2.29	0.47
1:B:65:PHE:CE2	1:B:249:LEU:HB3	2.49	0.47
1:A:172:LEU:HD22	1:A:380:PHE:CG	2.49	0.47
1:B:133:GLN:O	1:B:291:ARG:O	2.32	0.47
1:B:219:PRO:HA	1:B:281:VAL:HG22	1.95	0.47
1:C:241:VAL:HG21	1:C:282:PRO:HG3	1.96	0.47
1:A:374:ASN:HD22	1:A:374:ASN:HA	1.51	0.47
1:B:266:GLU:N	1:B:266:GLU:OE1	2.47	0.47
1:C:228:ASN:HD22	1:C:228:ASN:C	2.17	0.47
1:D:380:PHE:O	1:D:381:ALA:C	2.52	0.47
1:C:207:VAL:CG1	1:C:331:VAL:HG21	2.35	0.47
1:C:172:LEU:HD22	1:C:380:PHE:CG	2.49	0.47
1:C:194:TRP:HZ3	1:C:207:VAL:HG22	1.79	0.47
1:D:373:GLU:CD	1:D:374:ASN:H	2.18	0.47
1:B:46:LEU:CD1	1:B:115:THR:HG22	2.42	0.47
1:B:110:LYS:O	1:B:110:LYS:HG3	2.15	0.47
1:C:32:ILE:N	1:C:32:ILE:HD12	2.29	0.47
1:C:34:HIS:CD2	1:C:34:HIS:H	2.32	0.47
1:C:40:PRO:HB3	1:C:121:THR:HG22	1.96	0.47
1:C:101:THR:CG2	1:C:103:LEU:HB3	2.45	0.47
1:C:133:GLN:HG2	1:C:142:SER:OG	2.14	0.47
1:C:234:VAL:HG22	1:C:268:VAL:CB	2.44	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:321:MET:HE2	1:C:321:MET:HA	1.97	0.47
1:D:41:VAL:HG11	1:D:149:ILE:HD13	1.94	0.47
1:D:46:LEU:CD1	1:D:115:THR:HG22	2.42	0.47
1:D:69:GLN:NE2	1:D:142:SER:H	2.13	0.47
1:B:320:VAL:O	1:B:320:VAL:CG1	2.62	0.47
1:C:338:LEU:O	1:C:340:GLY:N	2.47	0.47
1:D:219:PRO:HA	1:D:281:VAL:HG22	1.96	0.47
1:D:239:VAL:HG12	1:D:280:LEU:CD1	2.43	0.47
1:A:12:ILE:CD1	1:A:107:LEU:HD21	2.45	0.47
1:A:215:TYR:HA	1:A:356:MET:O	2.15	0.46
1:A:377:PHE:CD1	1:A:377:PHE:N	2.83	0.46
1:A:386:LYS:H	1:A:386:LYS:HD3	1.81	0.46
1:B:99:ALA:HB1	1:B:104:GLN:HB2	1.95	0.46
1:C:100:THR:CG2	1:C:105:GLU:HG3	2.45	0.46
1:A:177:VAL:HG23	1:A:179:HIS:CD2	2.51	0.46
1:A:228:ASN:HD22	1:A:228:ASN:C	2.19	0.46
1:B:206:ALA:HB3	1:B:225:ALA:HB3	1.98	0.46
1:D:291:ARG:HH11	1:D:291:ARG:HG2	1.79	0.46
1:A:101:THR:CG2	1:A:103:LEU:HB3	2.46	0.46
1:C:377:PHE:CD1	1:C:377:PHE:N	2.83	0.46
1:A:354:ARG:HG3	1:A:354:ARG:HH11	1.81	0.46
1:B:47:VAL:HG13	1:B:52:VAL:HG21	1.98	0.46
1:C:215:TYR:HA	1:C:356:MET:O	2.16	0.46
1:B:91:PHE:HA	1:B:92:PRO:C	2.35	0.46
1:C:132:LEU:HD12	1:C:132:LEU:C	2.36	0.46
1:A:223:THR:OG1	1:A:277:THR:HB	2.16	0.46
1:A:249:LEU:HD23	1:A:249:LEU:HA	1.71	0.46
1:D:57:VAL:O	1:D:90:VAL:HG12	2.16	0.46
1:D:266:GLU:N	1:D:266:GLU:OE1	2.47	0.46
1:A:23:THR:HB	1:A:46:LEU:HB3	1.98	0.46
1:A:100:THR:CG2	1:A:105:GLU:HG3	2.46	0.46
1:B:239:VAL:HG12	1:B:280:LEU:CD1	2.46	0.46
1:C:320:VAL:O	1:C:320:VAL:HG12	2.16	0.46
1:C:386:LYS:H	1:C:386:LYS:HD3	1.80	0.46
1:D:65:PHE:CG	1:D:249:LEU:HD23	2.51	0.46
1:A:234:VAL:HG22	1:A:268:VAL:CB	2.42	0.45
1:B:67:TYR:CD1	1:B:250:TYR:HD2	2.35	0.45
1:B:101:THR:HG22	1:B:103:LEU:N	2.30	0.45
1:C:228:ASN:ND2	1:C:228:ASN:C	2.69	0.45
1:C:354:ARG:NH1	1:C:354:ARG:HG3	2.30	0.45
1:D:239:VAL:CG2	1:D:278:LEU:HD12	2.46	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:214:TYR:CD2	1:D:220:ILE:HG12	2.51	0.45
1:B:380:PHE:O	1:B:381:ALA:C	2.55	0.45
1:D:249:LEU:HD12	1:D:249:LEU:HA	1.77	0.45
1:D:320:VAL:O	1:D:320:VAL:CG1	2.64	0.45
1:A:230:THR:HG22	1:A:232:LYS:H	1.78	0.45
1:B:231:GLU:HB2	2:B:406:HOH:O	2.15	0.45
1:C:110:LYS:O	1:C:110:LYS:HG3	2.17	0.45
1:A:171:ARG:HE	1:A:173:LEU:HD11	1.81	0.45
1:B:49:PRO:HG3	1:B:114:ASN:OD1	2.16	0.45
1:B:214:TYR:CD2	1:B:220:ILE:HG12	2.52	0.45
1:C:284:LEU:N	1:C:306:LEU:HD11	2.32	0.45
1:A:333:LEU:HB2	1:A:347:VAL:CG2	2.46	0.45
1:D:65:PHE:CE2	1:D:249:LEU:HB3	2.51	0.45
1:A:132:LEU:C	1:A:132:LEU:HD12	2.37	0.45
1:B:57:VAL:O	1:B:90:VAL:HG12	2.17	0.45
1:C:23:THR:HB	1:C:46:LEU:HB3	1.99	0.45
1:C:100:THR:CG2	1:C:104:GLN:HB2	2.47	0.45
1:C:338:LEU:C	1:C:340:GLY:H	2.20	0.45
1:D:32:ILE:HG12	1:D:179:HIS:NE2	2.32	0.45
1:A:228:ASN:ND2	1:A:228:ASN:C	2.70	0.45
1:D:232:LYS:HZ1	1:D:342:LEU:HD11	1.82	0.45
1:A:187:GLN:NE2	1:A:213:ILE:H	2.11	0.45
1:C:228:ASN:HD21	1:C:230:THR:HG22	1.82	0.45
1:C:234:VAL:CG2	1:C:268:VAL:HB	2.45	0.45
1:D:91:PHE:HA	1:D:92:PRO:C	2.36	0.45
1:D:16:ILE:HG22	1:D:17:SER:O	2.17	0.45
1:B:32:ILE:HG23	1:B:179:HIS:CD2	2.52	0.44
1:D:230:THR:CG2	1:D:231:GLU:N	2.80	0.44
1:D:262:GLU:HB2	1:D:280:LEU:CD2	2.47	0.44
1:B:274:LEU:HD12	1:B:275:THR:H	1.81	0.44
1:C:12:ILE:HD13	1:C:107:LEU:HD21	1.99	0.44
1:C:28:LYS:HZ1	1:C:32:ILE:CD1	2.29	0.44
1:A:191:GLU:O	1:A:192:ALA:HB2	2.16	0.44
1:A:284:LEU:N	1:A:306:LEU:HD11	2.33	0.44
1:C:101:THR:C	1:C:103:LEU:H	2.20	0.44
1:C:137:GLN:OE1	1:C:137:GLN:N	2.38	0.44
1:A:190:ALA:HB3	1:A:209:LEU:HB2	1.98	0.44
1:C:17:SER:HA	1:C:170:VAL:HG22	2.00	0.44
1:C:53:LYS:HB3	1:C:53:LYS:HZ2	1.82	0.44
1:C:91:PHE:CD1	1:C:91:PHE:C	2.91	0.44
1:C:207:VAL:CG2	1:C:351:VAL:HG21	2.45	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:222:VAL:CG2	1:C:329:ILE:HD13	2.46	0.44
1:A:137:GLN:OE1	1:A:137:GLN:N	2.39	0.44
1:B:46:LEU:HD13	1:B:115:THR:CG2	2.45	0.44
1:B:66:ARG:HH11	1:B:69:GLN:HE22	1.65	0.44
1:B:193:SER:CB	1:B:204:ARG:HD3	2.47	0.44
1:D:110:LYS:O	1:D:110:LYS:HG3	2.18	0.44
1:B:249:LEU:CD1	1:B:319:THR:HG23	2.48	0.44
1:D:72:ILE:CG2	1:D:171:ARG:HH22	2.31	0.44
1:D:131:MET:HB3	1:D:144:GLY:HA3	1.99	0.44
1:D:172:LEU:HD22	1:D:380:PHE:CG	2.53	0.44
1:A:16:ILE:HD13	1:A:17:SER:H	1.80	0.43
1:B:153:ALA:HB3	1:B:168:SER:HB3	2.00	0.43
1:C:190:ALA:HB3	1:C:209:LEU:HB2	1.99	0.43
1:D:249:LEU:CD1	1:D:319:THR:HG23	2.47	0.43
1:A:91:PHE:CD1	1:A:91:PHE:C	2.91	0.43
1:A:101:THR:C	1:A:103:LEU:H	2.20	0.43
1:B:68:GLY:O	1:B:69:GLN:CB	2.66	0.43
1:D:29:ARG:NH1	1:D:380:PHE:O	2.49	0.43
1:D:111:LEU:HD12	1:D:111:LEU:HA	1.82	0.43
1:A:28:LYS:HZ1	1:A:32:ILE:CD1	2.31	0.43
1:D:24:ILE:CG2	1:D:170:VAL:HG21	2.48	0.43
1:A:388:ALA:O	1:A:389:GLY:C	2.57	0.43
1:B:58:TYR:O	1:B:151:ALA:HA	2.18	0.43
1:B:228:ASN:ND2	1:B:230:THR:CB	2.79	0.43
1:C:127:PRO:CB	1:C:321:MET:HE2	2.47	0.43
1:D:32:ILE:HG23	1:D:179:HIS:CD2	2.53	0.43
1:B:16:ILE:HG22	1:B:17:SER:O	2.18	0.43
1:D:157:THR:HB	1:D:161:GLU:O	2.18	0.43
1:D:193:SER:CB	1:D:204:ARG:HD3	2.48	0.43
1:A:16:ILE:HG12	1:A:23:THR:OG1	2.18	0.43
1:B:131:MET:HB3	1:B:144:GLY:HA3	2.01	0.43
1:B:172:LEU:HD22	1:B:380:PHE:CG	2.54	0.43
1:B:204:ARG:HB2	1:B:227:THR:HB	2.01	0.43
1:D:274:LEU:HD12	1:D:275:THR:H	1.83	0.43
1:A:100:THR:CG2	1:A:104:GLN:HB2	2.49	0.43
1:B:262:GLU:HB2	1:B:280:LEU:CD2	2.47	0.43
1:C:189:ARG:HB2	1:C:209:LEU:O	2.18	0.43
1:B:230:THR:CG2	1:B:232:LYS:N	2.80	0.43
1:A:189:ARG:HB2	1:A:209:LEU:O	2.18	0.43
1:C:354:ARG:HG3	1:C:354:ARG:HH11	1.82	0.43
1:D:72:ILE:HG23	1:D:173:LEU:HD21	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:24:ILE:HG22	1:D:170:VAL:HG21	2.01	0.43
1:A:320:VAL:O	1:A:320:VAL:HG12	2.17	0.42
1:B:87:GLN:NE2	1:B:152:PHE:HZ	2.16	0.42
1:B:186:PRO:HD2	1:C:73:ASP:OD2	2.19	0.42
1:B:204:ARG:HG3	1:B:204:ARG:NH1	2.34	0.42
1:B:249:LEU:HD12	1:B:249:LEU:HA	1.73	0.42
1:A:77:LEU:C	1:A:77:LEU:CD1	2.87	0.42
1:A:154:THR:HG23	1:A:154:THR:O	2.19	0.42
1:C:198:MET:O	1:C:199:SER:HB2	2.19	0.42
1:B:197:PHE:CD2	1:B:198:MET:HG3	2.55	0.42
1:C:100:THR:HG23	1:C:104:GLN:HB2	2.01	0.42
1:C:385:LEU:HD13	1:C:386:LYS:N	2.34	0.42
1:D:128:CYS:O	1:D:130:VAL:HG12	2.19	0.42
1:B:232:LYS:HZ3	1:B:342:LEU:HD12	1.84	0.42
1:B:290:ARG:HH12	1:B:385:LEU:HD21	1.84	0.42
1:C:31:TYR:CD1	1:C:31:TYR:N	2.87	0.42
1:C:177:VAL:HG23	1:C:179:HIS:CD2	2.54	0.42
1:C:388:ALA:O	1:C:389:GLY:C	2.57	0.42
1:A:198:MET:HG2	1:B:266:GLU:HG3	2.01	0.42
1:A:228:ASN:HD21	1:A:230:THR:HG22	1.84	0.42
1:C:230:THR:CG2	1:C:232:LYS:N	2.71	0.42
1:A:69:GLN:CG	1:A:142:SER:H	2.32	0.42
1:B:296:ASP:C	1:B:296:ASP:OD1	2.58	0.42
1:A:42:ASP:HB3	1:A:119:LEU:CD1	2.49	0.42
1:C:116:TYR:CD1	1:C:116:TYR:N	2.88	0.42
1:C:230:THR:HG22	1:C:232:LYS:H	1.80	0.42
1:D:133:GLN:HB2	1:D:299:ILE:HD11	2.01	0.42
1:D:204:ARG:HB2	1:D:227:THR:HB	2.02	0.42
1:D:228:ASN:ND2	1:D:230:THR:CB	2.79	0.42
1:A:348:ALA:HB3	1:B:273:SER:HB2	2.01	0.41
1:A:385:LEU:HD13	1:A:386:LYS:N	2.35	0.41
1:B:230:THR:CG2	1:B:231:GLU:N	2.80	0.41
1:D:173:LEU:HD12	1:D:173:LEU:HA	1.84	0.41
1:A:32:ILE:HG23	1:A:179:HIS:CD2	2.54	0.41
1:A:75:MET:HE3	1:D:189:ARG:HD2	2.03	0.41
1:A:195:GLN:NE2	1:A:204:ARG:CZ	2.83	0.41
1:C:195:GLN:NE2	1:C:204:ARG:CZ	2.83	0.41
1:C:228:ASN:HD21	1:C:230:THR:CG2	2.32	0.41
1:D:274:LEU:HD12	1:D:275:THR:N	2.35	0.41
1:A:17:SER:HA	1:A:170:VAL:HG22	2.02	0.41
1:A:110:LYS:O	1:A:110:LYS:HG3	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:180:ALA:O	1:A:360:PRO:HD3	2.20	0.41
1:C:36:GLU:H	1:C:36:GLU:HG2	1.58	0.41
1:C:42:ASP:HB3	1:C:119:LEU:CD1	2.50	0.41
1:D:67:TYR:CD1	1:D:250:TYR:HD2	2.38	0.41
1:D:230:THR:CG2	1:D:232:LYS:N	2.82	0.41
1:D:372:ASP:HB3	1:D:373:GLU:H	1.34	0.41
1:A:12:ILE:HD13	1:A:107:LEU:HD21	2.02	0.41
1:A:53:LYS:HB3	1:A:53:LYS:HZ3	1.85	0.41
1:C:180:ALA:O	1:C:360:PRO:HD3	2.20	0.41
1:D:46:LEU:HD13	1:D:115:THR:CG2	2.44	0.41
1:D:58:TYR:O	1:D:151:ALA:HA	2.19	0.41
1:D:339:LEU:HD23	1:D:339:LEU:HA	1.89	0.41
1:A:56:ARG:HB3	1:A:89:GLN:HE21	1.85	0.41
1:C:16:ILE:HG12	1:C:23:THR:OG1	2.21	0.41
1:C:16:ILE:HD12	1:C:20:LYS:HD3	2.01	0.41
1:B:57:VAL:HB	1:B:91:PHE:HB3	2.02	0.41
1:C:32:ILE:HG23	1:C:179:HIS:CD2	2.55	0.41
1:D:268:VAL:HA	1:D:269:PRO:HD3	1.88	0.41
1:A:116:TYR:CD1	1:A:116:TYR:N	2.89	0.41
1:B:33:ASP:OD1	1:B:33:ASP:C	2.60	0.41
1:B:67:TYR:CD1	1:B:250:TYR:CD2	3.09	0.41
1:B:239:VAL:CG2	1:B:278:LEU:HD12	2.50	0.41
1:B:254:TYR:CZ	1:B:256:ILE:HD11	2.55	0.41
1:C:154:THR:O	1:C:154:THR:HG23	2.20	0.41
1:C:320:VAL:O	1:C:320:VAL:CG1	2.68	0.41
1:C:354:ARG:HH11	1:C:354:ARG:CG	2.34	0.41
1:A:300:LYS:HB3	1:A:391:TYR:CZ	2.56	0.41
1:B:32:ILE:HG12	1:B:179:HIS:NE2	2.35	0.41
1:B:128:CYS:O	1:B:130:VAL:HG12	2.21	0.41
1:B:254:TYR:CE2	1:B:256:ILE:HG13	2.57	0.41
1:B:274:LEU:HD12	1:B:275:THR:N	2.35	0.41
1:C:56:ARG:HB3	1:C:89:GLN:HE21	1.86	0.41
1:A:36:GLU:H	1:A:36:GLU:HG2	1.57	0.40
1:A:386:LYS:HE3	1:A:386:LYS:HB2	1.88	0.40
1:D:101:THR:HG22	1:D:103:LEU:N	2.30	0.40
1:A:207:VAL:CG2	1:A:351:VAL:HG21	2.46	0.40
1:C:187:GLN:NE2	1:C:213:ILE:N	2.66	0.40
1:D:254:TYR:CZ	1:D:256:ILE:HD11	2.56	0.40
1:A:28:LYS:HZ1	1:A:32:ILE:HD13	1.84	0.40
1:A:127:PRO:CB	1:A:321:MET:HE2	2.48	0.40
1:A:133:GLN:HG2	1:A:142:SER:OG	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:198:MET:O	1:A:199:SER:HB2	2.22	0.40
1:B:374:ASN:OD1	1:B:374:ASN:O	2.38	0.40
1:C:79:PHE:CD2	1:C:250:TYR:HB2	2.56	0.40
1:D:204:ARG:NH1	1:D:204:ARG:HG3	2.36	0.40
1:B:135:ALA:H	1:B:138:ASP:HB2	1.86	0.40
1:B:256:ILE:O	1:B:257:LYS:HD3	2.21	0.40
1:C:300:LYS:HB3	1:C:391:TYR:CZ	2.56	0.40
1:A:14:LYS:HA	1:A:24:ILE:O	2.22	0.40
1:A:228:ASN:HD21	1:A:230:THR:CG2	2.33	0.40
1:A:283:LEU:HA	1:A:306:LEU:HD11	2.03	0.40
1:C:361:GLU:O	1:C:362:ASP:C	2.60	0.40
1:D:33:ASP:C	1:D:33:ASP:OD1	2.59	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	369/404 (91%)	340 (92%)	25 (7%)	4 (1%)	14	41
1	B	354/404 (88%)	337 (95%)	15 (4%)	2 (1%)	25	56
1	C	376/404 (93%)	340 (90%)	27 (7%)	9 (2%)	6	20
1	D	364/404 (90%)	340 (93%)	19 (5%)	5 (1%)	11	34
All	All	1463/1616 (90%)	1357 (93%)	86 (6%)	20 (1%)	11	34

All (20) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	374	ASN
1	D	385	LEU
1	C	339	LEU

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Mol	Chain	Res	Type
1	C	389	GLY
1	A	110	LYS
1	A	389	GLY
1	C	9	ASN
1	C	110	LYS
1	A	339	LEU
1	C	8	PRO
1	C	341	GLU
1	C	373	GLU
1	D	373	GLU
1	A	192	ALA
1	C	192	ALA
1	D	72	ILE
1	D	374	ASN
1	C	362	ASP
1	B	35	VAL
1	D	35	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	333/358 (93%)	306 (92%)	27 (8%)	11	33
1	B	321/358 (90%)	299 (93%)	22 (7%)	15	41
1	C	334/358 (93%)	307 (92%)	27 (8%)	11	33
1	D	330/358 (92%)	301 (91%)	29 (9%)	10	29
All	All	1318/1432 (92%)	1213 (92%)	105 (8%)	12	34

All (105) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	16	ILE
1	A	34	HIS
1	A	36	GLU
1	A	37	ARG

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Mol	Chain	Res	Type
1	A	71	ASP
1	A	73	ASP
1	A	114	ASN
1	A	126	LEU
1	A	136	PRO
1	A	137	GLN
1	A	183	ASP
1	A	191	GLU
1	A	210	SER
1	A	211	LYS
1	A	226	VAL
1	A	228	ASN
1	A	230	THR
1	A	240	LEU
1	A	277	THR
1	A	290	ARG
1	A	321	MET
1	A	341	GLU
1	A	349	THR
1	A	354	ARG
1	A	374	ASN
1	A	384	ASN
1	A	386	LYS
1	B	23	THR
1	B	37	ARG
1	B	56	ARG
1	B	81	ARG
1	B	111	LEU
1	B	120	LEU
1	B	126	LEU
1	B	132	LEU
1	B	133	GLN
1	B	154	THR
1	B	158	ASP
1	B	173	LEU
1	B	175	ARG
1	B	203	LEU
1	B	204	ARG
1	B	230	THR
1	B	233	THR
1	B	246	ASN
1	B	259	VAL

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Mol	Chain	Res	Type
1	B	287	ASN
1	B	291	ARG
1	B	303	ASP
1	C	16	ILE
1	C	26	LEU
1	C	34	HIS
1	C	37	ARG
1	C	73	ASP
1	C	111	LEU
1	C	114	ASN
1	C	126	LEU
1	C	136	PRO
1	C	137	GLN
1	C	183	ASP
1	C	191	GLU
1	C	210	SER
1	C	211	LYS
1	C	226	VAL
1	C	228	ASN
1	C	230	THR
1	C	240	LEU
1	C	277	THR
1	C	290	ARG
1	C	321	MET
1	C	339	LEU
1	C	349	THR
1	C	354	ARG
1	C	362	ASP
1	C	384	ASN
1	C	386	LYS
1	D	23	THR
1	D	37	ARG
1	D	56	ARG
1	D	71	ASP
1	D	75	MET
1	D	81	ARG
1	D	97	SER
1	D	111	LEU
1	D	120	LEU
1	D	126	LEU
1	D	132	LEU
1	D	133	GLN

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Mol	Chain	Res	Type
1	D	156	SER
1	D	158	ASP
1	D	173	LEU
1	D	175	ARG
1	D	203	LEU
1	D	204	ARG
1	D	228	ASN
1	D	230	THR
1	D	233	THR
1	D	246	ASN
1	D	259	VAL
1	D	287	ASN
1	D	291	ARG
1	D	303	ASP
1	D	372	ASP
1	D	373	GLU
1	D	386	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (39) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	69	GLN
1	A	87	GLN
1	A	89	GLN
1	A	114	ASN
1	A	155	HIS
1	A	187	GLN
1	A	195	GLN
1	A	228	ASN
1	A	246	ASN
1	A	328	GLN
1	A	359	GLN
1	A	374	ASN
1	A	384	ASN
1	B	69	GLN
1	B	87	GLN
1	B	187	GLN
1	B	195	GLN
1	B	216	HIS
1	B	228	ASN
1	B	287	ASN
1	B	374	ASN

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Mol	Chain	Res	Type
1	C	87	GLN
1	C	89	GLN
1	C	114	ASN
1	C	155	HIS
1	C	187	GLN
1	C	195	GLN
1	C	228	ASN
1	C	246	ASN
1	C	328	GLN
1	C	359	GLN
1	C	384	ASN
1	D	69	GLN
1	D	87	GLN
1	D	187	GLN
1	D	216	HIS
1	D	228	ASN
1	D	287	ASN
1	D	384	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 ⓘ

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	373/404 (92%)	0.06	11 (2%)	51	41	22, 56, 113, 134	0
1	B	360/404 (89%)	-0.08	7 (1%)	66	59	28, 47, 85, 141	0
1	C	380/404 (94%)	0.08	14 (3%)	41	31	29, 63, 119, 148	0
1	D	368/404 (91%)	-0.10	9 (2%)	59	49	28, 46, 95, 134	0
All	All	1481/1616 (91%)	-0.01	41 (2%)	53	43	22, 52, 109, 148	0

All (41) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	7	ALA	8.4
1	C	73	ASP	4.8
1	A	339	LEU	4.7
1	D	97	SER	4.5
1	D	372	ASP	4.0
1	C	8	PRO	3.8
1	C	10	HIS	3.8
1	C	342	LEU	3.7
1	A	72	ILE	3.6
1	B	362	ASP	3.4
1	B	137	GLN	3.1
1	D	386	LYS	3.1
1	A	375	PHE	3.1
1	D	70	GLU	2.8
1	A	73	ASP	2.8
1	C	372	ASP	2.8
1	A	10	HIS	2.8
1	D	73	ASP	2.7
1	C	102	ARG	2.6
1	A	70	GLU	2.6
1	B	69	GLN	2.5

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Mol	Chain	Res	Type	RSRZ
1	D	69	GLN	2.5
1	B	361	GLU	2.5
1	B	372	ASP	2.4
1	A	362	ASP	2.4
1	D	71	ASP	2.3
1	C	363	PRO	2.3
1	B	340	GLY	2.3
1	C	338	LEU	2.3
1	D	102	ARG	2.3
1	C	9	ASN	2.3
1	A	340	GLY	2.3
1	C	376	VAL	2.2
1	A	393	GLU	2.2
1	C	313	LYS	2.2
1	D	139	VAL	2.2
1	B	97	SER	2.2
1	A	337	GLY	2.1
1	C	71	ASP	2.1
1	C	72	ILE	2.1
1	A	107	LEU	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.