



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 23, 2021 – 10:23 AM EDT

PDB ID : 1EZZ
Title : CRYSTAL STRUCTURE OF E. COLI ASPARTATE TRANSCARBAMOYLASE P268A MUTANT IN THE T-STATE
Authors : Jin, L.; Stec, B.; Kantrowitz, E.R.
Deposited on : 2000-05-12
Resolution : 2.70 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 : 2.23.2
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) : 2.23.2

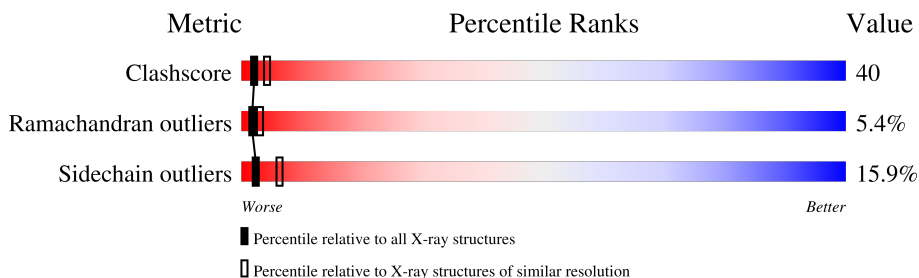
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

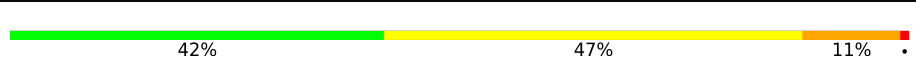
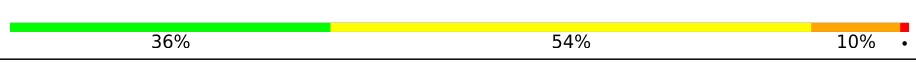
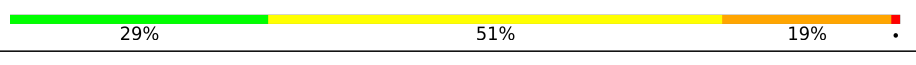
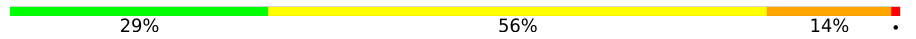
The reported resolution of this entry is 2.70 Å.

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))
Clashscore	141614	3122 (2.70-2.70)
Ramachandran outliers	138981	3069 (2.70-2.70)
Sidechain outliers	138945	3069 (2.70-2.70)

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 $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	A	310	
1	C	310	
2	B	153	
2	D	153	

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 7477 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 ASPARTATE CARBAMOYLTRANSFERASE CATALYTIC CHAIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	310	2413	1525	423	456	9	0	0	0
1	C	310	2413	1525	423	456	9	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	268	ALA	PRO	engineered mutation	UNP P0A786
C	268	ALA	PRO	engineered mutation	UNP P0A786

- Molecule 2 is a protein called ASPARTATE CARBAMOYLTRANSFERASE REGULATORY CHAIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	153	1201	752	213	230	6	0	0	0
2	D	153	1201	752	213	230	6	0	0	0

- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	B	1	Total	Zn	0	0
			1	1		
3	D	1	Total	Zn	0	0
			1	1		

- Molecule 4 is water.

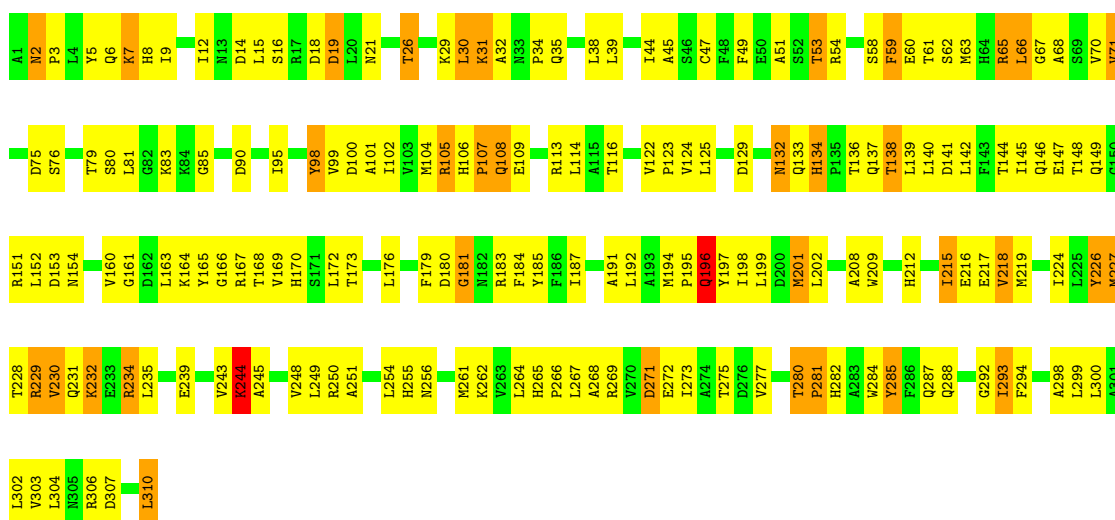
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	102	Total 102	O 102	0	0
4	B	28	Total 28	O 28	0	0
4	C	92	Total 92	O 92	0	0
4	D	25	Total 25	O 25	0	0

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. 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. 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.

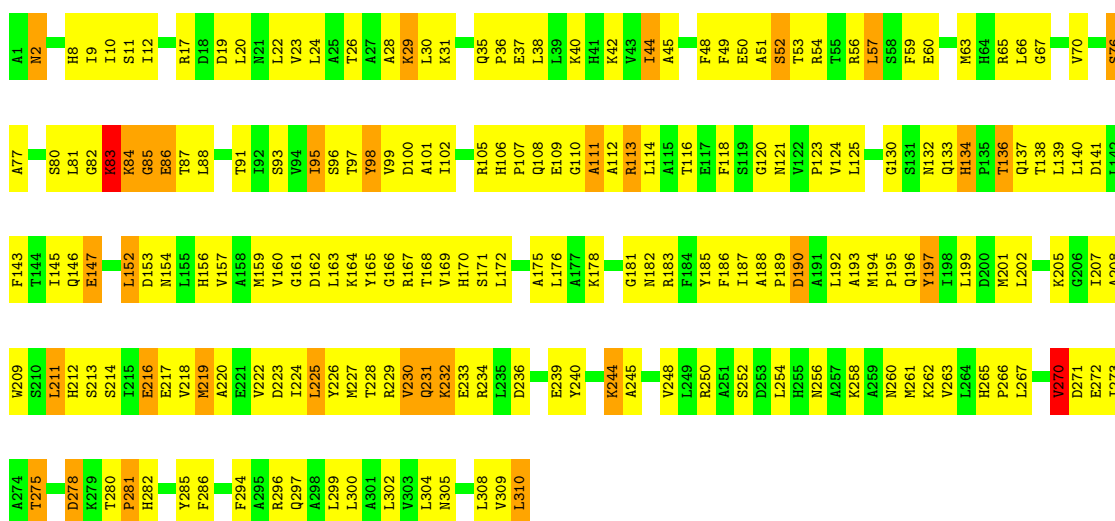
- Molecule 1: ASPARTATE CARBAMOYLTRANSFERASE CATALYTIC CHAIN

Chain A: 

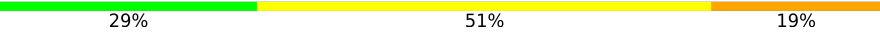


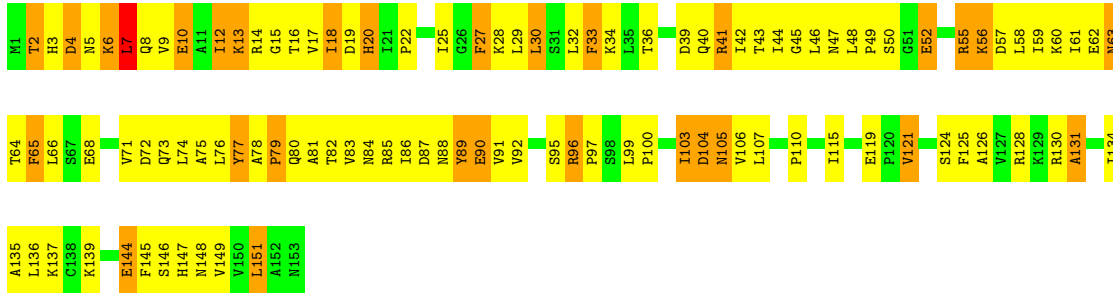
- Molecule 1: ASPARTATE CARBAMOYLTRANSFERASE CATALYTIC CHAIN

Chain C: 



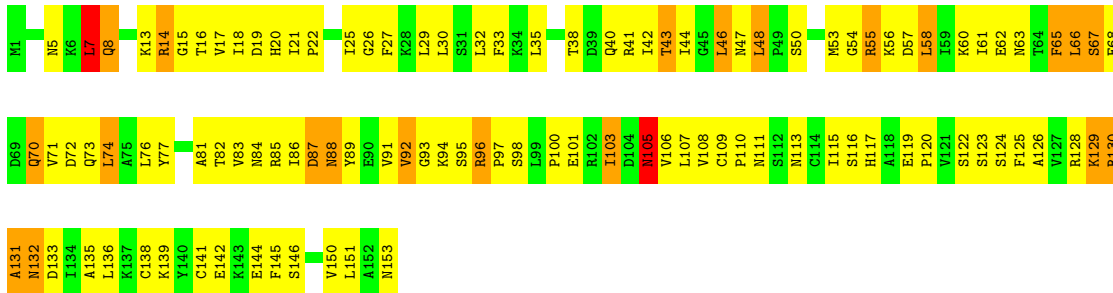
- Molecule 2: ASPARTATE CARBAMOYLTRANSFERASE REGULATORY CHAIN

Chain B:  29% 51% 19%



● Molecule 2: ASPARTATE CARBAMOYLTRANSFERASE REGULATORY CHAIN

Chain D:  29% 56% 14%



4 Data and refinement statistics i

Property	Value	Source
Space group	H 3	Depositor
Cell constants a, b, c, α , β , γ	129.87Å 129.87Å 198.34Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	8.00 – 2.70 74.38 – 2.23	Depositor EDS
% Data completeness (in resolution range)	89.3 (8.00-2.70) 90.9 (74.38-2.23)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	0.94 (at 2.22Å)	Xtrriage
Refinement program	X-PLOR 3.1	Depositor
R, R_{free}	0.182 , 0.242 0.237 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å ²)	15.6	Xtrriage
Anisotropy	0.130	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 500.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.28$	Xtrriage
Estimated twinning fraction	0.458 for h,-h-k,-l	Xtrriage
F_o, F_c correlation	0.83	EDS
Total number of atoms	7477	wwPDB-VP
Average B, all atoms (Å ²)	31.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.57% 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

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

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	0.57	2/2458 (0.1%)	0.82	0/3334
1	C	0.55	2/2458 (0.1%)	0.82	3/3334 (0.1%)
2	B	0.52	0/1219	0.87	4/1647 (0.2%)
2	D	0.49	0/1219	0.82	1/1647 (0.1%)
All	All	0.54	4/7354 (0.1%)	0.83	8/9962 (0.1%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	147	GLU	CD-OE2	7.14	1.33	1.25
1	C	147	GLU	CD-OE2	6.51	1.32	1.25
1	A	60	GLU	CD-OE2	6.25	1.32	1.25
1	C	60	GLU	CD-OE2	5.66	1.31	1.25

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	4	ASP	N-CA-C	-6.92	92.30	111.00
1	C	225	LEU	CA-CB-CG	6.02	129.14	115.30
1	C	85	GLY	N-CA-C	5.67	127.26	113.10
2	B	2	THR	N-CA-C	5.41	125.61	111.00
2	B	5	ASN	N-CA-C	5.20	125.04	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	105	ASN	N-CA-C	5.15	124.91	111.00
2	D	105	ASN	N-CA-C	5.09	124.75	111.00
1	C	310	LEU	CA-CB-CG	5.04	126.90	115.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	226	TYR	Sidechain

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	2413	0	2420	152	0
1	C	2413	0	2420	203	0
2	B	1201	0	1219	113	0
2	D	1201	0	1219	140	0
3	B	1	0	0	0	0
3	D	1	0	0	0	0
4	A	102	0	0	2	0
4	B	28	0	0	1	0
4	C	92	0	0	8	0
4	D	25	0	0	4	0
All	All	7477	0	7278	583	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 40.

All (583) 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)
2:D:96:ARG:HG2	2:D:97:PRO:HD2	1.34	1.09
2:B:58:LEU:HD21	2:B:60:LYS:HE2	1.36	1.06
2:B:27:PHE:HA	2:B:30:LEU:HD12	1.40	1.04

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:19:ASP:HA	2:D:58:LEU:HD21	1.38	1.03
1:C:194:MET:SD	1:C:195:PRO:HD2	1.99	1.02
2:B:17:VAL:HG23	2:B:60:LYS:HA	1.43	0.96
2:B:42:ILE:HB	2:D:46:LEU:HB3	1.47	0.94
2:B:22:PRO:HB2	2:B:25:ILE:HD12	1.52	0.90
2:B:49:PRO:HA	2:B:55:ARG:HA	1.54	0.89
2:B:137:LYS:HB2	2:B:144:GLU:HG3	1.53	0.89
2:B:44:ILE:HB	2:D:44:ILE:HD12	1.54	0.88
1:A:45:ALA:HB2	1:A:99:VAL:HG11	1.55	0.88
1:C:132:ASN:OD1	1:C:133:GLN:HG2	1.77	0.85
1:A:29:LYS:HD2	1:A:310:LEU:HD22	1.60	0.83
1:A:44:ILE:HG23	1:A:101:ALA:HB3	1.57	0.83
2:D:86:ILE:HG13	2:D:91:VAL:HG22	1.58	0.83
2:D:40:GLN:HG2	2:D:63:ASN:HB2	1.61	0.83
1:C:38:LEU:HD11	1:C:305:ASN:HD21	1.43	0.83
1:A:197:TYR:CE1	1:A:198:ILE:HG13	2.15	0.82
1:A:183:ARG:HH12	1:A:209:TRP:HA	1.45	0.81
2:B:20:HIS:HA	2:B:56:LYS:HE3	1.62	0.81
2:B:32:LEU:HD12	2:B:106:VAL:HB	1.60	0.81
2:D:130:ARG:HG3	2:D:131:ALA:N	1.93	0.80
1:A:300:LEU:O	1:A:304:LEU:HD12	1.82	0.80
2:B:46:LEU:HB2	2:D:42:ILE:HB	1.64	0.79
2:D:55:ARG:HG3	2:D:55:ARG:HH11	1.45	0.79
2:B:18:ILE:HD12	2:B:59:ILE:HB	1.64	0.79
2:D:133:ASP:HB2	2:D:146:SER:HB2	1.62	0.79
1:C:9:ILE:HD12	1:C:299:LEU:HD22	1.65	0.79
1:A:265:HIS:HD2	1:A:267:LEU:HD23	1.47	0.79
1:C:38:LEU:HB3	1:C:66:LEU:HD22	1.66	0.77
2:D:18:ILE:HG12	2:D:83:VAL:HG22	1.66	0.77
1:A:168:THR:HB	1:A:226:TYR:OH	1.85	0.77
2:D:18:ILE:HA	2:D:82:THR:O	1.85	0.76
1:C:53:THR:O	1:C:57:LEU:HB2	1.85	0.76
1:A:267:LEU:HB3	1:A:268:ALA:HA	1.67	0.75
2:B:16:THR:HB	2:B:64:THR:O	1.85	0.75
2:B:17:VAL:HG21	2:B:60:LYS:HG2	1.68	0.75
1:C:8:HIS:HB3	1:C:10:ILE:HD13	1.66	0.75
1:A:5:TYR:CE2	1:A:306:ARG:HG3	2.21	0.75
2:D:120:PRO:HA	4:D:320:HOH:O	1.86	0.75
2:B:59:ILE:HG22	2:B:61:ILE:HD11	1.68	0.74
2:D:66:LEU:HD13	2:D:70:GLN:HB3	1.68	0.74
2:D:29:LEU:HD23	2:D:74:LEU:HD13	1.69	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:183:ARG:NH1	1:A:209:TRP:HA	2.03	0.74
2:B:72:ASP:HB3	2:B:100:PRO:HD3	1.71	0.73
2:D:44:ILE:HG22	2:D:46:LEU:HD13	1.71	0.73
1:C:209:TRP:CZ3	1:C:211:LEU:HG	2.23	0.73
2:D:65:PHE:HE2	2:D:85:ARG:HA	1.53	0.73
2:B:58:LEU:CD2	2:B:60:LYS:HE2	2.18	0.72
2:B:130:ARG:HH11	2:B:135:ALA:HB2	1.54	0.72
2:D:84:ASN:HA	2:D:93:GLY:O	1.89	0.72
1:C:218:VAL:O	1:C:222:VAL:HG13	1.89	0.72
2:D:71:VAL:HG12	2:D:97:PRO:HA	1.71	0.72
1:C:261:MET:SD	1:C:262:LYS:N	2.62	0.71
1:C:196:GLN:HA	1:C:199:LEU:HB2	1.72	0.71
2:D:16:THR:OG1	2:D:65:PHE:HA	1.89	0.71
2:B:124:SER:HB3	2:B:139:LYS:HD2	1.72	0.71
1:C:245:ALA:O	1:C:248:VAL:HG22	1.90	0.70
1:A:30:LEU:O	1:A:34:PRO:HG3	1.91	0.70
1:C:229:ARG:NH1	1:C:231:GLN:HG3	2.07	0.70
2:D:65:PHE:CE2	2:D:85:ARG:HA	2.27	0.70
2:D:72:ASP:HB3	2:D:100:PRO:HB3	1.72	0.70
1:A:273:ILE:HG21	1:A:285:TYR:CE2	2.27	0.70
1:C:163:LEU:HG	1:C:188:ALA:HB2	1.74	0.70
1:A:248:VAL:HG22	1:A:249:LEU:H	1.56	0.69
1:C:163:LEU:O	1:C:170:HIS:HE1	1.75	0.69
1:C:229:ARG:HG2	1:C:229:ARG:HH11	1.56	0.69
2:D:84:ASN:OD1	2:D:94:LYS:HD2	1.92	0.69
1:A:161:GLY:HA3	1:A:228:THR:HB	1.74	0.69
1:A:183:ARG:HD2	1:A:208:ALA:HB1	1.74	0.69
1:C:160:VAL:HA	1:C:187:ILE:O	1.93	0.69
2:D:73:GLN:OE1	2:D:103:ILE:HA	1.92	0.69
2:D:22:PRO:HG2	2:D:25:ILE:HG13	1.75	0.69
1:A:35:GLN:HB2	1:A:38:LEU:HD22	1.74	0.68
1:C:109:GLU:HG3	1:C:130:GLY:HA3	1.75	0.68
1:C:29:LYS:HE2	1:C:310:LEU:HD21	1.75	0.68
1:A:251:ALA:HA	1:A:254:LEU:HG	1.76	0.67
1:C:225:LEU:HD12	1:C:263:VAL:HG22	1.76	0.67
1:C:214:SER:HB3	1:C:216:GLU:HG2	1.77	0.67
1:A:141:ASP:O	1:A:145:ILE:HG13	1.94	0.66
1:A:195:PRO:HB2	1:A:197:TYR:HE2	1.60	0.66
2:B:41:ARG:HA	2:D:47:ASN:HB3	1.76	0.66
1:C:214:SER:HB3	1:C:216:GLU:CG	2.26	0.66
1:A:280:THR:HB	1:A:281:PRO:HD2	1.77	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:194:MET:SD	1:A:195:PRO:HD2	2.35	0.66
1:C:258:LYS:HB3	1:C:260:ASN:OD1	1.95	0.66
1:A:284:TRP:HA	1:A:287:GLN:NE2	2.11	0.66
2:B:14:ARG:HG3	2:B:87:ASP:HA	1.78	0.66
2:B:147:HIS:O	2:B:151:LEU:HB2	1.95	0.66
1:C:102:ILE:HB	1:C:124:VAL:HG12	1.78	0.66
2:B:66:LEU:H	2:B:85:ARG:HH12	1.43	0.65
1:A:195:PRO:HB2	1:A:197:TYR:CE2	2.32	0.65
1:C:261:MET:SD	1:C:261:MET:C	2.74	0.65
1:C:227:MET:O	1:C:266:PRO:HD2	1.96	0.65
1:A:160:VAL:HG11	1:A:215:ILE:HD11	1.78	0.65
2:B:71:VAL:HA	2:B:74:LEU:HD12	1.79	0.65
2:D:129:LYS:HZ2	2:D:131:ALA:N	1.95	0.65
1:C:160:VAL:O	1:C:228:THR:HG23	1.97	0.64
1:A:45:ALA:HA	1:A:71:VAL:O	1.97	0.64
1:C:137:GLN:NE2	1:C:140:LEU:HD11	2.12	0.64
1:A:185:TYR:CG	1:A:218:VAL:HG11	2.32	0.64
1:C:209:TRP:HZ3	1:C:211:LEU:HG	1.63	0.64
2:D:15:GLY:HA3	2:D:61:ILE:O	1.98	0.64
1:A:134:HIS:CD2	1:A:167:ARG:HH21	2.15	0.64
1:C:187:ILE:HD11	1:C:218:VAL:HG21	1.78	0.64
1:A:8:HIS:NE2	1:A:123:PRO:HA	2.13	0.63
2:D:129:LYS:HG3	2:D:130:ARG:N	2.11	0.63
1:A:243:VAL:O	1:A:245:ALA:N	2.31	0.63
2:B:25:ILE:HG21	2:B:78:ALA:HB2	1.80	0.63
2:B:27:PHE:HA	2:B:30:LEU:CD1	2.24	0.63
1:A:113:ARG:O	1:A:116:THR:HB	1.99	0.63
1:C:114:LEU:HD11	2:D:119:GLU:HB2	1.79	0.63
1:A:14:ASP:O	1:A:15:LEU:HD23	1.99	0.62
1:C:159:MET:HE1	1:C:172:LEU:HD23	1.80	0.62
1:A:219:MET:HG3	1:A:256:ASN:HB2	1.80	0.62
2:D:129:LYS:NZ	2:D:132:ASN:H	1.98	0.62
1:C:223:ASP:O	1:C:261:MET:HG2	2.00	0.62
1:C:227:MET:HB2	1:C:273:ILE:HD11	1.81	0.62
2:B:3:HIS:CG	2:B:4:ASP:H	2.17	0.62
1:C:22:LEU:HG	1:C:302:LEU:HD11	1.81	0.61
1:C:146:GLN:HB2	1:C:152:LEU:HD12	1.81	0.61
2:D:17:VAL:O	2:D:83:VAL:HA	1.99	0.61
1:A:8:HIS:CD2	1:A:123:PRO:HA	2.36	0.61
1:A:277:VAL:HA	1:A:280:THR:HG23	1.82	0.61
1:C:125:LEU:HD21	1:C:300:LEU:HD23	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:196:GLN:HE21	1:A:196:GLN:HA	1.64	0.61
1:C:132:ASN:HD21	2:D:142:GLU:HB2	1.66	0.61
1:A:191:ALA:O	1:A:192:LEU:HD23	2.00	0.61
2:D:73:GLN:NE2	2:D:100:PRO:HG3	2.16	0.61
1:A:26:THR:HG21	1:A:302:LEU:HD21	1.82	0.61
1:A:153:ASP:HB2	1:A:180:ASP:O	2.01	0.61
1:C:109:GLU:OE1	2:D:113:ASN:HB3	2.01	0.61
2:D:18:ILE:CG1	2:D:83:VAL:HG22	2.31	0.60
2:B:40:GLN:H	2:D:47:ASN:ND2	1.98	0.60
1:C:10:ILE:HD11	1:C:124:VAL:HG23	1.82	0.60
1:C:110:GLY:HA3	2:D:115:ILE:HG22	1.83	0.60
2:D:14:ARG:HA	2:D:86:ILE:HG22	1.83	0.60
1:C:183:ARG:HH11	1:C:208:ALA:HB1	1.67	0.60
2:B:19:ASP:O	2:B:20:HIS:HB2	2.01	0.60
2:B:126:ALA:O	2:B:136:LEU:HA	2.01	0.60
2:D:17:VAL:HB	2:D:86:ILE:HD11	1.85	0.59
2:D:32:LEU:HD11	2:D:106:VAL:HB	1.82	0.59
2:B:137:LYS:HB2	2:B:144:GLU:CG	2.31	0.59
1:C:309:VAL:HG13	1:C:310:LEU:H	1.67	0.59
2:D:67:SER:O	2:D:71:VAL:HG23	2.02	0.59
1:C:66:LEU:HG	1:C:297:GLN:HE21	1.66	0.59
1:C:201:MET:O	1:C:205:LYS:HG2	2.02	0.59
1:C:189:PRO:HD2	1:C:192:LEU:HB3	1.84	0.59
2:D:32:LEU:HD22	2:D:77:TYR:CE1	2.38	0.59
1:C:145:ILE:HG23	1:C:224:ILE:HG13	1.84	0.58
2:B:3:HIS:CG	2:B:4:ASP:N	2.70	0.58
2:B:16:THR:HG23	2:B:83:VAL:HG13	1.85	0.58
1:A:26:THR:HB	1:A:298:ALA:HB1	1.85	0.58
1:A:243:VAL:HG23	1:A:244:LYS:N	2.18	0.58
1:A:261:MET:SD	1:A:262:LYS:N	2.77	0.58
1:A:185:TYR:CD1	1:A:218:VAL:HG11	2.39	0.58
1:A:243:VAL:HG23	1:A:244:LYS:H	1.69	0.58
1:A:280:THR:CB	1:A:281:PRO:HD2	2.34	0.58
2:D:105:ASN:ND2	2:D:122:SER:HA	2.18	0.58
1:C:137:GLN:HE22	1:C:140:LEU:HD11	1.69	0.58
2:B:84:ASN:HD22	2:B:91:VAL:HG11	1.68	0.57
1:A:229:ARG:HD2	1:A:231:GLN:HG2	1.86	0.57
2:B:18:ILE:HG23	2:B:83:VAL:HG23	1.86	0.57
2:B:146:SER:HB3	2:B:149:VAL:HG23	1.87	0.57
1:C:23:VAL:HG11	1:C:139:LEU:HD22	1.86	0.57
2:B:96:ARG:HG2	2:B:97:PRO:HD2	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:146:SER:HB3	2:B:149:VAL:CG2	2.35	0.57
1:C:159:MET:CE	1:C:172:LEU:HD23	2.35	0.57
2:B:66:LEU:N	2:B:85:ARG:HH12	2.03	0.57
1:C:24:LEU:HD22	1:C:143:PHE:HB2	1.86	0.57
2:B:81:ALA:O	2:B:97:PRO:HD3	2.04	0.57
1:C:146:GLN:HB2	1:C:152:LEU:CD1	2.35	0.57
1:C:244:LYS:O	1:C:248:VAL:HG13	2.04	0.57
1:C:265:HIS:HD2	1:C:267:LEU:H	1.53	0.57
1:A:32:ALA:C	1:A:34:PRO:HD3	2.24	0.56
1:C:26:THR:HA	1:C:29:LYS:HZ2	1.69	0.56
1:A:59:PHE:CZ	1:A:136:THR:HG21	2.40	0.56
1:C:38:LEU:HD11	1:C:305:ASN:ND2	2.18	0.56
1:C:166:GLY:O	1:C:169:VAL:HG22	2.05	0.56
2:D:128:ARG:HG3	2:D:135:ALA:HB3	1.86	0.56
1:A:38:LEU:HD23	1:A:66:LEU:HD22	1.87	0.56
1:A:183:ARG:HD2	1:A:208:ALA:CB	2.35	0.56
2:B:48:LEU:HD13	2:D:41:ARG:HD2	1.86	0.56
2:B:84:ASN:HB3	2:B:86:ILE:HD11	1.87	0.56
2:D:54:GLY:C	2:D:55:ARG:HD2	2.26	0.56
2:B:22:PRO:HG2	2:B:79:PRO:HD2	1.87	0.56
2:B:56:LYS:HG2	2:B:57:ASP:N	2.19	0.56
1:A:267:LEU:CB	1:A:268:ALA:HA	2.32	0.56
2:D:124:SER:HB3	2:D:139:LYS:CB	2.35	0.56
1:A:160:VAL:HB	1:A:227:MET:HE2	1.87	0.56
2:D:129:LYS:HZ1	2:D:132:ASN:H	1.54	0.56
1:A:152:LEU:HD12	1:A:179:PHE:CE2	2.41	0.56
1:C:114:LEU:HD13	2:D:115:ILE:HG12	1.88	0.56
1:C:125:LEU:N	1:C:125:LEU:HD12	2.21	0.56
1:C:137:GLN:OE1	1:C:140:LEU:HD21	2.05	0.55
1:C:285:TYR:HE1	1:C:286:PHE:CE2	2.24	0.55
1:C:52:SER:O	1:C:56:ARG:HB2	2.06	0.55
1:C:140:LEU:HD12	1:C:141:ASP:N	2.22	0.55
2:D:77:TYR:OH	2:D:151:LEU:HD21	2.07	0.55
1:A:114:LEU:HB2	2:B:115:ILE:HG21	1.89	0.55
1:A:114:LEU:HD11	2:B:121:VAL:HG11	1.88	0.55
1:C:80:SER:HB3	4:C:393:HOH:O	2.06	0.54
2:D:126:ALA:O	2:D:136:LEU:HA	2.06	0.54
1:A:229:ARG:HA	1:A:272:GLU:CD	2.27	0.54
1:A:12:ILE:HG12	1:A:138:THR:HG21	1.89	0.54
1:C:82:GLY:O	1:C:84:LYS:N	2.41	0.54
1:C:106:HIS:HB3	1:C:111:ALA:HB2	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:109:CYS:HA	2:D:125:PHE:HZ	1.73	0.54
2:B:128:ARG:HB2	2:B:135:ALA:HB3	1.88	0.54
1:C:87:THR:HB	2:D:119:GLU:OE1	2.08	0.54
1:A:80:SER:HB2	1:A:83:LYS:HZ2	1.71	0.54
1:A:164:LYS:HA	1:A:195:PRO:HD3	1.89	0.54
2:D:19:ASP:HB3	2:D:82:THR:HB	1.89	0.54
2:D:124:SER:HB3	2:D:139:LYS:HD2	1.90	0.54
2:B:130:ARG:NH1	2:B:135:ALA:HB2	2.21	0.54
1:A:18:ASP:HA	1:A:21:ASN:HB2	1.88	0.54
1:C:31:LYS:HG3	1:C:294:PHE:CE2	2.42	0.54
1:C:162:ASP:HA	1:C:192:LEU:HG	1.89	0.54
1:C:44:ILE:HG22	1:C:45:ALA:O	2.07	0.54
1:C:51:ALA:O	1:C:52:SER:HB2	2.08	0.53
2:B:103:ILE:HD13	2:B:104:ASP:N	2.23	0.53
1:C:265:HIS:CD2	1:C:267:LEU:H	2.25	0.53
2:D:77:TYR:CE2	2:D:151:LEU:HD11	2.43	0.53
2:B:58:LEU:HD21	2:B:60:LYS:CE	2.26	0.53
1:A:80:SER:CB	1:A:83:LYS:HZ2	2.22	0.53
1:A:32:ALA:O	1:A:34:PRO:HD3	2.09	0.53
2:B:17:VAL:HG22	2:B:18:ILE:N	2.24	0.53
2:B:88:ASN:O	2:B:90:GLU:N	2.41	0.53
1:C:265:HIS:HD2	1:C:267:LEU:HA	1.74	0.53
1:A:16:SER:H	1:A:19:ASP:HB2	1.74	0.53
1:A:250:ARG:HG3	1:A:250:ARG:HH11	1.74	0.53
1:C:310:LEU:HD23	4:C:394:HOH:O	2.09	0.53
2:B:43:THR:OG1	2:B:60:LYS:HB2	2.09	0.52
1:A:160:VAL:HB	1:A:227:MET:CE	2.39	0.52
1:C:231:GLN:HB2	1:C:234:ARG:CD	2.39	0.52
1:A:9:ILE:HG13	1:A:299:LEU:HD11	1.89	0.52
1:C:157:VAL:HG21	1:C:176:LEU:HD13	1.91	0.52
1:A:132:ASN:OD1	1:A:133:GLN:HG2	2.09	0.52
2:B:40:GLN:HB3	2:B:63:ASN:OD1	2.08	0.52
2:B:15:GLY:HA3	2:B:62:GLU:HA	1.92	0.52
2:D:108:VAL:HG23	4:D:339:HOH:O	2.09	0.52
1:C:156:HIS:HB3	1:C:222:VAL:HA	1.92	0.52
2:D:16:THR:HG1	2:D:65:PHE:HA	1.74	0.52
1:C:188:ALA:HB3	1:C:193:ALA:HA	1.91	0.52
2:D:55:ARG:HG3	2:D:55:ARG:NH1	2.18	0.52
2:D:72:ASP:O	2:D:100:PRO:HD3	2.10	0.52
2:D:83:VAL:HB	2:D:95:SER:O	2.10	0.51
1:C:113:ARG:O	1:C:116:THR:HB	2.09	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:105:ARG:HH11	1:A:105:ARG:HG3	1.75	0.51
2:B:49:PRO:HA	2:B:55:ARG:CA	2.35	0.51
1:C:45:ALA:HB2	1:C:99:VAL:HG21	1.93	0.51
2:D:86:ILE:HA	2:D:91:VAL:HA	1.93	0.51
1:C:83:LYS:HB3	1:C:84:LYS:NZ	2.26	0.51
1:C:136:THR:CG2	1:C:296:ARG:HG2	2.40	0.51
2:D:18:ILE:CD1	2:D:83:VAL:HG22	2.41	0.51
1:A:172:LEU:HG	1:A:176:LEU:HD12	1.93	0.51
2:B:17:VAL:HG22	2:B:18:ILE:H	1.76	0.51
2:B:77:TYR:CZ	2:B:151:LEU:HD21	2.46	0.51
1:C:8:HIS:ND1	1:C:124:VAL:HG22	2.26	0.51
2:D:81:ALA:O	2:D:96:ARG:HG2	2.10	0.51
1:C:231:GLN:HB2	1:C:234:ARG:HD2	1.93	0.51
1:A:179:PHE:N	1:A:179:PHE:CD1	2.79	0.51
1:C:229:ARG:NH1	1:C:229:ARG:HG2	2.21	0.51
1:C:141:ASP:O	1:C:145:ILE:HG13	2.11	0.51
2:D:40:GLN:HE21	2:D:63:ASN:HB2	1.76	0.51
1:A:141:ASP:OD1	1:A:288:GLN:NE2	2.43	0.50
1:C:265:HIS:CD2	1:C:267:LEU:HD23	2.46	0.50
1:A:144:THR:O	1:A:148:THR:HG23	2.11	0.50
1:A:154:ASN:N	1:A:181:GLY:O	2.45	0.50
1:A:273:ILE:HG21	1:A:285:TYR:HE2	1.76	0.50
2:B:8:GLN:O	2:B:10:GLU:HG3	2.11	0.50
2:B:17:VAL:CG2	2:B:60:LYS:HG2	2.40	0.50
2:B:85:ARG:O	2:B:86:ILE:HD13	2.09	0.50
2:D:18:ILE:HG12	2:D:83:VAL:HG13	1.93	0.50
1:A:251:ALA:O	1:A:254:LEU:HB2	2.11	0.50
2:B:77:TYR:CE1	2:B:151:LEU:HD21	2.47	0.50
2:D:19:ASP:O	2:D:20:HIS:HB2	2.11	0.50
1:A:265:HIS:CD2	1:A:267:LEU:HD23	2.38	0.50
1:C:219:MET:CE	1:C:254:LEU:HD23	2.41	0.50
2:D:84:ASN:OD1	2:D:94:LYS:HA	2.12	0.50
2:D:110:PRO:HG2	2:D:145:PHE:CZ	2.46	0.50
1:A:136:THR:HA	1:A:139:LEU:HD12	1.92	0.50
2:B:47:ASN:O	2:D:41:ARG:HG2	2.12	0.50
2:D:17:VAL:HB	2:D:86:ILE:CD1	2.42	0.50
1:C:84:LYS:HE2	4:C:312:HOH:O	2.12	0.50
1:C:136:THR:CG2	1:C:296:ARG:HE	2.24	0.50
2:D:7:LEU:H	2:D:7:LEU:HD22	1.77	0.50
1:A:8:HIS:ND1	1:A:124:VAL:HG22	2.27	0.50
2:B:103:ILE:HG21	2:B:107:LEU:HD12	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:195:PRO:HG2	1:C:197:TYR:HB3	1.94	0.50
1:A:196:GLN:HE21	1:A:196:GLN:CA	2.24	0.49
1:A:31:LYS:HD2	1:A:31:LYS:O	2.12	0.49
2:B:18:ILE:HG23	2:B:83:VAL:CG2	2.42	0.49
2:B:6:LYS:C	2:B:7:LEU:HG	2.32	0.49
1:C:31:LYS:HE3	1:C:294:PHE:CE1	2.47	0.49
1:C:310:LEU:HB3	4:C:394:HOH:O	2.12	0.49
2:D:77:TYR:CZ	2:D:151:LEU:HD21	2.47	0.49
1:A:106:HIS:CE1	1:A:108:GLN:HG3	2.47	0.49
1:C:136:THR:HG21	1:C:296:ARG:HE	1.78	0.49
1:C:240:TYR:CD1	1:C:240:TYR:C	2.85	0.49
1:C:270:VAL:HG22	1:C:271:ASP:OD2	2.13	0.49
1:A:227:MET:C	1:A:265:HIS:HD1	2.16	0.49
1:C:227:MET:CB	1:C:273:ILE:HD11	2.42	0.49
1:C:275:THR:O	1:C:278:ASP:HB2	2.13	0.49
2:B:10:GLU:O	2:B:60:LYS:HE3	2.13	0.49
1:C:220:ALA:O	1:C:258:LYS:HE2	2.13	0.49
1:A:137:GLN:HG2	1:A:168:THR:HG22	1.94	0.49
1:C:233:GLU:HA	4:C:329:HOH:O	2.12	0.49
1:A:281:PRO:HG2	1:A:282:HIS:H	1.77	0.48
1:A:106:HIS:CG	1:A:107:PRO:HD2	2.49	0.48
2:B:41:ARG:CA	2:D:47:ASN:HB3	2.43	0.48
2:B:47:ASN:HB3	2:D:41:ARG:HA	1.93	0.48
2:D:86:ILE:N	2:D:86:ILE:HD12	2.28	0.48
1:A:248:VAL:HG23	1:A:271:ASP:O	2.14	0.48
2:B:103:ILE:HD13	2:B:104:ASP:H	1.78	0.48
1:C:29:LYS:CE	1:C:310:LEU:HD21	2.43	0.48
2:D:5:ASN:O	2:D:7:LEU:HD13	2.12	0.48
2:D:50:SER:HB3	2:D:53:MET:HB3	1.95	0.48
1:A:173:THR:HG23	1:A:184:PHE:CE1	2.49	0.48
2:B:42:ILE:HB	2:D:46:LEU:CB	2.32	0.48
2:D:56:LYS:HE3	2:D:58:LEU:HD23	1.96	0.48
2:B:84:ASN:CB	2:B:86:ILE:HD11	2.44	0.48
2:D:130:ARG:HG3	2:D:131:ALA:H	1.73	0.48
2:D:107:LEU:HD22	2:D:150:VAL:HG12	1.95	0.48
1:A:293:ILE:HG22	1:A:294:PHE:N	2.29	0.48
1:C:254:LEU:HD13	1:C:282:HIS:ND1	2.29	0.48
2:B:88:ASN:C	2:B:90:GLU:H	2.16	0.48
1:C:100:ASP:O	1:C:123:PRO:HD2	2.13	0.48
1:C:98:TYR:HD2	1:C:98:TYR:N	2.12	0.47
1:A:59:PHE:HZ	1:A:136:THR:HG21	1.78	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:227:MET:O	1:A:266:PRO:HD2	2.14	0.47
1:C:2:ASN:HD21	1:C:302:LEU:HB3	1.78	0.47
2:D:124:SER:HB3	2:D:139:LYS:HB2	1.94	0.47
1:C:50:GLU:HB2	1:C:107:PRO:HG3	1.96	0.47
2:D:20:HIS:HA	2:D:56:LYS:HD2	1.97	0.47
1:A:53:THR:OG1	1:A:54:ARG:N	2.47	0.47
1:A:140:LEU:HB2	1:A:292:GLY:HA2	1.95	0.47
1:A:149:GLN:NE2	1:A:149:GLN:HA	2.29	0.47
1:C:161:GLY:HA3	1:C:228:THR:OG1	2.15	0.47
1:C:192:LEU:HD23	1:C:230:VAL:HG12	1.96	0.47
1:C:98:TYR:N	1:C:98:TYR:CD2	2.82	0.47
1:A:197:TYR:CZ	1:A:198:ILE:HG13	2.50	0.47
1:C:31:LYS:HA	1:C:294:PHE:CE2	2.50	0.47
1:C:91:THR:O	1:C:95:ILE:HB	2.15	0.47
1:C:139:LEU:HD12	1:C:299:LEU:HD11	1.96	0.47
1:C:168:THR:HB	1:C:226:TYR:OH	2.15	0.47
2:D:86:ILE:HD12	2:D:91:VAL:HG13	1.96	0.47
1:C:44:ILE:HG21	1:C:63:MET:SD	2.55	0.47
2:D:106:VAL:HG23	2:D:107:LEU:N	2.29	0.47
1:A:140:LEU:CB	1:A:292:GLY:HA2	2.45	0.47
1:C:88:LEU:HD22	1:C:114:LEU:HD22	1.97	0.47
1:C:192:LEU:CD2	1:C:230:VAL:HG12	2.45	0.47
2:D:42:ILE:HD13	2:D:61:ILE:HG23	1.96	0.47
2:D:85:ARG:HE	2:D:93:GLY:HA3	1.80	0.47
1:C:106:HIS:HA	1:C:107:PRO:HD3	1.74	0.47
1:C:40:LYS:O	1:C:42:LYS:HG3	2.15	0.46
1:C:132:ASN:ND2	2:D:142:GLU:HB2	2.28	0.46
1:C:160:VAL:HG22	1:C:187:ILE:HB	1.97	0.46
1:A:102:ILE:HG13	1:A:122:VAL:HG11	1.97	0.46
2:B:32:LEU:HD11	4:B:341:HOH:O	2.15	0.46
2:B:39:ASP:OD2	2:D:55:ARG:HG2	2.14	0.46
1:A:142:LEU:HD22	1:A:152:LEU:HD13	1.97	0.46
2:B:59:ILE:CG2	2:B:61:ILE:HD11	2.44	0.46
1:C:36:PRO:HA	1:C:65:ARG:O	2.16	0.46
1:A:70:VAL:CG1	1:A:71:VAL:N	2.79	0.46
2:B:88:ASN:O	2:B:88:ASN:ND2	2.49	0.46
1:A:265:HIS:CD2	1:A:267:LEU:H	2.33	0.46
1:C:30:LEU:HD23	1:C:30:LEU:O	2.16	0.46
1:C:125:LEU:CD2	1:C:300:LEU:HD23	2.44	0.46
1:C:275:THR:HA	1:C:278:ASP:OD1	2.16	0.46
2:D:111:ASN:HD22	2:D:141:CYS:CB	2.29	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:95:ILE:HA	1:A:98:TYR:CE1	2.51	0.46
1:A:187:ILE:HG12	1:A:212:HIS:HB2	1.97	0.46
1:C:37:GLU:HA	1:C:67:GLY:HA3	1.98	0.46
1:A:164:LYS:HD3	1:A:165:TYR:CE2	2.50	0.46
1:A:299:LEU:O	1:A:303:VAL:HG23	2.16	0.46
1:C:124:VAL:C	1:C:125:LEU:HD12	2.36	0.46
1:C:44:ILE:CG2	1:C:63:MET:SD	3.04	0.46
1:A:160:VAL:HG13	1:A:187:ILE:O	2.16	0.45
2:B:29:LEU:HD12	2:B:59:ILE:CD1	2.46	0.45
1:C:110:GLY:HA3	2:D:115:ILE:CG2	2.45	0.45
2:B:25:ILE:O	2:B:28:LYS:HB3	2.17	0.45
1:C:138:THR:OG1	1:C:171:SER:HB3	2.15	0.45
1:A:7:LYS:HA	1:A:7:LYS:NZ	2.31	0.45
1:A:277:VAL:O	1:A:280:THR:HG23	2.16	0.45
1:C:29:LYS:HE2	1:C:310:LEU:HD11	1.98	0.45
1:C:84:LYS:NZ	4:C:370:HOH:O	2.49	0.45
1:C:114:LEU:HD11	2:D:119:GLU:CB	2.45	0.45
1:C:192:LEU:HD12	1:C:192:LEU:HA	1.62	0.45
2:D:86:ILE:CD1	2:D:86:ILE:N	2.79	0.45
2:B:115:ILE:HG13	2:B:119:GLU:HG3	1.97	0.45
1:C:101:ALA:HB2	1:C:304:LEU:HD21	1.98	0.45
2:D:18:ILE:HA	2:D:82:THR:C	2.36	0.45
2:D:83:VAL:O	2:D:95:SER:N	2.48	0.45
2:B:48:LEU:C	2:B:55:ARG:HG2	2.37	0.45
1:C:211:LEU:HD12	1:C:211:LEU:N	2.32	0.45
1:C:280:THR:O	1:C:282:HIS:N	2.50	0.45
2:D:105:ASN:HD21	2:D:122:SER:HA	1.80	0.45
1:A:114:LEU:CD1	2:B:121:VAL:HG11	2.47	0.45
1:A:201:MET:HG3	1:A:202:LEU:HD23	1.98	0.45
1:A:224:ILE:HG23	1:A:264:LEU:HD12	1.99	0.45
2:B:66:LEU:H	2:B:85:ARG:NH1	2.10	0.45
1:C:80:SER:C	1:C:82:GLY:H	2.20	0.45
1:C:261:MET:SD	1:C:262:LYS:C	2.95	0.45
1:C:265:HIS:HD2	1:C:267:LEU:N	2.12	0.45
2:B:79:PRO:O	2:B:97:PRO:HG2	2.17	0.45
1:C:38:LEU:HB3	1:C:66:LEU:CD2	2.42	0.45
1:C:66:LEU:HD23	1:C:66:LEU:HA	1.85	0.45
1:C:202:LEU:HD12	1:C:202:LEU:HA	1.89	0.45
2:D:56:LYS:HG2	2:D:57:ASP:N	2.32	0.45
1:A:44:ILE:HD12	1:A:101:ALA:HB3	1.98	0.45
2:B:41:ARG:N	2:D:47:ASN:HB3	2.31	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:10:ILE:HG13	1:C:112:ALA:HB1	1.97	0.45
1:C:83:LYS:HB3	1:C:84:LYS:HZ1	1.82	0.45
1:C:49:PHE:HB2	1:C:105:ARG:O	2.17	0.44
1:C:214:SER:O	1:C:217:GLU:HG3	2.17	0.44
2:D:22:PRO:HG2	2:D:25:ILE:CG1	2.47	0.44
1:A:272:GLU:CD	1:A:272:GLU:H	2.21	0.44
1:C:28:ALA:O	1:C:31:LYS:HB3	2.16	0.44
1:C:186:PHE:CE2	1:C:194:MET:HG2	2.52	0.44
2:D:138:CYS:O	2:D:142:GLU:HA	2.17	0.44
1:A:172:LEU:HG	1:A:176:LEU:CD1	2.48	0.44
2:D:7:LEU:HB2	2:D:8:GLN:H	1.59	0.44
2:B:73:GLN:N	2:B:73:GLN:HE21	2.15	0.44
1:C:19:ASP:O	1:C:23:VAL:HG23	2.18	0.44
2:D:66:LEU:HD13	2:D:70:GLN:CB	2.42	0.44
1:A:8:HIS:CE1	1:A:124:VAL:HG22	2.52	0.44
1:A:47:CYS:O	1:A:104:MET:HA	2.17	0.44
2:B:6:LYS:HG3	2:B:8:GLN:HE22	1.83	0.44
1:C:29:LYS:NZ	1:C:29:LYS:HB3	2.33	0.44
1:C:93:SER:O	1:C:97:THR:HG23	2.18	0.44
2:D:43:THR:O	2:D:60:LYS:HB2	2.17	0.44
1:A:39:LEU:CD1	1:A:304:LEU:HD13	2.48	0.44
2:B:25:ILE:O	2:B:25:ILE:HG22	2.17	0.44
2:B:96:ARG:HG2	2:B:97:PRO:CD	2.48	0.44
2:D:14:ARG:O	2:D:62:GLU:HA	2.18	0.44
2:D:73:GLN:NE2	2:D:73:GLN:HA	2.32	0.44
1:C:181:GLY:HA2	4:C:402:HOH:O	2.17	0.44
2:D:66:LEU:HD12	2:D:71:VAL:HG22	2.00	0.44
2:D:115:ILE:C	2:D:117:HIS:H	2.21	0.44
1:C:175:ALA:O	1:C:178:LYS:HB2	2.17	0.44
1:C:86:GLU:O	1:C:86:GLU:HG3	2.17	0.43
1:C:164:LYS:HD3	1:C:165:TYR:CE2	2.53	0.43
1:C:219:MET:O	1:C:222:VAL:HG22	2.18	0.43
2:D:13:LYS:HE3	2:D:14:ARG:CG	2.48	0.43
2:D:44:ILE:CG2	2:D:46:LEU:HD13	2.46	0.43
2:D:73:GLN:HA	2:D:73:GLN:HE21	1.83	0.43
2:D:130:ARG:HG2	2:D:133:ASP:OD1	2.18	0.43
1:A:58:SER:O	1:A:61:THR:HB	2.18	0.43
1:C:146:GLN:O	1:C:147:GLU:C	2.56	0.43
1:A:63:MET:SD	1:A:70:VAL:CG2	3.06	0.43
1:A:109:GLU:HA	1:A:129:ASP:O	2.18	0.43
1:C:48:PHE:CZ	1:C:56:ARG:HA	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:32:LEU:HD23	2:D:33:PHE:CE1	2.53	0.43
1:A:49:PHE:HA	1:A:76:SER:HB2	2.00	0.43
1:C:185:TYR:HD2	1:C:212:HIS:CE1	2.36	0.43
1:C:205:LYS:HG3	1:C:207:ILE:CG1	2.49	0.43
2:D:110:PRO:HG2	2:D:145:PHE:CE1	2.53	0.43
1:A:45:ALA:HA	1:A:71:VAL:HG23	2.00	0.43
2:B:44:ILE:HG22	2:B:46:LEU:CD2	2.48	0.43
2:B:73:GLN:NE2	2:B:100:PRO:HG3	2.33	0.43
1:C:9:ILE:C	1:C:10:ILE:HD12	2.39	0.43
2:D:74:LEU:N	2:D:74:LEU:HD23	2.33	0.43
1:A:277:VAL:HA	1:A:280:THR:CG2	2.48	0.43
2:B:45:GLY:N	2:B:58:LEU:O	2.52	0.43
2:B:50:SER:HB3	2:B:52:GLU:OE1	2.19	0.43
2:B:50:SER:HB2	2:B:56:LYS:NZ	2.33	0.43
1:C:99:VAL:HB	1:C:100:ASP:H	1.56	0.43
2:D:26:GLY:O	2:D:30:LEU:HB2	2.17	0.43
2:D:13:LYS:HE2	2:D:13:LYS:HB3	1.60	0.43
2:D:18:ILE:HG12	2:D:83:VAL:CG2	2.43	0.43
1:C:186:PHE:C	1:C:187:ILE:HG13	2.38	0.43
2:D:16:THR:HG21	2:D:66:LEU:HD23	2.01	0.43
2:D:107:LEU:HD21	2:D:151:LEU:HG	2.00	0.43
1:A:187:ILE:HD11	1:A:218:VAL:HG21	2.00	0.43
2:B:63:ASN:N	2:B:63:ASN:ND2	2.67	0.43
2:B:130:ARG:O	2:B:131:ALA:C	2.57	0.43
1:C:139:LEU:CD1	1:C:299:LEU:HD11	2.48	0.43
1:C:232:LYS:NZ	4:C:347:HOH:O	2.52	0.43
1:A:80:SER:HB3	1:A:81:LEU:H	1.64	0.42
1:C:12:ILE:HD12	1:C:12:ILE:HA	1.80	0.42
1:C:231:GLN:HB3	1:C:234:ARG:HG3	2.00	0.42
1:C:285:TYR:CE1	1:C:286:PHE:CE2	3.07	0.42
2:D:109:CYS:CA	2:D:125:PHE:HZ	2.31	0.42
1:A:132:ASN:CG	1:A:133:GLN:HG2	2.38	0.42
1:A:284:TRP:HA	1:A:287:GLN:HE22	1.83	0.42
1:C:114:LEU:O	1:C:118:PHE:HD2	2.02	0.42
1:C:136:THR:HG23	1:C:299:LEU:HD12	1.99	0.42
1:C:136:THR:HG23	1:C:299:LEU:CD1	2.50	0.42
1:C:265:HIS:HD2	1:C:267:LEU:CA	2.32	0.42
1:C:20:LEU:O	1:C:24:LEU:HG	2.19	0.42
1:C:35:GLN:C	1:C:37:GLU:H	2.22	0.42
2:B:15:GLY:O	2:B:86:ILE:HB	2.20	0.42
2:B:29:LEU:HD12	2:B:59:ILE:HD11	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:231:GLN:HB2	1:C:234:ARG:NE	2.34	0.42
2:D:128:ARG:HH21	2:D:144:GLU:CD	2.22	0.42
2:D:129:LYS:HZ1	2:D:133:ASP:N	2.17	0.42
2:B:46:LEU:HD22	2:B:57:ASP:OD1	2.19	0.42
2:B:106:VAL:HG23	2:B:107:LEU:N	2.34	0.42
1:A:138:THR:HA	1:A:141:ASP:OD2	2.19	0.42
1:A:187:ILE:HD11	1:A:218:VAL:CG2	2.50	0.42
2:B:59:ILE:HG22	2:B:61:ILE:CD1	2.43	0.42
1:C:309:VAL:HG13	1:C:310:LEU:N	2.32	0.42
2:D:21:ILE:HA	2:D:22:PRO:HD2	1.80	0.42
1:A:39:LEU:CB	1:A:68:ALA:HB2	2.50	0.42
2:B:110:PRO:HD2	2:B:145:PHE:CE1	2.55	0.42
1:C:196:GLN:HA	1:C:199:LEU:HD12	2.01	0.42
2:D:128:ARG:O	2:D:135:ALA:N	2.53	0.42
1:A:2:ASN:HA	1:A:3:PRO:HD3	1.64	0.42
1:A:62:SER:O	1:A:63:MET:C	2.58	0.42
1:A:183:ARG:NH1	1:A:183:ARG:HG3	2.34	0.42
1:C:26:THR:HA	1:C:29:LYS:NZ	2.33	0.42
1:C:84:LYS:HD2	1:C:84:LYS:H	1.85	0.42
1:C:227:MET:HG3	1:C:273:ILE:HD11	2.01	0.42
2:D:109:CYS:SG	2:D:111:ASN:HB3	2.60	0.42
1:A:229:ARG:N	1:A:265:HIS:HE1	2.18	0.42
2:B:33:PHE:CZ	2:B:73:GLN:HG3	2.55	0.42
2:B:40:GLN:N	2:D:47:ASN:ND2	2.68	0.42
1:C:121:ASN:O	1:C:123:PRO:HD3	2.20	0.42
1:C:219:MET:HE1	1:C:254:LEU:HD23	2.02	0.42
2:D:87:ASP:OD1	2:D:92:VAL:HG22	2.19	0.42
1:A:51:ALA:HB2	1:A:75:ASP:OD2	2.20	0.41
1:A:224:ILE:HD13	1:A:224:ILE:HA	1.89	0.41
1:C:84:LYS:N	1:C:84:LYS:HE3	2.35	0.41
2:B:30:LEU:HD22	2:B:36:THR:HG23	2.03	0.41
1:C:11:SER:CB	1:C:133:GLN:HG3	2.50	0.41
1:A:16:SER:OG	1:A:19:ASP:HB2	2.20	0.41
2:B:25:ILE:HD13	2:B:77:TYR:O	2.20	0.41
2:D:40:GLN:HB3	2:D:62:GLU:O	2.20	0.41
2:D:53:MET:SD	2:D:55:ARG:O	2.78	0.41
1:A:265:HIS:CD2	1:A:267:LEU:HA	2.55	0.41
2:B:65:PHE:CE2	2:B:85:ARG:HD2	2.56	0.41
2:B:72:ASP:HB3	2:B:100:PRO:CD	2.46	0.41
1:C:136:THR:HG22	1:C:296:ARG:HG2	2.02	0.41
1:C:202:LEU:HD23	1:C:209:TRP:HB3	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:234:ARG:HG3	4:A:398:HOH:O	2.20	0.41
2:B:99:LEU:HD23	2:B:99:LEU:HA	1.90	0.41
2:D:14:ARG:HE	2:D:14:ARG:HB2	1.63	0.41
2:D:18:ILE:HD11	2:D:66:LEU:HG	2.02	0.41
1:C:265:HIS:CD2	1:C:267:LEU:HA	2.55	0.41
1:A:196:GLN:O	1:A:199:LEU:N	2.53	0.41
1:C:9:ILE:CD1	1:C:299:LEU:HD22	2.44	0.41
1:C:31:LYS:HG3	1:C:294:PHE:CZ	2.56	0.41
1:C:160:VAL:HG22	1:C:187:ILE:HD12	2.03	0.41
2:D:68:GLU:HB2	4:D:327:HOH:O	2.19	0.41
1:A:59:PHE:O	1:A:62:SER:OG	2.35	0.41
1:A:85:GLY:HA3	4:A:380:HOH:O	2.20	0.41
1:A:243:VAL:CG2	1:A:244:LYS:H	2.33	0.41
1:A:280:THR:CB	1:A:281:PRO:CD	2.98	0.41
2:B:17:VAL:O	2:B:83:VAL:HA	2.21	0.41
1:C:17:ARG:O	1:C:17:ARG:HG2	2.19	0.41
1:C:54:ARG:HB2	1:C:54:ARG:CZ	2.50	0.41
1:C:107:PRO:HB2	1:C:108:GLN:OE1	2.20	0.41
1:C:229:ARG:NH2	1:C:270:VAL:HG11	2.36	0.41
1:C:266:PRO:O	1:C:267:LEU:HB2	2.21	0.41
2:D:46:LEU:O	2:D:48:LEU:HG	2.21	0.41
2:D:108:VAL:N	4:D:339:HOH:O	2.53	0.41
1:A:163:LEU:HD22	1:A:169:VAL:HG11	2.02	0.41
1:A:235:LEU:HD23	1:A:239:GLU:HG2	2.02	0.41
1:C:236:ASP:O	1:C:239:GLU:HG2	2.21	0.41
2:D:16:THR:HG22	2:D:17:VAL:N	2.35	0.41
1:A:65:ARG:O	1:A:67:GLY:N	2.55	0.40
1:A:137:GLN:O	1:A:140:LEU:HG	2.20	0.40
2:B:12:ILE:O	2:B:13:LYS:HB2	2.21	0.40
2:B:25:ILE:O	2:B:29:LEU:HG	2.21	0.40
1:C:76:SER:HB2	1:C:77:ALA:H	1.58	0.40
1:C:195:PRO:C	1:C:197:TYR:N	2.73	0.40
1:C:222:VAL:O	1:C:258:LYS:HE3	2.20	0.40
2:D:73:GLN:CD	2:D:103:ILE:HD13	2.42	0.40
1:A:248:VAL:HG22	1:A:249:LEU:N	2.30	0.40
1:A:266:PRO:O	1:A:267:LEU:HB2	2.20	0.40
1:C:134:HIS:CD2	1:C:137:GLN:HB2	2.56	0.40
1:A:125:LEU:HD12	1:A:125:LEU:N	2.37	0.40
1:A:229:ARG:NH1	1:A:230:VAL:O	2.55	0.40
1:C:84:LYS:H	1:C:84:LYS:CD	2.34	0.40
1:C:308:LEU:HA	1:C:308:LEU:HD12	1.78	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:5:TYR:HE1	1:A:304:LEU:O	2.04	0.40
1:A:59:PHE:HB3	1:A:63:MET:HE3	2.02	0.40
2:B:86:ILE:CD1	2:B:91:VAL:HG13	2.51	0.40
2:D:88:ASN:O	2:D:89:TYR:CG	2.75	0.40
2:D:105:ASN:HD22	2:D:123:SER:H	1.70	0.40
1:C:205:LYS:HE2	1:C:205:LYS:HB3	1.97	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	308/310 (99%)	240 (78%)	54 (18%)	14 (4%)	2	5
1	C	308/310 (99%)	242 (79%)	54 (18%)	12 (4%)	3	6
2	B	151/153 (99%)	108 (72%)	27 (18%)	16 (11%)	0	0
2	D	151/153 (99%)	113 (75%)	30 (20%)	8 (5%)	2	3
All	All	918/926 (99%)	703 (77%)	165 (18%)	50 (5%)	2	3

All (50) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	215	ILE
1	A	255	HIS
2	B	7	LEU
2	B	9	VAL
2	B	75	ALA
2	B	79	PRO
2	B	89	TYR
2	B	131	ALA
1	C	52	SER

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Mol	Chain	Res	Type
1	C	83	LYS
1	C	85	GLY
1	C	111	ALA
1	C	272	GLU
1	C	281	PRO
2	D	7	LEU
2	D	105	ASN
2	D	131	ALA
2	D	132	ASN
1	A	53	THR
1	A	66	LEU
1	A	196	GLN
2	B	2	THR
2	B	20	HIS
2	B	34	LYS
1	C	120	GLY
1	C	182	ASN
1	C	270	VAL
1	A	132	ASN
1	A	232	LYS
1	A	244	LYS
1	A	293	ILE
2	B	13	LYS
2	B	30	LEU
2	B	41	ARG
2	B	105	ASN
1	C	190	ASP
1	C	216	GLU
2	D	88	ASN
2	B	76	LEU
2	B	125	PHE
1	C	197	TYR
2	D	116	SER
1	A	79	THR
1	A	216	GLU
2	D	98	SER
1	A	281	PRO
2	B	121	VAL
1	A	181	GLY
2	D	92	VAL
1	A	166	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	260/260 (100%)	222 (85%)	38 (15%)	3	7
1	C	260/260 (100%)	224 (86%)	36 (14%)	3	8
2	B	137/137 (100%)	110 (80%)	27 (20%)	1	3
2	D	137/137 (100%)	112 (82%)	25 (18%)	1	4
All	All	794/794 (100%)	668 (84%)	126 (16%)	2	6

All (126) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2	ASN
1	A	6	GLN
1	A	7	LYS
1	A	19	ASP
1	A	26	THR
1	A	30	LEU
1	A	31	LYS
1	A	59	PHE
1	A	65	ARG
1	A	71	VAL
1	A	90	ASP
1	A	98	TYR
1	A	100	ASP
1	A	105	ARG
1	A	107	PRO
1	A	108	GLN
1	A	134	HIS
1	A	138	THR
1	A	146	GLN
1	A	151	ARG
1	A	170	HIS
1	A	196	GLN
1	A	201	MET
1	A	217	GLU

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Mol	Chain	Res	Type
1	A	218	VAL
1	A	227	MET
1	A	229	ARG
1	A	230	VAL
1	A	232	LYS
1	A	234	ARG
1	A	244	LYS
1	A	269	ARG
1	A	271	ASP
1	A	275	THR
1	A	280	THR
1	A	285	TYR
1	A	307	ASP
1	A	310	LEU
2	B	6	LYS
2	B	7	LEU
2	B	10	GLU
2	B	12	ILE
2	B	18	ILE
2	B	27	PHE
2	B	33	PHE
2	B	52	GLU
2	B	55	ARG
2	B	56	LYS
2	B	63	ASN
2	B	65	PHE
2	B	68	GLU
2	B	77	TYR
2	B	80	GLN
2	B	82	THR
2	B	89	TYR
2	B	90	GLU
2	B	92	VAL
2	B	95	SER
2	B	96	ARG
2	B	103	ILE
2	B	104	ASP
2	B	134	ILE
2	B	144	GLU
2	B	148	ASN
2	B	151	LEU
1	C	2	ASN

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Mol	Chain	Res	Type
1	C	29	LYS
1	C	44	ILE
1	C	57	LEU
1	C	59	PHE
1	C	70	VAL
1	C	76	SER
1	C	81	LEU
1	C	83	LYS
1	C	84	LYS
1	C	86	GLU
1	C	95	ILE
1	C	96	SER
1	C	98	TYR
1	C	113	ARG
1	C	134	HIS
1	C	136	THR
1	C	152	LEU
1	C	153	ASP
1	C	154	ASN
1	C	167	ARG
1	C	190	ASP
1	C	211	LEU
1	C	213	SER
1	C	219	MET
1	C	230	VAL
1	C	231	GLN
1	C	232	LYS
1	C	244	LYS
1	C	250	ARG
1	C	252	SER
1	C	256	ASN
1	C	270	VAL
1	C	275	THR
1	C	278	ASP
1	C	281	PRO
2	D	7	LEU
2	D	8	GLN
2	D	14	ARG
2	D	27	PHE
2	D	35	LEU
2	D	38	THR
2	D	43	THR

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Mol	Chain	Res	Type
2	D	46	LEU
2	D	48	LEU
2	D	55	ARG
2	D	58	LEU
2	D	65	PHE
2	D	66	LEU
2	D	67	SER
2	D	70	GLN
2	D	74	LEU
2	D	76	LEU
2	D	87	ASP
2	D	96	ARG
2	D	101	GLU
2	D	103	ILE
2	D	105	ASN
2	D	129	LYS
2	D	130	ARG
2	D	153	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (22) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	6	GLN
1	A	134	HIS
1	A	137	GLN
1	A	146	GLN
1	A	149	GLN
1	A	174	GLN
1	A	196	GLN
2	B	73	GLN
2	B	84	ASN
2	B	88	ASN
1	C	149	GLN
1	C	170	HIS
1	C	174	GLN
1	C	212	HIS
1	C	265	HIS
1	C	297	GLN
1	C	305	ASN
2	D	40	GLN
2	D	70	GLN
2	D	105	ASN

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Mol	Chain	Res	Type
2	D	132	ASN
2	D	153	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 2 ligands modelled in this entry, 2 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 [i](#)

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

Unable to reproduce the depositors R factor - this section is therefore empty.

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

Unable to reproduce the depositors R factor - this section is therefore empty.

6.3 Carbohydrates

Unable to reproduce the depositors R factor - this section is therefore empty.

6.4 Ligands

Unable to reproduce the depositors R factor - this section is therefore empty.

6.5 Other polymers

Unable to reproduce the depositors R factor - this section is therefore empty.