



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 24, 2024 – 02:11 PM EDT

PDB ID : 6TTJ
Title : Neutral invertase 2 from Arabidopsis thaliana
Authors : Tsirkone, V.G.; Osipov, E.M.; Beelen, S.; Strelkov, S.V.
Deposited on : 2019-12-27
Resolution : 3.39 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 types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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 : 2.37.1
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.37.1

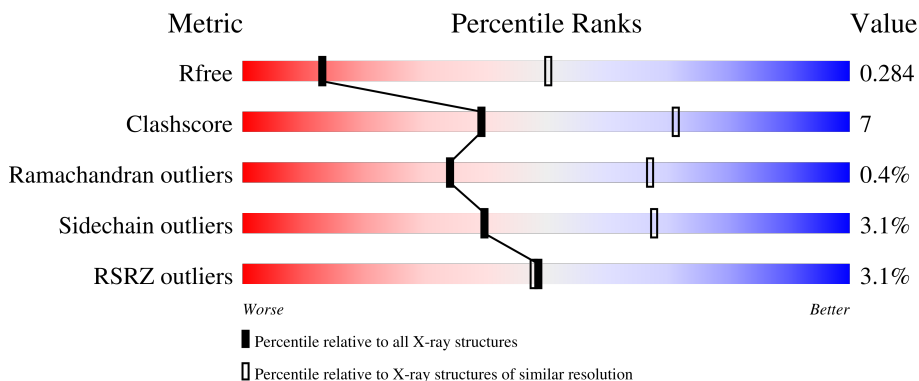
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.39 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	1026 (3.48-3.32)
Clashscore	141614	1055 (3.48-3.32)
Ramachandran outliers	138981	1038 (3.48-3.32)
Sidechain outliers	138945	1038 (3.48-3.32)
RSRZ outliers	127900	2173 (3.50-3.30)

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 $\leq 5\%$. 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	551	 4% 61% 17% 21%
1	B	551	 62% 16% 21%
1	C	551	 2% 64% 15% 20%
1	D	551	 % 64% 15% 20%
1	E	551	 2% 62% 17% 21%

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Mol	Chain	Length	Quality of chain
1	F	551	 2% 64% 15% • 20%
1	G	551	 3% 63% 16% • 20%
1	H	551	 3% 64% 15% • 20%
1	I	551	 3% 62% 16% • 21%
1	J	551	 3% 64% 15% • 20%
1	K	551	 3% 61% 18% • 20%
1	L	551	 3% 64% 15% • 21%

2 Entry composition [i](#)

There is only 1 type of molecule in this entry. The entry contains 42174 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.

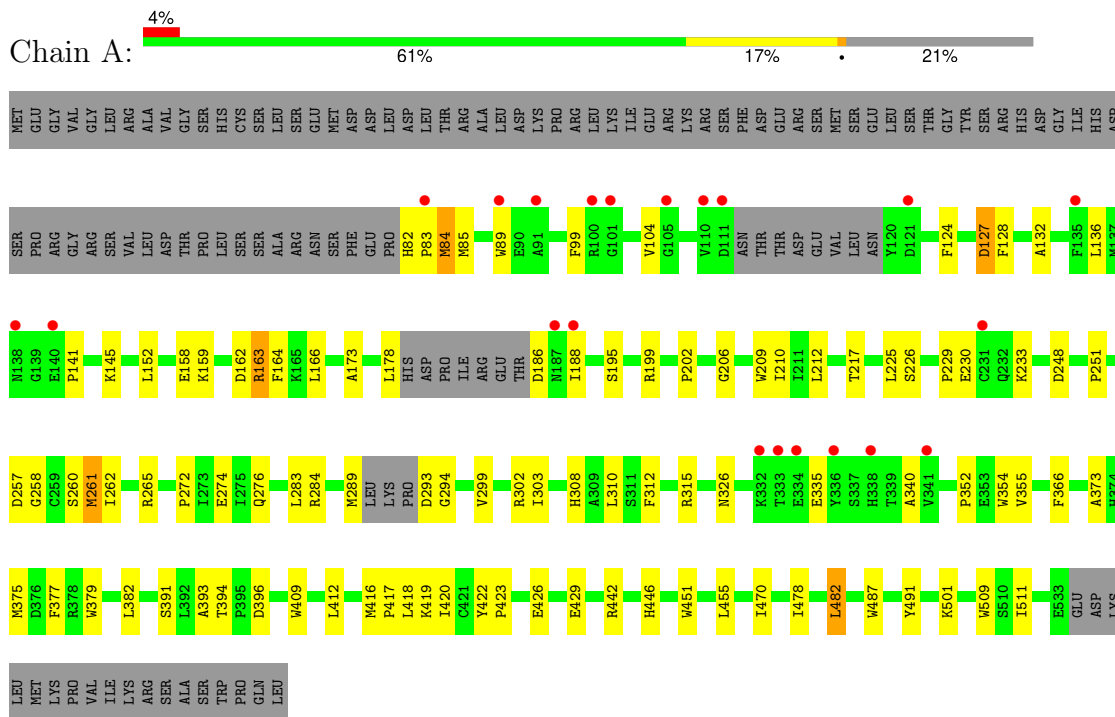
- Molecule 1 is a protein called Alkaline/neutral invertase CINV1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	434	Total 3464	C 2238	N 591	O 607	S 28	0	0	0
1	B	438	Total 3499	C 2259	N 599	O 613	S 28	0	0	0
1	C	441	Total 3536	C 2282	N 604	O 621	S 29	0	0	0
1	D	440	Total 3526	C 2276	N 604	O 618	S 28	0	0	0
1	E	438	Total 3511	C 2264	N 602	O 617	S 28	0	0	0
1	F	441	Total 3540	C 2284	N 607	O 621	S 28	0	0	0
1	G	440	Total 3536	C 2281	N 606	O 620	S 29	0	0	0
1	H	439	Total 3525	C 2275	N 605	O 617	S 28	0	0	0
1	I	434	Total 3478	C 2247	N 596	O 607	S 28	0	0	0
1	J	440	Total 3534	C 2280	N 606	O 620	S 28	0	0	0
1	K	439	Total 3523	C 2273	N 603	O 619	S 28	0	0	0
1	L	437	Total 3502	C 2262	N 598	O 614	S 28	0	0	0

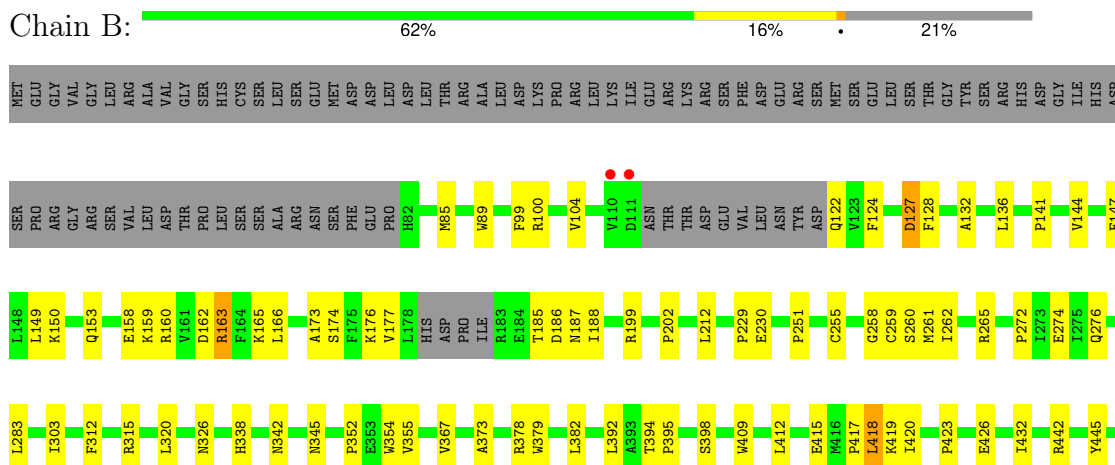
3 Residue-property plots [i](#)

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: Alkaline/neutral invertase CINV1

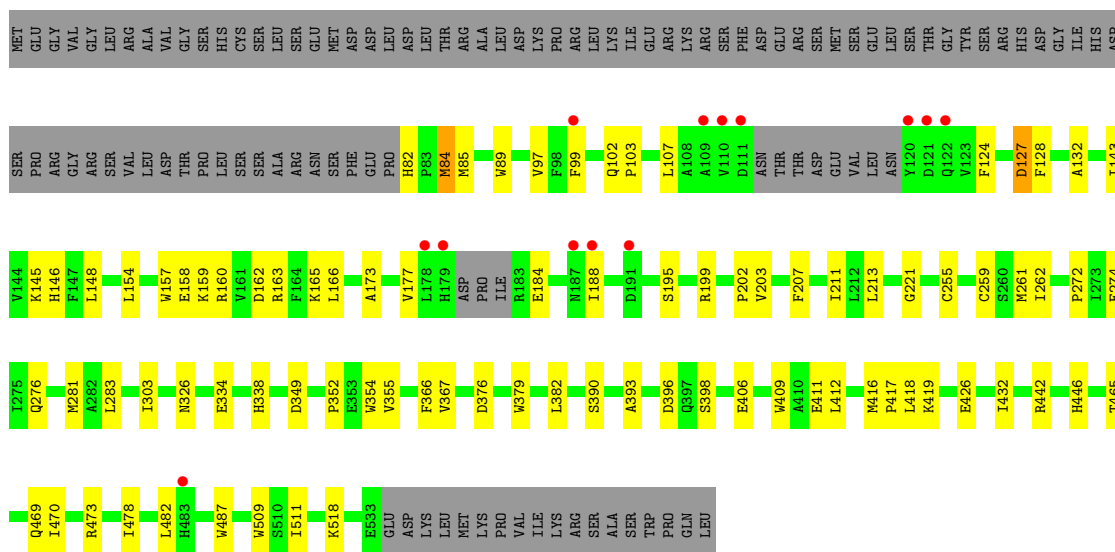


- Molecule 1: Alkaline/neutral invertase CINV1

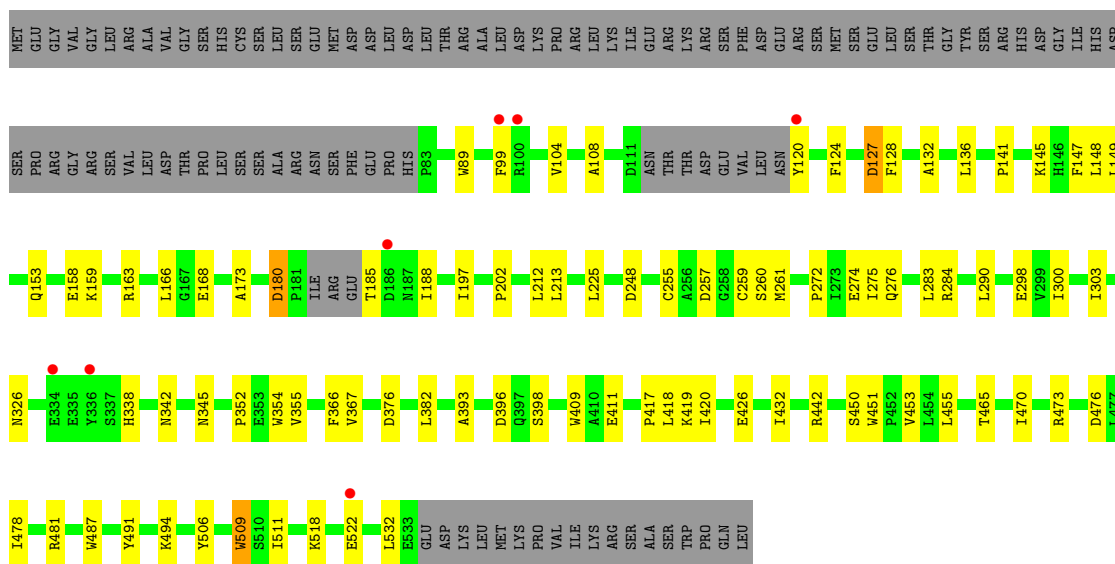




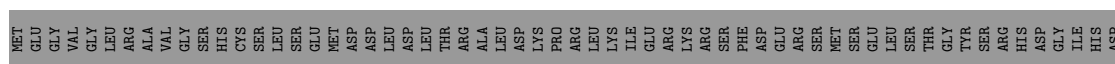
● Molecule 1: Alkaline/neutral invertase CINV1

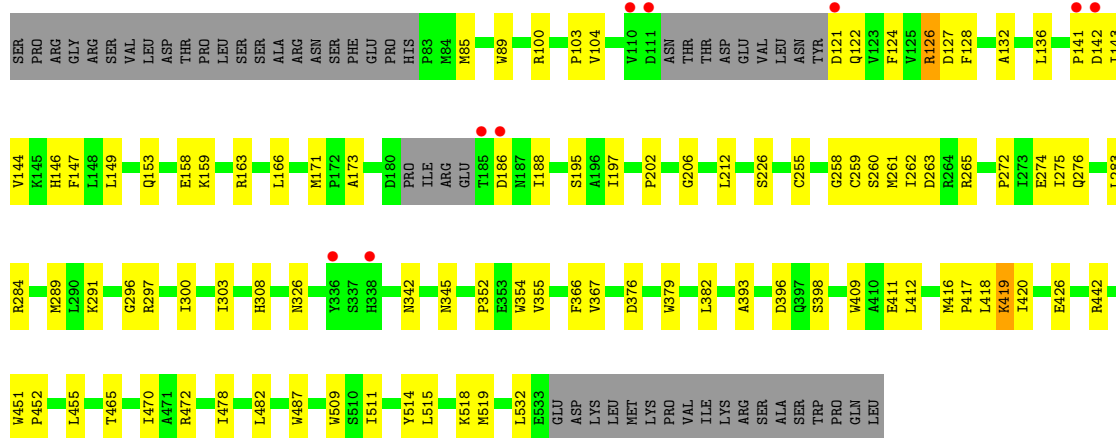


● Molecule 1: Alkaline/neutral invertase CINV1



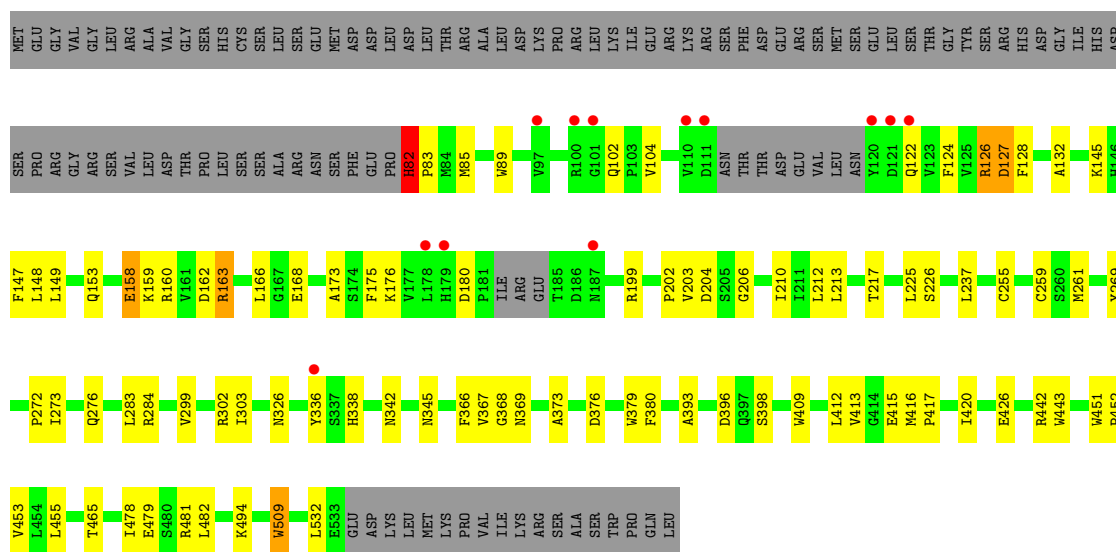
● Molecule 1: Alkaline/neutral invertase CINV1





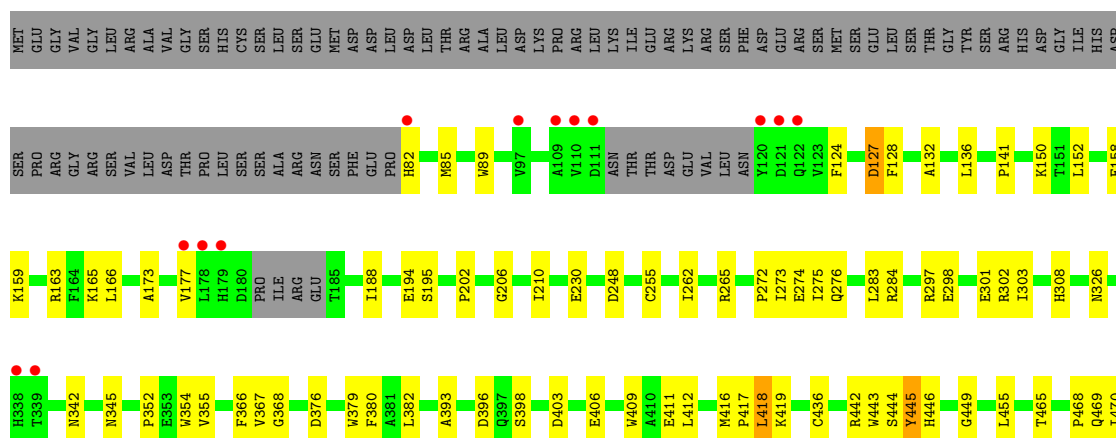
- Molecule 1: Alkaline/neutral invertase CINV1

Chain F: 2%



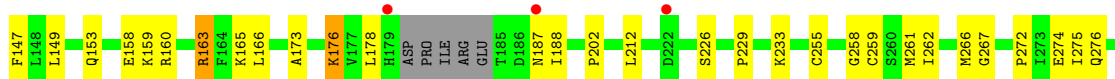
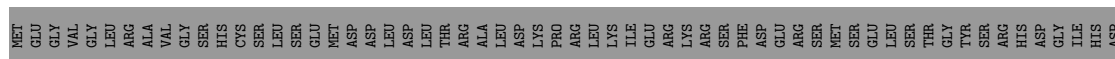
- Molecule 1: Alkaline/neutral invertase CINV1

Chain G: 3%

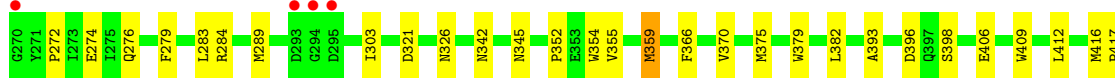
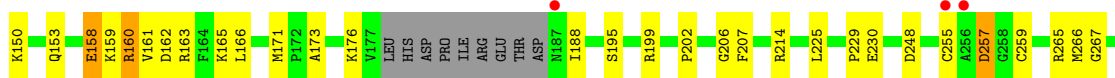
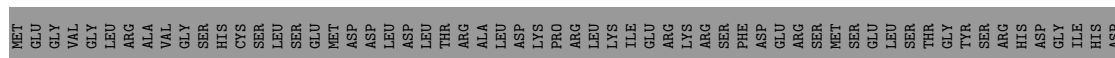




• Molecule 1: Alkaline/neutral invertase CINV1



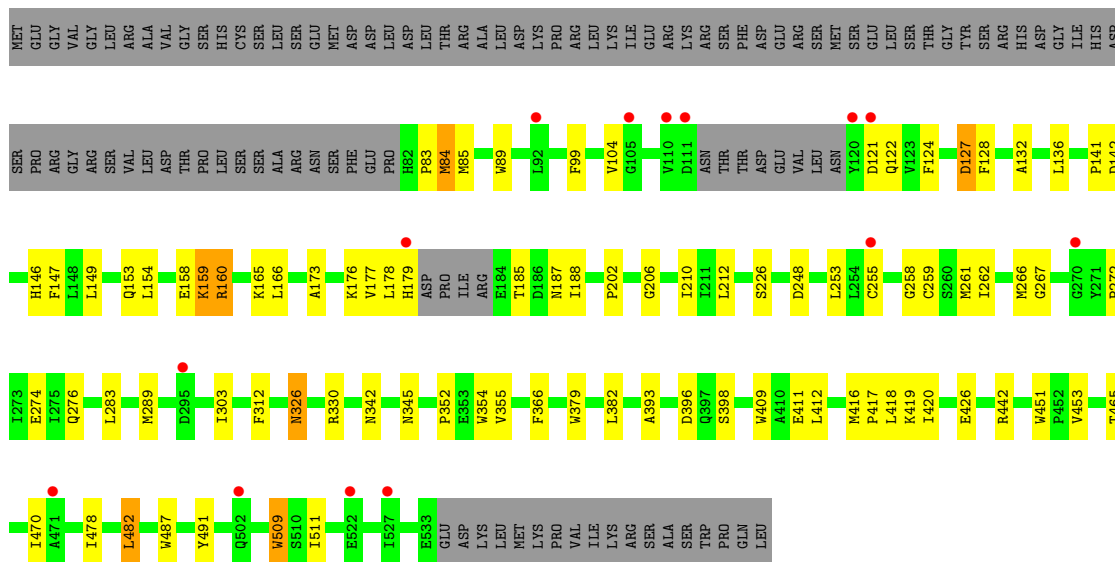
• Molecule 1: Alkaline/neutral invertase CINV1



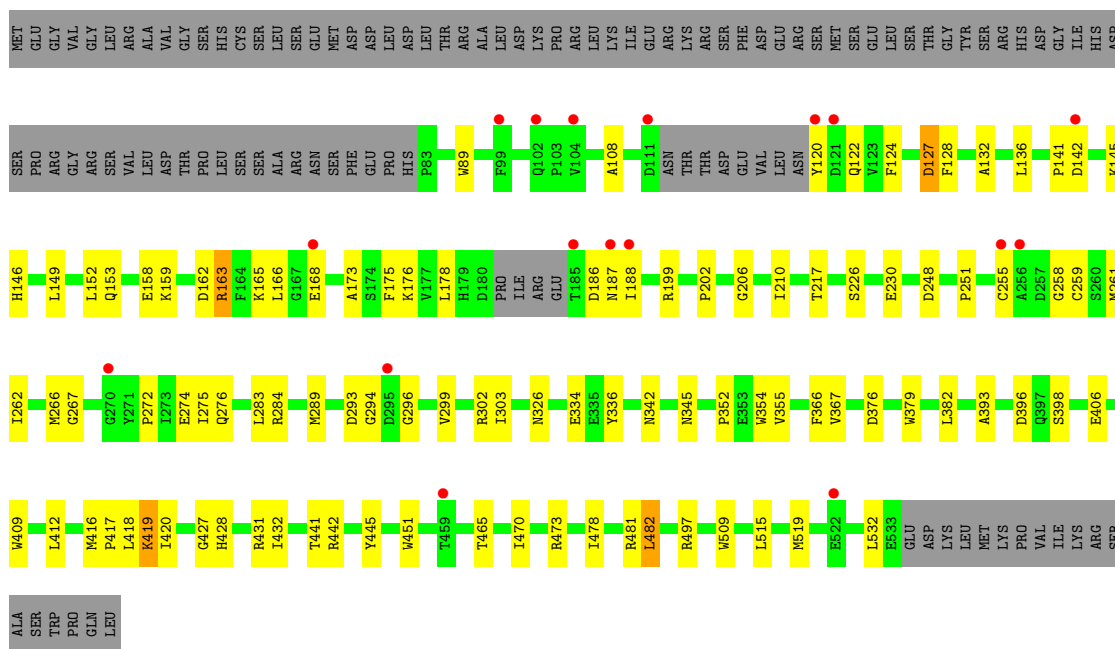
LEU

• Molecule 1: Alkaline/neutral invertase CINV1

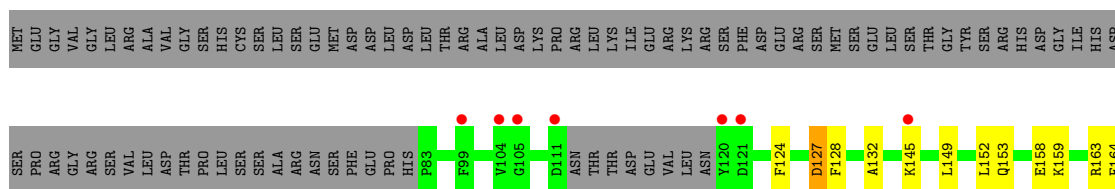


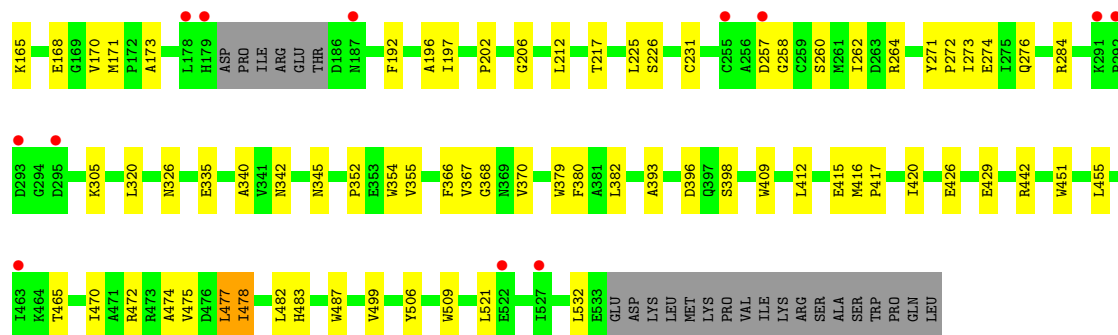


• Molecule 1: Alkaline/neutral invertase CINV1



• Molecule 1: Alkaline/neutral invertase CINV1





4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	107.45Å 186.71Å 152.20Å 90.00° 104.86° 90.00°	Depositor
Resolution (Å)	46.65 – 3.39 48.19 – 3.39	Depositor EDS
% Data completeness (in resolution range)	98.7 (46.65-3.39) 98.9 (48.19-3.39)	Depositor EDS
R_{merge}	0.41	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.58 (at 3.40Å)	Xtrriage
Refinement program	PHENIX 1.15.2_3472	Depositor
R, R_{free}	0.252 , 0.284 0.253 , 0.284	Depositor DCC
R_{free} test set	3969 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	62.3	Xtrriage
Anisotropy	0.115	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 32.5	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.28$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.85	EDS
Total number of atoms	42174	wwPDB-VP
Average B, all atoms (Å ²)	59.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.86% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.27	0/3559	0.54	1/4822 (0.0%)
1	B	0.26	0/3595	0.52	1/4871 (0.0%)
1	C	0.27	0/3634	0.50	0/4923
1	D	0.26	0/3624	0.50	0/4910
1	E	0.27	0/3607	0.50	0/4885
1	F	0.26	0/3639	0.53	1/4931 (0.0%)
1	G	0.27	0/3634	0.53	0/4922
1	H	0.27	0/3623	0.52	1/4908 (0.0%)
1	I	0.26	0/3574	0.52	0/4840
1	J	0.26	0/3632	0.53	0/4920
1	K	0.27	0/3620	0.53	0/4903
1	L	0.26	0/3599	0.51	2/4875 (0.0%)
All	All	0.27	0/43340	0.52	6/58710 (0.0%)

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	H	477	LEU	CA-CB-CG	6.67	130.63	115.30
1	L	477	LEU	CA-CB-CG	5.71	128.42	115.30
1	A	84	MET	N-CA-C	5.63	126.19	111.00
1	L	478	ILE	CG1-CB-CG2	-5.12	100.14	111.40
1	F	82	HIS	C-N-CD	-5.05	109.49	120.60
1	B	458	LEU	CA-CB-CG	5.04	126.89	115.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3464	0	3391	62	0
1	B	3499	0	3440	61	0
1	C	3536	0	3471	55	0
1	D	3526	0	3468	50	0
1	E	3511	0	3456	58	0
1	F	3540	0	3478	59	0
1	G	3536	0	3478	56	0
1	H	3525	0	3467	46	0
1	I	3478	0	3428	55	0
1	J	3534	0	3473	50	0
1	K	3523	0	3465	59	0
1	L	3502	0	3443	46	0
All	All	42174	0	41458	617	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 7.

All (617) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:206:GLY:O	1:F:210:ILE:HD12	1.61	0.99
1:B:188:ILE:O	1:B:188:ILE:HD12	1.62	0.98
1:B:99:PHE:CE1	1:B:188:ILE:HG23	1.99	0.97
1:B:162:ASP:OD2	1:B:199:ARG:NH1	2.08	0.86
1:F:416:MET:HG3	1:F:417:PRO:HD2	1.57	0.86
1:K:342:ASN:HD21	1:K:345:ASN:HA	1.43	0.83
1:H:266:MET:H	1:H:267:GLY:HA2	1.42	0.82
1:A:152:LEU:HD11	1:A:209:TRP:CZ2	2.16	0.79
1:J:266:MET:H	1:J:267:GLY:HA2	1.48	0.78
1:I:266:MET:H	1:I:267:GLY:HA2	1.48	0.77
1:K:266:MET:H	1:K:267:GLY:HA2	1.49	0.77
1:L:417:PRO:HD3	1:L:477:LEU:HD22	1.66	0.76
1:C:162:ASP:OD2	1:C:199:ARG:NH2	2.16	0.76
1:F:122:GLN:HG2	1:F:176:LYS:HB2	1.68	0.75
1:E:124:PHE:HB2	1:E:127:ASP:HB2	1.66	0.74
1:A:83:PRO:HA	1:A:85:MET:H	1.53	0.72
1:A:173:ALA:HB2	1:A:202:PRO:HG3	1.70	0.72
1:L:159:LYS:NZ	1:L:170:VAL:O	2.23	0.71
1:G:173:ALA:HB2	1:G:202:PRO:HG3	1.72	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:173:ALA:HB2	1:F:202:PRO:HG3	1.71	0.71
1:E:173:ALA:HB2	1:E:202:PRO:HG3	1.73	0.70
1:E:426:GLU:HG2	1:E:442:ARG:HG2	1.74	0.70
1:H:266:MET:N	1:H:267:GLY:HA2	2.07	0.70
1:K:334:GLU:OE2	1:L:264:ARG:NH2	2.19	0.70
1:H:426:GLU:HG2	1:H:442:ARG:HG2	1.73	0.69
1:E:195:SER:OG	1:F:338:HIS:CD2	2.45	0.69
1:C:334:GLU:OE2	1:D:197:ILE:HD13	1.93	0.69
1:F:168:GLU:HG2	1:F:237:LEU:HD22	1.74	0.69
1:C:221:GLY:O	1:E:472:ARG:NH1	2.26	0.69
1:F:426:GLU:HG2	1:F:442:ARG:HG2	1.75	0.68
1:J:154:LEU:HD21	1:J:188:ILE:HD13	1.73	0.68
1:C:173:ALA:HB2	1:C:202:PRO:HG3	1.75	0.68
1:I:214:ARG:HA	1:I:289:MET:HE1	1.74	0.68
1:K:342:ASN:ND2	1:K:345:ASN:HA	2.08	0.68
1:D:173:ALA:HB2	1:D:202:PRO:HG3	1.75	0.67
1:I:99:PHE:HB3	1:I:104:VAL:HG21	1.76	0.67
1:D:426:GLU:HG2	1:D:442:ARG:HG2	1.77	0.67
1:K:441:THR:HG22	1:K:442:ARG:H	1.59	0.67
1:H:173:ALA:HB2	1:H:202:PRO:HG3	1.77	0.67
1:C:102:GLN:HB3	1:C:146:HIS:HD2	1.60	0.67
1:B:426:GLU:HG2	1:B:442:ARG:HG2	1.77	0.66
1:A:178:LEU:O	1:A:186:ASP:HA	1.95	0.66
1:I:426:GLU:HG2	1:I:442:ARG:HG2	1.78	0.65
1:I:266:MET:N	1:I:267:GLY:HA2	2.12	0.65
1:J:83:PRO:HA	1:J:85:MET:N	2.12	0.65
1:H:515:LEU:O	1:H:519:MET:HG2	1.97	0.65
1:J:426:GLU:HG2	1:J:442:ARG:HG2	1.80	0.64
1:A:230:GLU:HA	1:A:233:LYS:HE3	1.80	0.64
1:H:124:PHE:HB2	1:H:127:ASP:HB2	1.80	0.64
1:F:126:ARG:NH1	1:F:204:ASP:OD2	2.31	0.63
1:L:455:LEU:HD22	1:L:478:ILE:HD13	1.81	0.63
1:E:416:MET:HE1	1:E:452:PRO:HG3	1.81	0.63
1:F:417:PRO:HG3	1:F:478:ILE:HD11	1.80	0.62
1:J:99:PHE:CE2	1:J:188:ILE:HG23	2.34	0.62
1:J:124:PHE:HB2	1:J:127:ASP:HB2	1.81	0.62
1:J:409:TRP:HZ3	1:J:470:ILE:HG23	1.65	0.62
1:K:173:ALA:HB2	1:K:202:PRO:HG3	1.80	0.62
1:K:266:MET:N	1:K:267:GLY:HA2	2.15	0.62
1:A:82:HIS:N	1:A:85:MET:HG3	2.15	0.62
1:B:415:GLU:HB3	1:B:481:ARG:HH12	1.64	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:124:PHE:HB2	1:C:127:ASP:HB2	1.82	0.62
1:L:426:GLU:HG2	1:L:442:ARG:HG2	1.82	0.62
1:B:99:PHE:CD1	1:B:188:ILE:HG23	2.34	0.61
1:F:158:GLU:OE1	1:F:160:ARG:NH1	2.33	0.61
1:D:124:PHE:HB2	1:D:127:ASP:HB2	1.80	0.61
1:A:308:HIS:HB3	1:B:163:ARG:NH1	2.15	0.61
1:A:375:MET:SD	1:A:377:PHE:CZ	2.93	0.61
1:J:266:MET:N	1:J:267:GLY:HA2	2.14	0.61
1:D:342:ASN:ND2	1:D:345:ASN:HA	2.15	0.61
1:E:159:LYS:HB2	1:E:166:LEU:HB2	1.82	0.61
1:K:274:GLU:HG3	1:K:382:LEU:HD22	1.83	0.61
1:C:426:GLU:HG2	1:C:442:ARG:HG2	1.81	0.61
1:G:500:GLY:O	1:J:330:ARG:NH1	2.34	0.60
1:C:160:ARG:HD3	1:C:165:LYS:HG3	1.83	0.60
1:D:342:ASN:HD21	1:D:345:ASN:HA	1.67	0.60
1:I:124:PHE:HB2	1:I:127:ASP:HB2	1.81	0.60
1:B:124:PHE:HB2	1:B:127:ASP:HB2	1.83	0.60
1:K:481:ARG:HH22	1:K:497:ARG:HA	1.67	0.60
1:K:142:ASP:O	1:K:146:HIS:ND1	2.35	0.59
1:B:159:LYS:HB2	1:B:166:LEU:HB2	1.84	0.59
1:J:274:GLU:HG3	1:J:382:LEU:HD22	1.84	0.59
1:I:162:ASP:OD1	1:I:199:ARG:NH1	2.36	0.59
1:I:158:GLU:OE1	1:I:160:ARG:NH1	2.35	0.59
1:F:162:ASP:O	1:F:163:ARG:HG3	2.03	0.59
1:I:108:ALA:HB1	1:I:120:TYR:HD1	1.67	0.59
1:L:124:PHE:HB2	1:L:127:ASP:HB2	1.83	0.59
1:K:178:LEU:O	1:K:186:ASP:HA	2.03	0.58
1:A:217:THR:HG21	1:A:226:SER:HB3	1.83	0.58
1:G:274:GLU:HG3	1:G:382:LEU:HD22	1.85	0.58
1:I:173:ALA:HB2	1:I:202:PRO:HG3	1.83	0.58
1:A:426:GLU:HG2	1:A:442:ARG:HG2	1.84	0.58
1:K:124:PHE:HB2	1:K:127:ASP:HB2	1.84	0.58
1:B:173:ALA:HB2	1:B:202:PRO:HG3	1.85	0.58
1:E:308:HIS:C	1:F:163:ARG:HH12	2.06	0.58
1:A:308:HIS:HB3	1:B:163:ARG:HH12	1.67	0.58
1:C:478:ILE:HG23	1:C:482:LEU:HD12	1.86	0.58
1:A:162:ASP:OD2	1:A:199:ARG:NH2	2.32	0.58
1:A:335:GLU:OE2	1:A:340:ALA:HB1	2.04	0.58
1:K:188:ILE:HD12	1:K:188:ILE:O	2.04	0.58
1:H:159:LYS:HB2	1:H:166:LEU:HB2	1.86	0.58
1:F:124:PHE:HB2	1:F:127:ASP:HB2	1.85	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:124:PHE:HB2	1:G:127:ASP:HB2	1.86	0.57
1:A:124:PHE:HB2	1:A:127:ASP:HB2	1.86	0.57
1:L:173:ALA:HB2	1:L:202:PRO:HG3	1.86	0.57
1:J:122:GLN:HE21	1:J:176:LYS:HG2	1.69	0.57
1:J:417:PRO:HD2	1:J:478:ILE:HG13	1.85	0.57
1:L:274:GLU:HG3	1:L:382:LEU:HD22	1.87	0.57
1:A:293:ASP:OD1	1:A:294:GLY:N	2.38	0.56
1:C:82:HIS:CE1	1:C:84:MET:HB2	2.40	0.56
1:B:100:ARG:NH2	1:B:186:ASP:O	2.38	0.56
1:C:154:LEU:HD21	1:C:188:ILE:HG21	1.87	0.56
1:D:255:CYS:HB3	1:D:259:CYS:SG	2.46	0.56
1:F:83:PRO:HA	1:F:85:MET:H	1.70	0.56
1:G:159:LYS:HB2	1:G:166:LEU:HB2	1.86	0.56
1:H:160:ARG:HH11	1:H:165:LYS:HE2	1.70	0.56
1:J:173:ALA:HB2	1:J:202:PRO:HG3	1.88	0.56
1:D:284:ARG:HB3	1:D:532:LEU:HD22	1.87	0.56
1:F:269:TYR:O	1:F:369:ASN:ND2	2.36	0.56
1:F:122:GLN:HB3	1:F:175:PHE:O	2.06	0.56
1:A:159:LYS:HB2	1:A:166:LEU:HB2	1.87	0.56
1:K:122:GLN:HG2	1:K:176:LYS:HB3	1.88	0.56
1:B:188:ILE:O	1:B:188:ILE:CD1	2.48	0.56
1:F:455:LEU:HD22	1:F:478:ILE:HD12	1.88	0.56
1:L:260:SER:C	1:L:262:ILE:H	2.10	0.55
1:A:416:MET:HE2	1:A:491:TYR:CD1	2.41	0.55
1:K:283:LEU:HD22	1:K:303:ILE:HG23	1.88	0.55
1:E:197:ILE:HG13	1:F:336:TYR:HD1	1.71	0.55
1:K:284:ARG:HH21	1:K:532:LEU:HB3	1.72	0.55
1:H:284:ARG:HH21	1:H:532:LEU:HB3	1.72	0.55
1:I:409:TRP:HZ3	1:I:470:ILE:HG23	1.72	0.55
1:K:165:LYS:HE3	1:L:305:LYS:HD3	1.88	0.55
1:I:417:PRO:HD2	1:I:478:ILE:HG13	1.89	0.54
1:K:162:ASP:OD2	1:K:199:ARG:NH2	2.37	0.54
1:L:258:GLY:HA2	1:L:262:ILE:O	2.07	0.54
1:F:284:ARG:HH21	1:F:532:LEU:HB3	1.73	0.54
1:F:416:MET:CG	1:F:417:PRO:HD2	2.31	0.54
1:K:427:GLY:H	1:K:442:ARG:HH21	1.55	0.54
1:D:108:ALA:HB1	1:D:120:TYR:HD1	1.71	0.54
1:A:99:PHE:HB3	1:A:104:VAL:HG21	1.90	0.54
1:I:274:GLU:HG3	1:I:382:LEU:HD22	1.89	0.54
1:L:284:ARG:HH21	1:L:532:LEU:HB3	1.73	0.54
1:L:472:ARG:HG2	1:L:521:LEU:HD11	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:229:PRO:O	1:A:233:LYS:HG2	2.07	0.54
1:A:299:VAL:HG22	1:A:302:ARG:HH21	1.73	0.54
1:K:406:GLU:HG2	1:K:473:ARG:HH12	1.73	0.54
1:I:162:ASP:HB3	1:J:312:PHE:HE2	1.73	0.54
1:G:352:PRO:HG2	1:G:355:VAL:HG23	1.90	0.53
1:H:149:LEU:O	1:H:153:GLN:HG3	2.09	0.53
1:H:136:LEU:HD23	1:H:141:PRO:HB3	1.90	0.53
1:A:326:ASN:HD21	1:L:499:VAL:H	1.56	0.53
1:I:487:TRP:CE3	1:I:511:ILE:HG12	2.43	0.53
1:C:473:ARG:HH12	1:G:472:ARG:HD2	1.72	0.53
1:C:487:TRP:CE3	1:C:511:ILE:HG12	2.44	0.53
1:J:84:MET:SD	1:J:84:MET:N	2.81	0.53
1:K:149:LEU:O	1:K:153:GLN:HG3	2.08	0.53
1:G:284:ARG:HH21	1:G:532:LEU:HB3	1.73	0.53
1:I:283:LEU:HD22	1:I:303:ILE:HG23	1.90	0.53
1:C:274:GLU:HG3	1:C:382:LEU:HD22	1.90	0.53
1:H:178:LEU:HD12	1:H:187:ASN:HB2	1.91	0.53
1:K:293:ASP:OD1	1:K:294:GLY:N	2.36	0.53
1:F:417:PRO:HG2	1:F:452:PRO:HA	1.91	0.53
1:H:274:GLU:HG3	1:H:382:LEU:HD22	1.90	0.53
1:B:122:GLN:HB3	1:B:176:LYS:HB3	1.90	0.53
1:D:419:LYS:NZ	1:D:494:LYS:O	2.41	0.53
1:B:274:GLU:HG3	1:B:382:LEU:HD23	1.91	0.53
1:G:409:TRP:HZ3	1:G:470:ILE:HG23	1.74	0.53
1:K:159:LYS:HB2	1:K:166:LEU:HB2	1.91	0.52
1:L:149:LEU:O	1:L:153:GLN:HG3	2.09	0.52
1:F:83:PRO:HA	1:F:85:MET:N	2.25	0.52
1:K:352:PRO:HG2	1:K:355:VAL:HG23	1.91	0.52
1:C:352:PRO:HG2	1:C:355:VAL:HG23	1.90	0.52
1:E:297:ARG:O	1:E:300:ILE:HG22	2.09	0.52
1:D:352:PRO:HG2	1:D:355:VAL:HG23	1.91	0.52
1:I:284:ARG:HH21	1:I:532:LEU:HB3	1.74	0.52
1:A:206:GLY:O	1:A:210:ILE:HD12	2.09	0.52
1:C:84:MET:SD	1:C:84:MET:N	2.82	0.52
1:C:160:ARG:HG2	1:C:165:LYS:HA	1.91	0.52
1:E:274:GLU:HG3	1:E:382:LEU:HD22	1.90	0.52
1:I:149:LEU:O	1:I:153:GLN:HG3	2.08	0.52
1:B:419:LYS:HA	1:B:450:SER:HA	1.91	0.52
1:I:145:LYS:HG3	1:I:225:LEU:HD22	1.91	0.52
1:A:260:SER:OG	1:A:274:GLU:OE1	2.25	0.52
1:B:188:ILE:HD12	1:B:188:ILE:C	2.29	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:273:ILE:HG12	1:F:368:GLY:HA2	1.91	0.52
1:G:82:HIS:CD2	1:G:85:MET:HB2	2.45	0.52
1:E:149:LEU:O	1:E:153:GLN:HG3	2.10	0.52
1:C:272:PRO:O	1:C:276:GLN:HG2	2.10	0.52
1:E:352:PRO:HG2	1:E:355:VAL:HG23	1.92	0.52
1:H:188:ILE:HD12	1:H:188:ILE:O	2.09	0.52
1:I:161:VAL:HG23	1:I:166:LEU:HD11	1.91	0.52
1:I:352:PRO:HG2	1:I:355:VAL:HG23	1.91	0.51
1:J:159:LYS:HB2	1:J:166:LEU:HB2	1.91	0.51
1:G:283:LEU:HD22	1:G:303:ILE:HG23	1.91	0.51
1:H:258:GLY:HA2	1:H:262:ILE:O	2.10	0.51
1:K:136:LEU:HD23	1:K:141:PRO:HB3	1.93	0.51
1:E:263:ASP:OD1	1:E:263:ASP:N	2.42	0.51
1:C:159:LYS:HB2	1:C:166:LEU:HB2	1.92	0.51
1:C:417:PRO:HD2	1:C:478:ILE:HG13	1.93	0.51
1:D:149:LEU:O	1:D:153:GLN:HG3	2.10	0.51
1:J:352:PRO:HG2	1:J:355:VAL:HG23	1.93	0.51
1:A:265:ARG:HB3	1:B:373:ALA:HB3	1.93	0.51
1:B:283:LEU:HD22	1:B:303:ILE:HG23	1.92	0.51
1:D:104:VAL:O	1:D:147:PHE:HB2	2.11	0.51
1:D:409:TRP:HZ3	1:D:470:ILE:HG23	1.76	0.51
1:E:283:LEU:HD22	1:E:303:ILE:HG23	1.93	0.51
1:I:255:CYS:HB3	1:I:259:CYS:SG	2.51	0.51
1:F:272:PRO:O	1:F:276:GLN:HG2	2.10	0.50
1:C:255:CYS:HB3	1:C:259:CYS:SG	2.51	0.50
1:G:352:PRO:HB2	1:G:354:TRP:CD1	2.46	0.50
1:J:142:ASP:O	1:J:146:HIS:ND1	2.44	0.50
1:K:366:PHE:HE2	1:K:393:ALA:HB2	1.76	0.50
1:D:148:LEU:HD13	1:D:213:LEU:HD12	1.92	0.50
1:E:126:ARG:H	1:E:126:ARG:HD2	1.76	0.50
1:K:417:PRO:HD2	1:K:478:ILE:HG13	1.93	0.50
1:L:475:VAL:HA	1:L:478:ILE:HG22	1.92	0.50
1:B:99:PHE:CE2	1:B:150:LYS:HE3	2.47	0.50
1:D:272:PRO:O	1:D:276:GLN:HG2	2.12	0.50
1:E:195:SER:OG	1:F:338:HIS:NE2	2.44	0.50
1:G:262:ILE:HG23	1:G:446:HIS:CG	2.46	0.50
1:B:455:LEU:HD22	1:B:478:ILE:HD12	1.93	0.50
1:C:148:LEU:HD13	1:C:213:LEU:HD12	1.92	0.50
1:A:272:PRO:O	1:A:276:GLN:HG2	2.10	0.50
1:B:415:GLU:HB3	1:B:481:ARG:NH1	2.26	0.50
1:G:298:GLU:HG2	1:G:302:ARG:HH21	1.75	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:272:PRO:O	1:J:276:GLN:HG2	2.11	0.50
1:A:352:PRO:HB2	1:A:354:TRP:CD1	2.47	0.50
1:E:100:ARG:HG3	1:E:186:ASP:HB2	1.93	0.50
1:G:272:PRO:O	1:G:276:GLN:HG2	2.11	0.50
1:J:226:SER:HB3	1:J:289:MET:HE2	1.94	0.50
1:K:272:PRO:O	1:K:276:GLN:HG2	2.12	0.50
1:C:99:PHE:CZ	1:C:188:ILE:HG12	2.46	0.50
1:J:255:CYS:HB3	1:J:259:CYS:SG	2.52	0.49
1:D:159:LYS:HB2	1:D:166:LEU:HB2	1.93	0.49
1:E:255:CYS:HB3	1:E:259:CYS:SG	2.51	0.49
1:A:82:HIS:CD2	1:A:83:PRO:O	2.65	0.49
1:B:272:PRO:O	1:B:276:GLN:HG2	2.12	0.49
1:C:366:PHE:HE2	1:C:393:ALA:HB2	1.77	0.49
1:D:487:TRP:CE3	1:D:511:ILE:HG12	2.47	0.49
1:E:142:ASP:O	1:E:146:HIS:ND1	2.44	0.49
1:G:366:PHE:HE2	1:G:393:ALA:HB2	1.77	0.49
1:G:82:HIS:CD2	1:G:514:TYR:HH	2.30	0.49
1:I:136:LEU:HD23	1:I:141:PRO:HB3	1.93	0.49
1:I:321:ASP:HA	1:I:359:MET:HE3	1.94	0.49
1:I:515:LEU:O	1:I:519:MET:HG3	2.11	0.49
1:K:293:ASP:H	1:K:296:GLY:HA3	1.77	0.49
1:A:274:GLU:HG3	1:A:382:LEU:HD22	1.93	0.49
1:G:265:ARG:HB2	1:H:373:ALA:HB3	1.94	0.49
1:I:272:PRO:O	1:I:276:GLN:HG2	2.11	0.49
1:I:366:PHE:HE2	1:I:393:ALA:HB2	1.78	0.49
1:L:352:PRO:HG2	1:L:355:VAL:HG23	1.94	0.49
1:H:352:PRO:HG2	1:H:355:VAL:HG23	1.95	0.49
1:J:352:PRO:HB2	1:J:354:TRP:CD1	2.48	0.49
1:D:352:PRO:HB2	1:D:354:TRP:CD1	2.48	0.49
1:E:258:GLY:HA2	1:E:262:ILE:O	2.13	0.49
1:E:420:ILE:HB	1:E:451:TRP:CD1	2.47	0.49
1:F:82:HIS:HB2	1:F:83:PRO:O	2.12	0.49
1:L:417:PRO:HD3	1:L:477:LEU:CD2	2.41	0.49
1:D:418:LEU:HD23	1:D:419:LYS:N	2.28	0.49
1:E:272:PRO:O	1:E:276:GLN:HG2	2.13	0.49
1:I:379:TRP:CE3	1:I:412:LEU:HD22	2.48	0.49
1:A:455:LEU:HD22	1:A:478:ILE:HD12	1.95	0.48
1:G:165:LYS:NZ	1:H:305:LYS:HD3	2.28	0.48
1:G:298:GLU:OE1	1:G:302:ARG:NH2	2.45	0.48
1:K:417:PRO:HA	1:K:418:LEU:HA	1.62	0.48
1:L:217:THR:HG21	1:L:226:SER:HB3	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:417:PRO:HA	1:A:418:LEU:HA	1.61	0.48
1:C:482:LEU:HD22	1:C:487:TRP:CE3	2.48	0.48
1:I:352:PRO:HB2	1:I:354:TRP:CD1	2.48	0.48
1:K:428:HIS:HA	1:K:431:ARG:HD2	1.95	0.48
1:B:409:TRP:HZ3	1:B:470:ILE:HG23	1.78	0.48
1:C:211:ILE:HG12	1:C:281:MET:HG2	1.94	0.48
1:C:283:LEU:HD22	1:C:303:ILE:HG23	1.95	0.48
1:D:366:PHE:HE2	1:D:393:ALA:HB2	1.78	0.48
1:K:108:ALA:HB1	1:K:120:TYR:HD1	1.78	0.48
1:L:352:PRO:HB2	1:L:354:TRP:CD1	2.48	0.48
1:D:136:LEU:HD23	1:D:141:PRO:HB3	1.94	0.48
1:G:273:ILE:HD11	1:G:380:PHE:HB2	1.95	0.48
1:K:352:PRO:HB2	1:K:354:TRP:CD1	2.48	0.48
1:B:149:LEU:O	1:B:153:GLN:HG3	2.12	0.48
1:D:473:ARG:O	1:D:476:ASP:OD1	2.31	0.48
1:E:85:MET:SD	1:E:518:LYS:HD3	2.54	0.48
1:E:367:VAL:HG22	1:E:376:ASP:O	2.13	0.48
1:E:342:ASN:ND2	1:E:345:ASN:HA	2.28	0.48
1:F:162:ASP:OD2	1:F:199:ARG:NH1	2.31	0.48
1:H:366:PHE:HE2	1:H:393:ALA:HB2	1.78	0.48
1:I:467:ARG:HB3	1:I:470:ILE:HD13	1.96	0.48
1:L:272:PRO:O	1:L:276:GLN:HG2	2.13	0.48
1:C:99:PHE:CE2	1:C:177:VAL:HG13	2.48	0.48
1:C:409:TRP:HZ3	1:C:470:ILE:HG23	1.79	0.48
1:D:518:LYS:O	1:D:522:GLU:HG2	2.14	0.48
1:F:149:LEU:O	1:F:153:GLN:HG3	2.13	0.48
1:D:367:VAL:HG13	1:D:376:ASP:O	2.14	0.48
1:E:136:LEU:HD23	1:E:141:PRO:HB3	1.94	0.48
1:J:149:LEU:O	1:J:153:GLN:HG3	2.13	0.48
1:L:379:TRP:CE3	1:L:412:LEU:HD22	2.49	0.48
1:K:255:CYS:HB3	1:K:259:CYS:SG	2.54	0.48
1:L:487:TRP:HB2	1:L:506:TYR:HA	1.95	0.48
1:C:406:GLU:OE2	1:G:469:GLN:NE2	2.47	0.47
1:I:481:ARG:NH2	1:I:496:GLY:O	2.45	0.47
1:J:136:LEU:HD23	1:J:141:PRO:HB3	1.97	0.47
1:B:352:PRO:HG2	1:B:355:VAL:HG23	1.94	0.47
1:G:367:VAL:HG13	1:G:376:ASP:O	2.15	0.47
1:J:379:TRP:CE3	1:J:412:LEU:HD22	2.49	0.47
1:C:262:ILE:HG23	1:C:446:HIS:CG	2.49	0.47
1:C:417:PRO:HA	1:C:418:LEU:HA	1.64	0.47
1:E:352:PRO:HB2	1:E:354:TRP:CD1	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:455:LEU:HD22	1:G:478:ILE:HD13	1.97	0.47
1:J:177:VAL:HA	1:J:187:ASN:O	2.15	0.47
1:J:366:PHE:HE2	1:J:393:ALA:HB2	1.79	0.47
1:B:136:LEU:HG	1:B:144:VAL:HG21	1.97	0.47
1:D:188:ILE:HD12	1:D:188:ILE:O	2.13	0.47
1:G:411:GLU:N	1:G:411:GLU:OE1	2.47	0.47
1:L:409:TRP:HZ3	1:L:470:ILE:HG23	1.80	0.47
1:B:315:ARG:NE	1:B:392:LEU:O	2.26	0.47
1:C:128:PHE:CE2	1:C:132:ALA:HB2	2.50	0.47
1:B:352:PRO:HB2	1:B:354:TRP:CD1	2.49	0.47
1:E:455:LEU:HD22	1:E:478:ILE:HD12	1.97	0.47
1:F:299:VAL:HG22	1:F:302:ARG:HH21	1.80	0.47
1:I:188:ILE:HD12	1:I:188:ILE:O	2.14	0.47
1:G:436:CYS:HB2	1:H:350:SER:HB3	1.95	0.47
1:H:272:PRO:O	1:H:276:GLN:HG2	2.15	0.47
1:A:352:PRO:HG2	1:A:355:VAL:HG23	1.95	0.47
1:A:373:ALA:HB3	1:B:265:ARG:HB2	1.97	0.47
1:K:478:ILE:HG23	1:K:482:LEU:HD12	1.97	0.47
1:A:83:PRO:HA	1:A:85:MET:N	2.26	0.47
1:A:262:ILE:HG23	1:A:446:HIS:CG	2.50	0.47
1:C:195:SER:OG	1:D:338:HIS:CE1	2.68	0.47
1:C:482:LEU:HD23	1:C:487:TRP:HA	1.97	0.47
1:A:478:ILE:HG23	1:A:482:LEU:HD12	1.97	0.46
1:B:258:GLY:HA2	1:B:262:ILE:O	2.15	0.46
1:D:274:GLU:HG3	1:D:382:LEU:HD22	1.98	0.46
1:H:352:PRO:HB2	1:H:354:TRP:CD1	2.50	0.46
1:I:207:PHE:CD2	1:I:279:PHE:HA	2.49	0.46
1:L:474:ALA:O	1:L:478:ILE:HG22	2.15	0.46
1:B:85:MET:SD	1:B:518:LYS:HD3	2.56	0.46
1:F:145:LYS:HG3	1:F:225:LEU:HD22	1.98	0.46
1:H:417:PRO:HA	1:H:418:LEU:HA	1.61	0.46
1:K:515:LEU:O	1:K:519:MET:HG2	2.15	0.46
1:E:308:HIS:O	1:F:163:ARG:NH1	2.45	0.46
1:I:342:ASN:ND2	1:I:345:ASN:HA	2.30	0.46
1:I:159:LYS:HB2	1:I:166:LEU:HB2	1.98	0.46
1:J:179:HIS:HA	1:J:185:THR:HA	1.96	0.46
1:E:366:PHE:HE2	1:E:393:ALA:HB2	1.81	0.46
1:F:255:CYS:HB3	1:F:259:CYS:SG	2.56	0.46
1:G:308:HIS:HB3	1:H:163:ARG:NH1	2.31	0.46
1:H:354:TRP:CZ2	1:H:423:PRO:HD3	2.51	0.46
1:B:128:PHE:CE2	1:B:132:ALA:HB2	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:265:ARG:HB2	1:F:373:ALA:HB3	1.97	0.46
1:K:122:GLN:HB3	1:K:175:PHE:O	2.16	0.46
1:F:126:ARG:HH12	1:F:204:ASP:CG	2.19	0.46
1:H:99:PHE:CE1	1:H:188:ILE:HG23	2.51	0.46
1:H:99:PHE:HB3	1:H:104:VAL:HG21	1.97	0.46
1:I:207:PHE:CE2	1:I:279:PHE:HA	2.51	0.46
1:A:283:LEU:HD22	1:A:303:ILE:HG23	1.98	0.46
1:F:126:ARG:NH1	1:F:126:ARG:HB3	2.31	0.46
1:H:455:LEU:HD22	1:H:478:ILE:HD13	1.98	0.46
1:L:260:SER:O	1:L:262:ILE:HD12	2.15	0.46
1:A:501:LYS:NZ	1:C:349:ASP:OD2	2.49	0.46
1:G:194:GLU:HG3	1:H:338:HIS:CD2	2.51	0.46
1:G:398:SER:HB3	1:G:465:THR:HG22	1.98	0.46
1:E:487:TRP:CD2	1:E:511:ILE:HG12	2.50	0.45
1:F:159:LYS:HB2	1:F:166:LEU:HB2	1.96	0.45
1:G:379:TRP:CE3	1:G:412:LEU:HD22	2.51	0.45
1:I:122:GLN:HG2	1:I:176:LYS:HD3	1.97	0.45
1:B:415:GLU:O	1:B:481:ARG:NH1	2.49	0.45
1:D:145:LYS:HG3	1:D:225:LEU:HD22	1.98	0.45
1:G:194:GLU:HG2	1:G:195:SER:N	2.30	0.45
1:A:145:LYS:HG3	1:A:225:LEU:HD22	1.99	0.45
1:F:398:SER:HB3	1:F:465:THR:HG22	1.98	0.45
1:H:226:SER:HB3	1:H:289:MET:HE2	1.97	0.45
1:I:128:PHE:CE2	1:I:132:ALA:HB2	2.52	0.45
1:A:379:TRP:CE3	1:A:412:LEU:HD22	2.51	0.45
1:E:411:GLU:N	1:E:411:GLU:OE1	2.50	0.45
1:F:203:VAL:HG23	1:F:259:CYS:HB2	1.97	0.45
1:K:206:GLY:O	1:K:210:ILE:HD12	2.17	0.45
1:B:229:PRO:HG2	1:B:230:GLU:OE2	2.16	0.45
1:C:487:TRP:CD2	1:C:511:ILE:HG12	2.51	0.45
1:F:379:TRP:CE3	1:F:412:LEU:HD22	2.50	0.45
1:H:255:CYS:HB3	1:H:259:CYS:SG	2.57	0.45
1:I:108:ALA:HB3	1:I:120:TYR:O	2.16	0.45
1:J:128:PHE:CE2	1:J:132:ALA:HB2	2.52	0.45
1:L:273:ILE:HG12	1:L:368:GLY:HA2	1.99	0.45
1:F:415:GLU:O	1:F:481:ARG:NH1	2.50	0.45
1:G:128:PHE:CE2	1:G:132:ALA:HB2	2.52	0.45
1:J:482:LEU:HD23	1:J:482:LEU:HA	1.82	0.45
1:D:283:LEU:HD22	1:D:303:ILE:HG23	1.99	0.45
1:D:417:PRO:HA	1:D:418:LEU:HA	1.63	0.45
1:F:283:LEU:HD22	1:F:303:ILE:HG23	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:443:TRP:CD1	1:G:494:LYS:HG2	2.52	0.45
1:H:104:VAL:O	1:H:147:PHE:HB2	2.17	0.45
1:L:366:PHE:HE2	1:L:393:ALA:HB2	1.81	0.45
1:A:217:THR:HG21	1:A:226:SER:CB	2.47	0.45
1:G:468:PRO:O	1:G:472:ARG:HG3	2.17	0.45
1:I:171:MET:HG3	1:I:206:GLY:HA2	1.97	0.45
1:J:160:ARG:HD3	1:J:165:LYS:HG3	1.98	0.45
1:A:487:TRP:CD2	1:A:511:ILE:HG12	2.52	0.45
1:E:417:PRO:HD2	1:E:478:ILE:HG13	1.99	0.45
1:F:482:LEU:HA	1:F:482:LEU:HD23	1.80	0.45
1:H:482:LEU:HD23	1:H:482:LEU:HA	1.83	0.45
1:I:207:PHE:HE2	1:I:279:PHE:CD1	2.35	0.45
1:D:132:ALA:HB3	1:D:212:LEU:HD11	1.99	0.44
1:D:420:ILE:HB	1:D:451:TRP:CD1	2.51	0.44
1:K:152:LEU:HD11	1:K:230:GLU:O	2.17	0.44
1:A:260:SER:OG	1:A:261:MET:N	2.49	0.44
1:B:177:VAL:HG22	1:B:188:ILE:HG22	1.99	0.44
1:F:128:PHE:CE2	1:F:132:ALA:HB2	2.52	0.44
1:K:255:CYS:SG	1:K:275:ILE:HG21	2.56	0.44
1:K:293:ASP:O	1:K:294:GLY:C	2.55	0.44
1:A:315:ARG:HH21	1:A:394:THR:HG22	1.83	0.44
1:A:482:LEU:HD23	1:A:482:LEU:HA	1.78	0.44
1:B:255:CYS:HB3	1:B:259:CYS:SG	2.57	0.44
1:C:157:TRP:HH2	1:C:188:ILE:HB	1.82	0.44
1:C:469:GLN:NE2	1:G:406:GLU:OE2	2.50	0.44
1:I:162:ASP:HB3	1:J:312:PHE:CE2	2.52	0.44
1:J:178:LEU:HB3	1:J:187:ASN:HB2	1.99	0.44
1:J:487:TRP:CD2	1:J:511:ILE:HG12	2.53	0.44
1:C:102:GLN:HB3	1:C:146:HIS:CD2	2.47	0.44
1:K:379:TRP:CE3	1:K:412:LEU:HD22	2.53	0.44
1:L:398:SER:HB3	1:L:465:THR:HG22	1.99	0.44
1:C:352:PRO:HB2	1:C:354:TRP:CD1	2.52	0.44
1:J:258:GLY:HA2	1:J:262:ILE:O	2.18	0.44
1:J:416:MET:HE2	1:J:491:TYR:CD1	2.52	0.44
1:G:82:HIS:CD2	1:G:514:TYR:OH	2.71	0.44
1:C:482:LEU:CD2	1:C:487:TRP:HA	2.47	0.44
1:F:82:HIS:HD2	1:F:479:GLU:CD	2.20	0.44
1:G:152:LEU:HD11	1:G:230:GLU:O	2.17	0.44
1:J:342:ASN:ND2	1:J:345:ASN:HA	2.33	0.44
1:K:398:SER:HB3	1:K:465:THR:HG22	2.00	0.44
1:K:482:LEU:HD23	1:K:482:LEU:HA	1.79	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:271:TYR:HD2	1:L:370:VAL:O	2.01	0.44
1:C:367:VAL:HG13	1:C:376:ASP:O	2.17	0.44
1:H:379:TRP:CE3	1:H:412:LEU:HD22	2.53	0.44
1:C:85:MET:SD	1:C:518:LYS:HD3	2.58	0.44
1:D:290:LEU:HD23	1:D:300:ILE:HG13	1.99	0.44
1:A:251:PRO:HB2	1:A:310:LEU:HD12	1.98	0.43
1:A:409:TRP:HZ3	1:A:470:ILE:HG23	1.83	0.43
1:C:99:PHE:CD2	1:C:177:VAL:HG13	2.53	0.43
1:F:273:ILE:HD11	1:F:380:PHE:HB2	2.00	0.43
1:F:366:PHE:HE2	1:F:393:ALA:HB2	1.83	0.43
1:L:145:LYS:HG3	1:L:225:LEU:HD22	2.00	0.43
1:A:128:PHE:CE2	1:A:132:ALA:HB2	2.52	0.43
1:I:229:PRO:HG2	1:I:230:GLU:OE2	2.18	0.43
1:I:370:VAL:HG22	1:I:375:MET:HG3	2.01	0.43
1:I:418:LEU:HD23	1:I:419:LYS:N	2.33	0.43
1:J:398:SER:HB3	1:J:465:THR:HG22	2.00	0.43
1:L:152:LEU:CD1	1:L:231:CYS:HA	2.48	0.43
1:B:160:ARG:HG2	1:B:165:LYS:HG3	2.00	0.43
1:B:320:LEU:HB2	1:B:367:VAL:HG23	1.99	0.43
1:D:455:LEU:HD22	1:D:478:ILE:HD12	2.01	0.43
1:D:411:GLU:OE1	1:D:411:GLU:N	2.51	0.43
1:H:342:ASN:ND2	1:H:345:ASN:HA	2.33	0.43
1:K:418:LEU:HD23	1:K:419:LYS:N	2.34	0.43
1:L:273:ILE:HD11	1:L:380:PHE:HB2	2.01	0.43
1:L:335:GLU:HB3	1:L:340:ALA:HB1	1.99	0.43
1:F:453:VAL:HG21	1:F:509:TRP:CD2	2.53	0.43
1:B:482:LEU:HD23	1:B:482:LEU:HA	1.76	0.43
1:C:379:TRP:CE3	1:C:412:LEU:HD22	2.54	0.43
1:G:482:LEU:HD23	1:G:482:LEU:HA	1.80	0.43
1:C:97:VAL:HG22	1:C:107:LEU:HG	2.01	0.43
1:L:342:ASN:ND2	1:L:345:ASN:HA	2.34	0.43
1:E:103:PRO:HB2	1:E:143:ILE:HD13	1.99	0.43
1:E:171:MET:HG3	1:E:206:GLY:HA2	2.01	0.43
1:F:342:ASN:ND2	1:F:345:ASN:HA	2.34	0.43
1:G:342:ASN:ND2	1:G:345:ASN:HA	2.34	0.43
1:H:468:PRO:HB2	1:H:472:ARG:NH1	2.34	0.43
1:I:379:TRP:O	1:I:421:CYS:HA	2.19	0.43
1:K:336:TYR:CE1	1:L:196:ALA:HA	2.53	0.43
1:B:136:LEU:HD23	1:B:141:PRO:HB3	2.01	0.43
1:J:132:ALA:HB3	1:J:212:LEU:HD11	2.01	0.43
1:L:128:PHE:CE2	1:L:132:ALA:HB2	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:132:ALA:HB3	1:L:212:LEU:HD11	2.01	0.43
1:A:164:PHE:HB2	1:B:251:PRO:HG3	2.00	0.43
1:F:443:TRP:HE1	1:F:494:LYS:HE3	1.82	0.43
1:D:180:ASP:H	1:D:185:THR:HB	1.83	0.42
1:E:284:ARG:HH21	1:E:532:LEU:HB3	1.82	0.42
1:J:104:VAL:O	1:J:147:PHE:HB2	2.19	0.42
1:K:128:PHE:CE2	1:K:132:ALA:HB2	2.54	0.42
1:A:136:LEU:HD23	1:A:141:PRO:HB3	2.01	0.42
1:A:209:TRP:HE3	1:A:210:ILE:HG13	1.84	0.42
1:B:417:PRO:HA	1:B:418:LEU:HA	1.59	0.42
1:E:122:GLN:HG3	1:E:124:PHE:CE1	2.54	0.42
1:E:260:SER:O	1:E:262:ILE:N	2.52	0.42
1:K:367:VAL:HG13	1:K:376:ASP:O	2.19	0.42
1:C:203:VAL:HG12	1:C:207:PHE:HE2	1.83	0.42
1:D:450:SER:HB2	1:D:491:TYR:HB2	2.00	0.42
1:F:217:THR:HG21	1:F:226:SER:HB3	2.02	0.42
1:G:177:VAL:HG12	1:G:188:ILE:HG22	2.01	0.42
1:G:417:PRO:HA	1:G:418:LEU:HA	1.63	0.42
1:K:409:TRP:HZ3	1:K:470:ILE:HG23	1.83	0.42
1:A:366:PHE:HE2	1:A:393:ALA:HB2	1.83	0.42
1:G:487:TRP:CD2	1:G:511:ILE:HG12	2.54	0.42
1:A:195:SER:HG	1:B:338:HIS:CD2	2.37	0.42
1:C:195:SER:HG	1:D:338:HIS:CE1	2.38	0.42
1:C:432:ILE:HD12	1:D:432:ILE:HD12	2.01	0.42
1:D:255:CYS:SG	1:D:275:ILE:HG21	2.59	0.42
1:E:188:ILE:O	1:E:188:ILE:HD12	2.19	0.42
1:E:379:TRP:CE3	1:E:412:LEU:HD22	2.55	0.42
1:F:478:ILE:HG23	1:F:482:LEU:HD12	2.00	0.42
1:G:499:VAL:HG23	1:J:326:ASN:OD1	2.20	0.42
1:I:398:SER:HB3	1:I:465:THR:HG22	2.01	0.42
1:I:487:TRP:CD2	1:I:511:ILE:HG12	2.55	0.42
1:J:411:GLU:N	1:J:411:GLU:OE1	2.52	0.42
1:J:417:PRO:HA	1:J:418:LEU:HA	1.64	0.42
1:J:453:VAL:HG21	1:J:509:TRP:CD2	2.54	0.42
1:A:284:ARG:NH1	1:A:391:SER:HB2	2.35	0.42
1:B:487:TRP:CD2	1:B:511:ILE:HG12	2.54	0.42
1:E:226:SER:HB3	1:E:289:MET:HE2	2.02	0.42
1:E:291:LYS:O	1:E:296:GLY:HA3	2.19	0.42
1:E:515:LEU:O	1:E:519:MET:HG3	2.18	0.42
1:G:297:ARG:O	1:G:301:GLU:HG3	2.20	0.42
1:I:207:PHE:N	1:I:207:PHE:CD1	2.87	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:415:GLU:C	1:L:477:LEU:HD21	2.40	0.42
1:E:417:PRO:HA	1:E:418:LEU:HA	1.60	0.42
1:H:229:PRO:HB2	1:H:233:LYS:HE3	2.02	0.42
1:K:162:ASP:O	1:K:163:ARG:HG3	2.20	0.42
1:K:432:ILE:HD13	1:L:429:GLU:HA	2.02	0.42
1:A:420:ILE:HB	1:A:451:TRP:CD1	2.55	0.42
1:B:132:ALA:HB3	1:B:212:LEU:HD11	2.01	0.42
1:B:394:THR:OG1	1:B:395:PRO:HD2	2.20	0.42
1:B:398:SER:HB3	1:B:465:THR:HG22	2.00	0.42
1:J:226:SER:CB	1:J:289:MET:HE2	2.49	0.42
1:A:132:ALA:HB3	1:A:212:LEU:HD11	2.00	0.42
1:A:429:GLU:HA	1:B:432:ILE:HD13	2.02	0.42
1:B:478:ILE:HG23	1:B:482:LEU:HD12	2.01	0.42
1:D:260:SER:OG	1:D:261:MET:N	2.51	0.42
1:D:487:TRP:HB2	1:D:506:TYR:HA	2.01	0.42
1:E:398:SER:HB3	1:E:465:THR:HG22	2.02	0.42
1:F:132:ALA:HB3	1:F:212:LEU:HD11	2.01	0.42
1:F:409:TRP:CZ2	1:F:413:VAL:HG11	2.54	0.42
1:G:136:LEU:HD23	1:G:141:PRO:HB3	2.02	0.42
1:K:188:ILE:H	1:K:188:ILE:HG13	1.64	0.42
1:K:226:SER:HB3	1:K:289:MET:HE2	2.01	0.42
1:B:418:LEU:CD1	1:B:458:LEU:HD12	2.50	0.42
1:H:262:ILE:HD12	1:H:446:HIS:HB3	2.02	0.42
1:H:420:ILE:HB	1:H:451:TRP:CD1	2.55	0.42
1:J:283:LEU:HD22	1:J:303:ILE:HG23	2.00	0.42
1:B:188:ILE:CD1	1:B:188:ILE:C	2.88	0.41
1:F:168:GLU:HG2	1:F:237:LEU:CD2	2.44	0.41
1:F:455:LEU:HD22	1:F:478:ILE:CD1	2.49	0.41
1:H:122:GLN:HG2	1:H:176:LYS:HB3	2.02	0.41
1:H:132:ALA:HB3	1:H:212:LEU:HD11	2.02	0.41
1:K:258:GLY:HA2	1:K:262:ILE:O	2.20	0.41
1:E:136:LEU:HG	1:E:144:VAL:HG21	2.01	0.41
1:G:255:CYS:SG	1:G:275:ILE:HG21	2.59	0.41
1:G:443:TRP:HE1	1:G:494:LYS:HE2	1.83	0.41
1:A:188:ILE:HD12	1:A:188:ILE:O	2.20	0.41
1:B:420:ILE:HB	1:B:451:TRP:CD1	2.55	0.41
1:C:411:GLU:N	1:C:411:GLU:OE1	2.53	0.41
1:F:148:LEU:HD13	1:F:213:LEU:HD12	2.01	0.41
1:L:171:MET:HG3	1:L:206:GLY:HA2	2.02	0.41
1:B:378:ARG:HG2	1:B:423:PRO:HD2	2.01	0.41
1:D:159:LYS:NZ	1:D:168:GLU:O	2.51	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:379:TRP:CE3	1:B:412:LEU:HD22	2.55	0.41
1:D:128:PHE:CE2	1:D:132:ALA:HB2	2.55	0.41
1:F:104:VAL:O	1:F:147:PHE:HB2	2.20	0.41
1:G:206:GLY:O	1:G:210:ILE:HD12	2.20	0.41
1:G:444:SER:OG	1:G:445:TYR:N	2.52	0.41
1:G:478:ILE:C	1:G:480:SER:H	2.24	0.41
1:H:255:CYS:SG	1:H:275:ILE:HG21	2.60	0.41
1:I:257:ASP:OD1	1:I:265:ARG:HA	2.21	0.41
1:J:122:GLN:HG2	1:J:176:LYS:HD3	2.03	0.41
1:A:83:PRO:HB2	1:A:84:MET:SD	2.60	0.41
1:A:163:ARG:HD2	1:B:312:PHE:CB	2.51	0.41
1:B:453:VAL:HG21	1:B:509:TRP:CE3	2.55	0.41
1:D:453:VAL:HG21	1:D:509:TRP:CD2	2.56	0.41
1:E:255:CYS:SG	1:E:275:ILE:HG21	2.60	0.41
1:I:99:PHE:CE2	1:I:150:LYS:HE3	2.55	0.41
1:K:217:THR:HG21	1:K:226:SER:HB3	2.03	0.41
1:A:258:GLY:HA2	1:A:262:ILE:O	2.20	0.41
1:B:104:VAL:O	1:B:147:PHE:HB2	2.21	0.41
1:E:418:LEU:HD23	1:E:419:LYS:N	2.35	0.41
1:G:150:LYS:HD2	1:G:150:LYS:HA	1.81	0.41
1:G:503:ALA:HB3	1:J:330:ARG:HH12	1.86	0.41
1:H:320:LEU:HB2	1:H:367:VAL:HG23	2.02	0.41
1:B:124:PHE:CD2	1:B:174:SER:HB3	2.55	0.41
1:B:260:SER:C	1:B:262:ILE:N	2.73	0.41
1:F:420:ILE:HB	1:F:451:TRP:CD1	2.56	0.41
1:H:418:LEU:HD23	1:H:419:LYS:N	2.35	0.41
1:K:251:PRO:HG3	1:L:164:PHE:HB2	2.02	0.41
1:K:420:ILE:HB	1:K:451:TRP:CD1	2.56	0.41
1:A:209:TRP:CE3	1:A:210:ILE:HG13	2.56	0.41
1:B:342:ASN:ND2	1:B:345:ASN:HA	2.36	0.41
1:C:398:SER:HB3	1:C:465:THR:HG22	2.02	0.41
1:E:132:ALA:HB3	1:E:212:LEU:HD11	2.03	0.41
1:F:367:VAL:HG13	1:F:376:ASP:O	2.21	0.41
1:I:417:PRO:HA	1:I:418:LEU:HA	1.68	0.41
1:L:159:LYS:HE2	1:L:192:PHE:CE2	2.56	0.41
1:D:99:PHE:HB3	1:D:104:VAL:CG2	2.51	0.41
1:E:226:SER:CB	1:E:289:MET:HE2	2.51	0.41
1:E:260:SER:C	1:E:262:ILE:N	2.74	0.41
1:L:320:LEU:HB2	1:L:367:VAL:HG23	2.02	0.41
1:C:281:MET:HB2	1:C:390:SER:HB3	2.03	0.40
1:D:99:PHE:HB3	1:D:104:VAL:HG21	2.02	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:298:GLU:H	1:D:298:GLU:HG2	1.72	0.40
1:E:85:MET:HG2	1:E:514:TYR:HE2	1.85	0.40
1:I:160:ARG:HG3	1:I:165:LYS:HG3	2.03	0.40
1:I:406:GLU:OE2	1:I:470:ILE:HD11	2.21	0.40
1:I:468:PRO:HB2	1:I:472:ARG:NH1	2.36	0.40
1:A:422:TYR:HA	1:A:423:PRO:HA	1.90	0.40
1:E:104:VAL:O	1:E:147:PHE:HB2	2.21	0.40
1:G:444:SER:O	1:G:449:GLY:N	2.55	0.40
1:G:455:LEU:HD22	1:G:478:ILE:CD1	2.51	0.40
1:K:299:VAL:HG22	1:K:302:ARG:HH21	1.86	0.40
1:E:478:ILE:HG23	1:E:482:LEU:HD12	2.03	0.40
1:H:411:GLU:OE1	1:H:411:GLU:N	2.54	0.40
1:J:206:GLY:O	1:J:210:ILE:HD12	2.21	0.40
1:J:420:ILE:HB	1:J:451:TRP:CD1	2.56	0.40
1:L:420:ILE:HB	1:L:451:TRP:CD1	2.56	0.40
1:C:160:ARG:HD3	1:C:165:LYS:HE2	2.04	0.40
1:D:398:SER:HB3	1:D:465:THR:HG22	2.03	0.40
1:E:128:PHE:CE2	1:E:132:ALA:HB2	2.55	0.40
1:E:409:TRP:HZ3	1:E:470:ILE:HG23	1.86	0.40
1:G:478:ILE:HG23	1:G:482:LEU:HD12	2.03	0.40
1:C:103:PRO:HB2	1:C:143:ILE:HD13	2.04	0.40
1:G:273:ILE:HG12	1:G:368:GLY:HA2	2.04	0.40
1:H:128:PHE:CE2	1:H:132:ALA:HB2	2.56	0.40
1:K:336:TYR:HD1	1:L:197:ILE:HG13	1.86	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	426/551 (77%)	406 (95%)	18 (4%)	2 (0%)	29 61

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	432/551 (78%)	408 (94%)	21 (5%)	3 (1%)	22	55
1	C	435/551 (79%)	412 (95%)	21 (5%)	2 (0%)	29	61
1	D	434/551 (79%)	413 (95%)	20 (5%)	1 (0%)	47	78
1	E	432/551 (78%)	407 (94%)	23 (5%)	2 (0%)	29	61
1	F	435/551 (79%)	408 (94%)	25 (6%)	2 (0%)	29	61
1	G	434/551 (79%)	407 (94%)	25 (6%)	2 (0%)	29	61
1	H	433/551 (79%)	411 (95%)	20 (5%)	2 (0%)	29	61
1	I	428/551 (78%)	406 (95%)	20 (5%)	2 (0%)	29	61
1	J	434/551 (79%)	409 (94%)	24 (6%)	1 (0%)	47	78
1	K	433/551 (79%)	411 (95%)	19 (4%)	3 (1%)	22	55
1	L	431/551 (78%)	407 (94%)	23 (5%)	1 (0%)	47	78
All	All	5187/6612 (78%)	4905 (95%)	259 (5%)	23 (0%)	34	67

All (23) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	E	261	MET
1	H	261	MET
1	A	261	MET
1	B	163	ARG
1	B	185	THR
1	C	163	ARG
1	G	163	ARG
1	K	163	ARG
1	K	261	MET
1	A	163	ARG
1	B	445	TYR
1	C	261	MET
1	D	163	ARG
1	E	163	ARG
1	F	163	ARG
1	F	261	MET
1	H	163	ARG
1	I	163	ARG
1	L	163	ARG
1	G	445	TYR
1	I	445	TYR
1	J	261	MET

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Mol	Chain	Res	Type
1	K	445	TYR

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	363/477 (76%)	352 (97%)	11 (3%)	41 68
1	B	369/477 (77%)	361 (98%)	8 (2%)	52 75
1	C	373/477 (78%)	361 (97%)	12 (3%)	39 67
1	D	373/477 (78%)	363 (97%)	10 (3%)	44 70
1	E	371/477 (78%)	363 (98%)	8 (2%)	52 75
1	F	375/477 (79%)	365 (97%)	10 (3%)	44 70
1	G	374/477 (78%)	362 (97%)	12 (3%)	39 67
1	H	373/477 (78%)	361 (97%)	12 (3%)	39 67
1	I	366/477 (77%)	351 (96%)	15 (4%)	30 59
1	J	374/477 (78%)	360 (96%)	14 (4%)	34 62
1	K	373/477 (78%)	360 (96%)	13 (4%)	36 65
1	L	370/477 (78%)	359 (97%)	11 (3%)	41 68
All	All	4454/5724 (78%)	4318 (97%)	136 (3%)	40 68

All (136) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	89	TRP
1	A	127	ASP
1	A	158	GLU
1	A	248	ASP
1	A	257	ASP
1	A	289	MET
1	A	312	PHE
1	A	396	ASP
1	A	419	LYS

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Mol	Chain	Res	Type
1	A	482	LEU
1	A	509	TRP
1	B	89	TRP
1	B	127	ASP
1	B	158	GLU
1	B	187	ASN
1	B	261	MET
1	B	326	ASN
1	B	418	LEU
1	B	509	TRP
1	C	84	MET
1	C	89	TRP
1	C	127	ASP
1	C	145	LYS
1	C	158	GLU
1	C	184	GLU
1	C	326	ASN
1	C	338	HIS
1	C	396	ASP
1	C	416	MET
1	C	419	LYS
1	C	509	TRP
1	D	89	TRP
1	D	127	ASP
1	D	158	GLU
1	D	180	ASP
1	D	248	ASP
1	D	257	ASP
1	D	326	ASN
1	D	396	ASP
1	D	481	ARG
1	D	509	TRP
1	E	89	TRP
1	E	121	ASP
1	E	126	ARG
1	E	158	GLU
1	E	326	ASN
1	E	396	ASP
1	E	419	LYS
1	E	509	TRP
1	F	82	HIS
1	F	89	TRP

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Mol	Chain	Res	Type
1	F	102	GLN
1	F	126	ARG
1	F	127	ASP
1	F	158	GLU
1	F	180	ASP
1	F	326	ASN
1	F	396	ASP
1	F	509	TRP
1	G	89	TRP
1	G	127	ASP
1	G	158	GLU
1	G	248	ASP
1	G	326	ASN
1	G	396	ASP
1	G	403	ASP
1	G	416	MET
1	G	418	LEU
1	G	419	LYS
1	G	442	ARG
1	G	509	TRP
1	H	89	TRP
1	H	100	ARG
1	H	127	ASP
1	H	145	LYS
1	H	158	GLU
1	H	176	LYS
1	H	326	ASN
1	H	396	ASP
1	H	416	MET
1	H	419	LYS
1	H	479	GLU
1	H	509	TRP
1	I	89	TRP
1	I	99	PHE
1	I	127	ASP
1	I	142	ASP
1	I	158	GLU
1	I	160	ARG
1	I	195	SER
1	I	248	ASP
1	I	257	ASP
1	I	326	ASN

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Mol	Chain	Res	Type
1	I	359	MET
1	I	396	ASP
1	I	416	MET
1	I	481	ARG
1	I	509	TRP
1	J	84	MET
1	J	89	TRP
1	J	121	ASP
1	J	127	ASP
1	J	158	GLU
1	J	159	LYS
1	J	160	ARG
1	J	248	ASP
1	J	253	LEU
1	J	326	ASN
1	J	396	ASP
1	J	419	LYS
1	J	482	LEU
1	J	509	TRP
1	K	89	TRP
1	K	127	ASP
1	K	145	LYS
1	K	158	GLU
1	K	168	GLU
1	K	187	ASN
1	K	248	ASP
1	K	326	ASN
1	K	396	ASP
1	K	416	MET
1	K	419	LYS
1	K	482	LEU
1	K	509	TRP
1	L	127	ASP
1	L	158	GLU
1	L	165	LYS
1	L	168	GLU
1	L	257	ASP
1	L	326	ASN
1	L	396	ASP
1	L	416	MET
1	L	482	LEU
1	L	483	HIS

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Mol	Chain	Res	Type
1	L	509	TRP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	326	ASN
1	B	428	HIS
1	C	146	HIS
1	F	338	HIS
1	F	446	HIS
1	G	446	HIS
1	H	338	HIS
1	K	102	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	434/551 (78%)	0.24	21 (4%) 30 31	40, 58, 80, 107	0
1	B	438/551 (79%)	-0.04	2 (0%) 91 90	37, 53, 75, 98	0
1	C	441/551 (80%)	0.10	13 (2%) 51 50	39, 56, 81, 102	0
1	D	440/551 (79%)	0.05	7 (1%) 72 70	37, 53, 74, 99	0
1	E	438/551 (79%)	0.14	9 (2%) 63 62	37, 57, 78, 99	0
1	F	441/551 (80%)	0.10	12 (2%) 54 53	37, 53, 78, 95	0
1	G	440/551 (79%)	0.20	16 (3%) 42 42	43, 58, 83, 99	0
1	H	439/551 (79%)	0.29	17 (3%) 39 38	40, 60, 86, 111	0
1	I	434/551 (78%)	0.30	14 (3%) 47 46	39, 58, 82, 101	0
1	J	440/551 (79%)	0.42	14 (3%) 47 46	44, 61, 85, 99	0
1	K	439/551 (79%)	0.40	17 (3%) 39 38	38, 62, 87, 106	0
1	L	437/551 (79%)	0.44	19 (4%) 35 35	43, 67, 92, 103	0
All	All	5261/6612 (79%)	0.22	161 (3%) 49 48	37, 58, 84, 111	0

All (161) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	111	ASP	5.9
1	A	338	HIS	5.6
1	L	105	GLY	5.0
1	J	120	TYR	4.9
1	L	121	ASP	4.8
1	L	120	TYR	4.6
1	J	121	ASP	4.4
1	C	178	LEU	4.3
1	L	295	ASP	4.1
1	H	295	ASP	4.1
1	K	187	ASN	4.1

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Mol	Chain	Res	Type	RSRZ
1	K	120	TYR	4.1
1	G	111	ASP	4.0
1	I	111	ASP	3.9
1	G	121	ASP	3.9
1	C	110	VAL	3.8
1	C	120	TYR	3.8
1	A	121	ASP	3.7
1	J	255	CYS	3.7
1	G	178	LEU	3.7
1	F	121	ASP	3.6
1	G	120	TYR	3.6
1	H	294	GLY	3.6
1	H	137	MET	3.6
1	B	111	ASP	3.5
1	H	84	MET	3.5
1	I	522	GLU	3.4
1	I	120	TYR	3.4
1	H	120	TYR	3.3
1	E	142	ASP	3.3
1	K	255	CYS	3.3
1	A	140	GLU	3.2
1	L	111	ASP	3.2
1	H	121	ASP	3.2
1	J	527	ILE	3.2
1	A	334	GLU	3.2
1	F	179	HIS	3.1
1	L	255	CYS	3.1
1	K	104	VAL	3.1
1	H	222	ASP	3.1
1	L	291	LYS	3.1
1	A	138	ASN	3.1
1	J	270	GLY	3.1
1	A	110	VAL	3.1
1	E	121	ASP	3.1
1	J	295	ASP	3.1
1	F	100	ARG	3.1
1	A	101	GLY	3.0
1	C	121	ASP	3.0
1	F	120	TYR	3.0
1	K	522	GLU	3.0
1	H	179	HIS	2.9
1	C	191	ASP	2.9

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Mol	Chain	Res	Type	RSRZ
1	J	92	LEU	2.9
1	C	111	ASP	2.9
1	K	188	ILE	2.9
1	K	99	PHE	2.9
1	D	100	ARG	2.9
1	A	188	ILE	2.8
1	A	187	ASN	2.8
1	J	110	VAL	2.8
1	E	110	VAL	2.8
1	E	338	HIS	2.8
1	E	186	ASP	2.8
1	G	506	TYR	2.8
1	G	338	HIS	2.7
1	J	522	GLU	2.7
1	I	294	GLY	2.7
1	F	101	GLY	2.7
1	G	110	VAL	2.7
1	I	255	CYS	2.7
1	A	231	CYS	2.7
1	K	185	THR	2.7
1	D	186	ASP	2.7
1	L	257	ASP	2.7
1	A	83	PRO	2.7
1	I	104	VAL	2.7
1	G	179	HIS	2.6
1	L	179	HIS	2.6
1	A	135	PHE	2.6
1	D	336	TYR	2.6
1	G	97	VAL	2.6
1	L	187	ASN	2.6
1	I	270	GLY	2.6
1	G	122	GLN	2.6
1	H	111	ASP	2.5
1	K	121	ASP	2.5
1	H	138	ASN	2.5
1	J	471	ALA	2.5
1	I	295	ASP	2.5
1	L	104	VAL	2.5
1	A	111	ASP	2.5
1	H	485	ASP	2.5
1	K	295	ASP	2.5
1	F	110	VAL	2.5

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Mol	Chain	Res	Type	RSRZ
1	L	293	ASP	2.5
1	E	111	ASP	2.5
1	H	82	HIS	2.4
1	A	89	TRP	2.4
1	K	142	ASP	2.4
1	L	527	ILE	2.4
1	H	99	PHE	2.4
1	K	459	THR	2.4
1	L	522	GLU	2.4
1	C	122	GLN	2.4
1	I	462	CYS	2.4
1	C	187	ASN	2.4
1	J	179	HIS	2.4
1	C	188	ILE	2.4
1	A	100	ARG	2.3
1	I	465	THR	2.3
1	L	145	LYS	2.3
1	G	109	ALA	2.3
1	J	111	ASP	2.3
1	K	102	GLN	2.3
1	C	99	PHE	2.3
1	E	141	PRO	2.3
1	K	111	ASP	2.2
1	G	484	ARG	2.2
1	L	99	PHE	2.2
1	A	333	THR	2.2
1	E	336	TYR	2.2
1	D	99	PHE	2.2
1	G	503	ALA	2.2
1	A	91	ALA	2.2
1	I	256	ALA	2.2
1	G	177	VAL	2.2
1	F	122	GLN	2.2
1	A	341	VAL	2.2
1	F	187	ASN	2.2
1	I	463	ILE	2.2
1	J	105	GLY	2.2
1	F	336	TYR	2.1
1	J	502	GLN	2.1
1	E	185	THR	2.1
1	B	110	VAL	2.1
1	I	293	ASP	2.1

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Mol	Chain	Res	Type	RSRZ
1	K	168	GLU	2.1
1	A	332	LYS	2.1
1	F	97	VAL	2.1
1	G	82	HIS	2.1
1	H	334	GLU	2.1
1	C	179	HIS	2.1
1	H	187	ASN	2.1
1	L	463	ILE	2.1
1	D	120	TYR	2.1
1	F	178	LEU	2.1
1	C	483	HIS	2.1
1	I	187	ASN	2.0
1	H	338	HIS	2.0
1	K	256	ALA	2.0
1	H	339	THR	2.0
1	C	109	ALA	2.0
1	L	178	LEU	2.0
1	A	105	GLY	2.0
1	D	334	GLU	2.0
1	D	522	GLU	2.0
1	A	336	TYR	2.0
1	K	270	GLY	2.0
1	L	292	PRO	2.0
1	G	339	THR	2.0

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.