



Full wwPDB X-ray Structure Validation Report ⓘ

Jul 9, 2018 – 05:27 PM EDT

PDB ID : 1D5F
Title : STRUCTURE OF E6AP: INSIGHTS INTO UBIQUITINATION PATHWAY
Authors : Huang, L.; Kinnucan, E.; Wang, G.; Beaudenon, S.; Howley, P.M.; Huibregtse, J.M.; Pavletich, N.P.
Deposited on : 1999-10-07
Resolution : 2.80 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	:	rb-20031172
Percentile statistics	:	20171227.v01 (using entries in the PDB archive December 27th 2017)
Refmac	:	5.8.0158
CCP4	:	7.0 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	rb-20031172

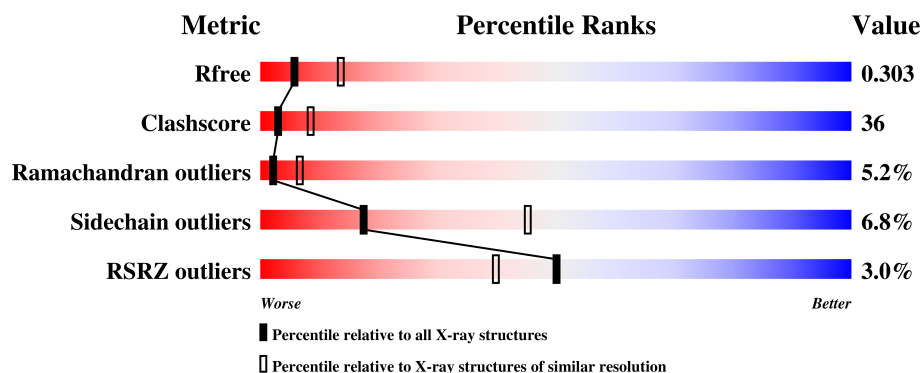
1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.80 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	111664	2792 (2.80-2.80)
Clashscore	122126	3209 (2.80-2.80)
Ramachandran outliers	120053	3158 (2.80-2.80)
Sidechain outliers	120020	3160 (2.80-2.80)
RSRZ outliers	108989	2726 (2.80-2.80)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. 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	358	<div> <div>%</div> <div> <div></div> <div>44%</div> <div>45%</div> <div>9%</div> <div>.</div> </div> </div>
1	B	358	<div> <div>4%</div> <div> <div></div> <div>44%</div> <div>44%</div> <div>9%</div> <div>..</div> </div> </div>
1	C	358	<div> <div>3%</div> <div> <div></div> <div>45%</div> <div>44%</div> <div>8%</div> <div>..</div> </div> </div>

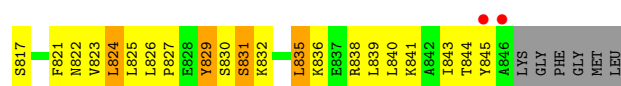
2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 8583 atoms, of which 0 are hydrogens and 0 are deuteriums.

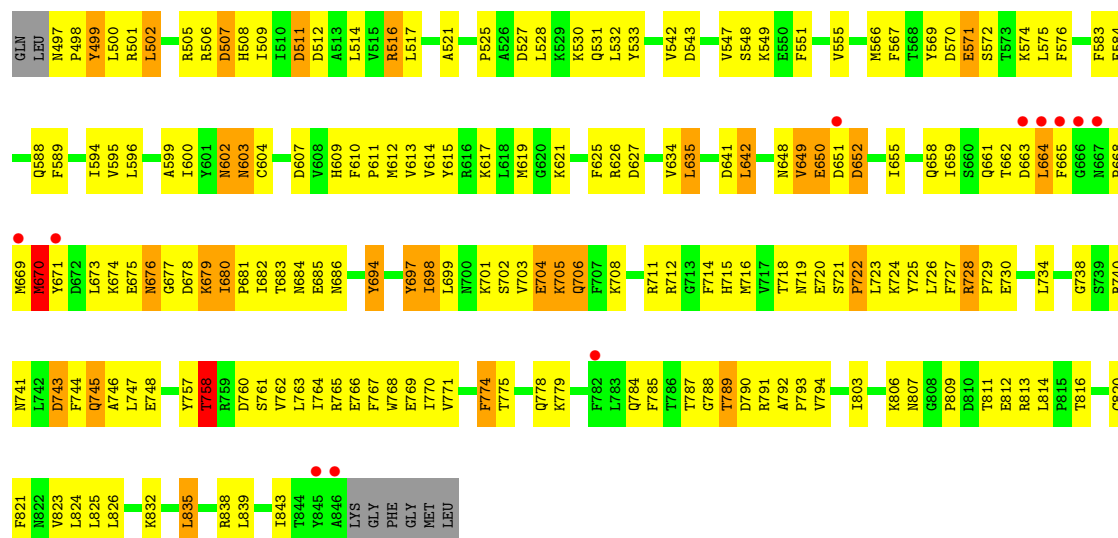
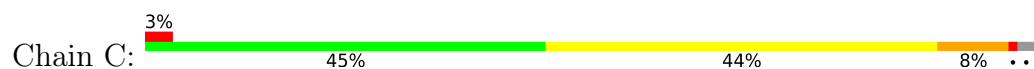
In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called E6AP HECT CATALYTIC DOMAIN, E3 LIGASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	350	Total	C	N	O	S	0	0	0
			2861	1839	467	541	14			
1	B	350	Total	C	N	O	S	0	0	0
			2861	1839	467	541	14			
1	C	350	Total	C	N	O	S	0	0	0
			2861	1839	467	541	14			



● Molecule 1: E6AP HECT CATALYTIC DOMAIN, E3 LIGASE



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	101.50Å 113.70Å 125.20Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	15.00 – 2.80 19.98 – 2.80	Depositor EDS
% Data completeness (in resolution range)	(Not available) (15.00-2.80) 97.7 (19.98-2.80)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.70 (at 2.79Å)	Xtriage
Refinement program	CNS	Depositor
R, R_{free}	0.230 , 0.283 0.245 , 0.303	Depositor DCC
R_{free} test set	1793 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å ²)	57.8	Xtriage
Anisotropy	0.064	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 41.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	8583	wwPDB-VP
Average B, all atoms (Å ²)	51.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.96% 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	0.43	0/2923	0.76	2/3943 (0.1%)
1	B	0.43	0/2923	0.76	3/3943 (0.1%)
1	C	0.43	0/2923	0.76	4/3943 (0.1%)
All	All	0.43	0/8769	0.76	9/11829 (0.1%)

There are no bond length outliers.

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	745	GLN	N-CA-C	-9.32	85.82	111.00
1	C	745	GLN	N-CA-C	-9.22	86.09	111.00
1	A	745	GLN	N-CA-C	-7.69	90.23	111.00
1	B	723	LEU	N-CA-C	-7.36	91.13	111.00
1	A	697	TYR	N-CA-C	-5.97	94.87	111.00
1	C	602	ASN	N-CA-C	-5.61	95.85	111.00
1	C	697	TYR	N-CA-C	-5.50	96.14	111.00
1	B	583	PHE	N-CA-C	5.45	125.72	111.00
1	C	502	LEU	CA-CB-CG	5.38	127.68	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	2861	0	2827	208	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	2861	0	2827	214	0
1	C	2861	0	2827	223	0
All	All	8583	0	8481	621	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 36.

All (621) 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:C:728:ARG:HH11	1:C:728:ARG:HB3	1.06	1.12
1:C:516:ARG:HH11	1:C:516:ARG:HB2	1.28	0.98
1:C:517:LEU:HD13	1:C:594:ILE:HG21	1.49	0.94
1:C:814:LEU:HD23	1:C:838:ARG:HD3	1.50	0.94
1:B:625:PHE:HE2	1:C:542:VAL:HG11	1.34	0.93
1:C:649:VAL:H	1:C:684:ASN:HD21	1.03	0.93
1:C:728:ARG:NH1	1:C:728:ARG:HB3	1.83	0.91
1:B:583:PHE:HD2	1:B:583:PHE:N	1.69	0.91
1:C:728:ARG:HH11	1:C:728:ARG:CB	1.84	0.89
1:C:649:VAL:HG23	1:C:684:ASN:ND2	1.87	0.89
1:C:516:ARG:NH1	1:C:516:ARG:HB2	1.86	0.89
1:C:603:ASN:HD21	1:C:794:VAL:HB	1.36	0.88
1:A:683:THR:H	1:A:686:ASN:ND2	1.70	0.88
1:B:742:LEU:HD11	1:B:780:ARG:NH1	1.89	0.88
1:C:704:GLU:HG2	1:C:705:LYS:H	1.40	0.87
1:A:583:PHE:CD1	1:A:584:GLU:HG2	2.11	0.85
1:B:660:SER:HA	1:B:670:MET:HE2	1.59	0.85
1:B:683:THR:HG23	1:B:686:ASN:ND2	1.91	0.84
1:C:506:ARG:O	1:C:507:ASP:HB2	1.77	0.83
1:C:634:VAL:HG13	1:C:635:LEU:H	1.43	0.83
1:A:720:GLU:O	1:A:722:PRO:HD2	1.79	0.83
1:C:697:TYR:O	1:C:698:ILE:HB	1.80	0.82
1:A:649:VAL:H	1:A:684:ASN:HD21	1.28	0.81
1:B:592:ILE:HD13	1:B:592:ILE:O	1.81	0.81
1:C:649:VAL:H	1:C:684:ASN:ND2	1.79	0.81
1:B:816:THR:HG23	1:B:825:LEU:HD12	1.63	0.80
1:A:840:LEU:O	1:A:844:THR:HG22	1.81	0.80
1:B:775:THR:OG1	1:B:778:GLN:HG3	1.81	0.80
1:C:728:ARG:NH1	1:C:729:PRO:HD2	1.96	0.80
1:A:723:LEU:HG	1:A:732:ILE:HD11	1.63	0.80
1:A:728:ARG:HH21	1:B:603:ASN:HA	1.45	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:532:LEU:H	1:C:602:ASN:HD21	1.31	0.78
1:B:649:VAL:O	1:B:650:GLU:HB2	1.82	0.78
1:A:723:LEU:HG	1:A:732:ILE:CD1	2.13	0.78
1:B:613:VAL:HG22	1:B:627:ASP:HB3	1.66	0.78
1:C:745:GLN:O	1:C:746:ALA:HB3	1.83	0.78
1:A:649:VAL:O	1:A:650:GLU:HB3	1.82	0.77
1:C:505:ARG:NH1	1:C:508:HIS:ND1	2.33	0.77
1:A:613:VAL:HG22	1:A:627:ASP:HB3	1.67	0.77
1:A:683:THR:H	1:A:686:ASN:HD22	1.32	0.77
1:B:625:PHE:CE2	1:C:542:VAL:HG11	2.19	0.77
1:B:745:GLN:O	1:B:746:ALA:HB3	1.85	0.76
1:C:771:VAL:O	1:C:774:PHE:HB2	1.84	0.76
1:A:748:GLU:HG3	1:A:768:TRP:CE2	2.20	0.76
1:C:789:THR:HG22	1:C:790:ASP:H	1.48	0.76
1:C:505:ARG:HG2	1:C:512:ASP:OD1	1.84	0.76
1:B:680:ILE:HG13	1:B:680:ILE:O	1.86	0.75
1:B:740:ARG:HD3	1:B:780:ARG:NH2	2.01	0.75
1:A:663:ASP:HB3	1:A:665:PHE:H	1.51	0.75
1:A:594:ILE:HG23	1:A:717:VAL:HG21	1.69	0.75
1:A:613:VAL:CG2	1:A:627:ASP:HB3	2.16	0.75
1:A:664:LEU:H	1:A:664:LEU:HD12	1.52	0.74
1:A:531:GLN:HE21	1:C:626:ARG:HD2	1.50	0.74
1:A:714:PHE:O	1:A:718:THR:HG22	1.88	0.74
1:A:745:GLN:O	1:A:746:ALA:HB3	1.86	0.74
1:B:653:MET:O	1:B:655:ILE:HG23	1.88	0.73
1:B:740:ARG:HD3	1:B:780:ARG:HH21	1.53	0.73
1:B:694:TYR:O	1:B:697:TYR:O	2.05	0.72
1:C:649:VAL:N	1:C:684:ASN:HD21	1.85	0.72
1:B:829:TYR:HD1	1:B:835:LEU:HA	1.55	0.72
1:C:615:TYR:O	1:C:619:MET:HG3	1.88	0.72
1:A:766:GLU:O	1:A:770:ILE:HG13	1.90	0.72
1:B:583:PHE:N	1:B:583:PHE:CD2	2.42	0.72
1:C:603:ASN:ND2	1:C:794:VAL:HB	2.04	0.72
1:B:505:ARG:HG2	1:B:512:ASP:OD1	1.90	0.72
1:C:661:GLN:HB2	1:C:669:MET:HB2	1.72	0.71
1:C:730:GLU:OE1	1:C:730:GLU:N	2.24	0.71
1:B:670:MET:H	1:B:670:MET:HE3	1.55	0.71
1:A:499:TYR:HA	1:A:531:GLN:O	1.91	0.70
1:B:744:PHE:HA	1:B:747:LEU:HB3	1.73	0.70
1:A:679:LYS:O	1:A:680:ILE:HG22	1.92	0.70
1:C:679:LYS:O	1:C:679:LYS:HE3	1.91	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:613:VAL:CG2	1:B:627:ASP:HB3	2.21	0.69
1:C:659:ILE:HD11	1:C:697:TYR:CD2	2.27	0.69
1:B:722:PRO:O	1:B:723:LEU:HB2	1.93	0.69
1:C:767:PHE:O	1:C:771:VAL:HG23	1.94	0.68
1:B:583:PHE:HD2	1:B:583:PHE:H	0.85	0.68
1:C:611:PRO:HD2	1:C:614:VAL:HG23	1.75	0.68
1:A:749:GLU:O	1:A:751:THR:N	2.27	0.68
1:C:738:GLY:O	1:C:791:ARG:HD3	1.94	0.68
1:B:742:LEU:HD11	1:B:780:ARG:HH12	1.56	0.68
1:B:780:ARG:O	1:B:784:GLN:HG3	1.94	0.67
1:B:613:VAL:O	1:B:617:LYS:HG3	1.94	0.67
1:B:770:ILE:HD13	1:B:836:LYS:HB2	1.74	0.67
1:C:729:PRO:HG2	1:C:730:GLU:OE1	1.94	0.67
1:B:663:ASP:O	1:B:665:PHE:N	2.28	0.67
1:B:829:TYR:CD1	1:B:835:LEU:HA	2.30	0.67
1:C:655:ILE:HG13	1:C:682:ILE:HD12	1.76	0.66
1:A:559:ILE:HG21	1:A:592:ILE:HD13	1.78	0.66
1:B:683:THR:H	1:B:686:ASN:HD22	1.42	0.66
1:C:634:VAL:HG13	1:C:635:LEU:N	2.10	0.66
1:B:649:VAL:H	1:B:684:ASN:HD21	1.42	0.66
1:B:740:ARG:CD	1:B:780:ARG:HH21	2.08	0.66
1:C:757:TYR:CE2	1:C:806:LYS:HA	2.30	0.66
1:A:683:THR:N	1:A:686:ASN:ND2	2.42	0.66
1:A:682:ILE:HA	1:A:686:ASN:HD22	1.61	0.66
1:C:663:ASP:O	1:C:665:PHE:N	2.30	0.65
1:C:655:ILE:CG1	1:C:682:ILE:HD12	2.27	0.65
1:A:813:ARG:HH11	1:A:813:ARG:HB3	1.62	0.65
1:B:711:ARG:HH11	1:B:711:ARG:HG2	1.61	0.65
1:C:787:THR:HG22	1:C:788:GLY:N	2.11	0.65
1:C:574:LYS:O	1:C:575:LEU:HD23	1.97	0.65
1:C:683:THR:C	1:C:685:GLU:H	1.99	0.65
1:A:771:VAL:O	1:A:774:PHE:HB2	1.97	0.64
1:A:531:GLN:NE2	1:C:626:ARG:HD2	2.12	0.64
1:A:697:TYR:O	1:A:698:ILE:HB	1.96	0.64
1:B:564:ILE:HG23	1:B:566:MET:HG3	1.79	0.64
1:C:748:GLU:HG3	1:C:768:TRP:CE2	2.32	0.64
1:A:546:GLY:HA3	1:A:821:PHE:CE2	2.33	0.64
1:B:748:GLU:OE1	1:B:772:HIS:HE1	1.81	0.64
1:A:743:ASP:OD2	1:C:740:ARG:HD3	1.97	0.64
1:A:516:ARG:O	1:A:520:ILE:HG13	1.97	0.64
1:C:744:PHE:HA	1:C:747:LEU:HB3	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:809:PRO:O	1:A:811:THR:HG23	1.98	0.64
1:B:611:PRO:HD2	1:B:614:VAL:HG23	1.80	0.64
1:B:787:THR:HB	1:B:822:ASN:OD1	1.98	0.64
1:C:603:ASN:OD1	1:C:793:PRO:HB3	1.98	0.64
1:A:776:ASP:HB2	1:B:745:GLN:HG3	1.79	0.63
1:C:775:THR:OG1	1:C:778:GLN:HG3	1.98	0.63
1:B:770:ILE:HG22	1:B:774:PHE:CE1	2.33	0.63
1:C:661:GLN:H	1:C:669:MET:H	1.47	0.63
1:B:501:ARG:HA	1:B:533:TYR:O	1.98	0.63
1:C:570:ASP:OD2	1:C:572:SER:HB3	1.98	0.63
1:B:749:GLU:O	1:B:751:THR:N	2.32	0.63
1:A:723:LEU:HD12	1:A:726:LEU:HD12	1.79	0.62
1:A:711:ARG:HG2	1:A:711:ARG:HH11	1.64	0.62
1:B:771:VAL:O	1:B:774:PHE:HB2	1.99	0.62
1:B:628:LEU:O	1:B:630:ASP:N	2.33	0.62
1:B:757:TYR:CE2	1:B:806:LYS:HA	2.34	0.62
1:C:659:ILE:HD13	1:C:673:LEU:HD21	1.81	0.62
1:C:704:GLU:HG2	1:C:705:LYS:N	2.14	0.62
1:B:626:ARG:NH2	1:C:532:LEU:O	2.33	0.62
1:A:680:ILE:O	1:A:680:ILE:HG23	2.00	0.62
1:B:719:ASN:O	1:B:720:GLU:HG3	1.98	0.62
1:A:774:PHE:O	1:A:779:LYS:HE3	1.99	0.62
1:B:600:ILE:HD11	1:B:714:PHE:CZ	2.34	0.62
1:C:784:GLN:O	1:C:787:THR:O	2.18	0.62
1:A:814:LEU:HB3	1:A:842:ALA:HB2	1.82	0.61
1:A:745:GLN:O	1:A:746:ALA:CB	2.48	0.61
1:A:643:LEU:HD21	1:A:691:VAL:HG21	1.82	0.61
1:C:607:ASP:OD2	1:C:609:HIS:HE1	1.84	0.61
1:A:770:ILE:HD13	1:A:836:LYS:HB2	1.82	0.61
1:A:767:PHE:CZ	1:A:771:VAL:HG21	2.36	0.61
1:C:549:LYS:HD3	1:C:820:CYS:HA	1.83	0.61
1:A:543:ASP:OD2	1:C:626:ARG:NH2	2.34	0.61
1:A:518:GLU:O	1:A:521:ALA:HB3	2.01	0.60
1:A:618:LEU:HD23	1:A:711:ARG:HD2	1.83	0.60
1:B:683:THR:N	1:B:686:ASN:HD22	2.00	0.60
1:B:697:TYR:O	1:B:698:ILE:HG12	2.00	0.60
1:C:762:VAL:O	1:C:766:GLU:HG3	2.01	0.60
1:A:502:LEU:HD21	1:A:517:LEU:CD2	2.32	0.60
1:A:516:ARG:HG3	1:A:520:ILE:HD11	1.84	0.60
1:A:505:ARG:HH12	1:A:508:HIS:CG	2.20	0.60
1:A:694:TYR:HD2	1:A:694:TYR:O	1.85	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:521:ALA:O	1:B:525:PRO:HG3	2.01	0.59
1:B:661:GLN:O	1:B:669:MET:N	2.35	0.59
1:B:595:VAL:HG12	1:B:606:LEU:HD11	1.83	0.59
1:B:747:LEU:O	1:B:751:THR:OG1	2.17	0.59
1:B:821:PHE:HB3	1:B:823:VAL:HG23	1.84	0.59
1:B:748:GLU:HG3	1:B:768:TRP:CE2	2.36	0.59
1:B:760:ASP:CG	1:B:765:ARG:HH21	2.06	0.59
1:A:697:TYR:O	1:A:698:ILE:CB	2.50	0.59
1:C:602:ASN:O	1:C:604:CYS:N	2.33	0.59
1:B:792:ALA:HB2	1:B:797:LEU:HD23	1.83	0.59
1:A:504:VAL:O	1:A:536:PHE:HA	2.02	0.59
1:A:746:ALA:HB2	1:C:740:ARG:NH1	2.17	0.59
1:A:728:ARG:NH2	1:B:603:ASN:HA	2.17	0.59
1:C:532:LEU:HB3	1:C:602:ASN:ND2	2.18	0.58
1:C:655:ILE:CD1	1:C:682:ILE:HD12	2.33	0.58
1:A:744:PHE:HA	1:A:747:LEU:HB3	1.84	0.58
1:B:745:GLN:O	1:B:746:ALA:CB	2.49	0.58
1:B:626:ARG:HB2	1:C:533:TYR:OH	2.03	0.58
1:B:768:TRP:O	1:B:772:HIS:HB2	2.02	0.58
1:C:613:VAL:HG22	1:C:627:ASP:HB3	1.86	0.58
1:B:504:VAL:O	1:B:536:PHE:HA	2.03	0.58
1:B:523:GLU:HG2	1:B:524:ASN:H	1.68	0.58
1:C:649:VAL:O	1:C:650:GLU:CB	2.51	0.58
1:B:651:ASP:O	1:B:652:ASP:OD1	2.22	0.58
1:C:603:ASN:HD21	1:C:794:VAL:CB	2.11	0.58
1:B:697:TYR:O	1:B:698:ILE:CB	2.50	0.58
1:C:814:LEU:CD2	1:C:838:ARG:HD3	2.29	0.58
1:A:507:ASP:O	1:A:508:HIS:ND1	2.37	0.58
1:A:618:LEU:HD11	1:A:710:PHE:CE1	2.39	0.58
1:A:706:GLN:CD	1:A:706:GLN:H	2.06	0.58
1:C:658:GLN:HB2	1:C:677:GLY:O	2.04	0.57
1:A:656:THR:O	1:A:682:ILE:HD11	2.04	0.57
1:A:661:GLN:HG3	1:A:697:TYR:OH	2.04	0.57
1:A:505:ARG:HH22	1:A:508:HIS:CD2	2.23	0.57
1:C:506:ARG:O	1:C:507:ASP:CB	2.47	0.57
1:C:745:GLN:O	1:C:746:ALA:CB	2.48	0.57
1:B:683:THR:HG23	1:B:686:ASN:HD21	1.68	0.57
1:A:683:THR:N	1:A:686:ASN:HD22	2.00	0.57
1:A:725:TYR:O	1:A:726:LEU:HD23	2.03	0.57
1:C:748:GLU:HG3	1:C:768:TRP:CD2	2.40	0.57
1:A:514:LEU:O	1:A:518:GLU:HB2	2.05	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:687:ARG:O	1:A:691:VAL:HG23	2.05	0.57
1:B:770:ILE:HD11	1:B:832:LYS:HB2	1.86	0.57
1:C:703:VAL:O	1:C:706:GLN:HG2	2.05	0.57
1:C:757:TYR:O	1:C:761:SER:OG	2.22	0.57
1:A:636:TYR:OH	1:B:544:GLU:HG2	2.05	0.57
1:A:651:ASP:O	1:A:652:ASP:OD1	2.23	0.57
1:B:719:ASN:O	1:B:721:SER:N	2.32	0.57
1:C:655:ILE:HD12	1:C:682:ILE:HD12	1.87	0.57
1:A:565:GLY:O	1:A:582:SER:HB2	2.04	0.56
1:A:663:ASP:HB2	1:A:667:ASN:H	1.70	0.56
1:B:723:LEU:HD23	1:B:732:ILE:CD1	2.35	0.56
1:A:743:ASP:O	1:A:745:GLN:N	2.38	0.56
1:A:775:THR:OG1	1:A:778:GLN:HG3	2.04	0.56
1:B:543:ASP:OD1	1:B:547:VAL:HB	2.05	0.56
1:B:748:GLU:HA	1:B:768:TRP:CH2	2.40	0.56
1:C:588:GLN:OE1	1:C:588:GLN:N	2.38	0.56
1:C:723:LEU:HA	1:C:726:LEU:HG	1.88	0.56
1:B:762:VAL:HG12	1:B:766:GLU:OE1	2.04	0.56
1:C:498:PRO:O	1:C:499:TYR:HB2	2.06	0.56
1:A:505:ARG:NH1	1:A:508:HIS:CG	2.74	0.56
1:C:712:ARG:CZ	1:C:716:MET:HE2	2.36	0.56
1:C:821:PHE:HB2	1:C:823:VAL:HG23	1.87	0.56
1:B:815:PRO:HD3	1:B:829:TYR:OH	2.06	0.56
1:B:667:ASN:N	1:B:667:ASN:HD22	2.05	0.55
1:C:500:LEU:O	1:C:501:ARG:HB2	2.07	0.55
1:C:649:VAL:HG12	1:C:650:GLU:H	1.69	0.55
1:A:719:ASN:O	1:A:720:GLU:HB2	2.06	0.55
1:A:789:THR:OG1	1:A:790:ASP:N	2.39	0.55
1:B:753:TYR:HB2	1:B:757:TYR:O	2.06	0.55
1:C:684:ASN:N	1:C:684:ASN:HD22	2.01	0.55
1:C:697:TYR:O	1:C:698:ILE:CB	2.50	0.55
1:A:626:ARG:NH2	1:B:543:ASP:OD2	2.39	0.55
1:A:679:LYS:O	1:A:680:ILE:CG2	2.54	0.55
1:B:697:TYR:O	1:B:698:ILE:HB	2.07	0.55
1:B:600:ILE:HD11	1:B:714:PHE:HZ	1.71	0.55
1:B:827:PRO:HB2	1:B:829:TYR:CE2	2.42	0.55
1:B:523:GLU:O	1:B:524:ASN:C	2.45	0.54
1:B:556:VAL:HG13	1:B:560:PHE:CD1	2.42	0.54
1:B:661:GLN:O	1:B:669:MET:HG3	2.07	0.54
1:C:613:VAL:CG2	1:C:627:ASP:HB3	2.38	0.54
1:C:649:VAL:HG23	1:C:684:ASN:HD22	1.69	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:588:GLN:N	1:A:588:GLN:OE1	2.40	0.54
1:C:728:ARG:NH1	1:C:730:GLU:OE1	2.40	0.54
1:A:523:GLU:O	1:A:524:ASN:C	2.46	0.54
1:B:723:LEU:HD23	1:B:732:ILE:HD11	1.89	0.54
1:C:724:LYS:HD3	1:C:724:LYS:O	2.08	0.54
1:C:521:ALA:O	1:C:525:PRO:HG3	2.08	0.54
1:C:704:GLU:O	1:C:705:LYS:HB2	2.07	0.54
1:C:505:ARG:HH12	1:C:508:HIS:CE1	2.26	0.54
1:C:521:ALA:HB2	1:C:528:LEU:HD11	1.90	0.54
1:A:749:GLU:C	1:A:751:THR:H	2.11	0.54
1:B:523:GLU:OE1	1:B:524:ASN:O	2.26	0.53
1:C:683:THR:C	1:C:685:GLU:N	2.61	0.53
1:A:543:ASP:OD1	1:A:547:VAL:HB	2.07	0.53
1:A:628:LEU:HD23	1:A:699:LEU:HD11	1.89	0.53
1:C:757:TYR:C	1:C:758:THR:HG23	2.29	0.53
1:A:524:ASN:C	1:A:526:ALA:H	2.12	0.53
1:A:706:GLN:N	1:A:706:GLN:OE1	2.30	0.53
1:C:651:ASP:O	1:C:652:ASP:CG	2.47	0.53
1:B:809:PRO:O	1:B:811:THR:HG23	2.08	0.53
1:A:711:ARG:NH1	1:A:711:ARG:HG2	2.23	0.53
1:B:523:GLU:CG	1:B:524:ASN:N	2.72	0.53
1:B:757:TYR:CZ	1:B:806:LYS:HG3	2.43	0.53
1:C:500:LEU:HG	1:C:527:ASP:O	2.09	0.53
1:A:721:SER:HA	1:C:725:TYR:HD1	1.73	0.53
1:B:505:ARG:C	1:B:506:ARG:O	2.46	0.53
1:B:698:ILE:HG22	1:B:699:LEU:HD12	1.91	0.53
1:C:663:ASP:N	1:C:663:ASP:OD1	2.41	0.53
1:A:583:PHE:HD1	1:A:584:GLU:HG2	1.73	0.52
1:B:674:LYS:HD3	1:B:680:ILE:CD1	2.39	0.52
1:B:776:ASP:O	1:B:780:ARG:HG3	2.09	0.52
1:C:649:VAL:O	1:C:650:GLU:HB2	2.09	0.52
1:A:723:LEU:HD22	1:A:723:LEU:N	2.25	0.52
1:C:784:GLN:HG3	1:C:790:ASP:HB3	1.89	0.52
1:B:657:PHE:CG	1:B:680:ILE:HD11	2.44	0.52
1:C:816:THR:OG1	1:C:825:LEU:HD12	2.09	0.52
1:C:649:VAL:HG12	1:C:650:GLU:N	2.24	0.52
1:C:668:PRO:HB2	1:C:670:MET:CE	2.40	0.52
1:C:785:PHE:CG	1:C:843:ILE:HG22	2.44	0.52
1:A:507:ASP:O	1:A:508:HIS:CB	2.58	0.52
1:B:766:GLU:O	1:B:770:ILE:HG13	2.10	0.52
1:C:634:VAL:CG1	1:C:635:LEU:H	2.20	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:728:ARG:HH11	1:C:729:PRO:HD2	1.71	0.52
1:C:809:PRO:O	1:C:811:THR:HG23	2.10	0.52
1:A:720:GLU:C	1:A:722:PRO:CD	2.79	0.52
1:A:523:GLU:OE1	1:A:524:ASN:HB2	2.09	0.52
1:B:669:MET:O	1:B:670:MET:C	2.49	0.52
1:B:830:SER:O	1:B:831:SER:HB2	2.09	0.51
1:C:704:GLU:O	1:C:706:GLN:N	2.44	0.51
1:C:712:ARG:O	1:C:716:MET:HG3	2.09	0.51
1:A:505:ARG:HH12	1:A:508:HIS:CD2	2.28	0.51
1:A:720:GLU:O	1:A:722:PRO:CD	2.52	0.51
1:B:697:TYR:O	1:B:698:ILE:CG1	2.59	0.51
1:C:711:ARG:HG2	1:C:711:ARG:HH11	1.76	0.51
1:A:599:ALA:O	1:A:602:ASN:O	2.28	0.51
1:A:505:ARG:HG2	1:A:512:ASP:OD1	2.11	0.51
1:C:549:LYS:HZ1	1:C:787:THR:HG23	1.75	0.51
1:A:761:SER:O	1:A:762:VAL:C	2.48	0.51
1:A:837:GLU:OE1	1:A:838:ARG:NH2	2.39	0.51
1:C:679:LYS:O	1:C:681:PRO:HD3	2.11	0.51
1:A:507:ASP:O	1:A:508:HIS:HB2	2.11	0.51
1:B:662:THR:O	1:B:663:ASP:OD1	2.29	0.51
1:B:642:LEU:O	1:B:687:ARG:NH1	2.44	0.51
1:C:671:TYR:CZ	1:C:697:TYR:CE1	2.99	0.51
1:B:615:TYR:O	1:B:619:MET:HG3	2.11	0.51
1:A:555:VAL:HG11	1:A:595:VAL:HG21	1.93	0.51
1:A:607:ASP:OD2	1:A:609:HIS:HE1	1.94	0.51
1:B:624:THR:N	1:B:627:ASP:OD2	2.42	0.51
1:C:651:ASP:O	1:C:652:ASP:OD1	2.29	0.51
1:C:748:GLU:HA	1:C:768:TRP:CH2	2.45	0.51
1:A:694:TYR:O	1:A:697:TYR:O	2.29	0.50
1:B:766:GLU:OE2	1:B:832:LYS:HB3	2.11	0.50
1:A:735:LEU:HD11	1:C:727:PHE:CE2	2.46	0.50
1:A:765:ARG:O	1:A:769:GLU:HG3	2.12	0.50
1:B:659:ILE:HD13	1:B:673:LEU:HD21	1.92	0.50
1:B:498:PRO:HG2	1:B:499:TYR:H	1.76	0.50
1:B:661:GLN:HB2	1:B:669:MET:HB2	1.93	0.50
1:C:497:ASN:O	1:C:530:LYS:HD3	2.10	0.50
1:A:748:GLU:HA	1:A:768:TRP:CZ2	2.47	0.50
1:B:645:TYR:CE2	1:B:647:GLY:HA3	2.47	0.50
1:B:748:GLU:OE1	1:B:772:HIS:CE1	2.62	0.50
1:A:677:GLY:O	1:A:679:LYS:O	2.30	0.50
1:C:583:PHE:CE1	1:C:584:GLU:HG3	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:747:LEU:O	1:B:747:LEU:HD13	2.12	0.50
1:C:610:PHE:HB3	1:C:614:VAL:CG2	2.41	0.50
1:C:760:ASP:OD2	1:C:765:ARG:NH2	2.43	0.50
1:C:789:THR:HG22	1:C:790:ASP:N	2.23	0.50
1:A:724:LYS:O	1:A:725:TYR:HB2	2.12	0.50
1:B:783:LEU:O	1:B:787:THR:HG23	2.12	0.50
1:C:532:LEU:HB3	1:C:602:ASN:HD21	1.76	0.50
1:B:770:ILE:HD12	1:B:835:LEU:HD13	1.93	0.49
1:A:549:LYS:HG3	1:A:604:CYS:SG	2.52	0.49
1:A:655:ILE:HG13	1:A:682:ILE:HD12	1.93	0.49
1:C:596:LEU:O	1:C:600:ILE:HG13	2.12	0.49
1:C:570:ASP:O	1:C:572:SER:N	2.45	0.49
1:C:662:THR:HG22	1:C:668:PRO:CA	2.41	0.49
1:A:582:SER:OG	1:A:585:THR:HG21	2.13	0.49
1:B:653:MET:O	1:B:654:MET:C	2.50	0.49
1:B:773:SER:O	1:B:774:PHE:O	2.30	0.49
1:C:567:PHE:HB3	1:C:576:PHE:HB3	1.94	0.49
1:B:776:ASP:HA	1:B:779:LYS:HB2	1.94	0.49
1:C:721:SER:HB2	1:C:722:PRO:HD2	1.94	0.49
1:A:501:ARG:HA	1:A:533:TYR:O	2.12	0.49
1:A:501:ARG:O	1:A:516:ARG:NH1	2.46	0.49
1:B:720:GLU:HG3	1:B:721:SER:H	1.78	0.49
1:A:613:VAL:HG21	1:A:627:ASP:HB3	1.94	0.49
1:A:837:GLU:OE2	1:A:838:ARG:HG2	2.12	0.49
1:C:610:PHE:HB3	1:C:614:VAL:HG21	1.94	0.49
1:C:680:ILE:O	1:C:680:ILE:CG1	2.61	0.49
1:C:703:VAL:C	1:C:704:GLU:O	2.51	0.49
1:A:686:ASN:O	1:A:689:GLU:N	2.46	0.49
1:A:717:VAL:O	1:A:717:VAL:HG12	2.12	0.49
1:A:762:VAL:O	1:A:766:GLU:HG3	2.12	0.49
1:C:767:PHE:CE1	1:C:771:VAL:HG21	2.48	0.49
1:C:698:ILE:H	1:C:702:SER:HB2	1.77	0.48
1:C:757:TYR:CE2	1:C:806:LYS:CA	2.96	0.48
1:A:827:PRO:HD2	1:A:829:TYR:CE1	2.48	0.48
1:B:597:GLY:O	1:B:600:ILE:HB	2.13	0.48
1:A:815:PRO:HD3	1:A:829:TYR:OH	2.13	0.48
1:B:720:GLU:O	1:B:721:SER:C	2.52	0.48
1:C:683:THR:HG23	1:C:686:ASN:ND2	2.28	0.48
1:A:730:GLU:OE1	1:A:730:GLU:N	2.43	0.48
1:A:552:PHE:HD1	1:A:595:VAL:HG13	1.78	0.48
1:A:753:TYR:N	1:A:753:TYR:CD1	2.81	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:556:VAL:HG13	1:B:560:PHE:CE1	2.48	0.48
1:B:628:LEU:HD22	1:B:632:HIS:HB2	1.96	0.48
1:C:555:VAL:HG11	1:C:595:VAL:HG21	1.96	0.48
1:C:743:ASP:O	1:C:744:PHE:HB2	2.14	0.48
1:A:744:PHE:H	1:A:797:LEU:HD12	1.79	0.48
1:B:506:ARG:C	1:B:508:HIS:H	2.16	0.48
1:A:800:LEU:O	1:A:801:LYS:C	2.51	0.48
1:C:787:THR:CG2	1:C:788:GLY:N	2.77	0.48
1:B:680:ILE:O	1:B:680:ILE:CG1	2.60	0.47
1:B:815:PRO:HB3	1:B:826:LEU:HD23	1.96	0.47
1:A:502:LEU:HD21	1:A:517:LEU:HD21	1.95	0.47
1:A:736:ILE:HG22	1:A:736:ILE:O	2.13	0.47
1:B:506:ARG:O	1:B:507:ASP:HB2	2.13	0.47
1:B:523:GLU:OE1	1:B:524:ASN:N	2.48	0.47
1:B:602:ASN:C	1:B:604:CYS:H	2.16	0.47
1:B:775:THR:C	1:B:777:GLU:H	2.18	0.47
1:A:499:TYR:OH	1:C:625:PHE:HB3	2.14	0.47
1:A:552:PHE:CD1	1:A:595:VAL:HG13	2.49	0.47
1:A:684:ASN:HD22	1:A:684:ASN:N	2.12	0.47
1:B:500:LEU:HD23	1:B:520:ILE:HD13	1.96	0.47
1:B:516:ARG:HG3	1:B:516:ARG:HH11	1.78	0.47
1:C:543:ASP:OD1	1:C:547:VAL:HB	2.14	0.47
1:A:591:LEU:O	1:A:595:VAL:HG23	2.15	0.47
1:C:612:MET:HE3	1:C:730:GLU:HG3	1.96	0.47
1:B:761:SER:HB2	1:B:764:ILE:HB	1.96	0.47
1:B:836:LYS:O	1:B:840:LEU:HG	2.14	0.47
1:A:533:TYR:HA	1:C:626:ARG:NH2	2.29	0.47
1:A:583:PHE:CE1	1:A:584:GLU:HG2	2.48	0.47
1:A:760:ASP:O	1:A:761:SER:OG	2.30	0.47
1:C:730:GLU:O	1:C:734:LEU:HG	2.15	0.47
1:A:590:THR:O	1:A:594:ILE:HG13	2.15	0.47
1:C:719:ASN:ND2	1:C:720:GLU:HG3	2.29	0.47
1:A:813:ARG:HH11	1:A:813:ARG:CB	2.27	0.47
1:B:679:LYS:O	1:B:681:PRO:HD3	2.15	0.47
1:C:744:PHE:CE1	1:C:779:LYS:HB3	2.50	0.47
1:A:698:ILE:HG22	1:A:699:LEU:CD1	2.45	0.47
1:B:516:ARG:HD2	1:B:516:ARG:HA	1.70	0.47
1:B:596:LEU:HD12	1:B:606:LEU:CD1	2.44	0.47
1:B:682:ILE:HD13	1:B:690:PHE:CD2	2.48	0.47
1:A:763:LEU:HD11	1:A:826:LEU:HD13	1.97	0.47
1:C:674:LYS:HD3	1:C:680:ILE:HD13	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:511:ASP:OD2	1:C:511:ASP:N	2.47	0.47
1:C:766:GLU:OE2	1:C:832:LYS:HB2	2.15	0.47
1:C:787:THR:HG22	1:C:788:GLY:H	1.76	0.46
1:A:520:ILE:O	1:A:520:ILE:HG22	2.15	0.46
1:A:569:TYR:CD1	1:A:576:PHE:CZ	3.03	0.46
1:A:711:ARG:O	1:A:715:HIS:HB2	2.15	0.46
1:C:661:GLN:NE2	1:C:697:TYR:HE2	2.13	0.46
1:B:749:GLU:C	1:B:751:THR:H	2.18	0.46
1:C:714:PHE:CZ	1:C:718:THR:HG21	2.50	0.46
1:A:506:ARG:O	1:A:507:ASP:HB2	2.15	0.46
1:A:792:ALA:HA	1:A:793:PRO:HD3	1.75	0.46
1:B:687:ARG:HA	1:B:690:PHE:HB3	1.98	0.46
1:C:744:PHE:CD1	1:C:779:LYS:HD3	2.51	0.46
1:B:670:MET:H	1:B:670:MET:CE	2.25	0.46
1:B:803:ILE:HB	1:B:823:VAL:HG22	1.96	0.46
1:C:661:GLN:NE2	1:C:697:TYR:CE2	2.84	0.46
1:C:697:TYR:HD1	1:C:701:LYS:HE3	1.81	0.46
1:A:643:LEU:HD21	1:A:691:VAL:CG2	2.46	0.46
1:A:762:VAL:HG12	1:A:766:GLU:CD	2.35	0.46
1:A:643:LEU:HA	1:A:687:ARG:HD2	1.98	0.46
1:A:723:LEU:HG	1:A:732:ILE:HD13	1.96	0.46
1:A:740:ARG:NH1	1:A:780:ARG:NH2	2.64	0.46
1:B:657:PHE:CD1	1:B:680:ILE:HG13	2.51	0.46
1:B:594:ILE:O	1:B:598:LEU:HG	2.15	0.46
1:C:680:ILE:HG12	1:C:680:ILE:O	2.15	0.46
1:C:741:ASN:HB3	1:C:792:ALA:HB3	1.98	0.46
1:C:762:VAL:HG12	1:C:766:GLU:CD	2.35	0.46
1:C:744:PHE:CZ	1:C:779:LYS:HB3	2.50	0.46
1:B:667:ASN:N	1:B:667:ASN:ND2	2.62	0.46
1:A:776:ASP:HB2	1:B:745:GLN:HE21	1.81	0.46
1:A:531:GLN:HE22	1:C:626:ARG:HB2	1.81	0.46
1:C:803:ILE:HB	1:C:823:VAL:HG22	1.97	0.46
1:A:770:ILE:HG13	1:A:832:LYS:HE3	1.99	0.45
1:B:523:GLU:HG2	1:B:524:ASN:N	2.27	0.45
1:C:531:GLN:HE21	1:C:533:TYR:HE1	1.62	0.45
1:C:641:ASP:O	1:C:642:LEU:C	2.54	0.45
1:C:668:PRO:HB2	1:C:670:MET:HE1	1.98	0.45
1:C:743:ASP:C	1:C:745:GLN:H	2.18	0.45
1:C:838:ARG:HH11	1:C:838:ARG:HA	1.80	0.45
1:A:583:PHE:O	1:A:584:GLU:HB2	2.16	0.45
1:C:811:THR:OG1	1:C:812:GLU:N	2.46	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:757:TYR:HE2	1:C:806:LYS:HA	1.77	0.45
1:C:683:THR:H	1:C:686:ASN:HB2	1.81	0.45
1:C:721:SER:O	1:C:723:LEU:N	2.49	0.45
1:A:741:ASN:O	1:A:742:LEU:HD23	2.17	0.45
1:B:765:ARG:O	1:B:769:GLU:HG3	2.17	0.45
1:B:744:PHE:CZ	1:B:779:LYS:HB3	2.52	0.45
1:A:748:GLU:HA	1:A:768:TRP:CH2	2.52	0.45
1:B:590:THR:O	1:B:594:ILE:HG13	2.16	0.45
1:B:606:LEU:HB3	1:B:608:VAL:HG13	1.98	0.45
1:B:742:LEU:CD1	1:B:776:ASP:HB2	2.47	0.45
1:C:505:ARG:C	1:C:506:ARG:O	2.54	0.45
1:C:763:LEU:HD22	1:C:835:LEU:HD12	1.99	0.45
1:A:589:PHE:CE2	1:A:706:GLN:HB3	2.52	0.44
1:C:761:SER:O	1:C:762:VAL:C	2.55	0.44
1:C:549:LYS:NZ	1:C:787:THR:HG23	2.32	0.44
1:A:677:GLY:HA2	1:A:680:ILE:CG2	2.47	0.44
1:A:580:PRO:HG3	1:A:703:VAL:CG1	2.48	0.44
1:A:596:LEU:HG	1:A:736:ILE:HD13	1.99	0.44
1:A:755:GLY:O	1:A:806:LYS:HE2	2.17	0.44
1:A:766:GLU:HB3	1:A:832:LYS:HG3	2.00	0.44
1:B:771:VAL:O	1:B:779:LYS:HE2	2.17	0.44
1:B:748:GLU:HA	1:B:768:TRP:CZ2	2.53	0.44
1:B:841:LYS:O	1:B:845:TYR:CB	2.65	0.44
1:A:505:ARG:C	1:A:506:ARG:O	2.47	0.44
1:B:764:ILE:O	1:B:767:PHE:HB3	2.16	0.44
1:A:631:SER:C	1:A:632:HIS:ND1	2.71	0.44
1:A:722:PRO:C	1:A:724:LYS:H	2.21	0.44
1:B:596:LEU:HD22	1:B:710:PHE:CZ	2.53	0.44
1:B:686:ASN:O	1:B:689:GLU:N	2.51	0.44
1:B:639:LEU:HD21	1:B:694:TYR:CD1	2.52	0.44
1:C:671:TYR:CE2	1:C:697:TYR:CE1	3.06	0.44
1:C:698:ILE:HG22	1:C:699:LEU:HD13	1.98	0.44
1:B:727:PHE:CZ	1:C:722:PRO:HG2	2.53	0.44
1:C:762:VAL:HG12	1:C:766:GLU:OE1	2.17	0.44
1:B:516:ARG:NH1	1:B:516:ARG:HG3	2.33	0.44
1:B:635:LEU:HD22	1:B:639:LEU:HD11	2.00	0.44
1:C:664:LEU:HD12	1:C:664:LEU:H	1.82	0.44
1:A:718:THR:O	1:A:719:ASN:O	2.36	0.44
1:C:659:ILE:HD11	1:C:697:TYR:CE2	2.52	0.44
1:A:661:GLN:HA	1:A:661:GLN:OE1	2.18	0.44
1:B:782:PHE:HA	1:B:843:ILE:HG21	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:618:LEU:HD11	1:A:710:PHE:HE1	1.83	0.43
1:A:663:ASP:HB2	1:A:667:ASN:N	2.33	0.43
1:B:742:LEU:CD1	1:B:780:ARG:HH12	2.27	0.43
1:B:523:GLU:O	1:B:525:PRO:N	2.51	0.43
1:B:753:TYR:CE1	1:B:759:ARG:HA	2.53	0.43
1:B:781:LEU:HD13	1:B:844:THR:HG22	1.99	0.43
1:C:650:GLU:OE1	1:C:683:THR:HG22	2.18	0.43
1:A:549:LYS:HD3	1:A:820:CYS:HA	1.99	0.43
1:A:712:ARG:NH2	1:A:716:MET:HE2	2.33	0.43
1:B:628:LEU:O	1:B:629:GLY:C	2.57	0.43
1:B:676:ASN:C	1:B:678:ASP:N	2.71	0.43
1:A:507:ASP:O	1:A:508:HIS:CG	2.71	0.43
1:A:655:ILE:CG1	1:A:682:ILE:HD12	2.48	0.43
1:A:753:TYR:CE2	1:A:764:ILE:HD12	2.54	0.43
1:B:635:LEU:HD22	1:B:639:LEU:CD1	2.48	0.43
1:B:674:LYS:O	1:B:675:GLU:C	2.56	0.43
1:A:532:LEU:HD12	1:A:533:TYR:H	1.84	0.43
1:A:721:SER:O	1:A:722:PRO:O	2.37	0.43
1:A:782:PHE:CD1	1:A:782:PHE:C	2.91	0.43
1:C:498:PRO:HG2	1:C:499:TYR:CD1	2.54	0.43
1:A:569:TYR:HD1	1:A:576:PHE:CZ	2.37	0.43
1:A:803:ILE:O	1:A:823:VAL:HA	2.19	0.43
1:A:837:GLU:OE2	1:A:838:ARG:NE	2.48	0.43
1:B:649:VAL:HG23	1:B:684:ASN:HD21	1.84	0.43
1:A:524:ASN:C	1:A:526:ALA:N	2.71	0.43
1:B:824:LEU:HD22	1:B:826:LEU:HG	2.00	0.43
1:C:569:TYR:CZ	1:C:574:LYS:HA	2.54	0.43
1:C:648:ASN:C	1:C:649:VAL:O	2.57	0.43
1:C:662:THR:HG22	1:C:668:PRO:N	2.33	0.43
1:A:714:PHE:CE2	1:A:718:THR:HG21	2.54	0.43
1:B:588:GLN:OE1	1:B:588:GLN:N	2.52	0.43
1:B:711:ARG:NH1	1:B:711:ARG:HG2	2.31	0.43
1:B:761:SER:HB2	1:B:764:ILE:HG12	2.01	0.43
1:C:768:TRP:O	1:C:769:GLU:C	2.56	0.43
1:A:708:LYS:O	1:A:712:ARG:HG3	2.18	0.43
1:B:511:ASP:N	1:B:511:ASP:OD1	2.49	0.43
1:B:649:VAL:O	1:B:650:GLU:CB	2.61	0.43
1:C:570:ASP:O	1:C:571:GLU:C	2.55	0.43
1:C:792:ALA:HA	1:C:793:PRO:HD3	1.77	0.43
1:C:813:ARG:HB3	1:C:813:ARG:HH11	1.84	0.43
1:B:624:THR:O	1:B:627:ASP:N	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:648:ASN:O	1:B:652:ASP:HB2	2.19	0.43
1:B:722:PRO:HB3	1:B:725:TYR:HD2	1.83	0.43
1:C:681:PRO:O	1:C:686:ASN:ND2	2.52	0.43
1:A:722:PRO:HG2	1:A:724:LYS:HB2	2.01	0.42
1:C:715:HIS:O	1:C:719:ASN:HB2	2.19	0.42
1:C:807:ASN:O	1:C:813:ARG:NH2	2.45	0.42
1:B:743:ASP:O	1:B:745:GLN:N	2.43	0.42
1:C:566:MET:HE3	1:C:589:PHE:CD2	2.54	0.42
1:C:761:SER:HB2	1:C:764:ILE:HG12	2.01	0.42
1:A:500:LEU:HD23	1:A:500:LEU:C	2.39	0.42
1:B:670:MET:N	1:B:670:MET:CE	2.82	0.42
1:B:600:ILE:HD13	1:B:723:LEU:HD11	2.00	0.42
1:B:775:THR:HG1	1:B:778:GLN:HG3	1.79	0.42
1:C:669:MET:O	1:C:671:TYR:N	2.52	0.42
1:C:721:SER:C	1:C:723:LEU:H	2.22	0.42
1:B:598:LEU:HD23	1:B:717:VAL:HG11	2.01	0.42
1:B:612:MET:HE1	1:B:733:GLU:OE2	2.19	0.42
1:C:674:LYS:HD3	1:C:680:ILE:CD1	2.49	0.42
1:B:611:PRO:HD2	1:B:614:VAL:CG2	2.46	0.42
1:A:532:LEU:O	1:C:626:ARG:NH2	2.53	0.42
1:A:664:LEU:HD13	1:A:665:PHE:CG	2.54	0.42
1:B:648:ASN:OD1	1:B:651:ASP:OD1	2.37	0.42
1:C:516:ARG:CB	1:C:516:ARG:NH1	2.72	0.42
1:C:655:ILE:HG13	1:C:682:ILE:HB	2.02	0.42
1:C:532:LEU:N	1:C:602:ASN:HD21	2.09	0.42
1:A:559:ILE:HG21	1:A:592:ILE:CD1	2.46	0.42
1:A:594:ILE:HG23	1:A:717:VAL:CG2	2.44	0.42
1:A:686:ASN:O	1:A:687:ARG:C	2.58	0.42
1:B:523:GLU:OE1	1:B:523:GLU:C	2.58	0.42
1:A:499:TYR:HB3	1:A:533:TYR:HB2	2.02	0.42
1:A:655:ILE:HG13	1:A:682:ILE:HB	2.02	0.42
1:A:705:LYS:HD3	1:A:705:LYS:HA	1.82	0.42
1:A:721:SER:HA	1:C:725:TYR:CD1	2.53	0.42
1:B:838:ARG:HA	1:B:838:ARG:NE	2.34	0.42
1:C:566:MET:HE3	1:C:589:PHE:CE2	2.55	0.42
1:A:730:GLU:O	1:A:734:LEU:HG	2.20	0.41
1:A:826:LEU:CD2	1:A:829:TYR:HE1	2.32	0.41
1:B:498:PRO:HG2	1:B:499:TYR:N	2.34	0.41
1:C:602:ASN:C	1:C:604:CYS:H	2.22	0.41
1:C:711:ARG:HG2	1:C:711:ARG:NH1	2.33	0.41
1:C:743:ASP:HB3	1:C:745:GLN:O	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:600:ILE:CD1	1:B:723:LEU:HD11	2.50	0.41
1:C:662:THR:HG22	1:C:668:PRO:HA	2.03	0.41
1:C:708:LYS:NZ	1:C:708:LYS:HB3	2.35	0.41
1:A:548:SER:O	1:A:551:PHE:HB3	2.20	0.41
1:A:649:VAL:O	1:A:650:GLU:CB	2.58	0.41
1:B:608:VAL:HG23	1:B:608:VAL:O	2.20	0.41
1:B:720:GLU:HG3	1:B:721:SER:N	2.35	0.41
1:C:599:ALA:O	1:C:602:ASN:O	2.38	0.41
1:A:505:ARG:NH2	1:A:508:HIS:CD2	2.88	0.41
1:A:615:TYR:O	1:A:619:MET:HG3	2.19	0.41
1:A:648:ASN:HB3	1:A:651:ASP:HB2	2.02	0.41
1:B:659:ILE:CD1	1:B:673:LEU:HD21	2.50	0.41
1:A:505:ARG:HD3	1:A:537:GLU:OE1	2.20	0.41
1:B:628:LEU:HD23	1:B:699:LEU:HD11	2.01	0.41
1:B:663:ASP:OD1	1:B:669:MET:SD	2.78	0.41
1:B:687:ARG:O	1:B:691:VAL:HG23	2.19	0.41
1:B:728:ARG:O	1:B:731:GLU:HB2	2.21	0.41
1:B:800:LEU:O	1:B:801:LYS:C	2.58	0.41
1:B:817:SER:HB2	1:B:823:VAL:O	2.20	0.41
1:C:505:ARG:O	1:C:506:ARG:C	2.57	0.41
1:C:684:ASN:N	1:C:684:ASN:ND2	2.68	0.41
1:A:768:TRP:HA	1:A:768:TRP:CE3	2.55	0.41
1:A:770:ILE:HD11	1:A:832:LYS:HG3	2.02	0.41
1:B:775:THR:HG23	1:B:778:GLN:OE1	2.20	0.41
1:A:748:GLU:HG3	1:A:768:TRP:CD2	2.56	0.41
1:B:643:LEU:HD21	1:B:691:VAL:HG21	2.03	0.41
1:C:712:ARG:NH1	1:C:716:MET:CE	2.83	0.41
1:A:757:TYR:CE2	1:A:806:LYS:HA	2.56	0.41
1:C:497:ASN:CB	1:C:498:PRO:CD	2.99	0.41
1:A:837:GLU:CD	1:A:838:ARG:HE	2.24	0.41
1:C:683:THR:N	1:C:686:ASN:HD22	2.19	0.41
1:A:643:LEU:CD2	1:A:691:VAL:HG21	2.48	0.41
1:A:740:ARG:NH1	1:B:743:ASP:OD2	2.53	0.41
1:A:677:GLY:O	1:A:678:ASP:C	2.59	0.41
1:B:624:THR:O	1:B:627:ASP:HB2	2.21	0.41
1:B:500:LEU:O	1:B:501:ARG:CB	2.69	0.40
1:C:813:ARG:HH11	1:C:813:ARG:CB	2.34	0.40
1:A:737:CYS:O	1:A:791:ARG:HG3	2.21	0.40
1:C:617:LYS:HA	1:C:621:LYS:O	2.20	0.40
1:C:676:ASN:O	1:C:678:ASP:N	2.50	0.40
1:C:703:VAL:O	1:C:704:GLU:O	2.39	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:821:PHE:CB	1:C:823:VAL:HG23	2.52	0.40
1:A:744:PHE:O	1:A:748:GLU:N	2.51	0.40
1:B:514:LEU:HD21	1:B:591:LEU:HB2	2.03	0.40
1:B:649:VAL:HG23	1:B:684:ASN:ND2	2.36	0.40
1:C:723:LEU:HG	1:C:726:LEU:HD12	2.04	0.40
1:B:761:SER:HB2	1:B:764:ILE:CG1	2.52	0.40
1:B:830:SER:O	1:B:831:SER:CB	2.69	0.40
1:C:635:LEU:HD11	1:C:694:TYR:CE2	2.57	0.40
1:C:698:ILE:HG22	1:C:699:LEU:CD1	2.52	0.40
1:B:505:ARG:NH1	1:B:508:HIS:CG	2.89	0.40
1:B:658:GLN:CD	1:B:670:MET:HB3	2.42	0.40
1:B:684:ASN:N	1:B:684:ASN:HD22	2.19	0.40
1:B:723:LEU:HA	1:B:726:LEU:HG	2.04	0.40
1:B:748:GLU:C	1:B:749:GLU:O	2.56	0.40
1:C:548:SER:O	1:C:551:PHE:HB3	2.21	0.40
1:C:770:ILE:HG13	1:C:832:LYS:HE3	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	348/358 (97%)	279 (80%)	50 (14%)	19 (6%)	2	6
1	B	348/358 (97%)	282 (81%)	47 (14%)	19 (6%)	2	6
1	C	348/358 (97%)	285 (82%)	47 (14%)	16 (5%)	2	8
All	All	1044/1074 (97%)	846 (81%)	144 (14%)	54 (5%)	2	7

All (54) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	508	HIS

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Mol	Chain	Res	Type
1	A	663	ASP
1	A	698	ILE
1	A	719	ASN
1	A	722	PRO
1	A	750	THR
1	B	650	GLU
1	B	664	LEU
1	B	670	MET
1	B	675	GLU
1	B	698	ILE
1	B	723	LEU
1	B	750	THR
1	B	774	PHE
1	C	652	ASP
1	C	664	LEU
1	C	675	GLU
1	A	527	ASP
1	A	650	GLU
1	A	761	SER
1	B	629	GLY
1	B	654	MET
1	B	687	ARG
1	B	720	GLU
1	B	831	SER
1	C	571	GLU
1	C	670	MET
1	C	704	GLU
1	A	499	TYR
1	A	675	GLU
1	A	687	ARG
1	A	744	PHE
1	B	652	ASP
1	B	829	TYR
1	C	507	ASP
1	C	603	ASN
1	C	650	GLU
1	B	506	ARG
1	B	773	SER
1	C	705	LYS
1	C	758	THR
1	A	612	MET
1	A	721	SER

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Mol	Chain	Res	Type
1	B	704	GLU
1	A	746	ALA
1	C	499	TYR
1	C	509	ILE
1	C	649	VAL
1	A	524	ASN
1	A	677	GLY
1	A	762	VAL
1	C	698	ILE
1	B	524	ASN
1	C	722	PRO

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	317/323 (98%)	295 (93%)	22 (7%)	17	44
1	B	317/323 (98%)	295 (93%)	22 (7%)	17	44
1	C	317/323 (98%)	296 (93%)	21 (7%)	18	47
All	All	951/969 (98%)	886 (93%)	65 (7%)	17	45

All (65) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	514	LEU
1	A	523	GLU
1	A	592	ILE
1	A	616	ARG
1	A	635	LEU
1	A	642	LEU
1	A	664	LEU
1	A	668	PRO
1	A	676	ASN
1	A	678	ASP
1	A	684	ASN

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Mol	Chain	Res	Type
1	A	694	TYR
1	A	706	GLN
1	A	741	ASN
1	A	757	TYR
1	A	774	PHE
1	A	789	THR
1	A	812	GLU
1	A	813	ARG
1	A	824	LEU
1	A	826	LEU
1	A	835	LEU
1	B	501	ARG
1	B	511	ASP
1	B	516	ARG
1	B	523	GLU
1	B	583	PHE
1	B	592	ILE
1	B	602	ASN
1	B	603	ASN
1	B	635	LEU
1	B	642	LEU
1	B	651	ASP
1	B	676	ASN
1	B	694	TYR
1	B	704	GLU
1	B	706	GLN
1	B	720	GLU
1	B	743	ASP
1	B	777	GLU
1	B	787	THR
1	B	824	LEU
1	B	835	LEU
1	B	839	LEU
1	C	502	LEU
1	C	511	ASP
1	C	514	LEU
1	C	516	ARG
1	C	635	LEU
1	C	642	LEU
1	C	670	MET
1	C	676	ASN
1	C	679	LYS

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Mol	Chain	Res	Type
1	C	680	ILE
1	C	694	TYR
1	C	706	GLN
1	C	728	ARG
1	C	743	ASP
1	C	758	THR
1	C	774	PHE
1	C	789	THR
1	C	824	LEU
1	C	826	LEU
1	C	835	LEU
1	C	839	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (23) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	508	HIS
1	A	531	GLN
1	A	609	HIS
1	A	667	ASN
1	A	684	ASN
1	A	686	ASN
1	A	772	HIS
1	B	524	ASN
1	B	667	ASN
1	B	684	ASN
1	B	686	ASN
1	B	772	HIS
1	C	531	GLN
1	C	602	ASN
1	C	609	HIS
1	C	661	GLN
1	C	667	ASN
1	C	684	ASN
1	C	686	ASN
1	C	706	GLN
1	C	715	HIS
1	C	719	ASN
1	C	772	HIS

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 carbohydrates 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	350/358 (97%)	-0.18	5 (1%) 75 69	28, 49, 76, 100	0
1	B	350/358 (97%)	0.01	15 (4%) 35 25	24, 51, 89, 124	0
1	C	350/358 (97%)	-0.16	11 (3%) 49 38	20, 43, 80, 127	0
All	All	1050/1074 (97%)	-0.11	31 (2%) 50 40	20, 47, 85, 127	0

All (31) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	664	LEU	9.3
1	C	665	PHE	7.8
1	B	665	PHE	6.3
1	B	667	ASN	6.2
1	B	845	TYR	5.1
1	A	721	SER	4.7
1	B	846	ALA	4.4
1	B	664	LEU	4.1
1	C	669	MET	4.1
1	A	522	MET	3.9
1	C	845	TYR	3.6
1	B	720	GLU	3.5
1	C	667	ASN	3.3
1	B	666	GLY	3.1
1	B	759	ARG	3.1
1	C	666	GLY	3.0
1	C	651	ASP	3.0
1	B	669	MET	2.9
1	B	679	LYS	2.8
1	C	671	TYR	2.8
1	A	584	GLU	2.6
1	A	524	ASN	2.6
1	C	663	ASP	2.3

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Mol	Chain	Res	Type	RSRZ
1	B	814	LEU	2.2
1	B	758	THR	2.2
1	C	846	ALA	2.1
1	A	525	PRO	2.1
1	B	583	PHE	2.1
1	B	813	ARG	2.1
1	B	651	ASP	2.0
1	C	782	PHE	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 carbohydrates 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.