



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 30, 2024 – 07:52 PM EST

PDB ID : 1J7N
Title : Anthrax Toxin Lethal factor
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Deposited on : 2001-05-17
Resolution : 2.30 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
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtrriage (Phenix) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

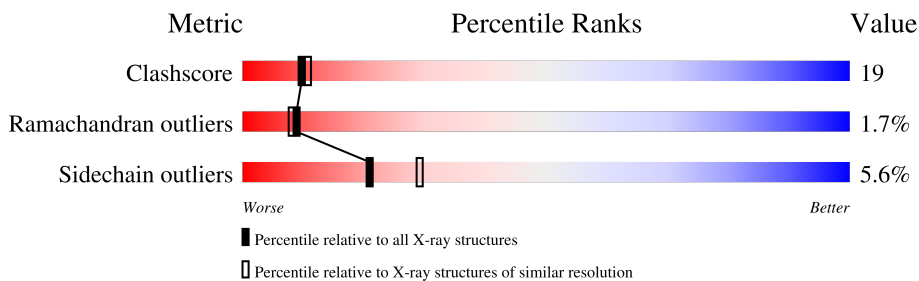
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.30 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	5643 (2.30-2.30)
Ramachandran outliers	138981	5575 (2.30-2.30)
Sidechain outliers	138945	5575 (2.30-2.30)

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 $\leq 5\%$.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	776	 59% 31% • 7%
1	B	776	 64% 27% • 5%

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 12924 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 Lethal Factor precursor.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	725	Total 5947	C 3785	N 1003	O 1152	S 7	0	0	0
1	B	736	Total 6031	C 3832	N 1017	O 1175	S 7	0	0	0

- Molecule 2 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	O	S		
2	A	1	Total 5	O 4	S 1	0	0
2	B	1	Total 5	O 4	S 1	0	0

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

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

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	436	Total 436	O 436	0	0
4	B	498	Total 498	O 498	0	0

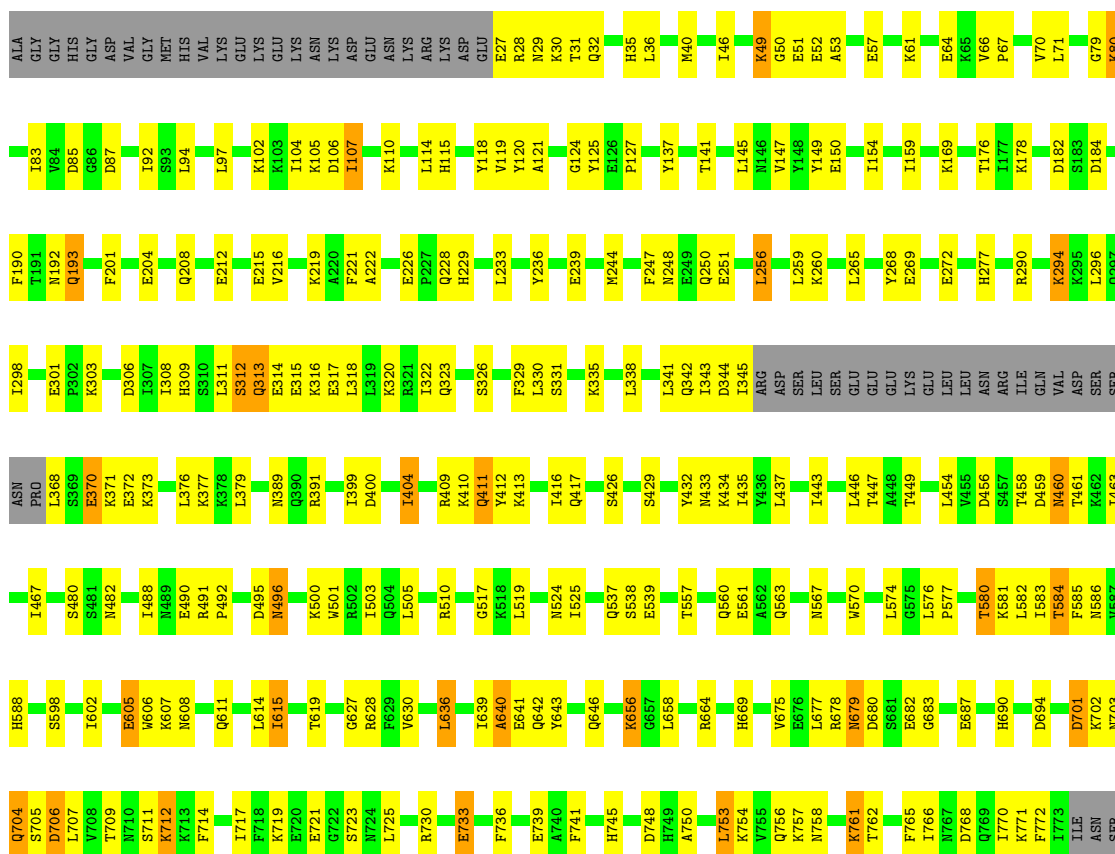
3 Residue-property plots

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.

Note EDS was not executed.

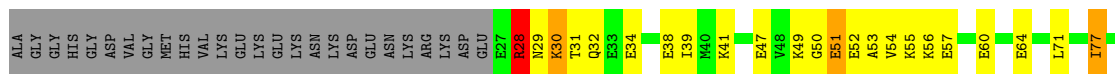
- Molecule 1: Lethal Factor precursor

Chain A: 



- Molecule 1: Lethal Factor precursor

Chain B: 



V84	D85	I88	T89	K90	H91	I92	S93	L94	E95	A96	K102	R103	I104	K105	D106	I107	D111	A112	L113	L114	H115	V119	Y120	A121	K122	E123	G124	Y125	E126	P127	V128	L129	V130	I131	Q132	S133	S134	E135	D136	M140	K143	A144	L145	R146	V147	E150	K153	L154	L155	S156				
T176	I177	K178	Q186	K195	F201	L206	E207	E212	V213	V216	F217	F221	E226	P227	Q228	D231	V232	L233	Q234	L235	Y236	A237	P238	E239	A240	F241	M244	D245	N248	E249	Q250	E251	L256	L265	Y278	Q297	K304	S312	Q313	E314	E315	K316												
E317	L318	L319	I322	Q323	I324	D325	S326	S327	S331	T332	E333	E334	K335	E336	K339	K340	L341	Q342	I343	D344	I345	E346	D347	S348	LEU	SER	GLU	GLU	GLU	GLU	LYS	GLU	LEU	LEU	ASN	ARG	ILE	GLN	VAL	D363	M366	P367	L368	S369	E370	K371	E372	K373	K377	K378	L379	I388	N389	Q390
R391	L392	L398	P402	V408	Q411	Y412	R414	D415	I416	D420	H424	Q425	S426	I427	G428	L431	Y432	M441	N444	M445	L446	T447	A448	D456	S457	M464	I467	N482	I488	R491	P492	D495	M496	L499	K500	W501	R502	I503	Q504	L505														
T509	R510	Y513	L514	E515	M516	G517	R518	L519	I520	L521	Q522	R523	K530	I535	K536	Q537	R544	K712	K713	I717	G722	R730	E733	F741	M744	H745	S746	I747	D748	H749	A750	E751	R752	L753	A759	P760	K761	F765	I766	N767	D768	Q769	I770	I773	I774	N775								
S776	I666	K673	G674	V675	E676	L677	R678	H690	D693	L700	D701	K702	N703	G704	S705	D706	L707	K712	K713	I717	G722	R730	E733	F741	M744	H745	S746	I747	D748	H749	A750	E751	R752	L753	A759	P760	K761	F765	I766	N767	D768	Q769	I770	I773	I774	N775								

4 Data and refinement statistics

Xtrriage (Phenix) and EDS were not executed - this section is therefore incomplete.

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	96.20Å 137.46Å 98.55Å 90.00° 98.35° 90.00°	Depositor
Resolution (Å)	15.00 – 2.30	Depositor
% Data completeness (in resolution range)	5.0 (15.00-2.30)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	0.05	Depositor
Refinement program	CNS 1.0	Depositor
R, R_{free}	0.229 , 0.261	Depositor
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	12924	wwPDB-VP
Average B, all atoms (Å ²)	44.0	wwPDB-VP

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: SO4, 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	0.34	0/6053	0.57	1/8153 (0.0%)
1	B	0.36	1/6139 (0.0%)	0.59	2/8272 (0.0%)
All	All	0.35	1/12192 (0.0%)	0.58	3/16425 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	615	ILE	CG1-CD1	-5.50	1.12	1.50

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	615	ILE	CB-CG1-CD1	8.66	138.14	113.90
1	A	615	ILE	CB-CG1-CD1	-7.22	93.67	113.90
1	B	629	PHE	N-CA-C	-5.57	95.95	111.00

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	5947	0	5938	247	0
1	B	6031	0	5992	221	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	A	5	0	0	0	0
2	B	5	0	0	0	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
4	A	436	0	0	16	0
4	B	498	0	0	17	0
All	All	12924	0	11930	461	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 19.

All (461) 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:A:615:ILE:CD1	1:A:615:ILE:CG1	1.74	1.58
1:A:268:TYR:HB3	1:B:125:TYR:CE2	1.87	1.09
1:B:704:GLN:NE2	1:B:706:ASP:H	1.52	1.07
1:A:92:ILE:HD12	1:A:92:ILE:H	1.25	1.01
1:A:677:LEU:HD13	1:A:683:GLY:HA2	1.43	1.01
1:A:119:VAL:HG21	1:A:147:VAL:HG22	1.43	1.00
1:A:615:ILE:CD1	1:A:615:ILE:CB	2.39	1.00
1:B:304:LYS:HD3	1:B:304:LYS:H	1.27	0.96
1:A:615:ILE:HD13	1:A:615:ILE:HG21	1.46	0.96
1:B:510:ARG:H	1:B:522:GLN:HE21	1.05	0.95
1:B:632:THR:HG21	1:B:639:ILE:HD11	1.50	0.93
1:B:176:THR:HG21	1:B:239:GLU:HG3	1.53	0.89
1:A:268:TYR:HB3	1:B:125:TYR:HE2	1.38	0.88
1:B:712:LYS:H	1:B:712:LYS:HD2	1.35	0.88
1:B:606:TRP:CE2	1:B:615:ILE:HD12	2.10	0.86
1:A:107:ILE:HD11	1:A:219:LYS:HG3	1.56	0.85
1:A:567:ASN:HD21	1:A:583:ILE:H	1.19	0.85
1:B:366:ASN:H	1:B:367:PRO:HD2	1.42	0.84
1:A:636:LEU:HA	1:A:639:ILE:HD13	1.60	0.83
1:A:615:ILE:CD1	1:A:615:ILE:HG21	2.09	0.82
1:A:615:ILE:CD1	1:A:615:ILE:CG2	2.58	0.81
1:B:516:ASN:H	1:B:516:ASN:HD22	1.29	0.81
1:A:298:ILE:O	1:A:298:ILE:HD12	1.81	0.80
1:B:104:ILE:HG13	1:B:105:LYS:H	1.46	0.79
1:B:304:LYS:HD3	1:B:304:LYS:N	1.96	0.79
1:A:563:GLN:HE21	1:A:585:PHE:H	1.28	0.79
1:B:221:PHE:HD1	1:B:244:MET:HE1	1.48	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:186:GLN:HG2	1:B:195:LYS:HG2	1.65	0.78
1:B:516:ASN:H	1:B:516:ASN:ND2	1.80	0.78
1:A:615:ILE:HD13	1:A:615:ILE:CG2	2.14	0.78
1:B:370:GLU:HG2	1:B:371:LYS:HG3	1.66	0.78
1:A:714:PHE:HA	1:A:717:ILE:HD13	1.67	0.77
1:B:516:ASN:HD22	1:B:516:ASN:N	1.80	0.77
1:A:290:ARG:O	1:A:294:LYS:HE2	1.85	0.76
1:B:678:ARG:NH1	1:B:678:ARG:HB3	2.01	0.76
1:A:66:VAL:CG1	1:A:70:VAL:HG21	2.15	0.76
1:B:391:ARG:HG3	1:B:412:TYR:CD1	2.21	0.75
1:A:656:LYS:HE3	1:A:669:HIS:O	1.87	0.75
1:B:606:TRP:CZ2	1:B:615:ILE:HD12	2.22	0.74
1:B:501:TRP:HB3	1:B:503:ILE:HD11	1.68	0.74
1:B:322:ILE:HD13	1:B:323:GLN:N	2.02	0.74
1:A:176:THR:HG21	1:A:239:GLU:HG3	1.69	0.74
1:A:577:PRO:O	1:A:580:THR:HG22	1.89	0.73
1:A:563:GLN:NE2	1:A:585:PHE:H	1.87	0.72
1:B:713:LYS:HD2	1:B:765:PHE:HE1	1.52	0.72
1:B:233:LEU:HD23	1:B:237:ALA:HB3	1.69	0.72
1:B:611:GLN:HE22	1:B:613:ASP:HB2	1.54	0.72
1:B:510:ARG:H	1:B:522:GLN:NE2	1.85	0.72
1:B:412:TYR:O	1:B:416:ILE:HG12	1.91	0.71
1:A:107:ILE:O	1:A:107:ILE:HD13	1.89	0.71
1:A:176:THR:CG2	1:A:239:GLU:HG3	2.21	0.71
1:B:704:GLN:NE2	1:B:706:ASP:N	2.35	0.71
1:A:256:LEU:HD22	1:A:260:LYS:HE3	1.73	0.70
1:A:605:GLU:HG3	4:A:9361:HOH:O	1.91	0.70
1:A:391:ARG:NH1	1:A:404:ILE:HD12	2.06	0.69
1:A:761:LYS:HD3	1:A:761:LYS:C	2.12	0.69
1:B:212:GLU:O	1:B:216:VAL:HG23	1.92	0.69
1:B:717:ILE:HD12	1:B:761:LYS:HB3	1.73	0.69
1:A:500:LYS:HE2	1:A:537:GLN:HE22	1.57	0.69
1:B:713:LYS:HD2	1:B:765:PHE:CE1	2.27	0.69
1:A:308:ILE:HD12	1:A:345:ILE:HD11	1.75	0.68
1:B:107:ILE:HG21	1:B:145:LEU:HD12	1.74	0.68
1:B:693:ASP:OD2	1:B:707:LEU:HB3	1.93	0.68
1:B:398:LEU:HD23	4:B:9209:HOH:O	1.94	0.68
1:A:712:LYS:HE3	1:A:712:LYS:H	1.59	0.68
1:B:121:ALA:HB1	1:B:154:ILE:HD11	1.75	0.67
1:B:704:GLN:CD	1:B:706:ASP:H	1.97	0.67
1:B:369:SER:HB2	1:B:372:GLU:HG3	1.77	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:563:GLN:NE2	1:B:585:PHE:H	1.91	0.66
1:A:614:LEU:HD22	1:A:770:ILE:HD12	1.77	0.66
1:B:123:GLU:HG2	1:B:124:GLY:H	1.60	0.66
1:A:268:TYR:HB3	1:B:125:TYR:CD2	2.31	0.66
1:A:717:ILE:H	1:A:717:ILE:HD12	1.60	0.66
1:B:121:ALA:HB2	1:B:150:GLU:HG3	1.77	0.65
1:A:443:ILE:HD13	1:A:454:LEU:HD22	1.78	0.65
1:A:712:LYS:HE3	1:A:712:LYS:N	2.10	0.65
1:B:304:LYS:H	1:B:304:LYS:CD	2.07	0.65
1:B:378:LYS:HE3	4:B:9364:HOH:O	1.96	0.65
1:A:119:VAL:CG2	1:A:147:VAL:HG22	2.21	0.65
1:A:679:ASN:ND2	1:A:682:GLU:H	1.95	0.65
1:A:317:GLU:O	1:A:320:LYS:HB3	1.97	0.65
1:A:404:ILE:HD13	1:A:404:ILE:H	1.61	0.65
1:A:102:LYS:HA	1:A:114:LEU:HD12	1.79	0.65
1:A:330:LEU:HB2	1:A:335:LYS:HE3	1.78	0.64
1:B:28:ARG:NH1	1:B:30:LYS:HB2	2.11	0.64
1:B:704:GLN:HE22	1:B:706:ASP:H	1.41	0.64
1:A:28:ARG:HG2	1:A:28:ARG:HH11	1.63	0.64
1:A:221:PHE:HD1	1:A:244:MET:HE1	1.63	0.64
1:A:500:LYS:HE2	1:A:537:GLN:NE2	2.13	0.64
1:B:704:GLN:HE21	1:B:705:SER:N	1.96	0.64
1:B:749:HIS:HA	1:B:752:ARG:HD3	1.79	0.64
1:B:107:ILE:HD13	1:B:107:ILE:O	1.99	0.63
1:A:28:ARG:HG3	1:A:29:ASN:H	1.62	0.63
1:A:107:ILE:HG21	1:A:145:LEU:HD12	1.81	0.62
1:A:639:ILE:O	1:A:640:ALA:CB	2.46	0.62
1:B:678:ARG:HB3	1:B:678:ARG:HH11	1.65	0.62
1:A:66:VAL:HG12	1:A:70:VAL:HG21	1.81	0.61
4:A:9302:HOH:O	1:B:491:ARG:HD3	2.01	0.61
1:B:56:LYS:O	1:B:60:GLU:HG3	2.00	0.61
1:A:66:VAL:HG11	1:A:70:VAL:HG21	1.83	0.60
1:B:488:ILE:HD13	1:B:517:GLY:O	2.00	0.60
1:A:717:ILE:HD12	1:A:717:ILE:N	2.16	0.60
1:B:319:LEU:HD23	1:B:345:ILE:HD11	1.82	0.60
1:B:722:GLY:HA3	1:B:730:ARG:HH11	1.64	0.60
1:B:119:VAL:HG23	1:B:131:ILE:HD13	1.82	0.60
1:B:104:ILE:HG13	1:B:105:LYS:N	2.16	0.60
1:B:510:ARG:N	1:B:522:GLN:HE21	1.89	0.60
1:A:322:ILE:HD11	1:A:376:LEU:HD11	1.84	0.60
1:B:178:LYS:HD2	1:B:201:PHE:CE1	2.36	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:677:LEU:CD1	1:A:683:GLY:HA2	2.27	0.60
1:A:118:TYR:CD2	1:A:119:VAL:HG23	2.37	0.59
1:A:679:ASN:HD21	1:A:682:GLU:H	1.48	0.59
1:A:311:LEU:HA	1:A:315:GLU:OE2	2.03	0.59
1:B:221:PHE:CD1	1:B:244:MET:HE1	2.34	0.59
1:B:611:GLN:NE2	1:B:614:LEU:H	2.00	0.59
1:A:312:SER:N	1:A:316:LYS:HG3	2.18	0.59
1:A:607:LYS:HA	1:A:615:ILE:HD11	1.84	0.59
1:B:370:GLU:HG2	1:B:371:LYS:N	2.17	0.59
1:A:256:LEU:CD2	1:A:260:LYS:HE3	2.31	0.59
1:A:614:LEU:HD22	1:A:770:ILE:HG23	1.83	0.59
1:A:370:GLU:HG2	1:A:371:LYS:N	2.18	0.58
1:A:456:ASP:HB3	1:A:459:ASP:O	2.03	0.58
1:A:92:ILE:H	1:A:92:ILE:CD1	2.03	0.58
1:A:598:SER:O	1:A:602:ILE:HG13	2.03	0.58
1:A:717:ILE:HG23	1:A:761:LYS:HD2	1.86	0.58
1:B:245:ASP:O	1:B:249:GLU:HG2	2.04	0.58
1:B:29:ASN:HA	1:B:32:GLN:HB3	1.85	0.58
1:A:46:ILE:HD12	1:A:46:ILE:N	2.18	0.58
1:B:244:MET:HE3	1:B:248:ASN:HD21	1.68	0.58
1:A:608:ASN:N	1:A:608:ASN:HD22	2.00	0.58
1:A:753:LEU:O	1:A:756:GLN:HB3	2.03	0.57
1:A:83:ILE:HD12	1:A:83:ILE:N	2.19	0.57
1:A:277:HIS:CD2	1:A:429:SER:HB2	2.39	0.57
1:A:303:LYS:HE3	1:A:306:ASP:OD1	2.04	0.57
1:A:314:GLU:O	1:A:318:LEU:HG	2.04	0.57
1:B:28:ARG:H	1:B:28:ARG:HD3	1.70	0.57
1:B:704:GLN:OE1	1:B:706:ASP:C	2.43	0.57
1:A:204:GLU:O	1:A:208:GLN:HG2	2.05	0.57
1:A:244:MET:CE	1:A:248:ASN:HD21	2.18	0.57
1:B:304:LYS:HD2	4:B:9411:HOH:O	2.04	0.57
1:A:268:TYR:CB	1:B:125:TYR:HE2	2.15	0.56
1:B:733:GLU:HG2	4:B:9233:HOH:O	2.05	0.56
1:A:94:LEU:HB3	1:A:97:LEU:HD12	1.87	0.56
1:A:584:THR:HG23	1:A:630:VAL:HG22	1.88	0.56
1:B:28:ARG:HH12	1:B:30:LYS:HD2	1.71	0.56
1:B:244:MET:CE	1:B:248:ASN:HD21	2.18	0.56
1:B:456:ASP:O	1:B:457:SER:CB	2.53	0.56
1:B:39:ILE:HG21	1:B:71:LEU:HB3	1.87	0.56
1:B:456:ASP:O	1:B:457:SER:HB3	2.06	0.56
1:A:27:GLU:N	1:A:30:LYS:HB3	2.20	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:717:ILE:CG2	1:A:761:LYS:HD2	2.36	0.56
1:A:757:LYS:HD3	4:A:9240:HOH:O	2.06	0.56
1:B:60:GLU:O	1:B:64:GLU:HB2	2.06	0.56
1:B:523:ARG:HG2	4:B:9025:HOH:O	2.06	0.56
1:A:28:ARG:HG3	1:A:29:ASN:N	2.21	0.56
1:A:184:ASP:HB3	1:A:236:TYR:HB3	1.87	0.56
1:A:212:GLU:O	1:A:216:VAL:HG23	2.06	0.56
1:A:614:LEU:CD2	1:A:770:ILE:HD12	2.35	0.56
1:A:712:LYS:H	1:A:712:LYS:CE	2.18	0.56
1:B:366:ASN:H	1:B:367:PRO:CD	2.16	0.56
1:A:741:PHE:O	1:A:745:HIS:HD2	1.89	0.55
1:A:449:THR:HG21	4:A:9251:HOH:O	2.05	0.55
1:A:272:GLU:HG3	1:B:125:TYR:CE1	2.41	0.55
4:A:9170:HOH:O	1:B:124:GLY:HA2	2.06	0.55
1:B:391:ARG:HG3	1:B:412:TYR:CE1	2.41	0.55
1:A:495:ASP:OD2	1:B:495:ASP:HB2	2.07	0.55
1:A:488:ILE:HD13	1:A:517:GLY:O	2.07	0.55
1:A:178:LYS:HB3	1:A:190:PHE:HE1	1.71	0.54
1:B:733:GLU:CD	1:B:733:GLU:H	2.09	0.54
1:A:643:TYR:HA	1:A:646:GLN:HG3	1.90	0.54
1:B:431:LEU:HG	4:B:9306:HOH:O	2.06	0.54
1:A:460:ASN:HD22	1:A:461:THR:N	2.05	0.54
1:B:28:ARG:O	1:B:32:GLN:HB2	2.07	0.54
1:A:247:PHE:HA	1:A:251:GLU:HB2	1.89	0.54
1:A:615:ILE:O	1:A:619:THR:HG23	2.08	0.54
1:B:704:GLN:NE2	1:B:705:SER:N	2.55	0.54
1:B:693:ASP:CG	1:B:707:LEU:HB3	2.29	0.54
1:A:496:ASN:C	1:A:496:ASN:HD22	2.10	0.54
1:A:524:ASN:ND2	4:A:9004:HOH:O	2.41	0.53
1:B:368:LEU:HB2	1:B:373:LYS:HG2	1.90	0.53
1:A:322:ILE:HA	1:A:368:LEU:HD13	1.89	0.53
1:A:154:ILE:HG22	1:A:159:ILE:HD13	1.91	0.53
1:A:733:GLU:H	1:A:733:GLU:CD	2.12	0.53
1:A:748:ASP:OD2	1:A:750:ALA:HB3	2.09	0.53
1:B:31:THR:HA	1:B:34:GLU:HB3	1.89	0.53
1:A:712:LYS:H	1:A:712:LYS:CD	2.21	0.53
1:A:611:GLN:NE2	1:A:770:ILE:HG21	2.24	0.53
1:B:722:GLY:HA3	1:B:730:ARG:NH1	2.24	0.53
1:A:31:THR:O	1:A:35:HIS:HB2	2.08	0.53
1:A:404:ILE:HD13	1:A:404:ILE:N	2.24	0.52
1:A:570:TRP:O	1:A:574:LEU:HB2	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:694:ASP:HA	1:A:707:LEU:HD23	1.91	0.52
1:A:733:GLU:CD	1:A:733:GLU:N	2.63	0.52
1:A:272:GLU:HG3	1:B:125:TYR:CD1	2.44	0.52
1:B:578:LYS:O	1:B:579:TYR:HB2	2.10	0.52
1:B:38:GLU:O	1:B:41:LYS:HB3	2.09	0.52
1:B:392:LEU:HD11	1:B:416:ILE:HD12	1.92	0.52
1:B:312:SER:OG	1:B:315:GLU:HG3	2.10	0.52
1:A:491:ARG:HB3	1:A:492:PRO:HD2	1.92	0.52
1:A:66:VAL:HG12	1:A:70:VAL:CG2	2.39	0.51
1:A:488:ILE:HD13	1:A:517:GLY:C	2.31	0.51
1:A:107:ILE:HG21	1:A:145:LEU:CD1	2.40	0.51
1:A:322:ILE:HD12	1:A:372:GLU:OE1	2.10	0.51
1:B:114:LEU:HD21	1:B:120:TYR:HB2	1.92	0.51
1:A:104:ILE:HG22	1:A:105:LYS:N	2.25	0.51
1:B:47:GLU:O	1:B:84:VAL:HG23	2.11	0.51
1:A:577:PRO:O	1:A:580:THR:CG2	2.58	0.51
1:B:126:GLU:N	1:B:127:PRO:CD	2.72	0.51
1:A:413:LYS:O	1:A:417:GLN:HG3	2.11	0.51
1:B:206:LEU:HD13	1:B:206:LEU:O	2.11	0.51
1:B:317:GLU:HB2	4:B:9189:HOH:O	2.10	0.51
1:A:766:ILE:O	1:A:770:ILE:HG12	2.11	0.51
1:B:140:ASN:ND2	1:B:143:LYS:NZ	2.59	0.51
1:A:49:LYS:HD2	1:A:51:GLU:OE1	2.11	0.50
1:A:329:PHE:HE2	1:A:377:LYS:HA	1.75	0.50
1:A:627:GLY:HA3	1:A:664:ARG:O	2.12	0.50
1:B:121:ALA:HB1	1:B:154:ILE:CD1	2.41	0.50
1:A:28:ARG:CG	1:A:29:ASN:H	2.25	0.50
1:B:759:ALA:N	1:B:760:PRO:HD3	2.26	0.50
1:A:368:LEU:HD22	1:A:372:GLU:CD	2.32	0.50
1:A:426:SER:HA	1:A:510:ARG:HA	1.94	0.50
1:A:717:ILE:H	1:A:717:ILE:CD1	2.23	0.50
1:A:725:LEU:HD12	1:A:736:PHE:CE1	2.47	0.50
1:B:702:LYS:N	1:B:702:LYS:HD2	2.26	0.50
1:A:368:LEU:HB3	1:A:370:GLU:OE1	2.11	0.50
1:A:221:PHE:CD1	1:A:244:MET:HE1	2.46	0.49
1:A:330:LEU:HD13	1:A:338:LEU:HD12	1.94	0.49
1:A:704:GLN:NE2	1:A:705:SER:HB3	2.27	0.49
1:A:433:ASN:O	1:A:435:ILE:HD12	2.12	0.49
1:B:611:GLN:HE22	1:B:613:ASP:CB	2.23	0.49
1:A:70:VAL:CG2	1:A:71:LEU:N	2.75	0.49
1:A:322:ILE:HA	1:A:368:LEU:CD1	2.42	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:341:LEU:O	1:A:345:ILE:HG12	2.12	0.49
1:A:606:TRP:CH2	1:A:615:ILE:HG23	2.47	0.49
1:B:319:LEU:O	1:B:322:ILE:HG22	2.12	0.49
1:B:373:LYS:O	1:B:377:LYS:HG3	2.12	0.49
1:B:500:LYS:HD3	1:B:537:GLN:HE22	1.77	0.49
1:A:57:GLU:O	1:A:61:LYS:HG2	2.12	0.49
1:A:322:ILE:HG13	1:A:368:LEU:HD13	1.93	0.49
1:A:576:LEU:HB3	1:A:580:THR:HG21	1.95	0.49
1:A:723:SER:HB3	1:A:730:ARG:NH1	2.27	0.49
1:B:47:GLU:OE1	1:B:91:HIS:HE1	1.95	0.49
1:B:441:MET:O	1:B:499:LEU:HB2	2.13	0.49
1:B:278:TYR:HE2	1:B:425:GLN:HB3	1.76	0.49
1:A:70:VAL:HG23	1:A:71:LEU:N	2.27	0.49
1:B:659:TYR:HD1	1:B:666:ILE:HD13	1.77	0.49
1:A:432:TYR:CD1	1:A:435:ILE:HD11	2.48	0.48
1:A:707:LEU:HB3	1:A:709:THR:HG22	1.95	0.48
1:B:150:GLU:OE2	1:B:153:LYS:NZ	2.46	0.48
1:A:537:GLN:NE2	4:A:9115:HOH:O	2.46	0.48
1:B:34:GLU:O	1:B:38:GLU:HG3	2.13	0.48
1:B:54:VAL:HA	1:B:57:GLU:OE2	2.12	0.48
1:B:176:THR:CG2	1:B:239:GLU:HG3	2.34	0.48
1:B:129:LEU:HD11	1:B:131:ILE:HD11	1.96	0.48
1:B:113:LEU:N	1:B:113:LEU:HD22	2.28	0.48
1:A:28:ARG:HG3	1:A:29:ASN:OD1	2.13	0.48
1:A:159:ILE:HD12	1:A:159:ILE:N	2.27	0.48
1:A:331:SER:O	1:A:335:LYS:HG2	2.14	0.48
1:B:85:ASP:HB3	1:B:133:SER:OG	2.12	0.48
1:A:49:LYS:HB2	1:A:51:GLU:OE1	2.13	0.48
1:A:329:PHE:CE2	1:A:377:LYS:HA	2.49	0.48
1:B:551:PRO:HD2	1:B:554:LYS:HE3	1.95	0.48
1:B:607:LYS:HE2	4:B:9155:HOH:O	2.14	0.48
1:B:632:THR:OG1	1:B:634:ILE:HG12	2.14	0.48
1:A:701:ASP:OD1	1:A:704:GLN:HB3	2.13	0.48
1:A:61:LYS:O	1:A:64:GLU:HB3	2.12	0.47
1:A:67:PRO:O	1:A:70:VAL:HG22	2.13	0.47
1:A:244:MET:HE3	1:A:248:ASN:HD21	1.77	0.47
1:A:656:LYS:HE2	1:A:680:ASP:OD2	2.13	0.47
1:A:705:SER:O	1:A:706:ASP:HB2	2.14	0.47
1:A:104:ILE:CG2	1:A:105:LYS:N	2.77	0.47
1:B:89:THR:O	1:B:89:THR:HG22	2.15	0.47
1:B:331:SER:OG	1:B:334:GLU:HG3	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:608:ASN:N	1:A:608:ASN:ND2	2.62	0.47
1:B:143:LYS:O	1:B:147:VAL:HG23	2.14	0.47
1:B:178:LYS:HD2	1:B:201:PHE:CZ	2.50	0.47
1:B:703:ASN:O	1:B:704:GLN:CB	2.62	0.47
1:A:154:ILE:O	1:A:159:ILE:HD13	2.15	0.47
1:B:77:ILE:HG23	1:B:77:ILE:O	2.15	0.47
1:B:206:LEU:HD13	1:B:206:LEU:C	2.35	0.47
1:B:408:VAL:HA	1:B:411:GLN:HG2	1.97	0.47
1:A:29:ASN:HA	1:A:32:GLN:HB2	1.97	0.47
1:A:679:ASN:HD22	1:A:679:ASN:H	1.63	0.47
1:B:125:TYR:CD1	1:B:125:TYR:N	2.83	0.47
1:B:564:LEU:O	1:B:568:GLN:HG3	2.14	0.47
1:B:706:ASP:O	1:B:707:LEU:HD23	2.15	0.47
1:B:304:LYS:HA	1:B:341:LEU:HD21	1.97	0.47
1:B:741:PHE:O	1:B:745:HIS:HD2	1.98	0.47
1:B:119:VAL:HG23	1:B:131:ILE:CD1	2.45	0.47
1:A:611:GLN:HE22	1:A:770:ILE:HG21	1.80	0.46
1:B:52:GLU:HG3	1:B:52:GLU:O	2.14	0.46
1:B:675:VAL:O	1:B:676:GLU:HB2	2.15	0.46
1:A:28:ARG:HG2	1:A:28:ARG:NH1	2.26	0.46
1:B:535:ILE:HD13	1:B:544:ARG:HB2	1.96	0.46
1:B:368:LEU:HA	4:B:9278:HOH:O	2.14	0.46
1:A:411:GLN:HE21	1:A:411:GLN:HA	1.80	0.46
1:B:319:LEU:HD23	1:B:345:ILE:CD1	2.44	0.46
1:A:454:LEU:HG	1:A:463:ILE:HD12	1.97	0.46
1:A:721:GLU:OE1	1:A:761:LYS:HB3	2.15	0.46
1:A:560:GLN:HG2	4:A:9041:HOH:O	2.16	0.46
1:B:496:ASN:C	1:B:496:ASN:HD22	2.18	0.46
1:B:515:GLU:O	1:B:515:GLU:CD	2.54	0.46
1:A:501:TRP:HB3	1:A:503:ILE:HD11	1.97	0.46
1:A:557:THR:O	1:A:561:GLU:HG3	2.15	0.46
1:A:656:LYS:O	1:A:656:LYS:HD3	2.16	0.46
1:B:402:PRO:O	1:B:649:ILE:HD12	2.16	0.46
1:A:36:LEU:O	1:A:40:MET:HG2	2.15	0.46
1:B:95:GLU:O	1:B:96:ALA:HB2	2.16	0.46
1:A:124:GLY:O	1:A:127:PRO:HD3	2.16	0.46
1:A:322:ILE:HD13	1:A:376:LEU:HD21	1.98	0.46
1:A:434:LYS:HB3	1:A:434:LYS:NZ	2.30	0.46
1:B:388:ILE:HG23	1:B:416:ILE:HD11	1.97	0.46
1:B:464:ASN:HB3	4:B:9084:HOH:O	2.15	0.46
1:B:690:HIS:O	1:B:693:ASP:HB3	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:323:GLN:HB3	1:A:326:SER:OG	2.15	0.45
1:B:388:ILE:HG23	1:B:416:ILE:CD1	2.46	0.45
1:A:193:GLN:HE21	1:A:193:GLN:HA	1.80	0.45
1:A:480:SER:HB3	1:A:525:ILE:HB	1.98	0.45
1:B:673:LYS:NZ	1:B:677:LEU:O	2.49	0.45
1:B:530:LYS:NZ	4:B:9092:HOH:O	2.49	0.45
1:A:169:LYS:HB3	4:A:9056:HOH:O	2.16	0.45
1:B:370:GLU:HG2	1:B:371:LYS:H	1.80	0.45
1:B:420:ASP:OD1	1:B:523:ARG:HD3	2.17	0.45
1:B:502:ARG:C	1:B:503:ILE:HD13	2.37	0.45
1:A:269:GLU:HB2	4:A:9290:HOH:O	2.17	0.45
1:A:433:ASN:O	1:A:435:ILE:CD1	2.65	0.45
1:B:88:ILE:O	1:B:94:LEU:HD12	2.17	0.45
1:B:389:ASN:OD1	1:B:482:ASN:HB2	2.17	0.45
1:B:426:SER:HA	1:B:510:ARG:HA	1.99	0.45
1:B:611:GLN:HE21	1:B:614:LEU:H	1.65	0.45
1:A:87:ASP:OD1	1:A:115:HIS:HB2	2.17	0.45
1:A:538:SER:O	1:A:539:GLU:HB2	2.17	0.45
1:A:758:ASN:HB3	4:A:9183:HOH:O	2.16	0.45
1:B:427:ILE:O	1:B:428:GLY:C	2.55	0.45
1:A:701:ASP:C	1:A:703:ASN:H	2.20	0.44
1:A:244:MET:HE3	1:A:248:ASN:ND2	2.32	0.44
1:A:467:ILE:N	1:A:467:ILE:HD12	2.32	0.44
1:A:141:THR:HG21	1:A:228:GLN:HG3	1.99	0.44
1:A:768:ASP:O	1:A:771:LYS:HB3	2.17	0.44
1:B:28:ARG:C	1:B:30:LYS:H	2.20	0.44
1:A:149:TYR:HA	1:A:222:ALA:HB2	1.98	0.44
1:A:765:PHE:HD2	1:A:766:ILE:HD12	1.82	0.44
1:B:700:LEU:O	1:B:701:ASP:HB3	2.18	0.44
1:B:769:GLN:O	1:B:773:ILE:HD13	2.18	0.44
1:A:121:ALA:HB2	1:A:150:GLU:HG3	1.98	0.44
1:B:327:SER:HA	4:B:9214:HOH:O	2.17	0.44
1:A:584:THR:CG2	1:A:630:VAL:HG22	2.48	0.44
1:A:687:GLU:O	1:A:690:HIS:HB2	2.17	0.44
1:B:505:LEU:HD22	1:B:509:THR:HG21	1.99	0.44
1:A:409:ARG:HD2	4:A:9119:HOH:O	2.17	0.44
1:A:679:ASN:ND2	1:A:682:GLU:HB2	2.32	0.44
1:B:91:HIS:CD2	1:B:93:SER:H	2.36	0.44
1:B:244:MET:HE3	1:B:248:ASN:ND2	2.32	0.44
1:A:338:LEU:HD23	1:A:341:LEU:HD12	1.98	0.44
1:A:412:TYR:O	1:A:416:ILE:HG13	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:125:TYR:N	1:B:125:TYR:HD1	2.16	0.44
1:B:444:ASN:HD22	1:B:448:ALA:HA	1.82	0.44
1:B:226:GLU:OE1	1:B:228:GLN:HB2	2.18	0.43
1:B:414:ARG:NH2	4:B:9146:HOH:O	2.50	0.43
1:A:675:VAL:HG22	1:A:675:VAL:O	2.18	0.43
1:B:611:GLN:NE2	1:B:613:ASP:HB2	2.29	0.43
1:B:704:GLN:CD	1:B:706:ASP:N	2.67	0.43
1:B:744:MET:C	1:B:752:ARG:HG2	2.38	0.43
1:A:373:LYS:HD2	1:A:377:LYS:HE3	2.00	0.43
1:B:206:LEU:HD23	1:B:213:VAL:HG21	2.00	0.43
1:B:366:ASN:N	1:B:367:PRO:HD2	2.20	0.43
1:B:713:LYS:O	1:B:717:ILE:HG12	2.18	0.43
1:A:490:GLU:OE2	1:A:500:LYS:HE3	2.18	0.43
1:B:444:ASN:ND2	1:B:448:ALA:HA	2.34	0.43
1:A:294:LYS:NZ	4:A:9167:HOH:O	2.51	0.43
1:B:339:LYS:O	1:B:343:ILE:HG12	2.17	0.43
1:B:370:GLU:OE2	1:B:370:GLU:N	2.49	0.43
1:B:678:ARG:HB3	1:B:678:ARG:CZ	2.48	0.43
1:B:704:GLN:NE2	1:B:704:GLN:C	2.72	0.43
1:B:297:GLN:NE2	1:B:514:LEU:HD13	2.33	0.43
1:A:370:GLU:OE1	1:A:370:GLU:N	2.44	0.43
1:A:639:ILE:HG22	1:A:641:GLU:H	1.84	0.43
1:B:408:VAL:HA	1:B:411:GLN:CG	2.49	0.43
1:B:491:ARG:HB3	1:B:492:PRO:HD2	2.00	0.43
1:B:212:GLU:HG2	4:B:9135:HOH:O	2.18	0.43
1:B:712:LYS:H	1:B:712:LYS:CD	2.07	0.42
1:A:741:PHE:O	1:A:745:HIS:CD2	2.72	0.42
1:B:28:ARG:HH11	1:B:30:LYS:HB2	1.83	0.42
1:B:513:TYR:HA	1:B:519:LEU:HD23	2.01	0.42
1:B:767:ASN:HD22	1:B:767:ASN:HA	1.59	0.42
1:A:49:LYS:HG3	1:A:85:ASP:OD1	2.19	0.42
1:A:159:ILE:N	1:A:159:ILE:CD1	2.82	0.42
1:A:639:ILE:O	1:A:640:ALA:HB3	2.20	0.42
1:A:226:GLU:HB3	1:A:229:HIS:HB2	2.00	0.42
1:A:410:LYS:HG3	4:A:9333:HOH:O	2.18	0.42
1:A:719:LYS:N	1:A:719:LYS:HE2	2.35	0.42
1:B:55:LYS:HD3	1:B:133:SER:HB2	2.01	0.42
1:B:156:SER:HB2	1:B:217:PHE:CD2	2.54	0.42
1:A:119:VAL:HG12	1:A:120:TYR:N	2.35	0.42
1:A:182:ASP:OD1	1:A:184:ASP:N	2.51	0.42
1:A:389:ASN:OD1	1:A:482:ASN:HB2	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:79:GLY:O	1:A:80:LYS:HD2	2.19	0.42
1:A:639:ILE:O	1:A:640:ALA:HB2	2.19	0.42
1:B:748:ASP:OD1	1:B:750:ALA:HB3	2.20	0.42
1:A:309:HIS:O	1:A:309:HIS:ND1	2.52	0.42
1:B:237:ALA:N	1:B:238:PRO:HD3	2.35	0.42
1:B:746:SER:O	1:B:752:ARG:HD2	2.19	0.42
1:B:775:ASN:HA	4:B:9476:HOH:O	2.20	0.42
1:B:126:GLU:N	1:B:127:PRO:HD3	2.34	0.42
1:B:234:GLN:HB2	1:B:241:PHE:CD2	2.55	0.42
1:A:106:ASP:OD1	1:A:110:LYS:HE3	2.20	0.41
1:A:178:LYS:HD2	1:A:201:PHE:CE1	2.55	0.41
1:A:368:LEU:HD12	1:A:368:LEU:N	2.34	0.41
1:A:581:LYS:HE3	1:A:628:ARG:HH21	1.84	0.41
1:B:231:ASP:O	1:B:235:LEU:HB2	2.20	0.41
1:B:503:ILE:HD12	1:B:547:ALA:HB3	2.01	0.41
1:A:70:VAL:HG23	1:A:71:LEU:HD12	2.01	0.41
1:A:679:ASN:HD22	1:A:679:ASN:N	2.17	0.41
1:A:723:SER:HB3	1:A:730:ARG:HH12	1.85	0.41
1:B:611:GLN:NE2	1:B:613:ASP:N	2.69	0.41
1:A:342:GLN:C	1:A:344:ASP:H	2.24	0.41
1:B:49:LYS:HD2	1:B:50:GLY:N	2.35	0.41
1:A:460:ASN:C	1:A:460:ASN:ND2	2.73	0.41
1:A:640:ALA:C	1:A:642:GLN:N	2.73	0.41
1:A:678:ARG:HD3	4:A:9226:HOH:O	2.20	0.41
1:B:235:LEU:HD23	1:B:236:TYR:CE2	2.55	0.41
1:A:313:GLN:HB2	4:A:9248:HOH:O	2.20	0.41
1:B:332:THR:HG22	1:B:336:GLU:OE2	2.20	0.41
1:B:704:GLN:HE21	1:B:704:GLN:C	2.24	0.41
1:A:49:LYS:HG3	1:A:49:LYS:H	1.69	0.41
1:B:136:ASP:O	1:B:140:ASN:N	2.54	0.41
1:B:278:TYR:CE2	1:B:425:GLN:HB3	2.54	0.41
1:B:388:ILE:HD13	1:B:412:TYR:CD2	2.56	0.41
1:B:388:ILE:HD13	1:B:412:TYR:HD2	1.86	0.41
1:B:457:SER:CA	4:B:9182:HOH:O	2.68	0.41
1:B:488:ILE:HD13	1:B:517:GLY:C	2.40	0.41
1:B:703:ASN:O	1:B:704:GLN:HB2	2.20	0.41
1:A:586:ASN:OD1	1:A:588:HIS:CE1	2.74	0.41
1:B:424:HIS:HA	1:B:510:ARG:HD2	2.03	0.41
1:A:51:GLU:CD	1:A:51:GLU:H	2.24	0.41
1:A:92:ILE:HD12	1:A:92:ILE:N	2.10	0.41
1:A:711:SER:HA	1:A:712:LYS:HE3	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:121:ALA:CB	1:B:150:GLU:HG3	2.47	0.41
1:A:28:ARG:CG	1:A:29:ASN:N	2.82	0.41
1:A:31:THR:O	1:A:31:THR:HG22	2.21	0.41
1:A:606:TRP:CZ2	1:A:615:ILE:HG23	2.56	0.41
1:B:457:SER:HA	4:B:9182:HOH:O	2.21	0.41
1:A:94:LEU:O	1:A:97:LEU:HB2	2.21	0.40
1:A:739:GLU:OE1	1:A:739:GLU:HA	2.21	0.40
1:B:107:ILE:HG21	1:B:145:LEU:CD1	2.45	0.40
1:B:226:GLU:OE2	1:B:227:PRO:HD2	2.21	0.40
1:B:770:ILE:O	1:B:774:ILE:HG13	2.22	0.40
1:A:437:LEU:HD11	1:A:519:LEU:HD12	2.03	0.40
1:A:501:TRP:CE3	1:A:503:ILE:HD11	2.56	0.40
1:A:719:LYS:HE2	1:A:719:LYS:CA	2.52	0.40
1:B:54:VAL:HA	1:B:57:GLU:HG2	2.03	0.40
1:A:219:LYS:HE3	1:A:219:LYS:HB2	1.94	0.40
1:A:399:ILE:HD12	1:A:400:ASP:N	2.36	0.40
1:A:463:ILE:HD13	1:A:463:ILE:HA	1.93	0.40
1:A:226:GLU:OE1	1:A:228:GLN:HB2	2.22	0.40
1:A:762:THR:HG23	1:A:766:ILE:HD13	2.02	0.40
1:B:467:ILE:HD12	1:B:467:ILE:N	2.36	0.40
1:A:36:LEU:O	1:A:36:LEU:HD23	2.22	0.40
1:A:754:LYS:HE2	1:A:754:LYS:HB3	1.97	0.40
1:B:456:ASP:HA	1:B:464:ASN:OD1	2.22	0.40
1:B:611:GLN:HE22	1:B:613:ASP:CA	2.35	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	721/776 (93%)	670 (93%)	38 (5%)	13 (2%)	8 7

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	732/776 (94%)	685 (94%)	35 (5%)	12 (2%)	9	9
All	All	1453/1552 (94%)	1355 (93%)	73 (5%)	25 (2%)	9	8

All (25) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	49	LYS
1	A	313	GLN
1	A	640	ALA
1	B	28	ARG
1	B	96	ALA
1	B	704	GLN
1	A	701	ASP
1	A	706	ASP
1	A	772	PHE
1	B	30	LYS
1	B	51	GLU
1	B	140	ASN
1	B	251	GLU
1	B	366	ASN
1	B	457	SER
1	A	53	ALA
1	A	250	GLN
1	A	702	LYS
1	B	53	ALA
1	A	52	GLU
1	A	312	SER
1	B	325	ASP
1	B	705	SER
1	A	343	ILE
1	A	50	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	660/710 (93%)	623 (94%)	37 (6%)	21	29
1	B	669/710 (94%)	631 (94%)	38 (6%)	20	28
All	All	1329/1420 (94%)	1254 (94%)	75 (6%)	21	29

All (75) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	80	LYS
1	A	107	ILE
1	A	125	TYR
1	A	137	TYR
1	A	192	ASN
1	A	193	GLN
1	A	215	GLU
1	A	233	LEU
1	A	256	LEU
1	A	259	LEU
1	A	265	LEU
1	A	294	LYS
1	A	296	LEU
1	A	301	GLU
1	A	370	GLU
1	A	379	LEU
1	A	404	ILE
1	A	411	GLN
1	A	446	LEU
1	A	447	THR
1	A	458	THR
1	A	460	ASN
1	A	496	ASN
1	A	505	LEU
1	A	580	THR
1	A	582	LEU
1	A	584	THR
1	A	605	GLU
1	A	636	LEU
1	A	656	LYS
1	A	658	LEU
1	A	679	ASN
1	A	704	GLN
1	A	712	LYS
1	A	733	GLU

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Mol	Chain	Res	Type
1	A	753	LEU
1	A	761	LYS
1	B	28	ARG
1	B	51	GLU
1	B	77	ILE
1	B	95	GLU
1	B	102	LYS
1	B	107	ILE
1	B	111	ASP
1	B	115	HIS
1	B	129	LEU
1	B	135	GLU
1	B	207	GLU
1	B	231	ASP
1	B	233	LEU
1	B	256	LEU
1	B	265	LEU
1	B	304	LYS
1	B	314	GLU
1	B	322	ILE
1	B	347	ASP
1	B	379	LEU
1	B	391	ARG
1	B	425	GLN
1	B	432	TYR
1	B	446	LEU
1	B	447	THR
1	B	488	ILE
1	B	496	ASN
1	B	499	LEU
1	B	515	GLU
1	B	516	ASN
1	B	520	ILE
1	B	611	GLN
1	B	615	ILE
1	B	678	ARG
1	B	702	LYS
1	B	704	GLN
1	B	712	LYS
1	B	753	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (73) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	164	ASN
1	A	165	GLN
1	A	193	GLN
1	A	197	HIS
1	A	209	ASN
1	A	214	GLN
1	A	242	ASN
1	A	248	ASN
1	A	276	GLN
1	A	277	HIS
1	A	279	GLN
1	A	297	GLN
1	A	390	GLN
1	A	393	GLN
1	A	411	GLN
1	A	440	ASN
1	A	445	ASN
1	A	460	ASN
1	A	496	ASN
1	A	524	ASN
1	A	537	GLN
1	A	563	GLN
1	A	567	ASN
1	A	571	ASN
1	A	588	HIS
1	A	589	ASN
1	A	608	ASN
1	A	611	GLN
1	A	652	GLN
1	A	679	ASN
1	A	704	GLN
1	A	710	ASN
1	A	745	HIS
1	A	767	ASN
1	B	91	HIS
1	B	117	HIS
1	B	140	ASN
1	B	164	ASN
1	B	165	GLN
1	B	186	GLN
1	B	193	GLN
1	B	197	HIS
1	B	214	GLN

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Mol	Chain	Res	Type
1	B	242	ASN
1	B	248	ASN
1	B	279	GLN
1	B	297	GLN
1	B	323	GLN
1	B	390	GLN
1	B	411	GLN
1	B	424	HIS
1	B	440	ASN
1	B	444	ASN
1	B	445	ASN
1	B	496	ASN
1	B	504	GLN
1	B	516	ASN
1	B	522	GLN
1	B	524	ASN
1	B	533	GLN
1	B	537	GLN
1	B	563	GLN
1	B	571	ASN
1	B	589	ASN
1	B	608	ASN
1	B	609	ASN
1	B	611	GLN
1	B	638	ASN
1	B	704	GLN
1	B	745	HIS
1	B	756	GLN
1	B	767	ASN
1	B	769	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 4 ligands modelled in this entry, 2 are monoatomic - leaving 2 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
2	SO4	A	777	-	4,4,4	0.21	0	6,6,6	0.17	0
2	SO4	B	777	-	4,4,4	0.25	0	6,6,6	0.05	0

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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates [i](#)

EDS was not executed - this section is therefore empty.

6.4 Ligands [i](#)

EDS was not executed - this section is therefore empty.

6.5 Other polymers [i](#)

EDS was not executed - this section is therefore empty.