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Full wwPDB X-ray Structure Validation Report ⓘ

Dec 6, 2023 – 03:06 am GMT

PDB ID	:	2BRW
Title	:	Crystal structure of Streptococcus Pneumoniae Hyaluronate Lyase from 30percent PEGMME.
Authors	:	Rigden, D.J.; Littlejohn, J.E.; Jedrzejas, M.J.
Deposited on	:	2005-05-11
Resolution	:	2.80 Å(reported)

The following versions of software and data (see references ⓘ) were used in the production of this report:

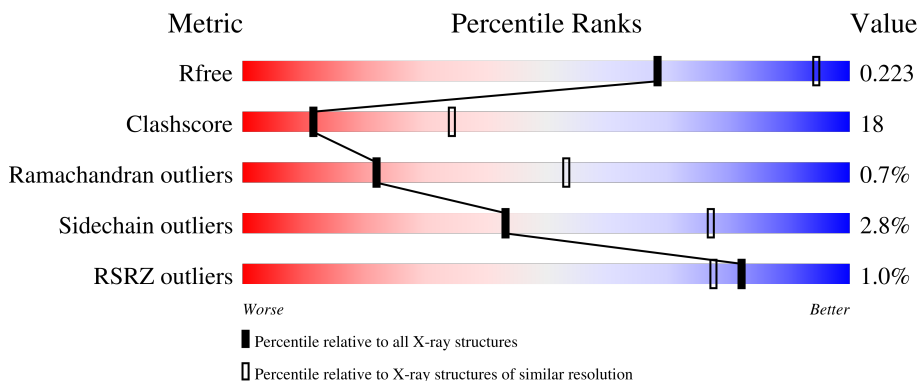|		
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1   Overall quality at a glance   ⓘ

The following experimental techniques were used to determine the structure:
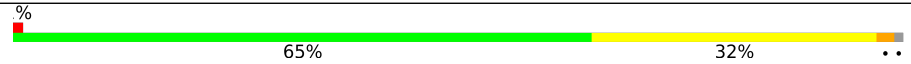*X-RAY DIFFRACTION*

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	Percentile Ranks	Value
Rfree		0.223
Clashscore		18
Ramachandran outliers		0.7%
Sidechain outliers		2.8%
RSRZ outliers		1.0%

Worse   *Better*

▎ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	731	64% 33% ··
1	B	731	65% 32% ··

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	SO4	A	1891	-	-	X	-

2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 11704 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 HYALURONATE LYASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	722	Total 5791	C 3643	N 969	O 1157	S 22	0	0	1
1	B	722	Total 5791	C 3643	N 969	O 1157	S 22	0	0	1

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	173	THR	ALA	conflict	UNP Q54873
A	196	ASP	GLU	conflict	UNP Q54873
A	223	ILE	THR	conflict	UNP Q54873
A	496	ARG	CYS	conflict	UNP Q54873
A	541	THR	PRO	conflict	UNP Q54873
A	704	SER	GLY	conflict	UNP Q54873
A	736	SER	PHE	conflict	UNP Q54873
A	790	GLY	ARG	conflict	UNP Q54873
B	173	THR	ALA	conflict	UNP Q54873
B	196	ASP	GLU	conflict	UNP Q54873
B	223	ILE	THR	conflict	UNP Q54873
B	496	ARG	CYS	conflict	UNP Q54873
B	541	THR	PRO	conflict	UNP Q54873
B	704	SER	GLY	conflict	UNP Q54873
B	736	SER	PHE	conflict	UNP Q54873
B	790	GLY	ARG	conflict	UNP Q54873

- Molecule 2 is SULFATE ION (three-letter code: SO4) (formula: O_4S).

SO4

O1

O

O3 O⁻ — S — O⁻ O4

S

O

O2

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
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 water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	65	Total 65	O 65	0	0
3	B	47	Total 47	O 47	0	0

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3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

● Molecule 1: HYALURONATE LYASE
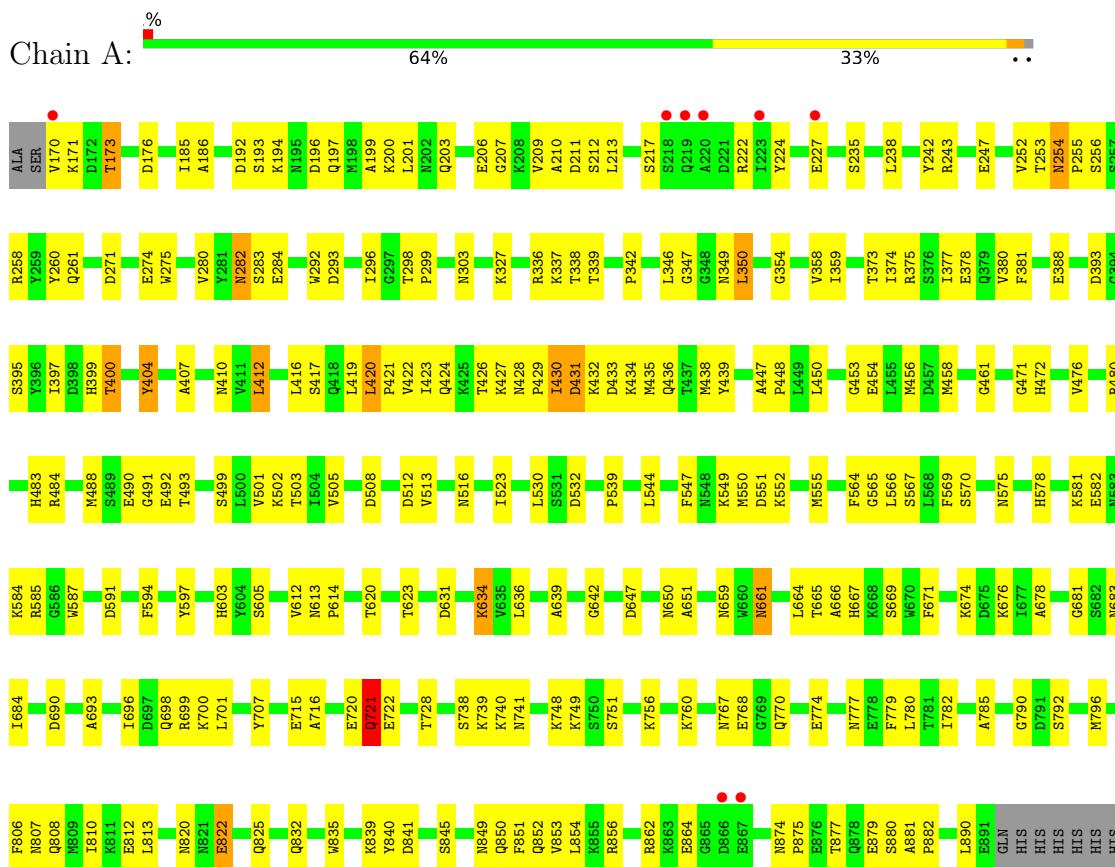
● Molecule 1: HYALURONATE LYASE
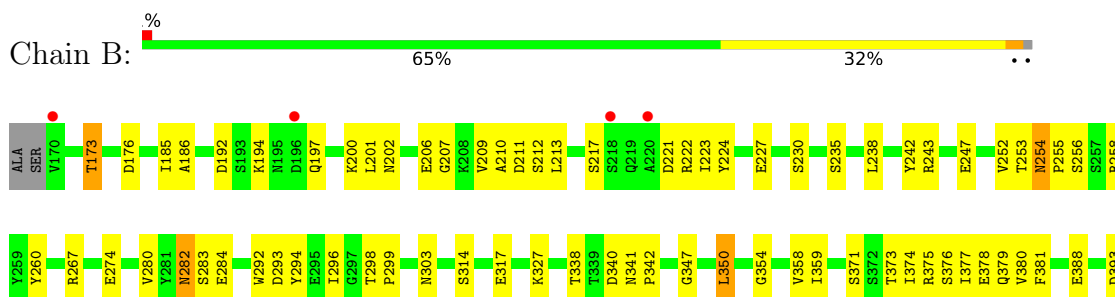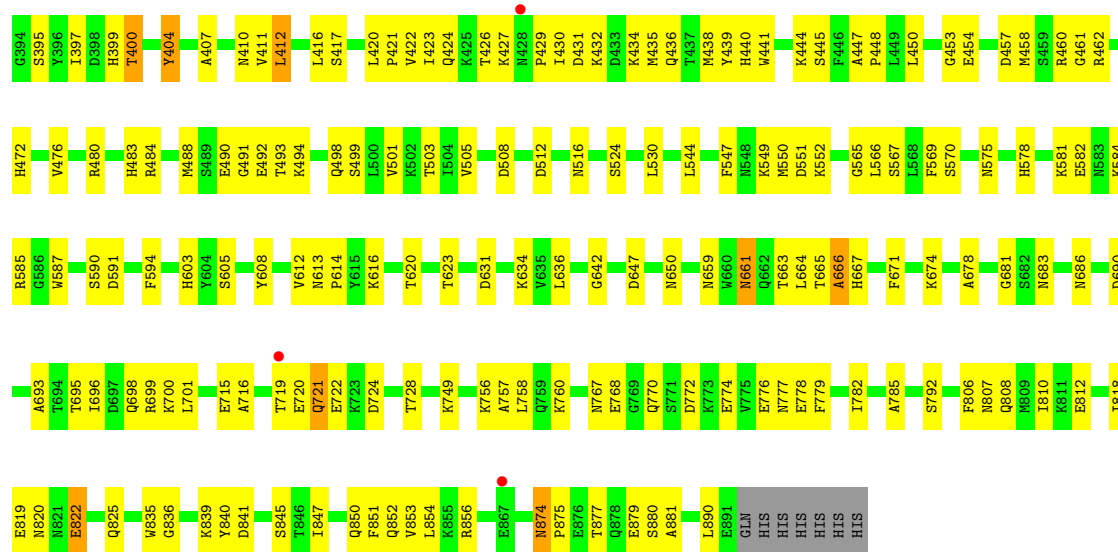
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	86.67Å 84.06Å 98.67Å 90.00° 98.87° 90.00°	Depositor
Resolution (Å)	95.35 – 2.80 40.00 – 2.40	Depositor EDS
% Data completeness (in resolution range)	88.5 (95.35-2.80) 87.3 (40.00-2.40)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$<I/\sigma(I)>$ [1]	1.85 (at 2.39Å)	Xtriage
Refinement program	REFMAC 5.2.0003	Depositor
R, R_{free}	0.229 , 0.277 0.234 , 0.223	Depositor DCC
R_{free} test set	2429 reflections (5.09%)	wwPDB-VP
Wilson B-factor (Å^2)	31.5	Xtriage
Anisotropy	0.570	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 44.3	EDS
L-test for twinning[2]	$<|L|> = 0.45$, $<L^2> = 0.28$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.90	EDS
Total number of atoms	11704	wwPDB-VP
Average B, all atoms (Å^2)	33.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.90% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $<|L|>$, $<L^2>$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5   Model quality ⓘ

5.1   Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: SO4

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	0/5910	0.66	0/7983
1	B	0.43	0/5910	0.66	0/7983
All	All	0.43	0/11820	0.66	0/15966

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2   Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	5791	0	5611	209	0
1	B	5791	0	5611	193	0
2	A	5	0	0	2	0
2	B	5	0	0	1	0
3	A	65	0	0	7	0
3	B	47	0	0	6	0
All	All	11704	0	11222	400	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 18.

All (400) close contacts within the same asymmetric unit are listed below, sorted by their clash

magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:424:GLN:HE22	1:B:430:ILE:HG22	1.05	1.21
1:A:196:ASP:O	1:A:200:LYS:HB2	1.63	0.97
1:B:424:GLN:HE22	1:B:430:ILE:CG2	1.80	0.95
1:B:424:GLN:NE2	1:B:430:ILE:HG22	1.84	0.93
1:B:719:THR:HG22	1:B:721:GLN:H	1.31	0.93
1:B:613:ASN:H	1:B:698:GLN:HE22	0.93	0.91
1:A:613:ASN:H	1:A:698:GLN:HE22	0.91	0.89
1:A:421:PRO:HD3	1:A:488:MET:HE1	1.55	0.88
1:B:421:PRO:HD3	1:B:488:MET:HE1	1.56	0.88
1:B:581:LYS:HD3	1:B:768:GLU:HG3	1.57	0.87
1:A:420:LEU:HD23	1:A:488:MET:SD	2.15	0.86
1:A:581:LYS:HD3	1:A:768:GLU:HG3	1.57	0.86
1:B:430:ILE:HD13	1:B:435:MET:HE3	1.57	0.85
1:A:224:TYR:HA	1:A:275:TRP:CH2	2.11	0.85
1:A:613:ASN:N	1:A:698:GLN:HE22	1.75	0.85
1:B:476:VAL:HB	1:B:516:ASN:HD22	1.42	0.84
1:A:476:VAL:HB	1:A:516:ASN:HD22	1.43	0.83
1:A:499:SER:O	1:A:503:THR:HG22	1.80	0.81
1:B:499:SER:O	1:B:503:THR:HG22	1.82	0.80
1:A:613:ASN:H	1:A:698:GLN:NE2	1.77	0.80
1:B:267:ARG:NH2	3:B:2007:HOH:O	2.14	0.80
1:B:719:THR:HG22	1:B:721:GLN:N	1.97	0.79
1:A:197:GLN:HG3	1:A:523:ILE:HD13	1.65	0.79
1:A:424:GLN:OE1	1:A:430:ILE:HG22	1.82	0.78
1:B:613:ASN:N	1:B:698:GLN:HE22	1.77	0.78
1:A:430:ILE:CD1	1:A:434:LYS:HB2	2.16	0.76
1:A:338:THR:HG22	1:A:338:THR:O	1.85	0.75
1:A:424:GLN:CD	1:A:430:ILE:HG22	2.08	0.75
1:A:336:ARG:HB3	1:A:339:THR:OG1	1.88	0.74
1:A:430:ILE:HD11	1:A:434:LYS:HB2	1.69	0.73
1:B:613:ASN:H	1:B:698:GLN:NE2	1.79	0.73
1:A:197:GLN:HG3	1:A:523:ILE:CD1	2.17	0.73
1:A:852:GLN:HG3	1:A:890:LEU:HD21	1.69	0.73
1:A:582:GLU:HG2	1:A:767:ASN:ND2	2.04	0.72
1:B:430:ILE:HD13	1:B:435:MET:CE	2.19	0.72
1:A:243:ARG:O	1:A:247:GLU:HG3	1.90	0.72
1:A:659:ASN:HD21	1:A:661:ASN:HD21	1.37	0.71
1:B:582:GLU:HG2	1:B:767:ASN:ND2	2.06	0.70
1:A:431:ASP:HB3	1:A:434:LYS:HG3	1.74	0.70
1:B:243:ARG:O	1:B:247:GLU:HG3	1.90	0.70
1:B:852:GLN:HG3	1:B:890:LEU:HD21	1.72	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:756:LYS:HE2	1:B:778:GLU:OE2	1.91	0.70
1:A:421:PRO:CD	1:A:488:MET:HE1	2.22	0.70
1:B:806:PHE:O	1:B:810:ILE:HG23	1.92	0.69
1:B:659:ASN:HD21	1:B:661:ASN:HD21	1.39	0.69
1:A:420:LEU:HB3	1:A:488:MET:HE1	1.75	0.69
1:A:806:PHE:O	1:A:810:ILE:HG23	1.93	0.68
1:A:377:ILE:O	1:A:380:VAL:HG22	1.95	0.67
1:B:377:ILE:O	1:B:380:VAL:HG22	1.93	0.67
1:A:582:GLU:HG2	1:A:767:ASN:HD21	1.59	0.67
1:A:199:ALA:O	1:A:203:GLN:HB2	1.94	0.67
1:A:185:ILE:HG13	1:A:186:ALA:N	2.09	0.67
1:A:681:GLY:O	1:A:792:SER:HB2	1.94	0.67
1:A:807:ASN:O	1:A:810:ILE:HG12	1.95	0.66
1:B:338:THR:HG21	3:B:2010:HOH:O	1.95	0.66
1:B:435:MET:CE	1:B:435:MET:HA	2.26	0.66
1:A:591:ASP:O	1:A:620:THR:HG22	1.96	0.65
1:B:490:GLU:HG3	1:B:491:GLY:H	1.60	0.65
1:B:582:GLU:HG2	1:B:767:ASN:HD21	1.60	0.65
1:A:420:LEU:HB3	1:A:488:MET:CE	2.26	0.65
1:A:430:ILE:HD12	1:A:435:MET:HE2	1.79	0.65
1:B:807:ASN:O	1:B:810:ILE:HG12	1.95	0.65
1:B:381:PHE:HE1	1:B:438:MET:HG3	1.62	0.64
1:B:839:LYS:HD2	1:B:853:VAL:HG23	1.80	0.64
1:B:417:SER:HB2	1:B:484:ARG:HB2	1.79	0.64
1:A:424:GLN:NE2	1:A:430:ILE:HG22	2.12	0.64
1:B:223:ILE:HG23	1:B:224:TYR:CD2	2.33	0.64
1:A:513:VAL:HB	3:A:2028:HOH:O	1.98	0.64
1:A:820:ASN:HD22	1:A:825:GLN:HG2	1.62	0.64
1:B:185:ILE:HG13	1:B:186:ALA:N	2.11	0.63
1:A:490:GLU:HG3	1:A:491:GLY:H	1.62	0.63
1:B:476:VAL:HG11	1:B:516:ASN:HB3	1.81	0.63
1:B:591:ASP:O	1:B:620:THR:HG22	1.99	0.63
1:A:283:SER:O	1:A:327:LYS:HE3	1.99	0.62
1:A:430:ILE:HG21	1:A:435:MET:HE3	1.81	0.62
1:B:681:GLY:O	1:B:792:SER:HB2	1.97	0.62
1:A:839:LYS:HD2	1:A:853:VAL:HG23	1.81	0.62
1:A:381:PHE:HE1	1:A:438:MET:HG3	1.64	0.62
1:B:207:GLY:O	1:B:211:ASP:OD1	2.18	0.61
1:B:283:SER:O	1:B:327:LYS:HE3	2.00	0.61
1:B:820:ASN:HD22	1:B:825:GLN:HG2	1.64	0.61
1:A:417:SER:HB2	1:A:484:ARG:HB2	1.81	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:255:PRO:HA	1:B:260:TYR:CD2	2.36	0.61
1:A:292:TRP:CD1	1:A:296:ILE:HD12	2.36	0.61
1:B:721:GLN:HG2	1:B:722:GLU:H	1.65	0.61
1:B:192:ASP:OD1	1:B:194:LYS:HB2	2.01	0.60
1:A:197:GLN:O	1:A:201:LEU:HG	2.00	0.60
1:B:430:ILE:HG21	1:B:435:MET:SD	2.42	0.60
1:A:476:VAL:HG11	1:A:516:ASN:HB3	1.83	0.60
1:A:570:SER:HA	1:A:636:LEU:HB3	1.83	0.60
1:B:292:TRP:CD1	1:B:296:ILE:HD12	2.36	0.60
1:A:224:TYR:OH	1:A:227:GLU:HG3	2.00	0.60
1:A:639:ALA:HB1	3:A:2064:HOH:O	2.01	0.60
1:B:420:LEU:O	1:B:424:GLN:HG2	2.02	0.59
1:A:458:MET:HG2	3:A:2021:HOH:O	2.01	0.59
1:B:282:ASN:C	1:B:282:ASN:HD22	2.05	0.59
1:B:605:SER:O	1:B:700:LYS:HE3	2.02	0.59
1:B:411:VAL:HG13	3:B:2012:HOH:O	2.03	0.58
1:A:235:SER:HB2	1:A:293:ASP:HB2	1.85	0.58
1:A:436:GLN:HA	1:A:439:TYR:HD2	1.67	0.58
1:A:605:SER:O	1:A:700:LYS:HE3	2.03	0.58
1:A:252:VAL:HG13	1:A:253:THR:HG23	1.85	0.58
1:A:422:VAL:O	1:A:426:THR:HG23	2.03	0.58
1:B:420:LEU:HB2	1:B:488:MET:CE	2.33	0.58
1:B:421:PRO:CD	1:B:488:MET:HE1	2.31	0.58
1:B:436:GLN:HA	1:B:439:TYR:HD2	1.69	0.58
1:B:252:VAL:HG13	1:B:253:THR:HG23	1.86	0.58
1:A:851:PHE:HA	1:A:890:LEU:HG	1.87	0.57
1:B:565:GLY:O	1:B:594:PHE:HA	2.05	0.57
1:A:659:ASN:HD21	1:A:661:ASN:ND2	2.01	0.57
1:B:661:ASN:HD22	1:B:661:ASN:C	2.07	0.57
1:A:480:ARG:O	1:A:484:ARG:HG3	2.04	0.57
1:B:664:LEU:C	1:B:664:LEU:HD23	2.24	0.57
1:B:851:PHE:HA	1:B:890:LEU:HG	1.87	0.57
1:B:715:GLU:HG2	1:B:716:ALA:N	2.20	0.57
1:B:719:THR:HG22	1:B:720:GLU:N	2.20	0.57
1:B:202:ASN:O	1:B:206:GLU:HG2	2.05	0.57
1:B:724:ASP:HB3	3:B:2039:HOH:O	2.04	0.56
1:B:407:ALA:O	1:B:410:ASN:HB2	2.04	0.56
1:B:235:SER:HB2	1:B:293:ASP:HB2	1.86	0.56
1:A:882:PRO:HG3	1:B:221:ASP:OD1	2.05	0.56
1:B:371:SER:O	1:B:375:ARG:HG3	2.06	0.56
1:B:756:LYS:HE2	1:B:778:GLU:CD	2.26	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:282:ASN:C	1:A:282:ASN:HD22	2.09	0.56
1:A:358:VAL:HG23	1:A:373:THR:HG21	1.87	0.56
1:B:399:HIS:O	1:B:400:THR:HB	2.04	0.56
1:B:480:ARG:O	1:B:484:ARG:HG3	2.06	0.56
1:A:407:ALA:O	1:A:410:ASN:HB2	2.06	0.56
1:A:751:SER:HB2	3:A:2055:HOH:O	2.05	0.56
1:B:822:GLU:CD	1:B:822:GLU:H	2.09	0.56
1:A:822:GLU:CD	1:A:822:GLU:H	2.10	0.56
1:B:282:ASN:ND2	1:B:284:GLU:HB2	2.21	0.56
1:A:192:ASP:OD2	1:A:194:LYS:HB2	2.05	0.56
1:A:338:THR:O	1:A:338:THR:CG2	2.54	0.56
1:A:399:HIS:O	1:A:400:THR:HB	2.06	0.56
1:A:720:GLU:HA	1:A:756:LYS:O	2.06	0.56
1:A:303:ASN:HB3	1:A:359:ILE:HG21	1.87	0.55
1:B:209:VAL:O	1:B:213:LEU:HG	2.06	0.55
1:B:659:ASN:HD21	1:B:661:ASN:ND2	2.03	0.55
1:A:820:ASN:ND2	1:A:825:GLN:HG2	2.22	0.55
1:A:664:LEU:C	1:A:664:LEU:HD23	2.27	0.55
1:A:715:GLU:HG2	1:A:716:ALA:N	2.21	0.55
1:B:242:TYR:CD2	1:B:298:THR:HG23	2.41	0.55
1:B:551:ASP:O	1:B:552:LYS:HD3	2.07	0.55
1:B:490:GLU:HG3	1:B:491:GLY:N	2.22	0.55
1:A:458:MET:HE2	1:A:567:SER:HB2	1.89	0.55
1:B:424:GLN:NE2	1:B:430:ILE:CG2	2.58	0.55
1:A:242:TYR:CD2	1:A:298:THR:HG23	2.42	0.54
1:B:354:GLY:O	1:B:358:VAL:HB	2.07	0.54
1:B:381:PHE:CZ	1:B:416:LEU:HD21	2.42	0.54
1:B:211:ASP:OD1	1:B:211:ASP:N	2.38	0.54
1:B:570:SER:HA	1:B:636:LEU:HB3	1.88	0.54
1:A:196:ASP:O	1:A:200:LYS:CB	2.47	0.54
1:A:207:GLY:O	1:A:211:ASP:OD1	2.26	0.54
1:B:820:ASN:ND2	1:B:825:GLN:HG2	2.22	0.54
1:A:375:ARG:HD3	1:B:772:ASP:HB2	1.89	0.54
1:A:501:VAL:O	1:A:505:VAL:HG23	2.08	0.54
1:A:659:ASN:ND2	1:A:661:ASN:ND2	2.56	0.54
1:B:303:ASN:HB3	1:B:359:ILE:HG21	1.89	0.54
1:A:209:VAL:O	1:A:213:LEU:HG	2.08	0.54
1:A:254:ASN:C	1:A:254:ASN:HD22	2.12	0.53
1:A:354:GLY:O	1:A:358:VAL:HB	2.08	0.53
1:B:671:PHE:HB2	1:B:678:ALA:HB3	1.91	0.53
1:A:490:GLU:HG3	1:A:491:GLY:N	2.23	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:430:ILE:HD11	1:A:434:LYS:CB	2.38	0.53
1:A:565:GLY:O	1:A:594:PHE:HA	2.08	0.53
1:B:373:THR:O	1:B:377:ILE:HG12	2.08	0.53
1:B:760:LYS:HD3	1:B:774:GLU:OE2	2.08	0.53
1:A:381:PHE:CZ	1:A:416:LEU:HD21	2.44	0.53
1:A:395:SER:HB3	1:A:550:MET:HB3	1.91	0.53
1:A:430:ILE:HG23	1:A:430:ILE:O	2.10	0.52
1:A:211:ASP:OD1	1:A:211:ASP:N	2.42	0.52
1:A:661:ASN:C	1:A:661:ASN:HD22	2.11	0.52
1:B:430:ILE:CD1	1:B:435:MET:HE3	2.34	0.52
1:B:458:MET:HE1	1:B:566:LEU:N	2.25	0.52
1:B:393:ASP:OD2	1:B:549:LYS:HG2	2.10	0.52
1:A:551:ASP:O	1:A:552:LYS:HD3	2.09	0.52
1:B:432:LYS:O	1:B:436:GLN:HG2	2.09	0.52
1:A:862:ARG:CZ	1:A:864:GLU:OE1	2.58	0.51
1:A:612:VAL:O	1:A:614:PRO:HD3	2.10	0.51
1:B:435:MET:HA	1:B:435:MET:HE2	1.91	0.51
1:A:393:ASP:OD2	1:A:549:LYS:HG2	2.10	0.51
1:B:420:LEU:HB2	1:B:488:MET:HE1	1.92	0.51
1:A:224:TYR:HA	1:A:275:TRP:HH2	1.67	0.51
1:B:608:TYR:HB3	3:B:2019:HOH:O	2.09	0.51
1:B:642:GLY:HA3	1:B:875:PRO:HB3	1.93	0.51
1:A:192:ASP:C	1:A:194:LYS:H	2.14	0.51
1:B:197:GLN:O	1:B:201:LEU:HG	2.09	0.51
1:A:570:SER:HA	1:A:636:LEU:CB	2.40	0.51
1:B:422:VAL:O	1:B:426:THR:HG23	2.10	0.51
1:A:206:GLU:OE1	1:A:206:GLU:HA	2.11	0.51
1:B:659:ASN:ND2	1:B:661:ASN:ND2	2.59	0.51
1:B:845:SER:O	1:B:852:GLN:HA	2.11	0.51
1:B:254:ASN:C	1:B:254:ASN:HD22	2.12	0.50
1:A:170:VAL:HG12	1:A:171:LYS:N	2.26	0.50
1:B:501:VAL:O	1:B:505:VAL:HG23	2.11	0.50
1:B:206:GLU:OE1	1:B:206:GLU:HA	2.12	0.50
1:A:419:LEU:O	1:A:423:ILE:HD13	2.12	0.50
1:B:612:VAL:O	1:B:614:PRO:HD3	2.12	0.50
1:B:347:GLY:O	1:B:350:LEU:HB2	2.11	0.50
1:B:570:SER:HA	1:B:636:LEU:CB	2.41	0.50
1:B:575:ASN:HB2	3:B:2029:HOH:O	2.11	0.50
1:A:197:GLN:HA	1:A:197:GLN:OE1	2.12	0.50
1:A:282:ASN:ND2	1:A:284:GLU:H	2.10	0.49
1:B:283:SER:HA	1:B:327:LYS:HG3	1.93	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:458:MET:HE2	1:B:567:SER:HB2	1.94	0.49
1:B:808:GLN:O	1:B:812:GLU:HG3	2.11	0.49
1:A:671:PHE:HB2	1:A:678:ALA:HB3	1.92	0.49
1:A:347:GLY:O	1:A:350:LEU:HB2	2.12	0.49
1:B:235:SER:HB2	1:B:293:ASP:CB	2.43	0.49
1:A:235:SER:HB2	1:A:293:ASP:CB	2.42	0.49
1:A:436:GLN:HA	1:A:439:TYR:CD2	2.46	0.49
1:A:282:ASN:HD22	1:A:284:GLU:H	1.60	0.49
1:A:707:TYR:OH	1:A:740:LYS:O	2.22	0.49
1:A:238:LEU:HD22	1:A:280:VAL:HG11	1.94	0.49
1:A:260:TYR:O	1:A:261:GLN:HB2	2.13	0.49
1:A:283:SER:HA	1:A:327:LYS:HG3	1.94	0.49
1:B:436:GLN:HA	1:B:439:TYR:CD2	2.48	0.49
1:A:502:LYS:NZ	1:A:532:ASP:O	2.46	0.48
1:B:374:ILE:O	1:B:378:GLU:HG3	2.14	0.48
1:B:663:THR:O	1:B:686:ASN:HA	2.12	0.48
1:A:877:THR:O	1:A:879:GLU:HG3	2.14	0.48
1:B:696:ILE:HD12	1:B:782:ILE:HG22	1.95	0.48
1:B:376:SER:O	1:B:379:GLN:HG3	2.14	0.48
1:A:173:THR:O	1:A:176:ASP:HB2	2.14	0.48
1:B:298:THR:HB	1:B:299:PRO:HD3	1.95	0.48
1:B:453:GLY:HA3	1:B:508:ASP:HB2	1.96	0.48
1:A:388:GLU:HA	1:A:397:ILE:O	2.13	0.47
1:B:238:LEU:HD22	1:B:280:VAL:HG11	1.95	0.47
1:B:388:GLU:HA	1:B:397:ILE:O	2.14	0.47
1:B:341:ASN:N	1:B:342:PRO:HD3	2.29	0.47
1:A:238:LEU:HD22	1:A:280:VAL:CG1	2.44	0.47
1:A:578:HIS:NE2	2:A:1891:SO4:O3	2.45	0.47
1:A:458:MET:HE1	1:A:566:LEU:N	2.30	0.47
1:A:835:TRP:HH2	1:A:850:GLN:HE22	1.63	0.47
1:A:845:SER:O	1:A:852:GLN:HA	2.13	0.47
1:B:880:SER:OG	1:B:881:ALA:N	2.45	0.47
1:A:336:ARG:O	1:A:342:PRO:HG3	2.15	0.47
1:A:298:THR:HB	1:A:299:PRO:HD3	1.96	0.47
1:A:427:LYS:C	1:A:429:PRO:HD3	2.36	0.47
1:B:835:TRP:HH2	1:B:850:GLN:HE22	1.63	0.47
1:A:453:GLY:HA3	1:A:508:ASP:HB2	1.96	0.47
1:A:642:GLY:HA3	1:A:875:PRO:HB3	1.97	0.47
1:B:217:SER:O	1:B:222:ARG:HD3	2.15	0.47
1:B:877:THR:O	1:B:879:GLU:HG3	2.14	0.46
1:B:584:LYS:NZ	1:B:768:GLU:HG2	2.31	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:603:HIS:O	1:A:700:LYS:HD3	2.15	0.46
1:B:720:GLU:HG3	1:B:757:ALA:CB	2.46	0.46
1:A:693:ALA:HB2	1:A:785:ALA:HA	1.97	0.46
1:B:430:ILE:HG12	1:B:431:ASP:N	2.31	0.46
1:B:192:ASP:OD1	1:B:194:LYS:CB	2.63	0.46
1:A:760:LYS:HD3	1:A:774:GLU:OE2	2.16	0.46
1:A:381:PHE:HB3	1:A:434:LYS:HB3	1.98	0.46
1:A:584:LYS:NZ	1:A:768:GLU:HG2	2.30	0.46
1:B:585:ARG:HG2	1:B:587:TRP:CZ2	2.50	0.46
1:B:693:ALA:HB2	1:B:785:ALA:HA	1.98	0.46
1:B:569:PHE:CE2	1:B:575:ASN:HB3	2.51	0.45
1:B:647:ASP:OD1	1:B:650:ASN:N	2.46	0.45
1:A:378:GLU:OE2	1:A:430:ILE:HG12	2.17	0.45
1:A:581:LYS:HG2	2:A:1891:SO4:O4	2.15	0.45
1:A:676:LYS:HE3	1:A:813:LEU:HD21	1.98	0.45
1:A:696:ILE:HD12	1:A:782:ILE:HG22	1.98	0.45
1:B:440:HIS:CE1	1:B:444:LYS:HG3	2.51	0.45
1:B:767:ASN:HB3	1:B:770:GLN:CG	2.46	0.45
1:B:447:ALA:N	1:B:448:PRO:HD2	2.32	0.45
1:B:210:ALA:HB2	1:B:258:ARG:NH2	2.31	0.45
1:B:603:HIS:O	1:B:700:LYS:HD3	2.16	0.45
1:A:431:ASP:OD1	1:A:433:ASP:N	2.30	0.45
1:A:432:LYS:HB3	1:A:432:LYS:HE2	1.77	0.45
1:A:585:ARG:HG2	1:A:587:TRP:CZ2	2.52	0.45
1:A:430:ILE:HD12	1:A:435:MET:CE	2.47	0.45
1:A:547:PHE:HB3	1:A:550:MET:HG2	1.99	0.45
1:A:450:LEU:HA	1:A:454:GLU:O	2.17	0.45
1:B:381:PHE:HB3	1:B:434:LYS:HB3	1.97	0.45
1:B:512:ASP:C	1:B:512:ASP:OD1	2.55	0.45
1:B:603:HIS:NE2	1:B:699:ARG:HD2	2.31	0.45
1:B:623:THR:HB	1:B:690:ASP:HB2	1.99	0.45
1:A:412:LEU:O	1:A:416:LEU:HB2	2.17	0.45
1:A:603:HIS:NE2	1:A:699:ARG:HD2	2.31	0.45
1:A:210:ALA:HB2	1:A:258:ARG:NH2	2.32	0.45
1:A:767:ASN:HB3	1:A:770:GLN:CG	2.46	0.45
1:A:447:ALA:N	1:A:448:PRO:HD2	2.32	0.45
1:B:238:LEU:HD22	1:B:280:VAL:CG1	2.46	0.45
1:B:547:PHE:HB3	1:B:550:MET:HG2	1.99	0.45
1:B:192:ASP:OD1	1:B:194:LYS:N	2.49	0.44
1:B:462:ARG:HD2	1:B:582:GLU:HB2	1.99	0.44
1:B:839:LYS:HD2	1:B:853:VAL:CG2	2.47	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:374:ILE:O	1:A:378:GLU:HG3	2.18	0.44
1:B:661:ASN:C	1:B:661:ASN:ND2	2.70	0.44
1:B:777:ASN:HB2	1:B:779:PHE:HE1	1.83	0.44
1:A:623:THR:HB	1:A:690:ASP:HB2	1.98	0.44
1:B:395:SER:HB3	1:B:550:MET:HB3	1.98	0.44
1:A:217:SER:O	1:A:222:ARG:HD3	2.16	0.44
1:A:254:ASN:ND2	1:A:256:SER:H	2.15	0.44
1:A:530:LEU:HD23	1:A:530:LEU:HA	1.78	0.44
1:B:282:ASN:ND2	1:B:284:GLU:H	2.16	0.44
1:B:338:THR:O	1:B:338:THR:HG22	2.18	0.44
1:A:647:ASP:OD1	1:A:650:ASN:N	2.44	0.44
1:B:173:THR:O	1:B:176:ASP:HB2	2.17	0.44
1:B:254:ASN:ND2	1:B:256:SER:H	2.16	0.44
1:B:671:PHE:CD1	1:B:671:PHE:N	2.86	0.44
1:B:839:LYS:HE3	1:B:841:ASP:O	2.18	0.44
1:A:839:LYS:HD2	1:A:853:VAL:CG2	2.47	0.44
1:B:282:ASN:HD21	1:B:284:GLU:HB2	1.83	0.44
1:A:512:ASP:OD1	1:A:512:ASP:C	2.56	0.43
1:B:378:GLU:OE2	1:B:430:ILE:HG13	2.18	0.43
1:B:665:THR:O	1:B:666:ALA:HB2	2.16	0.43
1:B:720:GLU:HA	1:B:756:LYS:O	2.18	0.43
1:B:701:LEU:CD1	1:B:756:LYS:HE3	2.49	0.43
1:A:378:GLU:HA	1:A:381:PHE:HD2	1.84	0.43
1:A:671:PHE:CD1	1:A:671:PHE:N	2.86	0.43
1:B:430:ILE:CD1	1:B:435:MET:CE	2.94	0.43
1:B:544:LEU:C	1:B:544:LEU:HD23	2.38	0.43
1:A:238:LEU:CD2	1:A:280:VAL:HG11	2.48	0.43
1:A:539:PRO:HA	3:A:2025:HOH:O	2.18	0.43
1:B:581:LYS:HG2	2:B:1891:SO4:O4	2.18	0.43
1:A:255:PRO:HA	1:A:260:TYR:CD2	2.54	0.43
1:A:578:HIS:ND1	1:A:631:ASP:O	2.52	0.43
1:A:676:LYS:HE2	1:A:796:MET:HE3	2.01	0.43
1:A:681:GLY:O	1:A:792:SER:CB	2.64	0.43
1:A:650:ASN:HD21	1:A:832:GLN:HE22	1.66	0.43
1:A:839:LYS:NZ	1:A:845:SER:OG	2.51	0.43
1:A:350:LEU:O	1:A:377:ILE:CD1	2.67	0.43
1:A:404:TYR:CE1	1:A:461:GLY:HA3	2.54	0.42
1:B:492:GLU:O	1:B:493:THR:C	2.57	0.42
1:B:728:THR:O	1:B:749:LYS:HA	2.19	0.42
1:B:399:HIS:O	1:B:400:THR:CB	2.66	0.42
1:A:338:THR:CG2	3:A:2014:HOH:O	2.67	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:669:SER:OG	1:A:825:GLN:NE2	2.51	0.42
1:B:450:LEU:HA	1:B:454:GLU:O	2.19	0.42
1:A:282:ASN:ND2	1:A:284:GLU:HB2	2.35	0.42
1:B:494:LYS:O	1:B:498:GLN:HG3	2.19	0.42
1:A:337:LYS:HA	1:A:342:PRO:HB3	2.01	0.42
1:A:456:MET:HB3	3:A:2021:HOH:O	2.18	0.42
1:A:544:LEU:HD11	1:A:651:ALA:HB3	2.02	0.42
1:A:839:LYS:HE3	1:A:841:ASP:O	2.20	0.42
1:B:758:LEU:HD11	1:B:776:GLU:HG3	2.01	0.42
1:A:282:ASN:HD21	1:A:284:GLU:HB2	1.85	0.42
1:A:738:SER:HA	1:A:741:ASN:ND2	2.35	0.42
1:A:780:LEU:C	1:A:780:LEU:HD23	2.40	0.42
1:B:227:GLU:HA	1:B:230:SER:HB3	2.02	0.42
1:B:427:LYS:O	1:B:429:PRO:HD2	2.19	0.42
1:A:472:HIS:O	1:A:476:VAL:HG23	2.19	0.42
1:A:569:PHE:CE2	1:A:575:ASN:HB3	2.54	0.42
1:A:777:ASN:HB2	1:A:779:PHE:HE1	1.85	0.42
1:B:530:LEU:HD23	1:B:530:LEU:HA	1.92	0.42
1:B:720:GLU:C	1:B:721:GLN:O	2.58	0.42
1:A:421:PRO:HG3	1:A:488:MET:CE	2.50	0.42
1:A:456:MET:HG2	1:A:597:TYR:CZ	2.55	0.42
1:B:616:LYS:O	1:B:695:THR:HG21	2.20	0.42
1:A:492:GLU:O	1:A:493:THR:C	2.59	0.41
1:A:555:MET:HB3	1:A:564:PHE:HB3	2.02	0.41
1:B:575:ASN:O	1:B:590:SER:OG	2.35	0.41
1:A:634:LYS:HB3	1:A:634:LYS:HE2	1.85	0.41
1:A:661:ASN:ND2	1:A:661:ASN:C	2.73	0.41
1:A:667:HIS:O	1:A:681:GLY:HA2	2.21	0.41
1:A:880:SER:OG	1:A:881:ALA:N	2.51	0.41
1:B:235:SER:HB3	1:B:294:TYR:HE1	1.85	0.41
1:A:346:LEU:N	1:A:349:ASN:OD1	2.54	0.41
1:A:350:LEU:HD13	1:A:350:LEU:HA	1.87	0.41
1:A:399:HIS:O	1:A:400:THR:CB	2.67	0.41
1:B:412:LEU:O	1:B:416:LEU:HB2	2.20	0.41
1:B:671:PHE:HD2	1:B:836:GLY:HA3	1.84	0.41
1:B:840:TYR:O	1:B:856:ARG:HD2	2.20	0.41
1:A:665:THR:O	1:A:666:ALA:HB2	2.21	0.41
1:B:423:ILE:HD12	1:B:423:ILE:N	2.35	0.41
1:A:282:ASN:HD22	1:A:284:GLU:N	2.18	0.41
1:B:667:HIS:O	1:B:681:GLY:HA2	2.20	0.41
1:A:207:GLY:O	1:A:210:ALA:HB3	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:582:GLU:HG2	1:A:767:ASN:CG	2.41	0.41
1:A:721:GLN:CG	1:A:722:GLU:H	2.34	0.41
1:B:200:LYS:HB2	1:B:200:LYS:HE3	1.77	0.41
1:A:676:LYS:HE2	1:A:796:MET:CE	2.51	0.41
1:A:274:GLU:HA	1:A:274:GLU:OE1	2.20	0.41
1:A:544:LEU:C	1:A:544:LEU:HD23	2.41	0.41
1:A:739:LYS:HA	1:A:739:LYS:HD3	1.84	0.41
1:A:822:GLU:CD	1:A:822:GLU:N	2.75	0.41
1:A:840:TYR:O	1:A:856:ARG:HD2	2.21	0.41
1:B:314:SER:OG	1:B:317:GLU:HG3	2.21	0.41
1:A:428:ASN:N	1:A:429:PRO:HD3	2.36	0.41
1:B:719:THR:CG2	1:B:720:GLU:N	2.84	0.41
1:A:185:ILE:CG1	1:A:186:ALA:N	2.83	0.40
1:B:472:HIS:O	1:B:476:VAL:HG23	2.20	0.40
1:B:578:HIS:ND1	1:B:631:ASP:O	2.51	0.40
1:B:819:GLU:HG3	1:B:820:ASN:N	2.36	0.40
1:B:874:ASN:OD1	1:B:877:THR:HG23	2.21	0.40
1:A:420:LEU:HD21	1:A:435:MET:SD	2.61	0.40
1:A:684:ILE:O	1:A:790:GLY:N	2.49	0.40
1:A:701:LEU:CD1	1:A:756:LYS:HE3	2.50	0.40
1:A:808:GLN:O	1:A:812:GLU:HG3	2.21	0.40
1:B:457:ASP:OD1	1:B:460:ARG:NH2	2.53	0.40
1:B:818:ILE:HG21	1:B:847:ILE:HG23	2.03	0.40
1:A:303:ASN:HB3	1:A:359:ILE:CG2	2.51	0.40
1:B:274:GLU:HA	1:B:274:GLU:OE1	2.21	0.40
1:B:404:TYR:CE1	1:B:461:GLY:HA3	2.56	0.40
1:B:767:ASN:HB3	1:B:770:GLN:HG3	2.03	0.40
1:A:728:THR:O	1:A:749:LYS:HA	2.21	0.40
1:B:238:LEU:CD2	1:B:280:VAL:HG11	2.51	0.40
1:B:424:GLN:HA	1:B:424:GLN:OE1	2.22	0.40
1:B:441:TRP:O	1:B:445:SER:HB2	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	720/731 (98%)	663 (92%)	51 (7%)	6 (1%)	19	49
1	B	720/731 (98%)	662 (92%)	54 (8%)	4 (1%)	25	56
All	All	1440/1462 (98%)	1325 (92%)	105 (7%)	10 (1%)	22	53

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	431	ASP
1	A	193	SER
1	A	721	GLN
1	A	674	LYS
1	B	721	GLN
1	A	400	THR
1	B	400	THR
1	B	666	ALA
1	B	674	LYS
1	A	471	GLY

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	640/649 (99%)	620 (97%)	20 (3%)	40	74
1	B	640/649 (99%)	624 (98%)	16 (2%)	47	80
All	All	1280/1298 (99%)	1244 (97%)	36 (3%)	43	77

All (36) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	173	THR
1	A	212	SER
1	A	254	ASN

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Mol	Chain	Res	Type
1	A	271	ASP
1	A	282	ASN
1	A	350	LEU
1	A	404	TYR
1	A	412	LEU
1	A	420	LEU
1	A	430	ILE
1	A	483	HIS
1	A	634	LYS
1	A	661	ASN
1	A	683	ASN
1	A	721	GLN
1	A	748	LYS
1	A	822	GLU
1	A	849	ASN
1	A	854	LEU
1	A	874	ASN
1	B	173	THR
1	B	212	SER
1	B	254	ASN
1	B	282	ASN
1	B	340	ASP
1	B	350	LEU
1	B	404	TYR
1	B	412	LEU
1	B	483	HIS
1	B	524	SER
1	B	634	LYS
1	B	661	ASN
1	B	683	ASN
1	B	822	GLU
1	B	854	LEU
1	B	874	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (42) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	189	GLN
1	A	202	ASN
1	A	231	ASN
1	A	237	ASN
1	A	254	ASN

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Mol	Chain	Res	Type
1	A	261	GLN
1	A	282	ASN
1	A	418	GLN
1	A	428	ASN
1	A	516	ASN
1	A	661	ASN
1	A	667	HIS
1	A	683	ASN
1	A	698	GLN
1	A	705	ASN
1	A	759	GLN
1	A	820	ASN
1	A	825	GLN
1	A	832	GLN
1	A	850	GLN
1	A	874	ASN
1	B	231	ASN
1	B	237	ASN
1	B	254	ASN
1	B	261	GLN
1	B	282	ASN
1	B	379	GLN
1	B	418	GLN
1	B	440	HIS
1	B	516	ASN
1	B	661	ASN
1	B	667	HIS
1	B	683	ASN
1	B	698	GLN
1	B	705	ASN
1	B	759	GLN
1	B	820	ASN
1	B	825	GLN
1	B	832	GLN
1	B	849	ASN
1	B	850	GLN
1	B	874	ASN

5.3.3   RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

2 ligands are modelled in this entry.

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	1891	-	4,4,4	0.36	0	6,6,6	0.07	0
2	SO4	B	1891	-	4,4,4	0.18	0	6,6,6	0.09	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.

2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1891	SO4	2	0
2	B	1891	SO4	1	0

5.7 Other polymers ⓘ

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	722/731 (98%)	-0.32	8 (1%)	80	75	12, 30, 55, 81	0
1	B	722/731 (98%)	-0.27	7 (0%)	82	77	14, 31, 54, 79	0
All	All	1444/1462 (98%)	-0.29	15 (1%)	82	77	12, 31, 55, 81	0

All (15) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	218	SER	4.4
1	A	867	GLU	4.3
1	A	227	GLU	3.7
1	B	218	SER	3.6
1	B	719	THR	3.0
1	A	866	ASP	2.9
1	B	867	GLU	2.8
1	B	220	ALA	2.5
1	A	220	ALA	2.5
1	B	170	VAL	2.3
1	B	196	ASP	2.3
1	A	170	VAL	2.2
1	B	428	ASN	2.2
1	A	219	GLN	2.1
1	A	223	ILE	2.1

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

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

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	SO4	A	1891	5/5	0.91	0.16	67,67,68,68	0
2	SO4	B	1891	5/5	0.91	0.21	65,66,66,66	0

6.5 Other polymers ⓘ

There are no such residues in this entry.