



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 01:16 AM GMT

PDB ID : 2CGE
Title : CRYSTAL STRUCTURE OF AN HSP90-SBA1 CLOSED CHAPERONE COMPLEX
Authors : Ali, M.M.U.; Roe, S.M.; Prodromou, C.; Pearl, L.H.
Deposited on : 2006-03-01
Resolution : 3.00 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
<http://wwpdb.org/validation/2016/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
Mogul : 1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20026688
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac : 5.8.0135
CCP4 : 6.5.0
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk26865

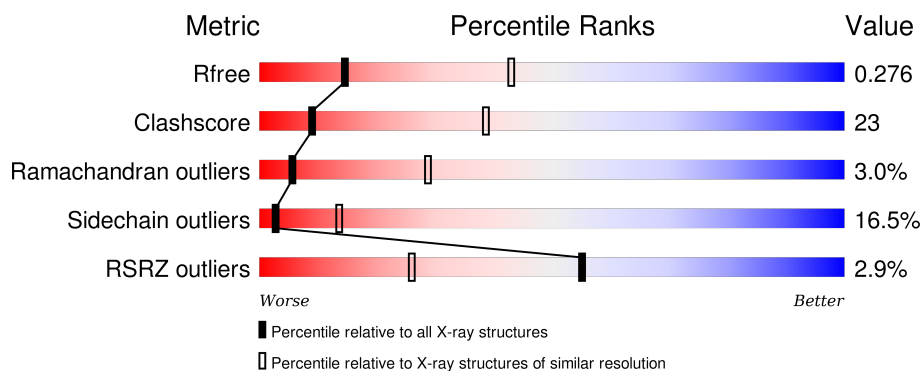
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.00 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}	91344	1578 (3.00-3.00)
Clashscore	102246	1912 (3.00-3.00)
Ramachandran outliers	100387	1853 (3.00-3.00)
Sidechain outliers	100360	1856 (3.00-3.00)
RSRZ outliers	91569	1592 (3.00-3.00)

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	405	<div> <div>4%</div> <div>59%</div> <div>30%</div> <div>8%</div> <div>.</div> </div>
1	B	405	<div> <div>4%</div> <div>56%</div> <div>34%</div> <div>9%</div> <div>.</div> </div>
1	D	405	<div> <div>%</div> <div>54%</div> <div>34%</div> <div>10%</div> <div>.</div> </div>

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 9882 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.

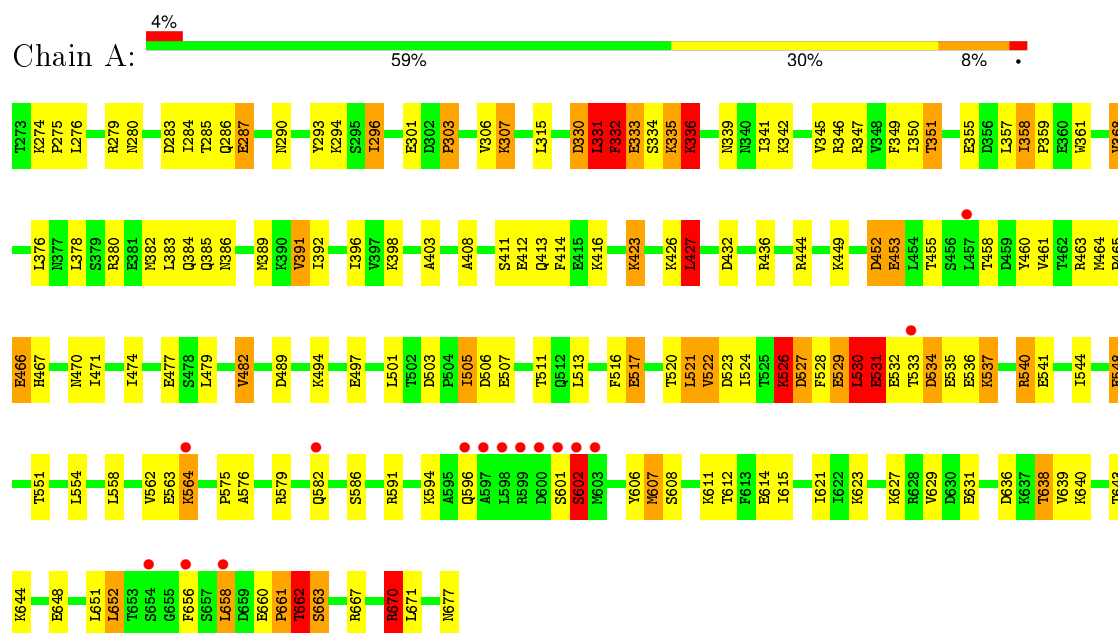
- Molecule 1 is a protein called ATP-DEPENDENT MOLECULAR CHAPERONE HSP82.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	405	Total	C	N	O	S	0	0	0
			3294	2110	539	638	7			
1	B	405	Total	C	N	O	S	0	0	0
			3294	2110	539	638	7			
1	D	405	Total	C	N	O	S	0	0	0
			3294	2110	539	638	7			

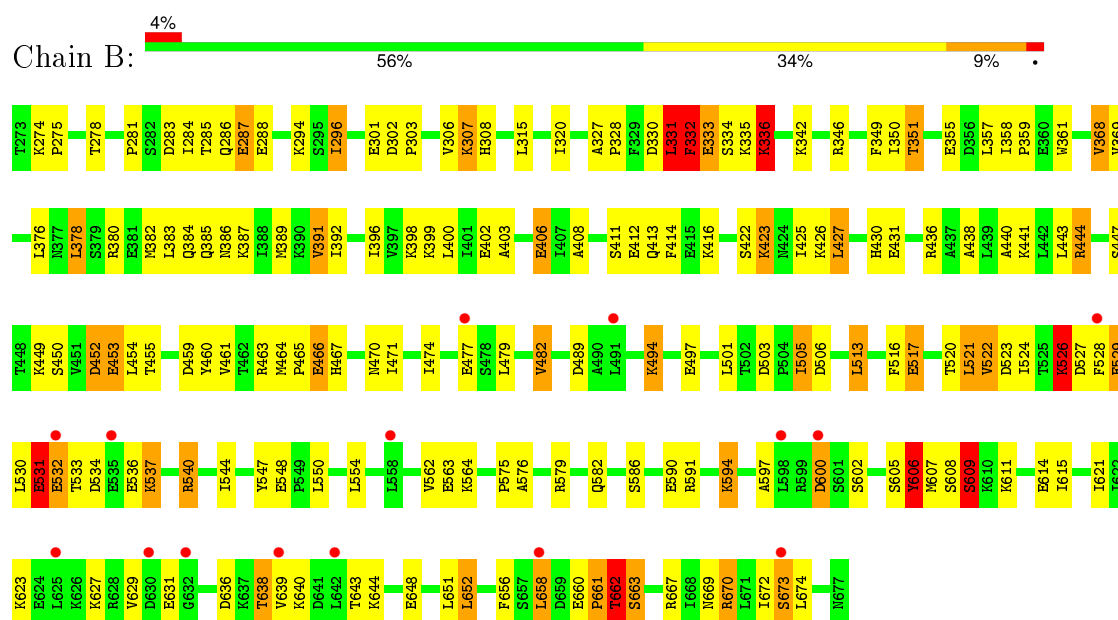
3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

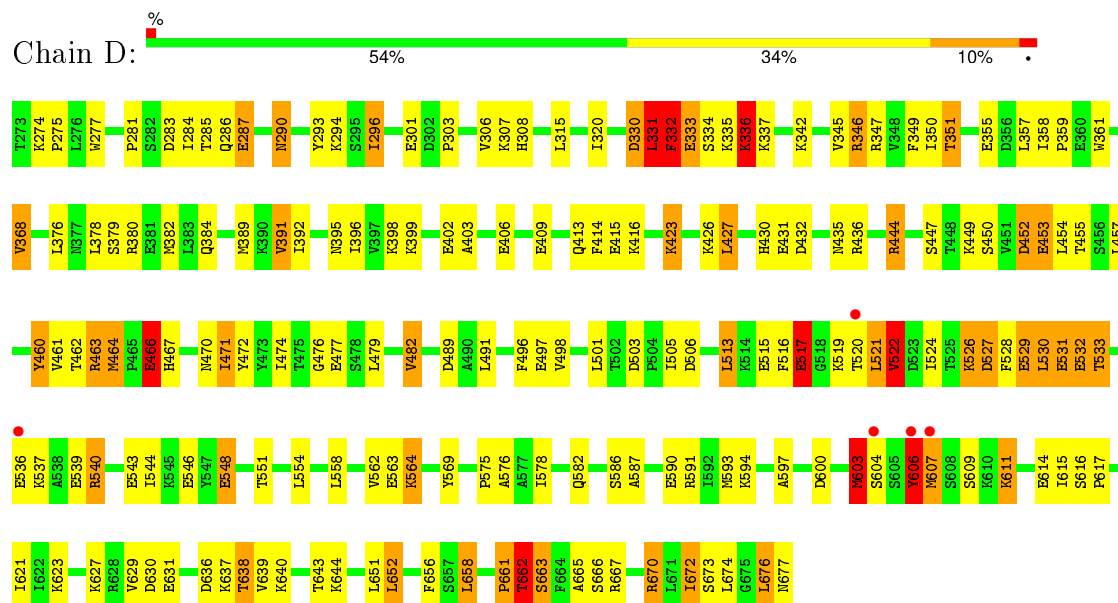
• Molecule 1: ATP-DEPENDENT MOLECULAR CHAPERONE HSP82



• Molecule 1: ATP-DEPENDENT MOLECULAR CHAPERONE HSP82



● Molecule 1: ATP-DEPENDENT MOLECULAR CHAPERONE HSP82



4 Data and refinement statistics

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α , β , γ	105.56 Å 105.56 Å 289.31 Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	288.67 – 3.00 105.56 – 2.80	Depositor EDS
% Data completeness (in resolution range)	99.9 (288.67-3.00) 100.0 (105.56-2.80)	Depositor EDS
R_{merge}	0.16	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.68 (at 2.82 Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.257 , 0.288 0.245 , 0.276	Depositor DCC
R_{free} test set	1683 reflections (5.25%)	DCC
Wilson B-factor (Å ²)	69.2	Xtriage
Anisotropy	0.512	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 62.4	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.44$, $\langle L^2 \rangle = 0.26$	Xtriage
Outliers	0 of 41368 reflections	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	9882	wwPDB-VP
Average B, all atoms (Å ²)	86.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.70% 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, 0.375 respectively for untwinned datasets, and 0.333, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

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	0.96	3/3355 (0.1%)	0.88	4/4518 (0.1%)
1	B	0.85	4/3355 (0.1%)	0.87	1/4518 (0.0%)
1	D	1.06	12/3355 (0.4%)	0.97	3/4518 (0.1%)
All	All	0.96	19/10065 (0.2%)	0.91	8/13554 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	D	0	2
All	All	0	3

All (19) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	602	SER	CB-OG	27.10	1.77	1.42
1	D	463	ARG	C-O	9.40	1.41	1.23
1	D	466	GLU	CD-OE2	8.42	1.34	1.25
1	D	460	TYR	CE2-CZ	7.58	1.48	1.38
1	B	384	GLN	CG-CD	6.67	1.66	1.51
1	D	606	TYR	CE1-CZ	6.20	1.46	1.38
1	D	462	THR	C-O	5.89	1.34	1.23
1	D	529	GLU	CB-CG	5.80	1.63	1.52
1	B	384	GLN	CB-CG	5.67	1.67	1.52
1	B	369	VAL	CB-CG1	-5.61	1.41	1.52
1	A	529	GLU	CG-CD	5.58	1.60	1.51
1	D	529	GLU	CD-OE1	5.53	1.31	1.25
1	D	384	GLN	CG-CD	5.49	1.63	1.51
1	D	471	ILE	C-O	5.45	1.33	1.23
1	A	384	GLN	CG-CD	5.43	1.63	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	498	VAL	CB-CG1	5.33	1.64	1.52
1	D	464	MET	N-CA	5.24	1.56	1.46
1	B	529	GLU	CB-CG	5.07	1.61	1.52
1	D	460	TYR	CG-CD1	5.04	1.45	1.39

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	331	LEU	CA-CB-CG	6.92	131.21	115.30
1	A	331	LEU	CA-CB-CG	6.68	130.66	115.30
1	B	331	LEU	CA-CB-CG	6.56	130.39	115.30
1	A	427	LEU	CA-CB-CG	5.56	128.09	115.30
1	D	522	VAL	CB-CA-C	-5.52	100.90	111.40
1	A	670	ARG	NE-CZ-NH1	5.10	122.85	120.30
1	D	527	ASP	CB-CG-OD2	-5.10	113.71	118.30
1	A	527	ASP	CB-CG-OD1	5.03	122.82	118.30

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	606	TYR	Peptide
1	D	517	GLU	Peptide
1	D	532	GLU	Peptide

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	3294	0	3323	134	0
1	B	3294	0	3323	165	0
1	D	3294	0	3323	174	0
All	All	9882	0	9969	460	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 23.

All (460) 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:602:SER:CB	1:A:602:SER:OG	1.77	1.31
1:D:597:ALA:HB3	1:D:606:TYR:HE2	1.19	1.06
1:A:332:PHE:O	1:A:333:GLU:HB2	1.56	1.05
1:B:526:LYS:HB3	1:B:582:GLN:HG2	1.36	1.05
1:B:332:PHE:O	1:B:333:GLU:HB2	1.52	1.02
1:D:524:ILE:HD11	1:D:586:SER:HB2	1.41	1.01
1:D:597:ALA:HB3	1:D:606:TYR:CE2	1.95	1.00
1:B:636:ASP:HB2	1:B:639:VAL:HG23	1.44	0.99
1:D:530:LEU:O	1:D:532:GLU:N	1.97	0.97
1:D:335:LYS:HG3	1:D:336:LYS:H	1.29	0.96
1:A:636:ASP:HB2	1:A:639:VAL:HG23	1.47	0.95
1:D:449:LYS:HD2	1:D:497:GLU:HB2	1.48	0.95
1:D:636:ASP:HB2	1:D:639:VAL:HG23	1.47	0.95
1:B:494:LYS:HZ3	1:B:530:LEU:HD12	1.28	0.95
1:A:335:LYS:HG3	1:A:336:LYS:H	1.28	0.95
1:D:332:PHE:O	1:D:333:GLU:HB2	1.63	0.93
1:A:540:ARG:HH11	1:A:540:ARG:HG3	1.38	0.88
1:A:357:LEU:HD12	1:A:389:MET:HE2	1.54	0.88
1:B:494:LYS:NZ	1:B:530:LEU:HD12	1.88	0.87
1:D:597:ALA:CB	1:D:606:TYR:HE2	1.87	0.85
1:A:531:GLU:HB3	1:A:534:ASP:OD1	1.76	0.85
1:D:426:LYS:HE2	1:D:506:ASP:OD1	1.78	0.84
1:B:517:GLU:HA	1:B:517:GLU:OE2	1.76	0.84
1:A:526:LYS:HB3	1:A:582:GLN:HG2	1.58	0.83
1:A:426:LYS:HD3	1:A:505:ILE:HD12	1.57	0.83
1:B:335:LYS:HG3	1:B:336:LYS:H	1.44	0.82
1:B:526:LYS:CB	1:B:582:GLN:HG2	2.09	0.82
1:B:670:ARG:HA	1:B:673:SER:HB2	1.60	0.81
1:B:540:ARG:HG3	1:B:540:ARG:HH11	1.45	0.81
1:A:470:ASN:HB3	1:A:521:LEU:HD21	1.61	0.81
1:D:426:LYS:HD3	1:D:505:ILE:HD12	1.62	0.80
1:D:593:MET:SD	1:D:607:MET:CE	2.70	0.79
1:D:636:ASP:HB3	1:D:638:THR:HG23	1.62	0.79
1:D:470:ASN:HB3	1:D:521:LEU:HD21	1.62	0.79
1:D:358:ILE:HG12	1:D:359:PRO:HD2	1.64	0.78
1:B:470:ASN:HB3	1:B:521:LEU:HD21	1.63	0.78
1:D:526:LYS:HB3	1:D:582:GLN:HG2	1.65	0.78
1:D:461:VAL:HG22	1:D:464:MET:HE2	1.63	0.78
1:A:361:TRP:HB3	1:A:427:LEU:CD1	2.13	0.78
1:D:501:LEU:HB3	1:D:506:ASP:HB3	1.66	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:333:GLU:HG3	1:B:376:LEU:HD13	1.66	0.77
1:D:673:SER:O	1:D:677:ASN:N	2.17	0.77
1:A:521:LEU:HD23	1:A:521:LEU:N	2.00	0.76
1:D:593:MET:SD	1:D:607:MET:HE3	2.25	0.76
1:B:426:LYS:HE2	1:B:506:ASP:OD1	1.85	0.76
1:D:330:ASP:O	1:D:334:SER:HB3	1.86	0.76
1:D:389:MET:HA	1:D:389:MET:HE3	1.67	0.76
1:A:636:ASP:HB3	1:A:638:THR:HG23	1.69	0.75
1:A:529:GLU:CD	1:A:530:LEU:HD12	2.06	0.75
1:A:357:LEU:CD1	1:A:389:MET:HE2	2.15	0.75
1:A:531:GLU:CB	1:A:534:ASP:OD1	2.35	0.75
1:B:361:TRP:HB3	1:B:427:LEU:HD12	1.69	0.75
1:D:554:LEU:HD22	1:D:643:THR:HG23	1.69	0.74
1:A:540:ARG:O	1:A:544:ILE:HG13	1.87	0.74
1:D:540:ARG:HH11	1:D:540:ARG:HG3	1.50	0.74
1:B:526:LYS:HB3	1:B:582:GLN:CG	2.17	0.73
1:A:540:ARG:CG	1:A:540:ARG:HH11	2.01	0.73
1:A:449:LYS:HD2	1:A:497:GLU:HB2	1.70	0.73
1:B:540:ARG:CG	1:B:540:ARG:HH11	2.02	0.73
1:B:503:ASP:O	1:B:506:ASP:HB2	1.88	0.72
1:B:540:ARG:O	1:B:544:ILE:HG13	1.87	0.72
1:B:575:PRO:HG3	1:B:621:ILE:HD13	1.70	0.72
1:D:575:PRO:HG3	1:D:621:ILE:HD13	1.71	0.72
1:B:670:ARG:HH11	1:B:670:ARG:CB	2.03	0.72
1:A:503:ASP:O	1:A:506:ASP:HB2	1.90	0.72
1:D:461:VAL:HG22	1:D:464:MET:CE	2.19	0.72
1:B:636:ASP:HB3	1:B:638:THR:HG23	1.70	0.71
1:D:335:LYS:HG3	1:D:336:LYS:N	2.03	0.71
1:D:597:ALA:CB	1:D:606:TYR:CE2	2.66	0.71
1:B:334:SER:HB2	1:D:349:PHE:O	1.89	0.71
1:B:554:LEU:HD22	1:B:643:THR:HG23	1.72	0.70
1:B:441:LYS:O	1:B:444:ARG:NH2	2.24	0.70
1:D:470:ASN:CB	1:D:521:LEU:HD21	2.20	0.70
1:A:361:TRP:HB3	1:A:427:LEU:HD12	1.73	0.70
1:D:361:TRP:HB3	1:D:427:LEU:CD1	2.22	0.70
1:A:335:LYS:HG3	1:A:336:LYS:N	2.05	0.70
1:A:357:LEU:HD12	1:A:389:MET:CE	2.21	0.70
1:D:449:LYS:HD2	1:D:497:GLU:CB	2.22	0.69
1:A:532:GLU:HG2	1:A:540:ARG:HE	1.55	0.69
1:D:593:MET:SD	1:D:607:MET:HE2	2.32	0.69
1:D:361:TRP:HB3	1:D:427:LEU:HD12	1.75	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:461:VAL:HG22	1:B:464:MET:HE2	1.73	0.69
1:B:389:MET:HE3	1:B:389:MET:HA	1.74	0.68
1:D:517:GLU:OE2	1:D:517:GLU:HA	1.92	0.68
1:D:529:GLU:OE2	1:D:530:LEU:HG	1.93	0.68
1:B:636:ASP:HB2	1:B:639:VAL:CG2	2.20	0.68
1:B:274:LYS:HG2	1:B:275:PRO:HD2	1.76	0.68
1:D:293:TYR:CG	1:D:303:PRO:HG3	2.29	0.67
1:D:670:ARG:CB	1:D:670:ARG:HH11	2.07	0.67
1:B:361:TRP:HB3	1:B:427:LEU:CD1	2.25	0.67
1:A:334:SER:HB2	1:B:349:PHE:O	1.95	0.67
1:D:378:LEU:HD22	1:D:382:MET:HG3	1.77	0.67
1:D:455:THR:OG1	1:D:463:ARG:NH2	2.28	0.66
1:D:667:ARG:HH11	1:D:667:ARG:HG2	1.60	0.66
1:D:392:ILE:O	1:D:396:ILE:HG12	1.94	0.66
1:A:357:LEU:CD1	1:A:389:MET:CE	2.74	0.66
1:B:358:ILE:HG12	1:B:359:PRO:HD2	1.78	0.65
1:D:516:PHE:O	1:D:517:GLU:CD	2.35	0.65
1:A:554:LEU:HD22	1:A:643:THR:HG23	1.78	0.65
1:B:426:LYS:HD3	1:B:505:ILE:HD12	1.77	0.65
1:B:449:LYS:HD2	1:B:497:GLU:HB2	1.78	0.65
1:D:501:LEU:HB3	1:D:506:ASP:CB	2.26	0.65
1:B:392:ILE:O	1:B:396:ILE:HG12	1.96	0.65
1:B:378:LEU:HD22	1:B:382:MET:HG3	1.79	0.65
1:A:636:ASP:HB2	1:A:639:VAL:CG2	2.24	0.65
1:D:540:ARG:O	1:D:544:ILE:HG13	1.96	0.65
1:A:530:LEU:C	1:A:532:GLU:H	2.00	0.64
1:A:575:PRO:HG3	1:A:621:ILE:HD13	1.79	0.64
1:A:361:TRP:HB3	1:A:427:LEU:HD13	1.78	0.64
1:B:594:LYS:HB2	1:B:606:TYR:OH	1.97	0.64
1:A:536:GLU:HB3	1:A:540:ARG:NH1	2.12	0.64
1:D:426:LYS:HD3	1:D:505:ILE:CD1	2.26	0.64
1:A:532:GLU:O	1:A:536:GLU:HB2	1.96	0.64
1:A:358:ILE:HG12	1:A:359:PRO:HD2	1.80	0.64
1:B:536:GLU:HB3	1:B:540:ARG:NH1	2.13	0.63
1:A:652:LEU:HD21	1:A:658:LEU:HD22	1.80	0.63
1:D:530:LEU:C	1:D:532:GLU:H	1.98	0.63
1:B:516:PHE:O	1:B:517:GLU:CD	2.37	0.63
1:B:652:LEU:HD21	1:B:658:LEU:HD22	1.81	0.63
1:A:350:ILE:HG22	1:A:351:THR:HG22	1.80	0.62
1:D:636:ASP:HB2	1:D:639:VAL:CG2	2.26	0.62
1:A:517:GLU:HA	1:A:517:GLU:OE2	2.00	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:455:THR:OG1	1:B:463:ARG:NH2	2.25	0.62
1:D:516:PHE:O	1:D:517:GLU:OE2	2.18	0.62
1:B:670:ARG:CG	1:B:670:ARG:HH11	2.14	0.61
1:D:540:ARG:HH11	1:D:540:ARG:CG	2.14	0.61
1:B:335:LYS:HG3	1:B:336:LYS:N	2.13	0.61
1:A:455:THR:OG1	1:A:463:ARG:NH2	2.26	0.61
1:D:477:GLU:OE1	1:D:591:ARG:HD3	2.01	0.61
1:A:376:LEU:HD13	1:D:333:GLU:HG3	1.82	0.60
1:A:607:MET:SD	1:A:607:MET:C	2.79	0.60
1:A:330:ASP:O	1:A:334:SER:HB3	2.02	0.60
1:B:516:PHE:O	1:B:517:GLU:OE2	2.19	0.60
1:B:529:GLU:HG3	1:B:530:LEU:HG	1.82	0.60
1:B:382:MET:O	1:B:385:GLN:HG2	2.01	0.60
1:B:331:LEU:O	1:B:332:PHE:O	2.20	0.60
1:B:517:GLU:OE2	1:B:517:GLU:CA	2.49	0.60
1:A:392:ILE:O	1:A:396:ILE:HG12	2.02	0.60
1:A:307:LYS:HG3	1:A:403:ALA:HB2	1.84	0.60
1:A:274:LYS:HG2	1:A:275:PRO:HD2	1.82	0.60
1:B:667:ARG:HG2	1:B:667:ARG:HH11	1.66	0.59
1:A:426:LYS:HE2	1:A:506:ASP:OD1	2.01	0.59
1:B:636:ASP:CB	1:B:639:VAL:HG23	2.25	0.59
1:B:531:GLU:HB2	1:B:534:ASP:OD1	2.02	0.59
1:A:342:LYS:HB2	1:A:368:VAL:HG12	1.84	0.59
1:B:531:GLU:O	1:B:534:ASP:N	2.31	0.59
1:D:672:ILE:HG22	1:D:673:SER:N	2.18	0.59
1:B:307:LYS:HG3	1:B:403:ALA:HB2	1.85	0.59
1:B:333:GLU:HG3	1:D:376:LEU:HD13	1.85	0.58
1:D:331:LEU:O	1:D:332:PHE:O	2.21	0.58
1:D:460:TYR:CD2	1:D:460:TYR:C	2.77	0.58
1:B:670:ARG:HH11	1:B:670:ARG:HB2	1.67	0.58
1:B:438:ALA:O	1:B:441:LYS:HB2	2.04	0.58
1:D:477:GLU:CD	1:D:591:ARG:HD3	2.24	0.58
1:D:342:LYS:HB2	1:D:368:VAL:HG12	1.85	0.57
1:A:531:GLU:HA	1:A:537:LYS:HD3	1.86	0.57
1:A:670:ARG:HH11	1:A:670:ARG:CB	2.17	0.57
1:A:333:GLU:O	1:A:334:SER:C	2.42	0.57
1:B:452:ASP:OD1	1:B:452:ASP:C	2.43	0.57
1:B:286:GLN:O	1:B:288:GLU:N	2.36	0.57
1:D:597:ALA:HA	1:D:603:MET:HG3	1.86	0.57
1:A:461:VAL:HG22	1:A:464:MET:HE2	1.86	0.57
1:B:521:LEU:HD23	1:B:521:LEU:N	2.20	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:532:GLU:CG	1:A:540:ARG:HE	2.16	0.57
1:A:501:LEU:HB3	1:A:506:ASP:HB3	1.87	0.57
1:D:521:LEU:N	1:D:521:LEU:HD23	2.19	0.57
1:D:670:ARG:HB2	1:D:670:ARG:HH11	1.69	0.57
1:D:644:LYS:HG3	1:D:667:ARG:NH2	2.20	0.57
1:A:516:PHE:O	1:A:517:GLU:OE2	2.22	0.57
1:A:378:LEU:HD22	1:A:382:MET:HG3	1.87	0.57
1:D:636:ASP:CB	1:D:639:VAL:HG23	2.30	0.56
1:D:670:ARG:CG	1:D:670:ARG:HH11	2.18	0.56
1:D:600:ASP:O	1:D:603:MET:HB2	2.05	0.56
1:D:452:ASP:OD1	1:D:452:ASP:C	2.44	0.56
1:B:524:ILE:HD11	1:B:586:SER:HB2	1.86	0.56
1:D:350:ILE:HG22	1:D:351:THR:HG22	1.86	0.56
1:B:470:ASN:CB	1:B:521:LEU:HD21	2.33	0.56
1:B:426:LYS:CB	1:B:505:ILE:HD12	2.36	0.56
1:D:296:ILE:HD11	1:D:342:LYS:HE2	1.86	0.56
1:B:436:ARG:HD3	1:B:513:LEU:HA	1.88	0.56
1:B:315:LEU:HD22	1:B:391:VAL:CG2	2.36	0.56
1:B:332:PHE:O	1:B:333:GLU:CB	2.33	0.56
1:A:330:ASP:OD2	1:A:334:SER:HB3	2.06	0.55
1:B:606:TYR:HD1	1:B:608:SER:H	1.53	0.55
1:A:461:VAL:HG22	1:A:464:MET:CE	2.36	0.55
1:D:476:GLY:HA3	1:D:482:VAL:HG23	1.87	0.55
1:D:526:LYS:CB	1:D:582:GLN:HG2	2.35	0.55
1:B:461:VAL:HG22	1:B:464:MET:CE	2.37	0.55
1:A:411:SER:OG	1:A:412:GLU:N	2.39	0.55
1:D:286:GLN:O	1:D:287:GLU:HB2	2.07	0.55
1:B:430:HIS:HD2	1:B:431:GLU:OE1	1.90	0.55
1:D:529:GLU:HG3	1:D:530:LEU:HB2	1.88	0.55
1:D:461:VAL:HA	1:D:464:MET:HE2	1.89	0.55
1:D:513:LEU:HD22	1:D:515:GLU:O	2.07	0.55
1:D:432:ASP:O	1:D:436:ARG:HB2	2.07	0.55
1:D:652:LEU:HD21	1:D:658:LEU:HD22	1.89	0.55
1:D:293:TYR:CD2	1:D:303:PRO:HG3	2.41	0.55
1:D:308:HIS:CD2	1:D:320:ILE:HG12	2.42	0.55
1:D:491:LEU:HD12	1:D:496:PHE:HB2	1.89	0.55
1:D:307:LYS:HG3	1:D:403:ALA:HB2	1.89	0.55
1:B:399:LYS:O	1:B:402:GLU:HB3	2.06	0.54
1:B:350:ILE:HG22	1:B:351:THR:HG22	1.87	0.54
1:A:667:ARG:HG2	1:A:667:ARG:HH11	1.72	0.54
1:D:662:THR:O	1:D:663:SER:C	2.44	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:636:ASP:CB	1:A:639:VAL:HG23	2.29	0.54
1:D:524:ILE:HD11	1:D:586:SER:CB	2.26	0.54
1:D:406:GLU:O	1:D:409:GLU:HB2	2.07	0.54
1:D:471:ILE:HB	1:D:520:THR:HG22	1.90	0.54
1:D:296:ILE:CG2	1:D:296:ILE:O	2.56	0.53
1:B:661:PRO:HG2	1:B:662:THR:H	1.73	0.53
1:B:408:ALA:HA	1:B:414:PHE:CD2	2.44	0.53
1:A:602:SER:CA	1:A:602:SER:OG	2.54	0.53
1:B:285:THR:OG1	1:B:286:GLN:O	2.19	0.53
1:B:532:GLU:CB	1:B:536:GLU:HB2	2.39	0.53
1:B:501:LEU:HB3	1:B:506:ASP:HB3	1.90	0.53
1:B:522:VAL:CG1	1:B:524:ILE:HG12	2.38	0.53
1:B:334:SER:H	1:D:350:ILE:HD12	1.73	0.52
1:B:532:GLU:HB2	1:B:536:GLU:HB2	1.91	0.52
1:B:494:LYS:HZ3	1:B:530:LEU:CD1	2.12	0.52
1:A:349:PHE:O	1:D:334:SER:HB2	2.08	0.52
1:B:522:VAL:HG11	1:B:524:ILE:HG12	1.90	0.52
1:A:651:LEU:O	1:A:656:PHE:HB2	2.10	0.52
1:A:426:LYS:HD3	1:A:505:ILE:CD1	2.34	0.52
1:B:629:VAL:C	1:B:631:GLU:H	2.11	0.52
1:A:533:THR:O	1:A:535:GLU:N	2.42	0.52
1:D:673:SER:O	1:D:676:LEU:N	2.41	0.52
1:B:357:LEU:HD12	1:B:389:MET:HE2	1.90	0.52
1:A:661:PRO:HG2	1:A:662:THR:H	1.74	0.52
1:D:562:VAL:HG12	1:D:563:GLU:N	2.24	0.52
1:A:670:ARG:HH11	1:A:670:ARG:HB2	1.74	0.52
1:B:651:LEU:O	1:B:656:PHE:HB2	2.10	0.52
1:D:452:ASP:OD1	1:D:453:GLU:N	2.43	0.51
1:B:452:ASP:OD1	1:B:453:GLU:N	2.44	0.51
1:A:408:ALA:HA	1:A:414:PHE:CD2	2.44	0.51
1:A:522:VAL:CG1	1:A:524:ILE:HG12	2.40	0.51
1:D:315:LEU:HD22	1:D:391:VAL:CG2	2.40	0.51
1:A:623:LYS:O	1:A:627:LYS:HG2	2.11	0.51
1:A:629:VAL:C	1:A:631:GLU:H	2.13	0.51
1:A:334:SER:HA	1:B:350:ILE:HA	1.93	0.51
1:B:590:GLU:OE2	1:B:609:SER:HB3	2.10	0.51
1:B:383:LEU:HA	1:B:386:ASN:HD22	1.76	0.51
1:D:274:LYS:HG2	1:D:275:PRO:HD2	1.93	0.51
1:B:440:ALA:HA	1:B:443:LEU:HD12	1.93	0.51
1:D:536:GLU:HB3	1:D:540:ARG:NH1	2.25	0.51
1:B:576:ALA:HA	1:B:614:GLU:O	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:529:GLU:OE2	1:A:530:LEU:HD12	2.11	0.51
1:D:470:ASN:HB3	1:D:521:LEU:CD2	2.37	0.51
1:A:383:LEU:HA	1:A:386:ASN:HD22	1.76	0.51
1:A:452:ASP:OD1	1:A:452:ASP:C	2.48	0.51
1:B:378:LEU:HD22	1:B:382:MET:CG	2.40	0.50
1:D:661:PRO:HG2	1:D:662:THR:H	1.76	0.50
1:D:308:HIS:CG	1:D:320:ILE:HG12	2.45	0.50
1:A:350:ILE:HA	1:D:334:SER:HA	1.94	0.50
1:D:515:GLU:HB3	1:D:519:LYS:HA	1.94	0.50
1:D:426:LYS:CB	1:D:505:ILE:HD12	2.41	0.50
1:A:524:ILE:HD11	1:A:586:SER:HB2	1.93	0.50
1:A:516:PHE:O	1:A:517:GLU:CD	2.50	0.50
1:D:395:ASN:O	1:D:396:ILE:C	2.45	0.50
1:B:455:THR:HG1	1:B:463:ARG:HH22	1.54	0.50
1:B:608:SER:O	1:B:609:SER:CB	2.59	0.50
1:B:459:ASP:HB3	1:B:463:ARG:NH2	2.27	0.50
1:A:293:TYR:CG	1:A:303:PRO:HG3	2.46	0.50
1:D:505:ILE:HG13	1:D:506:ASP:N	2.27	0.49
1:A:285:THR:C	1:A:286:GLN:O	2.48	0.49
1:D:629:VAL:C	1:D:631:GLU:H	2.15	0.49
1:A:522:VAL:HG11	1:A:524:ILE:HG12	1.93	0.49
1:B:334:SER:CB	1:D:349:PHE:O	2.60	0.49
1:B:474:ILE:HG12	1:B:482:VAL:HG22	1.92	0.49
1:A:621:ILE:HD12	1:A:621:ILE:H	1.77	0.49
1:B:608:SER:O	1:B:609:SER:HB3	2.11	0.49
1:D:460:TYR:CE1	1:D:497:GLU:HB3	2.46	0.49
1:B:644:LYS:HG3	1:B:667:ARG:NH2	2.28	0.49
1:A:648:GLU:HA	1:A:651:LEU:HD12	1.95	0.49
1:B:422:SER:O	1:B:425:ILE:HB	2.12	0.49
1:D:284:ILE:HG22	1:D:285:THR:O	2.12	0.49
1:B:426:LYS:HD3	1:B:505:ILE:CD1	2.43	0.48
1:B:284:ILE:HG22	1:B:285:THR:O	2.13	0.48
1:D:516:PHE:O	1:D:517:GLU:OE1	2.31	0.48
1:B:648:GLU:HA	1:B:651:LEU:HD12	1.95	0.48
1:D:651:LEU:O	1:D:656:PHE:N	2.46	0.48
1:D:461:VAL:HA	1:D:464:MET:CE	2.43	0.48
1:D:522:VAL:HG11	1:D:524:ILE:HG12	1.95	0.48
1:B:477:GLU:OE2	1:B:591:ARG:HD3	2.12	0.48
1:D:533:THR:HB	1:D:536:GLU:HG2	1.93	0.48
1:D:474:ILE:HG12	1:D:482:VAL:HG22	1.95	0.48
1:A:562:VAL:HG12	1:A:563:GLU:N	2.28	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:623:LYS:O	1:D:627:LYS:HG2	2.13	0.48
1:D:361:TRP:HB3	1:D:427:LEU:HD13	1.94	0.48
1:A:662:THR:O	1:A:663:SER:C	2.52	0.48
1:D:358:ILE:HG12	1:D:359:PRO:CD	2.39	0.48
1:B:523:ASP:O	1:B:579:ARG:NH1	2.47	0.48
1:B:530:LEU:C	1:B:531:GLU:HG3	2.35	0.47
1:B:426:LYS:HB2	1:B:505:ILE:HD12	1.96	0.47
1:D:357:LEU:HD13	1:D:389:MET:HE1	1.95	0.47
1:D:315:LEU:HD22	1:D:391:VAL:HG21	1.96	0.47
1:A:562:VAL:HG12	1:A:564:LYS:N	2.29	0.47
1:D:472:TYR:OH	1:D:529:GLU:OE1	2.31	0.47
1:B:426:LYS:CD	1:B:505:ILE:HD12	2.44	0.47
1:D:505:ILE:HG13	1:D:506:ASP:H	1.79	0.47
1:A:423:LYS:HG3	1:A:423:LYS:H	1.37	0.47
1:D:423:LYS:HG3	1:D:423:LYS:H	1.41	0.47
1:B:494:LYS:NZ	1:B:530:LEU:CD1	2.69	0.47
1:B:406:GLU:O	1:B:406:GLU:HG3	2.13	0.47
1:A:452:ASP:OD1	1:A:453:GLU:N	2.48	0.47
1:A:558:LEU:HD13	1:A:562:VAL:HG21	1.95	0.47
1:D:576:ALA:HA	1:D:614:GLU:O	2.15	0.47
1:D:414:PHE:O	1:D:415:GLU:C	2.52	0.47
1:A:432:ASP:O	1:A:436:ARG:HB2	2.15	0.47
1:D:524:ILE:HD12	1:D:587:ALA:HB3	1.96	0.47
1:B:536:GLU:HB3	1:B:540:ARG:CZ	2.44	0.46
1:D:277:TRP:HA	1:D:320:ILE:HD11	1.96	0.46
1:A:357:LEU:HD13	1:A:389:MET:CE	2.43	0.46
1:A:470:ASN:CB	1:A:521:LEU:HD21	2.37	0.46
1:D:590:GLU:OE2	1:D:609:SER:OG	2.26	0.46
1:A:286:GLN:O	1:A:287:GLU:HB2	2.14	0.46
1:B:315:LEU:HD22	1:B:391:VAL:HG21	1.97	0.46
1:D:472:TYR:HH	1:D:529:GLU:CD	2.17	0.46
1:D:435:ASN:O	1:D:436:ARG:C	2.52	0.46
1:D:357:LEU:CD1	1:D:389:MET:HE1	2.46	0.46
1:A:670:ARG:CG	1:A:670:ARG:HH11	2.28	0.46
1:B:334:SER:HA	1:D:350:ILE:HA	1.98	0.46
1:B:516:PHE:O	1:B:517:GLU:OE1	2.34	0.46
1:B:532:GLU:HG2	1:B:540:ARG:HH21	1.80	0.46
1:B:275:PRO:HG2	1:B:278:THR:HG23	1.97	0.46
1:D:670:ARG:O	1:D:674:LEU:HD12	2.14	0.46
1:B:411:SER:OG	1:B:412:GLU:N	2.49	0.46
1:D:651:LEU:O	1:D:656:PHE:HB2	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:296:ILE:HD13	1:B:296:ILE:HA	1.56	0.45
1:D:496:PHE:CZ	1:D:530:LEU:HD12	2.52	0.45
1:B:357:LEU:HD12	1:B:389:MET:CE	2.46	0.45
1:B:501:LEU:HD13	1:B:506:ASP:HB3	1.97	0.45
1:A:531:GLU:O	1:A:537:LYS:HB2	2.17	0.45
1:D:505:ILE:O	1:D:506:ASP:C	2.55	0.45
1:B:658:LEU:HD23	1:B:658:LEU:H	1.82	0.45
1:D:333:GLU:O	1:D:334:SER:C	2.55	0.45
1:A:284:ILE:HG22	1:A:285:THR:O	2.16	0.45
1:A:562:VAL:HG12	1:A:564:LYS:H	1.81	0.45
1:D:578:ILE:CG2	1:D:611:LYS:HG3	2.47	0.45
1:A:474:ILE:HG12	1:A:482:VAL:HG22	1.99	0.45
1:D:281:PRO:C	1:D:283:ASP:H	2.20	0.45
1:A:507:GLU:O	1:A:511:THR:HG23	2.17	0.45
1:B:670:ARG:CG	1:B:670:ARG:NH1	2.79	0.45
1:A:520:THR:C	1:A:521:LEU:HD23	2.38	0.45
1:A:644:LYS:HG3	1:A:667:ARG:NH2	2.31	0.45
1:A:426:LYS:CD	1:A:505:ILE:HD12	2.38	0.45
1:A:315:LEU:HD22	1:A:391:VAL:CG2	2.47	0.45
1:D:665:ALA:O	1:D:666:SER:C	2.56	0.45
1:B:461:VAL:HA	1:B:464:MET:CE	2.48	0.44
1:B:644:LYS:HZ1	1:B:667:ARG:NH1	2.15	0.44
1:B:651:LEU:O	1:B:656:PHE:N	2.50	0.44
1:A:276:LEU:HD12	1:A:279:ARG:NH1	2.31	0.44
1:A:531:GLU:HB2	1:A:534:ASP:OD1	2.15	0.44
1:B:383:LEU:O	1:B:387:LYS:HG2	2.17	0.44
1:D:543:GLU:O	1:D:546:GLU:N	2.50	0.44
1:B:471:ILE:HB	1:B:520:THR:HG22	1.98	0.44
1:D:399:LYS:O	1:D:402:GLU:HB3	2.17	0.44
1:B:447:SER:OG	1:B:450:SER:N	2.49	0.44
1:B:396:ILE:HG22	1:B:400:LEU:HD12	1.99	0.44
1:D:426:LYS:CE	1:D:506:ASP:OD1	2.59	0.44
1:B:662:THR:O	1:B:663:SER:C	2.56	0.44
1:B:530:LEU:HB3	1:B:531:GLU:H	1.48	0.44
1:D:463:ARG:HD2	1:D:497:GLU:OE2	2.18	0.44
1:D:667:ARG:NH1	1:D:667:ARG:HG2	2.30	0.44
1:B:281:PRO:C	1:B:283:ASP:H	2.21	0.44
1:A:315:LEU:HD22	1:A:391:VAL:HG22	2.00	0.44
1:D:658:LEU:H	1:D:658:LEU:HD23	1.83	0.43
1:B:532:GLU:HG2	1:B:540:ARG:NH2	2.33	0.43
1:B:621:ILE:H	1:B:621:ILE:HD12	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:532:GLU:OE2	1:A:537:LYS:HD2	2.18	0.43
1:A:466:GLU:HA	1:A:466:GLU:OE2	2.19	0.43
1:A:339:ASN:HD21	1:A:341:ILE:HB	1.83	0.43
1:B:342:LYS:HB2	1:B:368:VAL:HG12	2.01	0.43
1:A:530:LEU:C	1:A:532:GLU:N	2.68	0.43
1:D:540:ARG:HG2	1:D:569:TYR:CE1	2.53	0.43
1:A:280:ASN:O	1:A:283:ASP:HB3	2.18	0.43
1:D:346:ARG:O	1:D:347:ARG:HB2	2.19	0.43
1:B:460:TYR:CE1	1:B:497:GLU:HB3	2.52	0.43
1:B:333:GLU:O	1:B:334:SER:C	2.57	0.43
1:D:461:VAL:CG2	1:D:464:MET:HE2	2.42	0.43
1:D:378:LEU:O	1:D:379:SER:C	2.57	0.43
1:A:396:ILE:HG12	1:A:396:ILE:H	1.68	0.43
1:D:296:ILE:HD13	1:D:296:ILE:HA	1.74	0.43
1:D:501:LEU:CB	1:D:506:ASP:HB3	2.45	0.43
1:A:331:LEU:O	1:A:332:PHE:O	2.37	0.42
1:B:531:GLU:O	1:B:534:ASP:HA	2.19	0.42
1:B:330:ASP:OD2	1:B:334:SER:HB3	2.19	0.42
1:D:644:LYS:HD2	1:D:667:ARG:HG3	2.01	0.42
1:D:616:SER:HA	1:D:617:PRO:HD3	1.82	0.42
1:B:330:ASP:O	1:B:334:SER:HB3	2.19	0.42
1:B:669:ASN:O	1:B:672:ILE:HB	2.19	0.42
1:D:661:PRO:CG	1:D:662:THR:H	2.32	0.42
1:B:547:TYR:HD2	1:B:550:LEU:HD23	1.85	0.42
1:B:286:GLN:O	1:B:287:GLU:HB2	2.19	0.42
1:B:308:HIS:CG	1:B:320:ILE:HG12	2.54	0.42
1:A:333:GLU:CG	1:B:376:LEU:HD13	2.42	0.42
1:A:644:LYS:HD2	1:A:667:ARG:HG3	2.01	0.42
1:B:648:GLU:O	1:B:651:LEU:HB2	2.19	0.42
1:B:423:LYS:H	1:B:423:LYS:HG3	1.55	0.42
1:D:335:LYS:HG2	1:D:337:LYS:HE3	2.02	0.42
1:A:296:ILE:HD13	1:A:296:ILE:HA	1.62	0.42
1:D:522:VAL:CG1	1:D:524:ILE:HG12	2.50	0.42
1:B:533:THR:O	1:B:534:ASP:HB2	2.20	0.42
1:D:673:SER:O	1:D:677:ASN:HB2	2.19	0.42
1:B:644:LYS:HD2	1:B:667:ARG:CZ	2.50	0.42
1:B:302:ASP:HB3	1:B:303:PRO:CD	2.50	0.42
1:B:327:ALA:HA	1:B:328:PRO:HD2	1.90	0.42
1:B:465:PRO:HB2	1:B:467:HIS:CE1	2.55	0.42
1:A:526:LYS:HE2	1:A:612:THR:OG1	2.19	0.41
1:B:669:ASN:O	1:B:673:SER:N	2.38	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:287:GLU:HA	1:D:290:ASN:HB2	2.00	0.41
1:D:548:GLU:O	1:D:551:THR:HB	2.20	0.41
1:D:335:LYS:CG	1:D:336:LYS:H	2.11	0.41
1:A:471:ILE:HB	1:A:520:THR:HG22	2.02	0.41
1:D:457:LEU:HA	1:D:457:LEU:HD23	1.75	0.41
1:D:466:GLU:HA	1:D:466:GLU:OE2	2.20	0.41
1:A:526:LYS:CB	1:A:582:GLN:HG2	2.41	0.41
1:B:662:THR:HB	1:B:663:SER:H	1.54	0.41
1:D:558:LEU:HD13	1:D:562:VAL:HG21	2.03	0.41
1:D:603:MET:O	1:D:604:SER:OG	2.35	0.41
1:A:460:TYR:C	1:A:460:TYR:CD2	2.93	0.41
1:D:467:HIS:O	1:D:530:LEU:HD11	2.20	0.41
1:B:670:ARG:NH1	1:B:670:ARG:HB2	2.35	0.41
1:B:532:GLU:CG	1:B:540:ARG:HH21	2.33	0.41
1:D:357:LEU:HD12	1:D:389:MET:HE2	2.03	0.41
1:D:536:GLU:HB3	1:D:540:ARG:CZ	2.51	0.41
1:B:444:ARG:HG2	1:B:454:LEU:HB3	2.03	0.41
1:B:661:PRO:O	1:B:662:THR:C	2.58	0.41
1:D:285:THR:C	1:D:286:GLN:O	2.57	0.41
1:A:548:GLU:O	1:A:551:THR:HB	2.20	0.41
1:D:430:HIS:HD2	1:D:431:GLU:OE1	2.04	0.41
1:A:607:MET:SD	1:A:608:SER:N	2.94	0.41
1:B:285:THR:C	1:B:286:GLN:O	2.57	0.41
1:A:661:PRO:CG	1:A:662:THR:H	2.33	0.41
1:B:440:ALA:HA	1:B:443:LEU:CD1	2.50	0.41
1:A:501:LEU:HB3	1:A:506:ASP:CB	2.51	0.41
1:A:382:MET:O	1:A:385:GLN:HG2	2.20	0.41
1:B:597:ALA:O	1:B:600:ASP:O	2.39	0.41
1:D:335:LYS:O	1:D:336:LYS:HB2	2.20	0.40
1:D:503:ASP:O	1:D:506:ASP:HB2	2.21	0.40
1:A:576:ALA:HA	1:A:614:GLU:O	2.20	0.40
1:A:389:MET:HA	1:A:389:MET:HE3	2.04	0.40
1:B:275:PRO:HG2	1:B:278:THR:CG2	2.51	0.40
1:D:562:VAL:HG12	1:D:564:LYS:H	1.86	0.40
1:A:523:ASP:O	1:A:579:ARG:NH1	2.55	0.40
1:D:444:ARG:HG2	1:D:454:LEU:HB3	2.03	0.40
1:A:334:SER:H	1:B:350:ILE:HD12	1.86	0.40
1:D:330:ASP:OD2	1:D:334:SER:HB3	2.22	0.40
1:A:339:ASN:ND2	1:A:341:ILE:H	2.20	0.40
1:D:447:SER:OG	1:D:450:SER:N	2.54	0.40
1:A:541:GLU:H	1:A:541:GLU:CD	2.23	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:534:ASP:O	1:B:537:LYS:HB3	2.21	0.40
1:A:536:GLU:HB3	1:A:540:ARG:CZ	2.51	0.40
1:A:533:THR:OG1	1:A:536:GLU:HG2	2.21	0.40
1:B:540:ARG:NH1	1:B:540:ARG:CG	2.70	0.40
1:A:465:PRO:HB2	1:A:467:HIS:CE1	2.57	0.40
1:B:466:GLU:OE2	1:B:466:GLU:HA	2.22	0.40
1:B:623:LYS:O	1:B:627:LYS:HG2	2.21	0.40
1:D:396:ILE:HG12	1:D:396:ILE:H	1.60	0.40
1:B:562:VAL:HG12	1:B:563:GLU:N	2.37	0.40
1:D:539:GLU:HG2	1:D:539:GLU:H	1.67	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	403/405 (100%)	350 (87%)	40 (10%)	13 (3%)	5	27
1	B	403/405 (100%)	353 (88%)	39 (10%)	11 (3%)	6	32
1	D	403/405 (100%)	342 (85%)	49 (12%)	12 (3%)	5	29
All	All	1209/1215 (100%)	1045 (86%)	128 (11%)	36 (3%)	5	29

All (36) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	332	PHE
1	A	534	ASP
1	A	662	THR
1	B	332	PHE
1	B	336	LYS
1	B	531	GLU
1	B	609	SER

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Mol	Chain	Res	Type
1	B	662	THR
1	D	332	PHE
1	D	530	LEU
1	D	531	GLU
1	D	662	THR
1	A	531	GLU
1	A	661	PRO
1	B	606	TYR
1	B	661	PRO
1	D	336	LYS
1	D	661	PRO
1	A	336	LYS
1	A	530	LEU
1	A	591	ARG
1	B	602	SER
1	D	603	MET
1	D	607	MET
1	A	602	SER
1	B	526	LYS
1	B	528	PHE
1	D	533	THR
1	D	630	ASP
1	A	335	LYS
1	A	526	LYS
1	A	528	PHE
1	D	528	PHE
1	D	676	LEU
1	B	660	GLU
1	A	660	GLU

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	366/368 (100%)	301 (82%)	65 (18%)	2	11
1	B	366/368 (100%)	305 (83%)	61 (17%)	3	13

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	D	366/368 (100%)	311 (85%)	55 (15%)	3	17
All	All	1098/1104 (100%)	917 (84%)	181 (16%)	3	13

All (181) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	287	GLU
1	A	290	ASN
1	A	294	LYS
1	A	296	ILE
1	A	301	GLU
1	A	303	PRO
1	A	306	VAL
1	A	307	LYS
1	A	330	ASP
1	A	331	LEU
1	A	332	PHE
1	A	333	GLU
1	A	336	LYS
1	A	345	VAL
1	A	346	ARG
1	A	347	ARG
1	A	351	THR
1	A	355	GLU
1	A	358	ILE
1	A	368	VAL
1	A	380	ARG
1	A	391	VAL
1	A	398	LYS
1	A	413	GLN
1	A	416	LYS
1	A	423	LYS
1	A	427	LEU
1	A	444	ARG
1	A	452	ASP
1	A	453	GLU
1	A	458	THR
1	A	466	GLU
1	A	477	GLU
1	A	479	LEU
1	A	482	VAL
1	A	489	ASP

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Mol	Chain	Res	Type
1	A	494	LYS
1	A	505	ILE
1	A	513	LEU
1	A	517	GLU
1	A	521	LEU
1	A	522	VAL
1	A	526	LYS
1	A	527	ASP
1	A	530	LEU
1	A	531	GLU
1	A	537	LYS
1	A	540	ARG
1	A	548	GLU
1	A	564	LYS
1	A	594	LYS
1	A	596	GLN
1	A	601	SER
1	A	607	MET
1	A	611	LYS
1	A	615	ILE
1	A	638	THR
1	A	640	LYS
1	A	652	LEU
1	A	658	LEU
1	A	662	THR
1	A	663	SER
1	A	670	ARG
1	A	671	LEU
1	A	677	ASN
1	B	287	GLU
1	B	294	LYS
1	B	296	ILE
1	B	301	GLU
1	B	306	VAL
1	B	307	LYS
1	B	331	LEU
1	B	332	PHE
1	B	333	GLU
1	B	336	LYS
1	B	346	ARG
1	B	351	THR
1	B	355	GLU

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Mol	Chain	Res	Type
1	B	368	VAL
1	B	378	LEU
1	B	380	ARG
1	B	391	VAL
1	B	398	LYS
1	B	406	GLU
1	B	413	GLN
1	B	416	LYS
1	B	423	LYS
1	B	427	LEU
1	B	444	ARG
1	B	452	ASP
1	B	453	GLU
1	B	466	GLU
1	B	479	LEU
1	B	482	VAL
1	B	489	ASP
1	B	494	LYS
1	B	505	ILE
1	B	513	LEU
1	B	517	GLU
1	B	521	LEU
1	B	522	VAL
1	B	526	LYS
1	B	527	ASP
1	B	531	GLU
1	B	532	GLU
1	B	537	LYS
1	B	540	ARG
1	B	548	GLU
1	B	564	LYS
1	B	594	LYS
1	B	600	ASP
1	B	605	SER
1	B	606	TYR
1	B	607	MET
1	B	609	SER
1	B	611	LYS
1	B	615	ILE
1	B	638	THR
1	B	640	LYS
1	B	652	LEU

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Mol	Chain	Res	Type
1	B	658	LEU
1	B	662	THR
1	B	663	SER
1	B	670	ARG
1	B	673	SER
1	B	674	LEU
1	D	287	GLU
1	D	290	ASN
1	D	294	LYS
1	D	296	ILE
1	D	301	GLU
1	D	306	VAL
1	D	330	ASP
1	D	331	LEU
1	D	332	PHE
1	D	333	GLU
1	D	336	LYS
1	D	345	VAL
1	D	346	ARG
1	D	351	THR
1	D	355	GLU
1	D	368	VAL
1	D	380	ARG
1	D	391	VAL
1	D	398	LYS
1	D	413	GLN
1	D	416	LYS
1	D	423	LYS
1	D	427	LEU
1	D	444	ARG
1	D	452	ASP
1	D	453	GLU
1	D	466	GLU
1	D	479	LEU
1	D	482	VAL
1	D	489	ASP
1	D	513	LEU
1	D	517	GLU
1	D	521	LEU
1	D	522	VAL
1	D	526	LYS
1	D	527	ASP

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Mol	Chain	Res	Type
1	D	531	GLU
1	D	537	LYS
1	D	540	ARG
1	D	548	GLU
1	D	564	LYS
1	D	594	LYS
1	D	603	MET
1	D	606	TYR
1	D	611	LYS
1	D	615	ILE
1	D	637	LYS
1	D	638	THR
1	D	640	LYS
1	D	652	LEU
1	D	658	LEU
1	D	662	THR
1	D	663	SER
1	D	670	ARG
1	D	672	ILE

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (18) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	286	GLN
1	A	290	ASN
1	A	339	ASN
1	A	386	ASN
1	A	413	GLN
1	A	430	HIS
1	A	596	GLN
1	B	290	ASN
1	B	339	ASN
1	B	386	ASN
1	B	413	GLN
1	B	430	HIS
1	B	677	ASN
1	D	286	GLN
1	D	290	ASN
1	D	339	ASN
1	D	386	ASN
1	D	413	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no 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	405/405 (100%)	0.10	15 (3%)	45	19	53, 80, 140, 193	6 (1%)
1	B	405/405 (100%)	0.04	15 (3%)	45	19	50, 80, 148, 177	6 (1%)
1	D	405/405 (100%)	-0.05	5 (1%)	81	55	55, 80, 113, 153	6 (1%)
All	All	1215/1215 (100%)	0.03	35 (2%)	55	26	50, 80, 139, 193	18 (1%)

All (35) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	601	SER	12.2
1	A	602	SER	10.6
1	A	600	ASP	6.2
1	A	599	ARG	5.3
1	A	654	SER	4.1
1	A	598	LEU	3.9
1	B	600	ASP	3.5
1	D	606	TYR	3.4
1	A	582	GLN	3.4
1	D	604	SER	3.3
1	B	630	ASP	3.3
1	D	607	MET	3.0
1	B	532	GLU	3.0
1	A	457	LEU	2.8
1	A	533	THR	2.8
1	A	658	LEU	2.7
1	B	528	PHE	2.7
1	B	642	LEU	2.7
1	A	596	GLN	2.6
1	B	673	SER	2.6
1	B	598	LEU	2.5
1	B	639	VAL	2.4
1	B	658	LEU	2.3

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Mol	Chain	Res	Type	RSRZ
1	B	535	GLU	2.2
1	B	491	LEU	2.2
1	D	520	THR	2.2
1	A	564	LYS	2.2
1	B	625	LEU	2.2
1	A	656	PHE	2.2
1	B	558	LEU	2.1
1	B	477	GLU	2.1
1	B	632	GLY	2.0
1	A	597	ALA	2.0
1	D	536	GLU	2.0
1	A	603	MET	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.