



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 08:05 AM UTC

PDB ID : 3INB / pdb_00003inb
Title : Structure of the measles virus hemagglutinin bound to the CD46 receptor
Authors : Santiago, C.; Celma, M.L.; Stehle, T.; Casasnovas, J.M.
Deposited on : 2009-08-12
Resolution : 3.10 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	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

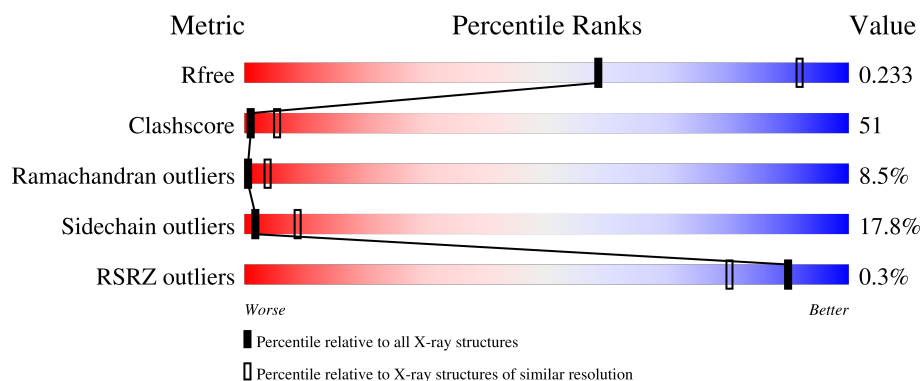
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.10 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}	180053	1456 (3.10-3.10)
Clashscore	190562	1539 (3.10-3.10)
Ramachandran outliers	187476	1467 (3.10-3.10)
Sidechain outliers	187428	1467 (3.10-3.10)
RSRZ outliers	180081	1456 (3.10-3.10)

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

Mol	Chain	Length	Quality of chain
1	A	466	
1	B	466	
2	C	126	
2	D	126	

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 8350 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 Hemagglutinin glycoprotein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	389	Total	C	N	O	S	0	0	0
			3047	1963	503	560	21			
1	B	403	Total	C	N	O	S	0	1	0
			3158	2030	522	583	23			

There are 64 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	152	TYR	-	expression tag	UNP P08362
A	153	PRO	-	expression tag	UNP P08362
A	154	TYR	-	expression tag	UNP P08362
A	155	ASP	-	expression tag	UNP P08362
A	156	VAL	-	expression tag	UNP P08362
A	157	PRO	-	expression tag	UNP P08362
A	158	ASP	-	expression tag	UNP P08362
A	159	TYR	-	expression tag	UNP P08362
A	160	ALA	-	expression tag	UNP P08362
A	161	GLY	-	expression tag	UNP P08362
A	162	ALA	-	expression tag	UNP P08362
A	163	GLN	-	expression tag	UNP P08362
A	164	PRO	-	expression tag	UNP P08362
A	165	ALA	-	expression tag	UNP P08362
A	166	ARG	-	expression tag	UNP P08362
A	167	SER	-	expression tag	UNP P08362
A	168	PRO	-	expression tag	UNP P08362
A	169	GLY	-	expression tag	UNP P08362
A	170	ILE	-	expression tag	UNP P08362
A	171	ARG	-	expression tag	UNP P08362
A	172	GLY	-	expression tag	UNP P08362
A	173	LEU	-	expression tag	UNP P08362
A	174	VAL	-	expression tag	UNP P08362
A	175	PRO	-	expression tag	UNP P08362
A	176	ARG	-	expression tag	UNP P08362

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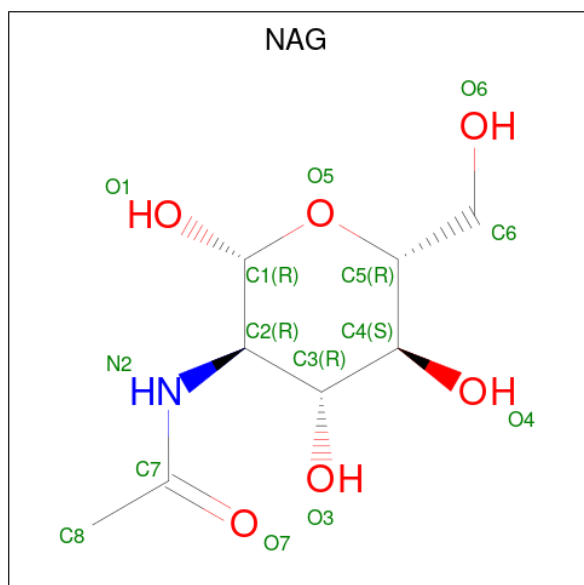
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Chain	Residue	Modelled	Actual	Comment	Reference
A	177	GLY	-	expression tag	UNP P08362
A	178	SER	-	expression tag	UNP P08362
A	331	ALA	THR	engineered mutation	UNP P08362
A	392	THR	ALA	engineered mutation	UNP P08362
A	484	THR	ASN	engineered mutation	UNP P08362
A	546	GLY	SER	engineered mutation	UNP P08362
A	600	VAL	GLU	engineered mutation	UNP P08362
B	152	TYR	-	expression tag	UNP P08362
B	153	PRO	-	expression tag	UNP P08362
B	154	TYR	-	expression tag	UNP P08362
B	155	ASP	-	expression tag	UNP P08362
B	156	VAL	-	expression tag	UNP P08362
B	157	PRO	-	expression tag	UNP P08362
B	158	ASP	-	expression tag	UNP P08362
B	159	TYR	-	expression tag	UNP P08362
B	160	ALA	-	expression tag	UNP P08362
B	161	GLY	-	expression tag	UNP P08362
B	162	ALA	-	expression tag	UNP P08362
B	163	GLN	-	expression tag	UNP P08362
B	164	PRO	-	expression tag	UNP P08362
B	165	ALA	-	expression tag	UNP P08362
B	166	ARG	-	expression tag	UNP P08362
B	167	SER	-	expression tag	UNP P08362
B	168	PRO	-	expression tag	UNP P08362
B	169	GLY	-	expression tag	UNP P08362
B	170	ILE	-	expression tag	UNP P08362
B	171	ARG	-	expression tag	UNP P08362
B	172	GLY	-	expression tag	UNP P08362
B	173	LEU	-	expression tag	UNP P08362
B	174	VAL	-	expression tag	UNP P08362
B	175	PRO	-	expression tag	UNP P08362
B	176	ARG	-	expression tag	UNP P08362
B	177	GLY	-	expression tag	UNP P08362
B	178	SER	-	expression tag	UNP P08362
B	331	ALA	THR	engineered mutation	UNP P08362
B	392	THR	ALA	engineered mutation	UNP P08362
B	484	THR	ASN	engineered mutation	UNP P08362
B	546	GLY	SER	engineered mutation	UNP P08362
B	600	VAL	GLU	engineered mutation	UNP P08362

- Molecule 2 is a protein called Membrane cofactor protein.

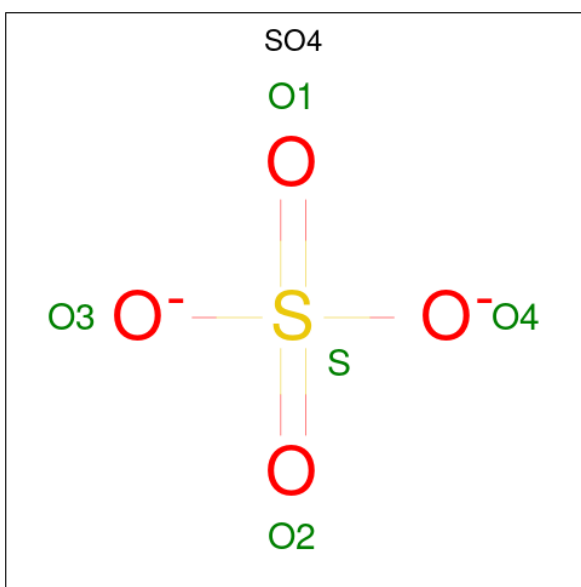
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	126	Total	C	N	O	S	0	0	0
			1019	659	160	190	10			
2	D	126	Total	C	N	O	S	0	0	0
			1019	659	160	190	10			

- Molecule 3 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			14	8	1	5		
3	A	1	Total	C	N	O	0	0
			14	8	1	5		
3	B	1	Total	C	N	O	0	0
			14	8	1	5		
3	B	1	Total	C	N	O	0	0
			14	8	1	5		
3	C	1	Total	C	N	O	0	0
			14	8	1	5		
3	D	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 4 is SULFATE ION (CCD ID: SO4) (formula: O_4S).



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

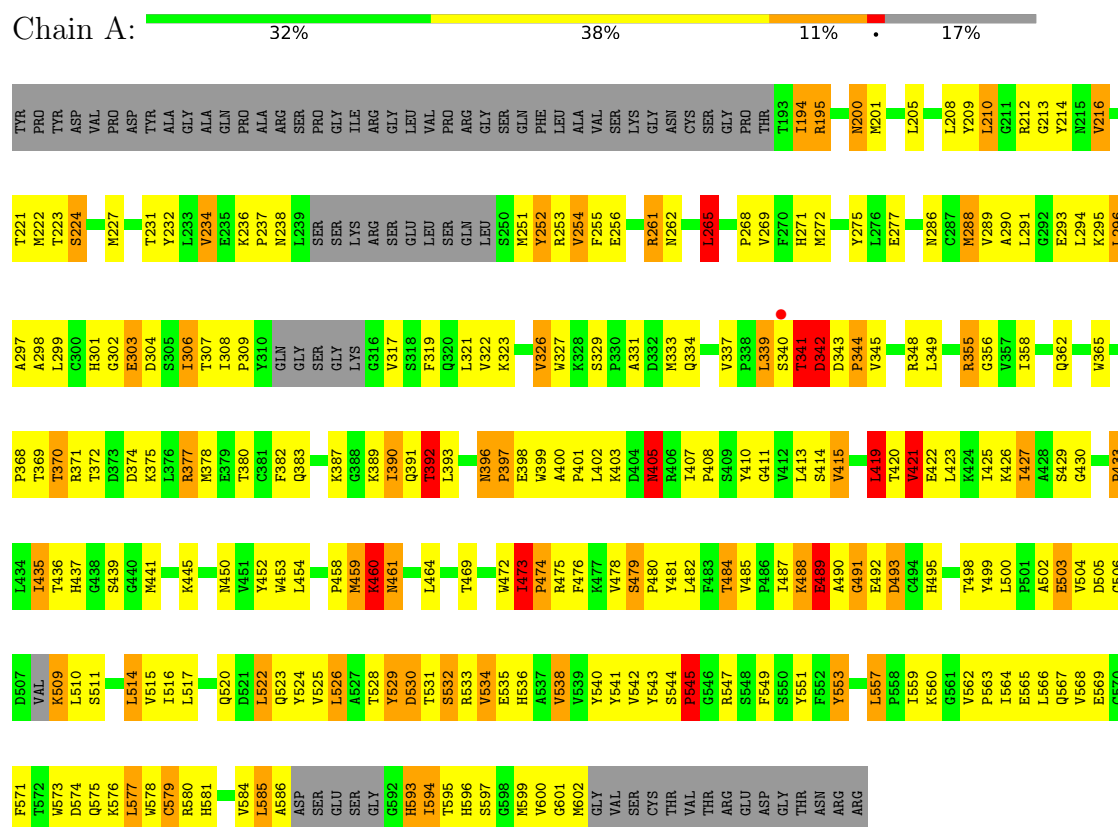
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	4	Total	O	0	0
			4	4		
5	B	3	Total	O	0	0
			3	3		
5	C	1	Total	O	0	0
			1	1		

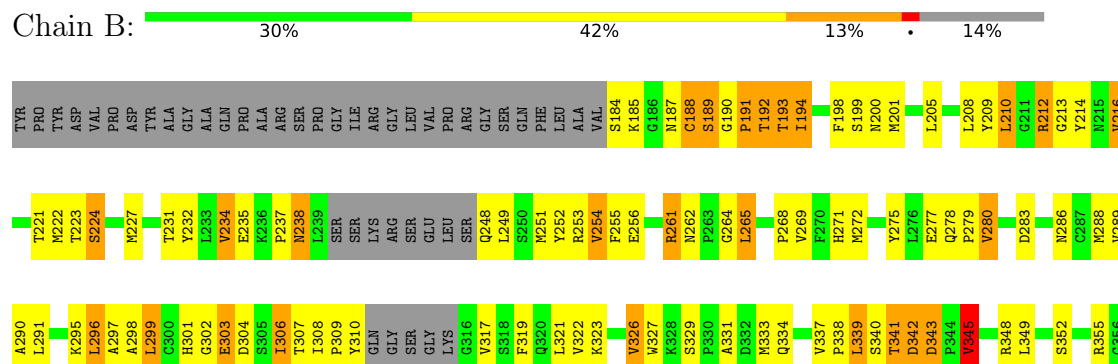
3 Residue-property plots

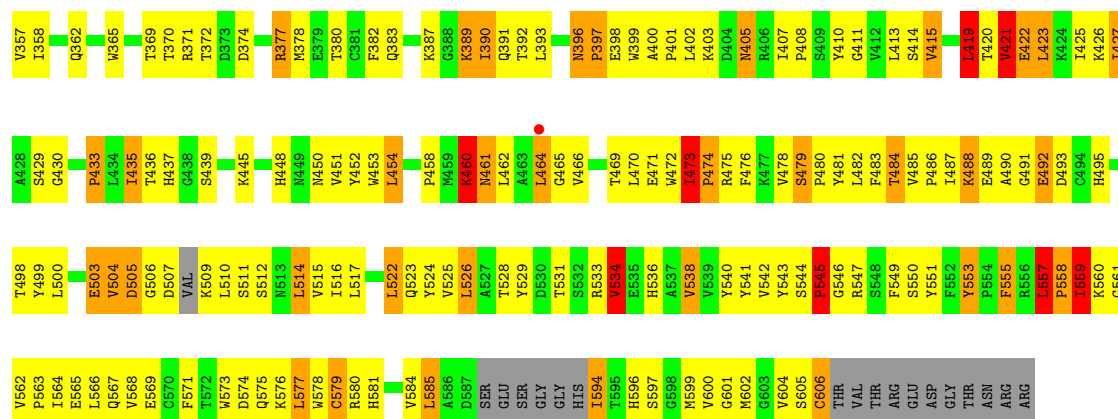
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: Hemagglutinin glycoprotein

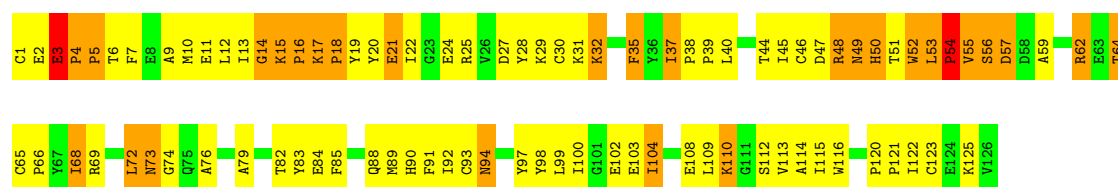


• Molecule 1: Hemagglutinin glycoprotein

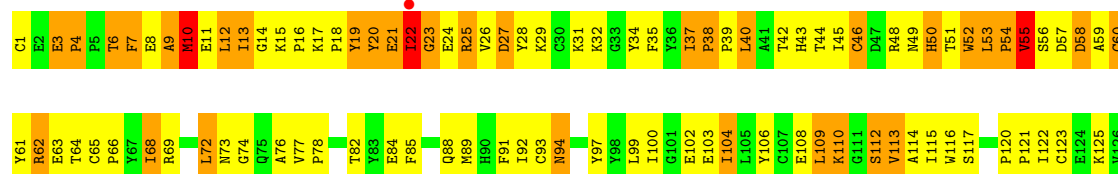




• Molecule 2: Membrane cofactor protein



• Molecule 2: Membrane cofactor protein



4 Data and refinement statistics

Property	Value	Source
Space group	P 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	81.36Å 105.83Å 208.71Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	14.98 – 3.10 14.98 – 3.10	Depositor EDS
% Data completeness (in resolution range)	96.0 (14.98-3.10) 95.1 (14.98-3.10)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.61 (at 2.98Å)	Xtriage
Refinement program	PHENIX (phenix.refine)	Depositor
R, R_{free}	0.227 , 0.259 0.229 , 0.233	Depositor DCC
R_{free} test set	1752 reflections (4.78%)	wwPDB-VP
Wilson B-factor (Å ²)	97.8	Xtriage
Anisotropy	0.568	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.26 , 86.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.29$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	8350	wwPDB-VP
Average B, all atoms (Å ²)	159.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.04% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NAG, 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	0.50	0/3125	1.02	12/4254 (0.3%)
1	B	0.49	0/3237	0.98	13/4404 (0.3%)
2	C	0.50	0/1053	1.09	8/1432 (0.6%)
2	D	0.60	1/1053 (0.1%)	1.31	14/1432 (1.0%)
All	All	0.51	1/8468 (0.0%)	1.05	47/11522 (0.4%)

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	5
1	B	0	3
2	C	0	2
2	D	0	2
All	All	0	12

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	4	PRO	CA-C	5.58	1.54	1.51

All (47) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	3	GLU	CA-C-N	13.17	129.27	119.66
2	D	3	GLU	C-N-CA	13.17	129.27	119.66
1	A	396	ASN	CA-C-N	13.02	136.11	119.84
1	A	396	ASN	C-N-CA	13.02	136.11	119.84

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	3	GLU	CA-C-N	10.09	130.77	120.38
2	C	3	GLU	C-N-CA	10.09	130.77	120.38
1	B	343	ASP	CA-C-N	9.25	131.40	119.84
1	B	343	ASP	C-N-CA	9.25	131.40	119.84
1	A	460	LYS	N-CA-C	8.22	122.33	110.24
1	B	343	ASP	N-CA-C	-8.10	91.90	109.81
2	D	40	LEU	N-CA-C	6.96	119.81	110.35
2	D	26	VAL	N-CA-C	6.94	119.19	107.18
2	D	3	GLU	N-CA-C	6.65	119.48	110.31
2	D	13	ILE	N-CA-C	6.40	119.02	109.17
2	C	4	PRO	N-CA-C	6.39	118.50	110.70
1	A	389	LYS	N-CA-C	6.34	119.13	109.62
1	A	341	THR	N-CA-C	6.30	118.72	108.26
2	D	88	GLN	N-CA-C	6.18	118.80	109.23
1	A	479	SER	CA-C-N	6.15	126.12	119.78
1	A	479	SER	C-N-CA	6.15	126.12	119.78
1	A	387	LYS	N-CA-C	-6.13	105.06	112.54
2	C	57	ASP	N-CA-C	-6.06	105.19	114.16
2	D	69	ARG	NE-CZ-NH2	5.94	124.55	119.20
2	D	9	ALA	N-CA-C	-5.90	98.23	110.80
2	C	15	LYS	CA-C-N	5.69	126.96	119.84
2	C	15	LYS	C-N-CA	5.69	126.96	119.84
2	D	55	VAL	N-CA-C	-5.69	97.51	109.34
2	D	46	CYS	N-CA-C	5.68	118.50	110.50
2	D	22	ILE	N-CA-C	5.66	126.86	111.00
1	B	479	SER	CA-C-N	5.64	125.59	119.78
1	B	479	SER	C-N-CA	5.64	125.59	119.78
1	A	265	LEU	CA-CB-CG	5.59	135.88	116.30
1	B	387	LYS	N-CA-C	-5.55	105.77	112.54
1	B	421	VAL	CA-C-N	-5.49	114.99	123.17
1	B	421	VAL	C-N-CA	-5.49	114.99	123.17
1	A	531	THR	N-CA-C	-5.47	100.10	109.24
1	B	280	VAL	CB-CA-C	-5.45	102.35	111.29
1	B	192	THR	N-CA-C	5.43	117.32	109.07
2	C	88	GLN	N-CA-C	5.35	117.52	109.23
2	D	69	ARG	NE-CZ-NH1	-5.33	116.17	121.50
1	B	345	VAL	CB-CA-C	5.31	117.65	111.55
1	B	534	VAL	N-CA-C	5.28	115.49	110.42
1	B	264	GLY	N-CA-C	-5.16	107.94	115.72
2	D	19	TYR	N-CA-C	5.07	114.98	108.34
1	A	421	VAL	N-CA-C	5.05	119.84	109.34
2	C	14	GLY	N-CA-C	5.04	117.64	111.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	595	THR	N-CA-C	5.03	116.89	107.99

There are no chirality outliers.

All (12) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	341	THR	Peptide
1	A	342	ASP	Peptide
1	A	473	ILE	Peptide
1	A	529	TYR	Peptide
1	A	557	LEU	Peptide
1	B	342	ASP	Peptide
1	B	473	ILE	Peptide
1	B	557	LEU	Peptide
2	C	48	ARG	Peptide
2	C	54	PRO	Peptide
2	D	25	ARG	Peptide
2	D	53	LEU	Peptide

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	3047	0	3010	297	0
1	B	3158	0	3125	292	0
2	C	1019	0	962	142	0
2	D	1019	0	962	131	0
3	A	28	0	26	2	0
3	B	28	0	26	1	0
3	C	14	0	13	0	0
3	D	14	0	13	0	0
4	A	5	0	0	0	0
4	B	10	0	0	0	0
5	A	4	0	0	0	0
5	B	3	0	0	0	0
5	C	1	0	0	0	0
All	All	8350	0	8137	839	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 51.

All (839) 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)
2:C:52:TRP:C	2:C:54:PRO:HD2	1.72	1.11
2:C:85:PHE:HB2	2:C:109:LEU:HD11	1.34	1.09
1:B:555:PHE:HB2	1:B:557:LEU:HB2	1.35	1.06
1:A:460:LYS:HE2	1:A:460:LYS:CA	1.83	1.06
2:C:11:GLU:HB2	2:C:31:LYS:HG2	1.37	1.06
1:A:460:LYS:HE2	1:A:460:LYS:HA	1.03	1.02
1:A:464:LEU:HD13	2:D:37:ILE:HD11	1.42	1.01
1:A:502:ALA:HB1	1:A:504:VAL:HG23	1.42	1.01
2:D:85:PHE:HB2	2:D:109:LEU:HD11	1.45	0.96
1:A:390:ILE:HD13	1:A:499:TYR:HB3	1.47	0.95
2:C:17:LYS:HB3	2:C:18:PRO:HD3	1.49	0.95
1:A:460:LYS:HA	1:A:460:LYS:CE	1.97	0.94
2:C:54:PRO:HA	2:C:55:VAL:HG13	1.50	0.94
1:B:557:LEU:HB3	1:B:558:PRO:HD3	1.50	0.93
2:C:4:PRO:HD3	2:C:20:TYR:HE2	1.34	0.92
1:A:355:ARG:HG3	1:A:355:ARG:HH11	1.35	0.91
2:D:1:CYS:H1	2:D:50:HIS:CD2	1.88	0.91
1:A:460:LYS:CE	1:A:461:ASN:H	1.82	0.91
2:C:40:LEU:H	2:C:40:LEU:HD22	1.33	0.91
2:D:115:ILE:HG22	2:D:116:TRP:H	1.36	0.90
1:B:464[A]:LEU:HD13	1:B:465:GLY:N	1.86	0.90
2:C:53:LEU:N	2:C:54:PRO:HD2	1.86	0.90
2:C:52:TRP:CG	2:C:54:PRO:HG2	2.07	0.89
2:D:27:ASP:HB2	2:D:28:TYR:CD1	2.08	0.89
1:A:500:LEU:HD13	2:D:40:LEU:HG	1.52	0.89
2:C:115:ILE:HG22	2:C:116:TRP:H	1.36	0.88
2:C:85:PHE:HB2	2:C:109:LEU:CD1	2.05	0.87
1:B:191:PRO:O	1:B:606:CYS:HB3	1.73	0.87
2:C:52:TRP:HB2	2:C:54:PRO:CD	2.05	0.86
1:B:209:TYR:CD1	1:B:234:VAL:HG11	2.10	0.86
1:B:222:MET:HE2	1:B:355:ARG:HB3	1.58	0.86
1:B:500:LEU:HD22	2:C:40:LEU:HD21	1.56	0.85
1:A:420:THR:HG22	1:A:421:VAL:H	1.39	0.85
1:B:529:TYR:HH	1:B:536:HIS:HD1	1.20	0.85
1:B:261:ARG:HD3	1:B:262:ASN:N	1.90	0.85
1:A:209:TYR:CD1	1:A:234:VAL:HG11	2.11	0.84
1:A:397:PRO:HB3	1:A:403:LYS:HG2	1.57	0.84

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:261:ARG:HD3	1:A:262:ASN:N	1.93	0.84
1:A:460:LYS:HD2	1:A:511:SER:HB3	1.59	0.84
1:B:345:VAL:HG23	1:B:372:THR:H	1.42	0.84
1:B:355:ARG:HG3	1:B:355:ARG:HH11	1.39	0.84
1:B:397:PRO:HB3	1:B:403:LYS:HG2	1.58	0.83
2:C:12:LEU:HB2	2:C:28:TYR:CE2	2.13	0.83
1:B:464[B]:LEU:HD13	2:C:37:ILE:HD13	1.57	0.83
1:A:222:MET:HE2	1:A:355:ARG:HB3	1.59	0.82
2:D:122:ILE:HG22	2:D:123:CYS:H	1.44	0.81
2:C:52:TRP:HB2	2:C:54:PRO:HD2	1.63	0.80
2:C:4:PRO:CD	2:C:20:TYR:HE2	1.93	0.80
2:D:97:TYR:CE2	2:D:125:LYS:HB3	2.17	0.80
2:C:97:TYR:CE2	2:C:125:LYS:HB3	2.18	0.79
1:B:265:LEU:O	1:B:265:LEU:HG	1.80	0.79
1:B:261:ARG:HD3	1:B:262:ASN:H	1.44	0.79
1:B:450:ASN:HB3	1:B:473:ILE:HG13	1.65	0.79
2:D:85:PHE:HB2	2:D:109:LEU:CD1	2.12	0.79
1:A:460:LYS:HE3	1:A:511:SER:OG	1.83	0.79
2:D:48:ARG:C	2:D:50:HIS:H	1.89	0.79
2:D:27:ASP:HB3	2:D:28:TYR:HA	1.65	0.78
2:D:115:ILE:HG22	2:D:116:TRP:N	1.98	0.78
1:B:201:MET:SD	1:B:265:LEU:HD21	2.24	0.78
1:B:421:VAL:HB	1:B:422:GLU:OE1	1.83	0.77
1:A:261:ARG:HD3	1:A:262:ASN:H	1.49	0.77
1:A:529:TYR:HH	1:A:536:HIS:HD1	1.32	0.77
2:C:122:ILE:HG22	2:C:123:CYS:H	1.47	0.77
1:B:190:GLY:HA2	1:B:191:PRO:O	1.83	0.77
2:C:115:ILE:HG22	2:C:116:TRP:N	1.97	0.77
1:A:580:ARG:HD2	1:A:599:MET:HB2	1.66	0.77
1:A:420:THR:HG22	1:A:421:VAL:N	1.99	0.77
1:A:262:ASN:HB2	1:A:573:TRP:CZ2	2.20	0.77
1:B:262:ASN:HB2	1:B:573:TRP:CZ2	2.19	0.77
2:C:52:TRP:HB2	2:C:54:PRO:CG	2.15	0.77
2:D:27:ASP:CB	2:D:28:TYR:HA	2.14	0.76
2:D:62:ARG:HB3	2:D:85:PHE:CE1	2.20	0.76
1:A:296:LEU:HD12	1:A:297:ALA:N	2.00	0.76
2:D:10:MET:HB3	2:D:29:LYS:O	1.83	0.76
2:C:62:ARG:HB3	2:C:85:PHE:CD1	2.20	0.76
1:A:543:TYR:OH	2:D:38:PRO:HD3	1.84	0.76
1:A:460:LYS:HG2	1:A:510:LEU:C	2.10	0.76
2:C:40:LEU:HB2	2:C:59:ALA:HB2	1.67	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:2:GLU:HG3	2:C:3:GLU:N	2.00	0.76
1:A:534:VAL:N	1:A:536:HIS:CD2	2.54	0.76
1:A:566:LEU:HD12	1:A:567:GLN:H	1.51	0.76
1:A:543:TYR:OH	2:D:37:ILE:HA	1.86	0.76
2:C:22:ILE:HD11	2:C:50:HIS:CE1	2.21	0.75
1:A:450:ASN:HB3	1:A:473:ILE:HG13	1.68	0.75
2:C:52:TRP:CD1	2:C:52:TRP:H	2.05	0.75
1:B:580:ARG:HD2	1:B:599:MET:HB2	1.69	0.75
1:A:262:ASN:HB2	1:A:573:TRP:HZ2	1.52	0.74
1:A:509:LYS:HB3	1:A:530:ASP:HB3	1.68	0.74
2:C:113:VAL:HG22	2:C:114:ALA:H	1.53	0.74
2:D:7:PHE:HE1	2:D:55:VAL:HG13	1.53	0.73
2:D:9:ALA:HB3	2:D:57:ASP:HB2	1.70	0.73
1:B:262:ASN:HB2	1:B:573:TRP:HZ2	1.50	0.73
1:A:392:THR:HG23	1:A:393:LEU:HD22	1.69	0.73
1:A:500:LEU:HB3	2:D:40:LEU:HD11	1.68	0.73
2:D:21:GLU:HG3	2:D:22:ILE:O	1.89	0.73
2:D:113:VAL:HG22	2:D:114:ALA:H	1.53	0.73
1:B:500:LEU:CD2	2:C:40:LEU:HD21	2.17	0.72
1:B:255:PHE:CE2	1:B:322:VAL:HG21	2.24	0.72
1:B:306:ILE:HD12	1:B:319:PHE:HE1	1.55	0.72
2:D:48:ARG:C	2:D:48:ARG:HD3	2.13	0.72
2:D:23:GLY:C	2:D:24:GLU:HG2	2.14	0.72
1:B:399:TRP:O	1:B:403:LYS:HG3	1.88	0.71
1:B:296:LEU:HD12	1:B:297:ALA:N	2.05	0.71
1:A:255:PHE:CE2	1:A:322:VAL:HG21	2.25	0.71
1:B:377:ARG:HH11	1:B:377:ARG:HG2	1.55	0.71
1:A:509:LYS:CB	1:A:530:ASP:HB3	2.21	0.71
1:B:557:LEU:HB3	1:B:558:PRO:CD	2.19	0.70
1:A:333:MET:HG2	1:A:419:LEU:HD23	1.74	0.70
2:D:1:CYS:H1	2:D:50:HIS:CG	2.10	0.70
2:D:32:LYS:HE3	2:D:112:SER:HB3	1.71	0.70
1:A:491:GLY:C	1:A:493:ASP:H	2.00	0.70
1:A:201:MET:SD	1:A:265:LEU:HD11	2.32	0.70
2:C:10:MET:HA	2:C:30:CYS:HA	1.74	0.69
1:A:377:ARG:HG2	1:A:377:ARG:HH11	1.57	0.69
1:A:399:TRP:O	1:A:403:LYS:HG3	1.92	0.69
1:B:231:THR:HG22	1:B:289:VAL:CG2	2.21	0.69
2:C:3:GLU:HG2	2:C:16:PRO:CB	2.22	0.69
1:A:306:ILE:HD12	1:A:319:PHE:HE1	1.56	0.69
1:B:529:TYR:HE2	1:B:555:PHE:HZ	1.41	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:544:SER:O	1:B:545:PRO:C	2.34	0.69
1:A:254:VAL:C	1:A:255:PHE:HD1	2.01	0.69
1:A:474:PRO:HD2	1:A:475:ARG:H	1.57	0.69
1:B:415:VAL:HG23	1:B:425:ILE:HG23	1.75	0.69
1:B:421:VAL:HB	1:B:422:GLU:CD	2.17	0.69
2:D:48:ARG:HD3	2:D:48:ARG:O	1.91	0.69
2:D:1:CYS:H1	2:D:50:HIS:HB3	1.58	0.69
1:B:301:HIS:CE1	1:B:306:ILE:HD11	2.28	0.68
2:D:13:ILE:HG12	2:D:14:GLY:H	1.58	0.68
2:C:122:ILE:HG22	2:C:123:CYS:N	2.09	0.68
2:C:109:LEU:HD12	2:C:109:LEU:H	1.58	0.68
2:C:52:TRP:C	2:C:54:PRO:CD	2.60	0.68
2:C:53:LEU:N	2:C:54:PRO:CD	2.57	0.68
1:A:399:TRP:CE2	1:A:401:PRO:HG2	2.28	0.68
1:A:415:VAL:HG23	1:A:425:ILE:HG23	1.76	0.68
1:B:399:TRP:CE2	1:B:401:PRO:HG2	2.29	0.68
1:B:399:TRP:CZ2	1:B:401:PRO:HG2	2.29	0.68
2:C:39:PRO:HD2	2:C:40:LEU:HD22	1.76	0.68
1:B:566:LEU:HD12	1:B:567:GLN:H	1.56	0.68
1:A:399:TRP:CZ2	1:A:401:PRO:HG2	2.28	0.67
2:C:4:PRO:HD3	2:C:20:TYR:CE2	2.24	0.67
1:A:231:THR:HG22	1:A:289:VAL:CG2	2.24	0.67
1:A:460:LYS:HE2	1:A:461:ASN:H	1.58	0.67
1:B:523:GLN:HG2	1:B:544:SER:HB2	1.77	0.67
1:A:345:VAL:HG12	1:A:372:THR:H	1.60	0.67
1:A:523:GLN:HG2	1:A:544:SER:HB2	1.77	0.67
1:A:534:VAL:H	1:A:536:HIS:CD2	2.12	0.67
2:C:72:LEU:O	2:C:73:ASN:HB2	1.93	0.67
2:D:122:ILE:HG22	2:D:123:CYS:N	2.09	0.67
2:D:51:THR:C	2:D:52:TRP:HD1	2.01	0.67
1:A:343:ASP:C	1:A:345:VAL:H	2.03	0.67
1:B:222:MET:CE	1:B:355:ARG:HB3	2.25	0.67
1:A:194:ILE:HG22	1:A:195:ARG:H	1.59	0.67
1:B:392:THR:OG1	1:B:393:LEU:HD22	1.94	0.67
1:B:377:ARG:HG2	1:B:377:ARG:NH1	2.07	0.66
1:A:544:SER:O	1:A:545:PRO:C	2.37	0.66
1:B:254:VAL:C	1:B:255:PHE:HD1	2.02	0.66
2:D:12:LEU:HA	2:D:28:TYR:HB2	1.78	0.66
2:D:21:GLU:HA	2:D:22:ILE:O	1.94	0.66
1:A:222:MET:CE	1:A:355:ARG:HB3	2.25	0.66
3:A:1200:NAG:H81	1:B:212:ARG:NH1	2.10	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:21:GLU:HG3	2:D:22:ILE:C	2.20	0.66
1:B:475:ARG:NH1	1:B:475:ARG:HB2	2.11	0.66
1:B:488:LYS:O	1:B:489:GLU:HB2	1.94	0.66
2:D:1:CYS:N	2:D:50:HIS:CD2	2.63	0.66
1:A:460:LYS:CD	1:A:461:ASN:H	2.10	0.65
1:B:345:VAL:HG23	1:B:372:THR:N	2.10	0.65
1:A:227:MET:HE3	1:A:291:LEU:HD22	1.79	0.65
1:A:390:ILE:HG21	1:A:499:TYR:CG	2.31	0.65
2:C:52:TRP:CB	2:C:54:PRO:HD2	2.26	0.65
2:C:115:ILE:CG2	2:C:116:TRP:H	2.08	0.65
1:B:555:PHE:HD1	1:B:596:HIS:CE1	2.15	0.65
1:B:306:ILE:HD12	1:B:319:PHE:CE1	2.32	0.65
2:C:52:TRP:HB2	2:C:54:PRO:HG2	1.77	0.65
1:A:437:HIS:CD2	1:A:459:MET:HB2	2.32	0.65
1:B:531:THR:HG22	1:B:536:HIS:CD2	2.32	0.65
1:B:557:LEU:HD13	1:B:558:PRO:HD3	1.78	0.65
1:B:474:PRO:HD2	1:B:475:ARG:H	1.60	0.65
2:D:1:CYS:N	2:D:50:HIS:HB3	2.11	0.65
1:A:475:ARG:HB2	1:A:475:ARG:NH1	2.12	0.64
2:C:52:TRP:CB	2:C:54:PRO:HG2	2.27	0.64
1:B:288:MET:HE3	1:B:365:TRP:CG	2.32	0.64
1:B:558:PRO:O	1:B:559:ILE:HG13	1.97	0.64
1:A:407:ILE:HD12	1:A:408:PRO:HD2	1.79	0.64
1:B:187:ASN:O	1:B:188:CYS:HB2	1.96	0.64
1:A:377:ARG:HG2	1:A:377:ARG:NH1	2.08	0.64
2:D:109:LEU:HD12	2:D:109:LEU:H	1.60	0.64
1:A:255:PHE:HD2	1:A:322:VAL:HG11	1.63	0.64
1:A:306:ILE:HD12	1:A:319:PHE:CE1	2.32	0.64
1:A:430:GLY:N	1:A:476:PHE:HE2	1.96	0.64
1:B:533:ARG:HG3	1:B:534:VAL:H	1.64	0.63
1:B:255:PHE:HD2	1:B:322:VAL:HG11	1.62	0.63
2:C:25:ARG:HB2	2:C:45:ILE:HG12	1.79	0.63
2:C:52:TRP:CA	2:C:54:PRO:HD2	2.28	0.63
1:B:450:ASN:CB	1:B:473:ILE:HG13	2.27	0.63
1:B:430:GLY:N	1:B:476:PHE:HE2	1.97	0.63
2:C:17:LYS:CB	2:C:18:PRO:HD3	2.24	0.63
1:B:377:ARG:HH11	1:B:377:ARG:CG	2.11	0.63
2:C:62:ARG:H	2:C:62:ARG:HD2	1.63	0.63
1:B:268:PRO:HG3	1:B:573:TRP:CD2	2.33	0.63
2:C:9:ALA:CB	2:C:57:ASP:HB2	2.29	0.63
2:D:115:ILE:CG2	2:D:116:TRP:H	2.09	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:52:TRP:N	2:D:52:TRP:CD1	2.66	0.63
1:A:450:ASN:CB	1:A:473:ILE:HG13	2.28	0.62
1:B:407:ILE:HD12	1:B:408:PRO:HD2	1.81	0.62
1:B:450:ASN:HB3	1:B:473:ILE:CG1	2.29	0.62
1:A:450:ASN:HB3	1:A:473:ILE:CG1	2.30	0.62
2:D:62:ARG:HB3	2:D:85:PHE:CD1	2.35	0.62
2:D:9:ALA:CB	2:D:57:ASP:HB2	2.29	0.62
1:A:514:LEU:HD21	1:A:524:TYR:HD2	1.64	0.62
1:A:566:LEU:HD12	1:A:567:GLN:N	2.13	0.62
2:C:40:LEU:H	2:C:40:LEU:CD2	2.08	0.62
1:A:377:ARG:HH11	1:A:377:ARG:CG	2.13	0.62
1:B:355:ARG:HG3	1:B:355:ARG:NH1	2.13	0.62
1:B:514:LEU:HD21	1:B:524:TYR:HD2	1.65	0.62
1:A:301:HIS:CE1	1:A:306:ILE:HD11	2.35	0.62
1:B:505:ASP:CG	1:B:506:GLY:H	2.07	0.62
1:A:343:ASP:H	1:A:344:PRO:HD3	1.64	0.62
1:B:526:LEU:HD23	1:B:541:TYR:HB2	1.82	0.62
1:A:299:LEU:HD21	1:A:425:ILE:HD13	1.82	0.61
1:B:299:LEU:HD21	1:B:425:ILE:HD13	1.82	0.61
1:B:345:VAL:HG22	1:B:371:ARG:HB3	1.82	0.61
1:A:526:LEU:HD23	1:A:541:TYR:HB2	1.82	0.61
2:C:22:ILE:HD11	2:C:50:HIS:HE1	1.61	0.61
1:B:487:ILE:O	1:B:490:ALA:HB2	2.01	0.61
1:B:407:ILE:HD12	1:B:408:PRO:CD	2.30	0.61
1:A:271:HIS:CE1	1:B:272:MET:HE3	2.35	0.61
1:A:534:VAL:C	1:A:536:HIS:H	2.08	0.61
2:C:10:MET:HB3	2:C:28:TYR:CD2	2.35	0.61
1:A:355:ARG:HG3	1:A:355:ARG:NH1	2.12	0.61
1:B:302:GLY:O	1:B:303:GLU:HG2	2.00	0.61
1:B:557:LEU:CB	1:B:558:PRO:HD3	2.29	0.61
2:D:99:LEU:HD23	2:D:100:ILE:N	2.16	0.61
1:A:407:ILE:HD12	1:A:408:PRO:CD	2.30	0.61
1:A:504:VAL:O	1:A:506:GLY:N	2.29	0.61
1:A:481:TYR:O	1:A:482:LEU:HG	2.00	0.60
1:A:526:LEU:CD2	1:A:541:TYR:HB2	2.31	0.60
1:B:526:LEU:CD2	1:B:541:TYR:HB2	2.31	0.60
2:D:4:PRO:N	2:D:52:TRP:HH2	1.98	0.60
1:A:430:GLY:CA	1:A:476:PHE:HE2	2.15	0.60
1:B:227:MET:HE3	1:B:291:LEU:HD22	1.83	0.60
1:A:288:MET:HE3	1:A:365:TRP:CG	2.35	0.60
2:D:11:GLU:O	2:D:13:ILE:N	2.33	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:261:ARG:O	1:B:269:VAL:HG22	2.01	0.60
2:C:62:ARG:HB3	2:C:85:PHE:CE1	2.37	0.60
2:D:17:LYS:HD2	2:D:18:PRO:HD2	1.82	0.60
1:B:309:PRO:O	1:B:310:TYR:HB3	2.01	0.60
1:A:460:LYS:HE2	1:A:461:ASN:N	2.17	0.59
1:B:481:TYR:O	1:B:482:LEU:HG	2.02	0.59
2:D:9:ALA:HB1	2:D:60:CYS:HB3	1.84	0.59
2:D:72:LEU:O	2:D:73:ASN:HB2	2.01	0.59
1:A:355:ARG:HH11	1:A:355:ARG:CG	2.11	0.59
1:A:559:ILE:HG23	1:A:559:ILE:O	2.01	0.59
2:D:1:CYS:N	2:D:50:HIS:HD2	2.00	0.59
1:B:345:VAL:CG2	1:B:371:ARG:HB3	2.33	0.59
2:D:1:CYS:H1	2:D:50:HIS:CB	2.15	0.59
2:D:51:THR:C	2:D:52:TRP:CD1	2.80	0.59
1:A:296:LEU:HD12	1:A:296:LEU:C	2.26	0.59
1:B:262:ASN:CB	1:B:573:TRP:HZ2	2.16	0.59
1:A:302:GLY:O	1:A:303:GLU:HG2	2.02	0.59
1:B:390:ILE:HG12	1:B:499:TYR:HB2	1.84	0.59
1:B:581:HIS:O	1:B:597:SER:HB2	2.03	0.59
1:B:341:THR:CG2	1:B:342:ASP:N	2.66	0.58
1:B:514:LEU:HD21	1:B:524:TYR:CD2	2.38	0.58
2:C:44:THR:OG1	2:C:54:PRO:HG3	2.01	0.58
1:A:514:LEU:HD21	1:A:524:TYR:CD2	2.38	0.58
1:A:343:ASP:N	1:A:344:PRO:HD3	2.19	0.58
1:A:349:LEU:HD12	1:A:349:LEU:N	2.18	0.58
2:C:85:PHE:CB	2:C:109:LEU:HD11	2.24	0.58
1:A:268:PRO:HG3	1:A:573:TRP:CD2	2.39	0.58
1:B:557:LEU:CD1	1:B:558:PRO:HD3	2.33	0.58
2:D:1:CYS:SG	2:D:50:HIS:CD2	2.97	0.58
1:A:460:LYS:CE	1:A:461:ASN:N	2.62	0.57
2:C:4:PRO:HB3	2:C:5:PRO:HD2	1.85	0.57
1:B:187:ASN:O	1:B:188:CYS:CB	2.52	0.57
1:A:329:SER:C	1:A:331:ALA:H	2.11	0.57
1:A:223:THR:O	1:A:224:SER:HB2	2.05	0.57
1:A:345:VAL:HG12	1:A:371:ARG:HB3	1.87	0.57
1:B:525:VAL:HG21	1:B:577:LEU:HD11	1.86	0.57
1:A:529:TYR:HE2	1:A:563:PRO:HG3	1.70	0.57
1:B:430:GLY:CA	1:B:476:PHE:HE2	2.17	0.57
1:A:474:PRO:CD	1:A:475:ARG:H	2.17	0.57
1:B:504:VAL:HA	1:B:507:ASP:O	2.04	0.57
1:A:580:ARG:HD2	1:A:599:MET:CB	2.35	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:464:LEU:HD21	1:A:500:LEU:HD11	1.87	0.57
1:A:529:TYR:OH	1:A:536:HIS:ND1	2.35	0.57
1:B:194:ILE:HG12	1:B:550:SER:O	2.05	0.56
1:B:574:ASP:O	1:B:575:GLN:HB2	2.05	0.56
2:C:45:ILE:C	2:C:52:TRP:HE3	2.14	0.56
1:B:296:LEU:HD12	1:B:296:LEU:C	2.29	0.56
1:A:261:ARG:O	1:A:269:VAL:HG22	2.05	0.56
1:A:402:LEU:HD11	1:A:436:THR:HA	1.86	0.56
1:A:430:GLY:HA3	1:A:476:PHE:HE2	1.70	0.56
1:A:581:HIS:O	1:A:597:SER:HB2	2.04	0.56
1:B:349:LEU:N	1:B:349:LEU:HD12	2.19	0.56
1:A:390:ILE:CD1	1:A:499:TYR:HB3	2.30	0.56
2:C:1:CYS:H1	2:C:50:HIS:CD2	2.21	0.56
1:B:256:GLU:HG3	1:B:272:MET:HG3	1.86	0.56
1:B:402:LEU:HD11	1:B:436:THR:HA	1.87	0.56
1:B:261:ARG:CD	1:B:262:ASN:N	2.67	0.56
1:A:232:TYR:CE2	1:A:254:VAL:HG11	2.40	0.56
1:A:262:ASN:CB	1:A:573:TRP:HZ2	2.15	0.56
1:B:235:GLU:HB3	1:B:249:LEU:HD13	1.88	0.56
2:C:1:CYS:N	2:C:50:HIS:NE2	2.46	0.55
1:A:533:ARG:C	1:A:535:GLU:H	2.14	0.55
2:C:62:ARG:H	2:C:62:ARG:CD	2.20	0.55
1:A:200:ASN:OD1	3:A:1200:NAG:O5	2.23	0.55
1:A:272:MET:HE3	1:B:271:HIS:CE1	2.41	0.55
1:B:566:LEU:HD12	1:B:567:GLN:N	2.20	0.55
1:A:420:THR:CG2	1:A:421:VAL:H	2.15	0.55
1:A:536:HIS:CG	1:A:557:LEU:HD11	2.41	0.55
1:B:210:LEU:HD23	1:B:216:VAL:HG11	1.89	0.55
1:A:510:LEU:HD11	1:A:563:PRO:C	2.32	0.55
1:B:453:TRP:CD1	1:B:516:ILE:HG21	2.42	0.55
2:C:99:LEU:HD23	2:C:100:ILE:N	2.22	0.55
1:B:223:THR:O	1:B:224:SER:HB2	2.07	0.55
2:C:40:LEU:HD22	2:C:40:LEU:N	2.10	0.55
1:A:210:LEU:HD23	1:A:216:VAL:HG11	1.89	0.55
1:A:234:VAL:O	1:A:251:MET:HG3	2.07	0.55
2:D:53:LEU:HG	2:D:54:PRO:HD3	1.88	0.55
1:B:389:LYS:O	1:B:390:ILE:HG13	2.07	0.54
2:C:4:PRO:HG3	2:C:52:TRP:HH2	1.73	0.54
2:C:12:LEU:HD13	2:C:28:TYR:CG	2.42	0.54
1:B:319:PHE:CE1	1:B:339:LEU:HD11	2.42	0.54
1:B:517:LEU:CD1	1:B:525:VAL:HG23	2.37	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:48:ARG:C	2:C:50:HIS:H	2.13	0.54
2:D:48:ARG:O	2:D:50:HIS:N	2.41	0.54
1:B:474:PRO:CD	1:B:475:ARG:H	2.19	0.54
1:B:555:PHE:N	1:B:555:PHE:CD2	2.75	0.54
1:B:234:VAL:O	1:B:251:MET:HG3	2.07	0.54
1:A:522:LEU:HD13	1:A:522:LEU:C	2.32	0.54
1:A:586:ALA:HA	1:A:593:HIS:H	1.73	0.54
1:B:594:ILE:HD13	1:B:594:ILE:C	2.33	0.54
1:A:525:VAL:HG21	1:A:577:LEU:HD11	1.89	0.54
1:B:522:LEU:C	1:B:522:LEU:HD13	2.32	0.54
1:B:596:HIS:CG	1:B:597:SER:N	2.75	0.54
1:A:227:MET:HE2	1:A:291:LEU:HB3	1.89	0.54
1:A:475:ARG:HB2	1:A:475:ARG:CZ	2.37	0.54
1:A:517:LEU:CD1	1:A:525:VAL:HG23	2.38	0.54
1:B:399:TRP:CG	1:B:401:PRO:HD2	2.43	0.54
2:D:20:TYR:O	2:D:21:GLU:HB2	2.07	0.54
1:A:390:ILE:HG21	1:A:499:TYR:CB	2.38	0.53
1:A:461:ASN:HD21	1:A:503:GLU:HB3	1.72	0.53
1:B:580:ARG:HD2	1:B:599:MET:CB	2.37	0.53
2:D:10:MET:HE1	2:D:56:SER:O	2.07	0.53
1:A:342:ASP:O	1:A:343:ASP:HB2	2.08	0.53
1:A:399:TRP:CG	1:A:401:PRO:HD2	2.42	0.53
1:B:563:PRO:HA	1:B:585:LEU:HB3	1.90	0.53
1:B:419:LEU:HD22	1:B:419:LEU:H	1.73	0.53
1:B:488:LYS:O	1:B:489:GLU:CB	2.57	0.53
1:B:475:ARG:HB2	1:B:475:ARG:CZ	2.38	0.53
1:B:390:ILE:HG23	1:B:499:TYR:CG	2.43	0.53
1:B:504:VAL:O	1:B:505:ASP:C	2.51	0.53
2:C:10:MET:HE1	2:C:56:SER:O	2.09	0.53
1:A:205:LEU:HG	1:A:209:TYR:CE2	2.44	0.53
1:B:319:PHE:CD1	1:B:339:LEU:HD11	2.44	0.53
1:A:574:ASP:O	1:A:575:GLN:HB2	2.08	0.53
1:A:343:ASP:O	1:A:345:VAL:N	2.41	0.53
1:A:390:ILE:O	1:A:392:THR:N	2.42	0.53
2:D:97:TYR:HD2	2:D:123:CYS:O	1.92	0.53
1:A:464:LEU:HD21	2:D:39:PRO:HD3	1.91	0.52
1:B:430:GLY:HA3	1:B:476:PHE:HE2	1.73	0.52
1:A:430:GLY:HA3	1:A:476:PHE:CE2	2.45	0.52
1:A:461:ASN:ND2	1:A:503:GLU:HB3	2.24	0.52
2:C:97:TYR:HD2	2:C:123:CYS:O	1.91	0.52
1:A:254:VAL:O	1:A:255:PHE:HD1	1.93	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:319:PHE:CE1	1:A:339:LEU:HD11	2.44	0.52
1:A:490:ALA:O	1:A:492:GLU:N	2.39	0.52
1:A:553:TYR:HE2	1:A:581:HIS:HE2	1.56	0.52
1:B:188:CYS:O	1:B:189:SER:HB2	2.09	0.52
2:D:7:PHE:HD2	2:D:7:PHE:O	1.91	0.52
1:A:596:HIS:CG	1:A:597:SER:N	2.78	0.52
1:B:329:SER:C	1:B:331:ALA:H	2.16	0.52
1:B:577:LEU:HD13	1:B:579:CYS:SG	2.50	0.52
1:A:453:TRP:CD1	1:A:516:ILE:HG21	2.45	0.52
1:A:458:PRO:HB2	1:A:460:LYS:HE3	1.90	0.52
2:D:46:CYS:HA	2:D:51:THR:O	2.10	0.52
1:A:430:GLY:N	1:A:476:PHE:CE2	2.78	0.52
2:C:1:CYS:N	2:C:50:HIS:CD2	2.78	0.52
1:A:460:LYS:CD	1:A:461:ASN:N	2.72	0.51
1:B:308:ILE:HD11	1:B:349:LEU:HD11	1.91	0.51
1:B:510:LEU:HD11	1:B:564:ILE:N	2.25	0.51
1:A:303:GLU:HG3	1:A:304:ASP:N	2.25	0.51
1:B:453:TRP:CZ2	1:B:522:LEU:HD23	2.45	0.51
2:C:12:LEU:O	2:C:14:GLY:N	2.43	0.51
2:C:37:ILE:HG12	2:C:38:PRO:HD2	1.92	0.51
2:D:54:PRO:O	2:D:55:VAL:HB	2.10	0.51
1:A:326:VAL:HG12	1:A:327:TRP:CD1	2.46	0.51
1:A:288:MET:O	1:A:298:ALA:HA	2.11	0.51
1:A:307:THR:HG22	1:A:308:ILE:N	2.26	0.51
2:C:10:MET:HB3	2:C:28:TYR:HD2	1.75	0.51
2:D:97:TYR:HA	2:D:125:LYS:HA	1.92	0.51
1:A:393:LEU:HD22	1:A:393:LEU:H	1.75	0.51
1:B:214:TYR:CE2	1:B:237:PRO:HD3	2.46	0.51
1:B:306:ILE:CD1	1:B:319:PHE:HE1	2.23	0.51
1:B:430:GLY:N	1:B:476:PHE:CE2	2.79	0.51
1:B:538:VAL:HG13	1:B:553:TYR:HD2	1.75	0.51
2:D:13:ILE:HG12	2:D:14:GLY:N	2.25	0.51
2:D:32:LYS:HE3	2:D:112:SER:CB	2.37	0.51
1:A:306:ILE:CD1	1:A:319:PHE:HE1	2.22	0.51
2:C:65:CYS:HB3	2:C:116:TRP:CE2	2.45	0.51
2:D:40:LEU:HB2	2:D:59:ALA:HB2	1.93	0.51
2:D:82:THR:OG1	2:D:84:GLU:HG3	2.11	0.51
2:C:68:ILE:HD12	2:C:116:TRP:CZ2	2.46	0.51
1:A:538:VAL:HG13	1:A:553:TYR:HD2	1.75	0.51
1:B:303:GLU:HG3	1:B:304:ASP:N	2.25	0.51
1:B:525:VAL:HG22	1:B:542:VAL:HG22	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:9:ALA:HB3	2:C:57:ASP:HB2	1.93	0.51
1:A:256:GLU:HG3	1:A:272:MET:HG3	1.92	0.50
1:A:529:TYR:HH	1:A:536:HIS:CG	2.27	0.50
1:B:253:ARG:CG	1:B:255:PHE:HE1	2.24	0.50
1:A:214:TYR:CE2	1:A:237:PRO:HD3	2.46	0.50
1:A:374:ASP:HB2	1:A:407:ILE:HG23	1.94	0.50
1:B:389:LYS:C	1:B:390:ILE:HG13	2.35	0.50
1:A:223:THR:HG21	1:A:571:PHE:CD2	2.46	0.50
1:A:487:ILE:O	1:A:489:GLU:N	2.45	0.50
1:B:205:LEU:HG	1:B:209:TYR:CE2	2.46	0.50
1:A:460:LYS:HG2	1:A:510:LEU:CA	2.41	0.50
1:A:510:LEU:HD11	1:A:564:ILE:N	2.27	0.50
1:B:223:THR:HG21	1:B:571:PHE:CD2	2.47	0.50
1:B:321:LEU:HG	1:B:321:LEU:O	2.11	0.50
2:C:100:ILE:O	2:C:100:ILE:HG22	2.10	0.50
1:A:205:LEU:HG	1:A:209:TYR:CD2	2.47	0.50
1:A:488:LYS:C	1:A:490:ALA:H	2.19	0.50
1:A:551:TYR:HB3	1:A:602:MET:HE2	1.93	0.50
2:C:97:TYR:HA	2:C:125:LYS:HA	1.94	0.50
2:D:74:GLY:HA2	2:D:94:ASN:OD1	2.11	0.50
1:A:253:ARG:CG	1:A:255:PHE:HE1	2.25	0.50
1:A:594:ILE:C	1:A:594:ILE:HD13	2.37	0.50
1:B:307:THR:HG22	1:B:308:ILE:N	2.27	0.50
1:A:319:PHE:CD1	1:A:339:LEU:HD11	2.46	0.50
1:B:410:TYR:HD1	1:B:454:LEU:HD11	1.77	0.50
1:B:460:LYS:O	1:B:462:LEU:HD12	2.12	0.50
1:B:585:LEU:N	1:B:585:LEU:HD13	2.27	0.50
1:A:525:VAL:HG22	1:A:542:VAL:HG22	1.93	0.50
1:B:349:LEU:HD23	1:B:413:LEU:HD11	1.94	0.49
1:B:531:THR:CG2	1:B:536:HIS:CD2	2.94	0.49
2:D:35:PHE:HE1	2:D:63:GLU:HA	1.77	0.49
1:A:329:SER:C	1:A:331:ALA:N	2.67	0.49
1:A:585:LEU:HD13	1:A:585:LEU:N	2.26	0.49
1:B:454:LEU:C	1:B:454:LEU:HD23	2.37	0.49
2:C:3:GLU:HG2	2:C:16:PRO:HB2	1.92	0.49
2:D:50:HIS:O	2:D:51:THR:HG23	2.12	0.49
1:A:433:PRO:HG3	1:A:480:PRO:HG3	1.93	0.49
1:B:200:ASN:N	1:B:200:ASN:OD1	2.45	0.49
2:C:45:ILE:O	2:C:52:TRP:HE3	1.96	0.49
2:C:62:ARG:HE	2:C:84:GLU:CD	2.21	0.49
2:D:113:VAL:HG13	2:D:114:ALA:N	2.26	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:345:VAL:HG12	1:A:372:THR:N	2.26	0.49
2:C:3:GLU:CG	2:C:16:PRO:HB3	2.42	0.49
2:C:109:LEU:HD12	2:C:109:LEU:N	2.25	0.49
1:A:308:ILE:HD11	1:A:349:LEU:HD11	1.94	0.49
1:B:227:MET:HE2	1:B:291:LEU:HB3	1.94	0.49
1:B:564:ILE:HG23	1:B:584:VAL:HG13	1.95	0.49
1:A:473:ILE:HG22	1:A:473:ILE:O	2.11	0.49
1:B:254:VAL:O	1:B:255:PHE:HD1	1.95	0.49
1:B:543:TYR:OH	2:C:38:PRO:HD3	2.13	0.49
2:C:4:PRO:HG3	2:C:52:TRP:CH2	2.47	0.49
2:D:68:ILE:HD12	2:D:116:TRP:CZ2	2.48	0.49
2:D:76:ALA:O	2:D:89:MET:SD	2.70	0.49
1:A:577:LEU:HD13	1:A:579:CYS:SG	2.52	0.49
1:B:232:TYR:CE2	1:B:254:VAL:HG11	2.47	0.49
1:B:487:ILE:O	1:B:490:ALA:CB	2.60	0.49
2:C:79:ALA:HB2	2:C:90:HIS:NE2	2.28	0.49
1:A:529:TYR:OH	1:A:536:HIS:HB3	2.12	0.49
2:C:25:ARG:CB	2:C:45:ILE:HG12	2.43	0.49
1:A:509:LYS:HB2	1:A:530:ASP:HB3	1.94	0.48
2:C:62:ARG:HB3	2:C:85:PHE:HD1	1.77	0.48
1:A:342:ASP:O	1:A:343:ASP:CB	2.61	0.48
1:A:454:LEU:C	1:A:454:LEU:HD23	2.38	0.48
1:B:288:MET:O	1:B:298:ALA:HA	2.13	0.48
1:B:374:ASP:HB2	1:B:407:ILE:HG23	1.94	0.48
1:B:437:HIS:HD2	1:B:439:SER:OG	1.96	0.48
2:C:3:GLU:CG	2:C:16:PRO:CB	2.89	0.48
2:C:97:TYR:CD2	2:C:123:CYS:O	2.67	0.48
2:D:97:TYR:CD2	2:D:125:LYS:HB3	2.47	0.48
1:B:340:SER:HB3	1:B:426:LYS:HA	1.95	0.48
1:B:555:PHE:C	1:B:557:LEU:N	2.70	0.48
2:D:100:ILE:HG22	2:D:100:ILE:O	2.13	0.48
1:A:201:MET:SD	1:B:212:ARG:HD3	2.53	0.48
1:B:349:LEU:CD2	1:B:413:LEU:HD11	2.44	0.48
1:B:369:THR:OG1	1:B:411:GLY:HA3	2.14	0.48
1:B:565:GLU:HB3	1:B:584:VAL:CG1	2.43	0.48
2:C:25:ARG:NH1	2:C:27:ASP:OD1	2.47	0.48
1:A:261:ARG:CD	1:A:262:ASN:N	2.71	0.48
1:B:201:MET:SD	1:B:265:LEU:HD11	2.54	0.48
1:B:484:THR:CG2	1:B:495:HIS:HB3	2.44	0.48
1:B:540:TYR:CG	1:B:602:MET:HE1	2.49	0.48
2:D:11:GLU:HG2	2:D:13:ILE:HB	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:517:LEU:HD11	1:A:525:VAL:HG23	1.96	0.48
1:B:561:GLY:O	1:B:563:PRO:HD3	2.14	0.48
1:A:306:ILE:CD1	1:A:319:PHE:CE1	2.97	0.48
1:B:205:LEU:HG	1:B:209:TYR:CD2	2.49	0.48
1:B:430:GLY:HA3	1:B:476:PHE:CE2	2.48	0.48
2:D:17:LYS:CD	2:D:18:PRO:HD2	2.44	0.48
1:B:400:ALA:HA	1:B:403:LYS:HD2	1.96	0.48
1:B:421:VAL:C	1:B:422:GLU:OE2	2.57	0.48
2:D:7:PHE:N	2:D:7:PHE:CD2	2.74	0.48
2:D:10:MET:O	2:D:31:LYS:HG3	2.13	0.48
1:B:429:SER:C	1:B:476:PHE:CE2	2.92	0.47
2:C:97:TYR:CD2	2:C:125:LYS:HB3	2.48	0.47
1:B:326:VAL:HG12	1:B:327:TRP:CD1	2.48	0.47
2:C:92:ILE:HG22	2:C:93:CYS:N	2.29	0.47
1:B:269:VAL:HG23	1:B:269:VAL:O	2.15	0.47
1:B:505:ASP:CG	1:B:506:GLY:N	2.72	0.47
2:C:31:LYS:O	2:C:32:LYS:C	2.57	0.47
2:D:91:PHE:CZ	2:D:120:PRO:HB3	2.49	0.47
1:A:420:THR:C	1:A:421:VAL:HG22	2.39	0.47
1:A:529:TYR:CE1	1:A:536:HIS:HB3	2.49	0.47
1:A:544:SER:O	1:A:544:SER:OG	2.25	0.47
2:C:12:LEU:HD13	2:C:28:TYR:CD2	2.50	0.47
2:D:65:CYS:HB3	2:D:116:TRP:CE2	2.49	0.47
2:D:106:TYR:H	2:D:117:SER:HG	1.60	0.47
1:A:269:VAL:O	1:A:269:VAL:HG23	2.15	0.47
1:B:321:LEU:O	1:B:334:GLN:HA	2.14	0.47
1:B:491:GLY:O	1:B:492:GLU:HB3	2.14	0.47
2:C:4:PRO:CD	2:C:20:TYR:CE2	2.85	0.47
1:A:390:ILE:HD13	1:A:499:TYR:CB	2.32	0.47
1:A:435:ILE:HG22	1:A:436:THR:H	1.79	0.47
1:B:329:SER:C	1:B:331:ALA:N	2.71	0.47
1:B:487:ILE:O	1:B:488:LYS:C	2.58	0.47
1:B:562:VAL:O	1:B:563:PRO:C	2.57	0.47
2:C:91:PHE:CZ	2:C:120:PRO:HB3	2.50	0.47
2:D:27:ASP:HA	2:D:42:THR:O	2.15	0.47
2:D:48:ARG:C	2:D:48:ARG:CD	2.83	0.47
2:D:53:LEU:HG	2:D:54:PRO:CD	2.44	0.47
1:B:374:ASP:O	1:B:378:MET:HB2	2.15	0.47
1:B:390:ILE:HG23	1:B:499:TYR:CD1	2.49	0.47
1:B:529:TYR:HH	1:B:536:HIS:CG	2.31	0.47
1:B:551:TYR:HB3	1:B:602:MET:HE2	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:232:TYR:CE2	1:A:254:VAL:CG1	2.97	0.47
1:A:369:THR:OG1	1:A:411:GLY:HA3	2.15	0.47
1:A:534:VAL:CA	1:A:536:HIS:CD2	2.98	0.47
1:B:517:LEU:HD11	1:B:525:VAL:HG23	1.97	0.47
1:A:399:TRP:CD2	1:A:401:PRO:HD2	2.50	0.47
1:A:464:LEU:CD2	2:D:39:PRO:HD3	2.45	0.47
1:A:564:ILE:HG23	1:A:584:VAL:HG13	1.97	0.47
2:C:35:PHE:HD2	2:C:35:PHE:O	1.98	0.47
2:C:113:VAL:HG13	2:C:114:ALA:N	2.29	0.47
1:A:481:TYR:O	1:A:481:TYR:CG	2.68	0.46
1:B:231:THR:HG22	1:B:289:VAL:HG21	1.97	0.46
1:B:399:TRP:CD2	1:B:401:PRO:HD2	2.50	0.46
1:B:422:GLU:CD	1:B:422:GLU:N	2.73	0.46
2:D:11:GLU:HB2	2:D:31:LYS:HG3	1.96	0.46
2:D:53:LEU:HG	2:D:54:PRO:N	2.31	0.46
1:B:464[A]:LEU:CD1	1:B:465:GLY:N	2.70	0.46
1:B:306:ILE:O	1:B:348:ARG:HB3	2.15	0.46
1:B:557:LEU:HD12	1:B:596:HIS:CD2	2.50	0.46
2:D:92:ILE:HG22	2:D:93:CYS:N	2.30	0.46
1:A:464:LEU:CD1	2:D:37:ILE:HD11	2.29	0.46
1:B:278:GLN:HA	1:B:279:PRO:HD3	1.80	0.46
2:C:21:GLU:HB2	2:C:24:GLU:CD	2.40	0.46
1:A:200:ASN:N	1:A:200:ASN:HD22	2.14	0.46
1:A:321:LEU:HG	1:A:321:LEU:O	2.14	0.46
1:B:399:TRP:C	1:B:403:LYS:HE3	2.41	0.46
1:B:553:TYR:HE2	1:B:581:HIS:HE2	1.59	0.46
1:A:410:TYR:HD1	1:A:454:LEU:HD11	1.80	0.46
2:C:4:PRO:HB3	2:C:52:TRP:CZ2	2.51	0.46
2:C:10:MET:CB	2:C:28:TYR:CD2	2.99	0.46
2:C:48:ARG:O	2:C:49:ASN:HB2	2.16	0.46
2:D:25:ARG:HB2	2:D:44:THR:HG23	1.98	0.46
1:A:322:VAL:HG12	1:A:323:LYS:N	2.31	0.46
1:A:355:ARG:NH1	1:A:355:ARG:CG	2.72	0.46
1:A:437:HIS:HD2	1:A:439:SER:OG	1.99	0.46
1:B:390:ILE:O	1:B:390:ILE:HG22	2.15	0.46
1:B:396:ASN:HD22	1:B:396:ASN:HA	1.63	0.46
1:B:448:HIS:HB3	2:C:69:ARG:NH1	2.31	0.46
2:D:12:LEU:CA	2:D:28:TYR:HD2	2.29	0.46
1:A:400:ALA:HA	1:A:403:LYS:HD2	1.98	0.46
1:B:188:CYS:SG	1:B:604:VAL:HG11	2.56	0.46
1:B:458:PRO:HB3	1:B:464[A]:LEU:HD22	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:54:PRO:CA	2:C:55:VAL:HG13	2.34	0.46
2:C:98:TYR:CE2	2:C:100:ILE:HG13	2.51	0.46
2:D:15:LYS:HA	2:D:16:PRO:HD3	1.73	0.46
1:A:349:LEU:CD2	1:A:413:LEU:HD11	2.46	0.45
1:B:433:PRO:HG3	1:B:480:PRO:HG3	1.97	0.45
2:C:10:MET:HB3	2:C:28:TYR:HB3	1.97	0.45
2:D:4:PRO:HA	2:D:52:TRP:CH2	2.51	0.45
1:A:254:VAL:C	1:A:255:PHE:CD1	2.90	0.45
1:A:345:VAL:CG1	1:A:372:THR:H	2.28	0.45
1:A:397:PRO:CB	1:A:403:LYS:HG2	2.39	0.45
1:A:484:THR:CG2	1:A:495:HIS:HB3	2.46	0.45
1:A:484:THR:HG22	1:A:495:HIS:HB3	1.99	0.45
1:B:255:PHE:HE2	1:B:322:VAL:HG21	1.78	0.45
1:B:526:LEU:HD23	1:B:526:LEU:O	2.16	0.45
1:B:306:ILE:CD1	1:B:319:PHE:CE1	2.98	0.45
2:D:122:ILE:CG2	2:D:123:CYS:N	2.79	0.45
1:A:540:TYR:CG	1:A:602:MET:HE1	2.49	0.45
1:A:407:ILE:CD1	1:A:408:PRO:HD2	2.46	0.45
1:A:534:VAL:O	1:A:557:LEU:HD12	2.17	0.45
1:B:255:PHE:CE2	1:B:322:VAL:CG2	2.99	0.45
1:B:435:ILE:HG22	1:B:436:THR:H	1.81	0.45
1:B:546:GLY:HA2	2:C:113:VAL:HG23	1.98	0.45
2:C:6:THR:HG22	2:C:7:PHE:N	2.31	0.45
2:C:68:ILE:O	2:C:68:ILE:HG22	2.16	0.45
2:C:115:ILE:CG2	2:C:116:TRP:N	2.67	0.45
2:D:25:ARG:HG3	2:D:52:TRP:CZ3	2.51	0.45
2:D:45:ILE:O	2:D:52:TRP:HA	2.17	0.45
1:A:429:SER:C	1:A:476:PHE:CE2	2.94	0.45
1:B:251:MET:HE1	1:B:283:ASP:HB3	1.98	0.45
1:B:498:THR:O	1:B:498:THR:HG22	2.17	0.45
1:A:255:PHE:HE2	1:A:322:VAL:HG21	1.79	0.45
1:A:321:LEU:O	1:A:334:GLN:HA	2.17	0.45
1:A:374:ASP:O	1:A:378:MET:HB2	2.17	0.45
1:A:399:TRP:CH2	1:A:401:PRO:HG2	2.51	0.45
1:B:472:TRP:HA	1:B:475:ARG:O	2.17	0.45
1:B:484:THR:HG22	1:B:495:HIS:HB3	1.97	0.45
1:A:534:VAL:N	1:A:536:HIS:HD2	2.10	0.45
2:C:44:THR:OG1	2:C:54:PRO:CG	2.65	0.45
1:A:223:THR:O	1:A:224:SER:CB	2.65	0.45
1:A:474:PRO:CD	1:A:475:ARG:N	2.80	0.45
1:B:342:ASP:O	1:B:343:ASP:HB2	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:98:TYR:HE2	2:C:100:ILE:CG1	2.29	0.45
1:A:453:TRP:CZ2	1:A:522:LEU:HD23	2.51	0.45
2:C:29:LYS:HG2	2:C:30:CYS:H	1.83	0.45
2:D:12:LEU:C	2:D:28:TYR:HD2	2.25	0.45
1:A:445:LYS:HA	1:A:452:TYR:CD1	2.52	0.44
1:A:460:LYS:CE	1:A:511:SER:OG	2.61	0.44
1:A:399:TRP:C	1:A:403:LYS:HE3	2.42	0.44
1:B:399:TRP:CH2	1:B:401:PRO:HG2	2.52	0.44
1:B:433:PRO:HB3	1:B:484:THR:HG21	1.99	0.44
1:A:349:LEU:HD23	1:A:413:LEU:HD11	1.99	0.44
1:A:580:ARG:HA	1:A:599:MET:HB2	2.00	0.44
1:B:355:ARG:NH1	1:B:355:ARG:CG	2.77	0.44
1:B:573:TRP:HB3	1:B:578:TRP:CD1	2.52	0.44
2:D:48:ARG:C	2:D:50:HIS:N	2.59	0.44
1:A:469:THR:O	1:A:478:VAL:HA	2.18	0.44
1:A:563:PRO:HA	1:A:585:LEU:HB3	2.00	0.44
1:B:193:THR:HG23	1:B:605:SER:HB3	1.98	0.44
1:B:299:LEU:HG	1:B:319:PHE:HD2	1.83	0.44
1:B:473:ILE:HG22	1:B:473:ILE:O	2.18	0.44
1:B:549:PHE:C	1:B:549:PHE:CD2	2.95	0.44
1:B:600:VAL:HG22	1:B:601:GLY:N	2.33	0.44
2:C:15:LYS:HA	2:C:16:PRO:HD3	1.72	0.44
2:C:53:LEU:O	2:C:54:PRO:O	2.35	0.44
2:D:97:TYR:CD2	2:D:123:CYS:O	2.71	0.44
2:D:109:LEU:HD12	2:D:109:LEU:N	2.30	0.44
2:C:48:ARG:O	2:C:49:ASN:CB	2.65	0.44
1:B:255:PHE:O	1:B:275:TYR:HA	2.17	0.44
2:C:102:GLU:O	2:C:104:ILE:N	2.51	0.44
2:D:91:PHE:CE1	2:D:121:PRO:HD3	2.53	0.44
2:D:99:LEU:HD21	2:D:121:PRO:HB3	1.99	0.44
1:A:299:LEU:HD12	1:A:299:LEU:HA	1.81	0.44
1:A:460:LYS:CG	1:A:461:ASN:N	2.81	0.44
1:A:565:GLU:HB3	1:A:584:VAL:CG1	2.47	0.44
1:B:290:ALA:HB2	1:B:365:TRP:CZ2	2.53	0.44
1:B:338:PRO:O	1:B:425:ILE:HG13	2.17	0.44
1:B:410:TYR:O	1:B:429:SER:HA	2.17	0.44
1:B:503:GLU:O	1:B:503:GLU:CG	2.66	0.44
1:B:568:VAL:HG22	1:B:569:GLU:N	2.32	0.44
2:C:10:MET:CG	2:C:29:LYS:O	2.66	0.44
2:D:37:ILE:HA	2:D:38:PRO:HD3	1.87	0.44
1:A:290:ALA:HB2	1:A:365:TRP:CZ2	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:306:ILE:O	1:A:348:ARG:HB3	2.17	0.44
1:A:421:VAL:O	1:A:422:GLU:CB	2.66	0.44
1:B:255:PHE:HE2	1:B:322:VAL:CG2	2.31	0.44
1:B:445:LYS:HA	1:B:452:TYR:CD1	2.53	0.44
2:C:74:GLY:HA2	2:C:94:ASN:OD1	2.18	0.44
2:C:108:GLU:C	2:C:110:LYS:H	2.26	0.44
1:A:340:SER:HB3	1:A:426:LYS:HA	1.99	0.44
1:B:253:ARG:HG2	1:B:255:PHE:CE1	2.53	0.44
2:D:23:GLY:O	2:D:24:GLU:HG2	2.17	0.44
2:D:38:PRO:HB3	2:D:39:PRO:HA	2.00	0.44
1:A:209:TYR:HD1	1:A:234:VAL:HG11	1.77	0.43
1:A:433:PRO:HB3	1:A:484:THR:HG21	2.00	0.43
2:C:4:PRO:CB	2:C:5:PRO:HD2	2.46	0.43
2:D:108:GLU:C	2:D:110:LYS:H	2.26	0.43
1:B:223:THR:O	1:B:224:SER:CB	2.66	0.43
1:B:238:ASN:HB3	1:B:248:GLN:O	2.18	0.43
1:B:286:ASN:C	1:B:286:ASN:OD1	2.61	0.43
1:B:464[A]:LEU:HD22	1:B:464[A]:LEU:HA	1.83	0.43
1:B:526:LEU:HD23	1:B:526:LEU:C	2.42	0.43
1:A:549:PHE:CD2	1:A:549:PHE:C	2.96	0.43
1:B:413:LEU:HD12	1:B:427:ILE:HG23	2.00	0.43
1:B:557:LEU:HD13	1:B:558:PRO:CD	2.46	0.43
2:D:9:ALA:CB	2:D:60:CYS:HB3	2.48	0.43
2:D:68:ILE:O	2:D:68:ILE:HG22	2.17	0.43
1:A:500:LEU:CD1	2:D:39:PRO:HD2	2.48	0.43
1:A:532:SER:CB	1:A:535:GLU:OE2	2.66	0.43
1:A:568:VAL:HG22	1:A:569:GLU:N	2.32	0.43
2:C:47:ASP:O	2:C:50:HIS:HA	2.18	0.43
2:D:72:LEU:HD23	2:D:72:LEU:HA	1.80	0.43
1:B:194:ILE:N	1:B:194:ILE:HD12	2.33	0.43
1:B:341:THR:HG23	1:B:342:ASP:H	1.83	0.43
1:B:420:THR:HG22	1:B:423:LEU:HD23	1.98	0.43
1:B:469:THR:O	1:B:478:VAL:HA	2.18	0.43
2:C:85:PHE:CD2	2:C:85:PHE:C	2.96	0.43
2:C:122:ILE:CG2	2:C:123:CYS:H	2.25	0.43
1:A:498:THR:O	1:A:498:THR:HG22	2.17	0.43
1:B:289:VAL:HG13	1:B:296:LEU:CD1	2.48	0.43
1:B:299:LEU:HG	1:B:319:PHE:CD2	2.52	0.43
2:D:31:LYS:O	2:D:34:TYR:HB2	2.18	0.43
1:A:410:TYR:O	1:A:429:SER:HA	2.18	0.43
1:B:358:ILE:HA	1:B:362:GLN:O	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:4:PRO:CA	2:D:52:TRP:HH2	2.31	0.43
1:A:253:ARG:HG2	1:A:255:PHE:CE1	2.54	0.43
1:A:460:LYS:CA	1:A:460:LYS:CE	2.68	0.43
1:A:526:LEU:HD23	1:A:526:LEU:O	2.19	0.43
1:A:489:GLU:H	1:A:489:GLU:HG3	1.56	0.43
1:A:511:SER:HA	1:A:528:THR:HA	1.99	0.43
1:B:227:MET:HG3	1:B:291:LEU:HD13	2.01	0.43
1:B:333:MET:HG2	1:B:419:LEU:HD13	2.01	0.43
1:B:419:LEU:H	1:B:419:LEU:CD2	2.31	0.43
1:B:558:PRO:HB2	1:B:559:ILE:H	1.47	0.43
1:A:491:GLY:C	1:A:493:ASP:N	2.66	0.42
1:A:573:TRP:HB3	1:A:578:TRP:CD1	2.54	0.42
1:A:600:VAL:HG22	1:A:601:GLY:N	2.34	0.42
1:B:557:LEU:CD1	1:B:596:HIS:CD2	3.02	0.42
1:A:343:ASP:N	1:A:344:PRO:CD	2.81	0.42
1:A:547:ARG:HA	1:A:547:ARG:HD3	1.70	0.42
2:C:85:PHE:HB2	2:C:109:LEU:CG	2.49	0.42
2:D:53:LEU:C	2:D:54:PRO:O	2.62	0.42
1:A:322:VAL:CG1	1:A:323:LYS:N	2.82	0.42
1:A:420:THR:CG2	1:A:421:VAL:N	2.69	0.42
1:A:472:TRP:NE1	1:A:473:ILE:HD11	2.34	0.42
1:B:407:ILE:CD1	1:B:408:PRO:HD2	2.47	0.42
2:C:12:LEU:HD11	2:C:27:ASP:O	2.19	0.42
2:D:3:GLU:C	2:D:52:TRP:HH2	2.27	0.42
1:A:208:LEU:HD12	1:A:208:LEU:HA	1.78	0.42
1:B:193:THR:O	1:B:605:SER:HB3	2.19	0.42
1:B:232:TYR:CE2	1:B:254:VAL:CG1	3.02	0.42
1:B:407:ILE:HA	1:B:408:PRO:HD3	1.75	0.42
1:B:511:SER:HA	1:B:528:THR:HA	2.02	0.42
1:B:585:LEU:O	1:B:585:LEU:HD22	2.19	0.42
2:D:102:GLU:O	2:D:104:ILE:N	2.52	0.42
1:A:400:ALA:N	1:A:401:PRO:CD	2.81	0.42
1:A:415:VAL:CG2	1:A:425:ILE:HG12	2.50	0.42
1:A:529:TYR:CE2	1:A:563:PRO:HG3	2.50	0.42
1:B:580:ARG:HA	1:B:599:MET:HB2	2.01	0.42
2:C:91:PHE:CE1	2:C:121:PRO:HD3	2.54	0.42
2:D:32:LYS:HE3	2:D:112:SER:CA	2.50	0.42
1:A:231:THR:HG22	1:A:289:VAL:HG21	2.01	0.42
1:A:576:LYS:HB2	1:A:578:TRP:NE1	2.34	0.42
1:B:504:VAL:O	1:B:506:GLY:N	2.52	0.42
2:C:4:PRO:CG	2:C:52:TRP:HH2	2.32	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:64:THR:HG22	2:C:83:TYR:O	2.20	0.42
1:A:299:LEU:HG	1:A:319:PHE:CD2	2.54	0.42
1:B:271:HIS:CD2	1:B:271:HIS:C	2.97	0.42
1:B:461:ASN:OD1	1:B:462:LEU:HD12	2.20	0.42
1:B:503:GLU:O	1:B:505:ASP:N	2.53	0.42
2:D:6:THR:O	2:D:6:THR:HG22	2.20	0.42
1:B:309:PRO:O	1:B:310:TYR:CB	2.67	0.42
1:B:547:ARG:HA	1:B:547:ARG:HD3	1.69	0.42
2:D:53:LEU:HD12	2:D:53:LEU:HA	1.56	0.42
2:D:57:ASP:O	2:D:58:ASP:C	2.63	0.42
2:D:85:PHE:CD2	2:D:85:PHE:C	2.98	0.42
1:A:460:LYS:HD2	1:A:511:SER:CB	2.40	0.42
1:A:490:ALA:C	1:A:492:GLU:H	2.27	0.42
1:A:500:LEU:HD22	2:D:40:LEU:HD12	2.01	0.42
1:B:208:LEU:HD12	1:B:208:LEU:HA	1.78	0.42
2:C:25:ARG:HB3	2:C:45:ILE:HG23	2.00	0.42
1:B:253:ARG:CG	1:B:255:PHE:CE1	3.02	0.42
1:B:322:VAL:HG12	1:B:323:LYS:N	2.35	0.42
1:A:286:ASN:OD1	1:A:286:ASN:C	2.62	0.41
1:A:413:LEU:HD12	1:A:427:ILE:HG23	2.02	0.41
1:A:419:LEU:HD12	1:A:419:LEU:H	1.84	0.41
1:A:491:GLY:O	1:A:492:GLU:HB2	2.20	0.41
1:B:481:TYR:O	1:B:481:TYR:CG	2.72	0.41
1:B:576:LYS:HB2	1:B:578:TRP:NE1	2.35	0.41
2:C:102:GLU:C	2:C:104:ILE:H	2.28	0.41
1:A:472:TRP:HA	1:A:475:ARG:O	2.19	0.41
1:A:585:LEU:HD22	1:A:585:LEU:O	2.20	0.41
1:B:452:TYR:HB2	1:B:470:LEU:HB3	2.03	0.41
2:C:4:PRO:CG	2:C:52:TRP:CH2	3.03	0.41
2:C:82:THR:OG1	2:C:84:GLU:HG3	2.20	0.41
2:D:85:PHE:CD2	2:D:85:PHE:O	2.73	0.41
2:D:108:GLU:OE1	2:D:117:SER:HB3	2.20	0.41
1:A:358:ILE:HA	1:A:362:GLN:O	2.19	0.41
1:A:460:LYS:NZ	1:A:461:ASN:H	2.17	0.41
1:A:526:LEU:HD23	1:A:526:LEU:C	2.45	0.41
2:C:3:GLU:HA	2:C:4:PRO:HD3	1.64	0.41
1:A:275:TYR:CE2	1:A:277:GLU:HG3	2.56	0.41
1:A:475:ARG:CG	1:A:476:PHE:N	2.84	0.41
1:A:517:LEU:HD11	1:A:525:VAL:CG2	2.51	0.41
1:B:275:TYR:CE2	1:B:277:GLU:HG3	2.55	0.41
1:B:299:LEU:HD12	1:B:299:LEU:HA	1.82	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:255:PHE:HE2	1:A:322:VAL:CG2	2.33	0.41
1:B:341:THR:HG23	1:B:342:ASP:N	2.36	0.41
1:B:544:SER:O	1:B:544:SER:OG	2.27	0.41
2:C:62:ARG:CD	2:C:62:ARG:N	2.84	0.41
2:C:79:ALA:HB2	2:C:90:HIS:CD2	2.55	0.41
2:D:34:TYR:CD2	2:D:61:TYR:O	2.74	0.41
2:D:53:LEU:O	2:D:54:PRO:O	2.39	0.41
1:A:481:TYR:O	1:A:481:TYR:CD2	2.73	0.41
2:C:10:MET:HG2	2:C:28:TYR:HB3	2.02	0.41
1:A:475:ARG:CG	1:A:476:PHE:H	2.33	0.41
1:A:504:VAL:C	1:A:506:GLY:H	2.23	0.41
1:B:407:ILE:HD12	1:B:408:PRO:HD3	2.01	0.41
2:C:85:PHE:CD2	2:C:85:PHE:O	2.74	0.41
2:D:27:ASP:HB2	2:D:28:TYR:HD1	1.77	0.41
1:A:299:LEU:HG	1:A:319:PHE:HD2	1.86	0.41
1:B:400:ALA:N	1:B:401:PRO:CD	2.83	0.41
2:C:53:LEU:O	2:C:54:PRO:C	2.63	0.41
1:A:222:MET:HE1	1:A:356:GLY:H	1.86	0.41
1:A:227:MET:HG3	1:A:291:LEU:HD13	2.03	0.41
1:A:255:PHE:O	1:A:275:TYR:HA	2.20	0.41
1:A:454:LEU:HD23	1:A:454:LEU:O	2.21	0.41
1:A:520:GLN:H	1:A:520:GLN:CD	2.29	0.41
1:B:483:PHE:CE2	2:C:37:ILE:HD12	2.56	0.41
1:B:503:GLU:O	1:B:505:ASP:OD1	2.39	0.41
1:B:541:TYR:CE2	2:C:38:PRO:HG3	2.56	0.41
2:D:85:PHE:HB2	2:D:109:LEU:CG	2.50	0.41
2:D:91:PHE:CG	2:D:121:PRO:HG2	2.55	0.41
1:A:368:PRO:HD3	1:A:441:MET:HE3	2.03	0.41
1:A:485:VAL:O	1:A:485:VAL:HG23	2.21	0.41
1:A:586:ALA:HB2	1:A:593:HIS:HD2	1.85	0.41
1:B:475:ARG:CZ	1:B:475:ARG:CB	2.99	0.41
1:B:517:LEU:HD11	1:B:525:VAL:CG2	2.51	0.41
1:B:523:GLN:CG	1:B:544:SER:HB2	2.48	0.41
2:C:76:ALA:O	2:C:89:MET:SD	2.79	0.41
1:A:236:LYS:HD2	1:A:252:TYR:CE1	2.56	0.40
1:A:475:ARG:CZ	1:A:475:ARG:CB	2.99	0.40
1:B:342:ASP:O	1:B:343:ASP:CB	2.68	0.40
1:B:426:LYS:H	1:B:426:LYS:HD2	1.85	0.40
1:B:464[A]:LEU:HG	2:C:37:ILE:HD13	2.03	0.40
1:B:485:VAL:HA	1:B:486:PRO:HD3	1.97	0.40
1:B:555:PHE:O	1:B:557:LEU:N	2.53	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:3:GLU:HA	2:D:4:PRO:HD3	1.72	0.40
1:A:293:GLU:O	1:A:294:LEU:HB2	2.21	0.40
1:B:509:LYS:HB2	1:B:529:TYR:O	2.21	0.40
2:C:12:LEU:CD1	2:C:28:TYR:HA	2.52	0.40
1:A:253:ARG:CG	1:A:255:PHE:CE1	3.03	0.40
1:A:369:THR:HG22	1:A:370:THR:O	2.21	0.40
1:A:375:LYS:HE3	1:A:405:ASN:O	2.20	0.40
1:B:543:TYR:OH	2:C:37:ILE:HA	2.21	0.40
2:C:72:LEU:HD23	2:C:72:LEU:HA	1.77	0.40
2:D:77:VAL:HA	2:D:78:PRO:HD3	1.93	0.40
2:D:116:TRP:HB3	2:D:117:SER:H	1.64	0.40
1:A:289:VAL:HG13	1:A:296:LEU:CD1	2.51	0.40
1:A:534:VAL:C	1:A:536:HIS:N	2.79	0.40
1:B:283:ASP:OD2	3:B:1215:NAG:H61	2.22	0.40
1:B:451:VAL:HG22	1:B:471:GLU:CG	2.51	0.40
1:B:454:LEU:HD23	1:B:454:LEU:O	2.21	0.40
1:B:561:GLY:C	1:B:563:PRO:HD3	2.46	0.40
1:A:420:THR:HB	1:A:421:VAL:HG13	2.04	0.40
1:A:529:TYR:HE1	1:A:536:HIS:HB3	1.86	0.40
2:D:122:ILE:CG2	2:D:123:CYS:H	2.23	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	379/466 (81%)	293 (77%)	58 (15%)	28 (7%)	1	5
1	B	394/466 (84%)	309 (78%)	58 (15%)	27 (7%)	1	5
2	C	124/126 (98%)	84 (68%)	24 (19%)	16 (13%)	0	1
2	D	124/126 (98%)	81 (65%)	27 (22%)	16 (13%)	0	1
All	All	1021/1184 (86%)	767 (75%)	167 (16%)	87 (8%)	0	4

All (87) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	194	ILE
1	A	224	SER
1	A	390	ILE
1	A	391	GLN
1	A	397	PRO
1	A	405	ASN
1	A	474	PRO
1	A	505	ASP
1	A	530	ASP
1	A	534	VAL
1	B	188	CYS
1	B	224	SER
1	B	391	GLN
1	B	405	ASN
1	B	474	PRO
1	B	505	ASP
1	B	559	ILE
2	C	13	ILE
2	C	18	PRO
2	C	54	PRO
2	D	12	LEU
2	D	22	ILE
2	D	50	HIS
2	D	54	PRO
2	D	55	VAL
1	A	488	LYS
1	A	491	GLY
1	A	593	HIS
1	B	213	GLY
1	B	390	ILE
1	B	558	PRO
1	B	560	LYS
2	C	55	VAL
2	C	72	LEU
2	C	110	LYS
2	D	21	GLU
2	D	23	GLY
2	D	49	ASN
2	D	110	LYS
1	A	213	GLY
1	A	303	GLU
1	A	382	PHE

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Mol	Chain	Res	Type
1	B	193	THR
1	B	303	GLU
1	B	382	PHE
1	B	397	PRO
2	C	5	PRO
2	C	17	LYS
2	C	32	LYS
2	C	66	PRO
2	C	103	GLU
2	D	66	PRO
2	D	72	LEU
1	A	195	ARG
1	A	489	GLU
1	A	522	LEU
1	B	419	LEU
1	B	492	GLU
1	B	522	LEU
2	C	16	PRO
2	C	53	LEU
2	C	73	ASN
2	D	10	MET
2	D	103	GLU
1	A	309	PRO
1	A	344	PRO
1	A	392	THR
1	A	398	GLU
1	A	419	LEU
1	A	473	ILE
1	B	398	GLU
1	B	473	ILE
1	B	512	SER
1	B	545	PRO
1	B	557	LEU
2	C	21	GLU
1	A	421	VAL
1	B	460	LYS
2	C	49	ASN
2	D	109	LEU
1	A	545	PRO
1	B	433	PRO
1	B	504	VAL
1	A	433	PRO

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Mol	Chain	Res	Type
2	D	113	VAL
2	D	38	PRO
1	B	191	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	340/404 (84%)	283 (83%)	57 (17%)	2	10
1	B	355/404 (88%)	283 (80%)	72 (20%)	1	5
2	C	110/110 (100%)	94 (86%)	16 (14%)	3	14
2	D	110/110 (100%)	91 (83%)	19 (17%)	2	9
All	All	915/1028 (89%)	751 (82%)	164 (18%)	2	9

All (164) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	200	ASN
1	A	210	LEU
1	A	212	ARG
1	A	216	VAL
1	A	221	THR
1	A	234	VAL
1	A	238	ASN
1	A	252	TYR
1	A	254	VAL
1	A	261	ARG
1	A	265	LEU
1	A	288	MET
1	A	295	LYS
1	A	296	LEU
1	A	306	ILE
1	A	317	VAL
1	A	326	VAL
1	A	337	VAL

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Mol	Chain	Res	Type
1	A	339	LEU
1	A	341	THR
1	A	342	ASP
1	A	355	ARG
1	A	370	THR
1	A	377	ARG
1	A	380	THR
1	A	383	GLN
1	A	392	THR
1	A	396	ASN
1	A	405	ASN
1	A	414	SER
1	A	415	VAL
1	A	419	LEU
1	A	423	LEU
1	A	427	ILE
1	A	435	ILE
1	A	459	MET
1	A	460	LYS
1	A	461	ASN
1	A	479	SER
1	A	484	THR
1	A	489	GLU
1	A	493	ASP
1	A	503	GLU
1	A	509	LYS
1	A	514	LEU
1	A	515	VAL
1	A	526	LEU
1	A	532	SER
1	A	538	VAL
1	A	545	PRO
1	A	553	TYR
1	A	560	LYS
1	A	562	VAL
1	A	577	LEU
1	A	579	CYS
1	A	585	LEU
1	A	594	ILE
1	B	184	SER
1	B	185	LYS
1	B	189	SER

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Mol	Chain	Res	Type
1	B	192	THR
1	B	194	ILE
1	B	198	PHE
1	B	199	SER
1	B	210	LEU
1	B	212	ARG
1	B	216	VAL
1	B	221	THR
1	B	234	VAL
1	B	238	ASN
1	B	252	TYR
1	B	254	VAL
1	B	261	ARG
1	B	265	LEU
1	B	280	VAL
1	B	295	LYS
1	B	296	LEU
1	B	299	LEU
1	B	306	ILE
1	B	317	VAL
1	B	326	VAL
1	B	337	VAL
1	B	339	LEU
1	B	341	THR
1	B	345	VAL
1	B	352	SER
1	B	357	VAL
1	B	370	THR
1	B	377	ARG
1	B	380	THR
1	B	383	GLN
1	B	389	LYS
1	B	396	ASN
1	B	405	ASN
1	B	414	SER
1	B	415	VAL
1	B	419	LEU
1	B	421	VAL
1	B	422	GLU
1	B	423	LEU
1	B	427	ILE
1	B	435	ILE

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Mol	Chain	Res	Type
1	B	454	LEU
1	B	460	LYS
1	B	461	ASN
1	B	464[A]	LEU
1	B	464[B]	LEU
1	B	466	VAL
1	B	473	ILE
1	B	479	SER
1	B	484	THR
1	B	488	LYS
1	B	493	ASP
1	B	503	GLU
1	B	514	LEU
1	B	515	VAL
1	B	526	LEU
1	B	534	VAL
1	B	538	VAL
1	B	545	PRO
1	B	553	TYR
1	B	555	PHE
1	B	557	LEU
1	B	559	ILE
1	B	577	LEU
1	B	579	CYS
1	B	585	LEU
1	B	594	ILE
1	B	606	CYS
2	C	3	GLU
2	C	19	TYR
2	C	35	PHE
2	C	37	ILE
2	C	46	CYS
2	C	50	HIS
2	C	51	THR
2	C	52	TRP
2	C	54	PRO
2	C	56	SER
2	C	62	ARG
2	C	64	THR
2	C	68	ILE
2	C	94	ASN
2	C	104	ILE

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Mol	Chain	Res	Type
2	C	112	SER
2	D	6	THR
2	D	7	PHE
2	D	8	GLU
2	D	10	MET
2	D	19	TYR
2	D	20	TYR
2	D	22	ILE
2	D	27	ASP
2	D	37	ILE
2	D	43	HIS
2	D	52	TRP
2	D	58	ASP
2	D	60	CYS
2	D	62	ARG
2	D	64	THR
2	D	68	ILE
2	D	94	ASN
2	D	104	ILE
2	D	112	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (21) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	238	ASN
1	A	271	HIS
1	A	362	GLN
1	A	396	ASN
1	A	437	HIS
1	A	449	ASN
1	A	495	HIS
1	A	575	GLN
1	A	596	HIS
1	B	238	ASN
1	B	271	HIS
1	B	362	GLN
1	B	396	ASN
1	B	437	HIS
1	B	449	ASN
1	B	495	HIS
1	B	523	GLN
1	B	575	GLN

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Mol	Chain	Res	Type
1	B	596	HIS
2	C	88	GLN
2	D	50	HIS

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 ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

9 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	$\# Z > 2$
3	NAG	C	1080	2	14,14,15	0.49	0	17,19,21	0.89	1 (5%)
3	NAG	B	1215	1	14,14,15	0.56	0	17,19,21	1.17	1 (5%)
3	NAG	D	1080	2	14,14,15	0.49	0	17,19,21	0.88	1 (5%)
3	NAG	A	1200	1	14,14,15	0.44	0	17,19,21	1.09	1 (5%)
4	SO4	A	3	-	4,4,4	0.29	0	6,6,6	0.23	0
3	NAG	B	1200	1	14,14,15	0.47	0	17,19,21	2.26	2 (11%)
4	SO4	B	2	-	4,4,4	0.22	0	6,6,6	0.14	0
3	NAG	A	1215	1	14,14,15	0.49	0	17,19,21	0.86	0
4	SO4	B	1	-	4,4,4	0.26	0	6,6,6	0.11	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	C	1080	2	-	4/6/23/26	0/1/1/1
3	NAG	B	1215	1	-	4/6/23/26	0/1/1/1
3	NAG	D	1080	2	-	4/6/23/26	0/1/1/1
3	NAG	A	1200	1	-	4/6/23/26	0/1/1/1
3	NAG	B	1200	1	-	2/6/23/26	0/1/1/1
3	NAG	A	1215	1	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	1200	NAG	C1-O5-C5	7.13	121.74	112.19
3	B	1200	NAG	O5-C1-C2	5.12	119.21	111.29
3	A	1200	NAG	C1-O5-C5	4.19	117.81	112.19
3	B	1215	NAG	C1-O5-C5	3.37	116.71	112.19
3	C	1080	NAG	C1-O5-C5	2.64	115.73	112.19
3	D	1080	NAG	O5-C1-C2	2.11	114.56	111.29

There are no chirality outliers.

All (20) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	1200	NAG	C8-C7-N2-C2
3	A	1200	NAG	O7-C7-N2-C2
3	B	1200	NAG	C8-C7-N2-C2
3	B	1200	NAG	O7-C7-N2-C2
3	C	1080	NAG	O7-C7-N2-C2
3	D	1080	NAG	C8-C7-N2-C2
3	D	1080	NAG	O7-C7-N2-C2
3	C	1080	NAG	C8-C7-N2-C2
3	C	1080	NAG	O5-C5-C6-O6
3	B	1215	NAG	C8-C7-N2-C2
3	D	1080	NAG	O5-C5-C6-O6
3	C	1080	NAG	C4-C5-C6-O6
3	D	1080	NAG	C4-C5-C6-O6
3	B	1215	NAG	O7-C7-N2-C2

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Mol	Chain	Res	Type	Atoms
3	B	1215	NAG	C4-C5-C6-O6
3	A	1200	NAG	C4-C5-C6-O6
3	B	1215	NAG	O5-C5-C6-O6
3	A	1200	NAG	O5-C5-C6-O6
3	A	1215	NAG	C8-C7-N2-C2
3	A	1215	NAG	O7-C7-N2-C2

There are no ring outliers.

2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	1215	NAG	1	0
3	A	1200	NAG	2	0

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](#)

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	389/466 (83%)	-0.46	1 (0%) 90 80	78, 146, 256, 336	0
1	B	403/466 (86%)	-0.55	1 (0%) 91 83	75, 145, 229, 269	1 (0%)
2	C	126/126 (100%)	-0.43	0 100 100	120, 159, 237, 249	0
2	D	126/126 (100%)	-0.26	1 (0%) 82 65	118, 161, 236, 257	0
All	All	1044/1184 (88%)	-0.47	3 (0%) 90 80	75, 151, 240, 336	1 (0%)

All (3) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	464[A]	LEU	3.2
1	A	340	SER	2.3
2	D	22	ILE	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 oligosaccharides in this entry.

6.4 Ligands [i](#)

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($\text{\AA}^2$)	Q<0.9
3	NAG	C	1080	14/15	0.35	0.09	169,219,234,238	0
3	NAG	A	1200	14/15	0.44	0.09	243,269,290,293	0
3	NAG	B	1200	14/15	0.45	0.09	138,202,225,233	0
3	NAG	D	1080	14/15	0.56	0.07	180,208,220,227	0
3	NAG	A	1215	14/15	0.81	0.08	184,209,220,224	0
4	SO4	B	2	5/5	0.82	0.07	163,197,199,212	0
4	SO4	B	1	5/5	0.84	0.05	177,180,198,200	0
3	NAG	B	1215	14/15	0.87	0.07	169,193,208,209	0
4	SO4	A	3	5/5	0.92	0.07	95,131,184,201	0

6.5 Other polymers [i](#)

There are no such residues in this entry.