



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 12, 2026 – 07:12 AM UTC

PDB ID : 3SCK / pdb_00003sck
Title : Crystal structure of spike protein receptor-binding domain from a predicted SARS coronavirus civet strain complexed with human-civet chimeric receptor ACE2
Authors : Wu, K.; Peng, G.; Wilken, M.; Geraghty, R.; Li, F.
Deposited on : 2011-06-07
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

<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
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

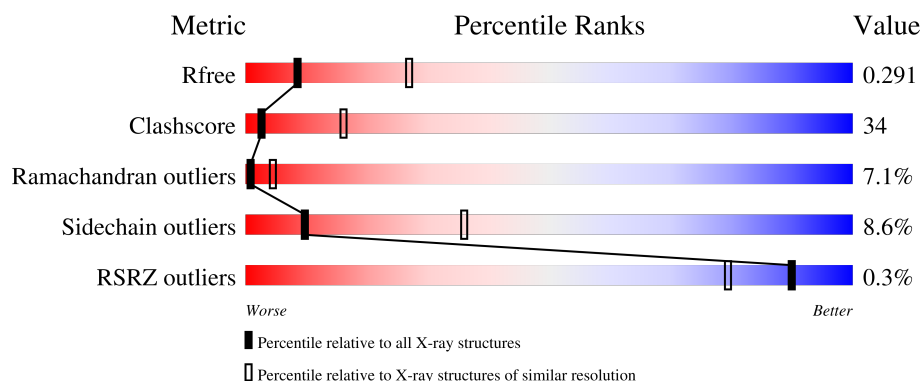
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.00 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}	180053	2672 (3.00-3.00)
Clashscore	190562	2977 (3.00-3.00)
Ramachandran outliers	187476	2877 (3.00-3.00)
Sidechain outliers	187428	2880 (3.00-3.00)
RSRZ outliers	180081	2671 (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 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	603	
1	B	603	
2	E	185	
2	F	185	

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 12518 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 Angiotensin-converting enzyme 2 chimera.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	597	Total	C	N	O	S	0	0	0
			4863	3109	803	923	28			
1	B	597	Total	C	N	O	S	0	0	0
			4863	3109	803	923	28			

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	616	HIS	-	expression tag	UNP Q9BYF1
A	617	HIS	-	expression tag	UNP Q9BYF1
A	618	HIS	-	expression tag	UNP Q9BYF1
A	619	HIS	-	expression tag	UNP Q9BYF1
A	620	HIS	-	expression tag	UNP Q9BYF1
A	621	HIS	-	expression tag	UNP Q9BYF1
B	616	HIS	-	expression tag	UNP Q9BYF1
B	617	HIS	-	expression tag	UNP Q9BYF1
B	618	HIS	-	expression tag	UNP Q9BYF1
B	619	HIS	-	expression tag	UNP Q9BYF1
B	620	HIS	-	expression tag	UNP Q9BYF1
B	621	HIS	-	expression tag	UNP Q9BYF1

- Molecule 2 is a protein called Spike glycoprotein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	E	173	Total	C	N	O	S	0	0	0
			1394	905	229	254	6			
2	F	173	Total	C	N	O	S	0	0	0
			1394	905	229	254	6			

There are 18 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	472	PRO	LEU	SEE REMARK 999	UNP P59594
E	479	ARG	ASN	conflict	UNP P59594
E	480	GLY	ASP	SEE REMARK 999	UNP P59594
E	503	HIS	-	expression tag	UNP P59594
E	504	HIS	-	expression tag	UNP P59594
E	505	HIS	-	expression tag	UNP P59594
E	506	HIS	-	expression tag	UNP P59594
E	507	HIS	-	expression tag	UNP P59594
E	508	HIS	-	expression tag	UNP P59594
F	472	PRO	LEU	SEE REMARK 999	UNP P59594
F	479	ARG	ASN	conflict	UNP P59594
F	480	GLY	ASP	SEE REMARK 999	UNP P59594
F	503	HIS	-	expression tag	UNP P59594
F	504	HIS	-	expression tag	UNP P59594
F	505	HIS	-	expression tag	UNP P59594
F	506	HIS	-	expression tag	UNP P59594
F	507	HIS	-	expression tag	UNP P59594
F	508	HIS	-	expression tag	UNP P59594

- Molecule 3 is ZINC ION (CCD ID: ZN) (formula: Zn).

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

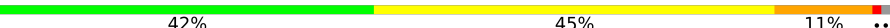
- Molecule 4 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

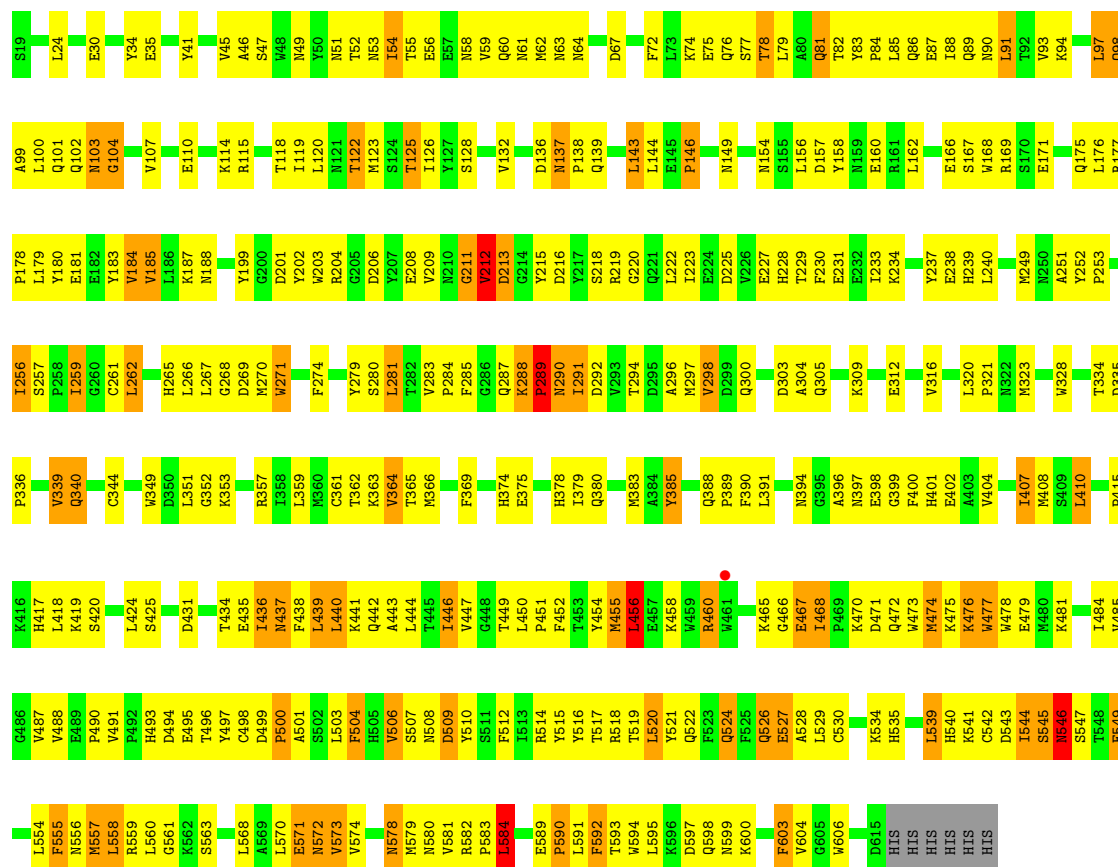
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total Cl 1 1	0	0
4	B	1	Total Cl 1 1	0	0

3 Residue-property plots

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

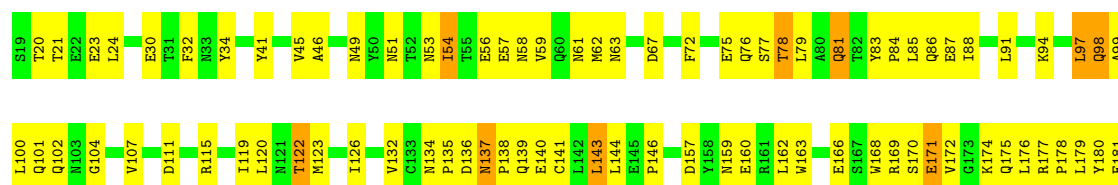
• Molecule 1: Angiotensin-converting enzyme 2 chimera

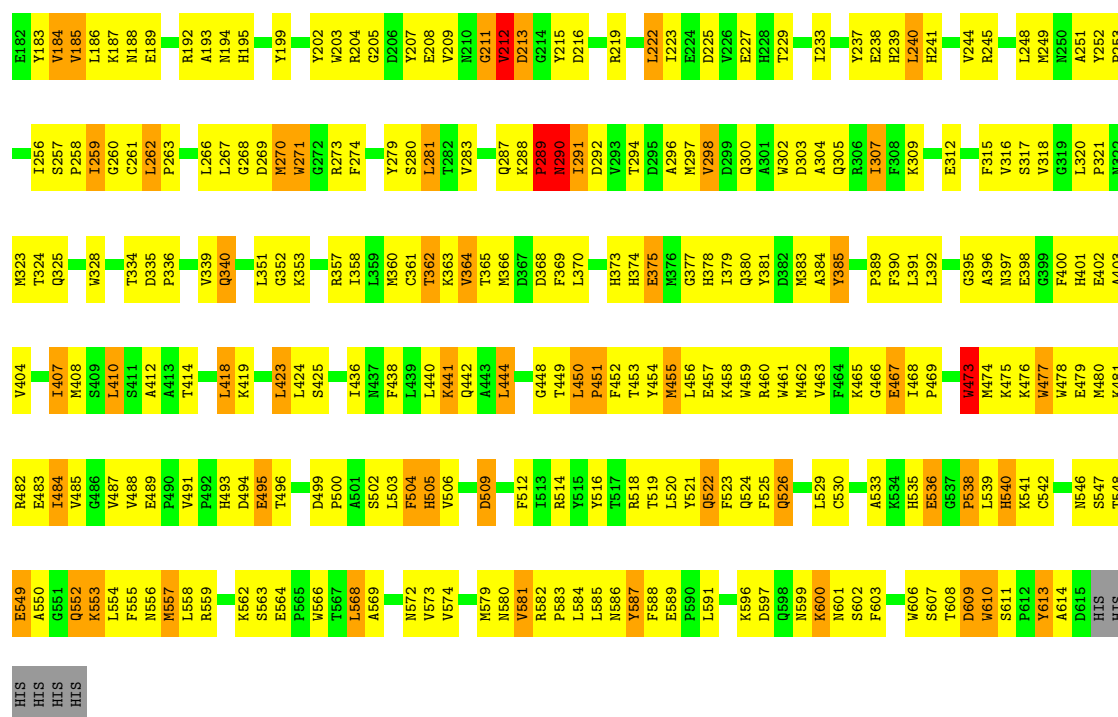
Chain A: 



• Molecule 1: Angiotensin-converting enzyme 2 chimera

Chain B: 





4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	81.22Å 119.28Å 113.24Å 90.00° 92.19° 90.00°	Depositor
Resolution (Å)	47.27 – 3.00 47.27 – 3.00	Depositor EDS
% Data completeness (in resolution range)	78.7 (47.27-3.00) 77.7 (47.27-3.00)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.16 (at 3.01Å)	Xtriage
Refinement program	REFMAC 5.5.0109, CNS	Depositor
R, R_{free}	0.239 , 0.285 0.245 , 0.291	Depositor DCC
R_{free} test set	2146 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	84.7	Xtriage
Anisotropy	0.175	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 51.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	0.032 for h,-k,-l	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	12518	wwPDB-VP
Average B, all atoms (Å ²)	105.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.94% 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: CL, ZN

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.67	1/4999 (0.0%)	1.01	21/6796 (0.3%)
1	B	0.65	1/4999 (0.0%)	1.00	16/6796 (0.2%)
2	E	0.67	0/1440	0.95	5/1961 (0.3%)
2	F	0.65	0/1440	0.91	4/1961 (0.2%)
All	All	0.66	2/12878 (0.0%)	0.99	46/17514 (0.3%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	289	PRO	C-N	7.33	1.44	1.33
1	A	289	PRO	C-N	6.67	1.45	1.33

All (46) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	288	LYS	CA-C-N	-13.98	102.36	119.84
1	B	288	LYS	C-N-CA	-13.98	102.36	119.84
1	B	291	ILE	N-CA-C	-13.18	100.18	111.91
1	A	288	LYS	CA-C-N	-10.88	106.24	119.84
1	A	288	LYS	C-N-CA	-10.88	106.24	119.84
2	E	405	ILE	N-CA-C	-10.43	103.45	111.90
1	A	468	ILE	CA-C-N	9.24	129.31	119.89
1	A	468	ILE	C-N-CA	9.24	129.31	119.89
1	A	290	ASN	N-CA-C	9.09	125.52	107.62
1	B	549	GLU	N-CA-C	-8.21	101.25	111.11
2	F	405	ILE	N-CA-C	-7.88	104.79	111.56
2	F	417	MET	N-CA-C	7.83	120.77	108.79
2	E	417	MET	N-CA-C	7.71	119.85	108.60
1	B	484	ILE	N-CA-C	-7.02	104.92	111.45
1	B	270	MET	N-CA-C	6.68	120.30	111.75

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	262	LEU	CA-C-N	6.58	128.07	119.84
1	A	262	LEU	C-N-CA	6.58	128.07	119.84
1	A	460	ARG	N-CA-C	-6.54	104.07	111.07
1	B	240	LEU	N-CA-C	-6.48	104.14	111.07
1	B	613	TYR	N-CA-C	-6.03	107.15	114.75
1	A	291	ILE	N-CA-C	-5.98	96.91	109.34
1	A	344	CYS	N-CA-C	5.93	120.14	113.02
1	B	419	LYS	N-CA-C	-5.83	104.84	111.14
1	A	446	ILE	CB-CA-C	-5.72	104.65	111.97
2	F	328	VAL	N-CA-C	-5.64	105.60	110.74
1	B	262	LEU	CA-C-N	5.62	126.87	119.84
1	B	262	LEU	C-N-CA	5.62	126.87	119.84
1	A	584	LEU	N-CA-C	-5.54	105.15	111.14
1	B	222	LEU	N-CA-C	-5.53	104.94	110.97
1	A	474	MET	N-CA-C	-5.53	106.46	113.43
1	A	465	LYS	N-CA-C	-5.44	106.49	113.02
1	A	256	ILE	N-CA-C	5.42	117.69	108.86
1	B	307	ILE	CB-CA-C	-5.41	105.05	111.81
1	A	590	PRO	N-CA-C	-5.33	106.45	113.65
1	B	267	LEU	N-CA-C	5.25	117.27	110.65
1	A	527	GLU	N-CA-C	-5.22	105.23	111.03
1	B	479	GLU	N-CA-C	-5.21	105.09	111.75
2	E	329	PHE	N-CA-C	-5.15	104.07	110.41
1	A	446	ILE	N-CA-C	5.10	115.31	110.42
1	A	267	LEU	N-CA-C	5.07	117.04	110.65
1	A	578	ASN	N-CA-C	5.06	116.77	109.07
2	F	329	PHE	N-CA-C	-5.03	104.22	110.41
1	A	510	TYR	N-CA-C	5.03	116.69	108.55
1	B	423	LEU	N-CA-C	-5.02	107.15	113.28
2	E	334	PHE	CA-C-N	5.02	125.23	120.31
2	E	334	PHE	C-N-CA	5.02	125.23	120.31

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4863	0	4636	323	0
1	B	4863	0	4636	345	0
2	E	1394	0	1327	77	0
2	F	1394	0	1327	92	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
All	All	12518	0	11926	828	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 34.

All (828) 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:E:324:PRO:HG3	2:E:348:CYS:SG	1.87	1.12
1:A:456:LEU:HD22	1:A:477:TRP:HH2	1.16	1.03
2:F:324:PRO:HG3	2:F:348:CYS:SG	2.01	1.00
1:B:582:ARG:HB3	1:B:583:PRO:HD3	1.46	0.97
1:A:410:LEU:HD23	1:A:526:GLN:HG3	1.46	0.97
1:B:209:VAL:HB	1:B:216:ASP:HA	1.52	0.92
1:B:179:LEU:HD12	1:B:179:LEU:H	1.34	0.92
1:B:143:LEU:HD13	1:B:144:LEU:H	1.35	0.91
1:A:474:MET:HE1	1:A:499:ASP:H	1.33	0.90
1:B:533:ALA:HB2	1:B:550:ALA:HB2	1.53	0.90
1:A:143:LEU:HD13	1:A:144:LEU:H	1.35	0.90
1:B:177:ARG:HH12	1:B:495:GLU:HG3	1.39	0.88
1:B:289:PRO:O	1:B:290:ASN:O	1.92	0.86
1:B:483:GLU:HB3	1:B:608:THR:HG22	1.58	0.86
1:B:485:VAL:HG12	1:B:487:VAL:HG23	1.58	0.86
1:A:179:LEU:H	1:A:179:LEU:HD12	1.40	0.85
2:E:409:ASN:HD21	2:E:441:ARG:H	1.24	0.85
1:A:456:LEU:HD22	1:A:477:TRP:CH2	2.08	0.85
1:A:132:VAL:HG12	1:A:171:GLU:HG3	1.58	0.85
1:B:99:ALA:O	1:B:102:GLN:HG3	1.76	0.84
2:F:327:GLU:O	2:F:331:ALA:HB2	1.80	0.82
1:A:97:LEU:O	1:A:101:GLN:HG2	1.80	0.81
2:F:388:VAL:HG22	2:F:495:ARG:HG2	1.60	0.81
1:A:323:MET:HE2	1:A:323:MET:HA	1.62	0.81
2:F:426:ARG:O	2:F:430:ALA:HB3	1.82	0.80
1:B:549:GLU:CD	1:B:549:GLU:H	1.89	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:543:ASP:OD1	1:A:545:SER:HB2	1.81	0.80
1:B:143:LEU:HD13	1:B:144:LEU:N	1.98	0.79
1:B:478:TRP:O	1:B:482:ARG:HB2	1.82	0.79
1:B:397:ASN:HD22	1:B:566:TRP:HB2	1.46	0.77
1:A:501:ALA:O	1:A:507:SER:HB3	1.84	0.77
1:A:520:LEU:HD22	1:A:520:LEU:H	1.50	0.77
1:B:296:ALA:O	1:B:300:GLN:HG3	1.86	0.76
1:B:81:GLN:HE21	1:B:81:GLN:HA	1.51	0.76
1:A:309:LYS:HD2	1:A:328:TRP:CH2	2.19	0.76
1:B:397:ASN:HD22	1:B:566:TRP:CB	1.99	0.75
2:E:336:SER:OG	2:E:439:LYS:N	2.21	0.74
1:A:274:PHE:CD2	1:A:449:THR:HB	2.23	0.74
1:A:252:TYR:CE2	1:A:266:LEU:HD22	2.22	0.74
1:A:441:LYS:HG3	1:A:441:LYS:O	1.86	0.74
1:A:603:PHE:HD2	1:A:604:VAL:N	1.85	0.74
1:A:85:LEU:HD12	1:A:85:LEU:H	1.53	0.73
1:B:119:ILE:HG22	1:B:123:MET:HE2	1.70	0.73
1:B:474:MET:C	1:B:476:LYS:H	1.96	0.73
1:B:325:GLN:HE22	2:F:426:ARG:NH2	1.87	0.73
2:E:388:VAL:HG22	2:E:495:ARG:HG2	1.71	0.73
1:A:72:PHE:O	1:A:76:GLN:HG2	1.89	0.73
2:F:417:MET:HA	2:F:417:MET:HE2	1.69	0.73
2:F:353:SER:HA	2:F:356:TYR:HB2	1.71	0.72
1:A:143:LEU:HD13	1:A:144:LEU:N	2.04	0.72
1:B:229:THR:HG23	1:B:516:TYR:OH	1.88	0.72
1:B:225:ASP:O	1:B:229:THR:HG22	1.90	0.72
2:F:336:SER:OG	2:F:439:LYS:N	2.22	0.72
1:A:400:PHE:CE2	1:A:557:MET:HE3	2.23	0.72
1:A:549:GLU:H	1:A:549:GLU:CD	1.97	0.72
1:B:438:PHE:O	1:B:442:GLN:HG2	1.90	0.72
1:B:459:TRP:O	1:B:463:VAL:HG23	1.89	0.72
2:F:452:GLU:HG2	2:F:453:ARG:H	1.55	0.71
2:E:426:ARG:O	2:E:430:ALA:HB3	1.89	0.71
2:E:390:LYS:HG2	2:E:391:GLY:N	2.05	0.71
1:B:30:GLU:O	1:B:34:TYR:HD1	1.73	0.71
1:B:136:ASP:O	1:B:137:ASN:HB2	1.90	0.71
1:B:123:MET:HE1	1:B:183:TYR:CD2	2.24	0.71
1:B:177:ARG:NH1	1:B:495:GLU:HG3	2.05	0.71
2:E:390:LYS:HG2	2:E:391:GLY:H	1.54	0.71
1:A:524:GLN:HE22	1:A:579:MET:HA	1.55	0.71
2:E:324:PRO:CG	2:E:348:CYS:SG	2.76	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:388:VAL:CG2	2:F:495:ARG:HG2	2.22	0.70
1:B:168:TRP:CD1	1:B:502:SER:HG	2.09	0.70
1:B:294:THR:HG23	1:B:365:THR:HA	1.72	0.70
1:B:323:MET:HE2	1:B:323:MET:HA	1.72	0.70
1:B:483:GLU:OE2	1:B:484:ILE:HG13	1.91	0.70
2:E:420:VAL:C	2:E:421:LEU:HD12	2.17	0.69
2:E:417:MET:HE2	2:E:417:MET:HA	1.74	0.69
1:A:478:TRP:HA	1:A:481:LYS:HB2	1.73	0.69
1:A:123:MET:HE1	1:A:183:TYR:CD2	2.27	0.69
1:A:528:ALA:HB2	1:A:574:VAL:HA	1.75	0.69
1:B:24:LEU:HD22	2:F:473:ASN:HD22	1.58	0.69
1:A:225:ASP:O	1:A:229:THR:HG22	1.92	0.69
1:A:102:GLN:C	1:A:104:GLY:H	2.00	0.69
1:A:471:ASP:HA	1:A:495:GLU:HG3	1.74	0.69
1:A:573:VAL:HG23	1:A:574:VAL:H	1.58	0.69
1:B:72:PHE:O	1:B:76:GLN:HG2	1.93	0.68
1:B:581:VAL:O	1:B:585:LEU:HD23	1.92	0.68
1:A:294:THR:HG23	1:A:365:THR:HA	1.74	0.68
1:B:378:HIS:CE1	1:B:402:GLU:OE1	2.47	0.68
1:A:543:ASP:O	1:A:545:SER:N	2.27	0.68
1:A:519:THR:O	1:A:522:GLN:HG2	1.94	0.68
1:B:252:TYR:CE2	1:B:266:LEU:HD22	2.29	0.67
1:A:81:GLN:HA	1:A:81:GLN:HE21	1.59	0.67
1:B:227:GLU:OE2	1:B:458:LYS:HE2	1.94	0.67
1:B:463:VAL:HG13	1:B:473:TRP:HE1	1.59	0.67
1:B:366:MET:CE	1:B:441:LYS:HZ3	2.06	0.67
2:E:329:PHE:C	2:E:331:ALA:H	2.02	0.67
1:A:400:PHE:HE2	1:A:557:MET:HE3	1.61	0.66
1:B:166:GLU:OE2	1:B:493:HIS:HE1	1.78	0.66
1:B:483:GLU:HB3	1:B:608:THR:CG2	2.25	0.66
1:B:455:MET:SD	1:B:481:LYS:HG2	2.36	0.66
1:A:119:ILE:HG22	1:A:123:MET:HE2	1.77	0.66
1:A:539:LEU:O	1:A:539:LEU:HD12	1.96	0.66
1:A:597:ASP:O	1:A:600:LYS:HG2	1.96	0.66
2:F:406:ALA:HA	2:F:410:TYR:O	1.97	0.65
1:B:223:ILE:O	1:B:227:GLU:HG3	1.96	0.65
1:B:294:THR:O	1:B:298:VAL:HG23	1.95	0.65
1:A:557:MET:HE2	1:A:557:MET:O	1.97	0.65
1:B:180:TYR:O	1:B:184:VAL:HG23	1.96	0.65
2:F:334:PHE:CE2	2:F:386:SER:HB2	2.31	0.65
1:B:175:GLN:O	1:B:178:PRO:HD2	1.97	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:296:ALA:O	1:A:300:GLN:HG3	1.96	0.64
1:B:211:GLY:O	1:B:212:VAL:HG13	1.96	0.64
1:B:366:MET:HE1	1:B:441:LYS:HZ3	1.61	0.64
1:A:557:MET:SD	1:A:558:LEU:HD12	2.38	0.64
1:B:21:THR:HG21	1:B:87:GLU:OE1	1.98	0.64
1:B:378:HIS:NE2	1:B:402:GLU:OE1	2.30	0.64
1:A:274:PHE:HD2	1:A:449:THR:HB	1.63	0.64
1:A:320:LEU:HB3	1:A:321:PRO:HD2	1.77	0.64
1:A:516:TYR:CE2	1:A:520:LEU:HD21	2.33	0.64
1:B:582:ARG:HB3	1:B:583:PRO:CD	2.26	0.63
2:F:324:PRO:CG	2:F:348:CYS:SG	2.84	0.63
1:A:233:ILE:HG12	1:A:581:VAL:HG21	1.80	0.63
1:B:249:MET:HE1	1:B:258:PRO:HG3	1.81	0.63
1:A:30:GLU:O	1:A:34:TYR:HD1	1.82	0.63
2:F:420:VAL:C	2:F:421:LEU:HD12	2.23	0.63
1:A:493:HIS:HD2	1:A:499:ASP:OD1	1.80	0.63
1:B:77:SER:C	1:B:79:LEU:H	2.07	0.63
1:B:581:VAL:HG22	1:B:585:LEU:CD2	2.28	0.63
1:A:339:VAL:O	1:A:340:GLN:HB2	1.99	0.62
1:B:177:ARG:O	1:B:181:GLU:HG3	1.99	0.62
1:B:318:VAL:HA	1:B:547:SER:O	1.99	0.62
1:B:107:VAL:HG21	1:B:193:ALA:HB1	1.81	0.62
1:A:132:VAL:HG12	1:A:171:GLU:CG	2.29	0.62
1:A:474:MET:CE	1:A:499:ASP:H	2.10	0.62
2:F:351:ASP:O	2:F:352:TYR:HB2	1.98	0.62
1:A:204:ARG:HD2	1:A:219:ARG:O	1.98	0.62
1:B:261:CYS:HB2	1:B:488:VAL:HG13	1.81	0.62
2:E:396:GLN:OE1	2:E:405:ILE:HB	1.99	0.62
1:A:446:ILE:HD12	1:A:446:ILE:H	1.65	0.62
1:B:457:GLU:HG2	1:B:512:PHE:HB3	1.82	0.62
1:A:434:THR:O	1:A:437:ASN:HB2	1.99	0.62
1:B:541:LYS:HE2	1:B:541:LYS:HA	1.82	0.62
1:B:609:ASP:OD2	1:B:609:ASP:N	2.32	0.62
1:A:136:ASP:O	1:A:137:ASN:HB2	2.00	0.62
2:F:329:PHE:C	2:F:331:ALA:H	2.07	0.62
1:A:388:GLN:OE1	1:A:563:SER:HB2	2.01	0.61
1:B:233:ILE:HD13	1:B:450:LEU:HD23	1.80	0.61
1:B:440:LEU:HD13	1:B:444:LEU:HD22	1.82	0.61
2:F:390:LYS:HG2	2:F:391:GLY:H	1.65	0.61
1:B:580:ASN:C	1:B:582:ARG:H	2.08	0.61
1:A:526:GLN:O	1:A:530:CYS:SG	2.58	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:374:HIS:C	1:A:374:HIS:CD2	2.77	0.61
1:A:294:THR:O	1:A:298:VAL:HG23	2.00	0.61
1:B:204:ARG:HD2	1:B:219:ARG:O	2.01	0.61
1:B:477:TRP:CZ3	1:B:500:PRO:HB3	2.35	0.61
1:B:85:LEU:HD12	1:B:85:LEU:H	1.65	0.61
2:F:409:ASN:HD21	2:F:441:ARG:H	1.47	0.61
1:A:439:LEU:HD12	1:A:591:LEU:HB2	1.83	0.60
1:A:443:ALA:HA	1:A:447:VAL:HG23	1.82	0.60
2:F:390:LYS:HG2	2:F:391:GLY:N	2.16	0.60
1:A:290:ASN:C	1:A:292:ASP:H	2.07	0.60
1:A:454:TYR:OH	1:A:458:LYS:HE3	2.01	0.60
1:B:440:LEU:HD13	1:B:440:LEU:C	2.26	0.60
2:E:333:LYS:HD2	2:E:333:LYS:O	2.00	0.60
1:A:77:SER:C	1:A:79:LEU:H	2.08	0.60
1:A:98:GLN:O	1:A:101:GLN:HB2	2.01	0.60
1:A:579:MET:HG3	1:A:579:MET:O	2.01	0.60
1:B:63:ASN:O	1:B:67:ASP:N	2.26	0.60
1:A:157:ASP:HB3	1:A:160:GLU:HB3	1.84	0.60
1:A:493:HIS:CD2	1:A:499:ASP:OD1	2.54	0.60
1:B:24:LEU:HD22	2:F:473:ASN:ND2	2.15	0.60
1:B:325:GLN:HE22	2:F:426:ARG:HH22	1.48	0.60
1:B:87:GLU:C	1:B:88:ILE:HD12	2.27	0.60
1:B:238:GLU:O	1:B:241:HIS:HB3	2.02	0.60
1:A:209:VAL:HB	1:A:216:ASP:HA	1.83	0.59
1:A:503:LEU:O	1:A:506:VAL:HG23	2.02	0.59
1:B:489:GLU:HG2	1:B:613:TYR:HE2	1.67	0.59
2:F:361:PHE:CE1	2:F:421:LEU:HD23	2.38	0.59
1:B:179:LEU:H	1:B:179:LEU:CD1	2.12	0.59
1:A:378:HIS:CE1	1:A:402:GLU:OE1	2.55	0.59
1:A:233:ILE:CG1	1:A:581:VAL:HG21	2.32	0.59
1:A:261:CYS:HB2	1:A:488:VAL:HG13	1.84	0.59
1:B:474:MET:C	1:B:476:LYS:N	2.59	0.59
1:B:339:VAL:O	1:B:340:GLN:HB2	2.00	0.59
2:F:373:LYS:HZ2	2:F:375:ASN:HB2	1.67	0.59
1:B:270:MET:HB3	1:B:271:TRP:CZ3	2.38	0.59
1:B:524:GLN:HE22	1:B:579:MET:HA	1.67	0.59
2:E:373:LYS:HZ2	2:E:375:ASN:HB2	1.67	0.59
1:A:177:ARG:NH1	1:A:470:LYS:O	2.36	0.58
1:B:499:ASP:O	1:B:502:SER:HB3	2.02	0.58
2:E:329:PHE:O	2:E:331:ALA:N	2.35	0.58
1:B:381:TYR:HE2	1:B:558:LEU:O	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:176:LEU:HA	1:A:179:LEU:HD13	1.86	0.58
1:A:527:GLU:O	1:A:528:ALA:C	2.47	0.58
1:B:132:VAL:HG12	1:B:171:GLU:HG3	1.85	0.58
1:A:115:ARG:O	1:A:119:ILE:HG12	2.03	0.58
1:B:374:HIS:C	1:B:374:HIS:CD2	2.81	0.58
1:B:455:MET:HE2	1:B:455:MET:C	2.28	0.58
1:B:457:GLU:CG	1:B:512:PHE:HB3	2.33	0.58
1:B:81:GLN:HE21	1:B:81:GLN:CA	2.17	0.58
1:A:499:ASP:C	1:A:501:ALA:H	2.12	0.58
1:B:137:ASN:H	1:B:138:PRO:HD3	1.69	0.58
1:B:320:LEU:HB3	1:B:321:PRO:HD2	1.85	0.58
1:B:504:PHE:HD2	1:B:505:HIS:N	2.02	0.58
2:E:368:GLY:O	2:E:369:VAL:HG13	2.03	0.58
2:F:403:GLY:C	2:F:405:ILE:H	2.12	0.57
1:B:493:HIS:HD2	1:B:499:ASP:OD1	1.87	0.57
1:A:312:GLU:O	1:A:316:VAL:HG23	2.03	0.57
1:B:554:LEU:O	1:B:555:PHE:C	2.46	0.57
2:E:327:GLU:O	2:E:331:ALA:HB2	2.04	0.57
2:E:409:ASN:ND2	2:E:441:ARG:H	2.00	0.57
2:F:397:ILE:O	2:F:420:VAL:HG21	2.03	0.57
1:A:256:ILE:HG22	1:A:257:SER:N	2.18	0.57
1:A:259:ILE:O	1:A:606:TRP:HA	2.03	0.57
1:A:455:MET:SD	1:A:481:LYS:HG2	2.45	0.57
1:A:402:GLU:HB3	1:A:518:ARG:CD	2.35	0.57
1:B:249:MET:HG2	1:B:256:ILE:HB	1.87	0.57
1:B:455:MET:O	1:B:456:LEU:C	2.47	0.57
1:A:603:PHE:HD2	1:A:603:PHE:C	2.13	0.57
2:E:345:ILE:O	2:E:382:VAL:HG12	2.04	0.56
2:F:413:PRO:HB2	2:F:416:PHE:HD1	1.70	0.56
2:E:459:PRO:HB3	2:E:467:CYS:HB3	1.87	0.56
1:A:251:ALA:O	1:A:253:PRO:HD3	2.05	0.56
2:E:348:CYS:SG	2:E:349:VAL:N	2.77	0.56
1:A:184:VAL:HG12	1:A:188:ASN:HD22	1.70	0.56
1:B:582:ARG:HE	1:B:582:ARG:HA	1.70	0.56
1:B:609:ASP:O	1:B:610:TRP:C	2.49	0.56
1:A:591:LEU:O	1:A:593:THR:N	2.38	0.56
2:F:329:PHE:O	2:F:331:ALA:N	2.38	0.56
1:A:603:PHE:C	1:A:603:PHE:CD2	2.82	0.56
2:E:353:SER:HA	2:E:356:TYR:HB2	1.86	0.56
1:A:199:TYR:O	1:A:202:TYR:HB3	2.06	0.56
2:E:383:TYR:HB2	2:E:500:SER:HB2	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:259:ILE:O	1:B:259:ILE:HG13	2.00	0.56
1:A:447:VAL:HA	1:A:450:LEU:HD12	1.88	0.55
2:F:368:GLY:O	2:F:369:VAL:HG13	2.06	0.55
1:A:169:ARG:O	1:A:497:TYR:HD1	1.89	0.55
1:A:177:ARG:HD3	1:A:498:CYS:HB2	1.87	0.55
1:A:184:VAL:HG12	1:A:188:ASN:ND2	2.21	0.55
1:A:450:LEU:HB2	1:A:451:PRO:HD3	1.88	0.55
1:A:466:GLY:O	1:A:468:ILE:N	2.39	0.55
1:B:261:CYS:HB2	1:B:488:VAL:CG1	2.36	0.55
1:B:363:LYS:O	1:B:365:THR:N	2.40	0.55
2:F:452:GLU:HG2	2:F:453:ARG:N	2.20	0.55
1:A:309:LYS:HD2	1:A:328:TRP:CZ2	2.41	0.55
1:A:589:GLU:H	1:A:590:PRO:CD	2.20	0.55
1:B:245:ARG:NH1	1:B:603:PHE:O	2.39	0.55
1:B:251:ALA:O	1:B:253:PRO:HD3	2.07	0.55
1:B:480:MET:C	1:B:482:ARG:H	2.14	0.55
1:A:204:ARG:HG2	1:A:222:LEU:HD23	1.87	0.55
1:A:389:PRO:O	1:A:391:LEU:N	2.39	0.55
1:A:472:GLN:O	1:A:476:LYS:HB2	2.06	0.55
1:A:503:LEU:O	1:A:504:PHE:C	2.50	0.55
2:F:348:CYS:SG	2:F:349:VAL:N	2.80	0.55
1:A:529:LEU:HD23	1:A:544:ILE:HG21	1.88	0.54
1:B:504:PHE:CD2	1:B:505:HIS:N	2.75	0.54
1:A:175:GLN:O	1:A:178:PRO:HD2	2.07	0.54
1:A:485:VAL:HG12	1:A:487:VAL:HG23	1.89	0.54
2:F:386:SER:HA	2:F:496:VAL:O	2.07	0.54
1:A:101:GLN:HE21	1:A:101:GLN:HA	1.72	0.54
1:B:487:VAL:HG12	1:B:488:VAL:N	2.22	0.54
2:F:357:ASN:O	2:F:358:SER:HB3	2.07	0.54
1:A:252:TYR:CD2	1:A:266:LEU:HD13	2.43	0.54
1:B:271:TRP:CE2	1:B:503:LEU:HD23	2.42	0.54
1:A:180:TYR:O	1:A:184:VAL:HG23	2.06	0.54
1:B:251:ALA:CB	1:B:281:LEU:HD22	2.38	0.54
1:B:474:MET:HE1	1:B:499:ASP:HB2	1.90	0.54
1:A:543:ASP:C	1:A:545:SER:H	2.16	0.54
1:A:119:ILE:O	1:A:120:LEU:C	2.51	0.54
2:E:345:ILE:HB	2:E:382:VAL:CG1	2.38	0.54
2:F:335:PRO:HG3	2:F:341:GLU:HB2	1.89	0.54
1:B:395:GLY:O	1:B:396:ALA:C	2.50	0.54
1:B:474:MET:O	1:B:476:LYS:N	2.41	0.54
1:A:507:SER:C	1:A:508:ASN:HD22	2.16	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:403:GLY:O	2:E:404:VAL:HB	2.07	0.54
1:A:279:TYR:O	1:A:280:SER:C	2.51	0.53
1:A:435:GLU:O	1:A:439:LEU:HB2	2.08	0.53
1:B:289:PRO:C	1:B:290:ASN:O	2.51	0.53
1:B:366:MET:HE1	1:B:441:LYS:NZ	2.22	0.53
2:E:452:GLU:HG2	2:E:453:ARG:H	1.73	0.53
2:E:459:PRO:CB	2:E:467:CYS:HB3	2.39	0.53
1:A:589:GLU:N	1:A:590:PRO:CD	2.71	0.53
1:B:519:THR:O	1:B:522:GLN:HB3	2.09	0.53
1:A:251:ALA:C	1:A:253:PRO:HD3	2.34	0.53
1:A:474:MET:HE1	1:A:499:ASP:N	2.15	0.53
1:B:32:PHE:CE2	1:B:100:LEU:HD21	2.43	0.53
1:B:379:ILE:O	1:B:383:MET:HG3	2.09	0.53
1:A:460:ARG:NE	1:A:506:VAL:HG13	2.23	0.53
1:B:237:TYR:CE2	1:B:451:PRO:HG2	2.44	0.53
2:E:334:PHE:CE2	2:E:386:SER:HB2	2.43	0.53
1:A:144:LEU:HD22	1:A:168:TRP:CZ2	2.44	0.53
1:A:289:PRO:C	1:A:290:ASN:HD22	2.17	0.53
1:A:580:ASN:ND2	1:A:582:ARG:H	2.07	0.53
1:B:184:VAL:HG12	1:B:188:ASN:HD22	1.72	0.53
1:B:215:TYR:HE2	1:B:568:LEU:HD23	1.74	0.53
1:A:499:ASP:O	1:A:501:ALA:N	2.42	0.53
1:B:557:MET:HB3	1:B:573:VAL:CG1	2.39	0.53
2:F:329:PHE:CZ	2:F:497:VAL:HG11	2.43	0.53
1:A:571:GLU:O	1:A:573:VAL:N	2.42	0.53
1:B:166:GLU:OE1	1:B:166:GLU:HA	2.09	0.53
1:B:159:ASN:O	1:B:162:LEU:HB3	2.09	0.53
2:E:409:ASN:HD21	2:E:441:ARG:N	1.99	0.53
1:B:122:THR:HG22	1:B:126:ILE:HD11	1.91	0.53
2:F:396:GLN:OE1	2:F:403:GLY:HA2	2.09	0.53
1:A:545:SER:O	1:A:547:SER:N	2.41	0.52
1:B:168:TRP:O	1:B:172:VAL:HG22	2.09	0.52
1:B:290:ASN:HB3	1:B:292:ASP:H	1.73	0.52
1:A:501:ALA:HA	1:A:506:VAL:HB	1.91	0.52
1:A:540:HIS:HE1	1:A:590:PRO:HG2	1.74	0.52
2:E:332:THR:HG23	2:E:333:LYS:HG3	1.89	0.52
1:B:122:THR:O	1:B:126:ILE:HG13	2.10	0.52
1:B:335:ASP:HB2	1:B:361:CYS:HB3	1.90	0.52
1:A:81:GLN:HE21	1:A:81:GLN:CA	2.22	0.52
1:A:88:ILE:HG21	1:A:94:LYS:HB2	1.91	0.52
1:A:556:ASN:O	1:A:560:LEU:HG	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:329:PHE:C	2:E:331:ALA:N	2.68	0.52
2:F:413:PRO:HG2	2:F:416:PHE:O	2.10	0.52
1:A:177:ARG:HB3	1:A:178:PRO:HD3	1.91	0.52
1:A:379:ILE:O	1:A:383:MET:HG3	2.09	0.52
1:B:204:ARG:HG2	1:B:222:LEU:HD23	1.92	0.52
1:B:252:TYR:CD2	1:B:266:LEU:HD13	2.44	0.52
1:B:309:LYS:HD2	1:B:328:TRP:CH2	2.45	0.52
1:B:320:LEU:HD13	1:B:380:GLN:HG2	1.92	0.52
2:F:403:GLY:O	2:F:404:VAL:HB	2.09	0.52
1:A:177:ARG:O	1:A:181:GLU:HG3	2.10	0.52
1:A:499:ASP:C	1:A:501:ALA:N	2.65	0.52
2:E:351:ASP:O	2:E:352:TYR:HB2	2.10	0.52
1:A:398:GLU:OE1	1:A:514:ARG:HB3	2.10	0.52
2:F:372:THR:HG22	2:F:373:LYS:N	2.25	0.52
1:A:351:LEU:HD12	1:A:351:LEU:H	1.75	0.52
1:B:512:PHE:C	1:B:514:ARG:H	2.17	0.52
1:B:521:TYR:O	1:B:522:GLN:C	2.52	0.52
2:E:357:ASN:O	2:E:358:SER:HB3	2.10	0.52
2:F:431:THR:HG23	2:F:435:ASN:HB2	1.92	0.52
1:B:184:VAL:HG12	1:B:188:ASN:ND2	2.25	0.52
1:B:199:TYR:O	1:B:202:TYR:HB3	2.10	0.52
1:B:397:ASN:HD22	1:B:566:TRP:CG	2.28	0.52
1:B:524:GLN:NE2	1:B:580:ASN:H	2.07	0.52
2:E:361:PHE:N	2:E:361:PHE:HD2	2.08	0.52
1:A:179:LEU:H	1:A:179:LEU:CD1	2.17	0.51
1:A:407:ILE:HD11	1:A:522:GLN:O	2.09	0.51
2:E:406:ALA:HA	2:E:410:TYR:O	2.10	0.51
2:E:416:PHE:CD1	2:E:416:PHE:N	2.78	0.51
1:A:211:GLY:O	1:A:212:VAL:HG13	2.11	0.51
2:E:361:PHE:N	2:E:361:PHE:CD2	2.77	0.51
1:A:213:ASP:O	1:A:215:TYR:HD1	1.93	0.51
1:B:211:GLY:C	1:B:212:VAL:HG22	2.35	0.51
1:B:245:ARG:NH2	1:B:260:GLY:O	2.44	0.51
2:E:388:VAL:CG2	2:E:495:ARG:HG2	2.39	0.51
1:B:456:LEU:C	1:B:456:LEU:HD23	2.35	0.51
1:B:482:ARG:HE	1:B:488:VAL:HG12	1.76	0.51
2:F:383:TYR:HB2	2:F:500:SER:HB2	1.92	0.51
1:A:24:LEU:HD22	2:E:473:ASN:ND2	2.26	0.51
1:B:524:GLN:HA	1:B:583:PRO:HG2	1.91	0.51
1:B:213:ASP:O	1:B:215:TYR:HD1	1.94	0.51
1:A:166:GLU:HA	1:A:166:GLU:OE1	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:259:ILE:O	1:A:259:ILE:HG13	2.09	0.51
1:A:279:TYR:CZ	1:A:283:VAL:HG23	2.46	0.51
1:A:339:VAL:O	1:A:339:VAL:HG12	2.11	0.51
1:A:440:LEU:C	1:A:442:GLN:N	2.67	0.51
1:B:351:LEU:HD12	1:B:351:LEU:H	1.76	0.51
2:E:369:VAL:O	2:E:370:SER:HB2	2.10	0.51
1:A:437:ASN:O	1:A:438:PHE:C	2.54	0.51
1:B:177:ARG:HB3	1:B:178:PRO:HD3	1.93	0.51
1:B:271:TRP:CD2	1:B:503:LEU:HD23	2.45	0.51
1:A:154:ASN:O	1:A:156:LEU:HD22	2.11	0.51
1:A:466:GLY:C	1:A:468:ILE:H	2.19	0.51
1:B:259:ILE:HA	1:B:603:PHE:HD1	1.76	0.51
2:E:449:ARG:O	2:E:452:GLU:HB2	2.10	0.51
1:B:179:LEU:HD12	1:B:179:LEU:N	2.16	0.50
1:A:335:ASP:HB2	1:A:361:CYS:HB3	1.93	0.50
1:A:543:ASP:C	1:A:545:SER:N	2.68	0.50
1:B:353:LYS:HB3	2:F:487:THR:CG2	2.41	0.50
1:B:487:VAL:HG12	1:B:488:VAL:H	1.76	0.50
1:B:586:ASN:C	1:B:588:PHE:N	2.68	0.50
1:A:352:GLY:O	1:A:353:LYS:HB2	2.10	0.50
1:A:504:PHE:C	1:A:504:PHE:CD2	2.90	0.50
1:B:251:ALA:C	1:B:253:PRO:HD3	2.36	0.50
1:B:400:PHE:CD2	1:B:557:MET:HE1	2.45	0.50
1:B:549:GLU:CD	1:B:549:GLU:N	2.65	0.50
2:E:423:TRP:NE1	2:E:495:ARG:HB2	2.26	0.50
1:B:81:GLN:C	1:B:83:TYR:H	2.19	0.50
1:B:269:ASP:OD2	1:B:269:ASP:C	2.54	0.50
1:A:402:GLU:HB3	1:A:518:ARG:HD2	1.93	0.50
1:B:407:ILE:HD11	1:B:522:GLN:O	2.12	0.50
1:B:456:LEU:HD21	1:B:460:ARG:HD2	1.94	0.50
1:B:474:MET:CE	1:B:499:ASP:H	2.25	0.50
2:E:432:SER:HA	2:E:485:THR:HG22	1.92	0.50
1:B:30:GLU:O	1:B:34:TYR:CD1	2.60	0.50
1:B:177:ARG:NH2	1:B:495:GLU:O	2.44	0.50
1:B:448:GLY:O	1:B:451:PRO:HD2	2.12	0.50
2:F:412:LEU:HD21	2:F:417:MET:SD	2.52	0.50
1:B:81:GLN:NE2	1:B:101:GLN:HE22	2.10	0.50
1:B:291:ILE:O	1:B:291:ILE:HG22	2.11	0.50
2:E:469:PRO:HG3	2:E:476:TRP:NE1	2.27	0.50
1:B:100:LEU:C	1:B:102:GLN:H	2.20	0.50
1:B:115:ARG:O	1:B:119:ILE:HG12	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:97:LEU:O	1:B:101:GLN:HG2	2.12	0.49
1:B:526:GLN:HG3	1:B:539:LEU:HD11	1.93	0.49
1:A:397:ASN:OD1	1:A:399:GLY:N	2.37	0.49
1:B:75:GLU:O	1:B:79:LEU:HB2	2.11	0.49
1:B:180:TYR:HA	1:B:183:TYR:HB3	1.94	0.49
1:B:207:TYR:CE1	1:B:398:GLU:OE2	2.66	0.49
1:A:223:ILE:O	1:A:227:GLU:HG3	2.11	0.49
1:A:581:VAL:CG2	1:A:584:LEU:HD23	2.42	0.49
1:B:270:MET:HB3	1:B:271:TRP:CE3	2.46	0.49
1:B:134:ASN:HB3	1:B:137:ASN:HB3	1.93	0.49
2:E:483:PHE:HB3	2:E:493:PRO:HD3	1.93	0.49
1:A:215:TYR:CD2	1:A:568:LEU:HB2	2.47	0.49
1:A:529:LEU:HB3	1:A:544:ILE:CG2	2.43	0.49
2:F:345:ILE:O	2:F:382:VAL:HG12	2.12	0.49
1:A:455:MET:HE2	1:A:485:VAL:HG21	1.94	0.49
1:B:303:ASP:O	1:B:304:ALA:C	2.56	0.49
1:A:24:LEU:HD22	2:E:473:ASN:HD22	1.76	0.49
1:A:400:PHE:CD2	1:A:557:MET:HE3	2.48	0.49
1:B:81:GLN:HE22	1:B:101:GLN:HE22	1.61	0.49
1:A:239:HIS:CE1	1:A:604:VAL:HG21	2.48	0.49
1:A:279:TYR:CE1	1:A:441:LYS:HB2	2.48	0.49
1:A:591:LEU:O	1:A:592:PHE:C	2.54	0.49
2:E:423:TRP:HE1	2:E:495:ARG:HB2	1.77	0.49
2:E:453:ARG:CZ	2:E:455:ILE:HD11	2.43	0.49
1:A:102:GLN:C	1:A:104:GLY:N	2.67	0.49
1:A:404:VAL:O	1:A:407:ILE:HB	2.12	0.49
1:B:366:MET:O	1:B:369:PHE:N	2.45	0.49
2:E:459:PRO:HB2	2:E:467:CYS:CB	2.43	0.49
2:F:423:TRP:HE1	2:F:495:ARG:HB2	1.78	0.49
1:B:56:GLU:HA	1:B:59:VAL:HG12	1.95	0.48
1:B:525:PHE:O	1:B:529:LEU:HB2	2.12	0.48
1:A:555:PHE:O	1:A:559:ARG:HG2	2.12	0.48
1:B:81:GLN:C	1:B:83:TYR:N	2.71	0.48
1:A:41:TYR:O	1:A:45:VAL:HG23	2.14	0.48
1:A:75:GLU:O	1:A:79:LEU:HB2	2.13	0.48
1:A:270:MET:HB3	1:A:271:TRP:CZ3	2.49	0.48
1:A:557:MET:SD	1:A:557:MET:C	2.97	0.48
1:A:46:ALA:HB1	1:A:62:MET:HA	1.96	0.48
2:F:361:PHE:N	2:F:361:PHE:CD2	2.81	0.48
2:F:459:PRO:HB2	2:F:467:CYS:HB2	1.95	0.48
1:B:237:TYR:CZ	1:B:451:PRO:HG2	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:476:LYS:O	1:B:480:MET:HG3	2.14	0.48
1:A:49:ASN:HB3	1:A:58:ASN:HD22	1.79	0.48
1:A:557:MET:SD	1:A:558:LEU:CD1	3.01	0.48
1:B:107:VAL:HG21	1:B:193:ALA:CB	2.42	0.48
1:B:499:ASP:O	1:B:502:SER:N	2.39	0.48
1:B:584:LEU:C	1:B:584:LEU:HD23	2.38	0.48
2:F:388:VAL:HG22	2:F:495:ARG:HA	1.94	0.48
1:A:52:THR:HG22	1:A:359:LEU:HD13	1.94	0.48
1:A:320:LEU:HD13	1:A:380:GLN:HG2	1.96	0.48
1:B:211:GLY:N	1:B:216:ASP:OD2	2.46	0.48
1:B:261:CYS:CB	1:B:488:VAL:HG13	2.44	0.48
1:B:291:ILE:O	1:B:366:MET:SD	2.71	0.48
2:F:367:TYR:N	2:F:367:TYR:CD1	2.82	0.48
1:A:158:TYR:CE1	1:A:265:HIS:NE2	2.80	0.48
1:A:363:LYS:O	1:A:365:THR:N	2.47	0.48
1:A:594:TRP:O	1:A:598:GLN:HG2	2.14	0.48
1:B:119:ILE:O	1:B:120:LEU:C	2.56	0.48
1:B:512:PHE:C	1:B:514:ARG:N	2.69	0.48
2:E:453:ARG:NH1	2:E:455:ILE:HD11	2.29	0.48
2:F:396:GLN:OE1	2:F:405:ILE:HB	2.14	0.48
1:A:99:ALA:O	1:A:102:GLN:HG3	2.13	0.48
1:B:369:PHE:CD1	1:B:370:LEU:HD23	2.49	0.48
2:E:367:TYR:CD1	2:E:367:TYR:N	2.82	0.48
2:F:415:ASP:O	2:F:416:PHE:C	2.56	0.48
1:A:485:VAL:HG12	1:A:485:VAL:O	2.13	0.47
1:A:545:SER:C	1:A:547:SER:H	2.22	0.47
1:B:581:VAL:HG22	1:B:585:LEU:HD23	1.96	0.47
1:B:607:SER:C	1:B:609:ASP:H	2.22	0.47
1:B:611:SER:HB2	1:B:614:ALA:HB3	1.95	0.47
2:E:449:ARG:O	2:E:450:PRO:C	2.57	0.47
1:A:262:LEU:O	1:A:487:VAL:HG13	2.13	0.47
1:A:400:PHE:CD2	1:A:557:MET:CE	2.97	0.47
1:B:450:LEU:HD12	1:B:450:LEU:HA	1.69	0.47
1:B:456:LEU:HD22	1:B:512:PHE:CD1	2.49	0.47
1:B:478:TRP:C	1:B:480:MET:N	2.70	0.47
1:A:77:SER:C	1:A:79:LEU:N	2.72	0.47
1:A:180:TYR:O	1:A:183:TYR:HB3	2.15	0.47
1:A:180:TYR:HA	1:A:183:TYR:HB3	1.96	0.47
1:B:557:MET:HB3	1:B:573:VAL:HG11	1.96	0.47
1:A:499:ASP:N	1:A:500:PRO:HD2	2.29	0.47
1:B:84:PRO:HG2	1:B:87:GLU:OE1	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:410:LEU:HD21	1:B:523:PHE:CE1	2.49	0.47
1:B:589:GLU:OE1	1:B:589:GLU:HA	2.12	0.47
2:F:329:PHE:C	2:F:331:ALA:N	2.72	0.47
1:A:53:ASN:O	1:A:54:ILE:C	2.57	0.47
1:A:82:THR:HB	1:A:83:TYR:CE1	2.49	0.47
1:B:548:THR:O	1:B:552:GLN:N	2.47	0.47
1:A:452:PHE:CE2	1:A:481:LYS:NZ	2.82	0.47
1:B:194:ASN:O	1:B:195:HIS:HB2	2.14	0.47
1:B:274:PHE:CD2	1:B:449:THR:HB	2.50	0.47
2:E:361:PHE:HE1	2:E:421:LEU:HD23	1.79	0.47
2:F:344:LYS:HE3	2:F:346:SER:OG	2.14	0.47
1:A:137:ASN:H	1:A:138:PRO:HD3	1.79	0.47
1:A:554:LEU:O	1:A:556:ASN:N	2.48	0.47
1:B:41:TYR:O	1:B:45:VAL:HG23	2.14	0.47
1:B:262:LEU:O	1:B:487:VAL:HG13	2.14	0.47
1:B:273:ARG:HG2	1:B:273:ARG:HH21	1.79	0.47
1:B:414:THR:O	1:B:418:LEU:CD2	2.62	0.47
1:B:580:ASN:C	1:B:582:ARG:N	2.72	0.47
1:B:599:ASN:O	1:B:600:LYS:C	2.57	0.47
2:F:452:GLU:CG	2:F:453:ARG:H	2.25	0.47
1:A:288:LYS:HD2	1:A:434:THR:CG2	2.45	0.47
1:A:456:LEU:CD1	1:A:460:ARG:HD2	2.45	0.47
1:B:157:ASP:HB3	1:B:160:GLU:HB3	1.96	0.47
1:B:279:TYR:O	1:B:280:SER:C	2.57	0.47
1:B:302:TRP:CZ2	1:B:423:LEU:HD21	2.50	0.47
1:B:339:VAL:O	1:B:339:VAL:HG12	2.15	0.47
1:B:451:PRO:O	1:B:452:PHE:C	2.58	0.47
1:A:269:ASP:OD2	1:A:269:ASP:C	2.58	0.47
1:B:77:SER:C	1:B:79:LEU:N	2.73	0.47
1:B:257:SER:HB3	1:B:260:GLY:HA3	1.97	0.47
1:B:316:VAL:C	1:B:318:VAL:N	2.73	0.47
1:B:474:MET:HE1	1:B:499:ASP:H	1.80	0.47
1:B:480:MET:C	1:B:482:ARG:N	2.72	0.47
1:B:564:GLU:HB3	1:B:568:LEU:HD12	1.97	0.47
1:B:586:ASN:O	1:B:588:PHE:N	2.48	0.47
1:A:85:LEU:O	1:A:88:ILE:HD13	2.15	0.46
1:A:454:TYR:HD1	1:A:484:ILE:HG21	1.79	0.46
1:B:94:LYS:O	1:B:98:GLN:HB2	2.16	0.46
1:B:389:PRO:CG	1:B:392:LEU:HD22	2.46	0.46
1:A:305:GLN:O	1:A:309:LYS:HB2	2.15	0.46
1:A:407:ILE:CD1	1:A:526:GLN:HG2	2.46	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:449:ARG:O	2:F:452:GLU:HB2	2.14	0.46
1:A:103:ASN:HD21	1:A:107:VAL:HB	1.80	0.46
1:A:442:GLN:O	1:A:443:ALA:C	2.57	0.46
1:A:467:GLU:C	1:A:468:ILE:HG13	2.40	0.46
1:B:46:ALA:HB1	1:B:62:MET:HA	1.96	0.46
1:B:209:VAL:HB	1:B:216:ASP:CA	2.35	0.46
1:B:389:PRO:HG2	1:B:392:LEU:HD22	1.95	0.46
1:B:466:GLY:O	1:B:467:GLU:C	2.58	0.46
2:E:397:ILE:O	2:E:420:VAL:HG21	2.15	0.46
1:B:170:SER:O	1:B:174:LYS:HG3	2.15	0.46
2:F:335:PRO:HG2	2:F:387:PHE:HA	1.97	0.46
1:A:259:ILE:HB	1:A:603:PHE:CD1	2.50	0.46
1:A:400:PHE:HD2	1:A:557:MET:HE1	1.81	0.46
1:B:144:LEU:HB2	1:B:168:TRP:CH2	2.50	0.46
1:B:251:ALA:HB1	1:B:281:LEU:HD22	1.97	0.46
1:B:375:GLU:OE1	1:B:378:HIS:HD2	1.98	0.46
1:A:237:TYR:O	1:A:238:GLU:C	2.57	0.46
1:A:407:ILE:HD12	1:A:526:GLN:HG2	1.96	0.46
1:B:79:LEU:C	1:B:81:GLN:H	2.24	0.46
1:B:381:TYR:CG	1:B:558:LEU:HD22	2.50	0.46
2:F:361:PHE:HE1	2:F:421:LEU:HD23	1.81	0.46
1:A:93:VAL:O	1:A:97:LEU:HB2	2.16	0.46
1:B:499:ASP:O	1:B:500:PRO:C	2.57	0.46
2:E:364:PHE:O	2:E:365:LYS:C	2.59	0.46
2:E:412:LEU:HD21	2:E:417:MET:SD	2.55	0.46
1:A:229:THR:OG1	1:A:581:VAL:HB	2.16	0.46
1:A:175:GLN:O	1:A:179:LEU:CD1	2.64	0.46
1:B:291:ILE:HG21	1:B:438:PHE:HD1	1.80	0.46
1:B:504:PHE:CD2	1:B:504:PHE:C	2.94	0.46
1:A:274:PHE:CE2	1:A:449:THR:CB	2.99	0.45
1:A:291:ILE:O	1:A:366:MET:SD	2.74	0.45
1:A:540:HIS:CE1	1:A:590:PRO:HG2	2.51	0.45
1:B:305:GLN:O	1:B:309:LYS:HB2	2.16	0.45
1:B:553:LYS:HE3	1:B:573:VAL:HA	1.98	0.45
1:A:223:ILE:H	1:A:223:ILE:HG13	1.57	0.45
1:A:274:PHE:CE2	1:A:449:THR:HB	2.51	0.45
1:B:49:ASN:HB3	1:B:58:ASN:HD22	1.82	0.45
1:B:135:PRO:CD	1:B:163:TRP:HE1	2.29	0.45
1:B:177:ARG:CZ	1:B:473:TRP:HE3	2.29	0.45
1:B:396:ALA:HB1	1:B:566:TRP:HA	1.97	0.45
2:E:340:TRP:CE3	2:E:385:ASP:HB3	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:365:LYS:HB3	2:F:367:TYR:CE1	2.51	0.45
2:F:483:PHE:HB3	2:F:493:PRO:HD3	1.98	0.45
1:A:460:ARG:HH12	1:A:512:PHE:HB2	1.81	0.45
1:A:167:SER:O	1:A:171:GLU:HG2	2.15	0.45
1:A:589:GLU:H	1:A:590:PRO:HD3	1.80	0.45
1:B:389:PRO:O	1:B:391:LEU:N	2.49	0.45
1:B:494:ASP:OD1	1:B:496:THR:OG1	2.30	0.45
2:F:372:THR:HG22	2:F:373:LYS:H	1.82	0.45
1:A:285:PHE:HE1	1:A:436:ILE:HG21	1.80	0.45
1:B:588:PHE:O	1:B:589:GLU:C	2.60	0.45
2:F:417:MET:HA	2:F:417:MET:CE	2.41	0.45
1:A:87:GLU:C	1:A:88:ILE:HD12	2.42	0.45
1:B:586:ASN:O	1:B:587:TYR:C	2.59	0.45
2:F:485:THR:HG23	2:F:486:THR:HG23	1.99	0.45
1:B:88:ILE:HG21	1:B:94:LYS:HB2	1.97	0.45
1:B:273:ARG:HG2	1:B:273:ARG:NH2	2.32	0.45
1:B:358:ILE:HD13	1:B:375:GLU:HB3	1.98	0.45
1:B:424:LEU:O	1:B:425:SER:C	2.60	0.45
2:E:338:TYR:CE1	2:E:339:ALA:HB2	2.52	0.45
1:A:349:TRP:HB2	1:A:357:ARG:O	2.16	0.45
1:A:579:MET:O	1:A:579:MET:CG	2.65	0.45
1:B:290:ASN:C	1:B:292:ASP:H	2.24	0.45
1:B:315:PHE:CZ	1:B:408:MET:HG3	2.51	0.45
2:E:386:SER:HA	2:E:496:VAL:O	2.17	0.45
2:E:431:THR:HG23	2:E:435:ASN:HB2	1.99	0.45
1:A:35:GLU:OE1	2:E:479:ARG:NH1	2.50	0.45
1:A:94:LYS:O	1:A:98:GLN:HB2	2.17	0.45
1:A:122:THR:O	1:A:123:MET:C	2.60	0.45
1:A:439:LEU:HD22	1:A:439:LEU:HA	1.62	0.45
1:A:446:ILE:HD12	1:A:446:ILE:N	2.31	0.45
1:B:241:HIS:O	1:B:244:VAL:HG22	2.17	0.45
1:B:548:THR:O	1:B:549:GLU:C	2.59	0.45
2:F:361:PHE:N	2:F:361:PHE:HD2	2.14	0.45
1:A:208:GLU:HB2	1:A:219:ARG:HG2	1.98	0.45
1:A:450:LEU:CB	1:A:451:PRO:HD3	2.47	0.45
1:B:192:ARG:HG2	1:B:192:ARG:HH21	1.81	0.45
1:B:453:THR:O	1:B:454:TYR:C	2.60	0.45
2:F:325:PHE:C	2:F:327:GLU:H	2.25	0.45
1:A:320:LEU:HD13	1:A:380:GLN:CG	2.47	0.44
1:B:256:ILE:HG22	1:B:257:SER:N	2.32	0.44
1:B:316:VAL:O	1:B:318:VAL:N	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:467:GLU:O	1:B:469:PRO:HD3	2.17	0.44
1:B:568:LEU:O	1:B:569:ALA:C	2.59	0.44
1:A:407:ILE:HD13	1:A:407:ILE:HA	1.67	0.44
1:B:373:HIS:CD2	1:B:412:ALA:HB2	2.52	0.44
1:B:541:LYS:HA	1:B:541:LYS:CE	2.47	0.44
1:B:554:LEU:O	1:B:556:ASN:N	2.51	0.44
1:A:122:THR:O	1:A:126:ILE:HG13	2.17	0.44
1:A:274:PHE:HE2	1:A:449:THR:HG21	1.82	0.44
1:A:438:PHE:C	1:A:438:PHE:CD2	2.95	0.44
1:A:297:MET:HE2	1:A:364:VAL:HG13	1.98	0.44
1:A:529:LEU:HB3	1:A:544:ILE:HG21	1.98	0.44
2:E:403:GLY:C	2:E:405:ILE:H	2.25	0.44
1:A:81:GLN:NE2	1:A:101:GLN:HE22	2.15	0.44
1:B:213:ASP:O	1:B:215:TYR:CD1	2.70	0.44
1:B:512:PHE:O	1:B:514:ARG:N	2.51	0.44
1:B:539:LEU:C	1:B:541:LYS:H	2.24	0.44
1:A:417:HIS:O	1:A:420:SER:HB3	2.18	0.44
2:E:459:PRO:CB	2:E:467:CYS:CB	2.96	0.44
1:A:284:PRO:HB3	1:A:594:TRP:CH2	2.53	0.44
1:A:404:VAL:O	1:A:408:MET:HE2	2.17	0.44
1:B:455:MET:O	1:B:458:LYS:N	2.51	0.44
1:A:30:GLU:O	1:A:34:TYR:CD1	2.66	0.44
1:B:101:GLN:HE21	1:B:101:GLN:HA	1.83	0.44
2:F:359:THR:O	2:F:361:PHE:N	2.51	0.44
1:A:410:LEU:HD12	1:A:410:LEU:HA	1.86	0.44
1:B:363:LYS:N	1:B:368:ASP:OD2	2.51	0.44
2:F:405:ILE:HG22	2:F:406:ALA:N	2.33	0.44
1:A:56:GLU:HA	1:A:59:VAL:HG12	2.00	0.43
1:A:211:GLY:C	1:A:212:VAL:HG22	2.43	0.43
1:A:394:ASN:O	1:A:561:GLY:HA2	2.17	0.43
1:A:399:GLY:O	1:A:400:PHE:C	2.61	0.43
1:A:514:ARG:HG3	1:A:515:TYR:N	2.32	0.43
1:B:251:ALA:HB2	1:B:281:LEU:HD22	2.00	0.43
1:B:483:GLU:HA	1:B:606:TRP:HE1	1.83	0.43
1:A:143:LEU:O	1:A:146:PRO:O	2.36	0.43
1:A:249:MET:HG2	1:A:256:ILE:HB	2.00	0.43
1:B:385:TYR:C	1:B:385:TYR:CD2	2.96	0.43
1:B:599:ASN:O	1:B:602:SER:N	2.38	0.43
2:F:362:SER:O	2:F:363:THR:OG1	2.30	0.43
2:F:369:VAL:HB	2:F:370:SER:H	1.52	0.43
2:F:409:ASN:HD21	2:F:441:ARG:N	2.15	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:413:PRO:O	2:F:414:ASP:C	2.60	0.43
1:A:568:LEU:O	1:A:571:GLU:HB3	2.17	0.43
1:B:188:ASN:O	1:B:192:ARG:HG3	2.18	0.43
1:A:84:PRO:HG2	1:A:87:GLU:OE1	2.17	0.43
1:A:303:ASP:O	1:A:304:ALA:C	2.61	0.43
1:A:494:ASP:OD1	1:A:496:THR:HG22	2.19	0.43
1:A:591:LEU:O	1:A:594:TRP:N	2.51	0.43
1:B:252:TYR:HD2	1:B:266:LEU:HD13	1.83	0.43
1:B:535:HIS:CE1	1:B:542:CYS:HA	2.53	0.43
1:A:100:LEU:C	1:A:102:GLN:H	2.25	0.43
1:A:424:LEU:O	1:A:425:SER:C	2.61	0.43
2:F:469:PRO:HG3	2:F:476:TRP:CZ2	2.54	0.43
1:A:183:TYR:CD1	1:A:183:TYR:C	2.97	0.43
1:A:524:GLN:H	1:A:524:GLN:HG2	1.52	0.43
2:F:367:TYR:H	2:F:367:TYR:HD1	1.65	0.43
1:B:186:LEU:O	1:B:189:GLU:HB2	2.18	0.43
1:B:320:LEU:HD13	1:B:380:GLN:CG	2.48	0.43
1:B:407:ILE:HD13	1:B:407:ILE:HA	1.58	0.43
1:B:599:ASN:O	1:B:601:ASN:N	2.51	0.43
2:F:359:THR:O	2:F:360:PHE:C	2.61	0.43
2:F:450:PRO:C	2:F:452:GLU:H	2.27	0.43
1:A:101:GLN:HA	1:A:101:GLN:NE2	2.34	0.43
1:A:581:VAL:HG23	1:A:584:LEU:HD23	2.00	0.43
1:B:237:TYR:O	1:B:238:GLU:C	2.62	0.43
1:B:582:ARG:HA	1:B:582:ARG:NE	2.32	0.43
2:F:432:SER:HA	2:F:485:THR:HG22	2.00	0.43
1:B:144:LEU:HD22	1:B:168:TRP:CZ2	2.53	0.43
1:B:302:TRP:CE2	1:B:423:LEU:HD21	2.53	0.43
2:E:415:ASP:O	2:E:416:PHE:C	2.61	0.43
1:A:439:LEU:O	1:A:442:GLN:HB2	2.19	0.43
1:A:582:ARG:HB3	1:A:583:PRO:HD3	2.01	0.43
1:B:552:GLN:O	1:B:553:LYS:C	2.62	0.43
1:A:184:VAL:O	1:A:185:VAL:C	2.61	0.42
1:B:176:LEU:HA	1:B:179:LEU:HD13	2.00	0.42
1:B:208:GLU:HB2	1:B:219:ARG:HG2	2.01	0.42
1:B:249:MET:CE	1:B:258:PRO:HG3	2.49	0.42
1:B:360:MET:HE2	1:B:362:THR:OG1	2.19	0.42
1:B:455:MET:HE2	1:B:455:MET:O	2.18	0.42
1:B:530:CYS:O	1:B:533:ALA:N	2.52	0.42
1:A:74:LYS:NZ	1:A:78:THR:HG21	2.35	0.42
1:A:599:ASN:N	1:A:599:ASN:HD22	2.16	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:203:TRP:C	1:B:205:GLY:N	2.76	0.42
1:B:248:LEU:O	1:B:251:ALA:N	2.53	0.42
1:B:274:PHE:CE2	1:B:449:THR:HB	2.54	0.42
1:B:465:LYS:HE2	1:B:465:LYS:HB3	1.84	0.42
1:A:440:LEU:C	1:A:442:GLN:H	2.27	0.42
1:B:381:TYR:CE2	1:B:558:LEU:O	2.69	0.42
2:E:450:PRO:C	2:E:452:GLU:H	2.27	0.42
2:F:332:THR:HG23	2:F:333:LYS:H	1.84	0.42
1:A:53:ASN:O	1:A:55:THR:HG23	2.19	0.42
1:A:137:ASN:N	1:A:138:PRO:HD3	2.33	0.42
1:A:162:LEU:HD13	1:A:490:PRO:HB2	2.01	0.42
1:A:290:ASN:C	1:A:292:ASP:N	2.73	0.42
1:A:396:ALA:HB3	1:A:400:PHE:CG	2.54	0.42
1:B:171:GLU:HB2	1:B:172:VAL:H	1.62	0.42
1:B:383:MET:O	1:B:384:ALA:C	2.61	0.42
1:B:562:LYS:O	1:B:563:SER:C	2.62	0.42
1:A:385:TYR:C	1:A:385:TYR:CD2	2.98	0.42
1:A:555:PHE:O	1:A:555:PHE:CD1	2.73	0.42
1:B:56:GLU:O	1:B:59:VAL:HG12	2.19	0.42
1:B:78:THR:C	1:B:81:GLN:HG2	2.45	0.42
1:B:477:TRP:HD1	1:B:478:TRP:CD1	2.38	0.42
1:B:491:VAL:HA	1:B:613:TYR:CD2	2.54	0.42
1:A:177:ARG:HH22	1:A:495:GLU:HA	1.85	0.42
1:A:475:LYS:O	1:A:479:GLU:HB2	2.18	0.42
1:B:297:MET:HE2	1:B:364:VAL:HG13	2.02	0.42
1:B:375:GLU:C	1:B:377:GLY:N	2.78	0.42
2:E:413:PRO:HB2	2:E:416:PHE:HD1	1.84	0.42
2:F:369:VAL:O	2:F:370:SER:HB2	2.20	0.42
1:B:613:TYR:CD1	1:B:613:TYR:C	2.97	0.42
2:E:367:TYR:HD1	2:E:367:TYR:H	1.67	0.42
2:F:351:ASP:O	2:F:352:TYR:CB	2.67	0.42
1:A:485:VAL:HG12	1:A:487:VAL:CG2	2.50	0.42
1:A:517:THR:HB	1:A:521:TYR:CE2	2.55	0.42
1:B:538:PRO:HB3	1:B:540:HIS:CE1	2.54	0.42
2:F:390:LYS:HB3	2:F:393:ASP:HB2	2.01	0.42
1:B:463:VAL:HG13	1:B:473:TRP:NE1	2.32	0.42
1:B:463:VAL:CG1	1:B:473:TRP:HE1	2.30	0.42
1:A:63:ASN:O	1:A:64:ASN:C	2.63	0.42
1:A:288:LYS:HD2	1:A:434:THR:HG23	2.02	0.42
1:A:520:LEU:HD22	1:A:520:LEU:N	2.26	0.42
1:A:520:LEU:O	1:A:521:TYR:C	2.63	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:209:VAL:HG11	1:B:215:TYR:O	2.20	0.42
2:F:364:PHE:O	2:F:365:LYS:C	2.63	0.42
2:F:469:PRO:HA	2:F:471:ALA:H	1.85	0.42
1:A:59:VAL:HG13	1:A:60:GLN:N	2.34	0.41
1:A:85:LEU:H	1:A:85:LEU:CD1	2.26	0.41
1:A:535:HIS:CE1	1:A:542:CYS:HA	2.55	0.41
2:F:423:TRP:NE1	2:F:495:ARG:HB2	2.35	0.41
1:A:89:GLN:O	1:A:91:LEU:N	2.52	0.41
1:A:125:THR:HA	1:A:128:SER:OG	2.20	0.41
1:A:229:THR:HG23	1:A:230:PHE:N	2.35	0.41
1:B:57:GLU:O	1:B:61:ASN:HB2	2.20	0.41
1:B:385:TYR:C	1:B:385:TYR:HD2	2.28	0.41
1:B:588:PHE:O	1:B:591:LEU:N	2.53	0.41
1:A:88:ILE:CG2	1:A:94:LYS:HB2	2.50	0.41
1:A:402:GLU:HB3	1:A:518:ARG:HD3	2.02	0.41
1:A:415:PRO:O	1:A:419:LYS:HG3	2.19	0.41
1:B:53:ASN:O	1:B:54:ILE:C	2.63	0.41
1:B:187:LYS:HE3	1:B:509:ASP:OD2	2.21	0.41
1:B:279:TYR:CZ	1:B:283:VAL:HG23	2.55	0.41
1:B:353:LYS:HB3	2:F:487:THR:HG22	2.02	0.41
1:B:402:GLU:HB3	1:B:518:ARG:CD	2.50	0.41
1:B:457:GLU:O	1:B:461:TRP:HB2	2.20	0.41
2:E:359:THR:O	2:E:361:PHE:N	2.53	0.41
1:B:72:PHE:CE2	1:B:76:GLN:HG3	2.55	0.41
1:B:184:VAL:O	1:B:185:VAL:C	2.62	0.41
1:B:582:ARG:CB	1:B:583:PRO:HD3	2.33	0.41
1:B:137:ASN:N	1:B:138:PRO:HD3	2.33	0.41
1:B:169:ARG:HH12	1:B:271:TRP:HA	1.85	0.41
2:E:337:VAL:HG22	2:E:388:VAL:O	2.20	0.41
1:A:201:ASP:OD2	1:A:219:ARG:NH2	2.53	0.41
1:B:183:TYR:O	1:B:187:LYS:HB2	2.20	0.41
1:B:414:THR:O	1:B:418:LEU:HD22	2.21	0.41
2:E:372:THR:HG22	2:E:374:LEU:HD12	2.03	0.41
2:F:337:VAL:O	2:F:340:TRP:HD1	2.04	0.41
2:F:469:PRO:HG3	2:F:476:TRP:NE1	2.36	0.41
1:A:79:LEU:C	1:A:81:GLN:H	2.28	0.41
1:A:546:ASN:HD22	1:A:546:ASN:HA	1.74	0.41
1:A:571:GLU:O	1:A:572:ASN:C	2.62	0.41
1:B:177:ARG:NE	1:B:473:TRP:CE3	2.88	0.41
1:A:81:GLN:C	1:A:83:TYR:N	2.79	0.41
1:A:228:HIS:O	1:A:231:GLU:HB2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:335:ASP:HA	1:A:336:PRO:HD3	1.93	0.41
1:A:366:MET:O	1:A:369:PHE:N	2.54	0.41
1:A:474:MET:C	1:A:476:LYS:H	2.29	0.41
1:A:580:ASN:HD21	1:A:582:ARG:HB2	1.85	0.41
1:A:593:THR:O	1:A:594:TRP:C	2.63	0.41
1:B:414:THR:O	1:B:418:LEU:HD23	2.21	0.41
1:B:456:LEU:CD2	1:B:460:ARG:HD2	2.51	0.41
1:B:520:LEU:O	1:B:521:TYR:C	2.63	0.41
1:B:568:LEU:HD13	1:B:572:ASN:HD21	1.86	0.41
2:E:332:THR:HG23	2:E:333:LYS:HE3	2.02	0.41
2:E:359:THR:O	2:E:360:PHE:C	2.64	0.41
2:F:423:TRP:CD1	2:F:423:TRP:N	2.87	0.41
1:A:110:GLU:O	1:A:114:LYS:HB2	2.21	0.41
1:A:166:GLU:OE2	1:A:493:HIS:HE1	2.04	0.41
1:A:218:SER:C	1:A:220:GLY:H	2.29	0.41
1:A:291:ILE:O	1:A:291:ILE:HG22	2.20	0.41
1:A:323:MET:HA	1:A:323:MET:CE	2.43	0.41
1:A:466:GLY:C	1:A:468:ILE:N	2.78	0.41
1:A:517:THR:HA	1:A:520:LEU:HD23	2.03	0.41
1:A:581:VAL:HG22	1:A:581:VAL:O	2.19	0.41
1:B:140:GLU:C	1:B:141:CYS:SG	3.04	0.41
1:B:223:ILE:H	1:B:223:ILE:HG13	1.63	0.41
1:B:239:HIS:CE1	1:B:596:LYS:HA	2.56	0.41
1:B:312:GLU:O	1:B:316:VAL:HG23	2.21	0.41
1:B:324:THR:O	1:B:325:GLN:C	2.64	0.41
1:B:352:GLY:O	1:B:353:LYS:HB2	2.21	0.41
1:B:410:LEU:HD12	1:B:410:LEU:HA	1.89	0.41
1:B:462:MET:HE2	1:B:468:ILE:HD11	2.03	0.41
1:B:504:PHE:O	1:B:506:VAL:N	2.53	0.41
2:E:442:TYR:CD1	2:E:443:LEU:HG	2.55	0.41
2:F:325:PHE:C	2:F:327:GLU:N	2.79	0.41
2:F:368:GLY:C	2:F:369:VAL:HG22	2.46	0.41
1:A:47:SER:HA	1:A:62:MET:HG3	2.03	0.41
1:A:203:TRP:O	1:A:204:ARG:C	2.63	0.41
1:A:500:PRO:O	1:A:506:VAL:HG11	2.21	0.41
1:A:544:ILE:O	1:A:545:SER:O	2.39	0.41
1:B:304:ALA:O	1:B:307:ILE:N	2.54	0.41
1:B:582:ARG:CB	1:B:583:PRO:CD	2.97	0.41
2:E:361:PHE:CE1	2:E:421:LEU:HD23	2.55	0.41
1:A:229:THR:HG23	1:A:516:TYR:OH	2.21	0.40
1:A:591:LEU:HG	1:A:595:LEU:CD1	2.51	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:599:ASN:N	1:A:599:ASN:ND2	2.70	0.40
1:B:262:LEU:HA	1:B:263:PRO:HD3	1.79	0.40
1:B:336:PRO:HB3	1:B:340:GLN:OE1	2.21	0.40
1:B:403:ALA:N	1:B:518:ARG:HG3	2.36	0.40
1:A:166:GLU:O	1:A:167:SER:C	2.64	0.40
1:A:181:GLU:OE1	1:A:470:LYS:HE3	2.22	0.40
2:E:469:PRO:HG3	2:E:476:TRP:HE1	1.86	0.40
2:F:357:ASN:O	2:F:358:SER:CB	2.69	0.40
2:F:442:TYR:CE2	2:F:479:ARG:HD3	2.57	0.40
1:A:63:ASN:O	1:A:67:ASP:N	2.35	0.40
1:A:83:TYR:HA	1:A:84:PRO:HD2	1.95	0.40
1:A:231:GLU:OE2	1:A:234:LYS:HE3	2.22	0.40
1:A:385:TYR:C	1:A:385:TYR:HD2	2.29	0.40
1:B:404:VAL:O	1:B:407:ILE:HB	2.22	0.40
1:B:580:ASN:O	1:B:582:ARG:N	2.54	0.40
1:A:187:LYS:HE3	1:A:509:ASP:OD2	2.22	0.40
1:A:251:ALA:CB	1:A:281:LEU:HD22	2.51	0.40
1:A:580:ASN:OD1	1:A:583:PRO:HD3	2.21	0.40
2:E:329:PHE:CE2	2:E:497:VAL:HG11	2.56	0.40
2:F:453:ARG:NH1	2:F:455:ILE:HD11	2.36	0.40
1:A:270:MET:HB3	1:A:271:TRP:CE3	2.56	0.40
2:E:364:PHE:O	2:E:364:PHE:HD1	2.04	0.40
2:F:452:GLU:CG	2:F:453:ARG:N	2.84	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	595/603 (99%)	452 (76%)	105 (18%)	38 (6%)	1 6
1	B	595/603 (99%)	444 (75%)	112 (19%)	39 (7%)	1 5

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	E	169/185 (91%)	125 (74%)	29 (17%)	15 (9%)	0	3
2	F	169/185 (91%)	119 (70%)	33 (20%)	17 (10%)	0	2
All	All	1528/1576 (97%)	1140 (75%)	279 (18%)	109 (7%)	1	4

All (109) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	54	ILE
1	A	137	ASN
1	A	212	VAL
1	A	289	PRO
1	A	340	GLN
1	A	362	THR
1	A	364	VAL
1	A	390	PHE
1	A	544	ILE
1	A	545	SER
1	A	546	ASN
1	A	572	ASN
1	B	54	ILE
1	B	137	ASN
1	B	212	VAL
1	B	290	ASN
1	B	340	GLN
1	B	364	VAL
1	B	390	PHE
1	B	467	GLU
2	E	337	VAL
2	E	360	PHE
2	E	369	VAL
2	E	370	SER
2	E	373	LYS
2	E	404	VAL
2	F	337	VAL
2	F	360	PHE
2	F	369	VAL
2	F	370	SER
2	F	390	LYS
2	F	402	THR
2	F	404	VAL
2	F	416	PHE

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Mol	Chain	Res	Type
1	A	91	LEU
1	A	185	VAL
1	A	211	GLY
1	A	437	ASN
1	A	467	GLU
1	A	509	ASP
1	A	555	PHE
1	A	592	PHE
1	B	86	GLN
1	B	104	GLY
1	B	184	VAL
1	B	185	VAL
1	B	211	GLY
1	B	213	ASP
1	B	268	GLY
1	B	362	THR
1	B	473	TRP
1	B	475	LYS
1	B	504	PHE
1	B	505	HIS
1	B	536	GLU
2	E	330	ASN
2	E	390	LYS
2	E	450	PRO
2	F	373	LYS
1	A	51	ASN
1	A	78	THR
1	A	103	ASN
1	A	268	GLY
1	A	477	TRP
1	A	534	LYS
1	A	539	LEU
1	B	78	THR
1	B	522	GLN
1	B	546	ASN
1	B	610	TRP
2	E	368	GLY
2	E	374	LEU
2	E	401	GLN
2	E	402	THR
2	E	416	PHE
2	F	330	ASN

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Mol	Chain	Res	Type
2	F	374	LEU
2	F	401	GLN
2	F	451	PHE
1	A	206	ASP
1	A	456	LEU
1	A	504	PHE
1	A	571	GLU
1	B	51	ASN
1	B	91	LEU
1	B	171	GLU
1	B	509	ASP
1	B	538	PRO
1	B	581	VAL
1	B	600	LYS
2	F	368	GLY
1	A	104	GLY
1	A	213	ASP
1	B	317	SER
1	B	540	HIS
1	B	587	TYR
2	E	451	PHE
2	F	358	SER
2	F	365	LYS
2	F	450	PRO
1	A	86	GLN
1	A	184	VAL
1	B	20	THR
1	A	500	PRO
1	B	289	PRO
1	A	339	VAL
1	B	451	PRO
1	B	146	PRO
1	A	146	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	527/533 (99%)	478 (91%)	49 (9%)	8	32
1	B	527/533 (99%)	485 (92%)	42 (8%)	11	38
2	E	150/162 (93%)	137 (91%)	13 (9%)	9	35
2	F	150/162 (93%)	137 (91%)	13 (9%)	9	35
All	All	1354/1390 (97%)	1237 (91%)	117 (9%)	10	36

All (117) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	61	ASN
1	A	81	GLN
1	A	90	ASN
1	A	97	LEU
1	A	98	GLN
1	A	118	THR
1	A	122	THR
1	A	125	THR
1	A	139	GLN
1	A	143	LEU
1	A	149	ASN
1	A	212	VAL
1	A	240	LEU
1	A	259	ILE
1	A	271	TRP
1	A	281	LEU
1	A	287	GLN
1	A	298	VAL
1	A	334	THR
1	A	375	GLU
1	A	385	TYR
1	A	401	HIS
1	A	407	ILE
1	A	410	LEU
1	A	418	LEU
1	A	431	ASP
1	A	436	ILE
1	A	439	LEU
1	A	440	LEU
1	A	444	LEU
1	A	455	MET
1	A	456	LEU
1	A	473	TRP

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Mol	Chain	Res	Type
1	A	476	LYS
1	A	491	VAL
1	A	506	VAL
1	A	520	LEU
1	A	524	GLN
1	A	526	GLN
1	A	541	LYS
1	A	546	ASN
1	A	549	GLU
1	A	557	MET
1	A	558	LEU
1	A	570	LEU
1	A	573	VAL
1	A	578	ASN
1	A	584	LEU
1	A	603	PHE
1	B	23	GLU
1	B	81	GLN
1	B	97	LEU
1	B	98	GLN
1	B	111	ASP
1	B	122	THR
1	B	139	GLN
1	B	143	LEU
1	B	212	VAL
1	B	240	LEU
1	B	259	ILE
1	B	271	TRP
1	B	281	LEU
1	B	287	GLN
1	B	290	ASN
1	B	298	VAL
1	B	334	THR
1	B	357	ARG
1	B	375	GLU
1	B	385	TYR
1	B	401	HIS
1	B	407	ILE
1	B	410	LEU
1	B	418	LEU
1	B	436	ILE
1	B	441	LYS

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Mol	Chain	Res	Type
1	B	444	LEU
1	B	450	LEU
1	B	455	MET
1	B	473	TRP
1	B	477	TRP
1	B	495	GLU
1	B	526	GLN
1	B	536	GLU
1	B	552	GLN
1	B	553	LYS
1	B	557	MET
1	B	559	ARG
1	B	568	LEU
1	B	574	VAL
1	B	597	ASP
1	B	609	ASP
2	E	333	LYS
2	E	337	VAL
2	E	341	GLU
2	E	348	CYS
2	E	360	PHE
2	E	361	PHE
2	E	369	VAL
2	E	385	ASP
2	E	405	ILE
2	E	416	PHE
2	E	417	MET
2	E	423	TRP
2	E	467	CYS
2	F	333	LYS
2	F	337	VAL
2	F	341	GLU
2	F	356	TYR
2	F	360	PHE
2	F	367	TYR
2	F	369	VAL
2	F	385	ASP
2	F	405	ILE
2	F	416	PHE
2	F	417	MET
2	F	423	TRP
2	F	467	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (70) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	33	ASN
1	A	60	GLN
1	A	64	ASN
1	A	81	GLN
1	A	86	GLN
1	A	90	ASN
1	A	96	GLN
1	A	101	GLN
1	A	103	ASN
1	A	139	GLN
1	A	149	ASN
1	A	188	ASN
1	A	210	ASN
1	A	221	GLN
1	A	290	ASN
1	A	300	GLN
1	A	330	ASN
1	A	417	HIS
1	A	493	HIS
1	A	505	HIS
1	A	508	ASN
1	A	531	GLN
1	A	535	HIS
1	A	540	HIS
1	A	546	ASN
1	A	572	ASN
1	A	586	ASN
1	A	599	ASN
1	B	33	ASN
1	B	49	ASN
1	B	60	GLN
1	B	64	ASN
1	B	81	GLN
1	B	89	GLN
1	B	90	ASN
1	B	101	GLN
1	B	103	ASN
1	B	137	ASN
1	B	139	GLN
1	B	149	ASN
1	B	188	ASN

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Mol	Chain	Res	Type
1	B	210	ASN
1	B	221	GLN
1	B	290	ASN
1	B	300	GLN
1	B	322	ASN
1	B	325	GLN
1	B	373	HIS
1	B	397	ASN
1	B	442	GLN
1	B	472	GLN
1	B	493	HIS
1	B	508	ASN
1	B	524	GLN
1	B	526	GLN
1	B	535	HIS
1	B	552	GLN
1	B	572	ASN
1	B	580	ASN
1	B	586	ASN
1	B	599	ASN
1	B	601	ASN
2	E	347	ASN
2	E	375	ASN
2	E	409	ASN
2	F	330	ASN
2	F	375	ASN
2	F	409	ASN
2	F	445	HIS
2	F	457	ASN

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

Of 4 ligands modelled in this entry, 4 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

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	597/603 (99%)	-0.38	1 (0%) 91 83	56, 98, 143, 159	0
1	B	597/603 (99%)	-0.43	0 100 100	55, 99, 144, 158	0
2	E	173/185 (93%)	-0.06	3 (1%) 69 45	79, 116, 149, 157	0
2	F	173/185 (93%)	-0.13	0 100 100	81, 117, 148, 157	0
All	All	1540/1576 (97%)	-0.33	4 (0%) 90 79	55, 103, 146, 159	0

All (4) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	461	TRP	3.2
2	E	421	LEU	3.1
2	E	501	PHE	2.8
2	E	330	ASN	2.1

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
4	CL	B	902	1/1	0.86	0.26	108,108,108,108	0
4	CL	A	902	1/1	0.89	0.16	138,138,138,138	0
3	ZN	A	901	1/1	0.94	0.17	102,102,102,102	0
3	ZN	B	901	1/1	0.97	0.12	98,98,98,98	0

6.5 Other polymers [i](#)

There are no such residues in this entry.