



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 07:22 AM UTC

PDB ID : 4HUN / pdb_00004hun
Title : MATE transporter NorM-NG in complex with R6G and monobody
Authors : Lu, M.
Deposited on : 2012-11-02
Resolution : 3.59 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
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
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

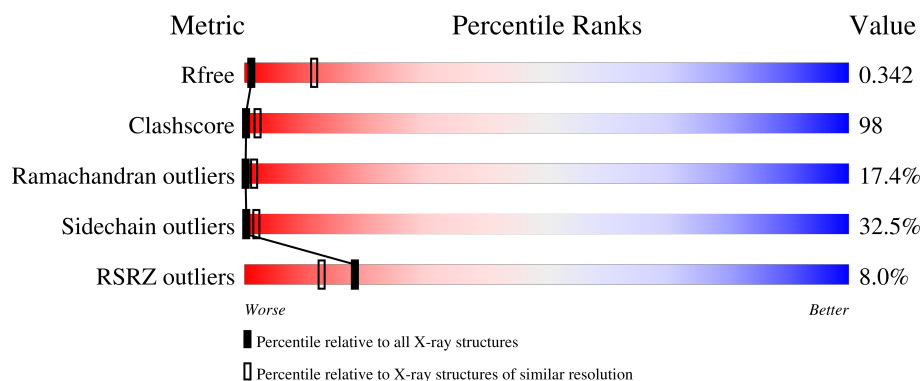
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.59 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	1747 (3.70-3.50)
Clashscore	190562	1827 (3.70-3.50)
Ramachandran outliers	187476	1773 (3.70-3.50)
Sidechain outliers	187428	1772 (3.70-3.50)
RSRZ outliers	180081	1745 (3.70-3.50)

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	459	
2	B	99	

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 4248 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 Multidrug efflux protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	459	Total	C	N	O	S	0	0	0
			3508	2338	558	589	23			

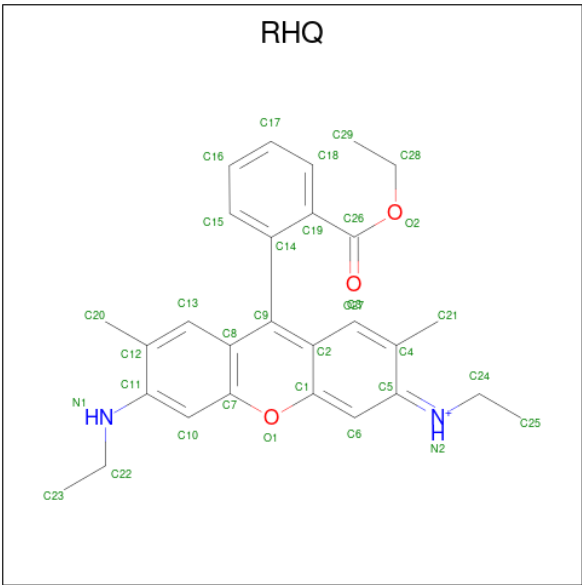
There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	460	SER	-	expression tag	UNP E8SM44
A	461	SER	-	expression tag	UNP E8SM44
A	462	GLY	-	expression tag	UNP E8SM44
A	463	LEU	-	expression tag	UNP E8SM44

- Molecule 2 is a protein called protein B.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	B	91	Total	C	N	O	0	0	0
			707	457	110	140			

- Molecule 3 is RHODAMINE 6G (CCD ID: RHQ) (formula: C₂₈H₃₁N₂O₃).

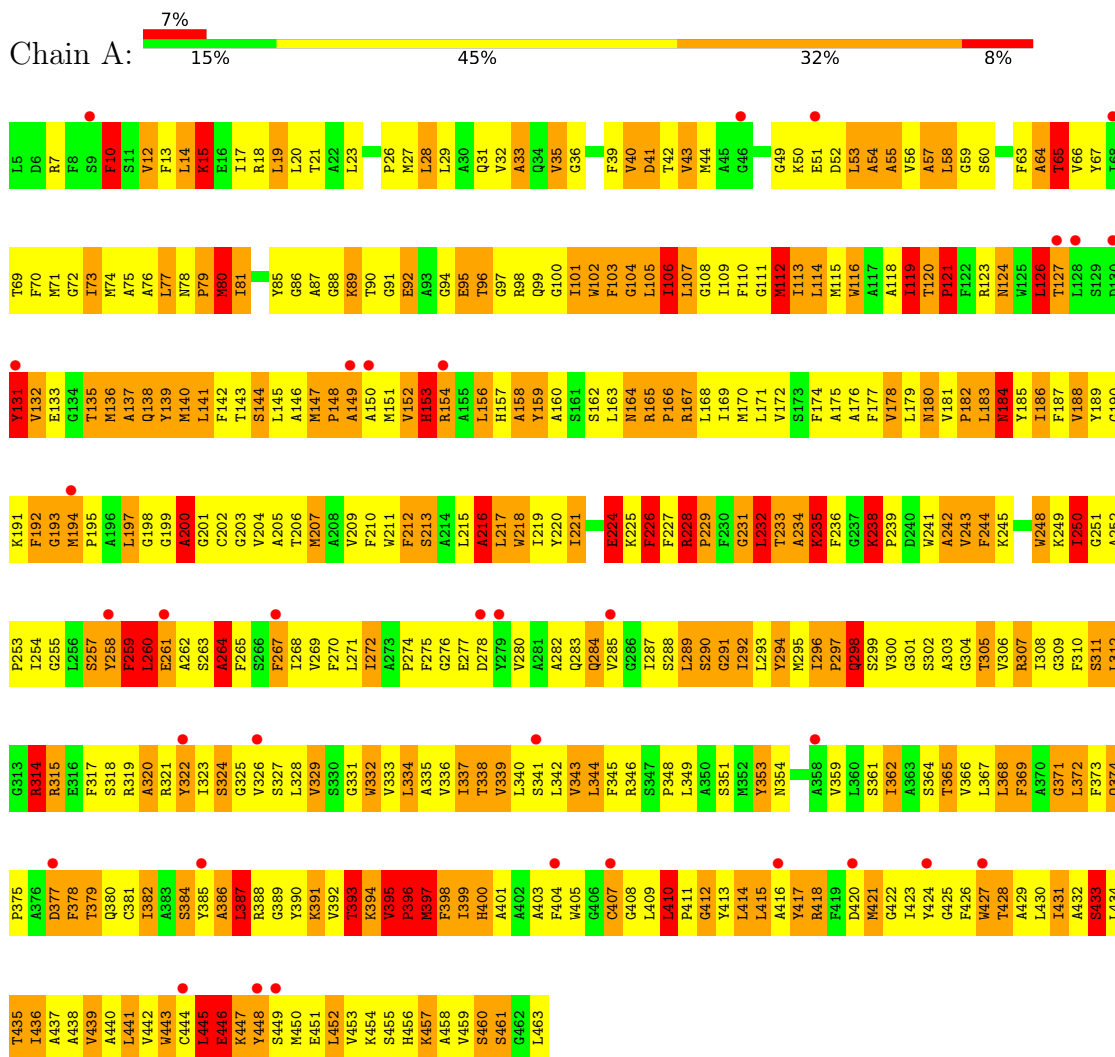


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			33	28	2	3		

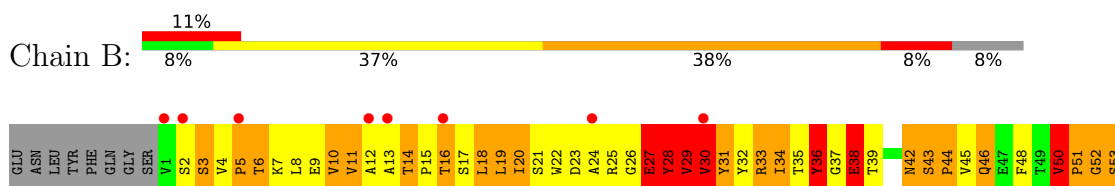
3 Residue-property plots

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: Multidrug efflux protein



- Molecule 2: protein B





4 Data and refinement statistics

Property	Value	Source
Space group	P 32 2 1	Depositor
Cell constants a, b, c, α , β , γ	117.23Å 117.23Å 226.22Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	20.00 – 3.59 20.00 – 3.59	Depositor EDS
% Data completeness (in resolution range)	99.7 (20.00-3.59) 99.2 (20.00-3.59)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.88 (at 3.57Å)	Xtriage
Refinement program	REFMAC 5.6.0117	Depositor
R, R_{free}	0.306 , 0.327 0.319 , 0.342	Depositor DCC
R_{free} test set	1104 reflections (5.08%)	wwPDB-VP
Wilson B-factor (Å ²)	123.2	Xtriage
Anisotropy	0.443	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.21 , 130.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.38$, $\langle L^2 \rangle = 0.21$	Xtriage
Estimated twinning fraction	0.145 for -h,-k,l	Xtriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	4248	wwPDB-VP
Average B, all atoms (Å ²)	178.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.56% 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: RHQ

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	1.06	6/3605 (0.2%)	1.43	56/4898 (1.1%)
2	B	1.13	0/729	1.68	24/1004 (2.4%)
All	All	1.07	6/4334 (0.1%)	1.47	80/5902 (1.4%)

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	18
2	B	1	2
All	All	1	20

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	395	VAL	CA-CB	9.90	1.59	1.54
1	A	314	ARG	CZ-NH2	9.22	1.45	1.33
1	A	235	LYS	CA-C	6.72	1.56	1.52
1	A	87	ALA	N-CA	5.50	1.49	1.46
1	A	400	HIS	CB-CG	5.24	1.57	1.50
1	A	414	LEU	C-N	5.20	1.40	1.33

All (80) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	165	ARG	CA-C-N	-11.17	105.88	119.84
1	A	165	ARG	C-N-CA	-11.17	105.88	119.84
2	B	14	THR	CA-C-N	10.79	133.32	119.84

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	14	THR	C-N-CA	10.79	133.32	119.84
1	A	447	LYS	N-CA-C	-10.59	100.10	113.23
1	A	137	ALA	N-CA-C	-8.43	104.03	112.97
1	A	55	ALA	N-CA-C	-8.42	97.21	109.59
1	A	285	VAL	N-CA-C	-8.32	101.67	113.07
1	A	216	ALA	N-CA-C	-8.14	101.47	114.09
1	A	453	VAL	N-CA-C	-8.08	103.88	111.48
2	B	33	ARG	N-CA-C	-7.98	96.39	109.40
2	B	86	SER	N-CA-C	7.78	121.80	109.50
1	A	272	ILE	N-CA-C	-7.45	105.09	112.17
1	A	65	THR	N-CA-C	-7.43	101.49	111.96
1	A	132	VAL	N-CA-C	7.39	117.91	110.23
1	A	445	LEU	N-CA-C	-7.32	95.20	110.80
1	A	114	LEU	N-CA-C	-7.30	104.25	113.01
2	B	30	VAL	CB-CA-C	-7.21	99.47	111.29
1	A	449	SER	N-CA-C	-7.07	104.74	113.15
1	A	92	GLU	N-CA-C	-6.89	103.51	112.68
1	A	339	VAL	N-CA-C	-6.81	104.85	113.22
1	A	448	TYR	N-CA-C	6.73	121.53	113.12
1	A	374	GLN	N-CA-C	6.69	121.85	112.75
2	B	39	THR	N-CA-C	-6.69	103.57	113.61
1	A	394	LYS	N-CA-C	-6.66	103.63	113.61
1	A	443	TRP	N-CA-C	-6.65	105.70	113.88
2	B	76	SER	N-CA-C	6.65	117.05	108.34
1	A	124	ASN	N-CA-C	6.65	119.22	108.32
1	A	127	THR	N-CA-C	6.63	124.92	110.80
2	B	27	GLU	CA-C-N	-6.63	108.89	121.54
2	B	27	GLU	C-N-CA	-6.63	108.89	121.54
1	A	231	GLY	N-CA-C	-6.55	104.40	111.93
1	A	141	LEU	N-CA-C	-6.53	104.00	112.23
1	A	85	TYR	N-CA-C	-6.50	104.93	112.92
1	A	152	VAL	N-CA-C	-6.41	106.89	113.10
2	B	29	VAL	N-CA-C	-6.37	103.09	111.05
2	B	36	TYR	N-CA-C	6.18	118.10	107.28
2	B	85	ILE	N-CA-C	6.11	116.91	108.12
1	A	418	ARG	N-CA-C	5.99	118.91	110.23
1	A	148	PRO	N-CA-C	5.96	121.39	113.40
1	A	267	PHE	N-CA-C	-5.96	103.56	111.24
2	B	29	VAL	CB-CA-C	5.83	121.20	112.16
1	A	258	TYR	N-CA-C	-5.81	106.05	113.02
2	B	81	TRP	N-CA-C	5.76	118.11	108.02
1	A	294	TYR	N-CA-C	-5.76	106.59	113.97

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	165	ARG	N-CA-C	5.71	122.43	109.81
1	A	152	VAL	CA-C-O	5.66	124.31	119.38
1	A	126	LEU	N-CA-C	5.63	117.83	108.99
1	A	10	PHE	N-CA-C	5.60	122.73	110.80
1	A	250	ILE	N-CA-C	-5.55	107.03	111.81
1	A	35	VAL	N-CA-C	-5.52	105.47	110.82
1	A	33	ALA	N-CA-C	-5.52	106.40	113.02
1	A	226	PHE	N-CA-C	5.49	118.40	110.28
1	A	202	CYS	N-CA-C	-5.43	106.49	113.23
1	A	393	THR	N-CA-C	5.41	117.99	109.39
1	A	374	GLN	CA-C-N	-5.39	114.52	121.04
1	A	374	GLN	C-N-CA	-5.39	114.52	121.04
1	A	264	ALA	CA-C-N	5.36	131.78	121.54
1	A	264	ALA	C-N-CA	5.36	131.78	121.54
2	B	89	TYR	N-CA-C	5.35	118.06	108.17
2	B	55	SER	N-CA-C	-5.33	106.73	113.18
2	B	50	VAL	CA-C-N	5.33	126.50	119.84
2	B	50	VAL	C-N-CA	5.33	126.50	119.84
1	A	448	TYR	CB-CA-C	5.30	118.31	109.56
1	A	15	LYS	N-CA-C	-5.30	99.51	110.80
1	A	106	ILE	N-CA-C	-5.26	106.67	111.67
1	A	448	TYR	CA-CB-CG	-5.24	104.46	113.90
2	B	28	TYR	N-CA-CB	5.23	119.33	110.49
1	A	412	GLY	N-CA-C	-5.21	100.84	113.18
2	B	78	TYR	N-CA-C	-5.16	101.56	109.76
1	A	200	ALA	N-CA-C	-5.09	99.95	110.80
2	B	6	THR	N-CA-C	5.07	121.61	110.80
2	B	28	TYR	N-CA-C	5.05	121.56	110.80
1	A	28	LEU	N-CA-C	-5.04	107.20	113.55
1	A	312	LEU	N-CA-C	-5.04	106.48	113.18
1	A	153	HIS	N-CA-C	-5.02	106.84	113.12
1	A	397	MET	N-CA-C	-5.02	105.89	111.36
1	A	433	SER	N-CA-C	-5.01	105.95	111.71
2	B	63	SER	CA-C-N	5.00	126.09	119.84
2	B	63	SER	C-N-CA	5.00	126.09	119.84

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
2	B	28	TYR	CA

All (20) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	120	THR	Peptide
1	A	138	GLN	Peptide
1	A	188	VAL	Peptide
1	A	194	MET	Peptide
1	A	216	ALA	Peptide
1	A	220	TYR	Peptide
1	A	226	PHE	Peptide
1	A	228	ARG	Peptide
1	A	249	LYS	Peptide
1	A	259	PHE	Peptide
1	A	322	TYR	Peptide
1	A	338	THR	Peptide
1	A	387	LEU	Peptide
1	A	395	VAL	Peptide
1	A	396	PRO	Peptide
1	A	410	LEU	Peptide
1	A	446	GLU	Peptide
1	A	54	ALA	Peptide
2	B	27	GLU	Peptide
2	B	29	VAL	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	3508	0	3587	692	0
2	B	707	0	681	159	0
3	A	33	0	31	8	0
All	All	4248	0	4299	836	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 98.

All (836) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:158:ALA:HB2	1:A:217:LEU:CD1	1.34	1.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:102:TRP:CD1	1:A:233:THR:HG1	1.47	1.30
1:A:158:ALA:CB	1:A:217:LEU:HD11	1.60	1.29
1:A:144:SER:CB	1:A:204:VAL:HG12	1.64	1.28
1:A:144:SER:HB3	1:A:204:VAL:CG1	1.63	1.27
1:A:429:ALA:O	1:A:433:SER:HB3	1.11	1.25
1:A:332:TRP:CD1	1:A:379:THR:HG1	1.53	1.25
1:A:149:ALA:HA	1:A:152:VAL:CG2	1.68	1.22
1:A:98:ARG:HD3	1:A:229:PRO:O	1.39	1.20
1:A:78:ASN:HA	1:A:163:LEU:CD1	1.73	1.17
3:A:501:RHQ:H151	3:A:501:RHQ:H131	1.26	1.15
1:A:248:TRP:HZ3	1:A:252:ALA:HB2	1.06	1.12
1:A:418:ARG:HG2	1:A:422:GLY:HA3	1.16	1.12
1:A:460:SER:O	2:B:8:LEU:CD1	1.98	1.12
2:B:8:LEU:HD13	2:B:87:ILE:HD11	1.16	1.11
1:A:394:LYS:HA	1:A:397:MET:HB2	1.12	1.11
1:A:221:ILE:HD13	1:A:228:ARG:HB2	1.33	1.10
3:A:501:RHQ:H131	3:A:501:RHQ:C15	1.78	1.10
2:B:11:VAL:HG12	2:B:19:LEU:HD12	1.34	1.10
1:A:288:SER:O	1:A:292:ILE:HG23	1.52	1.09
1:A:387:LEU:HD12	1:A:393:THR:HG22	1.26	1.09
1:A:460:SER:O	2:B:8:LEU:HD12	1.49	1.09
1:A:78:ASN:HA	1:A:163:LEU:HD13	1.12	1.09
2:B:8:LEU:CD1	2:B:87:ILE:HD11	1.82	1.09
1:A:407:CYS:HB3	1:A:433:SER:HB2	1.32	1.08
1:A:248:TRP:CZ3	1:A:252:ALA:HB2	1.89	1.08
1:A:411:PRO:CB	1:A:428:THR:HG23	1.82	1.08
1:A:149:ALA:HA	1:A:152:VAL:HG21	1.34	1.08
1:A:415:LEU:HG	1:A:422:GLY:O	1.53	1.08
1:A:411:PRO:HB3	1:A:428:THR:HG23	1.10	1.07
1:A:218:TRP:HA	1:A:218:TRP:CE3	1.88	1.06
1:A:429:ALA:O	1:A:433:SER:CB	2.03	1.06
1:A:365:THR:HB	1:A:423:ILE:HG21	1.11	1.05
1:A:259:PHE:HA	1:A:262:ALA:HB3	1.41	1.02
1:A:411:PRO:HB3	1:A:428:THR:CG2	1.88	1.02
1:A:73:ILE:O	1:A:76:ALA:HB3	1.60	1.01
1:A:164:ASN:O	1:A:166:PRO:HD3	1.60	1.01
2:B:27:GLU:O	2:B:28:TYR:HD2	1.42	1.01
1:A:224:GLU:HG2	1:A:225:LYS:H	1.23	1.01
2:B:8:LEU:HD13	2:B:87:ILE:CD1	1.92	1.00
1:A:369:PHE:HB3	1:A:372:LEU:HD12	1.45	0.98
1:A:408:GLY:HA3	1:A:430:LEU:HG	1.46	0.98

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:149:ALA:HA	1:A:152:VAL:HG22	1.42	0.98
1:A:154:ARG:NH2	1:A:215:LEU:HD21	1.79	0.98
3:A:501:RHQ:H151	3:A:501:RHQ:C13	1.89	0.98
1:A:89:LYS:H	1:A:89:LYS:HD3	1.26	0.98
1:A:387:LEU:HD12	1:A:393:THR:CG2	1.93	0.97
1:A:158:ALA:CB	1:A:217:LEU:CD1	2.30	0.96
1:A:284:GLN:O	1:A:288:SER:HB2	1.63	0.96
1:A:78:ASN:CA	1:A:163:LEU:HD13	1.95	0.96
2:B:30:VAL:O	2:B:31:TYR:HB2	1.66	0.95
1:A:188:VAL:HA	1:A:198:GLY:HA2	1.47	0.95
1:A:141:LEU:CD1	1:A:145:LEU:HD23	1.97	0.95
2:B:38:GLU:HA	2:B:68:TYR:HA	1.46	0.94
1:A:193:GLY:O	1:A:195:PRO:HD3	1.67	0.94
1:A:168:LEU:HA	1:A:171:LEU:HD13	1.49	0.93
1:A:252:ALA:HB3	1:A:253:PRO:HD3	1.48	0.93
1:A:151:MET:SD	1:A:211:TRP:CE3	2.62	0.93
1:A:387:LEU:HD21	1:A:444:CYS:O	1.70	0.92
1:A:102:TRP:O	1:A:106:ILE:HB	1.69	0.92
1:A:154:ARG:HH21	1:A:215:LEU:HD21	1.34	0.92
1:A:411:PRO:HG3	1:A:429:ALA:HB3	1.48	0.92
2:B:9:GLU:O	2:B:22:TRP:NE1	2.01	0.92
1:A:388:ARG:HB3	1:A:394:LYS:HB3	1.50	0.92
1:A:141:LEU:HD11	1:A:145:LEU:HD23	1.51	0.91
1:A:318:SER:HA	1:A:321:ARG:H	1.31	0.91
1:A:339:VAL:HG21	1:A:375:PRO:HD3	1.51	0.91
1:A:332:TRP:HD1	1:A:379:THR:HG1	0.96	0.90
1:A:89:LYS:HG2	1:A:92:GLU:HB3	1.51	0.90
2:B:67:ASP:HA	2:B:90:ARG:HB3	1.52	0.90
1:A:315:ARG:HG3	1:A:317:PHE:CE1	2.06	0.90
1:A:346:ARG:HD2	1:A:367:LEU:HD11	1.54	0.90
1:A:418:ARG:CG	1:A:422:GLY:HA3	2.01	0.90
1:A:432:ALA:O	1:A:436:ILE:HG23	1.72	0.90
1:A:331:GLY:HA2	1:A:334:LEU:HD22	1.54	0.90
1:A:116:TRP:HH2	1:A:147:MET:HA	1.38	0.89
1:A:418:ARG:HG2	1:A:422:GLY:CA	2.02	0.89
2:B:27:GLU:O	2:B:28:TYR:CD2	2.26	0.89
1:A:375:PRO:HA	1:A:378:PHE:HB2	1.53	0.88
3:A:501:RHQ:H31	3:A:501:RHQ:C26	2.03	0.88
1:A:218:TRP:HA	1:A:218:TRP:HE3	1.37	0.88
1:A:308:ILE:CD1	1:A:386:ALA:HA	2.03	0.88
1:A:387:LEU:CD1	1:A:393:THR:HG22	2.03	0.88

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:318:SER:C	1:A:320:ALA:H	1.81	0.88
2:B:7:LYS:HB2	2:B:23:ASP:HB2	1.55	0.88
1:A:154:ARG:HH21	1:A:215:LEU:CD2	1.87	0.87
1:A:235:LYS:HB2	1:A:241:TRP:HB3	1.56	0.87
1:A:77:LEU:HA	1:A:80:MET:HG3	1.55	0.87
1:A:105:LEU:O	1:A:109:ILE:HG23	1.74	0.87
2:B:24:ALA:O	2:B:53:SER:OG	1.93	0.87
1:A:242:ALA:HA	1:A:245:LYS:H	1.39	0.86
1:A:384:SER:O	1:A:388:ARG:HG3	1.74	0.86
1:A:429:ALA:C	1:A:433:SER:HB3	2.01	0.85
1:A:102:TRP:CD1	1:A:233:THR:OG1	2.28	0.85
1:A:144:SER:O	1:A:207:MET:HG2	1.76	0.85
1:A:268:ILE:HD12	1:A:287:ILE:HD11	1.57	0.85
1:A:372:LEU:HB3	1:A:431:ILE:HG21	1.58	0.84
1:A:221:ILE:HD13	1:A:228:ARG:CB	2.06	0.84
1:A:151:MET:SD	1:A:211:TRP:CD2	2.71	0.84
2:B:75:ARG:HD2	2:B:79:TRP:O	1.78	0.83
1:A:89:LYS:CG	1:A:92:GLU:HB3	2.08	0.83
1:A:148:PRO:O	1:A:152:VAL:HG13	1.79	0.83
2:B:35:THR:HG23	2:B:73:TYR:HE1	1.43	0.83
1:A:394:LYS:CA	1:A:397:MET:HB2	2.02	0.83
2:B:17:SER:HA	2:B:61:GLY:HA3	1.60	0.83
1:A:292:ILE:HG13	1:A:293:LEU:H	1.44	0.82
1:A:379:THR:HA	1:A:382:ILE:HG23	1.61	0.82
1:A:216:ALA:HA	1:A:219:ILE:HG12	1.61	0.82
1:A:289:LEU:HD13	1:A:292:ILE:CD1	2.10	0.82
1:A:441:LEU:O	1:A:443:TRP:N	2.12	0.82
1:A:147:MET:HE1	1:A:207:MET:SD	2.19	0.82
1:A:408:GLY:HA2	1:A:411:PRO:HG2	1.62	0.81
1:A:28:LEU:O	1:A:32:VAL:HG23	1.80	0.81
1:A:238:LYS:HB2	1:A:239:PRO:CD	2.10	0.81
1:A:289:LEU:HA	1:A:292:ILE:HG12	1.63	0.81
2:B:7:LYS:HB3	2:B:23:ASP:H	1.45	0.81
2:B:31:TYR:CD1	2:B:75:ARG:NH1	2.48	0.81
1:A:97:GLY:HA3	1:A:227:PHE:CE2	2.16	0.81
1:A:397:MET:O	1:A:400:HIS:ND1	2.14	0.81
1:A:263:SER:C	1:A:265:PHE:H	1.88	0.80
1:A:340:LEU:O	1:A:344:LEU:HB2	1.80	0.80
2:B:10:VAL:HG12	2:B:18:LEU:HD22	1.63	0.80
1:A:403:ALA:O	1:A:407:CYS:HB2	1.82	0.80
2:B:9:GLU:H	2:B:22:TRP:NE1	1.80	0.80

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:225:LYS:HE2	1:A:226:PHE:CE2	2.17	0.80
1:A:396:PRO:HB3	1:A:399:ILE:HG13	1.62	0.79
1:A:141:LEU:CD2	1:A:203:GLY:HA3	2.12	0.79
1:A:183:LEU:HA	1:A:186:ILE:HD12	1.64	0.79
1:A:224:GLU:CG	1:A:225:LYS:H	1.94	0.79
1:A:95:GLU:HA	1:A:98:ARG:HG2	1.65	0.78
1:A:441:LEU:C	1:A:443:TRP:H	1.89	0.78
1:A:116:TRP:CH2	1:A:147:MET:HA	2.18	0.78
1:A:364:SER:C	1:A:366:VAL:H	1.90	0.78
1:A:411:PRO:HA	1:A:414:LEU:HB2	1.66	0.78
1:A:292:ILE:HG13	1:A:293:LEU:N	1.98	0.78
1:A:253:PRO:HB2	1:A:394:LYS:HD3	1.66	0.78
1:A:372:LEU:HD11	1:A:424:TYR:HB2	1.66	0.78
1:A:332:TRP:CD1	1:A:379:THR:OG1	2.36	0.77
1:A:158:ALA:HB2	1:A:217:LEU:HD12	1.59	0.77
2:B:36:TYR:HA	2:B:70:ILE:HG12	1.67	0.77
1:A:439:VAL:CG2	1:A:440:ALA:H	1.97	0.77
1:A:441:LEU:O	1:A:444:CYS:N	2.17	0.77
1:A:73:ILE:O	1:A:76:ALA:CB	2.31	0.76
1:A:415:LEU:O	1:A:418:ARG:HB2	1.86	0.76
1:A:99:GLN:NE2	1:A:234:ALA:O	2.18	0.76
1:A:142:PHE:O	1:A:146:ALA:HB3	1.85	0.76
1:A:365:THR:HA	1:A:368:LEU:HG	1.67	0.76
1:A:149:ALA:CA	1:A:152:VAL:HG22	2.16	0.76
1:A:177:PHE:O	1:A:181:VAL:HG23	1.84	0.76
1:A:387:LEU:CD1	1:A:393:THR:CG2	2.62	0.75
1:A:394:LYS:HA	1:A:397:MET:CB	2.06	0.75
1:A:351:SER:HB3	1:A:359:VAL:HG11	1.67	0.75
1:A:395:VAL:HG13	1:A:396:PRO:HD3	1.67	0.75
2:B:78:TYR:C	2:B:80:GLY:H	1.92	0.75
1:A:89:LYS:CG	1:A:92:GLU:CB	2.64	0.75
1:A:439:VAL:HG23	1:A:440:ALA:N	2.02	0.75
1:A:321:ARG:HH22	1:A:391:LYS:HB2	1.51	0.75
1:A:148:PRO:HG3	1:A:207:MET:HB2	1.69	0.75
1:A:365:THR:HG22	1:A:368:LEU:HD11	1.69	0.75
1:A:189:TYR:HA	1:A:195:PRO:O	1.86	0.74
1:A:457:LYS:HZ1	2:B:90:ARG:HH12	1.34	0.74
1:A:63:PHE:C	1:A:65:THR:H	1.93	0.74
1:A:413:TYR:O	1:A:414:LEU:HD12	1.86	0.74
1:A:73:ILE:HA	1:A:251:GLY:HA2	1.69	0.74
1:A:332:TRP:HD1	1:A:379:THR:OG1	1.69	0.74

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:27:GLU:HG3	2:B:52:GLY:C	2.13	0.74
1:A:221:ILE:CD1	1:A:228:ARG:HB2	2.16	0.74
1:A:218:TRP:CZ3	1:A:221:ILE:HD11	2.22	0.74
1:A:66:VAL:HA	1:A:69:THR:HG22	1.70	0.74
1:A:297:PRO:O	1:A:299:SER:N	2.21	0.73
1:A:424:TYR:HA	1:A:427:TRP:CD1	2.23	0.73
1:A:63:PHE:O	1:A:65:THR:N	2.19	0.73
1:A:73:ILE:HD12	1:A:73:ILE:H	1.53	0.73
1:A:437:ALA:C	1:A:439:VAL:H	1.95	0.73
2:B:29:VAL:O	2:B:30:VAL:HG12	1.87	0.73
1:A:89:LYS:HG3	1:A:92:GLU:HB2	1.68	0.73
2:B:4:VAL:CG2	2:B:6:THR:CG2	2.66	0.73
1:A:74:MET:HE1	1:A:103:PHE:HB3	1.71	0.73
1:A:178:VAL:O	1:A:182:PRO:HD2	1.89	0.73
1:A:109:ILE:O	1:A:113:ILE:HB	1.87	0.72
1:A:259:PHE:HA	1:A:262:ALA:CB	2.18	0.72
1:A:439:VAL:CG2	1:A:440:ALA:N	2.52	0.72
1:A:65:THR:O	1:A:69:THR:HG22	1.89	0.72
1:A:193:GLY:O	1:A:195:PRO:CD	2.37	0.72
1:A:188:VAL:HA	1:A:198:GLY:CA	2.17	0.72
1:A:55:ALA:HB1	1:A:58:LEU:HD21	1.71	0.72
1:A:91:GLY:HA3	1:A:226:PHE:CE1	2.24	0.72
1:A:143:THR:HG23	1:A:144:SER:N	2.04	0.72
1:A:180:ASN:O	1:A:184:ASN:N	2.16	0.71
2:B:19:LEU:HA	2:B:58:THR:HG22	1.71	0.71
1:A:89:LYS:HG2	1:A:92:GLU:CB	2.20	0.71
2:B:30:VAL:O	2:B:30:VAL:HG13	1.90	0.70
1:A:89:LYS:HG3	1:A:92:GLU:CB	2.20	0.70
1:A:373:PHE:HB3	1:A:431:ILE:HG22	1.71	0.70
2:B:4:VAL:HG23	2:B:6:THR:CG2	2.19	0.70
1:A:78:ASN:HA	1:A:163:LEU:HD11	1.71	0.70
3:A:501:RHQ:H31	3:A:501:RHQ:O27	1.91	0.70
1:A:308:ILE:HB	1:A:390:TYR:CD1	2.27	0.70
1:A:145:LEU:HD13	1:A:206:THR:HB	1.73	0.70
1:A:132:VAL:O	1:A:133:GLU:HG3	1.92	0.70
1:A:158:ALA:HB2	1:A:217:LEU:HD11	0.72	0.70
1:A:74:MET:HB2	1:A:156:LEU:HD21	1.74	0.69
1:A:397:MET:O	1:A:400:HIS:N	2.24	0.69
1:A:447:LYS:HD3	1:A:448:TYR:CE1	2.26	0.69
1:A:56:VAL:HA	1:A:138:GLN:HE22	1.56	0.69
1:A:172:VAL:HG21	1:A:216:ALA:CB	2.22	0.69

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:207:MET:SD	1:A:207:MET:C	2.76	0.69
1:A:458:ALA:HB1	2:B:8:LEU:CB	2.22	0.69
1:A:461:SER:HA	2:B:8:LEU:HG	1.75	0.69
2:B:71:THR:OG1	2:B:86:SER:HB2	1.93	0.69
1:A:184:ASN:HA	1:A:205:ALA:CB	2.22	0.69
1:A:238:LYS:HB2	1:A:239:PRO:HD2	1.74	0.69
2:B:42:ASN:ND2	2:B:43:SER:H	1.89	0.69
1:A:44:MET:HE1	1:A:180:ASN:HD21	1.58	0.69
1:A:158:ALA:HB2	1:A:217:LEU:CG	2.19	0.69
1:A:274:PRO:C	1:A:276:GLY:H	1.99	0.69
2:B:69:THR:O	2:B:70:ILE:HG13	1.92	0.69
1:A:141:LEU:HD21	1:A:145:LEU:HD22	1.73	0.69
1:A:116:TRP:HH2	1:A:147:MET:CA	2.05	0.69
1:A:318:SER:C	1:A:320:ALA:N	2.47	0.68
1:A:458:ALA:HB3	2:B:8:LEU:C	2.18	0.68
1:A:144:SER:CB	1:A:204:VAL:CG1	2.44	0.68
1:A:152:VAL:HG12	1:A:210:PHE:HB3	1.74	0.68
1:A:333:VAL:HG12	1:A:334:LEU:HD13	1.74	0.68
2:B:4:VAL:CG2	2:B:6:THR:HG23	2.24	0.68
1:A:140:MET:HB3	1:A:200:ALA:HB1	1.75	0.68
2:B:50:VAL:HG12	2:B:51:PRO:HD3	1.76	0.68
1:A:224:GLU:HG2	1:A:225:LYS:N	2.04	0.68
1:A:346:ARG:C	1:A:348:PRO:HD3	2.18	0.68
2:B:36:TYR:HD2	2:B:70:ILE:HD13	1.59	0.68
1:A:373:PHE:HB2	1:A:434:LEU:CD2	2.24	0.67
1:A:435:THR:HG22	1:A:438:ALA:HB2	1.76	0.67
2:B:65:GLY:HA2	2:B:91:THR:CB	2.23	0.67
1:A:55:ALA:O	1:A:58:LEU:HD11	1.94	0.67
2:B:37:GLY:N	2:B:70:ILE:HD11	2.08	0.67
2:B:69:THR:HA	2:B:88:ASN:HA	1.75	0.67
1:A:76:ALA:O	1:A:250:ILE:HD13	1.95	0.67
2:B:4:VAL:CG2	2:B:6:THR:HG22	2.25	0.67
1:A:58:LEU:HD12	1:A:138:GLN:NE2	2.08	0.67
1:A:241:TRP:NE1	1:A:243:VAL:HG22	2.10	0.67
1:A:254:ILE:HB	1:A:394:LYS:NZ	2.10	0.67
1:A:184:ASN:HA	1:A:205:ALA:HB1	1.77	0.67
2:B:67:ASP:HA	2:B:90:ARG:CB	2.21	0.67
1:A:97:GLY:HA3	1:A:227:PHE:CZ	2.31	0.67
1:A:268:ILE:HD12	1:A:287:ILE:CD1	2.25	0.67
1:A:305:THR:HA	1:A:308:ILE:HD11	1.77	0.67
1:A:148:PRO:CG	1:A:207:MET:HB2	2.25	0.66

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:55:ALA:O	1:A:58:LEU:CD1	2.44	0.66
1:A:283:GLN:O	1:A:284:GLN:HG3	1.96	0.66
1:A:331:GLY:HA2	1:A:334:LEU:CD2	2.25	0.66
1:A:458:ALA:HB1	2:B:8:LEU:HB2	1.77	0.66
1:A:225:LYS:HE2	1:A:226:PHE:CD2	2.30	0.66
1:A:408:GLY:HA3	1:A:430:LEU:CG	2.24	0.66
2:B:36:TYR:HA	2:B:70:ILE:CG1	2.25	0.66
2:B:37:GLY:H	2:B:70:ILE:HD11	1.61	0.66
1:A:44:MET:CE	1:A:180:ASN:HD21	2.08	0.66
1:A:458:ALA:CB	2:B:8:LEU:HB2	2.26	0.66
1:A:110:PHE:O	1:A:114:LEU:HG	1.95	0.65
1:A:140:MET:O	1:A:144:SER:HB2	1.97	0.65
1:A:71:MET:HE2	1:A:159:TYR:OH	1.96	0.65
1:A:373:PHE:HB2	1:A:434:LEU:HD22	1.78	0.65
1:A:306:VAL:O	1:A:308:ILE:N	2.29	0.65
1:A:164:ASN:C	1:A:166:PRO:HD3	2.20	0.65
1:A:159:TYR:CB	1:A:169:ILE:HD13	2.27	0.65
1:A:132:VAL:O	1:A:133:GLU:CG	2.45	0.65
2:B:30:VAL:O	2:B:31:TYR:CB	2.34	0.65
1:A:183:LEU:HD23	1:A:209:VAL:HG23	1.79	0.64
1:A:241:TRP:CD1	1:A:242:ALA:O	2.50	0.64
1:A:146:ALA:N	1:A:148:PRO:HD2	2.12	0.64
1:A:252:ALA:HB3	1:A:253:PRO:CD	2.25	0.64
1:A:297:PRO:HB3	1:A:378:PHE:CE2	2.33	0.64
1:A:381:CYS:O	1:A:384:SER:N	2.31	0.64
1:A:254:ILE:HB	1:A:394:LYS:CE	2.28	0.64
2:B:26:GLY:O	2:B:53:SER:OG	2.16	0.64
1:A:460:SER:O	2:B:8:LEU:HD11	1.92	0.64
1:A:97:GLY:HA3	1:A:227:PHE:HE2	1.61	0.63
1:A:183:LEU:CD1	1:A:187:PHE:HE1	2.12	0.63
1:A:254:ILE:HB	1:A:394:LYS:HE2	1.80	0.63
1:A:321:ARG:HH21	1:A:390:TYR:HB3	1.64	0.63
1:A:437:ALA:C	1:A:439:VAL:N	2.56	0.63
1:A:251:GLY:O	1:A:254:ILE:HG22	1.99	0.63
1:A:425:GLY:O	1:A:428:THR:HG22	1.97	0.63
2:B:27:GLU:HG3	2:B:52:GLY:O	1.97	0.63
1:A:148:PRO:O	1:A:152:VAL:CG1	2.46	0.63
1:A:143:THR:HG23	1:A:144:SER:H	1.63	0.63
1:A:221:ILE:HD13	1:A:228:ARG:CG	2.28	0.63
1:A:458:ALA:CB	2:B:8:LEU:CB	2.77	0.63
1:A:400:HIS:HD2	1:A:404:PHE:HE1	1.46	0.63

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:36:TYR:HD2	2:B:70:ILE:CD1	2.11	0.63
1:A:66:VAL:HA	1:A:69:THR:CG2	2.29	0.62
1:A:216:ALA:HA	1:A:219:ILE:CG1	2.27	0.62
1:A:136:MET:O	1:A:136:MET:HG2	1.97	0.62
1:A:224:GLU:CG	1:A:225:LYS:N	2.60	0.62
1:A:447:LYS:C	1:A:448:TYR:HD1	2.07	0.62
2:B:78:TYR:C	2:B:80:GLY:N	2.57	0.62
1:A:260:LEU:C	1:A:262:ALA:H	2.07	0.62
2:B:21:SER:C	2:B:22:TRP:HD1	2.07	0.62
1:A:261:GLU:HA	1:A:264:ALA:HB3	1.80	0.62
1:A:159:TYR:HB3	1:A:169:ILE:HD13	1.82	0.62
2:B:4:VAL:HG23	2:B:6:THR:HG23	1.79	0.62
1:A:308:ILE:HD11	1:A:386:ALA:HA	1.80	0.62
1:A:183:LEU:CD2	1:A:209:VAL:HG23	2.30	0.62
1:A:365:THR:HA	1:A:368:LEU:CG	2.29	0.62
1:A:147:MET:N	1:A:148:PRO:HD2	2.15	0.62
1:A:444:CYS:C	1:A:448:TYR:HB2	2.24	0.62
2:B:4:VAL:HG22	2:B:6:THR:CG2	2.30	0.61
1:A:89:LYS:HD3	1:A:89:LYS:N	2.07	0.61
1:A:426:PHE:C	1:A:428:THR:H	2.07	0.61
1:A:388:ARG:HB3	1:A:394:LYS:CB	2.27	0.61
1:A:441:LEU:C	1:A:443:TRP:N	2.58	0.61
1:A:242:ALA:HA	1:A:245:LYS:N	2.14	0.61
1:A:397:MET:C	1:A:400:HIS:HD1	2.09	0.61
1:A:71:MET:CE	1:A:159:TYR:OH	2.48	0.61
1:A:201:GLY:HA2	1:A:204:VAL:HG22	1.83	0.61
1:A:318:SER:OG	1:A:321:ARG:HB3	2.00	0.61
1:A:403:ALA:C	1:A:405:TRP:H	2.09	0.61
1:A:36:GLY:HA2	1:A:39:PHE:HE2	1.66	0.61
1:A:306:VAL:C	1:A:308:ILE:H	2.06	0.61
1:A:372:LEU:CD1	1:A:424:TYR:HB2	2.30	0.61
1:A:408:GLY:CA	1:A:430:LEU:HG	2.28	0.61
1:A:346:ARG:CD	1:A:367:LEU:HD11	2.30	0.60
2:B:35:THR:HG23	2:B:73:TYR:CE1	2.31	0.60
1:A:289:LEU:HD13	1:A:292:ILE:HD11	1.83	0.60
1:A:321:ARG:NH2	1:A:391:LYS:HB2	2.16	0.60
1:A:40:VAL:HG12	1:A:44:MET:HE3	1.82	0.60
1:A:81:ILE:HG12	1:A:163:LEU:HD12	1.82	0.60
1:A:221:ILE:HG21	1:A:228:ARG:HB2	1.82	0.60
1:A:411:PRO:CB	1:A:428:THR:CG2	2.62	0.60
1:A:447:LYS:HD3	1:A:448:TYR:HE1	1.65	0.60

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:387:LEU:CD2	1:A:444:CYS:O	2.48	0.60
1:A:395:VAL:HG13	1:A:396:PRO:CD	2.29	0.60
1:A:287:ILE:HG21	1:A:427:TRP:HH2	1.65	0.60
1:A:159:TYR:CD1	1:A:159:TYR:C	2.80	0.60
2:B:31:TYR:HB3	2:B:75:ARG:HB3	1.84	0.60
1:A:145:LEU:HD12	1:A:207:MET:HB3	1.84	0.60
1:A:40:VAL:CG1	1:A:180:ASN:ND2	2.65	0.60
2:B:65:GLY:HA2	2:B:91:THR:HG21	1.82	0.60
1:A:149:ALA:C	1:A:152:VAL:HG22	2.27	0.59
1:A:225:LYS:HG2	1:A:226:PHE:H	1.67	0.59
1:A:339:VAL:CG2	1:A:375:PRO:HD3	2.27	0.59
1:A:427:TRP:CD1	1:A:427:TRP:H	2.20	0.59
1:A:12:VAL:HG23	1:A:13:PHE:H	1.66	0.59
1:A:263:SER:C	1:A:265:PHE:N	2.58	0.59
1:A:298:GLN:HA	1:A:382:ILE:HG22	1.85	0.59
1:A:457:LYS:HZ1	2:B:90:ARG:NH1	2.00	0.59
3:A:501:RHQ:C26	3:A:501:RHQ:C3	2.80	0.59
2:B:13:ALA:HB1	2:B:17:SER:O	2.03	0.59
1:A:74:MET:HE3	1:A:107:LEU:HD22	1.85	0.59
1:A:300:VAL:O	1:A:304:GLY:N	2.20	0.59
2:B:27:GLU:HG2	2:B:30:VAL:HG23	1.82	0.59
2:B:71:THR:HG23	2:B:85:ILE:C	2.26	0.59
1:A:86:GLY:HA3	1:A:314:ARG:N	2.18	0.59
1:A:318:SER:HA	1:A:321:ARG:N	2.10	0.59
1:A:172:VAL:O	1:A:174:PHE:N	2.30	0.58
1:A:369:PHE:HD2	1:A:424:TYR:CB	2.16	0.58
1:A:132:VAL:C	1:A:133:GLU:HG2	2.27	0.58
1:A:141:LEU:HD13	1:A:145:LEU:HD23	1.81	0.58
1:A:439:VAL:HG23	1:A:440:ALA:H	1.65	0.58
2:B:27:GLU:HB3	2:B:30:VAL:HG23	1.85	0.58
1:A:172:VAL:C	1:A:174:PHE:H	2.10	0.58
1:A:267:PHE:CE2	1:A:408:GLY:O	2.56	0.58
2:B:5:PRO:HD3	2:B:74:ALA:HB2	1.86	0.58
1:A:212:PHE:C	1:A:212:PHE:CD2	2.81	0.58
1:A:172:VAL:HG21	1:A:216:ALA:HB1	1.84	0.58
1:A:233:THR:O	1:A:234:ALA:O	2.22	0.58
1:A:132:VAL:C	1:A:133:GLU:CG	2.76	0.58
2:B:65:GLY:HA2	2:B:91:THR:CG2	2.34	0.58
1:A:289:LEU:HD13	1:A:292:ILE:HD13	1.85	0.57
1:A:346:ARG:CZ	1:A:364:SER:HB2	2.34	0.57
1:A:372:LEU:HD13	1:A:427:TRP:HB2	1.85	0.57

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:34:ILE:HG22	2:B:72:VAL:HG23	1.86	0.57
1:A:372:LEU:HD11	1:A:424:TYR:HD1	1.68	0.57
1:A:157:HIS:HA	1:A:160:ALA:HB3	1.86	0.57
2:B:65:GLY:HA2	2:B:91:THR:HB	1.85	0.57
1:A:267:PHE:HZ	1:A:409:LEU:HA	1.70	0.57
1:A:145:LEU:CD1	1:A:206:THR:HB	2.35	0.57
1:A:418:ARG:NH1	1:A:425:GLY:O	2.37	0.57
1:A:458:ALA:HB1	2:B:8:LEU:HB3	1.87	0.57
1:A:461:SER:HA	2:B:8:LEU:CG	2.34	0.57
1:A:43:VAL:HG11	1:A:181:VAL:HG22	1.87	0.57
1:A:385:TYR:HD1	1:A:388:ARG:CZ	2.17	0.57
2:B:42:ASN:CG	2:B:43:SER:H	2.12	0.57
1:A:31:GLN:HG3	1:A:296:ILE:HA	1.86	0.57
1:A:143:THR:CG2	1:A:144:SER:N	2.68	0.57
1:A:148:PRO:HB3	1:A:207:MET:HB2	1.87	0.57
1:A:197:LEU:O	1:A:201:GLY:HA3	2.04	0.57
1:A:294:TYR:CZ	1:A:298:GLN:HB2	2.40	0.57
2:B:27:GLU:HG2	2:B:30:VAL:CG2	2.34	0.57
2:B:36:TYR:HA	2:B:70:ILE:CD1	2.35	0.57
2:B:78:TYR:O	2:B:80:GLY:N	2.38	0.57
1:A:44:MET:HE1	1:A:180:ASN:ND2	2.19	0.56
1:A:79:PRO:O	1:A:80:MET:C	2.48	0.56
1:A:167:ARG:C	1:A:169:ILE:H	2.13	0.56
2:B:9:GLU:O	2:B:22:TRP:CD1	2.57	0.56
1:A:55:ALA:O	1:A:138:GLN:NE2	2.38	0.56
1:A:51:GLU:HB3	1:A:54:ALA:CB	2.35	0.56
1:A:40:VAL:O	1:A:43:VAL:N	2.39	0.56
1:A:339:VAL:HA	1:A:342:LEU:CD1	2.36	0.56
1:A:369:PHE:HD2	1:A:424:TYR:HB3	1.71	0.56
2:B:82:TYR:O	2:B:83:SER:HB2	2.04	0.56
1:A:131:TYR:O	1:A:133:GLU:HG2	2.05	0.56
1:A:263:SER:HB2	1:A:405:TRP:CD1	2.41	0.56
1:A:398:PHE:HD2	1:A:399:ILE:HG12	1.71	0.56
1:A:143:THR:CG2	1:A:144:SER:H	2.19	0.56
1:A:411:PRO:HB2	1:A:428:THR:HG23	1.85	0.56
2:B:74:ALA:O	2:B:81:TRP:HE3	1.89	0.56
1:A:447:LYS:CD	1:A:448:TYR:CE1	2.89	0.56
1:A:448:TYR:C	1:A:450:MET:H	2.13	0.56
1:A:151:MET:HB2	1:A:211:TRP:CE2	2.41	0.55
1:A:217:LEU:O	1:A:218:TRP:C	2.47	0.55
1:A:183:LEU:HD11	1:A:205:ALA:HA	1.87	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:10:VAL:CG1	2:B:18:LEU:HD22	2.35	0.55
2:B:17:SER:OG	2:B:59:ILE:O	2.24	0.55
1:A:19:LEU:C	1:A:21:THR:H	2.13	0.55
1:A:111:GLY:O	1:A:115:MET:HB2	2.06	0.55
1:A:339:VAL:HG23	1:A:374:GLN:HB3	1.88	0.55
1:A:412:GLY:HA2	1:A:426:PHE:HD1	1.70	0.55
2:B:9:GLU:C	2:B:22:TRP:HE1	2.12	0.55
2:B:18:LEU:HB2	2:B:59:ILE:HD11	1.89	0.55
1:A:90:THR:O	1:A:94:GLY:HA3	2.07	0.55
1:A:388:ARG:O	1:A:391:LYS:O	2.25	0.55
1:A:400:HIS:HD2	1:A:404:PHE:CE1	2.25	0.55
1:A:92:GLU:HA	1:A:95:GLU:HG2	1.88	0.55
1:A:334:LEU:HD12	1:A:337:ILE:HD11	1.89	0.55
2:B:8:LEU:HD13	2:B:87:ILE:CG1	2.36	0.55
1:A:36:GLY:HA2	1:A:39:PHE:CE2	2.41	0.55
1:A:175:ALA:HA	1:A:178:VAL:HG12	1.88	0.55
1:A:260:LEU:O	1:A:262:ALA:N	2.39	0.55
1:A:321:ARG:HA	1:A:324:SER:HB3	1.88	0.55
1:A:388:ARG:N	1:A:393:THR:O	2.40	0.55
2:B:18:LEU:H	2:B:59:ILE:HG13	1.72	0.55
2:B:21:SER:HA	2:B:56:THR:HA	1.89	0.55
1:A:413:TYR:O	1:A:414:LEU:CD1	2.54	0.55
1:A:455:SER:O	2:B:11:VAL:HA	2.07	0.55
2:B:74:ALA:O	2:B:81:TRP:CE3	2.60	0.55
1:A:59:GLY:O	1:A:63:PHE:N	2.38	0.55
1:A:456:HIS:NE2	1:A:459:VAL:HA	2.22	0.55
1:A:332:TRP:HA	1:A:335:ALA:CB	2.37	0.54
1:A:440:ALA:O	1:A:443:TRP:HE3	1.90	0.54
2:B:36:TYR:CD2	2:B:70:ILE:HD13	2.42	0.54
1:A:90:THR:O	1:A:94:GLY:CA	2.56	0.54
1:A:104:GLY:O	1:A:105:LEU:HB2	2.07	0.54
1:A:447:LYS:O	1:A:448:TYR:HD1	1.89	0.54
2:B:33:ARG:O	2:B:73:TYR:HB2	2.07	0.54
1:A:225:LYS:HE2	1:A:226:PHE:HE2	1.71	0.54
1:A:274:PRO:C	1:A:276:GLY:N	2.66	0.54
1:A:183:LEU:CD1	1:A:187:PHE:CE1	2.91	0.54
1:A:89:LYS:CG	1:A:92:GLU:HB2	2.34	0.54
1:A:332:TRP:HA	1:A:335:ALA:HB2	1.90	0.54
1:A:439:VAL:HG22	1:A:440:ALA:H	1.69	0.54
2:B:67:ASP:OD2	2:B:68:TYR:N	2.41	0.54
1:A:51:GLU:HB3	1:A:54:ALA:HB2	1.88	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:73:ILE:H	1:A:73:ILE:CD1	2.18	0.54
1:A:81:ILE:CG1	1:A:163:LEU:HD12	2.38	0.54
1:A:141:LEU:HD22	1:A:203:GLY:HA3	1.87	0.54
1:A:253:PRO:O	1:A:257:SER:HB2	2.07	0.54
1:A:369:PHE:C	1:A:371:GLY:H	2.16	0.54
1:A:372:LEU:HD11	1:A:424:TYR:CD1	2.42	0.54
1:A:89:LYS:H	1:A:89:LYS:CD	2.11	0.54
1:A:364:SER:HA	1:A:366:VAL:HG22	1.90	0.54
1:A:99:GLN:OE1	1:A:241:TRP:CD1	2.61	0.54
2:B:20:ILE:HG12	2:B:57:ALA:O	2.08	0.54
1:A:74:MET:C	1:A:76:ALA:H	2.17	0.53
1:A:78:ASN:C	1:A:163:LEU:HD13	2.33	0.53
1:A:94:GLY:HA2	1:A:227:PHE:CZ	2.43	0.53
1:A:159:TYR:C	1:A:159:TYR:HD1	2.16	0.53
1:A:183:LEU:O	1:A:184:ASN:C	2.51	0.53
1:A:148:PRO:CB	1:A:207:MET:HB2	2.39	0.53
1:A:75:ALA:HB2	1:A:156:LEU:HD11	1.90	0.53
2:B:87:ILE:HG22	2:B:89:TYR:H	1.72	0.53
1:A:241:TRP:HE1	1:A:243:VAL:HG22	1.73	0.53
1:A:295:MET:HE3	1:A:296:ILE:HD12	1.91	0.53
1:A:387:LEU:CD1	1:A:393:THR:HG21	2.39	0.53
1:A:343:VAL:HG13	1:A:367:LEU:O	2.08	0.53
1:A:74:MET:HB2	1:A:156:LEU:CD2	2.39	0.53
1:A:119:ILE:HG12	1:A:142:PHE:CD2	2.43	0.53
1:A:250:ILE:O	1:A:394:LYS:HD3	2.09	0.53
1:A:400:HIS:CD2	1:A:404:PHE:HE1	2.26	0.53
1:A:439:VAL:O	1:A:443:TRP:HB3	2.09	0.53
1:A:137:ALA:O	1:A:199:GLY:O	2.26	0.53
1:A:63:PHE:C	1:A:65:THR:N	2.63	0.52
1:A:103:PHE:O	1:A:106:ILE:N	2.41	0.52
1:A:340:LEU:O	1:A:344:LEU:CB	2.55	0.52
2:B:71:THR:HG22	2:B:72:VAL:O	2.09	0.52
1:A:71:MET:HG2	1:A:156:LEU:HD22	1.92	0.52
1:A:91:GLY:HA3	1:A:226:PHE:CZ	2.44	0.52
1:A:35:VAL:O	1:A:39:PHE:HD2	1.91	0.52
1:A:183:LEU:HD13	1:A:187:PHE:HE1	1.74	0.52
1:A:280:VAL:HG13	1:A:423:ILE:HD11	1.92	0.52
1:A:221:ILE:HD13	1:A:228:ARG:HG3	1.92	0.52
1:A:91:GLY:HA2	1:A:94:GLY:HA3	1.91	0.52
1:A:268:ILE:CD1	1:A:287:ILE:CD1	2.88	0.52
1:A:372:LEU:CD1	1:A:427:TRP:HB2	2.40	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:151:MET:SD	1:A:211:TRP:CG	3.02	0.52
1:A:263:SER:HB2	1:A:405:TRP:HD1	1.73	0.52
1:A:400:HIS:CD2	1:A:404:PHE:CE1	2.98	0.52
2:B:32:TYR:HA	2:B:73:TYR:O	2.10	0.52
2:B:14:THR:C	2:B:16:THR:H	2.17	0.52
1:A:58:LEU:HD12	1:A:138:GLN:CD	2.33	0.51
1:A:318:SER:OG	1:A:321:ARG:CB	2.58	0.51
1:A:56:VAL:C	1:A:58:LEU:N	2.68	0.51
1:A:148:PRO:O	1:A:150:ALA:N	2.42	0.51
1:A:231:GLY:O	1:A:232:LEU:C	2.53	0.51
1:A:185:TYR:C	1:A:187:PHE:H	2.18	0.51
1:A:260:LEU:C	1:A:262:ALA:N	2.68	0.51
1:A:70:PHE:HD2	1:A:107:LEU:HG	1.74	0.51
1:A:100:GLY:O	1:A:103:PHE:N	2.43	0.51
1:A:141:LEU:CD2	1:A:145:LEU:HD22	2.40	0.51
1:A:227:PHE:O	1:A:229:PRO:HD3	2.10	0.51
1:A:379:THR:HG22	1:A:382:ILE:HG12	1.92	0.51
1:A:385:TYR:HA	1:A:388:ARG:HE	1.76	0.51
1:A:272:ILE:HG22	1:A:280:VAL:O	2.11	0.51
1:A:397:MET:C	1:A:400:HIS:H	2.17	0.51
1:A:450:MET:HA	1:A:450:MET:HE2	1.93	0.51
1:A:95:GLU:O	1:A:99:GLN:CG	2.58	0.51
1:A:140:MET:HG2	1:A:197:LEU:HD11	1.92	0.51
1:A:183:LEU:HD23	1:A:209:VAL:CG2	2.40	0.51
1:A:185:TYR:C	1:A:187:PHE:N	2.68	0.51
1:A:187:PHE:HB2	1:A:201:GLY:O	2.11	0.51
1:A:410:LEU:C	1:A:412:GLY:H	2.19	0.51
2:B:22:TRP:O	2:B:56:THR:HG23	2.10	0.51
1:A:115:MET:O	1:A:118:ALA:HB3	2.11	0.51
2:B:32:TYR:HB2	2:B:50:VAL:HG23	1.92	0.51
1:A:267:PHE:CZ	1:A:409:LEU:HA	2.44	0.51
2:B:50:VAL:CB	2:B:51:PRO:CD	2.88	0.51
2:B:68:TYR:O	2:B:88:ASN:O	2.29	0.51
1:A:33:ALA:HB2	1:A:170:MET:HA	1.92	0.51
2:B:8:LEU:HD12	2:B:87:ILE:HD11	1.84	0.51
1:A:64:ALA:HA	1:A:67:TYR:HB3	1.93	0.50
1:A:148:PRO:HG3	1:A:207:MET:CB	2.40	0.50
1:A:172:VAL:O	1:A:176:ALA:N	2.44	0.50
1:A:297:PRO:O	1:A:298:GLN:C	2.53	0.50
1:A:346:ARG:O	1:A:348:PRO:HD3	2.11	0.50
2:B:27:GLU:CB	2:B:30:VAL:HG23	2.40	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:36:TYR:HA	2:B:70:ILE:HD11	1.92	0.50
1:A:458:ALA:HB3	2:B:8:LEU:O	2.11	0.50
1:A:55:ALA:CB	1:A:58:LEU:HD21	2.37	0.50
1:A:100:GLY:HA2	1:A:103:PHE:HB2	1.92	0.50
1:A:253:PRO:HB3	1:A:394:LYS:O	2.10	0.50
1:A:199:GLY:O	1:A:200:ALA:HB2	2.12	0.50
1:A:397:MET:O	1:A:398:PHE:C	2.53	0.50
1:A:225:LYS:HD3	1:A:226:PHE:N	2.27	0.50
2:B:35:THR:O	2:B:70:ILE:HG12	2.12	0.50
1:A:115:MET:CG	1:A:146:ALA:HB1	2.42	0.50
1:A:116:TRP:HH2	1:A:147:MET:HB2	1.77	0.50
1:A:141:LEU:HD21	1:A:145:LEU:CD2	2.39	0.50
1:A:335:ALA:HA	1:A:378:PHE:CZ	2.47	0.50
1:A:118:ALA:O	1:A:120:THR:N	2.45	0.50
1:A:144:SER:HB3	1:A:204:VAL:HG12	0.71	0.50
1:A:365:THR:HA	1:A:368:LEU:CD1	2.42	0.50
2:B:19:LEU:HD13	2:B:19:LEU:C	2.36	0.50
2:B:79:TRP:O	2:B:79:TRP:CE3	2.65	0.50
1:A:19:LEU:C	1:A:21:THR:N	2.70	0.49
1:A:425:GLY:O	1:A:428:THR:CG2	2.60	0.49
1:A:69:THR:HG23	1:A:70:PHE:N	2.27	0.49
1:A:242:ALA:C	1:A:244:PHE:N	2.68	0.49
1:A:77:LEU:O	1:A:80:MET:HB2	2.12	0.49
1:A:403:ALA:O	1:A:407:CYS:CB	2.57	0.49
1:A:73:ILE:HD12	1:A:73:ILE:N	2.24	0.49
1:A:325:GLY:C	1:A:327:SER:H	2.19	0.49
3:A:501:RHQ:C15	3:A:501:RHQ:C13	2.52	0.49
1:A:343:VAL:HA	1:A:367:LEU:HB3	1.94	0.49
1:A:70:PHE:HB3	1:A:153:HIS:NE2	2.28	0.49
1:A:328:LEU:O	1:A:332:TRP:HB2	2.12	0.49
1:A:417:TYR:CG	1:A:417:TYR:O	2.65	0.49
1:A:56:VAL:HA	1:A:138:GLN:NE2	2.27	0.49
2:B:7:LYS:CB	2:B:23:ASP:HB2	2.35	0.49
1:A:33:ALA:HB2	1:A:170:MET:CA	2.43	0.49
1:A:81:ILE:HG13	1:A:163:LEU:HB2	1.94	0.49
1:A:108:GLY:O	1:A:112:MET:HB2	2.12	0.49
1:A:463:LEU:O	2:B:3:SER:CB	2.60	0.49
2:B:21:SER:C	2:B:22:TRP:CD1	2.90	0.49
2:B:59:ILE:HD12	2:B:61:GLY:CA	2.42	0.49
1:A:115:MET:HB3	1:A:146:ALA:HB1	1.95	0.49
1:A:140:MET:HB3	1:A:200:ALA:CB	2.42	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:385:TYR:HA	1:A:388:ARG:NE	2.28	0.48
1:A:245:LYS:O	1:A:248:TRP:HB2	2.14	0.48
1:A:426:PHE:C	1:A:428:THR:N	2.71	0.48
2:B:7:LYS:O	2:B:22:TRP:CE3	2.66	0.48
2:B:50:VAL:CG1	2:B:51:PRO:HD3	2.42	0.48
1:A:145:LEU:CD1	1:A:207:MET:HB3	2.43	0.48
1:A:151:MET:HB2	1:A:211:TRP:NE1	2.28	0.48
1:A:182:PRO:O	1:A:186:ILE:HG13	2.13	0.48
1:A:364:SER:C	1:A:366:VAL:N	2.62	0.48
3:A:501:RHQ:H213	3:A:501:RHQ:C24	2.43	0.48
2:B:7:LYS:O	2:B:8:LEU:HD23	2.13	0.48
2:B:43:SER:O	2:B:44:PRO:O	2.31	0.48
1:A:156:LEU:HD12	1:A:159:TYR:CE1	2.49	0.48
1:A:339:VAL:HG21	1:A:375:PRO:CD	2.34	0.48
1:A:290:SER:O	1:A:294:TYR:HB3	2.14	0.48
2:B:38:GLU:CD	2:B:38:GLU:N	2.71	0.48
1:A:103:PHE:HA	1:A:106:ILE:HG22	1.95	0.48
1:A:250:ILE:O	1:A:394:LYS:CD	2.62	0.48
1:A:411:PRO:HG3	1:A:429:ALA:CB	2.33	0.48
1:A:463:LEU:O	2:B:3:SER:HB3	2.14	0.48
1:A:102:TRP:HZ3	1:A:235:LYS:CG	2.26	0.48
1:A:372:LEU:HD21	1:A:424:TYR:CD1	2.48	0.48
1:A:411:PRO:C	1:A:426:PHE:HB2	2.39	0.48
2:B:75:ARG:CB	2:B:75:ARG:HH11	2.27	0.48
1:A:159:TYR:HB2	1:A:169:ILE:HD13	1.96	0.48
1:A:76:ALA:C	1:A:250:ILE:HD13	2.39	0.47
1:A:227:PHE:C	1:A:229:PRO:HD3	2.40	0.47
1:A:235:LYS:CB	1:A:241:TRP:HB3	2.36	0.47
1:A:393:THR:HG22	1:A:393:THR:O	2.13	0.47
1:A:398:PHE:CD2	1:A:399:ILE:HG12	2.49	0.47
1:A:90:THR:O	1:A:94:GLY:N	2.46	0.47
1:A:377:ASP:O	1:A:378:PHE:C	2.57	0.47
2:B:27:GLU:CG	2:B:30:VAL:HG23	2.44	0.47
1:A:116:TRP:CH2	1:A:147:MET:HB2	2.49	0.47
1:A:136:MET:C	1:A:138:GLN:H	2.23	0.47
1:A:379:THR:O	1:A:382:ILE:N	2.47	0.47
1:A:396:PRO:CB	1:A:399:ILE:HG13	2.40	0.47
1:A:458:ALA:CB	2:B:8:LEU:HB3	2.43	0.47
2:B:26:GLY:O	2:B:53:SER:HA	2.15	0.47
1:A:141:LEU:CD2	1:A:145:LEU:CD2	2.93	0.47
1:A:387:LEU:CD2	1:A:445:LEU:HB2	2.44	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:457:LYS:HD3	2:B:10:VAL:HB	1.97	0.47
1:A:72:GLY:O	1:A:73:ILE:C	2.57	0.47
1:A:86:GLY:HA3	1:A:314:ARG:H	1.80	0.47
1:A:461:SER:CA	2:B:8:LEU:HG	2.42	0.47
2:B:4:VAL:HG23	2:B:6:THR:HG22	1.90	0.47
2:B:67:ASP:CA	2:B:90:ARG:HB3	2.35	0.47
1:A:339:VAL:HA	1:A:342:LEU:HD12	1.97	0.47
1:A:372:LEU:HD21	1:A:424:TYR:HD1	1.79	0.47
1:A:414:LEU:O	1:A:418:ARG:NH1	2.44	0.47
2:B:9:GLU:N	2:B:22:TRP:NE1	2.58	0.47
1:A:69:THR:HG23	1:A:70:PHE:H	1.79	0.47
1:A:103:PHE:O	1:A:105:LEU:N	2.48	0.47
1:A:119:ILE:HG12	1:A:142:PHE:HB3	1.97	0.47
1:A:329:VAL:HG23	1:A:332:TRP:CE3	2.50	0.47
2:B:82:TYR:O	2:B:83:SER:CB	2.62	0.47
1:A:33:ALA:CB	1:A:170:MET:HA	2.44	0.46
1:A:167:ARG:C	1:A:169:ILE:N	2.73	0.46
1:A:412:GLY:HA2	1:A:426:PHE:CD1	2.50	0.46
2:B:35:THR:HG1	2:B:71:THR:H	1.62	0.46
1:A:18:ARG:O	1:A:18:ARG:HD3	2.15	0.46
1:A:365:THR:CA	1:A:368:LEU:HG	2.42	0.46
2:B:12:ALA:O	2:B:18:LEU:HD23	2.16	0.46
1:A:69:THR:HG23	1:A:70:PHE:HD1	1.80	0.46
2:B:22:TRP:HZ3	2:B:85:ILE:HG23	1.79	0.46
2:B:67:ASP:HA	2:B:90:ARG:HG2	1.98	0.46
1:A:65:THR:HG22	1:A:66:VAL:H	1.79	0.46
1:A:148:PRO:HB2	1:A:152:VAL:HG11	1.98	0.46
1:A:416:ALA:O	1:A:417:TYR:HB3	2.15	0.46
1:A:176:ALA:HA	1:A:212:PHE:CE2	2.50	0.46
1:A:260:LEU:HB3	1:A:261:GLU:H	1.55	0.46
1:A:283:GLN:O	1:A:283:GLN:HG2	2.15	0.46
1:A:162:SER:HB3	1:A:166:PRO:O	2.15	0.46
1:A:169:ILE:HA	1:A:172:VAL:HG12	1.97	0.46
1:A:301:GLY:C	1:A:303:ALA:H	2.22	0.46
1:A:65:THR:CG2	1:A:66:VAL:N	2.79	0.46
1:A:102:TRP:HZ3	1:A:235:LYS:HG3	1.81	0.46
1:A:116:TRP:HH2	1:A:147:MET:CB	2.28	0.46
1:A:172:VAL:C	1:A:174:PHE:N	2.72	0.46
1:A:448:TYR:C	1:A:450:MET:N	2.70	0.46
2:B:50:VAL:CB	2:B:51:PRO:HD3	2.43	0.46
1:A:79:PRO:O	1:A:81:ILE:N	2.49	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:119:ILE:HG12	1:A:142:PHE:HD2	1.81	0.46
1:A:126:LEU:HD13	1:A:270:PHE:HZ	1.81	0.46
1:A:397:MET:O	1:A:400:HIS:CG	2.69	0.46
1:A:70:PHE:O	1:A:73:ILE:HB	2.16	0.46
1:A:100:GLY:C	1:A:102:TRP:N	2.71	0.46
2:B:20:ILE:CD1	2:B:59:ILE:HG23	2.45	0.46
1:A:74:MET:CB	1:A:156:LEU:HD21	2.43	0.45
1:A:100:GLY:O	1:A:104:GLY:N	2.42	0.45
1:A:259:PHE:CA	1:A:262:ALA:HB3	2.30	0.45
1:A:334:LEU:HA	1:A:337:ILE:HG13	1.97	0.45
1:A:369:PHE:CD2	1:A:424:TYR:HB3	2.50	0.45
2:B:8:LEU:HB3	2:B:87:ILE:HG13	1.98	0.45
1:A:100:GLY:HA3	1:A:157:HIS:NE2	2.32	0.45
1:A:312:LEU:HB2	1:A:390:TYR:CE2	2.51	0.45
2:B:67:ASP:HA	2:B:90:ARG:CG	2.45	0.45
1:A:101:ILE:HD11	1:A:217:LEU:HD22	1.98	0.45
1:A:391:LYS:C	1:A:393:THR:H	2.23	0.45
1:A:440:ALA:O	1:A:443:TRP:CE3	2.69	0.45
2:B:4:VAL:HA	2:B:83:SER:HB3	1.98	0.45
1:A:29:LEU:HB2	1:A:167:ARG:HG3	1.99	0.45
1:A:44:MET:HE1	1:A:180:ASN:OD1	2.17	0.45
1:A:102:TRP:CG	1:A:233:THR:HB	2.52	0.45
1:A:56:VAL:C	1:A:58:LEU:H	2.24	0.45
1:A:167:ARG:HD3	1:A:167:ARG:N	2.31	0.45
1:A:290:SER:O	1:A:291:GLY:C	2.59	0.45
1:A:329:VAL:HA	1:A:332:TRP:CB	2.47	0.45
2:B:4:VAL:HB	2:B:85:ILE:HB	1.99	0.45
1:A:31:GLN:OE1	1:A:299:SER:O	2.35	0.45
1:A:364:SER:OG	1:A:367:LEU:HD12	2.16	0.45
1:A:57:ALA:HA	1:A:60:SER:OG	2.16	0.45
1:A:189:TYR:HD1	1:A:190:GLY:N	2.15	0.45
1:A:243:VAL:HG23	1:A:243:VAL:O	2.16	0.45
2:B:69:THR:OG1	2:B:88:ASN:HB3	2.16	0.45
2:B:38:GLU:CD	2:B:38:GLU:H	2.23	0.45
1:A:143:THR:C	1:A:145:LEU:N	2.74	0.44
1:A:311:SER:HB2	1:A:320:ALA:HB2	1.98	0.44
2:B:51:PRO:HB2	2:B:52:GLY:H	1.53	0.44
1:A:331:GLY:O	1:A:335:ALA:N	2.50	0.44
1:A:408:GLY:HA3	1:A:430:LEU:CD2	2.47	0.44
2:B:37:GLY:H	2:B:70:ILE:CD1	2.30	0.44
1:A:136:MET:O	1:A:139:TYR:HB2	2.16	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:372:LEU:HD13	1:A:427:TRP:CB	2.46	0.44
1:A:400:HIS:CG	1:A:401:ALA:N	2.85	0.44
1:A:65:THR:CG2	1:A:66:VAL:HG13	2.48	0.44
1:A:112:MET:HE3	1:A:112:MET:HB3	1.89	0.44
1:A:420:ASP:C	1:A:422:GLY:N	2.76	0.44
1:A:141:LEU:HD21	1:A:203:GLY:HA3	1.95	0.44
1:A:305:THR:OG1	1:A:389:GLY:HA2	2.18	0.44
1:A:396:PRO:HA	1:A:398:PHE:HB3	1.99	0.44
2:B:20:ILE:HD11	2:B:59:ILE:HG23	2.00	0.44
1:A:32:VAL:O	1:A:35:VAL:HG12	2.18	0.44
1:A:74:MET:CB	1:A:156:LEU:CD2	2.95	0.44
2:B:36:TYR:HD1	2:B:46:GLN:HB2	1.83	0.44
1:A:148:PRO:HA	1:A:211:TRP:HE1	1.82	0.44
1:A:456:HIS:CD2	1:A:459:VAL:HA	2.53	0.44
1:A:460:SER:O	2:B:8:LEU:CG	2.63	0.44
1:A:91:GLY:HA3	1:A:226:PHE:HE1	1.79	0.44
1:A:96:THR:O	1:A:99:GLN:N	2.51	0.44
1:A:186:ILE:O	1:A:186:ILE:HG22	2.17	0.44
1:A:268:ILE:HG13	1:A:269:VAL:HG23	1.98	0.44
1:A:40:VAL:O	1:A:41:ASP:C	2.61	0.43
1:A:95:GLU:O	1:A:99:GLN:HG2	2.17	0.43
1:A:321:ARG:HH22	1:A:391:LYS:HD3	1.82	0.43
1:A:329:VAL:HG22	1:A:332:TRP:HE3	1.83	0.43
2:B:13:ALA:HA	2:B:18:LEU:HA	2.00	0.43
1:A:147:MET:SD	1:A:148:PRO:HD3	2.57	0.43
1:A:298:GLN:HA	1:A:382:ILE:CG2	2.47	0.43
2:B:51:PRO:O	2:B:52:GLY:O	2.36	0.43
1:A:15:LYS:HB3	1:A:325:GLY:HA3	2.01	0.43
1:A:26:PRO:C	1:A:28:LEU:H	2.25	0.43
1:A:119:ILE:H	1:A:119:ILE:HG13	1.25	0.43
1:A:158:ALA:CA	1:A:217:LEU:HD11	2.42	0.43
1:A:424:TYR:O	1:A:427:TRP:HB2	2.18	0.43
1:A:410:LEU:HA	1:A:413:TYR:CE1	2.54	0.43
2:B:34:ILE:HD11	2:B:48:PHE:HB2	1.99	0.43
1:A:28:LEU:HD23	1:A:29:LEU:CD2	2.48	0.43
1:A:221:ILE:HG21	1:A:228:ARG:CB	2.48	0.43
1:A:238:LYS:CB	1:A:239:PRO:CD	2.90	0.43
1:A:315:ARG:HG2	2:B:9:GLU:OE1	2.18	0.43
2:B:75:ARG:HD2	2:B:79:TRP:C	2.42	0.43
1:A:15:LYS:NZ	1:A:446:GLU:OE1	2.51	0.43
1:A:147:MET:N	1:A:148:PRO:CD	2.80	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:15:LYS:HD2	1:A:325:GLY:CA	2.48	0.43
1:A:191:LYS:HB3	1:A:192:PHE:H	1.61	0.43
1:A:254:ILE:O	1:A:258:TYR:N	2.52	0.43
1:A:340:LEU:HD12	1:A:341:SER:N	2.33	0.43
1:A:342:LEU:O	1:A:367:LEU:HD22	2.18	0.43
1:A:404:PHE:CD2	1:A:404:PHE:N	2.86	0.43
1:A:458:ALA:HB3	2:B:8:LEU:HB2	1.99	0.43
2:B:30:VAL:O	2:B:30:VAL:CG1	2.60	0.43
2:B:38:GLU:HB3	2:B:67:ASP:O	2.18	0.43
1:A:103:PHE:O	1:A:107:LEU:N	2.48	0.43
1:A:182:PRO:HB2	1:A:183:LEU:H	1.71	0.43
1:A:259:PHE:CG	1:A:262:ALA:HB3	2.54	0.43
1:A:263:SER:CB	1:A:405:TRP:CD1	3.02	0.43
1:A:455:SER:O	1:A:457:LYS:N	2.52	0.43
1:A:56:VAL:O	1:A:58:LEU:N	2.52	0.42
1:A:391:LYS:C	1:A:393:THR:N	2.75	0.42
2:B:7:LYS:HB3	2:B:23:ASP:N	2.22	0.42
1:A:99:GLN:OE1	1:A:241:TRP:NE1	2.52	0.42
1:A:76:ALA:HB2	1:A:254:ILE:HG21	2.01	0.42
1:A:102:TRP:CH2	1:A:234:ALA:HA	2.55	0.42
1:A:168:LEU:HD23	1:A:171:LEU:HD22	2.01	0.42
1:A:252:ALA:CB	1:A:253:PRO:HD3	2.34	0.42
1:A:329:VAL:CG2	1:A:332:TRP:CE3	3.02	0.42
1:A:448:TYR:CE1	1:A:451:GLU:HG3	2.54	0.42
2:B:38:GLU:CB	2:B:67:ASP:O	2.67	0.42
1:A:104:GLY:HA2	1:A:153:HIS:HB3	2.02	0.42
1:A:212:PHE:CD2	1:A:213:SER:N	2.87	0.42
1:A:217:LEU:O	1:A:219:ILE:N	2.53	0.42
1:A:366:VAL:HA	1:A:369:PHE:CZ	2.53	0.42
1:A:387:LEU:HB3	1:A:388:ARG:H	1.59	0.42
1:A:142:PHE:O	1:A:146:ALA:CB	2.61	0.42
1:A:253:PRO:HB2	1:A:394:LYS:CD	2.44	0.42
1:A:294:TYR:CD2	1:A:294:TYR:C	2.96	0.42
1:A:346:ARG:NE	1:A:364:SER:HB2	2.34	0.42
1:A:12:VAL:HG23	1:A:13:PHE:N	2.33	0.42
1:A:44:MET:HE2	1:A:44:MET:HB3	1.98	0.42
1:A:156:LEU:C	1:A:158:ALA:N	2.75	0.42
2:B:4:VAL:HG22	2:B:6:THR:HG22	1.96	0.42
1:A:15:LYS:HG2	1:A:322:TYR:HA	2.01	0.42
1:A:396:PRO:HB3	1:A:399:ILE:CG1	2.41	0.42
1:A:185:TYR:O	1:A:187:PHE:N	2.52	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:120:THR:H	1:A:121:PRO:CD	2.33	0.42
1:A:282:ALA:HB2	1:A:362:ILE:HD12	2.01	0.42
1:A:116:TRP:CH2	1:A:147:MET:CA	2.90	0.42
1:A:321:ARG:HD2	1:A:452:LEU:HD22	2.01	0.42
1:A:428:THR:C	1:A:430:LEU:H	2.28	0.42
1:A:27:MET:HE3	1:A:307:ARG:HG3	2.02	0.41
1:A:108:GLY:HA2	1:A:153:HIS:HD2	1.85	0.41
1:A:241:TRP:O	1:A:244:PHE:HB3	2.20	0.41
1:A:315:ARG:HG3	1:A:317:PHE:HE1	1.72	0.41
1:A:369:PHE:C	1:A:371:GLY:N	2.78	0.41
1:A:382:ILE:HA	1:A:385:TYR:HD2	1.85	0.41
1:A:53:LEU:HD23	1:A:135:THR:CG2	2.50	0.41
1:A:77:LEU:C	1:A:79:PRO:HD2	2.45	0.41
1:A:346:ARG:HB2	1:A:348:PRO:HG3	2.01	0.41
1:A:380:GLN:HB3	1:A:437:ALA:HB3	2.02	0.41
1:A:387:LEU:HD21	1:A:445:LEU:HB2	2.01	0.41
2:B:20:ILE:HD11	2:B:59:ILE:N	2.35	0.41
1:A:92:GLU:C	1:A:94:GLY:N	2.78	0.41
1:A:100:GLY:O	1:A:103:PHE:CB	2.68	0.41
1:A:227:PHE:O	1:A:227:PHE:CD2	2.73	0.41
1:A:227:PHE:O	1:A:227:PHE:HD2	2.01	0.41
1:A:401:ALA:C	1:A:403:ALA:H	2.28	0.41
1:A:78:ASN:O	1:A:163:LEU:HD13	2.21	0.41
1:A:301:GLY:O	1:A:305:THR:N	2.44	0.41
1:A:309:GLY:O	1:A:312:LEU:HB3	2.21	0.41
1:A:310:PHE:C	1:A:312:LEU:H	2.28	0.41
1:A:426:PHE:HA	1:A:428:THR:HG22	2.02	0.41
1:A:427:TRP:CD1	1:A:427:TRP:N	2.87	0.41
1:A:74:MET:C	1:A:76:ALA:N	2.75	0.41
1:A:218:TRP:CE3	1:A:221:ILE:HD11	2.55	0.41
1:A:13:PHE:O	1:A:14:LEU:C	2.63	0.41
1:A:78:ASN:N	1:A:79:PRO:CD	2.84	0.41
1:A:108:GLY:HA2	1:A:153:HIS:CD2	2.56	0.41
1:A:163:LEU:HB3	1:A:306:VAL:HG22	2.02	0.41
1:A:225:LYS:CG	1:A:226:PHE:N	2.83	0.41
1:A:254:ILE:HG23	1:A:255:GLY:N	2.36	0.41
2:B:64:PRO:HB2	2:B:65:GLY:H	1.64	0.41
1:A:35:VAL:HG13	1:A:36:GLY:N	2.36	0.41
1:A:301:GLY:C	1:A:303:ALA:N	2.79	0.41
1:A:99:GLN:NE2	1:A:233:THR:O	2.54	0.40
1:A:397:MET:O	1:A:400:HIS:CB	2.70	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:5:PRO:CD	2:B:74:ALA:HB2	2.48	0.40
1:A:71:MET:HE1	1:A:159:TYR:OH	2.21	0.40
1:A:138:GLN:O	1:A:139:TYR:C	2.64	0.40
1:A:254:ILE:HB	1:A:394:LYS:HZ3	1.86	0.40
1:A:344:LEU:HD22	1:A:345:PHE:CD2	2.56	0.40
1:A:369:PHE:HA	1:A:372:LEU:HB2	2.02	0.40
1:A:44:MET:HE1	1:A:180:ASN:CG	2.47	0.40
1:A:49:GLY:O	1:A:50:LYS:C	2.64	0.40
1:A:106:ILE:HD13	1:A:106:ILE:HA	1.86	0.40
1:A:140:MET:HE2	1:A:140:MET:HB2	1.92	0.40
1:A:145:LEU:HD13	1:A:203:GLY:O	2.21	0.40
1:A:156:LEU:HD12	1:A:159:TYR:CZ	2.56	0.40
1:A:410:LEU:O	1:A:414:LEU:HD13	2.21	0.40
2:B:34:ILE:CD1	2:B:48:PHE:HB2	2.51	0.40
1:A:311:SER:HB2	1:A:320:ALA:CB	2.51	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	457/459 (100%)	248 (54%)	133 (29%)	76 (17%)	0	2
2	B	89/99 (90%)	52 (58%)	18 (20%)	19 (21%)	0	1
All	All	546/558 (98%)	300 (55%)	151 (28%)	95 (17%)	0	1

All (95) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	10	PHE
1	A	41	ASP
1	A	80	MET

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	105	LEU
1	A	112	MET
1	A	119	ILE
1	A	127	THR
1	A	139	TYR
1	A	164	ASN
1	A	165	ARG
1	A	194	MET
1	A	229	PRO
1	A	234	ALA
1	A	236	PHE
1	A	238	LYS
1	A	278	ASP
1	A	297	PRO
1	A	298	GLN
1	A	307	ARG
1	A	349	LEU
1	A	386	ALA
1	A	396	PRO
1	A	417	TYR
1	A	442	VAL
1	A	445	LEU
2	B	11	VAL
2	B	15	PRO
2	B	30	VAL
2	B	44	PRO
2	B	51	PRO
2	B	52	GLY
2	B	61	GLY
2	B	62	LEU
2	B	64	PRO
2	B	77	TYR
2	B	79	TRP
2	B	83	SER
2	B	90	ARG
1	A	12	VAL
1	A	15	LYS
1	A	57	ALA
1	A	73	ILE
1	A	131	TYR
1	A	149	ALA
1	A	166	PRO

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	193	GLY
1	A	200	ALA
1	A	224	GLU
1	A	260	LEU
1	A	261	GLU
1	A	277	GLU
1	A	291	GLY
1	A	314	ARG
1	A	361	SER
1	A	378	PHE
2	B	31	TYR
2	B	38	GLU
2	B	42	ASN
1	A	14	LEU
1	A	17	ILE
1	A	64	ALA
1	A	79	PRO
1	A	121	PRO
1	A	182	PRO
1	A	233	THR
1	A	242	ALA
1	A	244	PHE
1	A	275	PHE
1	A	284	GLN
1	A	320	ALA
1	A	344	LEU
1	A	372	LEU
2	B	5	PRO
2	B	84	PRO
1	A	104	GLY
1	A	144	SER
1	A	232	LEU
1	A	290	SER
1	A	305	THR
1	A	319	ARG
1	A	354	ASN
1	A	446	GLU
1	A	184	ASN
1	A	192	PHE
1	A	264	ALA
1	A	326	VAL
1	A	365	THR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	398	PHE
1	A	421	MET
2	B	43	SER
1	A	158	ALA
1	A	353	TYR
1	A	371	GLY
1	A	392	VAL
1	A	88	GLY

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	353/353 (100%)	239 (68%)	114 (32%)	0	2
2	B	78/85 (92%)	52 (67%)	26 (33%)	0	2
All	All	431/438 (98%)	291 (68%)	140 (32%)	0	2

All (140) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	7	ARG
1	A	10	PHE
1	A	15	LYS
1	A	19	LEU
1	A	20	LEU
1	A	23	LEU
1	A	40	VAL
1	A	42	THR
1	A	43	VAL
1	A	52	ASP
1	A	53	LEU
1	A	58	LEU
1	A	65	THR
1	A	77	LEU
1	A	80	MET

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	81	ILE
1	A	89	LYS
1	A	95	GLU
1	A	96	THR
1	A	101	ILE
1	A	102	TRP
1	A	103	PHE
1	A	106	ILE
1	A	107	LEU
1	A	112	MET
1	A	113	ILE
1	A	116	TRP
1	A	119	ILE
1	A	121	PRO
1	A	123	ARG
1	A	124	ASN
1	A	126	LEU
1	A	131	TYR
1	A	135	THR
1	A	136	MET
1	A	140	MET
1	A	147	MET
1	A	153	HIS
1	A	154	ARG
1	A	156	LEU
1	A	159	TYR
1	A	167	ARG
1	A	178	VAL
1	A	179	LEU
1	A	180	ASN
1	A	183	LEU
1	A	184	ASN
1	A	186	ILE
1	A	197	LEU
1	A	207	MET
1	A	212	PHE
1	A	213	SER
1	A	217	LEU
1	A	218	TRP
1	A	221	ILE
1	A	224	GLU
1	A	228	ARG

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	232	LEU
1	A	235	LYS
1	A	238	LYS
1	A	243	VAL
1	A	248	TRP
1	A	250	ILE
1	A	257	SER
1	A	259	PHE
1	A	260	LEU
1	A	271	LEU
1	A	289	LEU
1	A	292	ILE
1	A	296	ILE
1	A	298	GLN
1	A	302	SER
1	A	311	SER
1	A	314	ARG
1	A	315	ARG
1	A	323	ILE
1	A	324	SER
1	A	329	VAL
1	A	332	TRP
1	A	334	LEU
1	A	336	VAL
1	A	337	ILE
1	A	338	THR
1	A	343	VAL
1	A	353	TYR
1	A	362	ILE
1	A	368	LEU
1	A	369	PHE
1	A	377	ASP
1	A	379	THR
1	A	382	ILE
1	A	384	SER
1	A	387	LEU
1	A	391	LYS
1	A	393	THR
1	A	397	MET
1	A	399	ILE
1	A	407	CYS
1	A	410	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	415	LEU
1	A	421	MET
1	A	427	TRP
1	A	428	THR
1	A	431	ILE
1	A	433	SER
1	A	435	THR
1	A	436	ILE
1	A	439	VAL
1	A	441	LEU
1	A	452	LEU
1	A	454	LYS
1	A	457	LYS
1	A	460	SER
1	A	461	SER
2	B	2	SER
2	B	3	SER
2	B	10	VAL
2	B	16	THR
2	B	18	LEU
2	B	19	LEU
2	B	20	ILE
2	B	25	ARG
2	B	28	TYR
2	B	34	ILE
2	B	36	TYR
2	B	38	GLU
2	B	45	VAL
2	B	46	GLN
2	B	50	VAL
2	B	53	SER
2	B	58	THR
2	B	63	SER
2	B	68	TYR
2	B	69	THR
2	B	70	ILE
2	B	72	VAL
2	B	75	ARG
2	B	76	SER
2	B	90	ARG
2	B	91	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such

sidechains are listed below:

Mol	Chain	Res	Type
1	A	180	ASN
1	A	284	GLN
1	A	354	ASN
1	A	374	GLN
2	B	42	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

1 ligand is 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	RHQ	A	501	-	35,36,36	2.38	8 (22%)	49,51,51	2.15	14 (28%)

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	RHQ	A	501	-	-	6/15/21/21	0/4/4/4

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	501	RHQ	C19-C14	6.76	1.51	1.40
3	A	501	RHQ	O2-C26	5.66	1.47	1.33
3	A	501	RHQ	C8-C7	5.19	1.50	1.40
3	A	501	RHQ	C11-C12	5.13	1.50	1.40
3	A	501	RHQ	C2-C9	4.39	1.52	1.40
3	A	501	RHQ	C2-C1	3.77	1.50	1.43
3	A	501	RHQ	C3-C4	2.40	1.40	1.35
3	A	501	RHQ	C5-C4	2.40	1.51	1.45

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	501	RHQ	C14-C9-C2	6.31	128.03	120.33
3	A	501	RHQ	C4-C5-N2	6.20	126.06	117.22
3	A	501	RHQ	O1-C7-C10	3.98	121.48	115.83
3	A	501	RHQ	O2-C26-C19	3.82	119.75	112.24
3	A	501	RHQ	C21-C4-C5	3.47	124.43	119.24
3	A	501	RHQ	C14-C9-C8	-3.39	115.53	119.91
3	A	501	RHQ	C6-C1-C2	-2.82	118.95	122.86
3	A	501	RHQ	C28-O2-C26	2.62	122.31	116.45
3	A	501	RHQ	C19-C14-C9	2.57	127.02	123.42
3	A	501	RHQ	C15-C14-C19	-2.42	116.55	119.26
3	A	501	RHQ	C1-C6-C5	2.38	122.83	119.11
3	A	501	RHQ	C7-O1-C1	2.08	123.43	119.73
3	A	501	RHQ	C16-C15-C14	2.08	123.55	119.80
3	A	501	RHQ	O1-C1-C6	2.02	119.74	116.73

There are no chirality outliers.

All (6) torsion outliers are listed below:

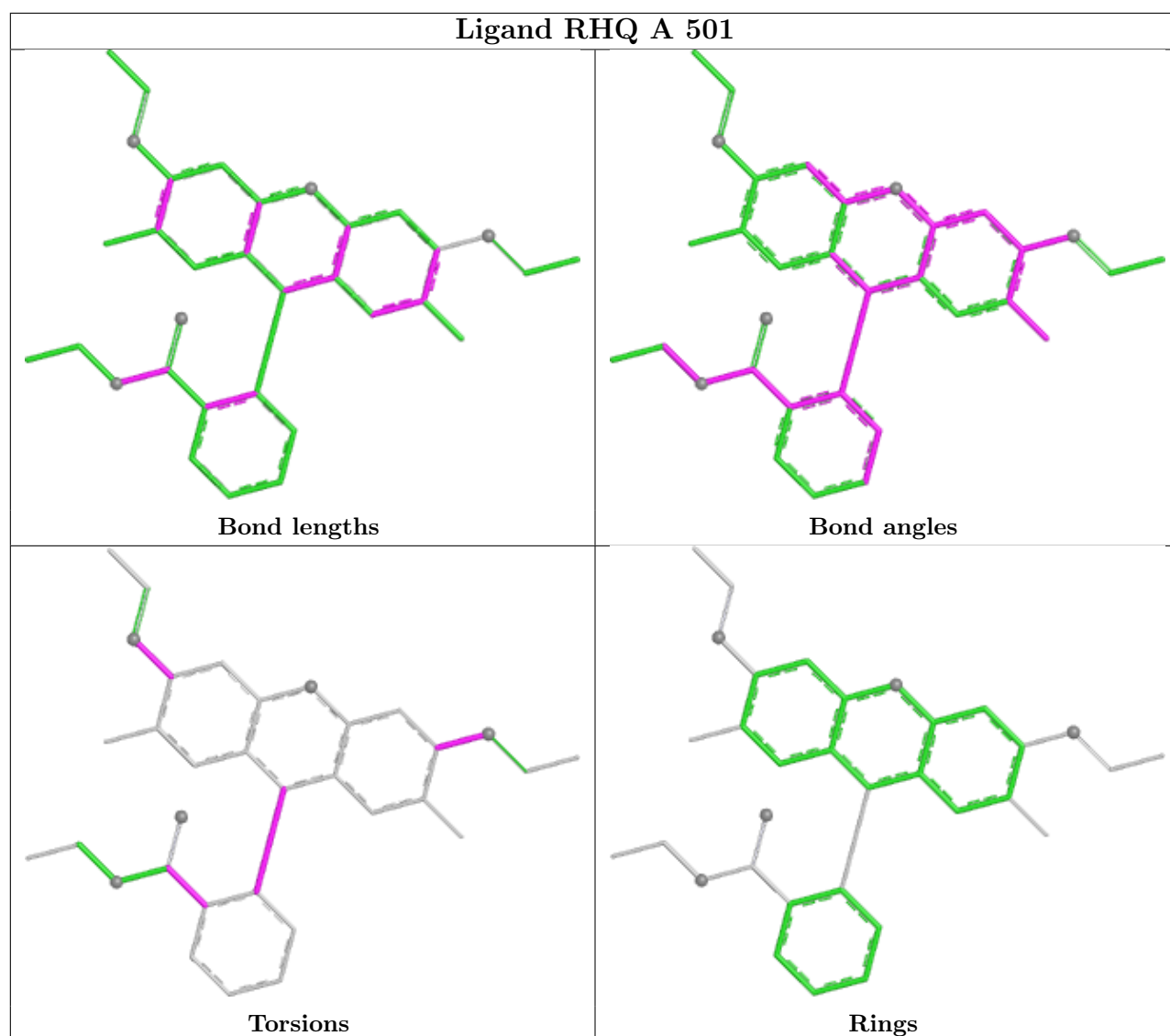
Mol	Chain	Res	Type	Atoms
3	A	501	RHQ	C6-C5-N2-C24
3	A	501	RHQ	C19-C14-C9-C2
3	A	501	RHQ	C19-C14-C9-C8
3	A	501	RHQ	C12-C11-N1-C22
3	A	501	RHQ	C10-C11-N1-C22
3	A	501	RHQ	C18-C19-C26-O2

There are no ring outliers.

1 monomer is involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	501	RHQ	8	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	459/459 (100%)	0.40	33 (7%) 21 14	86, 170, 288, 384	0
2	B	91/99 (91%)	0.42	11 (12%) 8 7	79, 146, 212, 233	0
All	All	550/558 (98%)	0.40	44 (8%) 18 13	79, 165, 284, 384	0

All (44) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	2	SER	6.8
1	A	127	THR	5.2
1	A	194	MET	4.8
1	A	278	ASP	4.2
1	A	326	VAL	3.9
1	A	149	ALA	3.7
1	A	131	TYR	3.7
1	A	9	SER	3.7
1	A	444	CYS	3.5
1	A	128	LEU	3.5
2	B	89	TYR	3.4
1	A	130	ASP	3.3
1	A	46	GLY	3.1
2	B	82	TYR	3.0
1	A	377	ASP	2.9
1	A	358	ALA	2.8
1	A	420	ASP	2.8
2	B	1	VAL	2.6
1	A	341	SER	2.6
1	A	448	TYR	2.5
1	A	51	GLU	2.4
2	B	5	PRO	2.4
1	A	407	CYS	2.4
1	A	404	PHE	2.4

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	261	GLU	2.4
1	A	285	VAL	2.3
1	A	385	TYR	2.3
1	A	424	TYR	2.3
1	A	267	PHE	2.3
1	A	449	SER	2.3
1	A	150	ALA	2.3
2	B	13	ALA	2.2
2	B	16	THR	2.2
1	A	68	ILE	2.2
1	A	258	TYR	2.2
1	A	322	TYR	2.2
1	A	416	ALA	2.2
1	A	279	TYR	2.2
2	B	77	TYR	2.1
2	B	24	ALA	2.1
1	A	427	TRP	2.0
2	B	12	ALA	2.0
2	B	30	VAL	2.0
1	A	154	ARG	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.

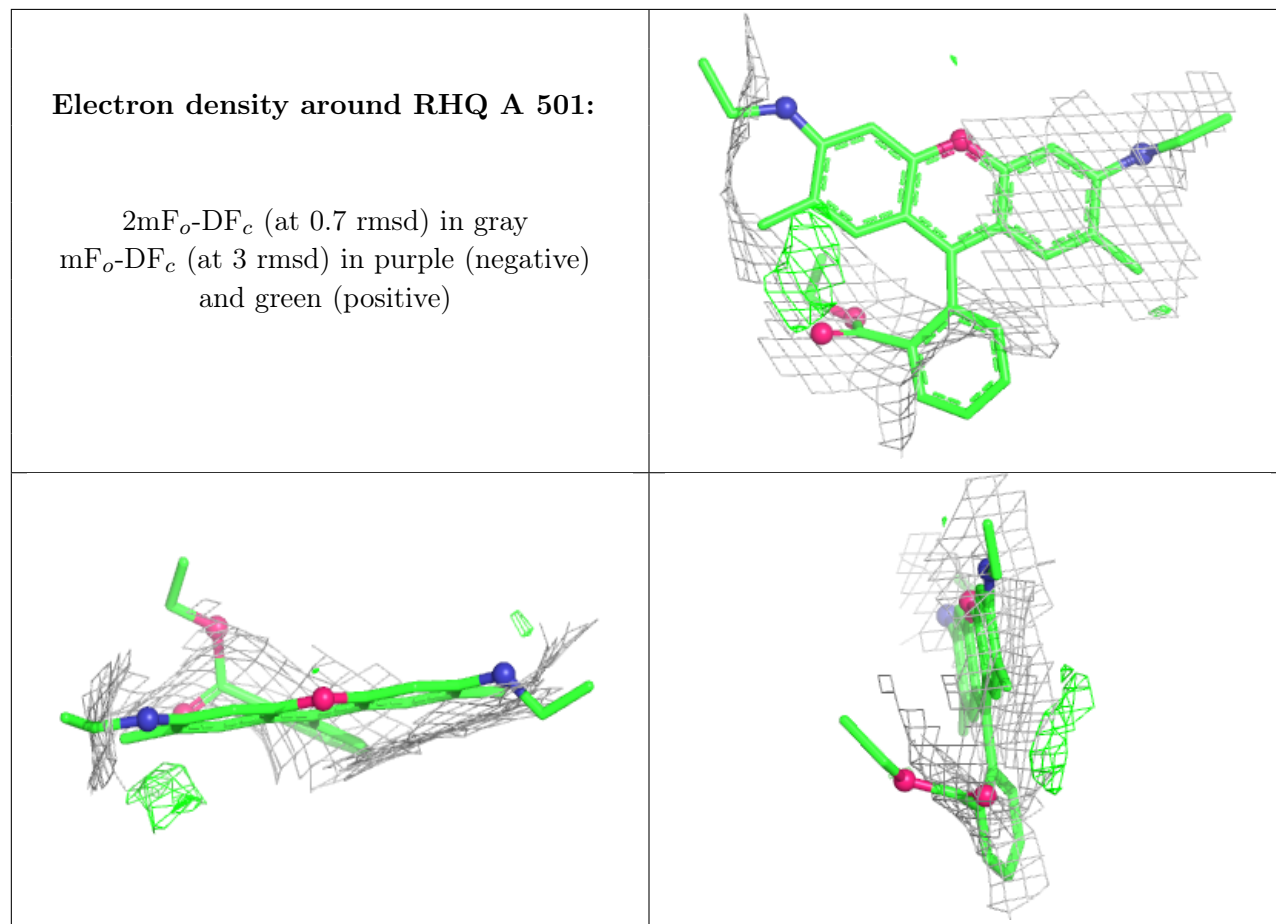
6.4 Ligands [i](#)

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	RHQ	A	501	33/33	0.88	0.19	194,297,346,353	0

The following is a graphical depiction of the model fit to experimental electron density of all

instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.



6.5 Other polymers [i](#)

There are no such residues in this entry.