



Full wwPDB NMR Structure Validation Report ⓘ

Feb 19, 2018 – 11:55 pm GMT

PDB ID : 1Q5L
Title : NMR structure of the substrate binding domain of DnaK bound to the peptide
NRLLLTG
Authors : Stevens, S.Y.; Cai, S.; Pellecchia, M.; Zuiderweg, E.R.
Deposited on : 2003-08-08

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We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/NMRValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

Cyrange : Kirchner and Güntert (2011)
NmrClust : Kelley et al. (1996)
MolProbity : 4.02b-467
Percentile statistics : 20171227.v01 (using entries in the PDB archive December 27th 2017)
RCI : v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV : Wang et al. (2010)
ShiftChecker : trunk30686
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk30686

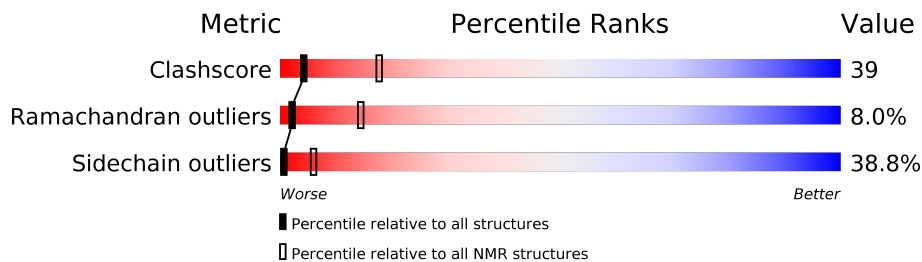
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

SOLUTION NMR

The overall completeness of chemical shifts assignment was not calculated.

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)	NMR archive (#Entries)
Clashscore	136279	12091
Ramachandran outliers	132675	10835
Sidechain outliers	132484	10811

The table below summarises the geometric issues observed across the polymeric chains and their fit to the experimental data. The red, orange, yellow and green segments indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. A cyan segment indicates the fraction of residues that are not part of the well-defined cores, and 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 $\leq 5\%$

Mol	Chain	Length	Quality of chain
1	A	135	
2	B	7	

2 Ensemble composition and analysis i

This entry contains 15 models. Model 2 is the overall representative, medoid model (most similar to other models). The authors have identified model 1 as representative, based on the following criterion: *closest to the average*.

The following residues are included in the computation of the global validation metrics.

Well-defined (core) protein residues			
Well-defined core	Residue range (total)	Backbone RMSD (Å)	Medoid model
1	A:394-A:503, B:902-B:907 (116)	0.72	2

Ill-defined regions of proteins are excluded from the global statistics.

Ligands and non-protein polymers are included in the analysis.

The models can be grouped into 3 clusters and 1 single-model cluster was found.

Cluster number	Models
1	1, 2, 3, 4, 5, 6, 9, 12, 13, 14
2	7, 11
3	8, 10
Single-model clusters	15

3 Entry composition i

There are 2 unique types of molecules in this entry. The entry contains 1707 atoms, of which 795 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Chaperone protein dnaK.

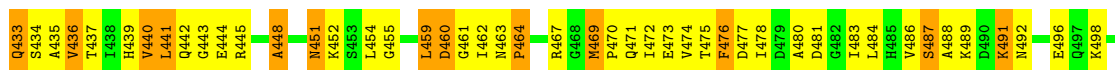
Mol	Chain	Residues	Atoms					Trace	
			Total	C	H	N	O		S
1	A	115	1595	529	738	151	174	3	0

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	373	MET	-	CLONING ARTIFACT	UNP P0A6Y8
A	374	GLY	-	CLONING ARTIFACT	UNP P0A6Y8
A	375	SER	-	CLONING ARTIFACT	UNP P0A6Y8
A	376	SER	-	CLONING ARTIFACT	UNP P0A6Y8
A	377	HIS	-	CLONING ARTIFACT	UNP P0A6Y8
A	378	HIS	-	CLONING ARTIFACT	UNP P0A6Y8
A	379	HIS	-	CLONING ARTIFACT	UNP P0A6Y8
A	380	HIS	-	CLONING ARTIFACT	UNP P0A6Y8
A	381	HIS	-	CLONING ARTIFACT	UNP P0A6Y8
A	382	HIS	-	CLONING ARTIFACT	UNP P0A6Y8
A	383	GLY	-	CLONING ARTIFACT	UNP P0A6Y8
A	384	LEU	-	CLONING ARTIFACT	UNP P0A6Y8
A	385	VAL	-	CLONING ARTIFACT	UNP P0A6Y8
A	386	PRO	-	CLONING ARTIFACT	UNP P0A6Y8
A	387	ARG	-	CLONING ARTIFACT	UNP P0A6Y8
A	388	GLY	-	CLONING ARTIFACT	UNP P0A6Y8
A	389	SER	-	CLONING ARTIFACT	UNP P0A6Y8
A	390	HIS	-	CLONING ARTIFACT	UNP P0A6Y8
A	391	MET	-	CLONING ARTIFACT	UNP P0A6Y8
A	392	VAL	-	CLONING ARTIFACT	UNP P0A6Y8

- Molecule 2 is a protein called peptide NRLLLTG.

Mol	Chain	Residues	Atoms					Trace
			Total	C	H	N	O	
2	B	7	112	34	57	11	10	0

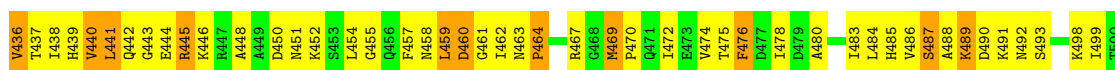
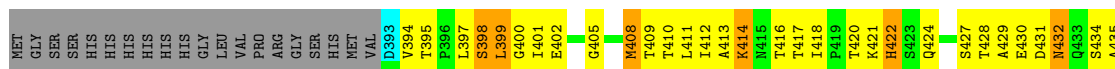
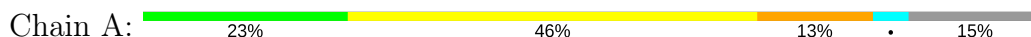


- Molecule 2: peptide NRRLLTG

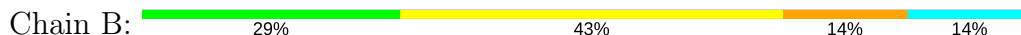


4.2.2 Score per residue for model 2 (medoid)

- Molecule 1: Chaperone protein dnaK

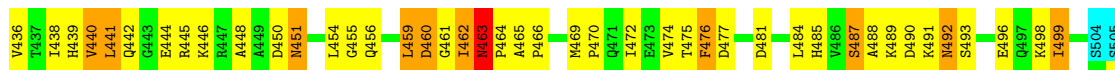
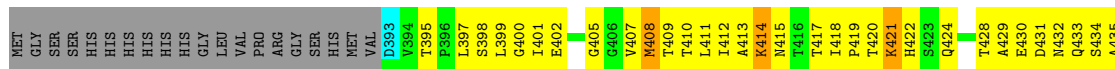
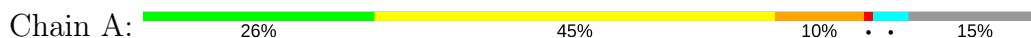


- Molecule 2: peptide NRRLLTG



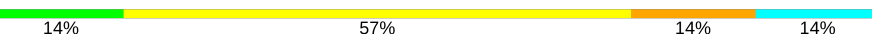
4.2.3 Score per residue for model 3

- Molecule 1: Chaperone protein dnaK



L506
L507

- Molecule 2: peptide NRRLLTG

Chain B: 

R901
R902
L903
L904
L905
T906
G907

4.2.4 Score per residue for model 4

- Molecule 1: Chaperone protein dnaK

Chain A: 

MET
GLY
SER
SER
HIS
HIS
HIS
HIS
HIS
HIS
GLY
LEU
VAL
PRO
ARG
GLY
SER
HIS
HIS
MET
VAL
D393
V394
T395
L397
L396
S398
L399
G400
L401
E402
T403
M404
G405
G406
V407
M408
T409
T410
L411
L412
A413
K414
T418
P419
T420
K421
H422
S423
O424
V425
F426
S427
T428
A429
E430
D431
N432
Q433
S434

A435
V436
T437
I438
H439
V440
L441
Q442
G443
E444
R445
K446
R447
A448
M451
K452
S453
L454
G455
L459
T462
M463
F464
A465
P466
R467
G468
M469
P470
Q471
I472
E473
F476
L484
H485
V486
S487
A488
K489
D490
K491
N492
S493
G494
K495
E496
Q497
K498
I499
K502
A503
S504
S505
G506

L507


- Molecule 2: peptide NRRLLTG

Chain B: 

R901
R902
L903
L904
G907

4.2.5 Score per residue for model 5

- Molecule 1: Chaperone protein dnaK

Chain A: 

MET
GLY
SER
SER
HIS
HIS
HIS
HIS
HIS
HIS
GLY
LEU
VAL
PRO
ARG
GLY
SER
HIS
HIS
MET
VAL
D393
V394
T395
L397
L396
S398
L399
G400
L401
E402
T403
M404
V407
M408
T409
T410
L411
L412
A413
K414
T418
P419
T420
K421
H422
S423
O424
V425
F426
S427
T428
A429
E430
D431
N432
Q433
S434
A435

V436
T437
I438
H439
V440
L441
Q442
G443
K446
R447
A448
A449
D450
M451
K452
S453
L454
G455
Q456
F457
M458
L459
D460
G461
I462
M463
P464
A465
P466
R467
G468
M469
P470
Q471
I472
E473
V474
T475
F476
D477
I478
L484
H485
V486
S487
A488
K489
D490
K491
N492
S493
G494
K495
E496
Q497
K498
I499
T500

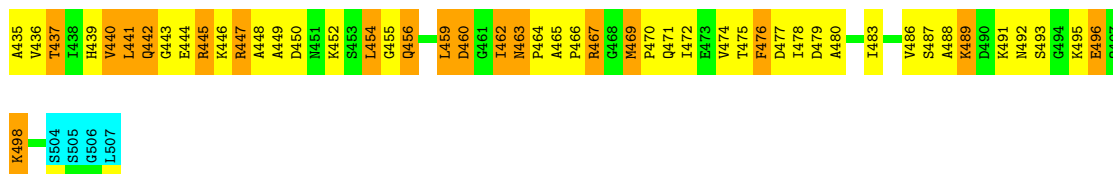
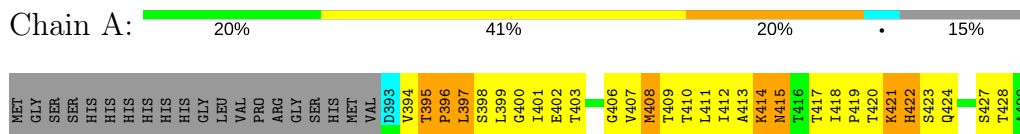
L501
K502
A503
S504
S505
G506
L507

- Molecule 2: peptide NRRLLTG



4.2.6 Score per residue for model 6

- Molecule 1: Chaperone protein dnaK

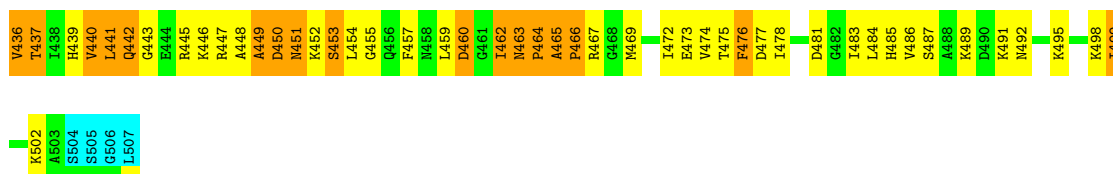
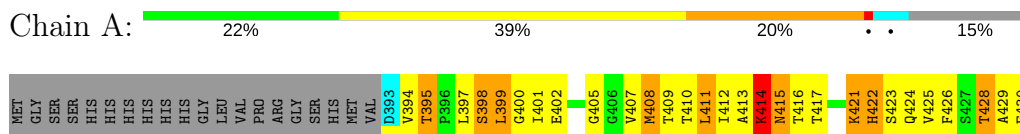


- Molecule 2: peptide NRLLLTG



4.2.7 Score per residue for model 7

- Molecule 1: Chaperone protein dnaK

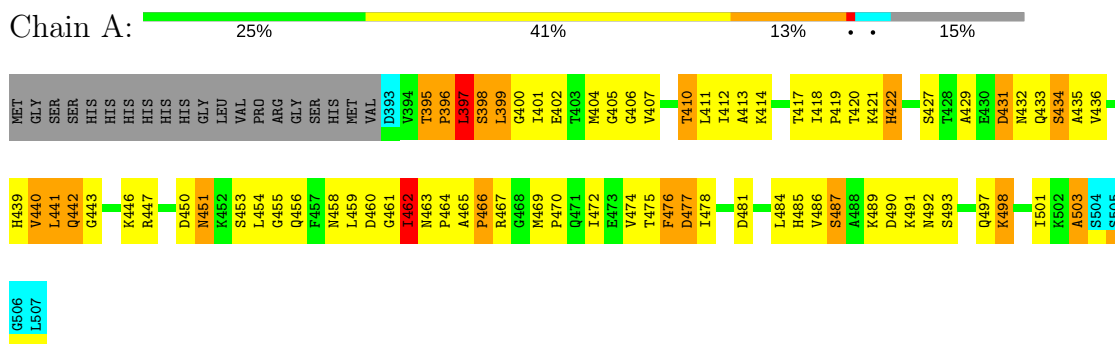


- Molecule 2: peptide NRLLLTG

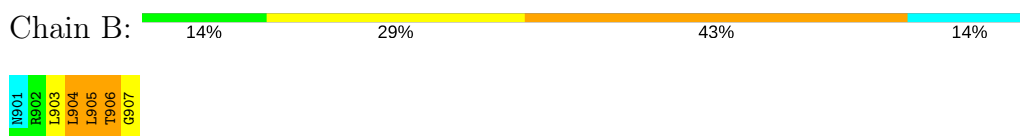


4.2.8 Score per residue for model 8

- Molecule 1: Chaperone protein dnaK

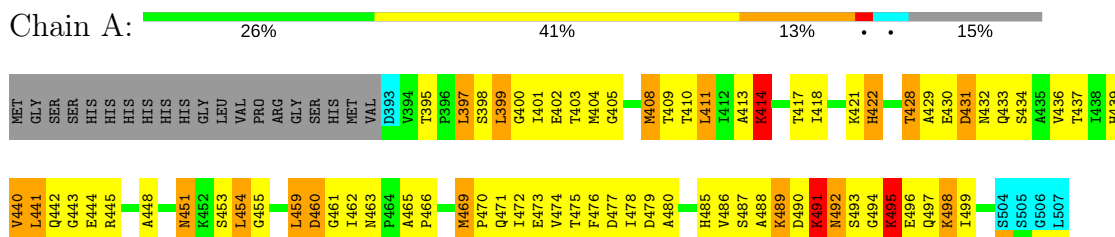


- Molecule 2: peptide NRRLLTG



4.2.9 Score per residue for model 9

- Molecule 1: Chaperone protein dnaK

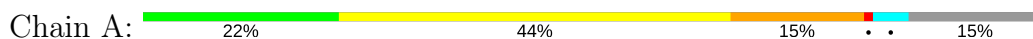


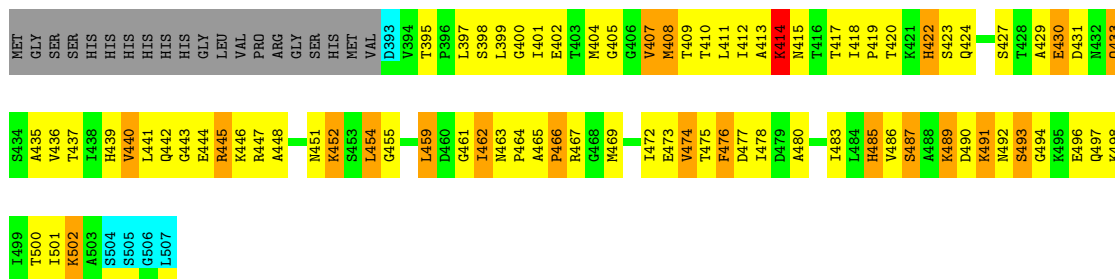
- Molecule 2: peptide NRRLLTG



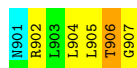
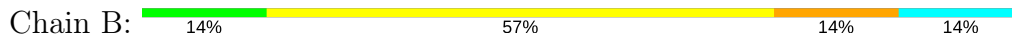
4.2.10 Score per residue for model 10

- Molecule 1: Chaperone protein dnaK



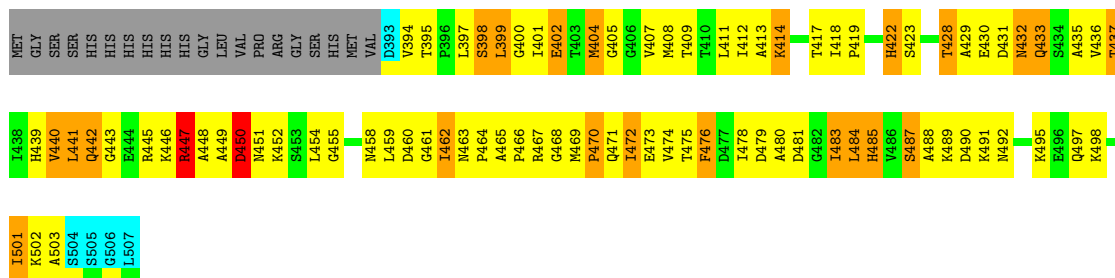
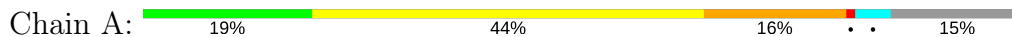


- Molecule 2: peptide NRRLLTG



4.2.11 Score per residue for model 11

- Molecule 1: Chaperone protein dnaK

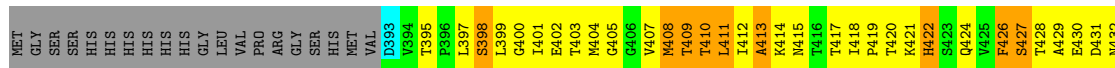
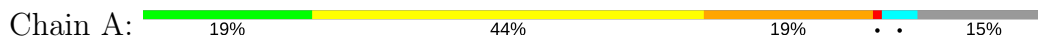


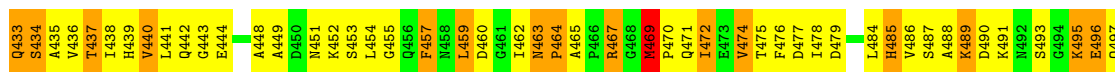
- Molecule 2: peptide NRRLLTG



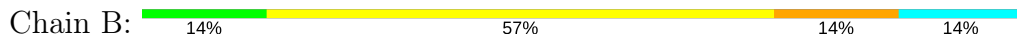
4.2.12 Score per residue for model 12

- Molecule 1: Chaperone protein dnaK



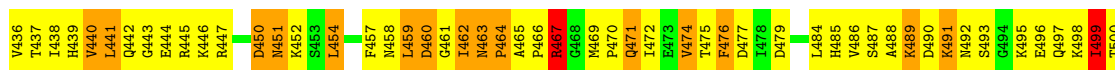
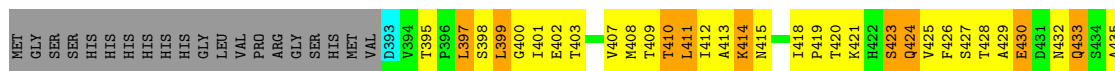
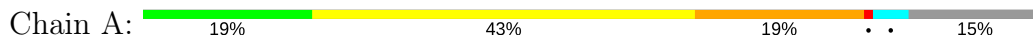


- Molecule 2: peptide NRRLLTG



4.2.13 Score per residue for model 13

- Molecule 1: Chaperone protein dnaK

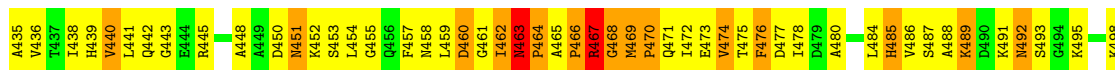
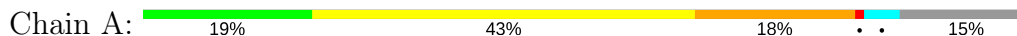


- Molecule 2: peptide NRRLLTG



4.2.14 Score per residue for model 14

- Molecule 1: Chaperone protein dnaK



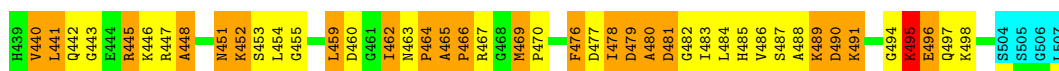
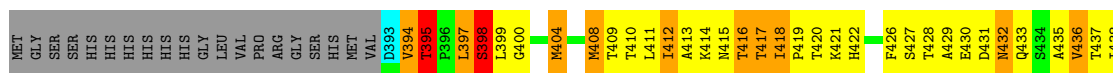
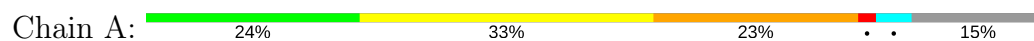


- Molecule 2: peptide NRRLLTG

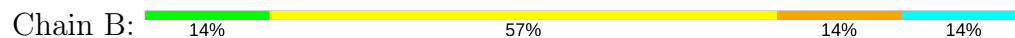


4.2.15 Score per residue for model 15

- Molecule 1: Chaperone protein dnaK



- Molecule 2: peptide NRRLLTG



5 Refinement protocol and experimental data overview

The models were refined using the following method: *torsion angle dynamics*.

Of the 60 calculated structures, 15 were deposited, based on the following criterion: *structures with acceptable covalent geometry, structures with the least restraint violations, structures with the lowest energy*.

The following table shows the software used for structure solution, optimisation and refinement.

Software name	Classification	Version
ARIA/(CNS)	structure solution	1.0
ARIA/(CNS)	refinement	1.0

No chemical shift data was provided. No validations of the models with respect to experimental NMR restraints is performed at this time.

6 Model quality i

6.1 Standard geometry i

There are no covalent bond-length or bond-angle outliers.

There are no bond-length outliers.

There are no bond-angle outliers.

There are no chirality outliers.

There are no planarity outliers.

6.2 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 each 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 averaged over the ensemble.

Mol	Chain	Non-H	H(model)	H(added)	Clashes
1	A	824	714	842	68±16
2	B	47	50	56	6±3
All	All	13065	11460	13470	1026

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 39.

All unique clashes are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:489:LYS:HB3	1:A:496:GLU:HA	0.93	1.40	12	1
1:A:416:THR:HG21	1:A:478:ILE:HD12	0.83	1.50	15	1
1:A:440:VAL:HB	1:A:454:LEU:HB2	0.82	1.48	10	4
1:A:440:VAL:HG11	1:A:486:VAL:HG21	0.81	1.52	15	7
1:A:463:ASN:HB3	1:A:464:PRO:HD3	0.81	1.51	14	2
1:A:427:SER:HB2	2:B:904:LEU:HD12	0.80	1.52	14	1
1:A:400:GLY:HA3	1:A:410:THR:HA	0.80	1.50	15	3
1:A:489:LYS:HG2	1:A:496:GLU:HB3	0.80	1.54	15	1
1:A:402:GLU:HB3	1:A:439:HIS:HB3	0.80	1.51	4	12
1:A:398:SER:N	1:A:414:LYS:HG3	0.79	1.93	6	1
1:A:408:MET:HB3	1:A:448:ALA:HB2	0.78	1.55	4	7
1:A:397:LEU:CB	1:A:414:LYS:HB3	0.77	2.09	15	1
1:A:412:ILE:HD11	1:A:476:PHE:HB2	0.77	1.55	6	3

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:429:ALA:HB3	2:B:905:LEU:HA	0.77	1.56	8	2
1:A:397:LEU:HB2	1:A:414:LYS:HD3	0.77	1.56	15	1
1:A:440:VAL:HG23	1:A:455:GLY:H	0.77	1.39	11	13
1:A:401:ILE:HG22	1:A:440:VAL:HG13	0.77	1.57	10	1
1:A:417:THR:HA	1:A:482:GLY:H	0.76	1.38	15	1
1:A:435:ALA:O	2:B:906:THR:HG22	0.75	1.81	10	2
1:A:402:GLU:HB2	1:A:439:HIS:HB3	0.75	1.57	2	1
1:A:436:VAL:HG21	1:A:472:ILE:HG12	0.74	1.56	14	3
1:A:431:ASP:N	1:A:467:ARG:HB2	0.73	1.98	14	1
1:A:395:THR:HG21	1:A:412:ILE:HG22	0.73	1.61	15	1
1:A:420:THR:HG22	1:A:478:ILE:HB	0.73	1.61	15	5
1:A:417:THR:HA	1:A:482:GLY:N	0.72	2.00	15	1
1:A:397:LEU:HB3	1:A:414:LYS:HB3	0.71	1.60	15	1
1:A:395:THR:HB	1:A:414:LYS:HB3	0.71	1.59	6	1
1:A:442:GLN:HB2	1:A:454:LEU:HD22	0.71	1.61	13	1
1:A:429:ALA:HB2	2:B:903:LEU:HD23	0.71	1.61	15	3
1:A:427:SER:CB	2:B:904:LEU:HD12	0.70	2.15	14	1
1:A:395:THR:HA	1:A:414:LYS:O	0.70	1.85	15	1
1:A:440:VAL:HG23	1:A:455:GLY:N	0.70	2.02	8	12
1:A:399:LEU:HD12	1:A:442:GLN:HG3	0.70	1.64	15	3
1:A:436:VAL:HG12	1:A:459:LEU:HB3	0.70	1.62	13	12
1:A:498:LYS:O	1:A:499:ILE:HG23	0.70	1.87	13	1
1:A:397:LEU:HG	1:A:398:SER:H	0.70	1.45	6	1
1:A:394:VAL:O	1:A:395:THR:HG23	0.69	1.86	15	1
1:A:427:SER:HA	2:B:904:LEU:HD23	0.69	1.62	13	1
1:A:397:LEU:N	1:A:414:LYS:HB2	0.69	2.02	6	1
1:A:427:SER:HB2	1:A:472:ILE:HB	0.69	1.64	4	2
1:A:404:MET:H	2:B:904:LEU:HA	0.68	1.46	14	5
1:A:431:ASP:HA	1:A:466:PRO:HD2	0.68	1.64	9	2
1:A:489:LYS:HA	1:A:496:GLU:H	0.68	1.48	9	1
1:A:428:THR:HB	1:A:467:ARG:C	0.68	2.08	14	1
1:A:399:LEU:HA	1:A:442:GLN:HB2	0.68	1.64	11	1
1:A:397:LEU:HB3	1:A:414:LYS:H	0.68	1.49	15	1
1:A:491:LYS:HB3	1:A:494:GLY:H	0.68	1.49	5	2
1:A:408:MET:HG2	1:A:450:ASP:HB3	0.67	1.65	11	1
1:A:399:LEU:HD13	1:A:413:ALA:C	0.67	2.08	15	1
1:A:472:ILE:HA	1:A:489:LYS:O	0.67	1.90	5	14
1:A:412:ILE:HG21	1:A:420:THR:HG21	0.66	1.66	14	5
1:A:442:GLN:CB	1:A:454:LEU:HD22	0.66	2.19	13	1
1:A:442:GLN:HG2	1:A:454:LEU:HG	0.66	1.68	3	3
1:A:402:GLU:HB3	1:A:439:HIS:HB2	0.66	1.67	10	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:435:ALA:HA	1:A:459:LEU:O	0.66	1.91	8	4
1:A:436:VAL:HA	2:B:907:GLY:HA2	0.66	1.67	10	1
1:A:404:MET:HG3	2:B:905:LEU:HD23	0.65	1.67	8	1
1:A:408:MET:HG3	1:A:449:ALA:HB3	0.65	1.69	11	2
1:A:431:ASP:HB3	1:A:466:PRO:HA	0.65	1.69	5	1
1:A:433:GLN:HG3	2:B:906:THR:HA	0.65	1.66	8	1
1:A:397:LEU:HB3	1:A:414:LYS:HE2	0.65	1.67	6	1
1:A:473:GLU:O	1:A:488:ALA:HA	0.65	1.91	14	5
1:A:430:GLU:C	1:A:466:PRO:O	0.64	2.36	14	1
1:A:441:LEU:HB3	1:A:450:ASP:HB3	0.64	1.67	7	1
1:A:395:THR:HG22	1:A:413:ALA:O	0.64	1.93	15	1
1:A:433:GLN:O	1:A:462:ILE:HB	0.64	1.93	14	1
1:A:442:GLN:HB3	1:A:454:LEU:HD11	0.63	1.69	3	4
1:A:473:GLU:H	1:A:489:LYS:HB3	0.63	1.51	9	1
1:A:474:VAL:HA	1:A:487:SER:O	0.63	1.94	6	10
1:A:442:GLN:HB2	1:A:454:LEU:HD11	0.63	1.67	5	7
1:A:432:ASN:O	1:A:433:GLN:HB2	0.63	1.93	14	1
1:A:398:SER:O	1:A:442:GLN:HB2	0.63	1.93	4	2
1:A:432:ASN:H	1:A:467:ARG:HB3	0.63	1.53	14	1
1:A:397:LEU:HG	1:A:398:SER:N	0.63	2.09	6	2
1:A:427:SER:CB	2:B:904:LEU:HD11	0.63	2.23	4	1
1:A:445:ARG:HD2	1:A:451:ASN:HB2	0.63	1.71	2	1
1:A:398:SER:HA	1:A:414:LYS:N	0.62	2.08	11	9
1:A:394:VAL:HG23	1:A:416:THR:O	0.62	1.93	7	1
1:A:400:GLY:HA3	1:A:409:THR:O	0.62	1.93	12	13
1:A:429:ALA:N	1:A:467:ARG:N	0.62	2.47	14	1
1:A:397:LEU:H	1:A:414:LYS:HB3	0.62	1.54	8	1
1:A:430:GLU:N	1:A:466:PRO:O	0.62	2.32	14	1
1:A:404:MET:HG3	2:B:905:LEU:HD21	0.62	1.69	15	1
1:A:436:VAL:HB	1:A:462:ILE:HD11	0.62	1.70	13	3
1:A:399:LEU:HD11	1:A:484:LEU:HD22	0.62	1.71	5	2
1:A:469:MET:N	1:A:470:PRO:HD2	0.62	2.09	9	3
1:A:466:PRO:O	1:A:467:ARG:HB2	0.62	1.93	14	1
1:A:445:ARG:CZ	1:A:451:ASN:HB2	0.61	2.25	15	1
1:A:476:PHE:HB3	1:A:484:LEU:HD11	0.61	1.71	8	8
1:A:432:ASN:HA	1:A:464:PRO:HA	0.61	1.71	13	3
1:A:471:GLN:O	1:A:490:ASP:HA	0.61	1.96	12	1
1:A:401:ILE:HG12	1:A:411:LEU:HD23	0.61	1.72	8	7
1:A:435:ALA:HB1	1:A:459:LEU:O	0.61	1.96	14	5
1:A:429:ALA:HB3	2:B:905:LEU:HB2	0.61	1.71	2	1
1:A:464:PRO:HD2	1:A:466:PRO:HD3	0.61	1.72	10	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:429:ALA:O	1:A:430:GLU:HB2	0.61	1.96	14	3
1:A:418:ILE:HB	1:A:419:PRO:HD3	0.61	1.71	11	8
1:A:448:ALA:HA	1:A:451:ASN:ND2	0.61	2.10	3	1
1:A:435:ALA:HA	1:A:460:ASP:HA	0.61	1.72	13	7
1:A:479:ASP:HB2	1:A:483:ILE:HD12	0.60	1.72	11	2
1:A:412:ILE:HG12	1:A:420:THR:HG21	0.60	1.72	1	2
1:A:429:ALA:HB3	2:B:905:LEU:HB3	0.60	1.71	13	1
1:A:398:SER:HA	1:A:413:ALA:HA	0.60	1.72	1	12
1:A:436:VAL:HG12	1:A:459:LEU:CB	0.60	2.27	15	4
1:A:488:ALA:O	1:A:496:GLU:HB3	0.59	1.98	9	1
1:A:491:LYS:HD3	1:A:493:SER:H	0.59	1.57	5	1
1:A:448:ALA:O	1:A:450:ASP:N	0.59	2.34	7	1
1:A:421:LYS:HA	1:A:476:PHE:O	0.59	1.97	15	12
1:A:404:MET:N	2:B:904:LEU:HA	0.59	2.12	4	2
1:A:452:LYS:HG3	1:A:454:LEU:HB3	0.59	1.74	13	1
1:A:398:SER:HA	1:A:414:LYS:H	0.59	1.58	1	7
1:A:459:LEU:HD13	1:A:488:ALA:O	0.59	1.98	12	1
1:A:440:VAL:C	1:A:454:LEU:HD12	0.59	2.18	6	9
1:A:431:ASP:O	1:A:464:PRO:HB2	0.59	1.98	14	1
1:A:465:ALA:H	1:A:466:PRO:HD2	0.59	1.56	7	1
1:A:432:ASN:HB3	1:A:463:ASN:O	0.59	1.98	15	1
1:A:476:PHE:HA	1:A:485:HIS:O	0.59	1.97	12	11
1:A:475:THR:HB	1:A:487:SER:OG	0.58	1.98	14	3
1:A:463:ASN:HB2	1:A:464:PRO:HD3	0.58	1.75	5	2
1:A:489:LYS:HD3	1:A:495:LYS:HA	0.58	1.75	9	1
1:A:463:ASN:N	1:A:464:PRO:HD3	0.58	2.13	10	1
1:A:432:ASN:ND2	1:A:464:PRO:HD3	0.58	2.13	7	2
1:A:430:GLU:HG3	2:B:905:LEU:HG	0.58	1.75	10	1
1:A:397:LEU:HA	1:A:414:LYS:HD2	0.58	1.74	11	3
1:A:428:THR:HG21	1:A:470:PRO:HG2	0.58	1.76	13	2
1:A:395:THR:CG2	1:A:412:ILE:HG22	0.58	2.29	15	1
1:A:412:ILE:HD13	1:A:478:ILE:CG1	0.57	2.29	15	1
1:A:438:ILE:HG13	1:A:488:ALA:HB2	0.57	1.76	15	6
1:A:395:THR:HB	1:A:413:ALA:HB3	0.57	1.75	15	1
1:A:435:ALA:O	2:B:906:THR:HG21	0.57	1.99	14	1
1:A:399:LEU:HD11	1:A:503:ALA:HB1	0.57	1.76	8	1
1:A:416:THR:HG21	1:A:478:ILE:CD1	0.57	2.27	15	1
1:A:466:PRO:HA	1:A:470:PRO:HG2	0.57	1.74	3	1
1:A:397:LEU:H	1:A:414:LYS:HB2	0.57	1.59	6	1
1:A:442:GLN:HG3	1:A:443:GLY:N	0.57	2.14	6	1
1:A:402:GLU:HA	1:A:407:VAL:O	0.57	1.99	8	7

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:463:ASN:HB3	1:A:464:PRO:CD	0.57	2.26	14	1
1:A:436:VAL:HA	2:B:906:THR:O	0.57	1.99	10	1
1:A:394:VAL:HG21	1:A:417:THR:HG22	0.57	1.75	15	1
1:A:419:PRO:HA	1:A:478:ILE:O	0.57	2.00	15	1
1:A:440:VAL:O	1:A:454:LEU:HB2	0.57	1.99	12	10
1:A:399:LEU:HD13	1:A:478:ILE:HD11	0.57	1.77	5	5
1:A:476:PHE:N	1:A:476:PHE:CD1	0.57	2.73	15	2
1:A:472:ILE:HD13	1:A:489:LYS:O	0.57	2.00	13	1
1:A:411:LEU:HG	1:A:476:PHE:CZ	0.56	2.35	5	7
1:A:427:SER:O	1:A:472:ILE:HD13	0.56	2.00	14	1
1:A:491:LYS:O	1:A:491:LYS:HG2	0.56	1.99	15	2
1:A:397:LEU:CG	1:A:398:SER:N	0.56	2.66	8	2
1:A:466:PRO:HD2	1:A:470:PRO:HD3	0.56	1.77	8	1
1:A:469:MET:HB3	1:A:470:PRO:HD3	0.56	1.77	3	7
1:A:465:ALA:O	1:A:466:PRO:O	0.56	2.22	14	1
1:A:412:ILE:HG23	1:A:416:THR:HG21	0.56	1.76	1	1
1:A:422:HIS:O	1:A:475:THR:HA	0.56	2.01	12	12
1:A:418:ILE:HG21	1:A:480:ALA:HA	0.56	1.76	6	7
1:A:412:ILE:HD13	1:A:478:ILE:HG13	0.56	1.77	15	3
1:A:438:ILE:O	1:A:457:PHE:HB2	0.56	2.01	2	1
1:A:445:ARG:NH1	1:A:448:ALA:HA	0.56	2.14	15	1
1:A:432:ASN:C	1:A:465:ALA:O	0.56	2.43	14	1
1:A:416:THR:HG23	1:A:482:GLY:HA2	0.56	1.76	15	1
1:A:440:VAL:HB	1:A:454:LEU:CD1	0.56	2.30	11	7
1:A:459:LEU:HD13	1:A:488:ALA:HB3	0.56	1.77	3	3
1:A:442:GLN:CB	1:A:454:LEU:HD11	0.56	2.30	11	1
1:A:478:ILE:HA	1:A:483:ILE:O	0.56	2.00	15	2
1:A:441:LEU:HD22	1:A:448:ALA:HB1	0.56	1.77	10	1
1:A:399:LEU:HA	1:A:442:GLN:CB	0.56	2.31	11	1
1:A:411:LEU:HG	1:A:476:PHE:CE1	0.55	2.37	10	5
1:A:491:LYS:HB3	1:A:494:GLY:N	0.55	2.15	5	1
1:A:487:SER:HB2	1:A:498:LYS:HB3	0.55	1.77	12	1
1:A:489:LYS:CB	1:A:496:GLU:HA	0.55	2.26	12	1
1:A:486:VAL:N	1:A:499:ILE:HG22	0.55	2.16	13	1
1:A:465:ALA:HB1	1:A:466:PRO:HD2	0.55	1.78	15	1
1:A:394:VAL:HG22	1:A:395:THR:H	0.55	1.61	7	1
1:A:476:PHE:CE2	1:A:486:VAL:HG13	0.55	2.37	12	1
1:A:443:GLY:O	1:A:450:ASP:HB2	0.55	2.01	11	1
1:A:477:ASP:HB3	1:A:485:HIS:NE2	0.55	2.15	5	1
1:A:472:ILE:HD12	1:A:488:ALA:HB1	0.55	1.79	11	1
1:A:428:THR:HG22	1:A:467:ARG:H	0.55	1.61	14	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:442:GLN:HG2	1:A:442:GLN:O	0.54	2.02	11	3
1:A:440:VAL:CG1	1:A:486:VAL:HG21	0.54	2.28	15	2
1:A:465:ALA:N	1:A:466:PRO:HD3	0.54	2.17	9	3
1:A:440:VAL:HG23	1:A:455:GLY:O	0.54	2.03	9	1
1:A:459:LEU:HD13	1:A:460:ASP:H	0.54	1.62	1	3
1:A:491:LYS:HB2	1:A:495:LYS:H	0.54	1.63	5	1
1:A:442:GLN:HG2	1:A:452:LYS:N	0.54	2.17	6	1
1:A:426:PHE:CD1	2:B:904:LEU:HD11	0.54	2.38	12	2
1:A:433:GLN:HA	1:A:466:PRO:N	0.54	2.17	14	1
1:A:440:VAL:HG21	1:A:486:VAL:HG21	0.54	1.80	9	2
1:A:425:VAL:HG23	1:A:472:ILE:O	0.54	2.03	14	1
1:A:476:PHE:CD2	1:A:484:LEU:HD11	0.54	2.37	4	1
1:A:463:ASN:HB3	1:A:464:PRO:HD2	0.54	1.78	1	2
1:A:404:MET:C	2:B:905:LEU:HB2	0.54	2.22	10	2
1:A:433:GLN:OE1	1:A:466:PRO:HD2	0.53	2.02	10	1
1:A:423:SER:HA	1:A:474:VAL:O	0.53	2.03	6	4
1:A:436:VAL:HG21	1:A:472:ILE:HG13	0.53	1.78	4	2
1:A:397:LEU:HD23	1:A:442:GLN:HG2	0.53	1.80	10	1
1:A:447:ARG:O	1:A:449:ALA:N	0.53	2.41	6	1
1:A:469:MET:H	1:A:470:PRO:HD2	0.53	1.62	14	2
1:A:432:ASN:HA	1:A:463:ASN:O	0.53	2.04	4	3
1:A:445:ARG:O	1:A:449:ALA:HA	0.53	2.04	7	1
1:A:408:MET:HG2	1:A:451:ASN:HD21	0.53	1.64	5	1
1:A:434:SER:HB2	1:A:463:ASN:O	0.53	2.04	14	1
1:A:463:ASN:CB	1:A:464:PRO:HD3	0.53	2.31	14	1
1:A:466:PRO:HG2	2:B:906:THR:H	0.53	1.64	14	1
1:A:441:LEU:CB	1:A:450:ASP:HB3	0.53	2.34	7	1
1:A:398:SER:O	1:A:442:GLN:HG3	0.53	2.04	1	2
1:A:441:LEU:HB3	1:A:450:ASP:CB	0.53	2.33	7	1
1:A:448:ALA:HA	1:A:451:ASN:HD21	0.53	1.64	5	2
1:A:445:ARG:HG2	1:A:451:ASN:HD22	0.53	1.63	9	1
1:A:462:ILE:HD12	2:B:907:GLY:HA2	0.53	1.81	8	1
1:A:472:ILE:HD13	1:A:472:ILE:N	0.53	2.18	5	1
1:A:430:GLU:HG3	2:B:905:LEU:HD21	0.52	1.81	12	1
1:A:399:LEU:HD21	1:A:484:LEU:HD22	0.52	1.80	4	1
1:A:491:LYS:HE3	1:A:492:ASN:N	0.52	2.19	13	1
1:A:433:GLN:HG3	2:B:906:THR:HG23	0.52	1.80	13	1
1:A:427:SER:HB3	1:A:436:VAL:HG21	0.52	1.81	13	1
1:A:403:THR:HB	2:B:903:LEU:O	0.52	2.05	1	4
1:A:431:ASP:C	1:A:465:ALA:O	0.52	2.47	14	1
1:A:426:PHE:HA	1:A:471:GLN:HG2	0.52	1.81	4	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:463:ASN:ND2	1:A:463:ASN:H	0.52	2.02	5	1
1:A:401:ILE:O	1:A:409:THR:N	0.52	2.43	10	3
1:A:397:LEU:HD23	1:A:398:SER:N	0.52	2.19	15	2
1:A:431:ASP:O	1:A:432:ASN:HB2	0.52	2.04	4	6
1:A:489:LYS:HE2	1:A:495:LYS:HB3	0.52	1.81	9	1
1:A:496:GLU:HG3	1:A:497:GLN:N	0.52	2.20	9	1
1:A:408:MET:HG2	1:A:451:ASN:ND2	0.52	2.20	5	1
1:A:408:MET:CG	1:A:449:ALA:HB3	0.52	2.34	7	1
1:A:443:GLY:HA3	1:A:451:ASN:ND2	0.52	2.20	2	1
1:A:400:GLY:O	1:A:441:LEU:O	0.52	2.28	7	7
1:A:427:SER:HB3	2:B:904:LEU:HD11	0.52	1.81	4	1
1:A:489:LYS:HG3	1:A:490:ASP:N	0.52	2.20	13	2
1:A:429:ALA:HB3	2:B:905:LEU:CA	0.51	2.36	3	1
1:A:444:GLU:C	1:A:445:ARG:HG2	0.51	2.25	10	2
1:A:407:VAL:O	1:A:441:LEU:HD23	0.51	2.05	6	1
1:A:441:LEU:HD22	1:A:451:ASN:HD21	0.51	1.64	4	1
1:A:397:LEU:O	1:A:414:LYS:HD2	0.51	2.05	8	1
1:A:462:ILE:HG22	1:A:465:ALA:HB2	0.51	1.81	8	1
1:A:491:LYS:HB2	1:A:495:LYS:N	0.51	2.20	5	1
1:A:408:MET:HB3	1:A:448:ALA:N	0.51	2.20	2	1
1:A:451:ASN:CG	1:A:452:LYS:H	0.51	2.09	11	1
1:A:395:THR:HB	1:A:414:LYS:CB	0.51	2.33	6	1
1:A:397:LEU:HD21	1:A:442:GLN:NE2	0.51	2.19	6	1
1:A:498:LYS:C	1:A:499:ILE:HD13	0.51	2.25	13	1
1:A:429:ALA:HA	1:A:467:ARG:HA	0.51	1.81	14	1
1:A:476:PHE:CD1	1:A:476:PHE:N	0.51	2.79	10	7
1:A:489:LYS:HD3	1:A:495:LYS:O	0.51	2.04	12	1
1:A:496:GLU:HG2	1:A:497:GLN:N	0.51	2.21	5	1
1:A:499:ILE:HG13	1:A:500:THR:N	0.51	2.18	5	1
1:A:466:PRO:HG3	2:B:906:THR:HG23	0.51	1.81	14	1
1:A:472:ILE:HD12	1:A:490:ASP:OD1	0.51	2.06	5	1
1:A:420:THR:O	1:A:477:ASP:HA	0.51	2.05	5	5
1:A:477:ASP:N	1:A:485:HIS:HB2	0.51	2.20	13	1
1:A:399:LEU:HD22	1:A:478:ILE:HD11	0.51	1.81	11	1
1:A:408:MET:CG	1:A:450:ASP:HB3	0.51	2.35	11	1
1:A:479:ASP:HB2	1:A:483:ILE:HB	0.51	1.82	15	1
1:A:440:VAL:HB	1:A:454:LEU:HD13	0.50	1.82	3	8
1:A:459:LEU:HD13	1:A:460:ASP:N	0.50	2.21	2	2
1:A:442:GLN:O	1:A:452:LYS:HB3	0.50	2.05	11	3
1:A:462:ILE:O	1:A:464:PRO:HD2	0.50	2.06	14	1
1:A:410:THR:C	1:A:411:LEU:HD22	0.50	2.27	15	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:479:ASP:C	1:A:481:ASP:H	0.50	2.10	15	1
1:A:491:LYS:C	1:A:491:LYS:HE3	0.50	2.27	10	2
1:A:459:LEU:HD11	1:A:496:GLU:HG2	0.50	1.82	9	1
1:A:486:VAL:O	1:A:498:LYS:O	0.50	2.30	13	1
1:A:433:GLN:HG3	1:A:466:PRO:CA	0.50	2.36	14	1
1:A:500:THR:O	1:A:501:ILE:HD13	0.50	2.07	13	1
1:A:442:GLN:HB2	1:A:454:LEU:HD21	0.50	1.82	10	1
1:A:437:THR:OG1	2:B:906:THR:HA	0.50	2.07	15	4
1:A:398:SER:O	1:A:443:GLY:N	0.50	2.45	10	8
1:A:489:LYS:HD3	1:A:490:ASP:N	0.50	2.22	15	1
1:A:396:PRO:O	1:A:397:LEU:HB2	0.50	2.05	6	1
1:A:473:GLU:HB3	1:A:489:LYS:HB3	0.50	1.83	10	1
1:A:462:ILE:HB	2:B:907:GLY:O	0.50	2.07	8	1
1:A:478:ILE:HD13	1:A:484:LEU:HB2	0.50	1.83	8	4
1:A:441:LEU:HD22	1:A:451:ASN:HB2	0.50	1.82	12	1
1:A:433:GLN:HA	1:A:465:ALA:C	0.50	2.27	14	1
1:A:440:VAL:O	1:A:454:LEU:HD12	0.50	2.07	6	1
1:A:394:VAL:O	1:A:416:THR:HA	0.50	2.07	15	1
1:A:394:VAL:CG2	1:A:417:THR:HG22	0.50	2.37	15	1
1:A:432:ASN:O	1:A:433:GLN:C	0.49	2.50	8	1
1:A:412:ILE:HD11	1:A:476:PHE:CB	0.49	2.33	6	1
1:A:473:GLU:HB2	1:A:489:LYS:HG2	0.49	1.83	7	1
1:A:397:LEU:HD23	1:A:442:GLN:CD	0.49	2.28	11	1
1:A:418:ILE:HG23	1:A:478:ILE:HG22	0.49	1.85	11	1
1:A:395:THR:CG2	1:A:416:THR:HB	0.49	2.36	15	1
1:A:481:ASP:HB3	1:A:483:ILE:HD11	0.49	1.85	11	1
1:A:489:LYS:HA	1:A:496:GLU:N	0.49	2.20	9	1
1:A:471:GLN:HB3	1:A:491:LYS:HB2	0.49	1.83	1	1
1:A:434:SER:HA	1:A:462:ILE:H	0.49	1.67	2	1
1:A:490:ASP:HB2	1:A:494:GLY:O	0.49	2.07	15	1
1:A:417:THR:O	1:A:480:ALA:HA	0.49	2.07	15	1
1:A:440:VAL:HB	1:A:454:LEU:CD2	0.49	2.38	10	1
1:A:440:VAL:CB	1:A:454:LEU:HB2	0.49	2.30	10	1
1:A:399:LEU:CD1	1:A:442:GLN:HG3	0.49	2.35	11	1
2:B:903:LEU:O	2:B:904:LEU:HD22	0.49	2.08	13	2
1:A:404:MET:HA	2:B:905:LEU:H	0.49	1.68	11	2
1:A:400:GLY:O	1:A:441:LEU:N	0.49	2.46	10	8
1:A:461:GLY:C	1:A:462:ILE:HG13	0.49	2.28	14	1
1:A:448:ALA:O	1:A:449:ALA:C	0.49	2.51	7	1
1:A:431:ASP:HA	1:A:466:PRO:HB2	0.49	1.83	7	1
1:A:472:ILE:HG21	1:A:488:ALA:HB1	0.49	1.85	4	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:434:SER:HB2	1:A:463:ASN:H	0.49	1.68	12	1
1:A:429:ALA:O	1:A:430:GLU:CB	0.49	2.61	14	1
1:A:438:ILE:HD13	2:B:904:LEU:HD21	0.48	1.85	3	1
1:A:443:GLY:HA3	1:A:451:ASN:CG	0.48	2.29	2	2
1:A:489:LYS:HD2	1:A:494:GLY:HA2	0.48	1.85	10	1
1:A:465:ALA:N	1:A:466:PRO:CD	0.48	2.76	7	1
1:A:447:ARG:O	1:A:448:ALA:HB3	0.48	2.09	11	1
1:A:397:LEU:HB3	1:A:414:LYS:HG3	0.48	1.84	6	1
1:A:429:ALA:HB3	2:B:905:LEU:HG	0.48	1.85	7	1
1:A:401:ILE:CG2	1:A:440:VAL:HG13	0.48	2.37	10	1
1:A:401:ILE:HG23	1:A:411:LEU:HD22	0.48	1.84	6	1
1:A:443:GLY:N	1:A:450:ASP:HA	0.48	2.22	7	1
1:A:466:PRO:HG2	1:A:469:MET:HB2	0.48	1.85	8	1
1:A:442:GLN:HG3	1:A:442:GLN:O	0.48	2.09	3	1
1:A:476:PHE:CB	1:A:484:LEU:HD11	0.48	2.37	8	2
1:A:471:GLN:C	1:A:472:ILE:HD13	0.48	2.29	5	1
1:A:465:ALA:N	1:A:466:PRO:HD2	0.48	2.23	7	1
1:A:433:GLN:OE1	1:A:462:ILE:HB	0.48	2.09	11	2
1:A:440:VAL:HG22	1:A:454:LEU:HG	0.48	1.86	13	1
1:A:434:SER:O	1:A:462:ILE:HG13	0.48	2.09	4	1
1:A:429:ALA:H	1:A:466:PRO:HB3	0.48	1.68	14	1
1:A:431:ASP:N	1:A:466:PRO:O	0.48	2.47	14	1
1:A:443:GLY:HA3	1:A:450:ASP:O	0.48	2.07	7	1
1:A:416:THR:OG1	1:A:478:ILE:HG21	0.48	2.08	15	1
1:A:433:GLN:O	1:A:435:ALA:N	0.47	2.47	8	2
1:A:481:ASP:HB2	1:A:483:ILE:HD11	0.47	1.85	1	1
1:A:431:ASP:HA	1:A:465:ALA:O	0.47	2.09	6	4
1:A:425:VAL:HG21	1:A:471:GLN:HG2	0.47	1.86	14	1
1:A:445:ARG:O	1:A:446:LYS:HB2	0.47	2.09	6	1
1:A:464:PRO:O	1:A:466:PRO:HD3	0.47	2.09	13	2
1:A:395:THR:HG21	1:A:412:ILE:CG2	0.47	2.35	15	1
1:A:457:PHE:HZ	1:A:501:ILE:HD11	0.47	1.68	5	1
1:A:428:THR:HB	1:A:468:GLY:N	0.47	2.23	14	1
1:A:395:THR:O	1:A:414:LYS:HA	0.47	2.08	8	1
1:A:436:VAL:HG22	2:B:904:LEU:HD13	0.47	1.84	4	1
1:A:483:ILE:HG22	1:A:484:LEU:N	0.47	2.25	15	1
1:A:408:MET:HG3	1:A:408:MET:O	0.47	2.09	14	1
1:A:442:GLN:CG	1:A:443:GLY:N	0.47	2.78	6	1
1:A:476:PHE:HB3	1:A:485:HIS:O	0.47	2.09	13	1
1:A:430:GLU:O	1:A:433:GLN:HG2	0.47	2.09	15	2
1:A:467:ARG:O	1:A:469:MET:N	0.47	2.47	14	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:436:VAL:HG23	2:B:907:GLY:HA2	0.47	1.86	10	1
1:A:401:ILE:O	1:A:409:THR:HB	0.47	2.09	12	2
1:A:471:GLN:O	1:A:489:LYS:O	0.47	2.32	5	1
1:A:463:ASN:CB	1:A:464:PRO:HD2	0.47	2.40	13	1
1:A:398:SER:HB3	1:A:443:GLY:O	0.47	2.10	15	1
1:A:432:ASN:H	1:A:467:ARG:CB	0.47	2.23	14	1
1:A:408:MET:HB2	1:A:448:ALA:HB2	0.47	1.86	2	1
1:A:399:LEU:CD1	1:A:478:ILE:HD11	0.46	2.40	12	1
1:A:424:GLN:O	1:A:474:VAL:HG23	0.46	2.10	14	2
1:A:457:PHE:CE1	1:A:486:VAL:HB	0.46	2.44	14	1
1:A:491:LYS:HB2	1:A:496:GLU:HB3	0.46	1.87	12	1
1:A:439:HIS:CD2	1:A:441:LEU:HD13	0.46	2.45	11	1
1:A:399:LEU:HD23	1:A:400:GLY:N	0.46	2.25	12	3
1:A:408:MET:SD	1:A:447:ARG:HA	0.46	2.51	6	1
1:A:429:ALA:H	1:A:466:PRO:CB	0.46	2.22	14	1
1:A:394:VAL:HG21	1:A:415:ASN:N	0.46	2.25	7	1
1:A:440:VAL:O	1:A:454:LEU:N	0.46	2.48	7	2
1:A:470:PRO:HA	1:A:491:LYS:HD2	0.46	1.88	13	1
1:A:476:PHE:CD1	1:A:486:VAL:HA	0.46	2.46	9	1
1:A:426:PHE:CE1	2:B:904:LEU:HD11	0.46	2.46	12	1
1:A:434:SER:HA	1:A:462:ILE:C	0.46	2.31	4	2
1:A:429:ALA:HB2	2:B:903:LEU:HB3	0.46	1.85	4	2
1:A:428:THR:HG22	1:A:470:PRO:HG2	0.46	1.87	1	1
1:A:441:LEU:HB3	1:A:450:ASP:OD1	0.46	2.11	11	1
1:A:430:GLU:HB2	2:B:905:LEU:HG	0.46	1.85	11	1
1:A:440:VAL:CG2	1:A:454:LEU:HG	0.46	2.40	13	1
1:A:420:THR:CG2	1:A:478:ILE:HG13	0.46	2.40	15	1
1:A:412:ILE:CG2	1:A:420:THR:HG21	0.46	2.40	5	2
1:A:474:VAL:HG12	1:A:476:PHE:CE2	0.46	2.46	14	1
1:A:434:SER:O	1:A:460:ASP:HA	0.46	2.10	9	1
1:A:484:LEU:O	1:A:501:ILE:HD12	0.46	2.10	5	1
1:A:489:LYS:HD3	1:A:494:GLY:HA2	0.46	1.87	5	1
1:A:433:GLN:HG3	1:A:466:PRO:HA	0.46	1.87	14	1
1:A:394:VAL:HG11	1:A:414:LYS:HG3	0.46	1.88	7	1
1:A:443:GLY:O	1:A:450:ASP:HA	0.46	2.10	7	1
1:A:434:SER:HB2	1:A:464:PRO:O	0.46	2.10	14	1
1:A:463:ASN:O	1:A:465:ALA:N	0.46	2.49	13	3
1:A:442:GLN:O	1:A:442:GLN:HG3	0.46	2.11	4	1
1:A:440:VAL:HG23	1:A:454:LEU:HD21	0.46	1.87	13	1
1:A:440:VAL:O	1:A:454:LEU:HD22	0.46	2.10	10	1
1:A:469:MET:N	1:A:470:PRO:CD	0.46	2.79	9	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:430:GLU:H	1:A:433:GLN:HE22	0.46	1.53	10	1
1:A:438:ILE:HB	1:A:457:PHE:CE2	0.45	2.45	12	1
1:A:491:LYS:HD3	1:A:496:GLU:OE1	0.45	2.11	12	1
1:A:416:THR:HG23	1:A:417:THR:N	0.45	2.26	7	1
1:A:397:LEU:C	1:A:414:LYS:HB2	0.45	2.32	6	1
1:A:471:GLN:H	1:A:491:LYS:HD3	0.45	1.71	13	1
1:A:398:SER:CA	1:A:413:ALA:HA	0.45	2.42	12	7
1:A:439:HIS:CE1	1:A:441:LEU:HD13	0.45	2.46	7	1
1:A:427:SER:OG	2:B:904:LEU:HG	0.45	2.11	13	1
1:A:484:LEU:O	1:A:501:ILE:HG12	0.45	2.11	13	1
1:A:435:ALA:CB	1:A:459:LEU:O	0.45	2.65	14	1
2:B:906:THR:OG1	2:B:907:GLY:N	0.45	2.49	3	1
1:A:428:THR:O	2:B:903:LEU:HB3	0.45	2.12	4	1
1:A:417:THR:OG1	1:A:419:PRO:HD2	0.45	2.12	11	1
1:A:407:VAL:HG12	1:A:447:ARG:HA	0.45	1.87	10	1
1:A:399:LEU:HD23	1:A:484:LEU:HD22	0.45	1.87	3	1
1:A:433:GLN:HG3	1:A:466:PRO:CD	0.45	2.41	14	1
1:A:433:GLN:OE1	2:B:906:THR:HG23	0.45	2.11	15	1
1:A:500:THR:C	1:A:501:ILE:HG13	0.45	2.32	10	1
1:A:472:ILE:HG23	1:A:489:LYS:O	0.45	2.11	4	1
1:A:397:LEU:N	1:A:414:LYS:HD2	0.45	2.26	8	1
1:A:433:GLN:HB3	2:B:907:GLY:N	0.45	2.27	8	1
1:A:399:LEU:CD2	1:A:478:ILE:HD11	0.45	2.42	11	1
1:A:409:THR:CG2	1:A:410:THR:N	0.44	2.80	12	1
1:A:429:ALA:O	1:A:466:PRO:HB2	0.44	2.12	14	1
1:A:430:GLU:CA	1:A:466:PRO:O	0.44	2.65	14	1
1:A:399:LEU:HG	1:A:442:GLN:HB2	0.44	1.88	11	1
1:A:402:GLU:HG2	1:A:406:GLY:H	0.44	1.72	8	1
1:A:433:GLN:HB3	1:A:462:ILE:CD1	0.44	2.42	14	1
1:A:465:ALA:H	1:A:466:PRO:CD	0.44	2.25	7	1
1:A:397:LEU:CA	1:A:414:LYS:HD2	0.44	2.43	8	1
1:A:433:GLN:CG	1:A:466:PRO:HA	0.44	2.43	14	1
1:A:459:LEU:HD21	1:A:496:GLU:CD	0.44	2.33	9	1
1:A:408:MET:N	1:A:448:ALA:HB2	0.44	2.28	12	2
1:A:425:VAL:HA	1:A:472:ILE:O	0.44	2.12	13	1
1:A:433:GLN:O	1:A:434:SER:C	0.44	2.55	8	2
1:A:441:LEU:HG	1:A:450:ASP:HB3	0.44	1.89	7	1
1:A:429:ALA:CB	2:B:905:LEU:HB3	0.44	2.41	13	1
1:A:417:THR:H	1:A:418:ILE:HG23	0.44	1.72	15	1
1:A:462:ILE:O	1:A:463:ASN:O	0.44	2.36	3	1
1:A:418:ILE:N	1:A:419:PRO:HD2	0.44	2.27	12	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:496:GLU:CG	1:A:497:GLN:N	0.44	2.81	9	1
1:A:433:GLN:C	1:A:435:ALA:H	0.44	2.16	5	1
1:A:408:MET:SD	1:A:441:LEU:HD12	0.44	2.53	2	1
1:A:428:THR:HG22	1:A:466:PRO:HA	0.44	1.89	15	1
1:A:433:GLN:C	1:A:435:ALA:N	0.44	2.70	12	5
1:A:397:LEU:CG	1:A:398:SER:H	0.44	2.13	6	1
1:A:397:LEU:HB2	1:A:414:LYS:CD	0.44	2.37	15	1
1:A:399:LEU:N	1:A:413:ALA:HA	0.44	2.28	15	1
1:A:486:VAL:O	1:A:498:LYS:HA	0.44	2.12	6	3
1:A:439:HIS:ND1	1:A:456:GLN:HB2	0.44	2.27	6	1
1:A:399:LEU:HB2	1:A:412:ILE:O	0.44	2.13	11	2
1:A:395:THR:HG21	1:A:412:ILE:HG21	0.44	1.89	1	1
1:A:462:ILE:C	1:A:464:PRO:HD3	0.44	2.33	10	1
1:A:430:GLU:O	1:A:433:GLN:HG3	0.44	2.13	5	1
1:A:432:ASN:HB2	1:A:464:PRO:HB2	0.44	1.89	14	1
1:A:441:LEU:HD22	1:A:451:ASN:ND2	0.44	2.27	4	1
1:A:408:MET:HG3	1:A:448:ALA:CA	0.44	2.43	10	1
1:A:442:GLN:CG	1:A:442:GLN:O	0.43	2.65	11	1
1:A:450:ASP:O	1:A:451:ASN:HB3	0.43	2.13	11	1
1:A:397:LEU:CB	1:A:414:LYS:HE2	0.43	2.39	6	1
1:A:408:MET:CE	1:A:441:LEU:HD12	0.43	2.43	13	1
1:A:500:THR:C	1:A:501:ILE:HD13	0.43	2.32	13	1
1:A:396:PRO:HA	1:A:414:LYS:HB2	0.43	1.89	8	1
1:A:451:ASN:CG	1:A:452:LYS:N	0.43	2.71	11	2
1:A:487:SER:CA	1:A:498:LYS:O	0.43	2.66	13	1
1:A:435:ALA:CA	1:A:459:LEU:O	0.43	2.64	8	1
1:A:411:LEU:HG	1:A:476:PHE:CE2	0.43	2.49	9	1
1:A:448:ALA:O	1:A:449:ALA:HB3	0.43	2.13	11	1
1:A:428:THR:HG21	1:A:466:PRO:HB3	0.43	1.91	7	1
1:A:394:VAL:HG12	1:A:417:THR:HA	0.43	1.91	11	1
1:A:398:SER:HB3	1:A:414:LYS:HD3	0.43	1.89	13	1
1:A:454:LEU:O	1:A:501:ILE:HG21	0.43	2.14	10	1
1:A:442:GLN:HB3	1:A:452:LYS:O	0.43	2.14	6	1
1:A:394:VAL:HG13	1:A:395:THR:N	0.43	2.28	7	1
1:A:394:VAL:HG12	1:A:416:THR:O	0.43	2.13	2	1
1:A:402:GLU:HG2	1:A:439:HIS:ND1	0.43	2.27	10	1
1:A:467:ARG:HD3	2:B:903:LEU:HD21	0.43	1.91	13	1
2:B:905:LEU:HG	2:B:906:THR:N	0.43	2.29	14	1
1:A:408:MET:HB2	1:A:441:LEU:HG	0.43	1.90	1	1
1:A:485:HIS:HA	1:A:499:ILE:O	0.43	2.13	9	1
1:A:434:SER:HA	1:A:462:ILE:HB	0.43	1.91	12	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:462:ILE:HG21	1:A:470:PRO:HB3	0.43	1.91	1	1
1:A:459:LEU:HG	1:A:488:ALA:HB3	0.43	1.89	15	1
1:A:489:LYS:CE	1:A:495:LYS:HA	0.43	2.43	15	1
1:A:474:VAL:HB	1:A:476:PHE:HE1	0.42	1.74	6	1
1:A:428:THR:CG2	1:A:466:PRO:HB3	0.42	2.44	7	1
1:A:437:THR:OG1	2:B:906:THR:HG23	0.42	2.14	7	1
1:A:441:LEU:HD21	1:A:448:ALA:HB1	0.42	1.90	11	1
1:A:430:GLU:N	1:A:433:GLN:NE2	0.42	2.67	10	1
1:A:402:GLU:HG3	1:A:407:VAL:O	0.42	2.14	8	1
1:A:434:SER:HA	1:A:463:ASN:N	0.42	2.28	3	1
1:A:457:PHE:HD2	1:A:498:LYS:HB3	0.42	1.74	13	1
1:A:444:GLU:HG3	1:A:450:ASP:HB3	0.42	1.89	6	1
1:A:472:ILE:HG13	1:A:489:LYS:O	0.42	2.14	9	1
1:A:402:GLU:N	1:A:439:HIS:O	0.42	2.51	14	2
1:A:457:PHE:CD2	1:A:498:LYS:HB3	0.42	2.49	13	1
1:A:436:VAL:CA	2:B:907:GLY:HA2	0.42	2.43	10	1
1:A:436:VAL:HG12	1:A:459:LEU:HB2	0.42	1.92	9	1
1:A:401:ILE:HG12	1:A:411:LEU:CD2	0.42	2.44	5	2
1:A:467:ARG:H	1:A:469:MET:HE2	0.42	1.75	5	1
1:A:428:THR:HG22	1:A:467:ARG:N	0.42	2.29	14	1
1:A:451:ASN:OD1	1:A:451:ASN:N	0.42	2.51	4	1
1:A:487:SER:HA	1:A:498:LYS:O	0.42	2.13	13	1
1:A:428:THR:HG23	1:A:465:ALA:HB1	0.42	1.91	13	1
1:A:428:THR:CG2	1:A:429:ALA:N	0.42	2.81	15	1
1:A:398:SER:N	1:A:414:LYS:CG	0.42	2.77	6	1
1:A:431:ASP:O	1:A:432:ASN:CB	0.42	2.68	5	1
1:A:426:PHE:HE1	2:B:902:ARG:HB2	0.42	1.74	15	1
1:A:483:ILE:HG22	1:A:484:LEU:H	0.42	1.73	15	1
1:A:401:ILE:CG2	1:A:411:LEU:HD22	0.42	2.44	6	1
1:A:476:PHE:CE1	1:A:486:VAL:HG13	0.42	2.50	9	1
1:A:411:LEU:HD22	1:A:476:PHE:CD1	0.42	2.50	12	1
1:A:432:ASN:CB	1:A:464:PRO:HD2	0.42	2.44	14	1
1:A:428:THR:HG23	1:A:429:ALA:N	0.42	2.29	11	1
1:A:462:ILE:HG12	1:A:490:ASP:OD2	0.42	2.14	15	1
1:A:433:GLN:HB3	1:A:462:ILE:HD12	0.42	1.91	14	1
1:A:437:THR:O	2:B:904:LEU:HD22	0.42	2.15	4	1
1:A:408:MET:CB	1:A:448:ALA:HB2	0.42	2.45	3	2
1:A:463:ASN:HB2	1:A:464:PRO:HD2	0.42	1.92	3	1
2:B:904:LEU:C	2:B:906:THR:H	0.42	2.18	3	1
1:A:442:GLN:HB3	1:A:452:LYS:H	0.42	1.75	6	1
1:A:427:SER:O	2:B:903:LEU:HA	0.42	2.14	2	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:397:LEU:C	1:A:414:LYS:HB3	0.42	2.34	13	1
1:A:414:LYS:CG	1:A:415:ASN:N	0.42	2.82	15	1
1:A:475:THR:O	1:A:486:VAL:HA	0.42	2.15	5	1
1:A:426:PHE:O	1:A:426:PHE:CG	0.42	2.73	4	1
1:A:412:ILE:HG22	1:A:416:THR:HG21	0.41	1.92	7	1
1:A:397:LEU:N	1:A:414:LYS:HG3	0.41	2.30	11	1
1:A:484:LEU:HB2	1:A:501:ILE:O	0.41	2.15	11	1
1:A:499:ILE:N	1:A:499:ILE:HD13	0.41	2.29	3	1
1:A:432:ASN:HB3	1:A:462:ILE:O	0.41	2.15	14	1
1:A:400:GLY:CA	1:A:410:THR:HA	0.41	2.32	15	1
1:A:420:THR:HG22	1:A:478:ILE:CB	0.41	2.40	15	1
1:A:471:GLN:HG3	1:A:489:LYS:HE3	0.41	1.91	5	1
1:A:472:ILE:HG23	1:A:490:ASP:OD1	0.41	2.14	5	1
1:A:440:VAL:HB	1:A:454:LEU:HD12	0.41	1.91	11	1
1:A:470:PRO:HG2	1:A:490:ASP:OD1	0.41	2.16	11	1
1:A:404:MET:HA	2:B:905:LEU:N	0.41	2.30	10	1
1:A:397:LEU:HB2	1:A:414:LYS:HB3	0.41	1.90	15	1
1:A:443:GLY:HA3	1:A:445:ARG:HE	0.41	1.75	15	1
1:A:489:LYS:HB2	1:A:495:LYS:CB	0.41	2.44	9	1
1:A:491:LYS:O	1:A:492:ASN:HB2	0.41	2.15	9	1
1:A:472:ILE:HG22	1:A:474:VAL:HG22	0.41	1.92	12	1
1:A:427:SER:O	2:B:904:LEU:HD12	0.41	2.16	12	1
1:A:418:ILE:O	1:A:478:ILE:HB	0.41	2.16	2	2
1:A:412:ILE:HD13	1:A:478:ILE:HG12	0.41	1.92	11	1
1:A:485:HIS:HB3	1:A:499:ILE:CG2	0.41	2.45	13	1
1:A:445:ARG:HG3	1:A:447:ARG:O	0.41	2.16	15	1
1:A:402:GLU:HG3	1:A:406:GLY:H	0.41	1.74	6	1
1:A:442:GLN:HB3	1:A:452:LYS:N	0.41	2.30	6	1
1:A:403:THR:HA	2:B:904:LEU:CD1	0.41	2.45	13	1
1:A:502:LYS:H	1:A:502:LYS:HG3	0.41	1.55	5	1
1:A:489:LYS:HB2	1:A:496:GLU:HB2	0.41	1.92	13	2
1:A:414:LYS:HG3	1:A:414:LYS:H	0.41	1.52	4	1
1:A:451:ASN:HD22	1:A:452:LYS:H	0.41	1.59	1	1
2:B:905:LEU:HG	2:B:907:GLY:H	0.41	1.74	2	1
1:A:427:SER:HB3	1:A:436:VAL:CG2	0.41	2.45	13	1
1:A:399:LEU:CD1	1:A:484:LEU:HD22	0.41	2.46	13	1
1:A:429:ALA:O	2:B:905:LEU:HA	0.41	2.16	10	1
1:A:397:LEU:HG	1:A:398:SER:OG	0.41	2.16	8	1
1:A:397:LEU:CA	1:A:414:LYS:HB2	0.41	2.46	6	1
1:A:431:ASP:O	1:A:465:ALA:O	0.41	2.39	14	1
1:A:457:PHE:CE1	1:A:499:ILE:HD12	0.41	2.51	7	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:463:ASN:O	1:A:464:PRO:C	0.41	2.58	13	2
1:A:440:VAL:CG2	1:A:455:GLY:O	0.41	2.69	11	1
1:A:428:THR:N	2:B:904:LEU:HB2	0.41	2.31	13	1
1:A:483:ILE:HA	1:A:502:LYS:HA	0.41	1.92	10	1
1:A:439:HIS:CE1	1:A:453:SER:HB3	0.41	2.51	8	1
1:A:474:VAL:HB	1:A:476:PHE:CZ	0.41	2.51	8	1
1:A:489:LYS:HB2	1:A:496:GLU:HG3	0.41	1.92	6	1
1:A:433:GLN:C	1:A:462:ILE:HB	0.41	2.36	14	1
2:B:903:LEU:HB3	2:B:904:LEU:H	0.41	1.61	14	1
1:A:408:MET:O	1:A:408:MET:HG2	0.41	2.13	4	1
1:A:397:LEU:HD23	1:A:442:GLN:NE2	0.41	2.31	11	1
1:A:418:ILE:HD11	1:A:420:THR:HB	0.41	1.92	15	1
1:A:410:THR:O	1:A:411:LEU:HD22	0.40	2.16	8	1
1:A:432:ASN:H	1:A:466:PRO:HD3	0.40	1.75	9	1
1:A:500:THR:O	1:A:501:ILE:HG13	0.40	2.15	12	1
1:A:484:LEU:HG	1:A:485:HIS:N	0.40	2.31	13	1
1:A:463:ASN:N	1:A:464:PRO:CD	0.40	2.84	15	1
1:A:436:VAL:HA	2:B:906:THR:HG22	0.40	1.92	3	1
1:A:428:THR:CG2	1:A:466:PRO:HB2	0.40	2.46	9	1
2:B:902:ARG:HB3	2:B:903:LEU:H	0.40	1.53	9	1
1:A:466:PRO:HG2	2:B:906:THR:N	0.40	2.29	14	1
1:A:408:MET:HG3	1:A:449:ALA:CB	0.40	2.46	7	1
1:A:395:THR:OG1	1:A:416:THR:HG22	0.40	2.16	1	1
1:A:427:SER:OG	1:A:427:SER:O	0.40	2.32	14	1
1:A:453:SER:O	1:A:454:LEU:C	0.40	2.59	7	1
1:A:427:SER:HB2	1:A:472:ILE:CB	0.40	2.41	13	1
1:A:477:ASP:O	1:A:484:LEU:HA	0.40	2.17	5	1
1:A:427:SER:OG	2:B:904:LEU:HD12	0.40	2.16	14	1
1:A:427:SER:HA	2:B:904:LEU:CD2	0.40	2.41	13	1
1:A:491:LYS:C	1:A:493:SER:H	0.40	2.20	12	1
1:A:408:MET:HG3	1:A:449:ALA:CA	0.40	2.46	7	1
1:A:430:GLU:HB3	1:A:433:GLN:HG2	0.40	1.92	4	1
1:A:395:THR:CB	1:A:413:ALA:HB3	0.40	2.44	15	1
1:A:418:ILE:O	1:A:478:ILE:O	0.40	2.40	15	1

6.3 Torsion angles

6.3.1 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 PDB entries followed by that with respect to all NMR

entries. 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	110/135 (81%)	81±4 (74±4%)	20±4 (18±3%)	9±2 (8±2%)	2	14
2	B	5/7 (71%)	3±1 (67±21%)	1±1 (28±18%)	0±1 (5±11%)	4	24
All	All	1725/2130 (81%)	1272 (74%)	315 (18%)	138 (8%)	2	14

All 47 unique Ramachandran outliers are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type	Models (Total)
1	A	405	GLY	11
1	A	492	ASN	10
1	A	461	GLY	9
1	A	467	ARG	8
1	A	450	ASP	7
1	A	464	PRO	7
1	A	430	GLU	6
1	A	466	PRO	6
1	A	414	LYS	5
1	A	463	ASN	5
1	A	462	ILE	5
1	A	470	PRO	3
1	A	503	ALA	3
1	A	451	ASN	3
1	A	469	MET	3
1	A	413	ALA	3
1	A	448	ALA	3
1	A	397	LEU	2
1	A	495	LYS	2
1	A	434	SER	2
1	A	447	ARG	2
1	A	449	ALA	2
1	A	465	ALA	2
1	A	396	PRO	2
1	A	452	LYS	2
2	B	903	LEU	2
1	A	468	GLY	2
1	A	432	ASN	2
1	A	398	SER	1
1	A	412	ILE	1
1	A	454	LEU	1
1	A	415	ASN	1

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Mol	Chain	Res	Type	Models (Total)
1	A	453	SER	1
1	A	394	VAL	1
1	A	491	LYS	1
1	A	417	THR	1
1	A	493	SER	1
1	A	499	ILE	1
1	A	416	THR	1
1	A	431	ASP	1
1	A	494	GLY	1
1	A	480	ALA	1
1	A	433	GLN	1
2	B	906	THR	1
2	B	904	LEU	1
1	A	404	MET	1
1	A	395	THR	1

6.3.2 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 PDB entries followed by that with respect to all NMR entries. 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	92/113 (81%)	56±3 (61±4%)	36±3 (39±4%)	1	6
2	B	5/6 (83%)	3±1 (59±26%)	2±1 (41±26%)	0	4
All	All	1455/1785 (82%)	891 (61%)	564 (39%)	1	6

All 86 unique residues with a non-rotameric sidechain are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type	Models (Total)
1	A	395	THR	15
1	A	440	VAL	15
1	A	491	LYS	14
1	A	498	LYS	14
1	A	410	THR	13
1	A	476	PHE	12
1	A	460	ASP	12
1	A	441	LEU	12
1	A	397	LEU	12

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Mol	Chain	Res	Type	Models (Total)
1	A	422	HIS	12
1	A	459	LEU	11
1	A	487	SER	11
1	A	414	LYS	11
1	A	446	LYS	10
1	A	424	GLN	10
1	A	469	MET	10
1	A	399	LEU	10
1	A	437	THR	10
1	A	408	MET	10
1	A	462	ILE	10
1	A	467	ARG	10
2	B	902	ARG	10
1	A	428	THR	10
1	A	495	LYS	9
1	A	493	SER	9
1	A	477	ASP	9
1	A	451	ASN	9
1	A	431	ASP	9
1	A	489	LYS	9
1	A	445	ARG	9
1	A	496	GLU	8
1	A	427	SER	8
1	A	417	THR	8
1	A	490	ASP	7
1	A	497	GLN	7
1	A	415	ASN	7
1	A	433	GLN	7
2	B	905	LEU	7
1	A	499	ILE	7
1	A	411	LEU	7
1	A	398	SER	7
1	A	426	PHE	6
1	A	444	GLU	6
1	A	502	LYS	6
1	A	474	VAL	6
1	A	421	LYS	6
1	A	453	SER	6
1	A	436	VAL	5
1	A	485	HIS	5
2	B	904	LEU	5
2	B	903	LEU	5

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Mol	Chain	Res	Type	Models (Total)
1	A	471	GLN	5
1	A	458	ASN	5
1	A	463	ASN	5
1	A	423	SER	5
1	A	481	ASP	4
1	A	442	GLN	4
1	A	447	ARG	4
1	A	407	VAL	4
1	A	450	ASP	4
1	A	479	ASP	4
1	A	432	ASN	4
1	A	434	SER	4
1	A	501	ILE	4
1	A	452	LYS	4
1	A	430	GLU	4
2	B	906	THR	4
1	A	456	GLN	3
1	A	492	ASN	3
1	A	454	LEU	3
1	A	425	VAL	3
1	A	472	ILE	3
1	A	420	THR	2
1	A	394	VAL	2
1	A	483	ILE	2
1	A	404	MET	2
1	A	484	LEU	1
1	A	412	ILE	1
1	A	409	THR	1
1	A	418	ILE	1
1	A	478	ILE	1
1	A	403	THR	1
1	A	457	PHE	1
1	A	402	GLU	1
1	A	486	VAL	1
1	A	473	GLU	1

6.3.3 RNA

There are no RNA molecules in this entry.

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

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

6.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

6.6 Ligand geometry [i](#)

There are no ligands in this entry.

6.7 Other polymers [i](#)

There are no such molecules in this entry.

6.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

7 Chemical shift validation

No chemical shift data were provided