



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 10, 2024 – 07:19 AM EDT

PDB ID : 4R3Z
Title : Crystal structure of human ArgRS-GlnRS-AIMP1 complex
Authors : Fu, Y.; Kim, Y.; Cho, Y.
Deposited on : 2014-08-18
Resolution : 4.03 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 : 4.02b-467
Xtriage (Phenix) : 1.13
EDS : 2.36
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

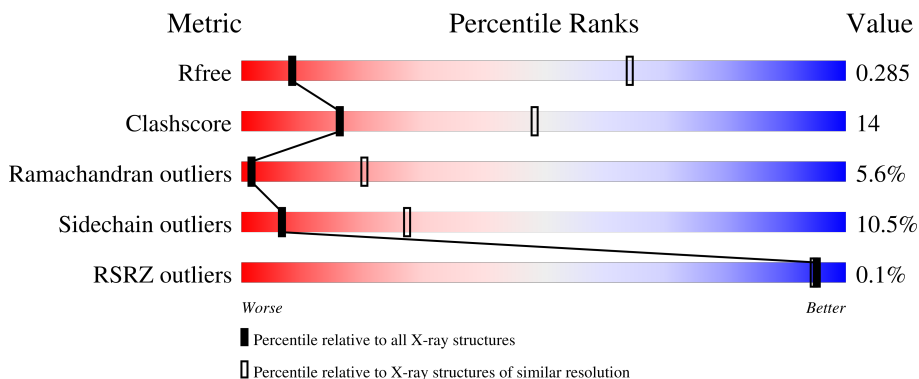
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 4.03 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}	130704	1105 (4.38-3.70)
Clashscore	141614	1005 (4.36-3.72)
Ramachandran outliers	138981	1125 (4.38-3.70)
Sidechain outliers	138945	1115 (4.38-3.70)
RSRZ outliers	127900	1003 (4.40-3.68)

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	312	
2	B	675	
3	C	799	

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 10242 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 Aminoacyl tRNA synthase complex-interacting multifunctional protein 1.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
1	A	76	617	393	108	116	0	0	0

- Molecule 2 is a protein called Arginine-tRNA ligase, cytoplasmic.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	659	5286	3364	905	987	30	0	0	0

There are 15 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-14	MET	-	expression tag	UNP P54136
B	-13	GLY	-	expression tag	UNP P54136
B	-12	SER	-	expression tag	UNP P54136
B	-11	SER	-	expression tag	UNP P54136
B	-10	HIS	-	expression tag	UNP P54136
B	-9	HIS	-	expression tag	UNP P54136
B	-8	HIS	-	expression tag	UNP P54136
B	-7	HIS	-	expression tag	UNP P54136
B	-6	HIS	-	expression tag	UNP P54136
B	-5	HIS	-	expression tag	UNP P54136
B	-4	SER	-	expression tag	UNP P54136
B	-3	GLN	-	expression tag	UNP P54136
B	-2	ASP	-	expression tag	UNP P54136
B	-1	PRO	-	expression tag	UNP P54136
B	0	MET	-	expression tag	UNP P54136

- Molecule 3 is a protein called Glutamine-tRNA ligase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	538	4339	2786	753	774	26	0	0	0

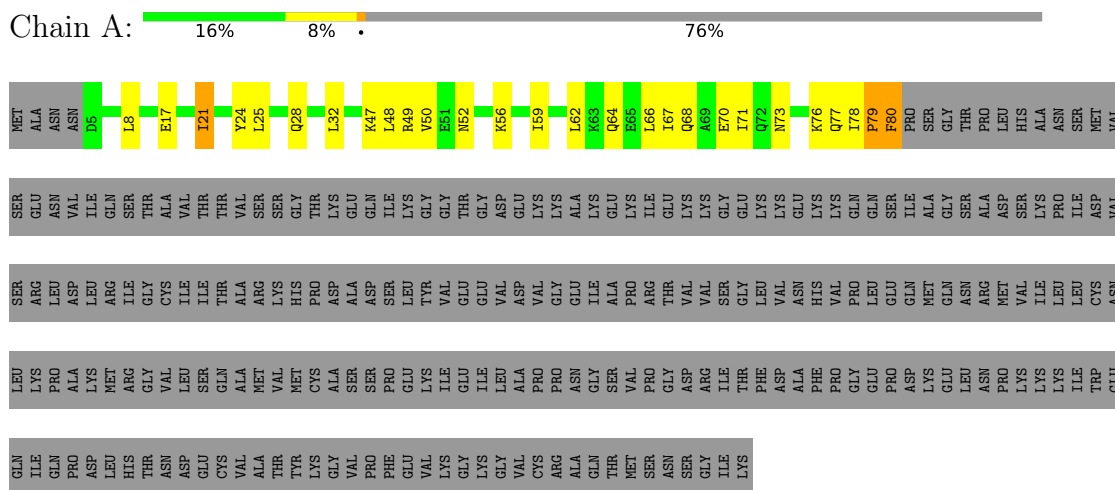
There are 24 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	-23	HIS	-	expression tag	UNP P47897
C	-22	GLY	-	expression tag	UNP P47897
C	-21	SER	-	expression tag	UNP P47897
C	-20	SER	-	expression tag	UNP P47897
C	-19	HIS	-	expression tag	UNP P47897
C	-18	HIS	-	expression tag	UNP P47897
C	-17	HIS	-	expression tag	UNP P47897
C	-16	HIS	-	expression tag	UNP P47897
C	-15	HIS	-	expression tag	UNP P47897
C	-14	HIS	-	expression tag	UNP P47897
C	-13	SER	-	expression tag	UNP P47897
C	-12	SER	-	expression tag	UNP P47897
C	-11	GLY	-	expression tag	UNP P47897
C	-10	LEU	-	expression tag	UNP P47897
C	-9	VAL	-	expression tag	UNP P47897
C	-8	PRO	-	expression tag	UNP P47897
C	-7	ARG	-	expression tag	UNP P47897
C	-6	GLY	-	expression tag	UNP P47897
C	-5	SER	-	expression tag	UNP P47897
C	-4	HIS	-	expression tag	UNP P47897
C	-3	MET	-	expression tag	UNP P47897
C	-2	ALA	-	expression tag	UNP P47897
C	-1	SER	-	expression tag	UNP P47897
C	0	MET	-	expression tag	UNP P47897

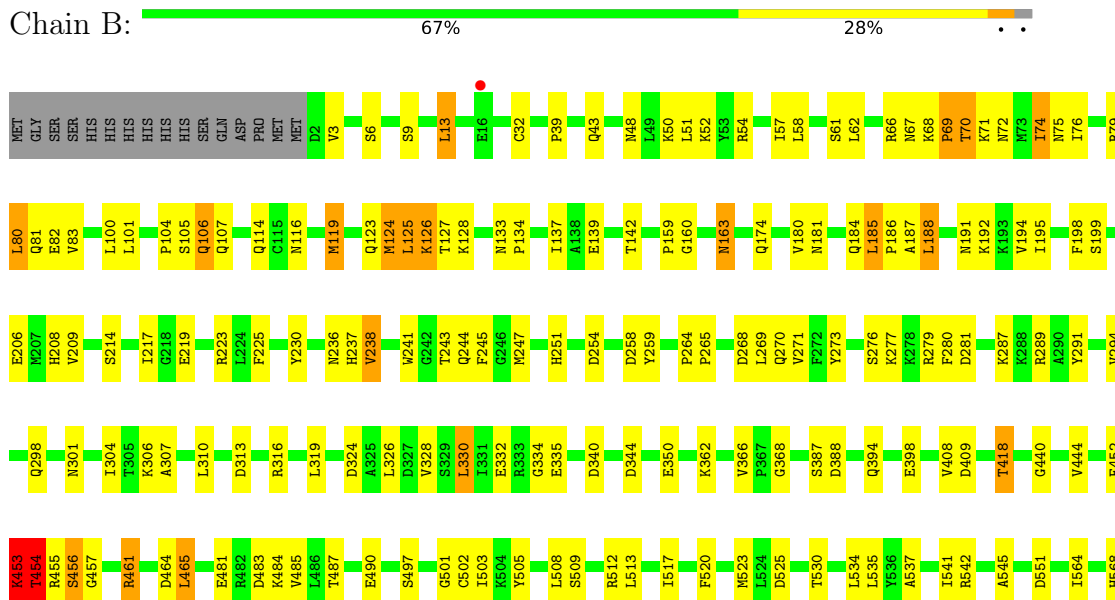
3 Residue-property plots

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: Aminoacyl tRNA synthase complex-interacting multifunctional protein 1

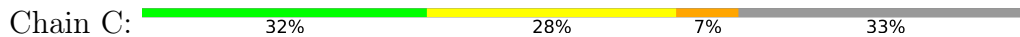


- Molecule 2: Arginine-tRNA ligase, cytoplasmic





● Molecule 3: Glutamine-tRNA ligase



HIS GLY
K570 SER
L579 HIS
F580 HIS
P582 HIS
I588 HIS
L594 HIS
H595 SER
T596 GLY
Y600 LEU
E603 VAL
L604 ARG
S614 LEU
C615 LEU
Y616 SER
E619 MET
K620 MET
D621 ALA
R622 ALA
K626 ASP
I627 SER
L628 LEU
K629 LEU
V630 SER
M632 THR
W633 PHE
R634 LEU
M635 LEU
L636 GLY

ALA THR
GLN SER
ALA ASP
GLN PRO
THR ASP
LEU THR
GLY VAL
SER THR
LEU THR
TYR MET
GLY ALA
LEU SER
ASP SER
THR LEU
ARG MET
LEU ARG
LEU LEU
LEU LEU
ASP ASP
THR THR
PHE THR
LEU LEU
VAL VAL
LYS LYS
ILE ARG

HIS PRO
LEU LEU
ASP ASP
PRO ASN
ILE SER
LYS THR
MET THR
VAL VAL
ILE ASN
GLY THR
VAL VAL
VAL VAL
HIS VAL
LEU ILE
LEU VAL
GLY THR
PRO PRO
LEU LEU
GLN LEU
ILE ILE

LEU LYS
TRP THR
ALA ASP
GLY ASP
MET LYS
ILE THR
LYS THR
ASN ASN
PHE THR
GLU LEU
ARG VAL
GLU ASP
CYS MET
ALA MET
GLN VAL
THR VAL
GLY VAL
VAL VAL
VAL VAL
HIS HIS
LEU LEU
LEU LEU
GLY GLY
PRO PRO
LEU LEU
LYS LEU
GLN LEU
ILE ILE

THR LEU
SER SER
R220 LEU
E222 LEU
E227 MET
F314 LEU
K230 LYS
F231 ASN
H232 GLU
K233 VAL
P234 ASP
G235 MET
E236 MET
N237 VAL
Y238 VAL
Y239 HIS
K240 LEU
T246 LEU
H248 LEU
T249 ALA
M250 ASP
N251 LEU
L252 GLU
L253 LYS
K254 LYS
Q256 PHE
H256 LYS
L257 VAL
E258 ALA
G262 ALA
Q263 ARG
V264 LEU
R265 GLU
T266 LEU
R267 THR
F268 ASP
P269 ARG
P270 ARG
I275 THR
L276 ALA
H277 ASP
I278 LYS
G279 VAL
H280 VAL
R284 ASN
M285 MET
F286 GLY
M287 THR
F288 ALA
G289 GLN

Y290 THR
A293 SER
F302 LEU
E222 LEU
E311 MET
F314 LEU
F315 LYS
T316 ASN
A317 GLU
I318 VAL
W324 ASP
M408 MET
L325 GLN
L326 VAL
Y334 VAL
A335 HIS
S336 LEU
D340 LEU
P241 THR
G242 PRO
W345 LEU
E348 LEU
L349 ALA
I350 ASP
R351 LEU
R352 GLU
L353 LYS
A355 LYS
Y356 PHE
V357 LYS
G358 VAL
H359 VAL
Q360 ALA
R361 LYS
E364 LEU
L365 GLU
K366 LEU
GLY THR
HIS HIS
ASN THR
L371 THR
P372 LYS
S373 LYS
P374 THR
W375 VAL
R376 VAL
D377 VAL
R378 ASN
E381 MET
E382 GLY
S383 THR
L384 ALA
L385 THR

K392 LEU
S396 LEU
G397 LEU
G398 LEU
E399 LEU
A400 MET
T401 THR
L402 LEU
R403 LEU
M404 LEU
K405 VAL
L406 VAL
V407 VAL
M408 MET
GLU ASP
C411 LEU
K412 LEU
M413 LEU
D414 LEU
P415 LEU
V416 VAL
R419 LEU
V420 LEU
K421 LEU
Y422 LEU
H425 LEU
H426 LEU
T428 LYS
G429 VAL
D430 VAL
K431 LEU
W432 LEU
P436 LEU
T437 LEU
Y438 LEU
D439 LEU
Y440 LEU
L444 LEU
I448 LEU
T452 LEU
H453 LEU
S454 LEU
L455 LEU
C456 LEU
T457 LEU
K458 LEU
E459 LEU
F460 LEU
F468 LEU

W469 LEU
L470 LEU
L474 LEU
D475 LEU
V476 LEU
Y477 LEU
C478 LEU
P479 LEU
W480 LEU
Q481 LEU
R403 LEU
M404 LEU
K405 VAL
L406 VAL
V407 VAL
M408 MET
GLU ASP
C411 LEU
K412 LEU
M413 LEU
D414 LEU
P415 LEU
V416 VAL
R419 LEU
V420 LEU
K421 LEU
Y422 LEU
H425 LEU
H426 LEU
T428 LYS
G429 VAL
D430 VAL
K431 LEU
W432 LEU
P436 LEU
T437 LEU
Y438 LEU
D439 LEU
Y440 LEU
L444 LEU
I448 LEU
T452 LEU
H453 LEU
S454 LEU
L455 LEU
C456 LEU
T457 LEU
K458 LEU
E459 LEU
F460 LEU
F468 LEU

R558 LEU
L561 LEU
N562 LEU
T564 LEU
A568 LEU
M569 LEU
A570 LEU
E573 LEU
S574 LEU
L575 LEU
R486 LEU
H490 LEU
N581 LEU
F582 LEU
L588 LEU
D589 LEU
I590 LEU
Q591 LEU
V592 LEU
P593 LEU
N594 LEU
F595 LEU
P596 LEU
A597 LEU
D598 LEU
E599 LEU
THR THR
LYS LYS
G602 LEU
F603 LEU
H604 LEU
Q605 LEU
V606 LEU
P607 LEU
F608 LEU
A609 LEU
P610 LEU
I611 LEU
V612 LEU
R616 LEU
T617 LEU
D618 LEU
E624 LEU
F627 LEU
K628 LEU
R629 LEU
L630 LEU
A631 LEU
W632 LEU

G633 LEU
Q634 LEU
V635 LEU
V636 LEU
G637 LEU
L638 LEU
R639 LEU
H640 LEU
Y643 LEU
V644 LEU
I645 LEU
E646 LEU
L647 LEU
G653 LEU
P654 LEU
V658 LEU
E662 LEU
V663 LEU
T664 LEU
C665 LEU
R666 LEU
R667 LEU
A668 LEU
D669 LEU
L734 LEU
A670 LEU
G671 LEU
E672 LEU
K673 LEU
P674 LEU
LYS LYS
ALA ALA
F677 LEU
I678 LEU
H679 LEU
S682 LEU
Q683 LEU
P684 LEU
L685 LEU
M686 LEU
C687 LEU
E688 LEU
V689 LEU
R690 LEU
R694 LEU
L695 LEU
F696 LEU
Q697 LEU
M698 LEU
F761 LEU
F762 LEU
L763 LEU
ASN ASN
PRO PRO
E702 LEU
D703 LEU
F704 LEU

T705 LEU
E706 LEU
P707 LEU
F708 LEU
G709 LEU
G710 LEU
F711 LEU
L712 LEU
S713 LEU
D714 LEU
L715 LEU
N716 LEU
L717 LEU
A718 LEU
S719 LEU
L720 LEU
H721 LEU
V722 LEU
V723 LEU
D724 LEU
A725 LEU
A726 LEU
L727 LEU
W728 LEU
V729 LEU
V732 LEU
A733 LEU
L734 LEU
A735 LEU
L736 LEU
L737 LEU
L738 LEU
F737 LEU
F738 LEU
D739 LEU
K740 LEU
F741 LEU
Q742 LEU
F743 LEU
E744 LEU
R745 LEU
L746 LEU
G747 LEU
Y748 LEU
F749 LEU
S750 LEU
V751 LEU
D752 LEU
P753 LEU
D754 LEU
Q757 LEU
L760 LEU
V761 LEU
F762 LEU
N763 LEU
R764 LEU
T765 LEU
V766 LEU
T767 LEU

L768 LEU
K769 LEU
E770 LEU
D771 LEU
PRO PRO
GLY GLY
LYS LYS
VAL VAL

4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	102.64Å 313.25Å 161.76Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	37.92 – 4.03 37.92 – 4.03	Depositor EDS
% Data completeness (in resolution range)	70.1 (37.92-4.03) 70.2 (37.92-4.03)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	11.20 (at 3.99Å)	Xtrriage
Refinement program	PHENIX (phenix.refine: dev_1745)	Depositor
R, R_{free}	0.229 , 0.285 0.231 , 0.285	Depositor DCC
R_{free} test set	767 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å ²)	102.7	Xtrriage
Anisotropy	0.178	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.26 , 113.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.55$, $\langle L^2 \rangle = 0.39$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.89	EDS
Total number of atoms	10242	wwPDB-VP
Average B, all atoms (Å ²)	153.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.96% 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 [i](#)

5.1 Standard geometry [i](#)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.28	0/619	0.48	0/824
2	B	0.28	0/5379	0.47	0/7246
3	C	0.32	0/4457	0.53	0/6044
All	All	0.30	0/10455	0.50	0/14114

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

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	617	0	668	19	0
2	B	5286	0	5347	119	0
3	C	4339	0	4255	162	0
All	All	10242	0	10270	295	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 14.

All (295) 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)
3:C:733:ALA:H	3:C:734:LEU:HG	1.29	0.96

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:620:LYS:HG2	2:B:629:LYS:HB2	1.55	0.87
3:C:637:GLY:HA2	3:C:644:VAL:HG22	1.59	0.82
3:C:558:ARG:HD3	3:C:769:LYS:HA	1.63	0.80
3:C:276:LEU:HD11	3:C:318:ILE:HG12	1.63	0.79
3:C:458:LYS:HZ3	3:C:483:GLU:HG3	1.49	0.76
2:B:105:SER:HA	2:B:106:GLN:HB2	1.68	0.76
3:C:635:PRO:HB3	3:C:646:GLU:HA	1.66	0.76
2:B:627:ILE:HG23	2:B:628:LEU:HB2	1.71	0.72
3:C:591:GLN:HB3	3:C:603:PHE:HB3	1.70	0.72
2:B:101:LEU:HD23	2:B:116:ASN:HB2	1.72	0.71
3:C:718:ALA:HB1	3:C:720:LEU:HD12	1.72	0.71
3:C:716:ASN:O	3:C:718:ALA:N	2.24	0.70
3:C:358:CYS:SG	3:C:359:HIS:N	2.65	0.69
1:A:67:ILE:HA	1:A:70:GLU:HG2	1.73	0.69
3:C:697:GLN:HE21	3:C:716:ASN:HB2	1.57	0.68
1:A:64:GLN:HA	1:A:67:ILE:HG22	1.75	0.67
3:C:734:LEU:HB2	3:C:757:GLN:HG3	1.77	0.66
3:C:375:TRP:HB3	3:C:378:ARG:HD3	1.77	0.66
2:B:186:PRO:O	2:B:188:LEU:N	2.28	0.66
3:C:754:ASP:HB2	3:C:761:VAL:HG11	1.78	0.66
3:C:509:ARG:HD3	3:C:510:ASP:HB2	1.78	0.66
3:C:396:SER:O	3:C:398:GLY:N	2.29	0.65
2:B:600:TYR:HA	2:B:603:GLU:HB2	1.78	0.64
3:C:548:MET:HB3	3:C:552:LEU:HD21	1.79	0.64
3:C:248:HIS:HB2	3:C:252:LEU:HD12	1.79	0.64
1:A:24:TYR:HD2	1:A:25:LEU:HD12	1.63	0.64
3:C:515:ARG:HG3	3:C:695:LEU:HB2	1.79	0.63
3:C:598:ASP:OD1	3:C:598:ASP:N	2.31	0.63
2:B:628:LEU:HD21	2:B:630:VAL:HG22	1.80	0.63
2:B:626:LYS:HG3	2:B:627:ILE:HB	1.79	0.63
3:C:733:ALA:N	3:C:734:LEU:HG	2.10	0.63
1:A:48:LEU:O	1:A:52:ASN:ND2	2.30	0.63
2:B:545:ALA:HA	2:B:635:MET:HE1	1.80	0.63
2:B:485:VAL:HG22	2:B:490:GLU:HB3	1.79	0.63
3:C:570:ALA:HB2	3:C:728:VAL:HG23	1.81	0.62
3:C:514:PRO:HB3	3:C:525:ARG:HG3	1.82	0.62
3:C:667:ARG:O	3:C:669:ASP:N	2.32	0.62
2:B:66:ARG:NH2	2:B:82:GLU:OE1	2.32	0.62
3:C:430:ASP:O	3:C:432:TRP:N	2.29	0.62
3:C:530:GLU:O	3:C:534:ASN:ND2	2.33	0.62
3:C:719:SER:HA	3:C:720:LEU:O	2.00	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:66:LEU:HD13	2:B:62:LEU:HA	1.82	0.61
3:C:760:LEU:HD12	3:C:762:PHE:HE1	1.66	0.61
3:C:358:CYS:HB3	3:C:403:ARG:HD2	1.83	0.61
2:B:542:ARG:NH1	2:B:639:GLU:OE2	2.34	0.60
3:C:241:PRO:HG3	3:C:480:VAL:HG12	1.81	0.60
3:C:631:ALA:HB3	3:C:634:GLN:HB3	1.81	0.60
3:C:549:GLU:H	3:C:552:LEU:HD21	1.67	0.60
3:C:690:ARG:HG2	3:C:722:VAL:HG23	1.83	0.60
3:C:732:VAL:HG11	3:C:762:PHE:HZ	1.67	0.60
3:C:636:VAL:HG23	3:C:674:PRO:HB3	1.83	0.59
3:C:732:VAL:HA	3:C:733:ALA:HB2	1.84	0.59
3:C:267:ARG:NH1	3:C:267:ARG:O	2.36	0.59
3:C:525:ARG:HH22	3:C:694:ARG:HH21	1.49	0.59
3:C:302:PHE:HE1	3:C:318:ILE:HD12	1.69	0.58
3:C:760:LEU:HD23	3:C:760:LEU:H	1.67	0.58
2:B:366:VAL:HG21	2:B:418:THR:HG23	1.85	0.58
2:B:237:HIS:NE2	2:B:388:ASP:OD1	2.26	0.58
3:C:647:LEU:H	3:C:663:VAL:HG21	1.69	0.58
2:B:238:VAL:HG12	2:B:334:GLY:HA3	1.87	0.57
2:B:243:THR:HB	2:B:291:TYR:HE1	1.70	0.57
3:C:643:TYR:HA	3:C:667:ARG:HA	1.85	0.57
3:C:561:LEU:HA	3:C:564:THR:HG22	1.86	0.57
2:B:223:ARG:HH21	2:B:653:GLY:HA2	1.70	0.56
2:B:313:ASP:HA	2:B:316:ARG:HG2	1.86	0.56
3:C:719:SER:N	3:C:720:LEU:HB2	2.20	0.56
2:B:180:VAL:HG13	2:B:181:ASN:H	1.70	0.56
3:C:679:HIS:CD2	3:C:679:HIS:H	2.24	0.56
3:C:696:PHE:HB3	3:C:714:ASP:HB3	1.88	0.56
2:B:123:GLN:O	2:B:125:LEU:N	2.39	0.56
2:B:627:ILE:HG12	2:B:628:LEU:HD23	1.88	0.56
3:C:732:VAL:HG22	3:C:741:PHE:CZ	2.41	0.56
3:C:729:ASP:OD1	3:C:729:ASP:N	2.37	0.56
2:B:185:LEU:HD11	2:B:582:PRO:HB3	1.87	0.55
2:B:251:HIS:HD2	2:B:279:ARG:HG3	1.71	0.55
3:C:234:PRO:HB3	3:C:262:GLY:CA	2.36	0.55
3:C:266:THR:HG22	3:C:453:HIS:HB2	1.88	0.55
3:C:647:LEU:H	3:C:663:VAL:CG2	2.20	0.55
3:C:515:ARG:NH1	3:C:719:SER:O	2.40	0.55
2:B:48:ASN:O	2:B:52:LYS:HB2	2.06	0.55
2:B:61:SER:HB3	3:C:392:LYS:HG2	1.87	0.55
2:B:241:TRP:CH2	2:B:298:GLN:HG2	2.41	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:277:LYS:NZ	2:B:281:ASP:OD2	2.40	0.55
1:A:24:TYR:OH	1:A:28:GLN:NE2	2.41	0.54
2:B:268:ASP:HB3	2:B:271:VAL:HG12	1.88	0.54
2:B:497:SER:OG	2:B:655:LYS:O	2.22	0.54
3:C:740:LYS:HG3	3:C:750:SER:HB2	1.88	0.54
2:B:163:ASN:OD1	2:B:163:ASN:N	2.38	0.54
2:B:76:ILE:HD11	2:B:579:LEU:HB3	1.90	0.54
3:C:743:PHE:HB3	3:C:746:LEU:HD13	1.89	0.54
2:B:247:MET:HG2	2:B:276:SER:HB2	1.89	0.54
3:C:276:LEU:HA	3:C:280:HIS:ND1	2.23	0.54
3:C:349:LEU:HG	3:C:474:LEU:HD21	1.89	0.54
3:C:421:LYS:O	3:C:422:TYR:HB2	2.08	0.54
3:C:525:ARG:HH11	3:C:527:PHE:HE1	1.54	0.54
3:C:705:THR:O	3:C:707:VAL:N	2.41	0.54
2:B:483:ASP:OD1	2:B:484:LYS:N	2.40	0.53
3:C:720:LEU:HB3	3:C:721:HIS:HB3	1.91	0.53
2:B:243:THR:HB	2:B:291:TYR:CE1	2.44	0.53
1:A:68:GLN:O	2:B:79:ARG:NH2	2.41	0.53
3:C:513:ASP:O	3:C:516:LEU:HB2	2.09	0.53
3:C:314:PHE:O	3:C:318:ILE:HG13	2.08	0.53
3:C:528:PRO:HD2	3:C:557:VAL:HG23	1.91	0.53
3:C:724:ASP:OD1	3:C:724:ASP:N	2.39	0.53
3:C:739:ASP:O	3:C:751:VAL:HG23	2.09	0.53
3:C:752:ASP:OD2	3:C:763:ASN:ND2	2.37	0.52
3:C:227:GLU:HB2	3:C:290:TYR:HE2	1.74	0.52
3:C:350:ILE:HA	3:C:355:ALA:HB3	1.92	0.52
3:C:416:VAL:HG11	3:C:419:ARG:NH1	2.24	0.52
3:C:404:MET:H	3:C:415:PRO:HB2	1.75	0.52
2:B:206:GLU:HG2	2:B:461:ARG:HG3	1.91	0.52
2:B:225:PHE:HB3	2:B:230:TYR:HB2	1.92	0.52
3:C:517:PHE:HZ	3:C:550:PRO:HB3	1.75	0.52
3:C:605:GLN:HE21	3:C:605:GLN:N	2.08	0.52
3:C:361:ARG:HD2	3:C:365:LEU:HD13	1.93	0.51
2:B:254:ASP:OD1	2:B:289:ARG:NH1	2.44	0.51
3:C:234:PRO:HB3	3:C:262:GLY:HA3	1.93	0.51
3:C:561:LEU:HD21	3:C:740:LYS:HG2	1.92	0.51
3:C:373:SER:HB3	3:C:376:ARG:HH21	1.75	0.51
3:C:525:ARG:NH2	3:C:694:ARG:HH21	2.08	0.51
3:C:635:PRO:HG3	3:C:666:ARG:HH12	1.76	0.51
2:B:194:VAL:HG11	2:B:225:PHE:CD2	2.46	0.51
3:C:602:GLY:O	3:C:603:PHE:HD1	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:632:TRP:HA	3:C:647:LEU:HD23	1.93	0.50
2:B:535:LEU:HD22	2:B:657:VAL:HG22	1.93	0.50
3:C:406:LEU:HB2	3:C:415:PRO:HB3	1.93	0.50
3:C:413:MET:O	3:C:415:PRO:HD3	2.12	0.50
2:B:366:VAL:HG12	2:B:368:GLY:H	1.76	0.50
2:B:647:LYS:O	2:B:651:ILE:HG12	2.11	0.50
3:C:764:ARG:O	3:C:764:ARG:HG3	2.12	0.50
3:C:345:TRP:HE3	3:C:444:LEU:HD13	1.77	0.50
3:C:348:GLU:HG3	3:C:352:ARG:HD2	1.93	0.50
2:B:105:SER:HB3	2:B:114:GLN:HE21	1.76	0.50
3:C:573:GLU:HB2	3:C:615:GLU:HB2	1.94	0.49
1:A:79:PRO:HD2	1:A:80:PHE:CG	2.47	0.49
2:B:269:LEU:HD12	2:B:270:GLN:N	2.27	0.49
2:B:9:SER:O	2:B:13:LEU:N	2.45	0.49
3:C:490:HIS:HB3	3:C:702:GLU:HG3	1.94	0.49
3:C:574:SER:HB3	3:C:727:LEU:HD13	1.94	0.49
3:C:452:THR:O	3:C:453:HIS:ND1	2.46	0.49
3:C:314:PHE:HA	3:C:317:ALA:HB3	1.93	0.49
3:C:717:LEU:O	3:C:719:SER:N	2.45	0.49
2:B:326:LEU:HB2	2:B:328:VAL:HG23	1.93	0.49
1:A:47:LYS:O	1:A:50:VAL:HG12	2.13	0.49
2:B:198:PHE:HB2	2:B:214:SER:O	2.13	0.48
3:C:618:ASP:HA	3:C:629:ARG:HD3	1.95	0.48
2:B:81:GLN:HB3	2:B:100:LEU:HD13	1.95	0.48
2:B:3:VAL:HA	2:B:6:SER:HB3	1.96	0.48
2:B:316:ARG:HA	2:B:319:LEU:HB2	1.96	0.48
2:B:67:ASN:O	2:B:69:PRO:HD3	2.13	0.48
3:C:458:LYS:HD2	3:C:458:LYS:HA	1.53	0.48
2:B:119:MET:SD	2:B:119:MET:N	2.87	0.48
2:B:209:VAL:HB	2:B:444:VAL:HG11	1.95	0.48
2:B:456:SER:OG	2:B:457:GLY:HA2	2.13	0.48
2:B:236:ASN:HB2	2:B:330:LEU:HD22	1.96	0.47
3:C:517:PHE:HA	3:C:522:LEU:HD21	1.95	0.47
3:C:236:GLU:O	3:C:238:TYR:N	2.43	0.47
3:C:612:VAL:HG12	3:C:682:SER:HB2	1.96	0.47
2:B:454:THR:HB	2:B:457:GLY:HA3	1.96	0.47
3:C:356:TYR:O	3:C:402:LEU:HD12	2.14	0.47
2:B:632:MET:O	2:B:636:LEU:HG	2.14	0.47
3:C:396:SER:C	3:C:398:GLY:H	2.17	0.47
2:B:350:GLU:OE2	2:B:362:LYS:NZ	2.41	0.47
2:B:512:ARG:HG3	2:B:513:LEU:N	2.29	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:564:ILE:HA	2:B:633:TRP:HB2	1.96	0.47
3:C:249:THR:O	3:C:253:LEU:HB2	2.15	0.47
2:B:119:MET:HE1	2:B:159:PRO:HB2	1.97	0.47
3:C:378:ARG:NH1	3:C:382:GLU:OE1	2.47	0.47
3:C:545:GLN:O	3:C:547:THR:N	2.48	0.47
2:B:581:PHE:HB3	2:B:582:PRO:HD3	1.97	0.46
2:B:192:LYS:HD3	2:B:230:TYR:HE1	1.80	0.46
2:B:534:LEU:HB3	2:B:649:PHE:HZ	1.81	0.46
3:C:604:HIS:H	3:C:604:HIS:CD2	2.32	0.46
2:B:408:VAL:HG12	2:B:409:ASP:H	1.80	0.46
2:B:174:GLN:HB3	2:B:579:LEU:HD21	1.98	0.46
3:C:457:THR:HG23	3:C:460:PHE:HE2	1.80	0.46
2:B:74:ILE:HD11	2:B:174:GLN:HG2	1.96	0.46
3:C:324:TRP:CE2	3:C:523:ARG:HG3	2.50	0.46
2:B:502:CYS:HB3	2:B:523:MET:HG2	1.97	0.46
2:B:223:ARG:NH2	2:B:653:GLY:HA2	2.31	0.45
3:C:454:SER:O	3:C:481:GLN:HA	2.16	0.45
2:B:508:LEU:O	2:B:595:HIS:HA	2.15	0.45
2:B:139:GLU:O	2:B:142:THR:HG22	2.17	0.45
2:B:236:ASN:HB3	2:B:332:GLU:HA	1.99	0.45
3:C:535:PHE:CG	3:C:553:LEU:HD13	2.52	0.45
2:B:80:LEU:HA	2:B:83:VAL:HG22	1.98	0.45
2:B:39:PRO:O	2:B:43:GLN:HB3	2.17	0.45
3:C:401:THR:HG22	3:C:419:ARG:HA	1.99	0.45
1:A:24:TYR:CD2	1:A:25:LEU:HD12	2.48	0.44
3:C:440:TYR:CD1	3:C:470:LEU:HD21	2.52	0.44
3:C:733:ALA:HB3	3:C:734:LEU:HA	1.99	0.44
3:C:456:CYS:HB2	3:C:481:GLN:HE21	1.82	0.44
3:C:742:GLN:NE2	3:C:748:TYR:HE1	2.15	0.44
3:C:645:ILE:HB	3:C:663:VAL:HG21	1.99	0.44
2:B:485:VAL:HG13	2:B:490:GLU:HB2	2.00	0.44
3:C:526:GLY:HA2	3:C:740:LYS:HE3	1.99	0.44
3:C:616:ARG:HD2	3:C:658:VAL:HB	1.98	0.44
2:B:217:ILE:HG12	2:B:508:LEU:HD21	1.99	0.44
3:C:582:PHE:CD2	3:C:609:ALA:HB3	2.53	0.44
1:A:56:LYS:HA	1:A:59:ILE:HB	2.00	0.44
2:B:616:TYR:HB3	2:B:619:GLU:HB3	1.99	0.44
2:B:54:ARG:HA	2:B:57:ILE:HG22	2.00	0.44
3:C:697:GLN:NE2	3:C:716:ASN:HB2	2.28	0.44
2:B:604:LEU:HD13	2:B:641:VAL:HG13	1.99	0.44
3:C:232:HIS:O	3:C:232:HIS:ND1	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:306:LYS:O	2:B:310:LEU:HG	2.17	0.43
3:C:457:THR:OG1	3:C:458:LYS:N	2.50	0.43
3:C:595:PHE:C	3:C:597:ALA:H	2.22	0.43
3:C:614:ILE:HD13	3:C:679:HIS:O	2.18	0.43
2:B:454:THR:HG22	2:B:455:ARG:H	1.84	0.43
3:C:231:PHE:HB3	3:C:232:HIS:H	1.46	0.43
1:A:79:PRO:HB2	1:A:80:PHE:HA	1.99	0.43
3:C:425:HIS:H	3:C:429:GLY:HA2	1.83	0.43
3:C:444:LEU:HG	3:C:470:LEU:HD23	2.00	0.43
2:B:194:VAL:HG11	2:B:225:PHE:HD2	1.84	0.43
3:C:630:LEU:HD11	3:C:647:LEU:HB2	2.00	0.43
3:C:256:HIS:NE2	3:C:452:THR:HG23	2.34	0.43
3:C:592:VAL:HB	3:C:604:HIS:CD2	2.52	0.43
2:B:394:GLN:NE2	2:B:398:GLU:OE1	2.51	0.43
3:C:284:ILE:HG23	3:C:288:PHE:HD2	1.84	0.43
3:C:608:PHE:CG	3:C:609:ALA:N	2.87	0.43
3:C:403:ARG:HB3	3:C:415:PRO:HB2	2.00	0.43
3:C:673:LYS:HB3	3:C:674:PRO:HD2	2.01	0.43
1:A:17:GLU:O	1:A:21:ILE:HG12	2.19	0.43
2:B:301:ASN:HB3	2:B:304:ILE:HB	2.00	0.43
2:B:568:HIS:CE1	2:B:570:LYS:HB2	2.53	0.43
2:B:280:PHE:CE1	2:B:287:LYS:HG3	2.54	0.42
3:C:289:GLY:O	3:C:293:ALA:N	2.48	0.42
3:C:361:ARG:CZ	3:C:419:ARG:HH11	2.32	0.42
3:C:706:GLU:C	3:C:708:PRO:HD3	2.39	0.42
1:A:71:ILE:HG22	1:A:76:LYS:HB2	2.01	0.42
2:B:501:GLY:HA2	2:B:654:ILE:HG12	2.02	0.42
2:B:622:ARG:HA	2:B:622:ARG:HD2	1.89	0.42
3:C:575:LEU:HA	3:C:575:LEU:HD22	1.73	0.42
3:C:614:ILE:HD12	3:C:615:GLU:H	1.84	0.42
2:B:628:LEU:HD22	2:B:629:LYS:N	2.34	0.42
2:B:191:ASN:HD22	2:B:191:ASN:HA	1.71	0.42
2:B:481:GLU:O	2:B:485:VAL:HB	2.18	0.42
3:C:510:ASP:HB3	3:C:512:ASP:OD1	2.19	0.42
2:B:243:THR:HA	2:B:294:VAL:HG21	2.00	0.42
2:B:259:TYR:CE2	2:B:307:ALA:HB2	2.54	0.42
3:C:246:THR:O	3:C:248:HIS:N	2.48	0.42
3:C:653:GLY:HA3	3:C:654:PRO:HD2	1.85	0.42
3:C:696:PHE:HA	3:C:714:ASP:O	2.20	0.42
3:C:237:ASN:ND2	3:C:480:VAL:HG13	2.35	0.42
3:C:254:LYS:O	3:C:258:GLU:HB2	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:537:ALA:O	2:B:541:ILE:HG13	2.20	0.42
3:C:581:ASN:HB2	3:C:664:THR:OG1	2.20	0.42
2:B:408:VAL:O	2:B:440:GLY:HA2	2.20	0.41
2:B:523:MET:HA	2:B:530:THR:HG21	2.01	0.41
3:C:220:LEU:HD12	3:C:537:ALA:HB2	2.02	0.41
3:C:470:LEU:HD12	3:C:470:LEU:HA	1.76	0.41
1:A:73:ASN:OD1	1:A:73:ASN:N	2.53	0.41
3:C:357:VAL:HG23	3:C:383:SER:OG	2.19	0.41
3:C:578:ILE:HG23	3:C:662:GLU:HB3	2.02	0.41
2:B:456:SER:CB	2:B:457:GLY:HA2	2.51	0.41
3:C:590:ILE:O	3:C:590:ILE:HG13	2.18	0.41
3:C:689:VAL:HB	3:C:723:VAL:HG23	2.01	0.41
1:A:21:ILE:HG12	1:A:21:ILE:H	1.59	0.41
2:B:258:ASP:OD1	2:B:258:ASP:N	2.48	0.41
3:C:444:LEU:O	3:C:448:ILE:HG13	2.20	0.41
2:B:453:LYS:O	2:B:457:GLY:HA3	2.20	0.41
3:C:430:ASP:C	3:C:432:TRP:H	2.18	0.41
3:C:720:LEU:HA	3:C:721:HIS:HA	1.83	0.41
2:B:452:PHE:CD1	2:B:453:LYS:HB2	2.56	0.41
3:C:381:GLU:HA	3:C:384:LEU:HB2	2.02	0.41
3:C:624:GLU:O	3:C:627:PHE:HB2	2.20	0.41
2:B:133:ASN:HA	2:B:134:PRO:HD3	1.86	0.41
2:B:134:PRO:HA	2:B:137:ILE:HB	2.02	0.41
2:B:264:PRO:HA	2:B:265:PRO:HD2	1.94	0.41
3:C:539:VAL:HG11	3:C:548:MET:SD	2.61	0.41
1:A:49:ARG:HD3	1:A:49:ARG:HA	1.90	0.41
2:B:126:LYS:HB3	2:B:127:THR:H	1.63	0.41
2:B:588:ILE:HG21	2:B:594:LEU:HD23	2.01	0.41
3:C:407:VAL:HG13	3:C:408:MET:H	1.86	0.41
3:C:733:ALA:N	3:C:734:LEU:HA	2.35	0.41
1:A:66:LEU:HA	2:B:62:LEU:HD13	2.02	0.41
2:B:465:LEU:HD13	2:B:465:LEU:HA	1.86	0.41
2:B:58:LEU:HD23	2:B:58:LEU:HA	1.84	0.41
2:B:72:ASN:ND2	2:B:184:GLN:HG3	2.36	0.41
2:B:503:ILE:HA	2:B:523:MET:SD	2.60	0.40
3:C:374:PRO:HB2	3:C:375:TRP:CD1	2.56	0.40
2:B:50:LYS:HE2	3:C:421:LYS:O	2.21	0.40
2:B:70:THR:HG23	2:B:71:LYS:H	1.86	0.40
3:C:302:PHE:HB2	3:C:334:TYR:HD1	1.86	0.40
2:B:335:GLU:HG2	2:B:387:SER:HB2	2.03	0.40
1:A:77:GLN:HG2	1:A:78:ILE:H	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:68:LYS:HA	2:B:69:PRO:HD3	1.77	0.40
2:B:270:GLN:HA	2:B:273:TYR:HB3	2.03	0.40
2:B:505:TYR:HB2	2:B:654:ILE:HD11	2.03	0.40
2:B:452:PHE:CG	2:B:453:LYS:HB2	2.56	0.40
2:B:570:LYS:HA	2:B:570:LYS:HD3	1.90	0.40
3:C:241:PRO:HB2	3:C:242:GLY:H	1.58	0.40
3:C:336:SER:HB3	3:C:425:HIS:NE2	2.37	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	74/312 (24%)	69 (93%)	4 (5%)	1 (1%)	11	46
2	B	657/675 (97%)	586 (89%)	58 (9%)	13 (2%)	7	40
3	C	524/799 (66%)	372 (71%)	96 (18%)	56 (11%)	0	7
All	All	1255/1786 (70%)	1027 (82%)	158 (13%)	70 (6%)	2	20

All (70) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	187	ALA
3	C	264	VAL
3	C	269	PRO
3	C	372	PRO
3	C	397	GLU
3	C	668	ALA
3	C	717	LEU
2	B	32	CYS
2	B	104	PRO
2	B	124	MET

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Mol	Chain	Res	Type
2	B	199	SER
2	B	453	LYS
3	C	241	PRO
3	C	276	LEU
3	C	311	GLU
3	C	400	ALA
3	C	422	TYR
3	C	590	ILE
3	C	611	ILE
3	C	629	ARG
3	C	706	GLU
3	C	716	ASN
3	C	718	ALA
3	C	726	ALA
3	C	733	ALA
3	C	768	LEU
2	B	75	ASN
2	B	106	GLN
3	C	230	LYS
3	C	236	GLU
3	C	360	GLN
3	C	376	ARG
3	C	438	TYR
3	C	479	PRO
3	C	486	ARG
3	C	546	THR
3	C	593	PRO
3	C	685	LEU
3	C	704	PRO
3	C	705	THR
2	B	614	SER
3	C	278	ILE
3	C	364	GLU
3	C	448	ILE
3	C	481	GLN
3	C	509	ARG
3	C	588	LEU
3	C	654	PRO
3	C	671	GLY
3	C	686	MET
2	B	454	THR
2	B	487	THR

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Mol	Chain	Res	Type
3	C	240	THR
3	C	475	ASP
3	C	547	THR
3	C	568	ALA
3	C	569	MET
3	C	647	LEU
3	C	658	VAL
3	C	684	PRO
3	C	753	PRO
3	C	596	PRO
3	C	709	GLY
2	B	160	GLY
3	C	234	PRO
3	C	436	PRO
2	B	69	PRO
3	C	270	PRO
3	C	541	VAL
1	A	79	PRO

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	66/269 (24%)	61 (92%)	5 (8%)	13	40
2	B	579/594 (98%)	539 (93%)	40 (7%)	15	43
3	C	466/685 (68%)	394 (84%)	72 (16%)	2	16
All	All	1111/1548 (72%)	994 (90%)	117 (10%)	7	27

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

Mol	Chain	Res	Type
1	A	8	LEU
1	A	21	ILE
1	A	32	LEU
1	A	62	LEU

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Mol	Chain	Res	Type
1	A	80	PHE
2	B	13	LEU
2	B	51	LEU
2	B	70	THR
2	B	74	ILE
2	B	80	LEU
2	B	107	GLN
2	B	119	MET
2	B	124	MET
2	B	125	LEU
2	B	126	LYS
2	B	128	LYS
2	B	163	ASN
2	B	185	LEU
2	B	188	LEU
2	B	195	ILE
2	B	208	HIS
2	B	219	GLU
2	B	238	VAL
2	B	244	GLN
2	B	245	PHE
2	B	324	ASP
2	B	330	LEU
2	B	340	ASP
2	B	344	ASP
2	B	418	THR
2	B	453	LYS
2	B	454	THR
2	B	456	SER
2	B	461	ARG
2	B	464	ASP
2	B	465	LEU
2	B	509	SER
2	B	517	ILE
2	B	520	PHE
2	B	525	ASP
2	B	551	ASP
2	B	596	THR
2	B	627	ILE
2	B	629	LYS
2	B	659	ARG
3	C	222	GLU

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Mol	Chain	Res	Type
3	C	232	HIS
3	C	237	ASN
3	C	248	HIS
3	C	251	ASN
3	C	252	LEU
3	C	264	VAL
3	C	267	ARG
3	C	275	ILE
3	C	276	LEU
3	C	278	ILE
3	C	286	PHE
3	C	315	PHE
3	C	325	LEU
3	C	340	ASP
3	C	377	ASP
3	C	381	GLU
3	C	385	LEU
3	C	401	THR
3	C	404	MET
3	C	406	LEU
3	C	408	MET
3	C	413	MET
3	C	427	ARG
3	C	452	THR
3	C	457	THR
3	C	468	PHE
3	C	476	VAL
3	C	477	TYR
3	C	480	VAL
3	C	515	ARG
3	C	520	THR
3	C	524	ARG
3	C	525	ARG
3	C	546	THR
3	C	563	ASP
3	C	569	MET
3	C	575	LEU
3	C	578	ILE
3	C	589	ASP
3	C	590	ILE
3	C	595	PHE
3	C	598	ASP

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Mol	Chain	Res	Type
3	C	604	HIS
3	C	605	GLN
3	C	606	VAL
3	C	616	ARG
3	C	627	PHE
3	C	632	TRP
3	C	639	ARG
3	C	640	HIS
3	C	672	GLU
3	C	678	ILE
3	C	679	HIS
3	C	685	LEU
3	C	686	MET
3	C	687	CYS
3	C	694	ARG
3	C	697	GLN
3	C	698	HIS
3	C	703	ASP
3	C	711	PHE
3	C	712	LEU
3	C	724	ASP
3	C	728	VAL
3	C	739	ASP
3	C	744	GLU
3	C	760	LEU
3	C	764	ARG
3	C	766	VAL
3	C	767	THR
3	C	768	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	28	GLN
2	B	114	GLN
2	B	181	ASN
2	B	191	ASN
2	B	320	ASN
2	B	438	HIS
2	B	568	HIS
2	B	631	ASN
3	C	263	GLN

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Mol	Chain	Res	Type
3	C	360	GLN
3	C	426	HIS
3	C	604	HIS
3	C	605	GLN
3	C	648	GLN
3	C	649	HIS
3	C	679	HIS
3	C	697	GLN
3	C	742	GLN
3	C	756	HIS

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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ > 2	OWAB(Å ²)	Q < 0.9
1	A	76/312 (24%)	-0.24	0 100 100	89, 159, 206, 234	0
2	B	659/675 (97%)	-0.29	1 (0%) 95 93	77, 161, 235, 299	0
3	C	538/799 (67%)	-0.37	0 100 100	67, 129, 231, 318	4 (0%)
All	All	1273/1786 (71%)	-0.32	1 (0%) 95 95	67, 150, 232, 318	4 (0%)

All (1) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	16	GLU	2.1

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.