



# Full wwPDB X-ray Structure Validation Report ⓘ

Oct 14, 2023 – 11:38 PM EDT

PDB ID : 7RXZ  
Title : human Hsp90\_MC domain structure  
Authors : Peng, S.; Deng, J.; Matts, R.  
Deposited on : 2021-08-24  
Resolution : 3.15 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](mailto: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>.

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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

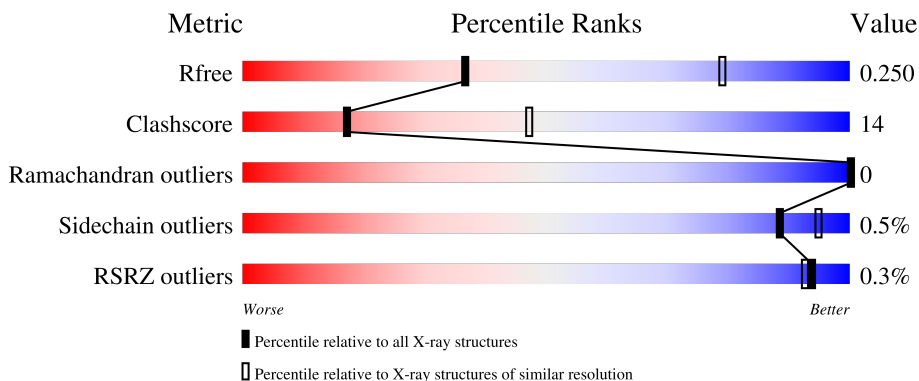
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.15 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	1665 (3.20-3.12)
Clashscore	141614	1804 (3.20-3.12)
Ramachandran outliers	138981	1770 (3.20-3.12)
Sidechain outliers	138945	1769 (3.20-3.12)
RSRZ outliers	127900	1616 (3.20-3.12)

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  $\geq 3$ , 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	425	65% 27% 8%
1	B	425	64% 29% 6%
1	C	425	68% 25% 6% 1%
1	D	425	65% 26% 9%
1	E	425	66% 27% 7%

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Mol	Chain	Length	Quality of chain
1	F	425	 69% 22% 8%

## 2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 19425 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 Heat shock protein HSP 90-alpha.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	393	3232	2055	546	613	18	0	0	0
1	B	399	3280	2082	556	624	18	0	0	0
1	C	398	3272	2078	555	621	18	0	0	0
1	D	386	3177	2020	537	604	16	0	0	0
1	E	397	3263	2072	553	620	18	0	0	0
1	F	389	3201	2036	543	606	16	0	0	0

There are 18 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	290	GLY	-	expression tag	UNP P07900
A	291	HIS	-	expression tag	UNP P07900
A	292	MET	-	expression tag	UNP P07900
B	290	GLY	-	expression tag	UNP P07900
B	291	HIS	-	expression tag	UNP P07900
B	292	MET	-	expression tag	UNP P07900
C	290	GLY	-	expression tag	UNP P07900
C	291	HIS	-	expression tag	UNP P07900
C	292	MET	-	expression tag	UNP P07900
D	290	GLY	-	expression tag	UNP P07900
D	291	HIS	-	expression tag	UNP P07900
D	292	MET	-	expression tag	UNP P07900
E	290	GLY	-	expression tag	UNP P07900
E	291	HIS	-	expression tag	UNP P07900
E	292	MET	-	expression tag	UNP P07900
F	290	GLY	-	expression tag	UNP P07900
F	291	HIS	-	expression tag	UNP P07900

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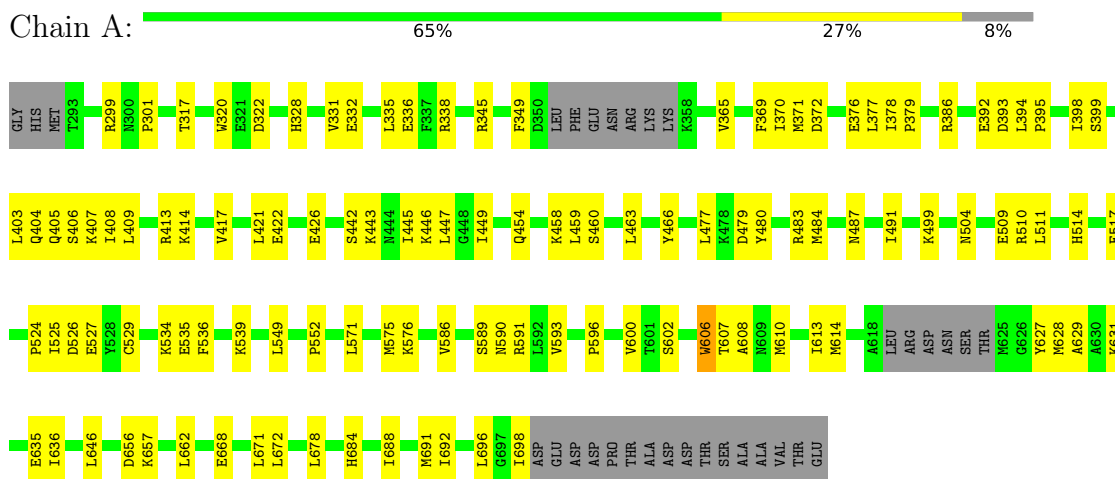
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Chain	Residue	Modelled	Actual	Comment	Reference
F	292	MET	-	expression tag	UNP P07900

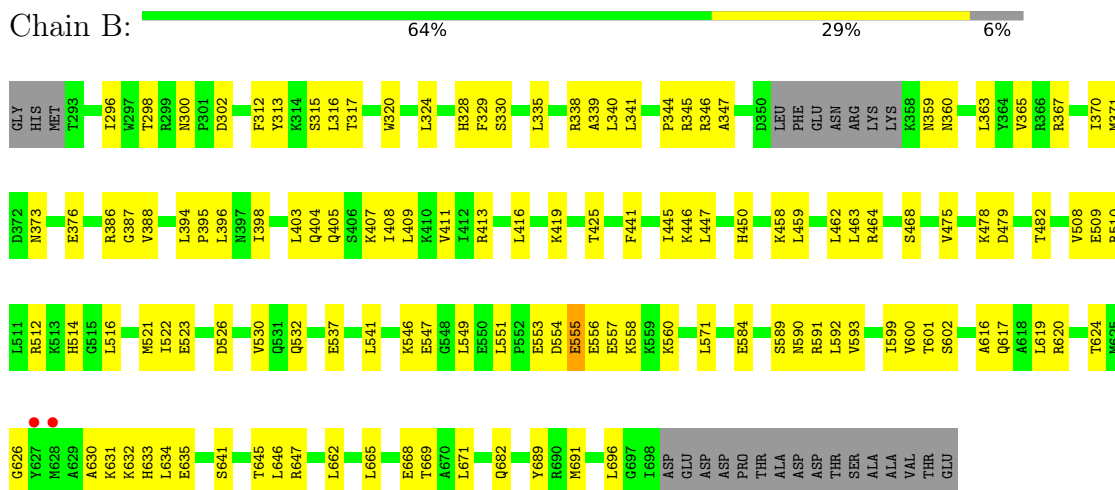
### 3 Residue-property plots

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: Heat shock protein HSP 90-alpha

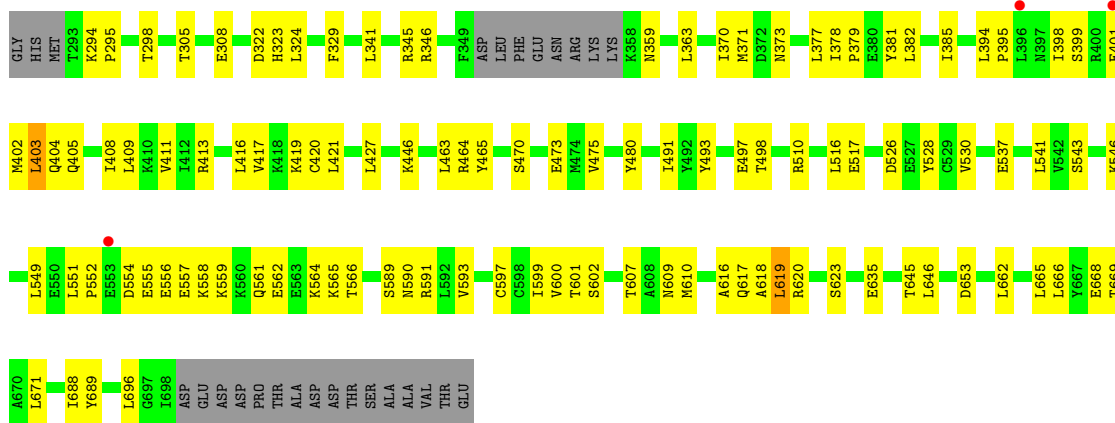


- Molecule 1: Heat shock protein HSP 90-alpha

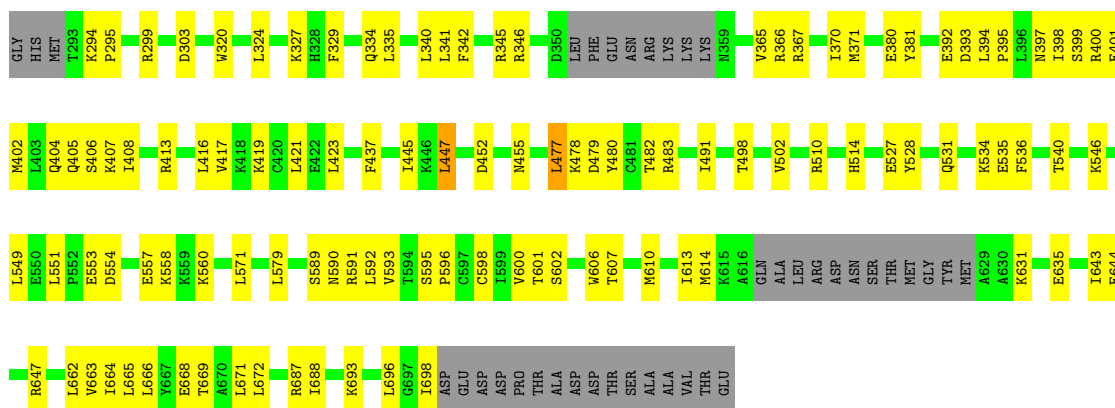


- Molecule 1: Heat shock protein HSP 90-alpha

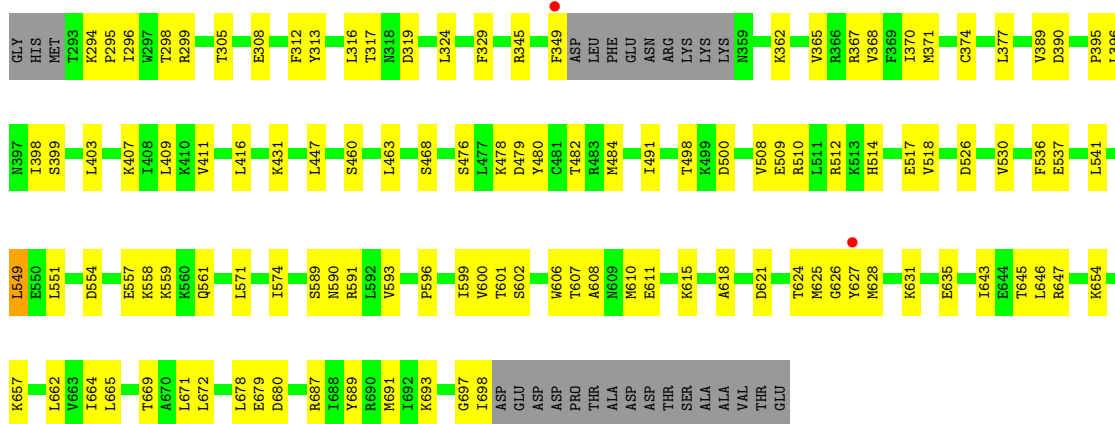




• Molecule 1: Heat shock protein HSP 90-alpha



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• Molecule 1: Heat shock protein HSP 90-alpha



GLY	HIS	MET	T293	K294	P295	I296	W297	L324	H328	F329	S330	V331	E336	A339	L340	L341	F342	R345	F349	ASP	LEU	PHE	GLU	ASN	ARG	LYS	K357	K358	N359	M360	V365	R366	R367	V368	F369	I370	M371	D372	N373	L382	R386	D390	S391	E392	D393	L394	P395	M402
I403	Q404	R413	L416	V417	L421	D430	M433	L447	H450	K457	K458	S476	L477	K478	D479	Y480	C481	M484	K485	E486	I491	I494	V502	S505	V508	E523	P524	I525	D526	E527	Y528	C529	V530	Q531	Q532	K539	L549	D554	E557									
K558	K559	K560	Q561	E562	E563	L571	K585	V586	V587	V588	S589	N590	R591	P596	V600	E611	R612	I613	M614	K615	A616	Q617	A618	LEU	ARG	ASP	ASN	SER	THR	MET	GLY	TYR	MET	A629	H633	L634	E635	L646	R647	L662	E668	L671	L678	E679	D680	I688	Y689	
R690	M691	I698	ASP	GLU	ASP	ASP	PRD	THR	ALA	ASP	ASP	THR	SER	ALA	ALA	VAL	THR	GLU																														



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	153.83Å 87.99Å 166.18Å 90.00° 114.36° 90.00°	Depositor
Resolution (Å)	48.09 – 3.15 48.09 – 3.15	Depositor EDS
% Data completeness (in resolution range)	91.8 (48.09-3.15) 91.1 (48.09-3.15)	Depositor EDS
$R_{merge}$	0.13	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.86 (at 3.12Å)	Xtrriage
Refinement program	PHENIX 1.10.1_2155	Depositor
R, $R_{free}$	0.191 , 0.248 0.195 , 0.250	Depositor DCC
$R_{free}$ test set	1997 reflections (2.85%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	76.9	Xtrriage
Anisotropy	0.338	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.29 , 37.5	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.47$ , $\langle L^2 \rangle = 0.30$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	19425	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	88.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.08% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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	0.56	0/3285	0.76	1/4410 (0.0%)
1	B	0.55	1/3334 (0.0%)	0.75	2/4478 (0.0%)
1	C	0.55	1/3326 (0.0%)	0.75	2/4467 (0.0%)
1	D	0.53	0/3229	0.72	2/4337 (0.0%)
1	E	0.54	0/3317	0.74	1/4456 (0.0%)
1	F	0.55	0/3253	0.76	0/4367
All	All	0.55	2/19744 (0.0%)	0.75	8/26515 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	522	ILE	C-N	5.58	1.46	1.34
1	C	597	CYS	CB-SG	-5.09	1.73	1.81

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	463	LEU	CB-CG-CD2	-6.99	99.11	111.00
1	C	427	LEU	CB-CG-CD2	-5.73	101.26	111.00
1	B	555	GLU	N-CA-C	5.58	126.07	111.00
1	A	299	ARG	C-N-CA	-5.58	107.76	121.70
1	C	619	LEU	CA-CB-CG	5.40	127.71	115.30
1	D	477	LEU	CB-CG-CD2	-5.37	101.87	111.00
1	E	541	LEU	CA-CB-CG	5.36	127.62	115.30
1	D	447	LEU	CA-CB-CG	5.06	126.94	115.30

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3232	0	3277	127	1
1	B	3280	0	3324	99	0
1	C	3272	0	3320	95	1
1	D	3177	0	3221	84	0
1	E	3263	0	3307	109	0
1	F	3201	0	3256	78	0
All	All	19425	0	19705	543	1

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 (543) 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:335:LEU:CD1	1:A:393:ASP:HB2	1.44	1.47
1:A:395:PRO:HB2	1:A:398:ILE:CD1	1.57	1.32
1:F:365:VAL:O	1:F:368:VAL:HG22	1.31	1.28
1:E:697:GLY:O	1:E:698:ILE:HG13	1.32	1.24
1:A:395:PRO:CB	1:A:398:ILE:HD12	1.73	1.17
1:A:395:PRO:CB	1:A:398:ILE:CD1	2.25	1.14
1:A:335:LEU:HD13	1:A:393:ASP:HB2	1.32	1.12
1:A:395:PRO:HB2	1:A:398:ILE:HD12	1.11	1.10
1:A:335:LEU:HD12	1:A:393:ASP:HB2	1.29	1.07
1:A:406:SER:O	1:A:407:LYS:HG2	1.51	1.07
1:A:335:LEU:CD1	1:A:393:ASP:CB	2.40	0.99
1:A:406:SER:O	1:A:407:LYS:CG	2.11	0.98
1:E:697:GLY:O	1:E:698:ILE:CG1	2.09	0.98
1:E:510:ARG:HG2	1:E:514:HIS:CD2	2.02	0.94
1:A:395:PRO:CG	1:A:398:ILE:HD12	1.97	0.93
1:A:688:ILE:O	1:A:691:MET:HG2	1.69	0.93
1:E:646:LEU:HD13	1:E:662:LEU:HD23	1.53	0.90
1:A:662:LEU:HD11	1:B:696:LEU:HD11	1.54	0.90
1:A:395:PRO:CB	1:A:398:ILE:HD11	2.02	0.90
1:C:645:THR:HG21	1:D:696:LEU:HD23	1.55	0.89
1:B:557:GLU:O	1:B:560:LYS:HB2	1.72	0.89

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:510:ARG:HG2	1:E:514:HIS:NE2	1.88	0.89
1:C:394:LEU:HD12	1:C:395:PRO:HD2	1.53	0.88
1:A:395:PRO:HB2	1:A:398:ILE:HD11	1.57	0.86
1:F:430:ASP:HB3	1:F:433:ASN:HB2	1.58	0.85
1:A:607:THR:HG22	1:A:608:ALA:N	1.91	0.85
1:C:385:ILE:CD1	1:C:420:CYS:SG	2.65	0.85
1:E:645:THR:OG1	1:F:698:ILE:CD1	2.25	0.84
1:A:322:ASP:OD1	1:A:345:ARG:NH2	2.09	0.84
1:F:481:CYS:SG	1:F:539:LYS:NZ	2.52	0.82
1:C:510:ARG:NH2	1:C:557:GLU:HG2	1.98	0.79
1:E:645:THR:OG1	1:F:698:ILE:HD13	1.82	0.79
1:A:395:PRO:CG	1:A:398:ILE:CD1	2.59	0.79
1:A:376:GLU:OE2	1:A:404:GLN:NE2	2.16	0.79
1:A:446:LYS:HD2	1:A:525:ILE:CG2	2.13	0.79
1:A:662:LEU:CD1	1:B:696:LEU:HD11	2.13	0.78
1:F:646:LEU:HD13	1:F:662:LEU:HD23	1.66	0.78
1:F:554:ASP:HB3	1:F:557:GLU:HB2	1.65	0.78
1:A:335:LEU:HD12	1:A:393:ASP:CB	2.08	0.77
1:A:606:TRP:CH2	1:A:614:MET:HG3	2.21	0.76
1:F:457:LYS:HG3	1:F:458:LYS:H	1.52	0.75
1:E:480:TYR:CE2	1:E:517:GLU:HG3	2.22	0.74
1:F:365:VAL:O	1:F:368:VAL:CG2	2.25	0.74
1:B:324:LEU:HB2	1:B:345:ARG:HG2	1.68	0.74
1:C:322:ASP:OD1	1:C:323:HIS:N	2.20	0.74
1:D:606:TRP:CZ3	1:D:614:MET:HG3	2.22	0.73
1:D:602:SER:HB3	1:D:631:LYS:HB2	1.71	0.73
1:E:498:THR:HG22	1:E:500:ASP:H	1.54	0.73
1:F:484:MET:HE1	1:F:539:LYS:HD2	1.71	0.73
1:A:446:LYS:HD2	1:A:525:ILE:HG23	1.69	0.73
1:A:369:PHE:HZ	1:A:372:ASP:OD1	1.73	0.72
1:D:557:GLU:HA	1:D:560:LYS:HB3	1.72	0.72
1:F:617:GLN:O	1:F:618:ALA:HB2	1.89	0.71
1:E:510:ARG:CG	1:E:514:HIS:NE2	2.54	0.70
1:C:589:SER:HB2	1:C:635:GLU:HB3	1.73	0.70
1:A:607:THR:HG22	1:A:608:ALA:H	1.54	0.70
1:C:645:THR:CG2	1:D:696:LEU:HD23	2.21	0.70
1:B:394:LEU:HD12	1:B:395:PRO:HD2	1.73	0.70
1:B:554:ASP:OD2	1:B:557:GLU:OE1	2.10	0.70
1:B:508:VAL:HG12	1:B:512:ARG:HG3	1.73	0.69
1:A:602:SER:HB3	1:A:631:LYS:HB2	1.73	0.69
1:A:446:LYS:CD	1:A:525:ILE:HG23	2.22	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:510:ARG:NE	1:E:514:HIS:NE2	2.41	0.68
1:C:385:ILE:HD12	1:C:420:CYS:SG	2.33	0.68
1:C:359:ASN:O	1:C:373:ASN:ND2	2.27	0.68
1:C:646:LEU:HD13	1:C:662:LEU:HD23	1.76	0.67
1:F:430:ASP:CB	1:F:433:ASN:HB2	2.25	0.67
1:E:672:LEU:HD21	1:E:678:LEU:CD1	2.24	0.67
1:A:442:SER:O	1:A:446:LYS:HG3	1.94	0.67
1:A:576:LYS:HE2	1:A:586:VAL:H	1.60	0.67
1:D:406:SER:OG	1:D:408:ILE:HG13	1.93	0.67
1:A:395:PRO:HG2	1:A:398:ILE:HD12	1.77	0.67
1:B:591:ARG:NH1	1:B:635:GLU:OE2	2.28	0.67
1:D:589:SER:HB2	1:D:635:GLU:HB3	1.76	0.67
1:F:585:LYS:HG2	1:F:633:HIS:ND1	2.10	0.66
1:A:394:LEU:HD12	1:A:395:PRO:HD2	1.78	0.66
1:A:301:PRO:HG3	1:A:328:HIS:HB3	1.75	0.66
1:B:445:ILE:HG23	1:B:459:LEU:HD12	1.77	0.66
1:A:398:ILE:HG22	1:A:399:SER:N	2.09	0.66
1:B:646:LEU:HD13	1:B:662:LEU:HD23	1.77	0.65
1:A:365:VAL:HG22	1:A:394:LEU:HD23	1.77	0.65
1:A:534:LYS:HB2	1:A:535:GLU:HG2	1.79	0.65
1:E:689:TYR:CE2	1:F:596:PRO:HD2	2.31	0.65
1:C:619:LEU:HD11	1:D:613:ILE:HG23	1.78	0.65
1:E:313:TYR:CZ	1:E:317:THR:HG21	2.32	0.64
1:A:511:LEU:HD21	1:A:549:LEU:HD21	1.78	0.64
1:C:510:ARG:HD3	1:C:590:ASN:O	1.97	0.64
1:B:296:ILE:HD12	1:B:296:ILE:H	1.63	0.64
1:D:644:GLU:OE2	1:D:647:ARG:NH2	2.25	0.63
1:A:398:ILE:CG2	1:A:399:SER:N	2.61	0.63
1:A:484:MET:HE1	1:A:539:LYS:HD2	1.80	0.63
1:F:494:ILE:HD13	1:F:502:VAL:HG13	1.80	0.62
1:B:510:ARG:HD3	1:B:590:ASN:O	1.99	0.62
1:E:615:LYS:HG2	1:E:625:MET:SD	2.40	0.62
1:E:508:VAL:HG12	1:E:512:ARG:HG2	1.81	0.62
1:A:688:ILE:HG21	1:B:669:THR:HG21	1.80	0.62
1:C:516:LEU:HD11	1:C:552:PRO:HD3	1.82	0.62
1:E:549:LEU:HD12	1:E:591:ARG:HE	1.64	0.62
1:A:335:LEU:HD11	1:A:393:ASP:HB2	1.72	0.62
1:C:385:ILE:HD13	1:C:420:CYS:SG	2.39	0.62
1:D:402:MET:HA	1:D:405:GLN:HB2	1.82	0.62
1:C:510:ARG:HH21	1:C:557:GLU:HG2	1.65	0.61
1:E:498:THR:HG22	1:E:500:ASP:N	2.14	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:693:LYS:HD3	1:E:698:ILE:HG22	1.80	0.61
1:D:413:ARG:O	1:D:417:VAL:HG12	2.00	0.61
1:E:693:LYS:HD3	1:E:698:ILE:CG2	2.30	0.61
1:B:514:HIS:HB3	1:B:516:LEU:HD13	1.82	0.61
1:A:691:MET:HG3	1:A:692:ILE:N	2.15	0.61
1:A:607:THR:CG2	1:A:608:ALA:N	2.61	0.61
1:A:627:TYR:CZ	1:A:628:MET:HG2	2.36	0.61
1:E:298:THR:HG21	1:E:367:ARG:HH21	1.66	0.61
1:A:510:ARG:O	1:A:514:HIS:HB2	2.01	0.61
1:E:313:TYR:O	1:E:317:THR:HG22	2.01	0.60
1:C:551:LEU:HB3	1:C:552:PRO:HD2	1.82	0.60
1:C:554:ASP:O	1:C:558:LYS:HG2	2.00	0.60
1:D:479:ASP:HB3	1:D:483:ARG:HH12	1.66	0.60
1:E:626:GLY:O	1:E:627:TYR:HB2	2.00	0.60
1:E:697:GLY:O	1:E:698:ILE:CD1	2.48	0.60
1:B:447:LEU:CD1	1:E:403:LEU:HD11	2.31	0.60
1:F:394:LEU:HD13	1:F:395:PRO:HD2	1.83	0.60
1:A:365:VAL:CG2	1:A:394:LEU:HD23	2.31	0.60
1:A:688:ILE:O	1:A:691:MET:CG	2.47	0.60
1:F:591:ARG:NH1	1:F:600:VAL:HG11	2.15	0.60
1:A:446:LYS:HD2	1:A:525:ILE:HG21	1.84	0.60
1:E:611:GLU:HG2	1:E:615:LYS:HE2	1.83	0.60
1:A:398:ILE:CG2	1:A:399:SER:H	2.15	0.60
1:A:691:MET:HE2	1:B:691:MET:HB3	1.82	0.60
1:D:334:GLN:OE1	1:D:334:GLN:N	2.34	0.60
1:E:324:LEU:HD12	1:E:345:ARG:HA	1.83	0.60
1:E:508:VAL:HG13	1:E:518:VAL:HG21	1.84	0.60
1:A:596:PRO:HD2	1:B:689:TYR:CE2	2.36	0.59
1:E:551:LEU:HD12	1:E:551:LEU:O	2.02	0.59
1:D:294:LYS:NZ	1:D:367:ARG:HH22	2.00	0.59
1:F:360:ASN:HB2	1:F:386:ARG:HH11	1.67	0.59
1:A:509:GLU:HB3	1:A:593:VAL:HB	1.85	0.59
1:A:589:SER:HB2	1:A:635:GLU:HB3	1.84	0.59
1:D:381:TYR:HB3	1:D:447:LEU:HD12	1.84	0.59
1:C:618:ALA:HA	1:C:623:SER:HB3	1.85	0.59
1:F:679:GLU:HG2	1:F:680:ASP:H	1.68	0.59
1:E:484:MET:HE2	1:E:491:ILE:HG12	1.85	0.59
1:A:460:SER:HA	1:A:463:LEU:HD13	1.85	0.58
1:B:551:LEU:O	1:B:553:GLU:HG2	2.02	0.58
1:D:477:LEU:HB3	1:D:536:PHE:CD2	2.38	0.58
1:E:510:ARG:O	1:E:514:HIS:CD2	2.56	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:574:ILE:HD13	1:E:654:LYS:HG2	1.85	0.58
1:C:558:LYS:HG3	1:C:559:LYS:H	1.68	0.58
1:D:370:ILE:HG22	1:D:371:MET:HG3	1.84	0.58
1:A:332:GLU:OE1	1:A:336:GLU:HB3	2.03	0.58
1:A:370:ILE:HG22	1:A:371:MET:HG3	1.85	0.58
1:A:445:ILE:HG23	1:A:459:LEU:HD12	1.85	0.58
1:E:554:ASP:O	1:E:558:LYS:HB2	2.02	0.58
1:E:298:THR:CG2	1:E:367:ARG:HH21	2.16	0.58
1:C:395:PRO:HG2	1:C:405:GLN:HG2	1.85	0.58
1:E:645:THR:OG1	1:F:698:ILE:HD11	2.03	0.58
1:F:549:LEU:HB2	1:F:591:ARG:HH21	1.68	0.58
1:E:509:GLU:HB3	1:E:593:VAL:HB	1.84	0.58
1:E:672:LEU:HD21	1:E:678:LEU:HD11	1.85	0.57
1:D:571:LEU:HD12	1:D:647:ARG:HB2	1.86	0.57
1:F:611:GLU:O	1:F:615:LYS:HB2	2.03	0.57
1:A:335:LEU:HD13	1:A:393:ASP:CB	2.21	0.57
1:B:404:GLN:O	1:B:408:ILE:HG12	2.03	0.57
1:A:571:LEU:HD11	1:A:646:LEU:HG	1.87	0.57
1:C:549:LEU:HB2	1:C:591:ARG:NH2	2.19	0.57
1:C:491:ILE:HB	1:C:541:LEU:HD22	1.87	0.57
1:E:679:GLU:HG2	1:E:680:ASP:H	1.70	0.57
1:C:555:GLU:OE2	1:C:555:GLU:HA	2.04	0.57
1:D:294:LYS:HZ2	1:D:367:ARG:HH22	1.53	0.57
1:E:316:LEU:HD11	1:E:362:LYS:HD2	1.85	0.57
1:B:599:ILE:HD12	1:B:671:LEU:HD23	1.85	0.57
1:E:697:GLY:C	1:E:698:ILE:CG1	2.74	0.57
1:C:617:GLN:HG3	1:F:402:MET:HE2	1.86	0.56
1:D:535:GLU:HG2	1:D:540:THR:HG22	1.87	0.56
1:F:450:HIS:HD2	1:F:532:GLN:HG3	1.70	0.56
1:B:316:LEU:O	1:B:316:LEU:HG	2.06	0.56
1:E:571:LEU:HD13	1:E:647:ARG:HA	1.87	0.56
1:C:688:ILE:HG21	1:D:669:THR:HG21	1.87	0.56
1:F:329:PHE:HZ	1:F:416:LEU:HD12	1.70	0.56
1:F:484:MET:HE1	1:F:539:LYS:CD	2.36	0.56
1:C:363:LEU:HD23	1:C:370:ILE:HB	1.86	0.56
1:A:349:PHE:CZ	1:E:396:LEU:HD13	2.40	0.56
1:F:486:GLU:OE2	1:F:486:GLU:N	2.38	0.56
1:F:617:GLN:O	1:F:618:ALA:CB	2.53	0.56
1:B:546:LYS:O	1:B:591:ARG:NH2	2.39	0.55
1:D:401:GLU:O	1:D:402:MET:HB2	2.04	0.55
1:A:349:PHE:HZ	1:E:396:LEU:HD13	1.70	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:664:ILE:HD12	1:D:687:ARG:HH21	1.71	0.55
1:E:615:LYS:HA	1:E:625:MET:SD	2.46	0.55
1:B:620:ARG:NH1	1:D:397:ASN:O	2.40	0.55
1:D:400:ARG:O	1:D:404:GLN:HG2	2.07	0.55
1:C:669:THR:HG21	1:D:688:ILE:HG21	1.88	0.55
1:E:574:ILE:HD11	1:E:654:LYS:HE2	1.88	0.55
1:A:406:SER:O	1:A:407:LYS:HG3	2.06	0.55
1:A:449:ILE:HG21	1:A:529:CYS:SG	2.47	0.55
1:C:464:ARG:HA	1:C:475:VAL:O	2.07	0.55
1:A:414:LYS:NZ	1:A:454:GLN:HE22	2.05	0.55
1:F:393:ASP:N	1:F:393:ASP:OD1	2.40	0.55
1:A:692:ILE:HA	1:B:691:MET:HE2	1.88	0.54
1:C:591:ARG:NH1	1:C:600:VAL:HG11	2.22	0.54
1:B:300:ASN:ND2	1:B:302:ASP:OD2	2.34	0.54
1:C:403:LEU:HD22	1:F:450:HIS:ND1	2.21	0.54
1:B:298:THR:HG21	1:B:367:ARG:HE	1.73	0.54
1:E:370:ILE:HG22	1:E:371:MET:HG3	1.90	0.54
1:A:591:ARG:NH1	1:A:600:VAL:HG11	2.23	0.54
1:C:665:LEU:O	1:C:669:THR:HG23	2.07	0.54
1:A:378:ILE:HG12	1:A:379:PRO:HD2	1.90	0.54
1:B:407:LYS:O	1:B:411:VAL:HG23	2.08	0.54
1:D:398:ILE:HG22	1:D:399:SER:H	1.73	0.54
1:B:329:PHE:CE1	1:B:339:ALA:HB3	2.43	0.53
1:A:407:LYS:HG3	1:A:407:LYS:O	2.07	0.53
1:C:601:THR:HG22	1:C:602:SER:O	2.08	0.53
1:D:478:LYS:O	1:D:482:THR:HG23	2.09	0.53
1:D:554:ASP:O	1:D:558:LYS:HB2	2.08	0.53
1:E:510:ARG:HD3	1:E:590:ASN:O	2.09	0.53
1:D:510:ARG:HD3	1:D:590:ASN:O	2.09	0.53
1:B:589:SER:HB2	1:B:635:GLU:HB3	1.91	0.53
1:B:312:PHE:O	1:B:315:SER:HB3	2.09	0.53
1:C:294:LYS:HE3	1:C:298:THR:HG23	1.90	0.53
1:D:693:LYS:HE3	1:D:698:ILE:HG22	1.91	0.52
1:A:698:ILE:HG21	1:B:641:SER:HB3	1.89	0.52
1:C:398:ILE:HB	1:C:405:GLN:HG3	1.92	0.52
1:A:466:TYR:HB3	1:A:499:LYS:HE2	1.92	0.52
1:A:446:LYS:HE2	1:A:526:ASP:OD1	2.10	0.52
1:A:484:MET:CE	1:A:539:LYS:HD2	2.40	0.52
1:E:526:ASP:O	1:E:530:VAL:HG22	2.09	0.52
1:E:596:PRO:HD2	1:F:689:TYR:CE2	2.44	0.52
1:F:527:GLU:O	1:F:531:GLN:HG3	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:497:GLU:HG3	1:C:498:THR:HG23	1.91	0.52
1:E:624:THR:O	1:E:625:MET:C	2.49	0.52
1:F:679:GLU:HG2	1:F:680:ASP:N	2.24	0.52
1:A:317:THR:HG22	1:A:386:ARG:CZ	2.38	0.52
1:A:696:LEU:HD23	1:B:645:THR:HG21	1.92	0.52
1:B:347:ALA:HB3	1:B:441:PHE:HE1	1.75	0.52
1:B:549:LEU:HB2	1:B:591:ARG:NH2	2.25	0.52
1:D:340:LEU:HD22	1:D:342:PHE:CE2	2.44	0.52
1:F:587:VAL:HG23	1:F:635:GLU:HG2	1.92	0.52
1:C:470:SER:HB2	1:C:473:GLU:O	2.10	0.51
1:E:551:LEU:HD12	1:E:551:LEU:C	2.31	0.51
1:F:457:LYS:HG3	1:F:458:LYS:N	2.23	0.51
1:A:684:HIS:CE1	1:A:688:ILE:HD11	2.45	0.51
1:F:524:PRO:HB3	1:F:613:ILE:HD13	1.92	0.51
1:C:329:PHE:CE2	1:C:419:LYS:HG3	2.45	0.51
1:C:599:ILE:HD12	1:C:671:LEU:HD23	1.93	0.51
1:D:480:TYR:CE1	1:D:491:ILE:HG23	2.45	0.51
1:B:446:LYS:NZ	1:B:523:GLU:OE2	2.43	0.51
1:C:401:GLU:HG2	1:F:447:LEU:HD12	1.93	0.51
1:B:300:ASN:ND2	1:B:302:ASP:HB2	2.25	0.51
1:C:616:ALA:O	1:C:620:ARG:HG3	2.11	0.51
1:B:335:LEU:HD21	1:B:408:ILE:HG23	1.93	0.51
1:B:464:ARG:HA	1:B:475:VAL:O	2.11	0.51
1:F:391:SER:OG	1:F:394:LEU:HD23	2.10	0.51
1:F:549:LEU:HB2	1:F:591:ARG:NH2	2.26	0.51
1:C:403:LEU:N	1:C:403:LEU:HD12	2.27	0.50
1:B:547:GLU:N	1:B:601:THR:O	2.44	0.50
1:B:553:GLU:CB	1:B:558:LYS:HD2	2.42	0.50
1:C:528:TYR:OH	1:F:404:GLN:HB2	2.11	0.50
1:E:317:THR:HG23	1:E:319:ASP:H	1.76	0.50
1:F:370:ILE:HG22	1:F:371:MET:HG3	1.94	0.50
1:A:405:GLN:HG3	1:D:528:TYR:HB2	1.94	0.50
1:C:403:LEU:HD12	1:C:403:LEU:H	1.75	0.50
1:C:591:ARG:NH1	1:C:635:GLU:CD	2.65	0.50
1:A:668:GLU:O	1:A:671:LEU:HB2	2.12	0.50
1:E:407:LYS:O	1:E:411:VAL:HG23	2.12	0.50
1:B:450:HIS:HD2	1:B:532:GLN:HG3	1.77	0.49
1:E:329:PHE:HZ	1:E:416:LEU:HD12	1.76	0.49
1:F:571:LEU:HD13	1:F:647:ARG:HA	1.93	0.49
1:A:443:LYS:O	1:A:447:LEU:HD23	2.12	0.49
1:B:601:THR:HG22	1:B:602:SER:O	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:341:LEU:HD11	1:B:416:LEU:HD22	1.94	0.49
1:A:421:LEU:HD23	1:A:458:LYS:HE2	1.93	0.49
1:D:591:ARG:NH1	1:D:600:VAL:HG11	2.27	0.49
1:E:395:PRO:HB2	1:E:398:ILE:HD13	1.94	0.49
1:F:559:LYS:O	1:F:563:GLU:HG3	2.12	0.49
1:C:558:LYS:HG3	1:C:559:LYS:N	2.27	0.49
1:A:406:SER:OG	1:A:408:ILE:HB	2.12	0.49
1:A:691:MET:HE2	1:B:691:MET:CB	2.43	0.49
1:A:607:THR:CG2	1:A:608:ALA:H	2.20	0.49
1:C:446:LYS:HE2	1:C:526:ASP:OD1	2.13	0.49
1:E:468:SER:HB2	1:E:512:ARG:NH1	2.27	0.49
1:B:458:LYS:O	1:B:462:LEU:HD13	2.13	0.49
1:D:327:LYS:HB2	1:D:423:LEU:HD22	1.95	0.49
1:D:602:SER:CB	1:D:631:LYS:HB2	2.42	0.49
1:A:631:LYS:HA	1:A:631:LYS:HD3	1.62	0.48
1:B:404:GLN:O	1:B:404:GLN:HG3	2.13	0.48
1:C:294:LYS:HG2	1:C:295:PRO:HD2	1.95	0.48
1:C:526:ASP:O	1:C:530:VAL:HG23	2.12	0.48
1:D:406:SER:O	1:D:407:LYS:HB3	2.13	0.48
1:E:365:VAL:O	1:E:368:VAL:HG22	2.13	0.48
1:E:554:ASP:HB2	1:E:557:GLU:HG3	1.95	0.48
1:E:561:GLN:NE2	1:E:589:SER:O	2.46	0.48
1:B:376:GLU:O	1:B:413:ARG:HD3	2.13	0.48
1:D:549:LEU:HB2	1:D:591:ARG:NH2	2.29	0.48
1:E:591:ARG:NH1	1:E:635:GLU:CD	2.66	0.48
1:B:571:LEU:HD22	1:B:647:ARG:HB2	1.96	0.48
1:C:421:LEU:HD23	1:C:421:LEU:HA	1.60	0.48
1:F:668:GLU:O	1:F:671:LEU:HB2	2.14	0.48
1:A:510:ARG:HD3	1:A:590:ASN:O	2.14	0.48
1:C:551:LEU:CB	1:C:552:PRO:HD2	2.43	0.48
1:F:331:VAL:O	1:F:336:GLU:HA	2.13	0.48
1:C:546:LYS:O	1:C:591:ARG:NH2	2.47	0.48
1:D:668:GLU:O	1:D:671:LEU:HB2	2.13	0.48
1:F:691:MET:O	1:F:691:MET:HG2	2.11	0.48
1:A:404:GLN:HA	1:A:404:GLN:OE1	2.13	0.48
1:B:619:LEU:HD13	1:B:619:LEU:O	2.14	0.48
1:B:624:THR:O	1:B:626:GLY:N	2.47	0.48
1:F:360:ASN:HB2	1:F:386:ARG:NH1	2.28	0.48
1:F:571:LEU:HD11	1:F:646:LEU:HG	1.96	0.48
1:F:430:ASP:OD2	1:F:433:ASN:ND2	2.42	0.48
1:B:584:GLU:HB2	1:B:633:HIS:CD2	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:527:GLU:HB3	1:A:610:MET:CE	2.44	0.47
1:B:370:ILE:HG22	1:B:371:MET:HG3	1.96	0.47
1:D:366:ARG:HD3	1:D:392:GLU:O	2.15	0.47
1:E:296:ILE:HG21	1:E:312:PHE:CD1	2.49	0.47
1:E:591:ARG:NH1	1:E:600:VAL:HG11	2.28	0.47
1:E:607:THR:H	1:E:610:MET:HB3	1.79	0.47
1:B:387:GLY:O	1:B:388:VAL:CG2	2.63	0.47
1:B:616:ALA:O	1:B:620:ARG:HG3	2.14	0.47
1:A:672:LEU:HD11	1:A:678:LEU:HD11	1.95	0.47
1:B:509:GLU:HB3	1:B:593:VAL:HB	1.96	0.47
1:D:592:LEU:HD21	1:D:598:CYS:SG	2.54	0.47
1:E:510:ARG:O	1:E:514:HIS:HD2	1.97	0.47
1:E:679:GLU:CG	1:E:680:ASP:N	2.77	0.47
1:C:559:LYS:NZ	1:C:562:GLU:HG2	2.30	0.47
1:B:329:PHE:CE2	1:B:419:LYS:HG3	2.50	0.47
1:D:579:LEU:HD11	1:D:663:VAL:HG12	1.97	0.47
1:E:296:ILE:HG21	1:E:312:PHE:CG	2.50	0.47
1:E:305:THR:HG23	1:E:308:GLU:H	1.80	0.47
1:E:669:THR:HG21	1:F:688:ILE:HG21	1.95	0.47
1:B:591:ARG:NH1	1:B:600:VAL:HG11	2.30	0.47
1:C:591:ARG:NH1	1:C:635:GLU:OE2	2.47	0.47
1:A:575:MET:CE	1:A:636:ILE:HD13	2.45	0.47
1:C:370:ILE:HG22	1:C:371:MET:HG3	1.97	0.47
1:E:679:GLU:HG2	1:E:680:ASP:N	2.30	0.47
1:B:446:LYS:HE2	1:B:526:ASP:OD1	2.14	0.47
1:F:558:LYS:HG2	1:F:562:GLU:OE2	2.15	0.47
1:A:606:TRP:CZ2	1:A:614:MET:HG3	2.49	0.46
1:C:345:ARG:C	1:C:346:ARG:HG3	2.36	0.46
1:D:549:LEU:HB2	1:D:591:ARG:HH21	1.81	0.46
1:E:591:ARG:NH1	1:E:635:GLU:OE1	2.48	0.46
1:C:510:ARG:HB2	1:C:593:VAL:HG23	1.95	0.46
1:E:618:ALA:HB3	1:E:625:MET:CG	2.45	0.46
1:F:382:LEU:HD12	1:F:382:LEU:HA	1.59	0.46
1:A:479:ASP:OD1	1:A:483:ARG:NE	2.48	0.46
1:B:359:ASN:O	1:B:373:ASN:ND2	2.48	0.46
1:C:381:TYR:CE1	1:C:382:LEU:HG	2.51	0.46
1:D:329:PHE:CE1	1:D:419:LYS:HG3	2.50	0.46
1:D:643:ILE:HD13	1:D:643:ILE:HA	1.77	0.46
1:E:374:CYS:HB3	1:E:377:LEU:HG	1.98	0.46
1:F:329:PHE:CE2	1:F:339:ALA:HB3	2.49	0.46
1:F:450:HIS:CD2	1:F:532:GLN:HG3	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:398:ILE:HG12	1:C:399:SER:O	2.15	0.46
1:E:294:LYS:HD3	1:E:299:ARG:CG	2.46	0.46
1:E:476:SER:OG	1:E:479:ASP:HB2	2.15	0.46
1:A:524:PRO:HB3	1:A:613:ILE:HD13	1.97	0.46
1:B:554:ASP:OD1	1:B:555:GLU:N	2.49	0.46
1:C:413:ARG:O	1:C:417:VAL:HG23	2.15	0.46
1:C:549:LEU:HB2	1:C:591:ARG:HH21	1.79	0.46
1:D:592:LEU:HD12	1:D:595:SER:HB2	1.97	0.46
1:A:377:LEU:HD12	1:A:377:LEU:HA	1.77	0.46
1:A:575:MET:HE3	1:A:636:ILE:HG21	1.98	0.46
1:B:387:GLY:C	1:B:388:VAL:HG23	2.36	0.46
1:B:478:LYS:O	1:B:482:THR:HG23	2.16	0.46
1:D:510:ARG:HB2	1:D:593:VAL:HG23	1.97	0.46
1:E:389:VAL:HG21	1:E:416:LEU:HD21	1.98	0.46
1:F:458:LYS:HE2	1:F:458:LYS:HA	1.97	0.46
1:A:336:GLU:HG3	1:A:392:GLU:HB3	1.97	0.46
1:B:521:MET:SD	1:B:530:VAL:HG21	2.56	0.46
1:B:317:THR:CG2	1:B:386:ARG:HD2	2.46	0.45
1:F:366:ARG:O	1:F:368:VAL:HG13	2.16	0.45
1:B:300:ASN:HD22	1:B:302:ASP:HB2	1.80	0.45
1:D:324:LEU:HB2	1:D:345:ARG:HG2	1.98	0.45
1:F:477:LEU:HD12	1:F:477:LEU:HA	1.80	0.45
1:B:320:TRP:CD2	1:D:295:PRO:HG3	2.52	0.45
1:C:559:LYS:HA	1:C:559:LYS:HD3	1.82	0.45
1:D:666:LEU:HD23	1:D:666:LEU:HA	1.77	0.45
1:D:664:ILE:HD12	1:D:687:ARG:NH2	2.31	0.45
1:B:425:THR:OG1	1:B:458:LYS:HE3	2.17	0.45
1:C:322:ASP:HB3	1:C:345:ARG:HH21	1.81	0.45
1:C:378:ILE:HG12	1:C:379:PRO:HD2	1.99	0.45
1:C:558:LYS:HB2	1:C:558:LYS:HE3	1.51	0.45
1:F:505:SER:O	1:F:508:VAL:HG22	2.16	0.45
1:D:510:ARG:O	1:D:514:HIS:HB2	2.17	0.45
1:E:484:MET:CE	1:E:491:ILE:HG12	2.47	0.45
1:A:320:TRP:CE2	1:E:295:PRO:HG3	2.52	0.45
1:A:320:TRP:CD2	1:E:295:PRO:HG3	2.51	0.45
1:A:628:MET:O	1:A:629:ALA:C	2.54	0.45
1:C:324:LEU:HB2	1:C:345:ARG:HD3	1.99	0.45
1:C:554:ASP:HB3	1:C:557:GLU:HB3	1.99	0.45
1:A:376:GLU:HG2	1:A:404:GLN:HE22	1.82	0.45
1:A:692:ILE:HA	1:B:691:MET:CE	2.47	0.45
1:B:478:LYS:HG3	1:B:537:GLU:OE1	2.15	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:405:GLN:O	1:B:409:LEU:HD23	2.17	0.44
1:C:493:TYR:CZ	1:C:543:SER:HB2	2.52	0.44
1:C:554:ASP:C	1:C:556:GLU:H	2.21	0.44
1:A:395:PRO:HB2	1:A:398:ILE:CG1	2.36	0.44
1:C:401:GLU:HB3	1:F:525:ILE:HD12	2.00	0.44
1:C:689:TYR:CE2	1:D:596:PRO:HD2	2.51	0.44
1:E:657:LYS:HE3	1:E:657:LYS:HB2	1.81	0.44
1:B:630:ALA:O	1:B:632:LYS:HG3	2.18	0.44
1:C:565:LYS:HE2	1:C:566:THR:HG23	1.99	0.44
1:D:380:GLU:OE1	1:D:380:GLU:N	2.45	0.44
1:A:627:TYR:CE1	1:A:628:MET:HG2	2.53	0.44
1:A:692:ILE:HD11	1:B:665:LEU:HD23	1.99	0.44
1:C:607:THR:HG22	1:C:609:ASN:H	1.82	0.44
1:D:531:GLN:O	1:D:534:LYS:HE2	2.17	0.44
1:E:558:LYS:HD2	1:E:559:LYS:HE2	1.99	0.44
1:F:328:HIS:CE1	1:F:340:LEU:HD12	2.52	0.44
1:A:483:ARG:NH1	1:A:517:GLU:OE2	2.50	0.44
1:B:298:THR:HA	1:B:338:ARG:HH11	1.81	0.44
1:D:546:LYS:O	1:D:591:ARG:NH2	2.51	0.44
1:D:665:LEU:O	1:D:669:THR:HG23	2.18	0.44
1:B:346:ARG:NH1	1:D:367:ARG:HB2	2.32	0.44
1:E:554:ASP:CB	1:E:557:GLU:HG3	2.48	0.44
1:A:480:TYR:CE1	1:A:491:ILE:HG23	2.53	0.44
1:A:504:ASN:O	1:B:682:GLN:HG2	2.18	0.44
1:D:320:TRP:CE2	1:F:295:PRO:HG3	2.53	0.44
1:E:665:LEU:HD22	1:E:691:MET:HE3	1.99	0.44
1:F:394:LEU:HA	1:F:394:LEU:HD22	1.72	0.44
1:A:477:LEU:HD23	1:A:477:LEU:HA	1.79	0.44
1:A:549:LEU:HB2	1:A:591:ARG:NH2	2.33	0.44
1:B:591:ARG:NH1	1:B:635:GLU:CD	2.71	0.44
1:C:377:LEU:O	1:C:416:LEU:HD12	2.18	0.44
1:D:601:THR:HG22	1:D:602:SER:O	2.18	0.44
1:D:395:PRO:HB2	1:D:398:ILE:CG1	2.48	0.43
1:C:408:ILE:O	1:C:411:VAL:N	2.48	0.43
1:D:672:LEU:HD23	1:D:672:LEU:HA	1.77	0.43
1:C:322:ASP:CG	1:C:323:HIS:N	2.72	0.43
1:E:607:THR:HG22	1:E:608:ALA:N	2.33	0.43
1:A:446:LYS:O	1:A:449:ILE:HG22	2.19	0.43
1:A:656:ASP:OD1	1:A:657:LYS:N	2.51	0.43
1:B:450:HIS:ND1	1:E:403:LEU:CD1	2.82	0.43
1:C:404:GLN:HG2	1:F:528:TYR:OH	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:452:ASP:OD2	1:D:455:ASN:HB2	2.18	0.43
1:D:527:GLU:HB3	1:D:610:MET:CE	2.48	0.43
1:A:613:ILE:HG23	1:B:619:LEU:HD11	2.00	0.43
1:B:365:VAL:HB	1:B:370:ILE:HD11	2.00	0.43
1:C:668:GLU:O	1:C:671:LEU:HB2	2.19	0.43
1:F:476:SER:HB2	1:F:479:ASP:H	1.83	0.43
1:B:556:GLU:O	1:B:560:LYS:HG3	2.18	0.43
1:C:480:TYR:CE1	1:C:491:ILE:HG23	2.53	0.43
1:E:627:TYR:O	1:E:628:MET:SD	2.75	0.43
1:E:664:ILE:HG21	1:E:687:ARG:CZ	2.49	0.43
1:B:602:SER:HB3	1:B:631:LYS:HB2	2.00	0.43
1:C:345:ARG:O	1:C:346:ARG:HG3	2.18	0.43
1:E:510:ARG:HE	1:E:514:HIS:CE1	2.36	0.43
1:F:340:LEU:HD21	1:F:342:PHE:CZ	2.53	0.43
1:E:398:ILE:HG13	1:E:399:SER:H	1.84	0.43
1:E:624:THR:O	1:E:626:GLY:N	2.52	0.42
1:A:691:MET:HG3	1:A:692:ILE:H	1.84	0.42
1:B:403:LEU:HD21	1:E:447:LEU:CD1	2.50	0.42
1:B:468:SER:HB2	1:B:512:ARG:NH1	2.34	0.42
1:C:394:LEU:HD13	1:C:408:ILE:HG21	2.00	0.42
1:E:601:THR:CG2	1:E:606:TRP:O	2.67	0.42
1:A:477:LEU:HB3	1:A:536:PHE:CD2	2.54	0.42
1:B:668:GLU:O	1:B:671:LEU:HB2	2.19	0.42
1:D:602:SER:HB3	1:D:631:LYS:CB	2.45	0.42
1:F:421:LEU:HD23	1:F:421:LEU:HA	1.81	0.42
1:F:480:TYR:CE1	1:F:491:ILE:HG23	2.54	0.42
1:A:408:ILE:HG23	1:A:409:LEU:N	2.33	0.42
1:B:330:SER:HB2	1:B:338:ARG:HG2	2.00	0.42
1:B:370:ILE:HD13	1:B:396:LEU:HD11	2.00	0.42
1:D:393:ASP:OD1	1:D:393:ASP:N	2.51	0.42
1:E:460:SER:HA	1:E:463:LEU:HD12	2.01	0.42
1:A:446:LYS:HD3	1:A:525:ILE:HG23	2.01	0.42
1:A:672:LEU:HA	1:A:672:LEU:HD23	1.82	0.42
1:B:313:TYR:OH	1:B:344:PRO:HB3	2.20	0.42
1:B:363:LEU:HD23	1:B:370:ILE:HB	2.00	0.42
1:B:398:ILE:HD12	1:B:398:ILE:O	2.20	0.42
1:B:599:ILE:HG12	1:B:634:LEU:HD23	2.02	0.42
1:C:295:PRO:O	1:C:298:THR:HG22	2.19	0.42
1:D:341:LEU:HD11	1:D:416:LEU:HD22	2.01	0.42
1:E:409:LEU:HA	1:E:409:LEU:HD23	1.82	0.42
1:E:621:ASP:OD1	1:E:621:ASP:O	2.38	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:665:LEU:O	1:E:669:THR:HG23	2.19	0.42
1:F:523:GLU:O	1:F:526:ASP:HB2	2.20	0.42
1:A:602:SER:CB	1:A:631:LYS:HB2	2.47	0.42
1:A:627:TYR:CD1	1:D:334:GLN:HG2	2.55	0.42
1:A:628:MET:H	1:D:334:GLN:HB2	1.83	0.42
1:A:691:MET:CG	1:A:692:ILE:N	2.81	0.42
1:C:294:LYS:HG2	1:C:298:THR:HG21	2.02	0.42
1:C:480:TYR:OH	1:C:517:GLU:O	2.26	0.42
1:D:601:THR:HG21	1:D:607:THR:HA	2.01	0.42
1:E:671:LEU:HD23	1:E:671:LEU:HA	1.79	0.42
1:F:413:ARG:O	1:F:417:VAL:HG23	2.20	0.42
1:B:508:VAL:HG12	1:B:512:ARG:CG	2.46	0.42
1:B:617:GLN:OE1	1:E:398:ILE:HD12	2.19	0.42
1:D:398:ILE:HG22	1:D:399:SER:N	2.34	0.42
1:F:324:LEU:HB2	1:F:345:ARG:HG2	2.02	0.42
1:B:541:LEU:HD12	1:B:541:LEU:N	2.35	0.42
1:D:664:ILE:HG21	1:D:687:ARG:CZ	2.50	0.42
1:A:331:VAL:O	1:A:336:GLU:HA	2.20	0.41
1:A:395:PRO:HB3	1:A:398:ILE:HD11	1.94	0.41
1:A:413:ARG:O	1:A:417:VAL:HG12	2.20	0.41
1:E:367:ARG:HA	1:E:390:ASP:OD2	2.20	0.41
1:A:403:LEU:O	1:A:408:ILE:HG22	2.20	0.41
1:B:359:ASN:CG	1:B:360:ASN:N	2.74	0.41
1:C:305:THR:HG23	1:C:308:GLU:H	1.85	0.41
1:D:498:THR:O	1:D:502:VAL:HG22	2.21	0.41
1:A:422:GLU:O	1:A:426:GLU:HG3	2.20	0.41
1:C:405:GLN:O	1:C:409:LEU:HD23	2.20	0.41
1:C:607:THR:H	1:C:610:MET:HB3	1.86	0.41
1:D:551:LEU:O	1:D:553:GLU:N	2.53	0.41
1:E:643:ILE:HD13	1:E:643:ILE:HA	1.90	0.41
1:B:387:GLY:O	1:B:388:VAL:HG23	2.20	0.41
1:C:561:GLN:HA	1:C:564:LYS:HE3	2.02	0.41
1:C:696:LEU:HD11	1:D:662:LEU:HD11	2.02	0.41
1:D:335:LEU:HD11	1:D:408:ILE:HG23	2.02	0.41
1:D:366:ARG:HD2	1:D:366:ARG:HA	1.69	0.41
1:E:627:TYR:O	1:E:628:MET:HG2	2.20	0.41
1:A:671:LEU:HD23	1:A:671:LEU:HA	1.94	0.41
1:B:328:HIS:CG	1:B:340:LEU:HD13	2.56	0.41
1:B:330:SER:CB	1:B:338:ARG:HG2	2.51	0.41
1:C:555:GLU:O	1:C:556:GLU:OE1	2.39	0.41
1:E:599:ILE:HD12	1:E:671:LEU:HD23	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:592:LEU:HD13	1:B:592:LEU:HA	1.92	0.41
1:D:365:VAL:HB	1:D:370:ILE:HD11	2.02	0.41
1:E:549:LEU:HA	1:E:549:LEU:HD23	1.79	0.41
1:E:618:ALA:O	1:E:621:ASP:O	2.38	0.41
1:F:297:TRP:CZ3	1:F:390:ASP:CB	3.04	0.41
1:F:678:LEU:O	1:F:679:GLU:C	2.59	0.41
1:C:341:LEU:HD11	1:C:416:LEU:HD22	2.03	0.41
1:C:555:GLU:O	1:C:555:GLU:HG3	2.19	0.41
1:D:346:ARG:NH1	1:F:367:ARG:HB2	2.36	0.41
1:D:394:LEU:HD23	1:D:395:PRO:HD2	2.02	0.41
1:D:421:LEU:HD23	1:D:421:LEU:HA	1.63	0.41
1:D:437:PHE:HE2	1:D:445:ILE:HD11	1.86	0.41
1:E:571:LEU:HD12	1:E:571:LEU:HA	1.84	0.41
1:F:539:LYS:HE3	1:F:539:LYS:HB2	1.67	0.41
1:A:398:ILE:HG23	1:A:399:SER:H	1.86	0.41
1:A:487:ASN:O	1:A:552:PRO:HB3	2.21	0.40
1:C:537:GLU:HG2	1:C:537:GLU:O	2.21	0.40
1:E:478:LYS:O	1:E:482:THR:HG23	2.20	0.40
1:F:561:GLN:NE2	1:F:589:SER:O	2.52	0.40
1:F:358:LYS:HB2	1:F:373:ASN:OD1	2.20	0.40
1:C:463:LEU:HD23	1:C:465:TYR:OH	2.21	0.40
1:C:666:LEU:HD23	1:C:666:LEU:HA	1.55	0.40
1:E:693:LYS:HD3	1:E:698:ILE:HG21	2.02	0.40
1:E:645:THR:HG21	1:F:698:ILE:HD11	2.03	0.40
1:F:526:ASP:O	1:F:530:VAL:HG22	2.21	0.40
1:B:317:THR:HG21	1:B:386:ARG:HD2	2.04	0.40
1:C:322:ASP:HB3	1:C:345:ARG:NH2	2.37	0.40
1:D:299:ARG:NH2	1:D:303:ASP:O	2.53	0.40
1:E:536:PHE:CD1	1:E:537:GLU:HB2	2.56	0.40
1:E:602:SER:HB3	1:E:631:LYS:HB2	2.04	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:338:ARG:NH2	1:C:653:ASP:OD2[2_647]	2.16	0.04



## 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	387/425 (91%)	368 (95%)	19 (5%)	0	100	100
1	B	395/425 (93%)	380 (96%)	15 (4%)	0	100	100
1	C	394/425 (93%)	368 (93%)	26 (7%)	0	100	100
1	D	380/425 (89%)	362 (95%)	18 (5%)	0	100	100
1	E	393/425 (92%)	373 (95%)	20 (5%)	0	100	100
1	F	383/425 (90%)	367 (96%)	16 (4%)	0	100	100
All	All	2332/2550 (92%)	2218 (95%)	114 (5%)	0	100	100

There are no Ramachandran outliers to report.

### 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	363/391 (93%)	362 (100%)	1 (0%)	92	97
1	B	369/391 (94%)	368 (100%)	1 (0%)	92	97
1	C	368/391 (94%)	366 (100%)	2 (0%)	88	95
1	D	358/391 (92%)	358 (100%)	0	100	100
1	E	367/391 (94%)	364 (99%)	3 (1%)	81	92
1	F	360/391 (92%)	357 (99%)	3 (1%)	81	92
All	All	2185/2346 (93%)	2175 (100%)	10 (0%)	88	95

All (10) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	606	TRP
1	B	479	ASP
1	C	402	MET
1	C	403	LEU
1	E	349	PHE
1	E	431	LYS
1	E	549	LEU
1	F	367	ARG
1	F	479	ASP
1	F	691	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	454	GLN
1	A	684	HIS
1	B	300	ASN
1	B	633	HIS
1	C	306	ASN
1	F	404	GLN

### 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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	393/425 (92%)	-0.22	0 <a href="#">100</a>   <a href="#">100</a>	46, 82, 130, 164	0
1	B	399/425 (93%)	-0.21	2 (0%) <a href="#">91</a>   <a href="#">86</a>	49, 81, 133, 191	0
1	C	398/425 (93%)	-0.20	3 (0%) <a href="#">86</a>   <a href="#">78</a>	48, 89, 139, 187	0
1	D	386/425 (90%)	-0.22	0 <a href="#">100</a>   <a href="#">100</a>	45, 86, 127, 166	0
1	E	397/425 (93%)	-0.24	2 (0%) <a href="#">91</a>   <a href="#">86</a>	49, 84, 136, 186	0
1	F	389/425 (91%)	-0.25	0 <a href="#">100</a>   <a href="#">100</a>	48, 84, 133, 168	0
All	All	2362/2550 (92%)	-0.22	7 (0%) <a href="#">94</a>   <a href="#">92</a>	45, 84, 134, 191	0

All (7) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	627	TYR	4.4
1	B	627	TYR	3.6
1	C	396	LEU	2.9
1	C	401	GLU	2.6
1	B	628	MET	2.6
1	C	553	GLU	2.2
1	E	349	PHE	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 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.