



Full wwPDB X-ray Structure Validation Report

Feb 28, 2014 – 07:09 AM GMT

PDB ID : 3Q7J
Title : Engineered Thermoplasma Acidophilum F3 factor mimics human aminopeptidase N (APN) as a target for anticancer drug development
Authors : Su, J.; Wang, Q.; Feng, J.; Zhang, C.; Zhu, D.; We, T.; Xu, W.; Gu, L.
Deposited on : 2011-01-05
Resolution : 2.91 Å(reported)

This is a full wwPDB validation report for a publicly released PDB entry.
We welcome your comments at validation@mail.wwpdb.org
A user guide is available at <http://wwpdb.org/ValidationPDFNotes.html>

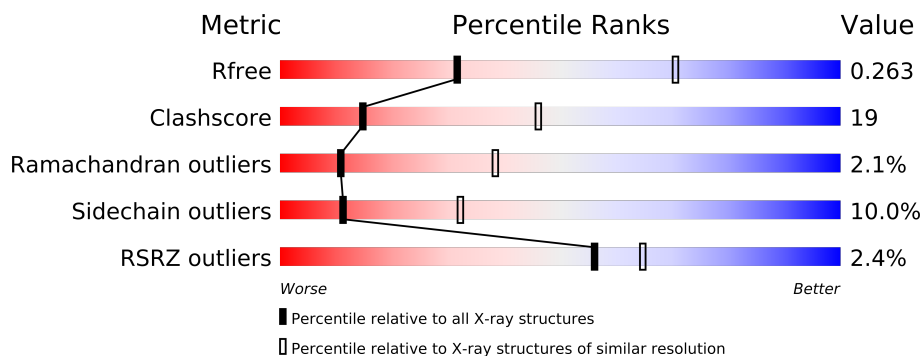
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.15 2013
Xtriage (Phenix) : dev-1323
EDS : stable22639
Percentile statistics : 21963
Refmac : 5.8.0049
CCP4 : 6.3.0 (Settle)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP) : stable22683

1 Overall quality at a glance



The reported resolution of this entry is 2.91 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}	66092	1172 (2.94-2.90)
Clashscore	79885	1461 (2.94-2.90)
Ramachandran outliers	78287	1419 (2.94-2.90)
Sidechain outliers	78261	1421 (2.94-2.90)
RSRZ outliers	66119	1173 (2.94-2.90)

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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Mol	Chain	Length	Quality of chain
1	A	780	
1	B	780	

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 12639 atoms, of which 0 are hydrogen and 0 are deuterium.

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 Tricorn protease-interacting factor F3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	780	Total	C	N	O	S	2	0	0
			6294	4008	1066	1189	31			
1	B	780	Total	C	N	O	S	8	0	0
			6294	4008	1066	1189	31			

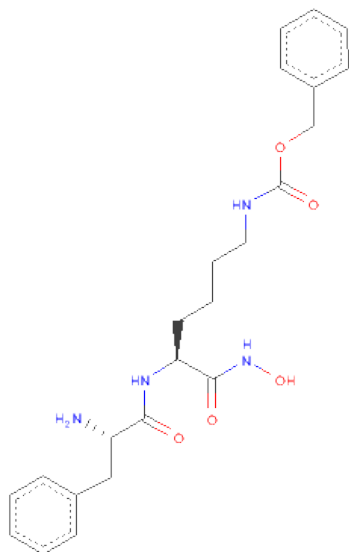
There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	101	GLN	GLU	ENGINEERED MUTATION	UNP O93655
A	261	THR	ASN	ENGINEERED MUTATION	UNP O93655
B	101	GLN	GLU	ENGINEERED MUTATION	UNP O93655
B	261	THR	ASN	ENGINEERED MUTATION	UNP O93655

- Molecule 2 is ZINC ION (three-letter code: ZN) (formula: Zn).

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

- Molecule 3 is L-PHENYLALANYL-N6-[(BENZYLOXY)CARBONYL]-N1-HYDROXY-L-LYSINAMIDE (three-letter code: FBO) (formula: C₂₃H₃₀N₄O₅).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			32	23	4	5		

- Molecule 4 is water.

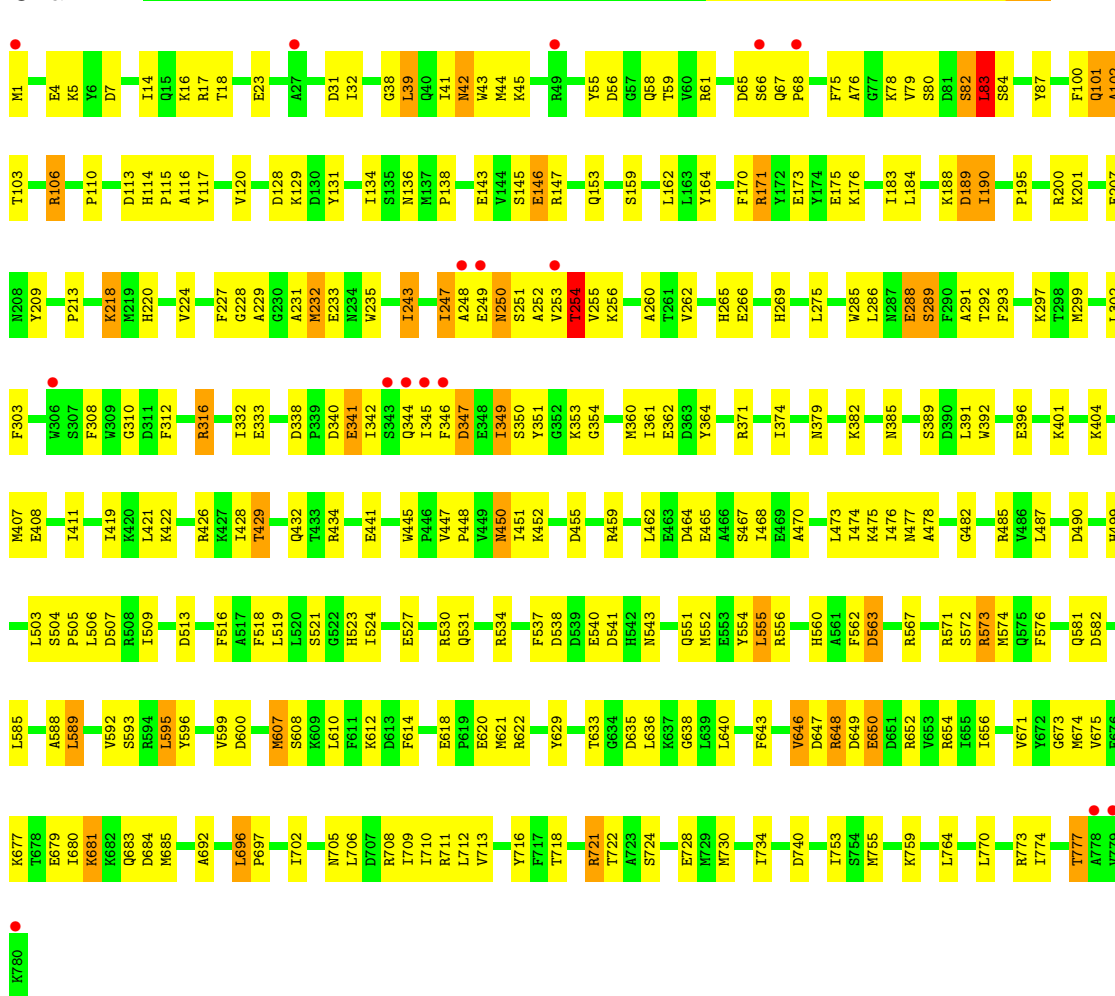
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	7	Total	O	0	0
			7	7		
4	B	10	Total	O	0	0
			10	10		

3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

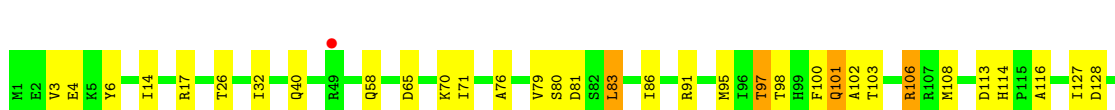
• Molecule 1: Tricorn protease-interacting factor F3

Chain A:



• Molecule 1: Tricorn protease-interacting factor F3

Chain B:





4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	114.72Å 183.10Å 105.15Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	47.95 – 2.91 48.61 – 2.91	Depositor EDS
% Data completeness (in resolution range)	96.1 (47.95-2.91) 99.5 (48.61-2.91)	Depositor EDS
R_{merge}	0.13	Depositor
R_{sym}	0.13	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.03 (at 2.91Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.6.4_486)	Depositor
R, R_{free}	0.202 , 0.271 0.197 , 0.263	Depositor DCC
R_{free} test set	2487 reflections (5.07%)	DCC
Wilson B-factor (Å ²)	53.0	Xtriage
Anisotropy	0.236	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 16.7	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Outliers	3 of 49072 reflections (0.006%)	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	12639	wwPDB-VP
Average B, all atoms (Å ²)	50.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 15.12% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: ZN, FBO

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	0.46	0/6428	0.62	0/8676
1	B	0.44	0/6428	0.59	0/8676
All	All	0.45	0/12856	0.61	0/17352

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	B	0	1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	101	GLN	Peptide

5.2 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 hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	6294	0	6209	226	0
1	B	6294	0	6209	254	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
3	A	32	0	30	12	0
4	A	7	0	0	0	0
4	B	10	0	0	2	0
All	All	12639	0	12448	481	0

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 19.

All (481) close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:573:ARG:HA	1:B:573:ARG:HE	1.25	1.01
1:A:527:GLU:HG2	1:A:530:ARG:HH21	1.31	0.96
1:B:136:ASN:HD21	1:B:164:TYR:H	1.12	0.93
1:A:101:GLN:HG2	3:A:900:FBO:H6	1.52	0.92
1:A:247:ILE:H	1:A:247:ILE:HD13	1.35	0.90
1:A:705:ASN:O	1:A:709:ILE:HG12	1.72	0.89
1:A:421:LEU:HD23	1:A:428:ILE:HG21	1.53	0.89
1:A:351:TYR:HB2	3:A:900:FBO:H23A	1.56	0.87
1:A:195:PRO:HG3	1:A:247:ILE:HD11	1.57	0.87
1:A:521:SER:OG	1:A:523:HIS:HD2	1.60	0.84
1:B:365:ALA:O	1:B:369:GLU:HG3	1.78	0.83
1:A:432:GLN:HE22	1:A:445:TRP:H	1.26	0.82
1:B:581:GLN:H	1:B:581:GLN:HE21	1.27	0.81
1:A:114:HIS:HD2	1:A:116:ALA:H	1.25	0.81
1:A:136:ASN:HD21	1:A:164:TYR:H	1.29	0.81
1:B:191:ARG:HH21	1:B:248:ALA:HB2	1.44	0.80
1:B:573:ARG:HA	1:B:573:ARG:NE	1.96	0.80
1:B:618:GLU:HB3	1:B:620:GLU:OE2	1.83	0.79
1:A:721:ARG:HB3	1:A:721:ARG:CZ	2.10	0.78
1:A:374:ILE:HD13	1:A:391:LEU:HD11	1.65	0.78
1:B:114:HIS:HD2	1:B:116:ALA:H	1.28	0.77
1:B:103:THR:O	1:B:106:ARG:HD3	1.85	0.76
1:A:450:ASN:HD21	1:A:478:ALA:H	1.33	0.76
1:A:721:ARG:HB3	1:A:721:ARG:NH1	2.01	0.75
1:B:573:ARG:CA	1:B:573:ARG:HE	1.98	0.74
1:B:567:ARG:HD3	1:B:599:VAL:O	1.86	0.74
1:A:207:GLU:HG2	1:A:213:PRO:HA	1.68	0.74
1:B:709:ILE:O	1:B:713:VAL:HG23	1.86	0.74
1:A:516:PHE:HZ	1:A:554:TYR:CD2	2.05	0.74

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:682:LYS:NZ	1:B:716:TYR:HB3	2.03	0.73
1:A:101:GLN:CG	3:A:900:FBO:H6	2.19	0.72
1:A:288:GLU:HA	1:A:288:GLU:OE1	1.89	0.72
1:B:695:THR:O	1:B:699:ARG:HG3	1.90	0.72
1:B:728:GLU:OE1	1:B:759:LYS:HD3	1.90	0.71
1:B:341:GLU:HB2	1:B:345:ILE:HG22	1.70	0.71
1:A:103:THR:O	1:A:106:ARG:HD3	1.90	0.71
1:B:581:GLN:N	1:B:581:GLN:HE21	1.88	0.70
1:A:23:GLU:OE1	1:A:110:PRO:HG2	1.92	0.70
1:B:520:LEU:HD23	1:B:770:LEU:HD22	1.74	0.70
1:A:721:ARG:HH11	1:A:722:THR:H	1.37	0.70
1:A:530:ARG:HD2	1:A:534:ARG:NH1	2.06	0.69
1:A:629:TYR:CE1	1:A:633:THR:HG21	2.27	0.69
1:B:606:GLU:HG2	1:B:607:MET:HE3	1.75	0.69
1:A:171:ARG:HG3	1:A:171:ARG:HH11	1.57	0.69
1:B:404:LYS:O	1:B:408:GLU:HG3	1.93	0.69
1:B:253:VAL:HB	1:B:583:GLU:HG2	1.75	0.69
1:B:359:ARG:NH2	1:B:481:ALA:HA	2.07	0.69
1:B:737:ASP:O	1:B:739:PRO:HD3	1.93	0.69
1:B:297:LYS:HE3	1:B:362:GLU:OE1	1.93	0.69
1:A:516:PHE:HZ	1:A:554:TYR:HD2	1.40	0.68
1:B:614:PHE:CZ	1:B:655:ILE:HD11	2.28	0.68
1:A:101:GLN:HG2	3:A:900:FBO:C6	2.23	0.68
1:B:346:PHE:HD1	1:B:351:TYR:CE2	2.11	0.68
1:B:192:SER:HB3	1:B:247:ILE:O	1.94	0.67
1:A:114:HIS:CD2	1:A:116:ALA:H	2.08	0.67
1:B:114:HIS:CD2	1:B:116:ALA:H	2.10	0.67
1:A:260:ALA:HB1	1:A:299:MET:SD	2.35	0.67
1:B:680:ILE:O	1:B:681:LYS:O	2.13	0.67
1:B:636:LEU:HD21	1:B:670:THR:HG21	1.78	0.66
1:A:82:SER:O	1:A:84:SER:N	2.28	0.66
1:B:83:LEU:HD23	1:B:83:LEU:O	1.95	0.66
1:A:347:ASP:HB3	1:A:349:ILE:H	1.61	0.66
1:A:477:ASN:HD21	1:A:482:GLY:H	1.43	0.66
1:B:364:TYR:OH	1:B:402:PRO:HD2	1.96	0.65
1:B:577:LEU:O	1:B:589:LEU:HD13	1.97	0.65
1:A:184:LEU:HD22	1:A:190:ILE:HD12	1.77	0.65
1:B:184:LEU:HB2	1:B:196:LEU:HD21	1.78	0.65
1:B:173:GLU:HG2	1:B:190:ILE:HG13	1.78	0.64
1:B:636:LEU:HD13	1:B:667:ASP:HB3	1.79	0.64
1:A:17:ARG:HB3	1:A:79:VAL:HB	1.77	0.64
1:A:728:GLU:HG3	1:A:759:LYS:HB3	1.80	0.64

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:32:ILE:HD11	1:B:71:ILE:HD12	1.80	0.64
1:B:3:VAL:HG11	1:B:6:TYR:CE2	2.33	0.64
1:B:581:GLN:H	1:B:581:GLN:NE2	1.96	0.64
1:A:656:ILE:HD12	1:A:684:ASP:HB3	1.80	0.64
1:B:589:LEU:HD21	1:B:621:MET:SD	2.38	0.63
1:A:218:LYS:NZ	1:A:220:HIS:HD2	1.95	0.63
1:A:39:LEU:HB3	1:A:76:ALA:O	1.98	0.63
1:A:635:ASP:OD1	1:A:638:GLY:HA3	1.99	0.63
1:A:247:ILE:HD13	1:A:247:ILE:N	2.12	0.63
1:B:4:GLU:HB3	1:B:26:THR:HG22	1.81	0.62
1:A:341:GLU:HG2	1:A:344:GLN:HE21	1.65	0.62
1:A:614:PHE:CZ	1:A:622:ARG:HG2	2.34	0.62
1:B:508:ARG:O	1:B:512:VAL:HG23	1.99	0.62
1:B:140:LYS:HB2	1:B:153:GLN:HG3	1.81	0.62
1:B:136:ASN:ND2	1:B:164:TYR:H	1.91	0.61
1:A:581:GLN:HA	1:A:581:GLN:NE2	2.14	0.61
1:B:663:LYS:HD3	1:B:697:PRO:HG3	1.83	0.61
1:A:16:LYS:HB3	1:A:18:THR:HG23	1.83	0.61
1:B:675:VAL:HG11	1:B:685:MET:HG3	1.81	0.61
1:A:530:ARG:HD2	1:A:534:ARG:HH11	1.65	0.61
1:B:359:ARG:HH22	1:B:481:ALA:HA	1.64	0.61
1:B:218:LYS:NZ	1:B:220:HIS:CD2	2.69	0.61
1:B:136:ASN:HD21	1:B:164:TYR:N	1.92	0.60
1:B:682:LYS:HZ1	1:B:716:TYR:HB3	1.66	0.60
1:B:682:LYS:NZ	1:B:716:TYR:CD1	2.69	0.60
1:B:696:LEU:N	1:B:697:PRO:HD2	2.16	0.60
1:A:138:PRO:HD2	1:A:153:GLN:HE21	1.66	0.60
1:A:421:LEU:HD23	1:A:428:ILE:CG2	2.28	0.60
1:A:106:ARG:NH1	1:A:113:ASP:HB3	2.16	0.60
1:B:755:MET:CE	1:B:759:LYS:HE3	2.33	0.59
1:A:473:LEU:HD13	1:A:474:ILE:N	2.18	0.59
1:B:627:THR:HG22	1:B:661:LYS:HG2	1.84	0.59
1:B:689:PHE:CZ	1:B:709:ILE:HG13	2.38	0.59
1:B:661:LYS:NZ	1:B:691:SER:HB2	2.17	0.59
1:B:627:THR:CG2	1:B:661:LYS:HG2	2.33	0.59
1:B:218:LYS:NZ	1:B:220:HIS:HD2	1.99	0.59
1:A:341:GLU:HB2	1:A:344:GLN:HB3	1.85	0.59
1:B:374:ILE:HD13	1:B:391:LEU:HD11	1.84	0.59
1:B:492:THR:O	1:B:496:VAL:HG23	2.03	0.59
1:B:106:ARG:HD2	1:B:113:ASP:OD2	2.04	0.58
1:A:83:LEU:CD1	1:A:228:GLY:H	2.16	0.58
1:A:55:TYR:HD1	1:A:59:THR:O	1.85	0.58

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:537:PHE:O	1:A:573:ARG:HD3	2.02	0.58
1:A:101:GLN:HG3	1:A:102:ALA:N	2.17	0.58
1:B:346:PHE:HD1	1:B:351:TYR:HE2	1.52	0.58
1:B:537:PHE:CE1	1:B:569:PHE:HB2	2.39	0.58
1:A:171:ARG:NH1	1:A:171:ARG:HG3	2.19	0.58
1:B:541:ASP:O	1:B:545:ILE:HG12	2.04	0.57
1:A:450:ASN:ND2	1:A:478:ALA:H	2.00	0.57
1:B:601:GLU:O	1:B:605:GLU:HG3	2.04	0.57
1:A:450:ASN:HD21	1:A:478:ALA:CB	2.17	0.57
1:A:42:ASN:H	1:A:42:ASN:ND2	2.02	0.57
1:B:730:MET:C	1:B:732:PRO:HD2	2.25	0.57
1:B:632:VAL:HG12	1:B:633:THR:HG22	1.87	0.57
1:A:114:HIS:HB3	1:A:117:TYR:HD1	1.70	0.57
1:B:667:ASP:O	1:B:671:VAL:HG23	2.05	0.57
1:B:218:LYS:HZ3	1:B:220:HIS:CD2	2.23	0.57
1:B:184:LEU:HD13	1:B:190:ILE:HG21	1.87	0.57
1:A:42:ASN:H	1:A:42:ASN:HD22	1.53	0.57
1:A:42:ASN:N	1:A:42:ASN:HD22	2.00	0.57
1:A:249:GLU:HA	1:A:256:LYS:HE2	1.87	0.57
1:A:773:ARG:O	1:A:777:THR:HG22	2.05	0.56
1:B:380:ASP:HB2	1:B:381:HIS:CD2	2.40	0.56
1:A:721:ARG:NH1	1:A:722:THR:H	2.03	0.56
1:A:218:LYS:HZ3	1:A:220:HIS:CD2	2.23	0.56
1:A:588:ALA:O	1:A:592:VAL:HG23	2.06	0.56
1:A:333:GLU:HB2	1:A:411:ILE:HG22	1.86	0.56
1:A:360:MET:HB2	1:A:482:GLY:HA2	1.87	0.56
1:A:173:GLU:HG2	1:A:190:ILE:HG13	1.88	0.56
1:B:473:LEU:HD23	1:B:474:ILE:N	2.21	0.56
1:B:764:LEU:HD11	1:B:768:ARG:NH2	2.21	0.56
1:A:231:ALA:O	3:A:900:FBO:H8	2.05	0.56
1:B:186:SER:OG	1:B:190:ILE:HD13	2.06	0.56
1:B:71:ILE:N	1:B:71:ILE:HD13	2.20	0.56
1:B:346:PHE:CD1	1:B:351:TYR:HE2	2.24	0.55
1:B:243:ILE:CG2	4:B:781:HOH:O	2.54	0.55
1:A:541:ASP:OD2	1:A:543:ASN:HB2	2.06	0.55
1:A:560:HIS:HA	1:A:563:ASP:OD2	2.06	0.55
1:B:741:ALA:O	1:B:745:VAL:HG23	2.06	0.55
1:A:551:GLN:O	1:A:555:LEU:HD22	2.05	0.55
1:A:252:ALA:O	1:A:255:VAL:HG22	2.06	0.55
1:B:280:TRP:HD1	1:B:282:ASN:HD22	1.55	0.55
1:B:675:VAL:CG1	1:B:685:MET:HG3	2.36	0.55
1:A:538:ASP:HA	1:A:573:ARG:NH2	2.22	0.54

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:432:GLN:NE2	1:A:445:TRP:H	1.99	0.54
1:B:682:LYS:NZ	1:B:716:TYR:HD1	2.06	0.54
1:A:44:MET:HG2	1:A:45:LYS:H	1.71	0.54
1:B:650:GLU:HG2	1:B:654:ARG:NH1	2.22	0.54
1:B:682:LYS:HZ2	1:B:716:TYR:HB3	1.72	0.54
1:B:408:GLU:O	1:B:412:LYS:HG3	2.08	0.54
1:A:218:LYS:NZ	1:A:220:HIS:CD2	2.75	0.54
1:A:44:MET:HG2	1:A:45:LYS:N	2.22	0.54
1:A:101:GLN:OE1	3:A:900:FBO:H6	2.08	0.54
1:B:681:LYS:HD2	1:B:683:GLN:NE2	2.23	0.54
1:A:302:LEU:O	1:A:303:PHE:HD2	1.90	0.54
1:B:475:LYS:HE2	1:B:476:ILE:O	2.08	0.53
1:B:607:MET:HA	1:B:607:MET:HE2	1.89	0.53
1:A:618:GLU:HB3	1:A:620:GLU:OE1	2.07	0.53
1:A:477:ASN:HD21	1:A:482:GLY:N	2.07	0.53
1:A:652:ARG:O	1:A:656:ILE:HG13	2.09	0.53
1:B:279:LYS:HE3	1:B:387:GLU:HG2	1.91	0.53
1:B:146:GLU:H	1:B:146:GLU:CD	2.12	0.53
1:A:421:LEU:HD21	1:A:476:ILE:HD11	1.91	0.53
1:A:521:SER:OG	1:A:523:HIS:CD2	2.49	0.53
1:A:518:PHE:HB3	1:A:524:ILE:HG12	1.90	0.53
1:A:83:LEU:HD13	1:A:228:GLY:H	1.74	0.53
1:B:512:VAL:HG12	1:B:551:GLN:NE2	2.24	0.53
1:A:724:SER:HA	1:A:753:ILE:HG22	1.89	0.53
1:A:106:ARG:HD2	1:A:113:ASP:OD2	2.08	0.52
1:B:642:LYS:HA	1:B:645:SER:HB3	1.91	0.52
1:B:457:VAL:HG12	1:B:457:VAL:O	2.09	0.52
1:A:396:GLU:HG3	1:A:401:LYS:O	2.09	0.52
1:A:429:THR:HG22	1:A:467:SER:OG	2.09	0.52
1:B:97:THR:HG22	1:B:164:TYR:HE1	1.74	0.52
1:B:706:LEU:CD2	1:B:741:ALA:HB1	2.39	0.52
1:A:38:GLY:C	1:A:39:LEU:HD23	2.30	0.52
1:A:43:TRP:CZ3	1:A:45:LYS:HG3	2.45	0.52
1:B:682:LYS:HZ1	1:B:716:TYR:CB	2.23	0.52
1:A:23:GLU:HG2	1:A:75:PHE:HE2	1.73	0.52
1:B:477:ASN:HD21	1:B:482:GLY:H	1.58	0.52
1:A:67:GLN:HB3	1:A:68:PRO:HD2	1.92	0.52
1:A:175:GLU:HG3	1:A:176:LYS:H	1.74	0.52
1:A:428:ILE:HG13	1:A:470:ALA:HB2	1.92	0.52
1:A:516:PHE:CD1	1:A:551:GLN:HG2	2.45	0.51
1:B:177:TYR:HE2	1:B:207:GLU:OE1	1.93	0.51
1:B:650:GLU:HG2	1:B:654:ARG:HH11	1.75	0.51

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:100:PHE:HZ	1:B:108:MET:CE	2.24	0.51
1:A:347:ASP:C	1:A:349:ILE:H	2.14	0.51
1:B:648:ARG:HG2	1:B:650:GLU:HB2	1.92	0.51
1:B:670:THR:O	1:B:674:MET:HG3	2.11	0.51
1:B:681:LYS:HB2	1:B:684:ASP:OD1	2.10	0.51
1:B:297:LYS:CE	1:B:362:GLU:OE1	2.59	0.51
1:B:353:LYS:HG3	1:B:483:PHE:CE2	2.46	0.51
1:A:292:THR:OG1	3:A:900:FBO:H13	2.10	0.51
1:A:292:THR:OG1	3:A:900:FBO:N18	2.44	0.50
1:A:518:PHE:CB	1:A:524:ILE:HG12	2.41	0.50
1:A:572:SER:OG	1:A:573:ARG:NH2	2.44	0.50
1:B:145:SER:HB3	1:B:146:GLU:OE2	2.11	0.50
1:B:207:GLU:HG2	1:B:213:PRO:HA	1.94	0.50
1:B:272:PHE:CE1	1:B:377:TYR:CE1	2.99	0.50
1:B:97:THR:HG22	1:B:164:TYR:CE1	2.47	0.50
1:B:705:ASN:HD22	1:B:708:ARG:HD2	1.77	0.50
1:B:534:ARG:HA	1:B:537:PHE:CD2	2.47	0.50
1:A:675:VAL:HA	1:A:680:ILE:HB	1.93	0.50
1:B:693:LEU:HD22	1:B:733:VAL:HG11	1.93	0.50
1:B:724:SER:N	1:B:753:ILE:HG22	2.27	0.50
1:B:341:GLU:C	1:B:343:SER:H	2.15	0.50
1:B:32:ILE:CD1	1:B:71:ILE:HD12	2.42	0.50
1:A:341:GLU:HG2	1:A:344:GLN:NE2	2.25	0.50
1:B:527:GLU:HA	1:B:527:GLU:OE2	2.11	0.50
1:A:530:ARG:HG3	1:A:562:PHE:CE2	2.46	0.50
1:B:98:THR:HG21	1:B:108:MET:HE1	1.94	0.50
1:B:618:GLU:HB3	1:B:620:GLU:CD	2.32	0.50
1:B:647:ASP:O	1:B:648:ARG:C	2.50	0.50
1:B:462:LEU:HD23	1:B:463:GLU:N	2.27	0.49
1:B:83:LEU:CD1	1:B:228:GLY:H	2.24	0.49
1:B:284:LEU:O	1:B:284:LEU:HD22	2.12	0.49
1:B:361:ILE:HG13	1:B:407:MET:SD	2.52	0.49
1:B:659:PHE:O	1:B:662:LEU:HB2	2.12	0.49
1:A:374:ILE:CD1	1:A:391:LEU:HD11	2.38	0.49
1:B:178:ARG:NH2	1:B:207:GLU:OE2	2.46	0.49
1:B:432:GLN:HE22	1:B:445:TRP:H	1.59	0.49
1:B:482:GLY:HA3	1:B:484:TYR:CE2	2.47	0.49
1:B:692:ALA:O	1:B:698:GLY:HA3	2.12	0.49
1:B:574:MET:HE1	1:B:589:LEU:HG	1.94	0.49
1:B:728:GLU:HB2	1:B:756:GLY:HA2	1.94	0.49
1:A:229:ALA:HB1	3:A:900:FBO:C3	2.43	0.49
3:A:900:FBO:O22	3:A:900:FBO:H25	2.13	0.49

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:674:MET:CB	1:B:680:ILE:HG12	2.43	0.49
1:A:351:TYR:CB	3:A:900:FBO:H23A	2.37	0.49
1:A:136:ASN:H	1:A:136:ASN:HD22	1.60	0.49
1:B:636:LEU:HB2	1:B:667:ASP:OD1	2.13	0.49
1:B:98:THR:HG23	1:B:165:VAL:O	2.12	0.49
1:B:755:MET:HE1	1:B:759:LYS:HE3	1.95	0.49
1:A:175:GLU:HG3	1:A:176:LYS:N	2.28	0.49
1:B:629:TYR:CE2	1:B:635:ASP:HB3	2.48	0.49
1:B:723:ALA:HB1	1:B:753:ILE:HG21	1.94	0.48
1:B:537:PHE:CD1	1:B:569:PHE:HB2	2.48	0.48
1:A:42:ASN:N	1:A:42:ASN:ND2	2.61	0.48
1:A:608:SER:OG	1:A:629:TYR:HA	2.13	0.48
1:B:530:ARG:O	1:B:534:ARG:HG3	2.13	0.48
1:A:302:LEU:C	1:A:303:PHE:HD2	2.17	0.48
1:B:40:GLN:HG2	1:B:76:ALA:HB3	1.96	0.48
1:B:324:ASP:HB3	1:B:416:TYR:CD1	2.48	0.48
1:B:652:ARG:O	1:B:656:ILE:HG13	2.12	0.48
1:A:83:LEU:CD1	1:A:228:GLY:N	2.75	0.48
1:B:346:PHE:CD1	1:B:351:TYR:CE2	2.96	0.48
1:A:692:ALA:HB3	1:A:702:ILE:HD11	1.95	0.48
1:B:251:SER:H	1:B:256:LYS:HE3	1.79	0.48
1:B:643:PHE:CE2	1:B:680:ILE:HD13	2.48	0.48
1:B:620:GLU:HG2	1:B:621:MET:N	2.28	0.48
1:A:103:THR:HB	1:A:106:ARG:NH1	2.29	0.48
1:A:432:GLN:HE22	1:A:445:TRP:N	2.04	0.48
1:B:341:GLU:O	1:B:343:SER:N	2.47	0.48
1:B:14:ILE:HD12	1:B:128:ASP:CG	2.35	0.48
1:A:233:GLU:HG3	1:A:269:HIS:HB3	1.96	0.48
1:B:346:PHE:O	1:B:347:ASP:CB	2.62	0.47
1:B:567:ARG:HD2	1:B:600:ASP:HB2	1.96	0.47
1:B:660:GLY:HA3	1:B:691:SER:OG	2.14	0.47
1:B:690:SER:O	1:B:693:LEU:HB2	2.14	0.47
1:B:742:GLU:HG3	1:B:761:ILE:HD11	1.96	0.47
1:B:674:MET:HB3	1:B:680:ILE:HG12	1.96	0.47
1:B:17:ARG:HB3	1:B:79:VAL:HB	1.95	0.47
1:A:101:GLN:HG3	1:A:102:ALA:H	1.79	0.47
1:B:528:THR:O	1:B:532:ARG:HG2	2.13	0.47
1:A:452:LYS:HG3	1:A:478:ALA:HB2	1.95	0.47
1:A:128:ASP:HB2	1:A:131:TYR:HD1	1.80	0.47
1:B:282:ASN:H	1:B:282:ASN:HD22	1.60	0.47
1:A:349:ILE:O	1:A:353:LYS:HB3	2.14	0.47
1:B:538:ASP:HA	1:B:573:ARG:NH1	2.30	0.47

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:253:VAL:CB	1:B:583:GLU:HG2	2.43	0.47
1:B:504:SER:O	1:B:508:ARG:HD3	2.14	0.47
1:A:188:LYS:O	1:A:189:ASP:O	2.33	0.47
1:A:248:ALA:HB1	1:A:250:ASN:OD1	2.14	0.47
1:A:136:ASN:H	1:A:136:ASN:ND2	2.13	0.47
1:A:82:SER:O	1:A:83:LEU:C	2.54	0.47
1:A:302:LEU:C	1:A:303:PHE:CD2	2.88	0.47
1:B:775:ARG:HG2	1:B:775:ARG:O	2.14	0.47
1:A:224:VAL:HB	1:A:227:PHE:HB2	1.97	0.46
1:A:162:LEU:HA	1:A:162:LEU:HD23	1.70	0.46
1:B:506:LEU:HA	1:B:506:LEU:HD23	1.74	0.46
1:B:580:LYS:HD2	1:B:581:GLN:NE2	2.31	0.46
1:A:450:ASN:HD21	1:A:478:ALA:N	2.08	0.46
1:B:724:SER:O	1:B:756:GLY:HA3	2.16	0.46
1:B:290:PHE:CE1	1:B:374:ILE:HD12	2.51	0.46
1:A:200:ARG:NH2	1:A:201:LYS:HE3	2.31	0.46
1:A:379:ASN:O	1:A:382:LYS:HG2	2.16	0.46
1:A:5:LYS:HA	1:A:120:VAL:O	2.16	0.46
1:B:234:ASN:HB2	1:B:237:ALA:O	2.15	0.46
1:A:540:GLU:HG2	1:A:576:PHE:CE1	2.51	0.46
1:A:285:TRP:O	1:A:289:SER:HB2	2.16	0.46
1:B:243:ILE:HG22	4:B:781:HOH:O	2.16	0.45
1:B:367:TYR:CD2	1:B:367:TYR:N	2.83	0.45
1:B:288:GLU:OE2	1:B:288:GLU:HA	2.13	0.45
1:A:404:LYS:HE2	1:A:408:GLU:OE1	2.16	0.45
1:B:571:ARG:HG2	1:B:596:TYR:OH	2.16	0.45
1:A:392:TRP:HB3	1:A:404:LYS:HA	1.99	0.45
1:A:451:ILE:HD13	1:A:468:ILE:HD13	1.98	0.45
1:B:438:ASN:ND2	1:B:769:LYS:HE3	2.32	0.45
1:B:95:MET:CE	1:B:97:THR:HG23	2.45	0.45
1:B:269:HIS:HA	1:B:272:PHE:O	2.16	0.45
1:A:475:LYS:HD2	1:A:503:LEU:HD22	1.99	0.45
1:A:708:ARG:HB3	1:A:711:ARG:NH2	2.32	0.45
1:B:100:PHE:HZ	1:B:108:MET:HE1	1.81	0.45
1:A:421:LEU:HD21	1:A:476:ILE:CD1	2.47	0.45
1:A:249:GLU:C	1:A:251:SER:H	2.20	0.45
1:B:432:GLN:HE21	1:B:443:GLY:HA3	1.82	0.45
1:B:542:HIS:CG	1:B:584:ASN:HB3	2.51	0.45
1:A:341:GLU:O	1:A:341:GLU:OE2	2.35	0.45
1:B:266:GLU:O	1:B:269:HIS:HB2	2.17	0.45
1:A:332:ILE:HD11	1:A:353:LYS:HG2	1.99	0.44
1:B:605:GLU:HA	1:B:632:VAL:HG21	1.98	0.44

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:642:LYS:O	1:B:646:VAL:HG13	2.17	0.44
1:A:675:VAL:HG11	1:A:685:MET:HG3	1.99	0.44
1:B:14:ILE:HD12	1:B:128:ASP:OD1	2.17	0.44
1:B:421:LEU:O	1:B:422:LYS:HB3	2.17	0.44
1:A:774:ILE:O	1:A:777:THR:HG23	2.17	0.44
1:B:772:GLU:OE2	1:B:772:GLU:HA	2.17	0.44
1:B:755:MET:HE3	1:B:759:LYS:HE3	1.98	0.44
1:B:407:MET:O	1:B:411:ILE:HG13	2.17	0.44
1:A:289:SER:OG	1:A:354:GLY:HA3	2.17	0.44
1:B:367:TYR:N	1:B:367:TYR:HD2	2.15	0.44
1:B:556:ARG:HG2	1:B:556:ARG:O	2.16	0.44
1:B:545:ILE:HD12	1:B:573:ARG:HD3	2.00	0.44
1:A:450:ASN:HD21	1:A:478:ALA:HB3	1.81	0.44
1:B:341:GLU:C	1:B:343:SER:N	2.70	0.44
1:B:650:GLU:O	1:B:654:ARG:HG3	2.18	0.44
1:B:477:ASN:HB2	1:B:484:TYR:OH	2.17	0.44
1:B:656:ILE:HD13	1:B:680:ILE:HG23	2.00	0.44
1:B:731:ILE:N	1:B:732:PRO:CD	2.80	0.44
1:B:447:VAL:HG13	1:B:462:LEU:HB3	2.00	0.44
1:A:607:MET:HE2	1:A:621:MET:CE	2.48	0.44
1:A:607:MET:HE2	1:A:621:MET:HE1	2.00	0.44
1:A:83:LEU:HD13	1:A:228:GLY:N	2.32	0.44
1:B:488:TYR:O	1:B:532:ARG:NH1	2.45	0.44
1:A:128:ASP:OD1	1:A:147:ARG:NH2	2.50	0.44
1:B:468:ILE:O	1:B:468:ILE:HD12	2.17	0.44
1:B:114:HIS:CE1	1:B:280:TRP:CE3	3.06	0.44
1:A:392:TRP:CE3	1:A:407:MET:HG3	2.53	0.44
1:A:134:ILE:HD12	1:A:170:PHE:CE2	2.52	0.44
1:B:97:THR:HG22	1:B:98:THR:H	1.83	0.44
1:B:512:VAL:HG13	1:B:533:ILE:HD11	2.00	0.44
1:A:573:ARG:N	1:A:573:ARG:HD2	2.32	0.44
1:B:731:ILE:N	1:B:732:PRO:HD2	2.33	0.44
1:B:421:LEU:O	1:B:422:LYS:CB	2.65	0.44
1:A:589:LEU:HD21	1:A:621:MET:SD	2.58	0.44
1:B:349:ILE:HG22	1:B:350:SER:N	2.33	0.44
1:A:730:MET:O	1:A:734:ILE:HG12	2.18	0.44
1:A:650:GLU:HG2	1:A:654:ARG:HH11	1.82	0.44
1:A:504:SER:HB3	1:A:507:ASP:OD1	2.17	0.43
1:A:474:ILE:HG12	1:A:499:HIS:CD2	2.53	0.43
1:B:538:ASP:C	1:B:573:ARG:HH12	2.21	0.43
1:A:136:ASN:ND2	1:A:164:TYR:H	2.06	0.43
1:A:17:ARG:NH2	1:A:17:ARG:HG3	2.32	0.43

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:442:GLU:H	1:B:442:GLU:HG2	1.55	0.43
1:B:696:LEU:H	1:B:697:PRO:HD2	1.82	0.43
1:A:41:ILE:O	1:A:42:ASN:C	2.57	0.43
1:A:567:ARG:HD2	1:A:599:VAL:O	2.19	0.43
1:A:696:LEU:HB3	1:A:697:PRO:CD	2.49	0.43
1:A:262:VAL:O	1:A:265:HIS:HB3	2.18	0.43
1:A:265:HIS:CE1	1:A:291:ALA:HB3	2.53	0.43
1:A:116:ALA:HA	1:A:385:ASN:ND2	2.34	0.43
1:B:282:ASN:H	1:B:282:ASN:ND2	2.17	0.43
1:B:681:LYS:HB3	1:B:682:LYS:H	1.60	0.43
1:A:505:PRO:HB3	1:A:541:ASP:OD1	2.19	0.43
1:A:552:MET:HB2	1:A:595:LEU:HD11	2.00	0.43
1:A:17:ARG:HH21	1:A:17:ARG:HG3	1.83	0.43
1:B:661:LYS:HZ3	1:B:691:SER:HB2	1.84	0.43
1:A:607:MET:CE	1:A:621:MET:CE	2.96	0.43
1:A:101:GLN:HB2	1:A:232:MET:CE	2.49	0.43
1:B:359:ARG:NH1	1:B:506:LEU:HD13	2.34	0.43
1:A:14:ILE:O	1:A:17:ARG:HD3	2.18	0.43
1:A:66:SER:O	1:A:67:GLN:NE2	2.51	0.43
1:A:643:PHE:O	1:A:646:VAL:HG22	2.19	0.43
1:A:582:ASP:HB3	1:A:585:LEU:HD12	2.00	0.43
1:A:310:GLY:HA2	1:A:506:LEU:HD21	2.01	0.43
1:B:95:MET:HE3	1:B:97:THR:HG23	2.01	0.43
1:A:452:LYS:NZ	1:A:507:ASP:OD1	2.48	0.43
1:B:83:LEU:CD2	1:B:83:LEU:O	2.64	0.43
1:A:183:ILE:N	1:A:183:ILE:HD12	2.34	0.43
1:A:709:ILE:O	1:A:713:VAL:HG23	2.18	0.42
1:B:577:LEU:HB3	1:B:589:LEU:HB2	2.00	0.42
1:B:724:SER:CA	1:B:753:ILE:HG22	2.49	0.42
1:B:640:LEU:O	1:B:644:ARG:HD2	2.18	0.42
1:B:134:ILE:HG22	1:B:135:SER:N	2.34	0.42
1:B:703:PHE:C	1:B:705:ASN:H	2.23	0.42
1:B:137:MET:HB3	1:B:138:PRO:CD	2.49	0.42
1:B:530:ARG:HA	1:B:533:ILE:HG22	2.01	0.42
1:B:127:ILE:HG21	1:B:167:ILE:HG12	2.01	0.42
1:B:396:GLU:HG3	1:B:401:LYS:O	2.19	0.42
1:B:682:LYS:O	1:B:717:PHE:HZ	2.01	0.42
1:A:614:PHE:CE1	1:A:622:ARG:HG2	2.54	0.42
1:A:252:ALA:O	1:A:254:THR:N	2.49	0.42
1:A:345:ILE:O	1:A:350:SER:HB2	2.19	0.42
1:B:574:MET:HG2	1:B:592:VAL:HG11	2.01	0.42
1:A:146:GLU:CD	1:A:146:GLU:H	2.22	0.42

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:545:ILE:O	1:B:549:VAL:HG23	2.19	0.42
1:B:705:ASN:O	1:B:709:ILE:HD13	2.20	0.42
1:A:649:ASP:O	1:A:650:GLU:C	2.57	0.42
1:A:297:LYS:HE3	1:A:362:GLU:OE1	2.19	0.42
1:B:664:SER:HB3	1:B:667:ASP:HB2	2.02	0.42
1:B:682:LYS:HD3	1:B:717:PHE:CE1	2.55	0.42
1:A:83:LEU:HA	1:A:87:TYR:CE2	2.55	0.42
1:A:706:LEU:O	1:A:710:ILE:HG12	2.19	0.42
1:B:365:ALA:O	1:B:369:GLU:CG	2.60	0.42
1:B:391:LEU:O	1:B:395:ILE:HG13	2.19	0.42
1:A:679:GLU:O	1:A:681:LYS:HE2	2.20	0.42
1:B:464:ASP:O	1:B:465:GLU:C	2.58	0.42
1:A:673:GLY:O	1:A:677:LYS:HG3	2.19	0.42
1:A:712:LEU:HD23	1:A:712:LEU:C	2.40	0.42
1:A:421:LEU:N	1:A:421:LEU:HD12	2.35	0.42
1:A:249:GLU:HA	1:A:256:LYS:CE	2.49	0.42
1:A:67:GLN:O	1:A:68:PRO:C	2.58	0.42
1:B:432:GLN:O	1:B:432:GLN:HG3	2.20	0.42
1:A:361:ILE:HD12	1:A:361:ILE:HA	1.92	0.42
1:A:100:PHE:O	1:A:101:GLN:C	2.58	0.42
1:B:346:PHE:O	1:B:347:ASP:CG	2.58	0.42
1:B:361:ILE:HD13	1:B:361:ILE:HA	1.90	0.42
1:A:607:MET:CE	1:A:621:MET:HE1	2.49	0.42
1:A:574:MET:CE	1:A:593:SER:HA	2.49	0.42
1:B:505:PRO:O	1:B:509:ILE:HB	2.20	0.42
1:A:32:ILE:O	1:A:61:ARG:HA	2.20	0.41
1:A:647:ASP:O	1:A:648:ARG:CB	2.68	0.41
1:A:129:LYS:HB2	1:A:129:LYS:HE3	1.78	0.41
1:B:512:VAL:HG12	1:B:551:GLN:HE22	1.85	0.41
1:A:209:TYR:CZ	1:A:371:ARG:HG3	2.55	0.41
1:B:370:PHE:O	1:B:374:ILE:HG12	2.20	0.41
1:B:587:ILE:HD13	1:B:587:ILE:HA	1.79	0.41
1:B:473:LEU:HD23	1:B:474:ILE:C	2.40	0.41
1:A:675:VAL:HG22	1:A:680:ILE:HG21	2.02	0.41
1:B:438:ASN:HD21	1:B:769:LYS:HE3	1.85	0.41
1:B:422:LYS:HB2	1:B:422:LYS:NZ	2.36	0.41
1:A:567:ARG:HG2	1:A:600:ASP:HB2	2.02	0.41
1:A:595:LEU:O	1:A:599:VAL:HG22	2.21	0.41
1:A:434:ARG:HB3	1:A:441:GLU:HB2	2.02	0.41
1:A:712:LEU:HD21	1:A:716:TYR:CE2	2.54	0.41
1:B:100:PHE:O	1:B:101:GLN:C	2.56	0.41
1:B:326:LEU:HB3	1:B:762:GLU:OE2	2.20	0.41

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:135:SER:OG	1:B:136:ASN:N	2.54	0.41
1:A:41:ILE:HG22	1:A:41:ILE:O	2.20	0.41
1:B:764:LEU:HD11	1:B:768:ARG:CZ	2.50	0.41
1:B:538:ASP:C	1:B:573:ARG:NH1	2.74	0.41
1:A:374:ILE:HD13	1:A:374:ILE:HA	1.90	0.41
1:A:516:PHE:CG	1:A:551:GLN:HG2	2.56	0.41
1:A:347:ASP:C	1:A:349:ILE:N	2.74	0.41
1:B:184:LEU:HD13	1:B:190:ILE:CG2	2.51	0.41
1:B:477:ASN:HD21	1:B:482:GLY:N	2.19	0.41
1:B:333:GLU:HB2	1:B:411:ILE:HG22	2.02	0.41
1:B:710:ILE:O	1:B:714:ILE:HG13	2.21	0.41
1:A:115:PRO:HA	1:A:159:SER:HB3	2.03	0.41
1:B:607:MET:HE2	1:B:610:LEU:HD12	2.03	0.41
1:B:177:TYR:HB2	1:B:200:ARG:HG3	2.03	0.41
1:B:635:ASP:OD1	1:B:638:GLY:HA3	2.21	0.41
1:A:342:ILE:HG12	1:A:342:ILE:O	2.20	0.41
1:B:475:LYS:HE3	1:B:511:LEU:HD21	2.03	0.40
1:A:312:PHE:O	1:A:316:ARG:HB2	2.21	0.40
1:B:493:PHE:CE2	1:B:532:ARG:HD2	2.56	0.40
1:A:671:VAL:O	1:A:674:MET:HB2	2.21	0.40
1:A:292:THR:OG1	3:A:900:FBO:C13	2.68	0.40
1:B:476:ILE:HG22	1:B:477:ASN:N	2.36	0.40
1:B:128:ASP:HB2	1:B:131:TYR:CD1	2.55	0.40
1:A:636:LEU:O	1:A:640:LEU:N	2.37	0.40
1:A:243:ILE:HG13	1:A:243:ILE:O	2.14	0.40
1:A:338:ASP:C	1:A:340:ASP:H	2.25	0.40
1:A:266:GLU:O	1:A:269:HIS:HB2	2.22	0.40
1:A:293:PHE:HZ	1:A:362:GLU:OE2	2.05	0.40
1:B:573:ARG:C	1:B:575:GLN:N	2.74	0.40
1:B:233:GLU:O	1:B:234:ASN:C	2.60	0.40
1:A:145:SER:HB3	1:A:146:GLU:OE1	2.22	0.40
1:A:364:TYR:CD1	1:A:448:PRO:HB3	2.55	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	778/780 (100%)	696 (90%)	68 (9%)	14 (2%)	13	43
1	B	778/780 (100%)	675 (87%)	84 (11%)	19 (2%)	9	34
All	All	1556/1560 (100%)	1371 (88%)	152 (10%)	33 (2%)	11	38

All (33) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	80	SER
1	A	83	LEU
1	A	189	ASP
1	B	83	LEU
1	B	347	ASP
1	B	422	LYS
1	B	681	LYS
1	A	42	ASN
1	A	102	ALA
1	A	253	VAL
1	A	465	GLU
1	A	718	THR
1	B	102	ALA
1	B	477	ASN
1	B	689	PHE
1	B	777	THR
1	A	254	THR
1	A	556	ARG
1	A	610	LEU
1	B	80	SER
1	B	427	LYS
1	B	455	ASP
1	B	740	ASP
1	A	31	ASP
1	A	250	ASN
1	B	425	GLY
1	B	465	GLU
1	B	491	ALA
1	A	650	GLU
1	B	342	ILE
1	B	535	ASN
1	B	582	ASP
1	B	778	ALA

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution. The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	677/677 (100%)	607 (90%)	70 (10%)	10	30
1	B	677/677 (100%)	611 (90%)	66 (10%)	12	34
All	All	1354/1354 (100%)	1218 (90%)	136 (10%)	11	32

All (136) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1	MET
1	A	4	GLU
1	A	7	ASP
1	A	39	LEU
1	A	56	ASP
1	A	58	GLN
1	A	65	ASP
1	A	78	LYS
1	A	82	SER
1	A	83	LEU
1	A	101	GLN
1	A	106	ARG
1	A	143	GLU
1	A	146	GLU
1	A	171	ARG
1	A	190	ILE
1	A	218	LYS
1	A	232	MET
1	A	235	TRP
1	A	243	ILE
1	A	247	ILE
1	A	254	THR
1	A	275	LEU
1	A	286	LEU
1	A	288	GLU
1	A	289	SER
1	A	308	PHE
1	A	316	ARG
1	A	341	GLU

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Mol	Chain	Res	Type
1	A	346	PHE
1	A	347	ASP
1	A	349	ILE
1	A	389	SER
1	A	419	ILE
1	A	422	LYS
1	A	426	ARG
1	A	429	THR
1	A	447	VAL
1	A	450	ASN
1	A	455	ASP
1	A	459	ARG
1	A	462	LEU
1	A	464	ASP
1	A	485	ARG
1	A	487	LEU
1	A	490	ASP
1	A	509	ILE
1	A	513	ASP
1	A	519	LEU
1	A	531	GLN
1	A	555	LEU
1	A	563	ASP
1	A	571	ARG
1	A	573	ARG
1	A	589	LEU
1	A	595	LEU
1	A	596	TYR
1	A	607	MET
1	A	612	LYS
1	A	646	VAL
1	A	648	ARG
1	A	681	LYS
1	A	683	GLN
1	A	696	LEU
1	A	721	ARG
1	A	740	ASP
1	A	755	MET
1	A	764	LEU
1	A	770	LEU
1	A	777	THR
1	B	58	GLN

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Mol	Chain	Res	Type
1	B	65	ASP
1	B	70	LYS
1	B	81	ASP
1	B	86	ILE
1	B	91	ARG
1	B	97	THR
1	B	106	ARG
1	B	146	GLU
1	B	159	SER
1	B	188	LYS
1	B	190	ILE
1	B	218	LYS
1	B	235	TRP
1	B	243	ILE
1	B	251	SER
1	B	254	THR
1	B	275	LEU
1	B	282	ASN
1	B	284	LEU
1	B	286	LEU
1	B	305	GLU
1	B	308	PHE
1	B	324	ASP
1	B	328	ASN
1	B	333	GLU
1	B	335	ASP
1	B	337	ARG
1	B	341	GLU
1	B	348	GLU
1	B	361	ILE
1	B	379	ASN
1	B	422	LYS
1	B	426	ARG
1	B	447	VAL
1	B	450	ASN
1	B	455	ASP
1	B	457	VAL
1	B	471	ASP
1	B	487	LEU
1	B	509	ILE
1	B	513	ASP
1	B	519	LEU

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Mol	Chain	Res	Type
1	B	530	ARG
1	B	555	LEU
1	B	573	ARG
1	B	578	THR
1	B	581	GLN
1	B	589	LEU
1	B	595	LEU
1	B	596	TYR
1	B	615	ASP
1	B	633	THR
1	B	642	LYS
1	B	648	ARG
1	B	657	SER
1	B	662	LEU
1	B	679	GLU
1	B	682	LYS
1	B	691	SER
1	B	693	LEU
1	B	718	THR
1	B	724	SER
1	B	764	LEU
1	B	766	VAL
1	B	777	THR

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (40) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	20	ASN
1	A	40	GLN
1	A	42	ASN
1	A	47	ASN
1	A	58	GLN
1	A	69	GLN
1	A	114	HIS
1	A	136	ASN
1	A	153	GLN
1	A	220	HIS
1	A	234	ASN
1	A	258	ASN
1	A	265	HIS
1	A	287	ASN
1	A	344	GLN

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Mol	Chain	Res	Type
1	A	381	HIS
1	A	432	GLN
1	A	438	ASN
1	A	450	ASN
1	A	477	ASN
1	A	523	HIS
1	A	535	ASN
1	A	575	GLN
1	A	581	GLN
1	A	683	GLN
1	A	738	HIS
1	B	42	ASN
1	B	58	GLN
1	B	114	HIS
1	B	136	ASN
1	B	220	HIS
1	B	258	ASN
1	B	282	ASN
1	B	287	ASN
1	B	381	HIS
1	B	432	GLN
1	B	438	ASN
1	B	477	ASN
1	B	581	GLN
1	B	705	ASN

5.3.3 RNA ⓘ

There are no RNA chains in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

5.6 Ligand geometry ⓘ

Of 3 ligands modelled in this entry, 2 are monoatomic - leaving 1 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the chemical component dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# $ Z > 2$	Counts	RMSZ	# $ Z > 2$
3	FBO	A	900	2	33,33,33	1.85	3 (9%)	41,41,41	1.83	9 (21%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the chemical component dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	FBO	A	900	2	-	0/31/31/31	0/2/2/2

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	900	FBO	C30-N32	7.64	1.44	1.33
3	A	900	FBO	O33-N32	-4.23	1.32	1.39
3	A	900	FBO	O21-C20	3.64	1.42	1.35

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	900	FBO	O21-C20-N18	4.56	118.80	110.65
3	A	900	FBO	O33-N32-C30	4.26	125.52	119.80
3	A	900	FBO	O21-C23-C24	3.89	119.17	109.38
3	A	900	FBO	O22-C20-N18	-3.23	119.57	124.94
3	A	900	FBO	C5-C7-C8	3.23	121.93	114.34
3	A	900	FBO	C7-C8-C9	3.02	114.22	108.33
3	A	900	FBO	C13-N18-C20	-2.95	116.62	121.99
3	A	900	FBO	C17-C13-N18	2.72	120.41	112.21
3	A	900	FBO	C14-N10-C9	-2.18	116.80	121.63

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	780/780 (100%)	-0.25	16 (2%) 60 68	24, 44, 80, 120	1 (0%)
1	B	780/780 (100%)	-0.09	22 (2%) 50 59	26, 47, 91, 124	4 (0%)
All	All	1560/1560 (100%)	-0.17	38 (2%) 56 65	24, 45, 88, 124	5 (0%)

All (38) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	779	VAL	9.5
1	B	780	LYS	7.4
1	A	779	VAL	7.4
1	A	344	GLN	7.1
1	B	659	PHE	5.3
1	A	345	ILE	5.2
1	B	778	ALA	4.6
1	B	710	ILE	4.2
1	A	346	PHE	4.1
1	B	676	GLU	4.1
1	B	639	LEU	4.0
1	B	643	PHE	3.7
1	B	345	ILE	3.6
1	B	306	TRP	3.1
1	A	306	TRP	3.1
1	A	249	GLU	3.0
1	A	778	ALA	3.0
1	A	68	PRO	2.9
1	B	614	PHE	2.9
1	A	1	MET	2.8
1	A	66	SER	2.8
1	B	675	VAL	2.6
1	A	780	LYS	2.6
1	A	49	ARG	2.6

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Mol	Chain	Res	Type	RSRZ
1	B	720	ASN	2.5
1	A	253	VAL	2.4
1	B	647	ASP	2.3
1	B	609	LYS	2.3
1	B	719	GLY	2.2
1	B	653	VAL	2.2
1	B	637	LYS	2.2
1	B	656	ILE	2.2
1	B	49	ARG	2.2
1	B	579	GLY	2.1
1	A	27	ALA	2.1
1	A	248	ALA	2.1
1	A	343	SER	2.1
1	B	578	THR	2.0

6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

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

6.3 Carbohydrates ⓘ

There are no carbohydrates in this entry.

6.4 Ligands ⓘ

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSR	LLDF	B-factors(Å ²)	Q<0.9
3	FBO	A	900	32/32	0.36	1.94	47,63,72,74	0
2	ZN	B	800	1/1	0.13	-1.37	47,47,47,47	0
2	ZN	A	800	1/1	0.13	-1.50	46,46,46,46	0

6.5 Other polymers ⓘ

There are no such residues in this entry.