



# Full wwPDB X-ray Structure Validation Report

Feb 27, 2014 – 08:05 AM GMT

PDB ID : 3R1F  
Title : Crystal structure of a key regulator of virulence in Mycobacterium tuberculosis  
Authors : Rosenberg, O.S.; Dovey, C.; Finer-Moore, J.; Stroud, R.M.; Cox, J.S.  
Deposited on : 2011-03-10  
Resolution : 2.50 Å(reported)

This is a full wwPDB 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 <http://wwpdb.org/ValidationPDFNotes.html>

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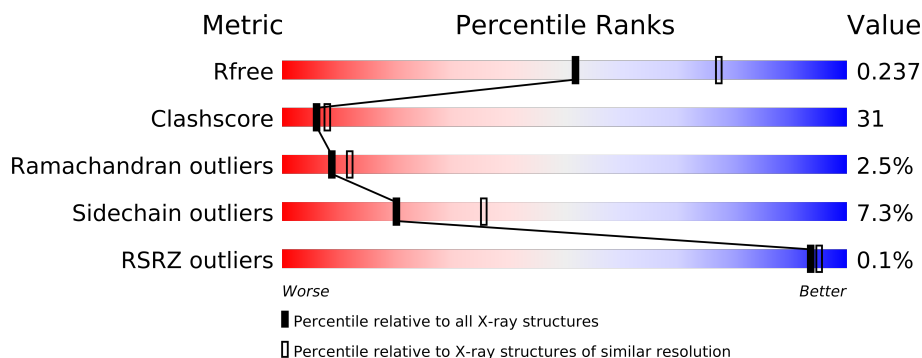
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467  
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 2.50 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.




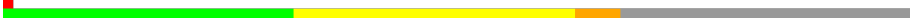
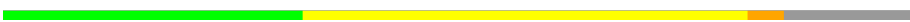
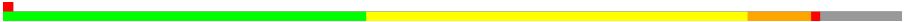
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	66092	2784 (2.50-2.50)
Clashscore	79885	3562 (2.50-2.50)
Ramachandran outliers	78287	3480 (2.50-2.50)
Sidechain outliers	78261	3482 (2.50-2.50)
RSRZ outliers	66119	2785 (2.50-2.50)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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	135	
1	B	135	
1	C	135	
1	D	135	
1	E	135	
1	F	135	
1	G	135	
1	H	135	
1	I	135	
1	J	135	
1	K	135	
1	L	135	
1	M	135	
1	N	135	

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Mol	Chain	Length	Quality of chain
1	O	135	
1	P	135	
1	Q	135	
1	R	135	

## 2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 17208 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 ESX-1 secretion-associated regulator EspR.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	123	Total	C	N	O	S	Se	0	0	0
			967	606	178	179	1	3			
1	B	130	Total	C	N	O	S	Se	0	0	0
			1019	636	188	191	1	3			
1	C	123	Total	C	N	O	S	Se	0	0	0
			960	603	175	178	1	3			
1	D	130	Total	C	N	O	S	Se	0	0	0
			1019	636	188	191	1	3			
1	E	125	Total	C	N	O	S	Se	0	0	0
			986	617	183	182	1	3			
1	F	130	Total	C	N	O	S	Se	0	0	0
			1019	636	188	191	1	3			
1	G	123	Total	C	N	O	S	Se	0	0	0
			966	606	178	178	1	3			
1	H	130	Total	C	N	O	S	Se	0	0	0
			1016	633	188	191	1	3			
1	I	124	Total	C	N	O	S	Se	0	0	0
			974	610	179	181	1	3			
1	J	130	Total	C	N	O	S	Se	0	0	0
			1019	636	188	191	1	3			
1	K	124	Total	C	N	O	S	Se	0	0	0
			973	609	179	181	1	3			
1	L	129	Total	C	N	O	S	Se	0	0	0
			1013	633	187	189	1	3			
1	M	119	Total	C	N	O	S	Se	0	0	0
			932	587	170	171	1	3			
1	N	130	Total	C	N	O	S	Se	0	0	0
			1019	636	188	191	1	3			
1	O	90	Total	C	N	O	S	Se	0	0	0
			706	450	121	132	1	2			
1	P	92	Total	C	N	O	S	Se	0	0	0
			721	459	123	135	1	3			

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Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	Q	116	Total	C	N	O	S	Se	0	0	0
			906	570	165	167	1	3			
1	R	123	Total	C	N	O	S	Se	0	0	0
			974	608	179	183	1	3			

There are 54 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	SER	-	EXPRESSION TAG	UNP P96228
A	-1	ASN	-	EXPRESSION TAG	UNP P96228
A	0	ALA	-	EXPRESSION TAG	UNP P96228
B	-2	SER	-	EXPRESSION TAG	UNP P96228
B	-1	ASN	-	EXPRESSION TAG	UNP P96228
B	0	ALA	-	EXPRESSION TAG	UNP P96228
C	-2	SER	-	EXPRESSION TAG	UNP P96228
C	-1	ASN	-	EXPRESSION TAG	UNP P96228
C	0	ALA	-	EXPRESSION TAG	UNP P96228
D	-2	SER	-	EXPRESSION TAG	UNP P96228
D	-1	ASN	-	EXPRESSION TAG	UNP P96228
D	0	ALA	-	EXPRESSION TAG	UNP P96228
E	-2	SER	-	EXPRESSION TAG	UNP P96228
E	-1	ASN	-	EXPRESSION TAG	UNP P96228
E	0	ALA	-	EXPRESSION TAG	UNP P96228
F	-2	SER	-	EXPRESSION TAG	UNP P96228
F	-1	ASN	-	EXPRESSION TAG	UNP P96228
F	0	ALA	-	EXPRESSION TAG	UNP P96228
G	-2	SER	-	EXPRESSION TAG	UNP P96228
G	-1	ASN	-	EXPRESSION TAG	UNP P96228
G	0	ALA	-	EXPRESSION TAG	UNP P96228
H	-2	SER	-	EXPRESSION TAG	UNP P96228
H	-1	ASN	-	EXPRESSION TAG	UNP P96228
H	0	ALA	-	EXPRESSION TAG	UNP P96228
I	-2	SER	-	EXPRESSION TAG	UNP P96228
I	-1	ASN	-	EXPRESSION TAG	UNP P96228
I	0	ALA	-	EXPRESSION TAG	UNP P96228
J	-2	SER	-	EXPRESSION TAG	UNP P96228
J	-1	ASN	-	EXPRESSION TAG	UNP P96228
J	0	ALA	-	EXPRESSION TAG	UNP P96228
K	-2	SER	-	EXPRESSION TAG	UNP P96228
K	-1	ASN	-	EXPRESSION TAG	UNP P96228
K	0	ALA	-	EXPRESSION TAG	UNP P96228
L	-2	SER	-	EXPRESSION TAG	UNP P96228

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Chain	Residue	Modelled	Actual	Comment	Reference
L	-1	ASN	-	EXPRESSION TAG	UNP P96228
L	0	ALA	-	EXPRESSION TAG	UNP P96228
M	-2	SER	-	EXPRESSION TAG	UNP P96228
M	-1	ASN	-	EXPRESSION TAG	UNP P96228
M	0	ALA	-	EXPRESSION TAG	UNP P96228
N	-2	SER	-	EXPRESSION TAG	UNP P96228
N	-1	ASN	-	EXPRESSION TAG	UNP P96228
N	0	ALA	-	EXPRESSION TAG	UNP P96228
O	-2	SER	-	EXPRESSION TAG	UNP P96228
O	-1	ASN	-	EXPRESSION TAG	UNP P96228
O	0	ALA	-	EXPRESSION TAG	UNP P96228
P	-2	SER	-	EXPRESSION TAG	UNP P96228
P	-1	ASN	-	EXPRESSION TAG	UNP P96228
P	0	ALA	-	EXPRESSION TAG	UNP P96228
Q	-2	SER	-	EXPRESSION TAG	UNP P96228
Q	-1	ASN	-	EXPRESSION TAG	UNP P96228
Q	0	ALA	-	EXPRESSION TAG	UNP P96228
R	-2	SER	-	EXPRESSION TAG	UNP P96228
R	-1	ASN	-	EXPRESSION TAG	UNP P96228
R	0	ALA	-	EXPRESSION TAG	UNP P96228

- Molecule 2 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	2	Total O 2 2	0	0
2	B	1	Total O 1 1	0	0
2	C	1	Total O 1 1	0	0
2	D	2	Total O 2 2	0	0
2	F	1	Total O 1 1	0	0
2	H	1	Total O 1 1	0	0
2	I	1	Total O 1 1	0	0
2	L	3	Total O 3 3	0	0
2	M	1	Total O 1 1	0	0

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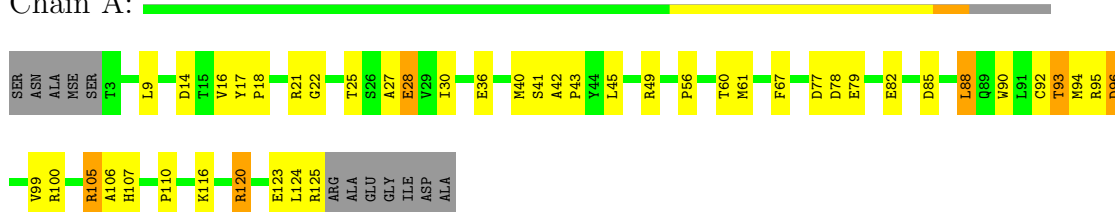
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	N	4	Total 4	O 4	0	0
2	P	2	Total 2	O 2	0	0

### 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.

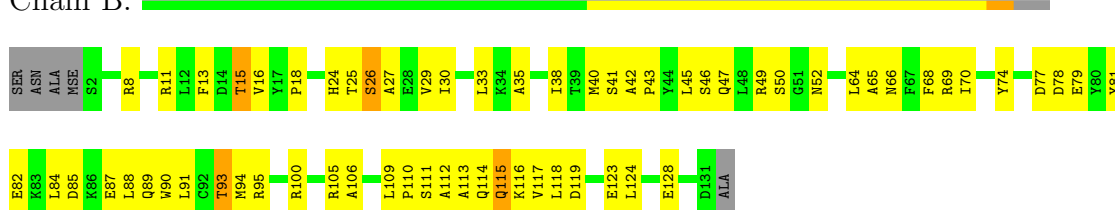
- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain A:



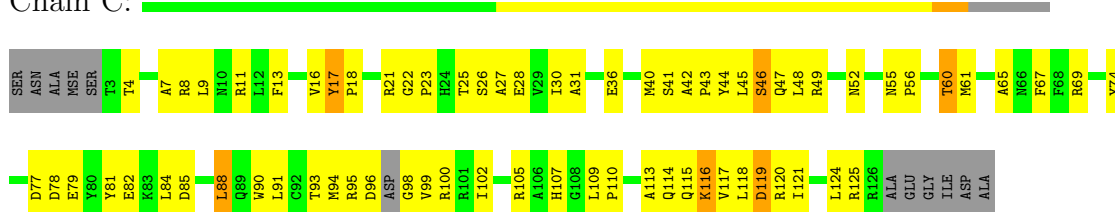
- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain B:



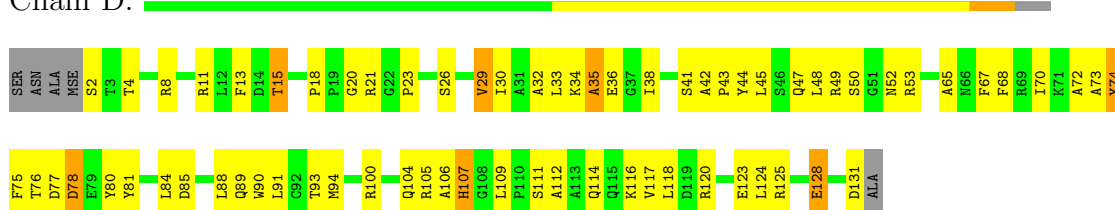
- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain C:



- Molecule 1: ESX-1 secretion-associated regulator EspR

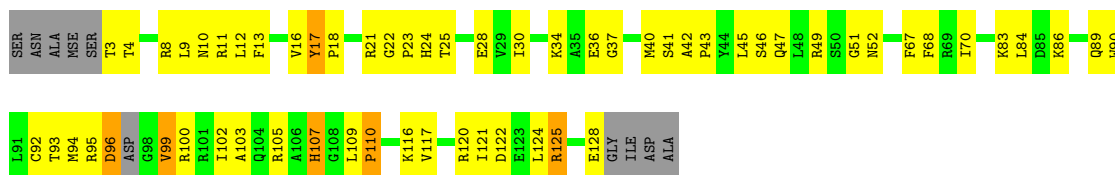
Chain D:



- Molecule 1: ESX-1 secretion-associated regulator EspR

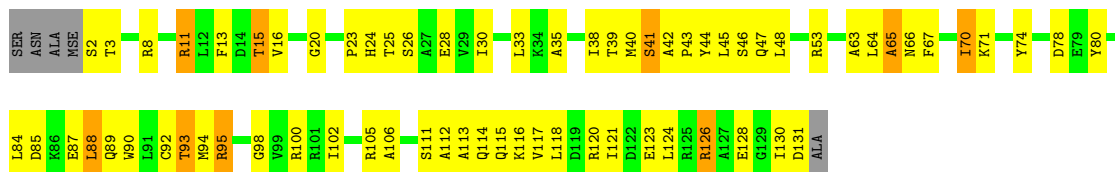
Chain E:





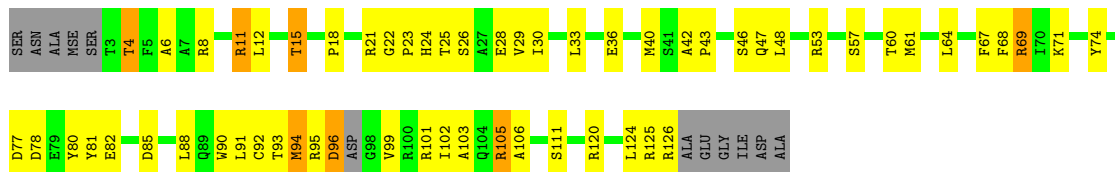
- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain F:



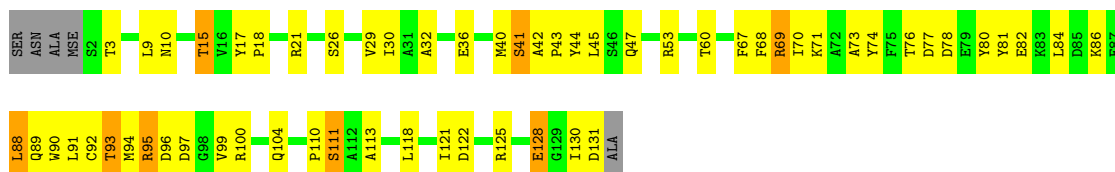
- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain G:



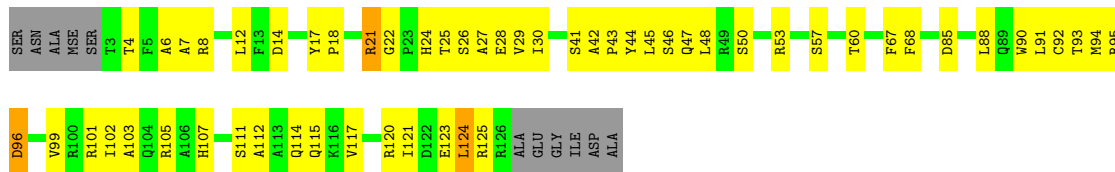
- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain H:



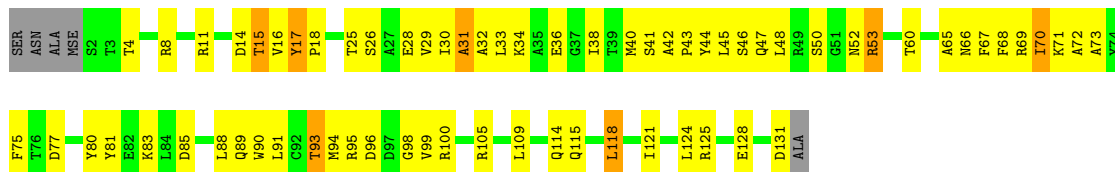
- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain I:



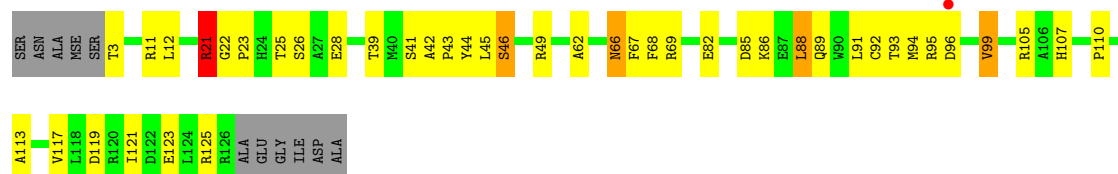
- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain J:



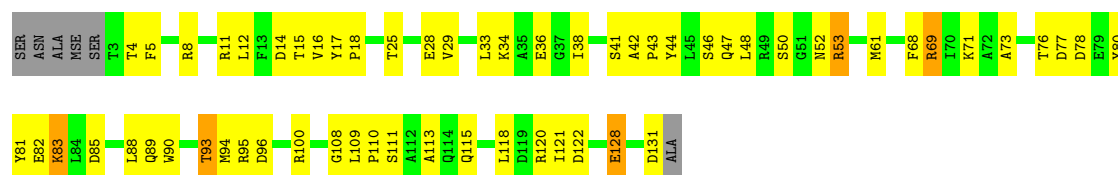
- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain K:



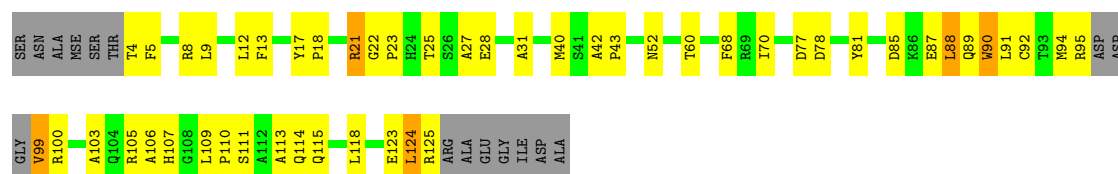
- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain L:



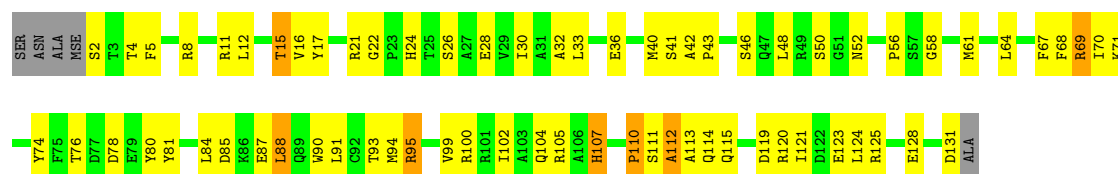
- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain M:



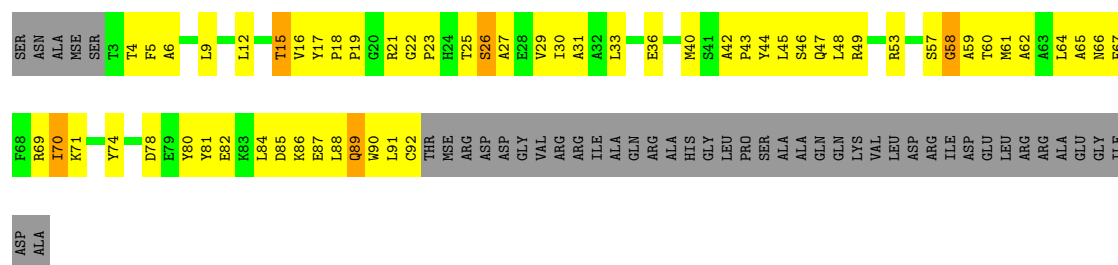
- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain N:



- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain O:



- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain P:

SER	ASN	ALA	MSE	SER	T3	T4	F5	R8	L9	F13	D14	V16	T15	Y17	P18	R21	G22	P23	H24	T25	S26	T30	K34	A35	E36	M40	S41	A42	P43	S46	Q47	L48	R49	S50	G51	N52	R53	T60	M61	A62	M66	F67	F68	R69	I70	A72	A73	Y74	F75
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T76	D77	E78	E79	Y80	Y81	L84	E87	L88	Q89	W90	L91	C92	T93	M94	ARG	ASP	ASP	GLY	VAL	ARG	ARG	ILE	ALA	GLN	ARG	ALA	HIS	GLY	LEU	PRO	SER	ALA	ALA	GLN	GLN	LYS	VAL	LEU	ASP	ASP	ILE	GLU	LEU	ARG	ARG	ALA	GLU	GLY	ILE	ASP	ALA
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- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain Q:

SER	ASN	ALA	MSE	SER	T3	T4	F5	L9	M10	R11	L12	F13	D14	Y17	P18	R21	G22	H24	T25	S26	A27	E28	V29	K34	A35	E36	G37	I38	A42	P43	Y44	L45	S46	Q47	L48	R49	S50	G51	N52	R53	A59	T60	M61	A62	A63	L64	A65	M66	F67	F68	R69	I70
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K71	F75	T76	D77	E78	E79	D85	K86	W89	L88	Q89	W90	L91	C92	T93	M94	R95	D96	D97	G98	V99	R100	T101	I102	R106	A107	G108	L109	P110	S111	A112	A113	L113	ASP	ARG	ILE	ASP	ASP	GLU	LEU	ARG	ARG	ALA	ALA	GLY	ILE	ASP	ALA
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- Molecule 1: ESX-1 secretion-associated regulator EspR

Chain R:

SER	ASN	ALA	MSE	S2	T3	T4	R8	R11	L12	F13	D14	V16	T15	Y17	P18	R21	G22	H24	T25	S26	A27	E28	V29	I30	L33	K34	A35	E36	T39	A42	P43	Y44	L45	S46	Q47	L48	R49	S50	G51	N52	S57	G58	T60	R69	I70	K71	A72	A73	Y74
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F75	T76	Y80	Y81	E82	L88	Q89	L91	C92	T93	M94	R95	D96	G98	V99	R100	R101	I102	A103	Q104	R105	A106	HIS	GLY	LEU	PRO	SER	ALA	ALA	Q114	Q115	K116	V117	L118	D119	R120	I121	D122	E123	L124	R125	R126	A127	E128	G129	I130	D131	ALA
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## 4 Data and refinement statistics

Property	Value	Source
Space group	P 32	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	148.49Å 148.49Å 129.67Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	48.84 – 2.50 48.84 – 2.40	Depositor EDS
% Data completeness (in resolution range)	91.0 (48.84-2.50) 90.4 (48.84-2.40)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.44 (at 2.39Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.7.1_743)	Depositor
R, $R_{free}$	0.197 , 0.232 0.205 , 0.237	Depositor DCC
$R_{free}$ test set	5682 reflections (5.03%)	DCC
Wilson B-factor (Å <sup>2</sup> )	32.1	Xtriage
Anisotropy	0.261	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.31 , 10.3	EDS
Estimated twinning fraction	0.045 for -h,-k,l 0.048 for h,-h-k,-l 0.438 for -k,-h,-l	Xtriage
L-test for twinning	$\langle  L  \rangle = 0.44$ , $\langle L^2 \rangle = 0.27$	Xtriage
Outliers	0 of 112973 reflections	Xtriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	17208	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	35.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 71.56 % of the origin peak, indicating pseudo translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo translational symmetry is equal to 2.5717e-06. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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

## 5 Model quality

### 5.1 Standard geometry

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	0.49	0/983	0.62	0/1324
1	B	0.48	0/1035	0.64	0/1393
1	C	0.50	0/975	0.66	0/1313
1	D	0.47	0/1035	0.64	0/1393
1	E	0.49	0/1001	0.65	0/1346
1	F	0.47	0/1035	0.63	0/1393
1	G	0.47	0/981	0.63	0/1320
1	H	0.49	0/1032	0.63	0/1389
1	I	0.47	0/990	0.63	0/1334
1	J	0.51	0/1035	0.67	0/1393
1	K	0.49	0/989	0.65	0/1332
1	L	0.50	0/1029	0.66	0/1385
1	M	0.44	0/947	0.60	0/1276
1	N	0.48	0/1035	0.68	0/1393
1	O	0.49	0/721	0.66	0/975
1	P	0.45	0/735	0.62	0/992
1	Q	0.44	0/922	0.63	0/1243
1	R	0.43	0/987	0.59	0/1325
All	All	0.48	0/17467	0.64	0/23519

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 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	967	0	957	54	0
1	B	1019	0	1009	62	0
1	C	960	0	948	68	0
1	D	1019	0	1009	70	0
1	E	986	0	981	65	0
1	F	1019	0	1009	82	1
1	G	966	0	959	67	2
1	H	1016	0	1000	71	0
1	I	974	0	964	55	0
1	J	1019	0	1009	74	1
1	K	973	0	960	52	0
1	L	1013	0	1004	62	0
1	M	932	0	921	66	1
1	N	1019	0	1009	74	2
1	O	706	0	691	62	0
1	P	721	0	707	59	0
1	Q	906	0	900	92	0
1	R	974	0	965	89	0
2	A	2	0	0	0	0
2	B	1	0	0	1	0
2	C	1	0	0	0	0
2	D	2	0	0	0	0
2	F	1	0	0	0	0
2	H	1	0	0	0	0
2	I	1	0	0	0	0
2	L	3	0	0	0	0
2	M	1	0	0	0	1
2	N	4	0	0	0	0
2	P	2	0	0	0	0
All	All	17208	0	17002	1052	4

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 31.

All (1052) close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:G:94:MSE:HE2	1:H:94:MSE:CG	1.54	1.36
1:G:94:MSE:HE1	1:H:94:MSE:HA	1.28	1.13
1:O:15:THR:HG21	1:O:88:LEU:HG	1.25	1.12
1:G:94:MSE:HE2	1:H:94:MSE:HG3	1.17	1.10

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:M:94:MSE:HB2	1:N:94:MSE:HE2	1.33	1.09
1:G:105:ARG:HG2	1:G:105:ARG:HH11	1.20	1.06
1:J:90:TRP:HE1	1:J:94:MSE:HE3	1.21	1.05
1:M:21:ARG:HH11	1:M:21:ARG:HG2	1.22	1.04
1:Q:34:LYS:O	1:Q:37:GLY:N	1.91	1.02
1:C:21:ARG:NH1	1:C:22:GLY:O	1.92	1.02
1:G:94:MSE:HE2	1:H:94:MSE:HG2	1.41	1.01
1:G:94:MSE:HE1	1:H:94:MSE:CA	1.88	1.01
1:G:94:MSE:CE	1:H:94:MSE:HA	1.94	0.98
1:A:21:ARG:NH1	1:A:22:GLY:O	1.97	0.97
1:B:26:SER:OG	1:B:49:ARG:NH1	1.98	0.95
1:G:94:MSE:CE	1:H:94:MSE:HG3	1.95	0.94
1:E:21:ARG:NH1	1:E:22:GLY:O	2.00	0.93
1:O:15:THR:HG22	1:O:16:VAL:HG23	1.48	0.93
1:H:15:THR:HG21	1:H:88:LEU:HG	1.52	0.92
1:R:94:MSE:O	1:R:96:ASP:N	2.02	0.92
1:N:41:SER:HB2	1:N:43:PRO:HD2	1.48	0.92
1:G:94:MSE:CE	1:H:94:MSE:CG	2.47	0.91
1:C:125:ARG:NH2	1:D:105:ARG:O	2.03	0.91
1:M:94:MSE:CB	1:N:94:MSE:HE2	2.01	0.91
1:F:15:THR:HG22	1:F:16:VAL:HG23	1.52	0.90
1:J:90:TRP:NE1	1:J:94:MSE:HE3	1.86	0.89
1:Q:97:ASP:O	1:Q:99:VAL:N	2.06	0.88
1:D:53:ARG:HG3	1:D:53:ARG:HH11	1.37	0.88
1:B:50:SER:OG	1:B:52:ASN:ND2	2.06	0.87
1:F:106:ALA:O	1:F:114:GLN:NE2	2.06	0.87
1:Q:94:MSE:HE2	1:R:94:MSE:HA	1.56	0.87
1:N:90:TRP:NE1	1:N:94:MSE:HE3	1.91	0.86
1:J:15:THR:HG21	1:J:88:LEU:HG	1.57	0.86
1:J:11:ARG:NH2	1:J:89:GLN:OE1	2.09	0.85
1:H:89:GLN:O	1:H:93:THR:HG22	1.77	0.85
1:Q:102:ILE:HA	1:R:118:LEU:HD21	1.57	0.84
1:B:106:ALA:O	1:B:114:GLN:NE2	2.09	0.83
1:H:43:PRO:O	1:H:47:GLN:HG3	1.77	0.83
1:F:90:TRP:NE1	1:F:94:MSE:HE3	1.92	0.83
1:K:105:ARG:HD3	1:L:118:LEU:HD11	1.61	0.83
1:G:105:ARG:HG2	1:G:105:ARG:NH1	1.92	0.83
1:A:94:MSE:HB2	1:B:94:MSE:HE2	1.61	0.82
1:P:90:TRP:CZ3	1:P:94:MSE:HE3	2.14	0.82
1:N:15:THR:CG2	1:N:16:VAL:HG23	2.09	0.82
1:C:94:MSE:HB2	1:D:94:MSE:HE2	1.61	0.81
1:A:25:THR:OG1	1:A:28:GLU:HG3	1.79	0.81

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:I:105:ARG:HG2	1:I:105:ARG:HH11	1.44	0.81
1:A:40:MSE:HE2	1:A:45:LEU:HB2	1.62	0.80
1:C:18:PRO:HD2	1:C:21:ARG:HD3	1.64	0.80
1:F:11:ARG:NE	1:F:85:ASP:OD1	2.14	0.80
1:N:15:THR:HG23	1:N:16:VAL:HG23	1.64	0.79
1:N:32:ALA:O	1:N:36:GLU:HG3	1.82	0.79
1:I:21:ARG:NH1	1:I:22:GLY:O	2.16	0.79
1:H:40:MSE:HE2	1:H:60:THR:HG23	1.65	0.79
1:G:94:MSE:CE	1:H:94:MSE:CA	2.56	0.79
1:C:36:GLU:HA	1:D:35:ALA:O	1.82	0.79
1:H:118:LEU:O	1:H:118:LEU:HG	1.83	0.79
1:I:26:SER:HB3	1:I:45:LEU:HD23	1.63	0.79
1:K:96:ASP:O	1:K:99:VAL:HB	1.82	0.78
1:O:26:SER:OG	1:O:49:ARG:NH1	2.16	0.78
1:G:94:MSE:HG2	1:H:90:TRP:CZ2	2.19	0.78
1:M:87:GLU:OE2	1:N:100:ARG:NH1	2.15	0.78
1:N:90:TRP:HE1	1:N:94:MSE:HE3	1.49	0.78
1:O:36:GLU:HG2	1:P:36:GLU:HG2	1.64	0.78
1:O:58:GLY:HA2	1:O:61:MSE:HE3	1.65	0.78
1:G:91:LEU:O	1:G:95:ARG:NE	2.17	0.77
1:C:40:MSE:HE2	1:C:45:LEU:HB2	1.67	0.77
1:I:91:LEU:O	1:I:95:ARG:NE	2.17	0.77
1:G:94:MSE:HG2	1:H:90:TRP:CH2	2.19	0.77
1:N:90:TRP:CE2	1:N:94:MSE:HE3	2.19	0.77
1:C:116:LYS:HD3	1:D:124:LEU:HD21	1.67	0.77
1:E:116:LYS:HD3	1:F:124:LEU:HD21	1.67	0.77
1:L:41:SER:HB2	1:L:43:PRO:HD2	1.65	0.77
1:M:85:ASP:HA	1:M:88:LEU:HB2	1.67	0.76
1:F:11:ARG:NH2	1:F:85:ASP:OD1	2.18	0.76
1:I:94:MSE:HB2	1:J:94:MSE:HE2	1.67	0.76
1:G:11:ARG:O	1:G:15:THR:HG23	1.85	0.76
1:J:25:THR:OG1	1:J:28:GLU:HG3	1.85	0.76
1:K:67:PHE:O	1:L:69:ARG:NH2	2.19	0.75
1:A:116:LYS:HD3	1:B:124:LEU:HD21	1.68	0.75
1:M:95:ARG:HD3	1:N:94:MSE:HE1	1.67	0.75
1:A:41:SER:OG	1:A:43:PRO:HG2	1.87	0.75
1:B:77:ASP:OD2	1:B:79:GLU:HB2	1.87	0.75
1:Q:100:ARG:NH1	1:R:90:TRP:HE1	1.85	0.74
1:F:15:THR:HG21	1:F:88:LEU:HG	1.69	0.74
1:L:90:TRP:NE1	1:L:94:MSE:HE3	2.02	0.74
1:Q:94:MSE:HB3	1:R:94:MSE:HE2	1.68	0.74
1:R:94:MSE:C	1:R:96:ASP:H	1.89	0.74

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:107:HIS:CE1	1:B:93:THR:HG22	2.23	0.74
1:M:110:PRO:O	1:M:114:GLN:HG3	1.86	0.74
1:K:26:SER:OG	1:K:49:ARG:NH1	2.21	0.74
1:A:90:TRP:HE3	1:A:94:MSE:HE2	1.53	0.73
1:I:94:MSE:CB	1:J:94:MSE:HE2	2.18	0.73
1:Q:34:LYS:O	1:Q:36:GLU:N	2.21	0.73
1:A:90:TRP:CE3	1:A:94:MSE:HE2	2.22	0.73
1:Q:21:ARG:NH2	1:Q:28:GLU:OE1	2.21	0.73
1:Q:90:TRP:HZ2	1:R:100:ARG:HG2	1.54	0.73
1:L:25:THR:OG1	1:L:28:GLU:HG3	1.88	0.73
1:K:41:SER:HB3	1:K:44:TYR:HB3	1.71	0.73
1:E:109:LEU:HD23	1:F:130:ILE:CD1	2.18	0.73
1:I:96:ASP:O	1:I:99:VAL:HB	1.89	0.72
1:O:43:PRO:O	1:O:47:GLN:HG3	1.88	0.72
1:K:21:ARG:NH1	1:K:23:PRO:O	2.17	0.72
1:N:11:ARG:O	1:N:15:THR:HB	1.89	0.72
1:Q:21:ARG:HH22	1:Q:28:GLU:CD	1.93	0.72
1:M:21:ARG:HH11	1:M:21:ARG:CG	1.99	0.72
1:Q:107:HIS:ND1	1:R:93:THR:HG22	2.05	0.71
1:C:110:PRO:HG3	1:D:128:GLU:HG2	1.70	0.71
1:N:90:TRP:CZ2	1:N:94:MSE:HE3	2.25	0.71
1:J:44:TYR:HE1	1:J:53:ARG:NH1	1.88	0.71
1:I:101:ARG:HG2	1:I:101:ARG:HH11	1.55	0.71
1:N:30:ILE:HD12	1:N:40:MSE:O	1.90	0.71
1:E:125:ARG:NH2	1:F:105:ARG:O	2.20	0.71
1:A:93:THR:O	1:A:96:ASP:HB2	1.90	0.71
1:M:107:HIS:ND1	1:N:93:THR:HG22	2.05	0.71
1:R:18:PRO:HD3	1:R:24:HIS:NE2	2.06	0.71
1:H:73:ALA:HA	1:H:76:THR:HB	1.72	0.71
1:P:62:ALA:O	1:P:66:ASN:HB2	1.91	0.71
1:R:50:SER:OG	1:R:52:ASN:ND2	2.23	0.71
1:G:94:MSE:HB3	1:H:94:MSE:HE2	1.73	0.71
1:J:109:LEU:O	1:J:114:GLN:NE2	2.23	0.71
1:Q:90:TRP:HZ2	1:R:100:ARG:CG	2.04	0.71
1:I:67:PHE:O	1:J:69:ARG:NH2	2.19	0.70
1:F:15:THR:CG2	1:F:16:VAL:HG23	2.21	0.70
1:M:90:TRP:CE3	1:M:94:MSE:HE2	2.27	0.70
1:G:94:MSE:HB3	1:H:94:MSE:CE	2.22	0.70
1:Q:17:TYR:HB2	1:Q:18:PRO:HD2	1.74	0.70
1:K:41:SER:HB3	1:K:44:TYR:CB	2.22	0.70
1:O:18:PRO:HD2	1:O:21:ARG:HD3	1.74	0.70
1:Q:70:ILE:HG22	1:Q:71:LYS:N	2.07	0.69

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:G:43:PRO:O	1:G:47:GLN:HG3	1.92	0.69
1:R:125:ARG:HB3	1:R:130:ILE:HB	1.74	0.69
1:B:26:SER:HG	1:B:49:ARG:HH11	1.41	0.69
1:D:41:SER:HB2	1:D:43:PRO:HD2	1.73	0.69
1:Q:90:TRP:CZ2	1:R:100:ARG:NE	2.60	0.69
1:J:48:LEU:HD23	1:J:53:ARG:HB3	1.74	0.69
1:K:105:ARG:HH11	1:K:105:ARG:HG2	1.58	0.69
1:O:71:LYS:HB2	1:O:80:TYR:CE2	2.28	0.69
1:F:120:ARG:HD2	1:F:123:GLU:OE2	1.93	0.69
1:F:90:TRP:HE1	1:F:94:MSE:HE3	1.58	0.68
1:J:4:THR:O	1:J:8:ARG:HG3	1.94	0.68
1:P:73:ALA:O	1:P:77:ASP:HB3	1.93	0.68
1:D:26:SER:OG	1:D:49:ARG:NH1	2.25	0.68
1:L:47:GLN:NE2	1:L:53:ARG:HE	1.89	0.68
1:J:53:ARG:HG3	1:J:53:ARG:HH11	1.58	0.68
1:D:53:ARG:HG3	1:D:53:ARG:NH1	2.01	0.68
1:H:73:ALA:O	1:H:77:ASP:N	2.19	0.68
1:A:90:TRP:O	1:A:94:MSE:HG2	1.94	0.68
1:R:120:ARG:O	1:R:124:LEU:HB2	1.92	0.68
1:B:11:ARG:O	1:B:15:THR:HB	1.94	0.68
1:P:46:SER:O	1:P:50:SER:HB3	1.94	0.68
1:G:21:ARG:NH1	1:G:22:GLY:O	2.25	0.68
1:E:94:MSE:CB	1:F:94:MSE:HE2	2.24	0.68
1:F:90:TRP:CE2	1:F:94:MSE:HE3	2.29	0.67
1:E:117:VAL:HG23	1:F:124:LEU:HD12	1.75	0.67
1:L:43:PRO:O	1:L:47:GLN:HG3	1.95	0.67
1:D:26:SER:HB3	1:D:45:LEU:HD23	1.76	0.67
1:P:50:SER:OG	1:P:52:ASN:ND2	2.28	0.67
1:B:119:ASP:O	1:B:123:GLU:HG3	1.94	0.67
1:F:26:SER:HB3	1:F:45:LEU:CD2	2.25	0.67
1:B:43:PRO:O	1:B:47:GLN:HG3	1.94	0.67
1:R:34:LYS:O	1:R:36:GLU:N	2.28	0.67
1:A:94:MSE:CB	1:B:94:MSE:HE2	2.26	0.66
1:Q:44:TYR:CE2	1:Q:48:LEU:HD11	2.29	0.66
1:C:16:VAL:HG12	1:C:16:VAL:O	1.96	0.66
1:F:11:ARG:HH21	1:F:85:ASP:CG	1.98	0.66
1:C:94:MSE:CE	1:D:100:ARG:HG2	2.24	0.66
1:Q:61:MSE:HE1	1:Q:76:THR:HG21	1.78	0.66
1:R:123:GLU:HA	1:R:126:ARG:HB2	1.77	0.66
1:Q:109:LEU:HG	1:Q:110:PRO:HD2	1.76	0.66
1:N:17:TYR:CE1	1:N:22:GLY:HA2	2.31	0.66
1:B:11:ARG:NE	1:B:85:ASP:OD1	2.25	0.66

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:L:73:ALA:O	1:L:77:ASP:N	2.29	0.66
1:G:25:THR:OG1	1:G:28:GLU:HG3	1.95	0.66
1:I:114:GLN:OE1	1:J:98:GLY:HA3	1.95	0.66
1:L:71:LYS:HD3	1:L:80:TYR:CZ	2.30	0.66
1:M:90:TRP:CD1	1:N:100:ARG:NH1	2.64	0.66
1:H:92:CYS:O	1:H:94:MSE:O	2.14	0.65
1:R:121:ILE:O	1:R:125:ARG:HG3	1.96	0.65
1:K:105:ARG:NH2	1:L:131:ASP:OD2	2.29	0.65
1:A:110:PRO:HG3	1:B:128:GLU:HG2	1.77	0.65
1:N:110:PRO:O	1:N:114:GLN:HG3	1.97	0.65
1:L:47:GLN:HB3	1:L:53:ARG:HB2	1.77	0.65
1:A:107:HIS:ND1	1:B:93:THR:HG22	2.12	0.65
1:C:88:LEU:HA	1:C:91:LEU:HD12	1.79	0.65
1:R:128:GLU:OE1	1:R:128:GLU:HA	1.96	0.65
1:G:21:ARG:NH2	1:G:28:GLU:OE1	2.28	0.65
1:B:74:TYR:CD1	1:B:84:LEU:HD23	2.32	0.65
1:J:40:MSE:CE	1:J:60:THR:HG23	2.27	0.65
1:H:40:MSE:CE	1:H:60:THR:HG23	2.27	0.65
1:F:26:SER:HB3	1:F:45:LEU:HD23	1.77	0.65
1:E:10:ASN:OD1	1:E:49:ARG:HG2	1.97	0.65
1:N:41:SER:CB	1:N:43:PRO:HD2	2.25	0.65
1:N:125:ARG:NH2	1:N:131:ASP:OD2	2.29	0.65
1:M:110:PRO:HG2	1:M:113:ALA:HB2	1.78	0.65
1:E:122:ASP:HA	1:E:125:ARG:HG3	1.77	0.65
1:M:12:LEU:HD11	1:M:70:ILE:HD11	1.79	0.64
1:P:21:ARG:NH2	1:P:24:HIS:HA	2.12	0.64
1:Q:94:MSE:CE	1:R:94:MSE:HA	2.27	0.64
1:L:90:TRP:HE1	1:L:94:MSE:HE3	1.61	0.64
1:J:29:VAL:O	1:J:33:LEU:HD13	1.96	0.64
1:C:47:GLN:HG2	1:C:52:ASN:HB2	1.78	0.64
1:O:57:SER:O	1:O:59:ALA:N	2.31	0.64
1:N:15:THR:HG21	1:N:88:LEU:HG	1.80	0.64
1:I:105:ARG:HG2	1:I:105:ARG:NH1	2.10	0.64
1:G:93:THR:HG22	1:G:93:THR:O	1.97	0.64
1:L:80:TYR:CD1	1:L:83:LYS:HD3	2.32	0.64
1:P:4:THR:O	1:P:8:ARG:HG3	1.98	0.64
1:J:44:TYR:CE1	1:J:53:ARG:NH1	2.65	0.64
1:G:94:MSE:HE1	1:H:94:MSE:N	2.13	0.63
1:A:21:ARG:NH2	1:A:28:GLU:OE2	2.31	0.63
1:Q:18:PRO:HD3	1:Q:24:HIS:NE2	2.13	0.63
1:P:47:GLN:HE22	1:P:53:ARG:NH1	1.95	0.63
1:C:56:PRO:O	1:C:61:MSE:HE2	1.97	0.63

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:C:74:TYR:CD1	1:C:84:LEU:HD23	2.33	0.63
1:R:26:SER:O	1:R:30:ILE:HD12	1.98	0.63
1:Q:107:HIS:C	1:Q:109:LEU:H	2.01	0.63
1:R:90:TRP:CE3	1:R:94:MSE:HG3	2.33	0.63
1:Q:29:VAL:HG22	1:Q:67:PHE:CE2	2.33	0.63
1:D:2:SER:N	1:D:78:ASP:OD1	2.32	0.63
1:H:96:ASP:OD2	1:H:99:VAL:HG23	1.99	0.63
1:Q:93:THR:O	1:Q:96:ASP:OD2	2.17	0.63
1:A:96:ASP:O	1:A:99:VAL:HB	1.99	0.63
1:B:114:GLN:O	1:B:117:VAL:HB	1.99	0.62
1:P:34:LYS:C	1:P:36:GLU:H	2.03	0.62
1:R:90:TRP:CZ3	1:R:94:MSE:HG3	2.33	0.62
1:C:90:TRP:CE3	1:C:94:MSE:HE2	2.34	0.62
1:R:34:LYS:C	1:R:36:GLU:H	2.02	0.62
1:D:112:ALA:O	1:D:116:LYS:HG3	1.99	0.62
1:N:74:TYR:CD1	1:N:84:LEU:HD23	2.34	0.62
1:H:90:TRP:HA	1:H:93:THR:HG23	1.81	0.62
1:O:15:THR:HG21	1:O:88:LEU:CG	2.17	0.62
1:E:21:ARG:NH2	1:E:28:GLU:OE2	2.32	0.62
1:H:26:SER:O	1:H:30:ILE:HG12	1.99	0.62
1:B:25:THR:O	1:B:27:ALA:N	2.33	0.62
1:B:8:ARG:NH1	1:B:81:TYR:HB2	2.15	0.62
1:F:44:TYR:HE1	1:F:53:ARG:HH12	1.46	0.62
1:G:101:ARG:HH11	1:G:101:ARG:HG2	1.65	0.62
1:R:89:GLN:O	1:R:93:THR:HG23	1.99	0.61
1:A:105:ARG:NH1	1:A:105:ARG:HG2	2.14	0.61
1:E:40:MSE:HE2	1:E:45:LEU:HB2	1.82	0.61
1:P:17:TYR:HB2	1:P:18:PRO:CD	2.28	0.61
1:Q:90:TRP:CE2	1:R:100:ARG:NE	2.68	0.61
1:R:74:TYR:CE1	1:R:81:TYR:HD1	2.19	0.61
1:J:17:TYR:HB2	1:J:18:PRO:CD	2.30	0.61
1:E:42:ALA:N	1:E:43:PRO:HD2	2.16	0.61
1:F:112:ALA:O	1:F:116:LYS:HG3	2.01	0.61
1:N:107:HIS:ND1	1:N:107:HIS:C	2.54	0.61
1:M:27:ALA:O	1:M:31:ALA:N	2.33	0.61
1:D:125:ARG:HB3	1:D:131:ASP:HB2	1.82	0.61
1:E:110:PRO:CG	1:F:128:GLU:HG2	2.31	0.61
1:D:26:SER:O	1:D:30:ILE:HG12	2.00	0.61
1:L:5:PHE:HE1	1:L:61:MSE:HG2	1.65	0.61
1:A:77:ASP:OD2	1:A:79:GLU:N	2.31	0.61
1:M:90:TRP:O	1:M:94:MSE:HG2	2.01	0.61
1:E:94:MSE:HB2	1:F:94:MSE:HE2	1.83	0.61

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:H:78:ASP:O	1:H:81:TYR:HB3	2.00	0.61
1:D:41:SER:OG	1:D:44:TYR:HB2	2.00	0.61
1:K:21:ARG:NH2	1:K:28:GLU:OE1	2.34	0.61
1:N:5:PHE:HE2	1:N:48:LEU:HD13	1.66	0.61
1:K:21:ARG:HH12	1:K:23:PRO:C	2.04	0.61
1:L:50:SER:OG	1:L:52:ASN:ND2	2.34	0.61
1:P:42:ALA:N	1:P:43:PRO:HD2	2.16	0.61
1:O:19:PRO:HG2	1:P:70:ILE:HD11	1.83	0.60
1:J:50:SER:OG	1:J:52:ASN:ND2	2.33	0.60
1:E:100:ARG:HG3	1:F:90:TRP:CH2	2.36	0.60
1:N:68:PHE:O	1:N:69:ARG:HB2	2.00	0.60
1:B:26:SER:HB3	1:B:45:LEU:CD2	2.31	0.60
1:B:90:TRP:CZ2	1:B:94:MSE:HE3	2.37	0.60
1:D:65:ALA:O	1:D:70:ILE:O	2.19	0.60
1:Q:94:MSE:HE2	1:R:94:MSE:HG2	1.83	0.60
1:E:18:PRO:HD2	1:E:21:ARG:HD3	1.82	0.60
1:N:125:ARG:NE	1:N:131:ASP:OD2	2.35	0.60
1:P:70:ILE:CG2	1:P:71:LYS:N	2.65	0.60
1:E:110:PRO:HG3	1:F:128:GLU:HG2	1.82	0.60
1:R:114:GLN:O	1:R:117:VAL:HG22	2.01	0.60
1:J:42:ALA:HB3	1:J:43:PRO:HD3	1.82	0.60
1:R:96:ASP:C	1:R:100:ARG:HG3	2.23	0.60
1:E:42:ALA:HB3	1:E:43:PRO:HD3	1.82	0.60
1:A:105:ARG:HH11	1:A:105:ARG:HG2	1.66	0.60
1:C:107:HIS:ND1	1:D:93:THR:HG22	2.17	0.60
1:A:125:ARG:NH2	1:B:105:ARG:O	2.35	0.59
1:P:70:ILE:HD12	1:P:84:LEU:HD21	1.83	0.59
1:J:91:LEU:O	1:J:94:MSE:O	2.20	0.59
1:K:94:MSE:HB2	1:L:94:MSE:HE2	1.84	0.59
1:A:105:ARG:O	1:A:107:HIS:N	2.35	0.59
1:A:105:ARG:C	1:A:107:HIS:H	2.06	0.59
1:I:25:THR:OG1	1:I:28:GLU:HG3	2.02	0.59
1:M:125:ARG:NH2	1:N:105:ARG:O	2.31	0.59
1:C:119:ASP:OD1	1:C:119:ASP:N	2.34	0.59
1:G:18:PRO:HD3	1:G:24:HIS:CE1	2.37	0.59
1:O:62:ALA:O	1:O:66:ASN:HB2	2.02	0.59
1:A:120:ARG:O	1:A:120:ARG:HG3	2.02	0.59
1:M:21:ARG:HG2	1:M:21:ARG:NH1	2.03	0.59
1:Q:26:SER:HB3	1:Q:45:LEU:HD23	1.84	0.59
1:D:44:TYR:HD1	1:D:53:ARG:HH12	1.50	0.59
1:A:116:LYS:HB3	1:B:124:LEU:HD11	1.85	0.59
1:G:120:ARG:O	1:G:124:LEU:HG	2.01	0.59

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:E:12:LEU:HD11	1:E:70:ILE:HD11	1.84	0.59
1:H:71:LYS:HB2	1:H:80:TYR:CE2	2.37	0.59
1:B:42:ALA:HB3	1:B:43:PRO:HD3	1.85	0.58
1:H:90:TRP:HA	1:H:93:THR:CG2	2.33	0.58
1:I:44:TYR:HE1	1:I:53:ARG:HD3	1.68	0.58
1:E:25:THR:OG1	1:E:28:GLU:HG3	2.03	0.58
1:F:11:ARG:CZ	1:F:85:ASP:OD1	2.50	0.58
1:C:26:SER:O	1:C:30:ILE:HG12	2.04	0.58
1:P:40:MSE:HE1	1:P:60:THR:HG23	1.85	0.58
1:Q:18:PRO:HG2	1:Q:21:ARG:HD2	1.83	0.58
1:L:5:PHE:CE1	1:L:61:MSE:HG2	2.39	0.58
1:P:15:THR:HG21	1:P:88:LEU:HB3	1.85	0.58
1:L:42:ALA:N	1:L:43:PRO:CD	2.67	0.58
1:R:116:LYS:HA	1:R:119:ASP:OD2	2.04	0.58
1:A:56:PRO:O	1:A:61:MSE:HE2	2.02	0.58
1:O:15:THR:HG23	1:O:91:LEU:HD12	1.86	0.58
1:L:90:TRP:CE2	1:L:94:MSE:HE3	2.39	0.58
1:B:25:THR:C	1:B:27:ALA:H	2.07	0.58
1:K:11:ARG:NH2	1:K:85:ASP:OD1	2.37	0.58
1:C:43:PRO:HA	1:C:46:SER:HB2	1.85	0.58
1:A:36:GLU:HA	1:B:35:ALA:O	2.04	0.58
1:E:94:MSE:HA	1:E:99:VAL:HG11	1.84	0.58
1:K:85:ASP:HA	1:K:88:LEU:HB2	1.86	0.58
1:Q:107:HIS:O	1:Q:109:LEU:N	2.36	0.58
1:E:116:LYS:HD3	1:F:124:LEU:CD2	2.33	0.58
1:K:11:ARG:NE	1:K:85:ASP:OD1	2.37	0.58
1:J:73:ALA:O	1:J:77:ASP:HB3	2.03	0.58
1:F:95:ARG:HA	1:F:100:ARG:CZ	2.33	0.57
1:C:42:ALA:HB3	1:C:43:PRO:HD3	1.85	0.57
1:P:90:TRP:HZ3	1:P:94:MSE:HE3	1.69	0.57
1:J:90:TRP:HA	1:J:93:THR:HG23	1.87	0.57
1:F:95:ARG:HA	1:F:100:ARG:NH2	2.19	0.57
1:K:94:MSE:CB	1:L:94:MSE:HE2	2.34	0.57
1:O:74:TYR:CD1	1:O:84:LEU:HD23	2.40	0.57
1:D:29:VAL:O	1:D:32:ALA:N	2.36	0.57
1:F:30:ILE:HD12	1:F:40:MSE:O	2.03	0.57
1:J:29:VAL:HG22	1:J:67:PHE:CE2	2.39	0.57
1:E:105:ARG:HD3	1:F:118:LEU:HD11	1.86	0.57
1:H:32:ALA:O	1:H:36:GLU:HG3	2.05	0.57
1:F:41:SER:OG	1:F:43:PRO:HD2	2.03	0.57
1:L:109:LEU:HD22	1:L:113:ALA:HB1	1.85	0.57
1:Q:94:MSE:C	1:Q:96:ASP:H	2.08	0.57

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:J:53:ARG:HH11	1:J:53:ARG:CG	2.18	0.57
1:P:17:TYR:CE2	1:P:23:PRO:HG3	2.39	0.57
1:P:17:TYR:HB2	1:P:18:PRO:HD3	1.86	0.57
1:E:42:ALA:HB3	1:E:43:PRO:CD	2.35	0.57
1:O:90:TRP:HZ2	1:P:94:MSE:HA	1.69	0.57
1:K:105:ARG:NH1	1:K:105:ARG:HG2	2.20	0.57
1:C:115:GLN:O	1:C:118:LEU:N	2.37	0.57
1:R:74:TYR:CE1	1:R:81:TYR:CD1	2.93	0.56
1:M:13:PHE:O	1:M:23:PRO:HB3	2.05	0.56
1:H:70:ILE:HD12	1:H:71:LYS:O	2.05	0.56
1:D:18:PRO:HD2	1:D:21:ARG:HD3	1.87	0.56
1:I:12:LEU:HD13	1:I:68:PHE:CD2	2.40	0.56
1:E:93:THR:O	1:E:96:ASP:HB2	2.04	0.56
1:C:81:TYR:O	1:C:85:ASP:N	2.33	0.56
1:M:40:MSE:HE3	1:M:60:THR:HG23	1.86	0.56
1:C:25:THR:OG1	1:C:28:GLU:HG3	2.05	0.56
1:R:99:VAL:HA	1:R:102:ILE:CG2	2.36	0.56
1:R:17:TYR:HB2	1:R:18:PRO:HD2	1.88	0.56
1:H:17:TYR:HB2	1:H:18:PRO:CD	2.36	0.56
1:P:62:ALA:O	1:P:66:ASN:CB	2.52	0.56
1:C:77:ASP:OD2	1:C:78:ASP:N	2.38	0.56
1:A:92:CYS:O	1:A:94:MSE:N	2.39	0.56
1:D:26:SER:HG	1:D:49:ARG:HH11	1.54	0.56
1:M:124:LEU:HD13	1:N:113:ALA:HB1	1.87	0.56
1:N:95:ARG:HA	1:N:100:ARG:HH21	1.70	0.56
1:L:82:GLU:OE1	1:L:82:GLU:HA	2.04	0.56
1:M:118:LEU:CD2	1:N:102:ILE:HG12	2.35	0.56
1:P:70:ILE:HG22	1:P:71:LYS:N	2.21	0.56
1:J:15:THR:CG2	1:J:88:LEU:HG	2.32	0.56
1:J:71:LYS:HD3	1:J:80:TYR:CZ	2.41	0.56
1:L:68:PHE:O	1:L:69:ARG:HB2	2.06	0.55
1:R:17:TYR:CE2	1:R:23:PRO:HG3	2.41	0.55
1:Q:29:VAL:HG22	1:Q:67:PHE:CZ	2.41	0.55
1:G:26:SER:O	1:G:29:VAL:N	2.38	0.55
1:A:18:PRO:HD2	1:A:21:ARG:HD3	1.88	0.55
1:J:40:MSE:HE2	1:J:60:THR:HG23	1.87	0.55
1:L:15:THR:HG21	1:L:88:LEU:HG	1.88	0.55
1:G:67:PHE:O	1:H:69:ARG:NH1	2.36	0.55
1:D:47:GLN:HB3	1:D:53:ARG:HG2	1.87	0.55
1:O:80:TYR:O	1:O:84:LEU:N	2.22	0.55
1:M:106:ALA:HB2	1:N:121:ILE:HD13	1.88	0.55
1:O:29:VAL:HG22	1:O:67:PHE:CZ	2.41	0.55

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:F:95:ARG:HA	1:F:100:ARG:NE	2.22	0.55
1:D:50:SER:OG	1:D:52:ASN:ND2	2.40	0.55
1:Q:98:GLY:HA2	1:Q:101:ARG:HD3	1.88	0.55
1:L:128:GLU:HA	1:L:128:GLU:OE2	2.07	0.55
1:D:42:ALA:N	1:D:43:PRO:CD	2.70	0.55
1:P:35:ALA:C	1:P:36:GLU:HG3	2.27	0.55
1:J:32:ALA:O	1:J:36:GLU:HG3	2.07	0.55
1:Q:97:ASP:C	1:Q:99:VAL:N	2.59	0.55
1:H:53:ARG:HG3	1:H:53:ARG:HH11	1.72	0.55
1:A:92:CYS:C	1:A:94:MSE:H	2.11	0.55
1:F:44:TYR:CE1	1:F:53:ARG:NH1	2.75	0.55
1:M:123:GLU:O	1:M:125:ARG:N	2.40	0.55
1:J:94:MSE:O	1:J:95:ARG:HG2	2.06	0.54
1:Q:70:ILE:CG2	1:Q:71:LYS:N	2.70	0.54
1:A:77:ASP:C	1:A:77:ASP:OD2	2.44	0.54
1:M:25:THR:OG1	1:M:28:GLU:HG3	2.07	0.54
1:L:81:TYR:O	1:L:85:ASP:HB2	2.07	0.54
1:I:42:ALA:HB3	1:I:43:PRO:HD2	1.88	0.54
1:G:18:PRO:HD3	1:G:24:HIS:NE2	2.21	0.54
1:H:93:THR:C	1:H:94:MSE:O	2.45	0.54
1:I:95:ARG:NE	1:J:94:MSE:HE1	2.23	0.54
1:F:94:MSE:O	1:F:95:ARG:HG3	2.07	0.54
1:G:29:VAL:O	1:G:33:LEU:HG	2.08	0.54
1:E:84:LEU:CD1	1:F:20:GLY:HA3	2.38	0.54
1:R:118:LEU:HD23	1:R:121:ILE:HD12	1.88	0.54
1:C:67:PHE:C	1:C:67:PHE:CD2	2.81	0.54
1:Q:90:TRP:CZ2	1:R:100:ARG:HG2	2.38	0.54
1:M:105:ARG:NH2	1:N:125:ARG:NE	2.56	0.54
1:C:94:MSE:CB	1:D:94:MSE:HE2	2.33	0.54
1:K:21:ARG:NH2	1:K:28:GLU:OE2	2.40	0.54
1:L:73:ALA:HA	1:L:76:THR:HB	1.90	0.54
1:J:80:TYR:HD1	1:J:83:LYS:HD3	1.73	0.54
1:K:62:ALA:O	1:K:66:ASN:HB2	2.08	0.54
1:N:12:LEU:HD11	1:N:70:ILE:HD11	1.90	0.54
1:O:26:SER:HG	1:O:49:ARG:HH11	1.50	0.53
1:C:77:ASP:OD2	1:C:79:GLU:N	2.30	0.53
1:I:18:PRO:HD3	1:I:24:HIS:NE2	2.24	0.53
1:C:114:GLN:O	1:C:117:VAL:HB	2.08	0.53
1:K:42:ALA:HB3	1:K:43:PRO:CD	2.37	0.53
1:G:68:PHE:O	1:G:69:ARG:HB2	2.09	0.53
1:D:107:HIS:ND1	1:D:107:HIS:C	2.61	0.53
1:G:94:MSE:HE2	1:H:94:MSE:CB	2.34	0.53

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:H:41:SER:HB2	1:H:43:PRO:HD2	1.90	0.53
1:M:118:LEU:HD21	1:N:102:ILE:HG12	1.90	0.53
1:B:30:ILE:HD12	1:B:40:MSE:O	2.07	0.53
1:E:13:PHE:O	1:E:23:PRO:HB3	2.07	0.53
1:Q:90:TRP:CZ3	1:R:94:MSE:HB3	2.43	0.53
1:Q:107:HIS:HB2	1:R:99:VAL:HG21	1.91	0.53
1:Q:18:PRO:HG2	1:Q:21:ARG:CD	2.38	0.53
1:P:8:ARG:NH1	1:P:75:PHE:O	2.41	0.53
1:A:9:LEU:HD23	1:A:49:ARG:HG2	1.89	0.53
1:J:47:GLN:HB3	1:J:53:ARG:HB2	1.89	0.53
1:J:17:TYR:HB2	1:J:18:PRO:HD2	1.91	0.53
1:E:124:LEU:HD13	1:F:113:ALA:O	2.09	0.53
1:Q:102:ILE:HD11	1:R:114:GLN:HG2	1.89	0.53
1:F:114:GLN:O	1:F:117:VAL:HB	2.08	0.53
1:O:26:SER:O	1:O:30:ILE:HG12	2.08	0.53
1:P:34:LYS:O	1:P:36:GLU:N	2.42	0.53
1:I:44:TYR:CE1	1:I:53:ARG:HD3	2.44	0.53
1:C:77:ASP:O	1:C:81:TYR:HB2	2.09	0.53
1:I:112:ALA:O	1:I:115:GLN:HB3	2.09	0.53
1:D:44:TYR:CD1	1:D:53:ARG:NH1	2.76	0.53
1:F:74:TYR:CD1	1:F:84:LEU:HD23	2.43	0.53
1:I:93:THR:O	1:I:96:ASP:HB2	2.09	0.53
1:J:15:THR:HG23	1:J:16:VAL:HG23	1.89	0.53
1:E:94:MSE:HB3	1:F:94:MSE:HE2	1.90	0.53
1:O:71:LYS:HB2	1:O:80:TYR:HE2	1.72	0.53
1:E:16:VAL:HG12	1:E:16:VAL:O	2.09	0.53
1:L:47:GLN:CB	1:L:53:ARG:HB2	2.39	0.52
1:Q:64:LEU:O	1:Q:67:PHE:HB3	2.09	0.52
1:B:26:SER:HB3	1:B:45:LEU:HD23	1.91	0.52
1:R:33:LEU:O	1:R:36:GLU:HG3	2.09	0.52
1:O:82:GLU:OE1	1:O:82:GLU:HA	2.09	0.52
1:O:15:THR:HG22	1:O:16:VAL:CG2	2.30	0.52
1:M:99:VAL:HG12	1:M:100:ARG:N	2.25	0.52
1:E:124:LEU:O	1:E:128:GLU:HB2	2.10	0.52
1:A:85:ASP:HA	1:A:88:LEU:HD22	1.91	0.52
1:E:116:LYS:HB3	1:F:124:LEU:HD11	1.91	0.52
1:L:42:ALA:N	1:L:43:PRO:HD3	2.25	0.52
1:C:42:ALA:HB3	1:C:43:PRO:CD	2.39	0.52
1:R:45:LEU:O	1:R:49:ARG:HG3	2.10	0.52
1:J:31:ALA:O	1:J:34:LYS:N	2.42	0.52
1:R:98:GLY:O	1:R:102:ILE:HG22	2.09	0.52
1:N:26:SER:O	1:N:30:ILE:HG12	2.10	0.52

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:24:HIS:N	2:B:133:HOH:O	2.22	0.52
1:E:110:PRO:CD	1:F:128:GLU:HG2	2.39	0.52
1:O:47:GLN:HB3	1:O:53:ARG:HG2	1.92	0.52
1:O:29:VAL:HG22	1:O:67:PHE:CE2	2.45	0.52
1:E:102:ILE:HG22	1:E:103:ALA:N	2.24	0.52
1:Q:86:LYS:O	1:Q:90:TRP:HB2	2.09	0.52
1:G:18:PRO:HD2	1:G:21:ARG:HD3	1.90	0.52
1:C:41:SER:HB3	1:C:44:TYR:HB3	1.91	0.52
1:I:4:THR:O	1:I:8:ARG:HG3	2.10	0.52
1:C:120:ARG:O	1:C:124:LEU:HG	2.10	0.52
1:J:81:TYR:O	1:J:85:ASP:N	2.42	0.52
1:M:77:ASP:OD2	1:M:78:ASP:N	2.43	0.52
1:P:91:LEU:HD13	1:P:91:LEU:H	1.75	0.52
1:H:42:ALA:N	1:H:43:PRO:CD	2.73	0.52
1:O:26:SER:HB3	1:O:45:LEU:HD23	1.92	0.52
1:Q:50:SER:OG	1:Q:52:ASN:ND2	2.43	0.52
1:P:42:ALA:H	1:P:43:PRO:HD2	1.75	0.52
1:H:29:VAL:HG22	1:H:67:PHE:CE2	2.45	0.51
1:Q:77:ASP:OD2	1:Q:79:GLU:HB2	2.09	0.51
1:A:105:ARG:CG	1:A:105:ARG:HH11	2.24	0.51
1:M:110:PRO:HG2	1:M:113:ALA:CB	2.40	0.51
1:L:33:LEU:HB3	1:L:38:ILE:O	2.09	0.51
1:H:94:MSE:O	1:H:96:ASP:N	2.43	0.51
1:M:94:MSE:CE	1:N:100:ARG:HG2	2.41	0.51
1:Q:18:PRO:CG	1:Q:21:ARG:HD2	2.41	0.51
1:N:95:ARG:HA	1:N:100:ARG:NH2	2.25	0.51
1:L:95:ARG:O	1:L:95:ARG:HG3	2.08	0.51
1:D:85:ASP:HA	1:D:88:LEU:HD22	1.92	0.51
1:P:80:TYR:O	1:P:81:TYR:C	2.49	0.51
1:M:90:TRP:CE3	1:M:90:TRP:HA	2.46	0.51
1:N:58:GLY:HA2	1:N:61:MSE:HE3	1.92	0.51
1:C:93:THR:O	1:C:96:ASP:HB2	2.11	0.51
1:M:115:GLN:O	1:M:118:LEU:HB2	2.10	0.51
1:A:27:ALA:O	1:A:30:ILE:HB	2.10	0.51
1:Q:94:MSE:CE	1:R:99:VAL:HG12	2.40	0.51
1:M:85:ASP:O	1:M:89:GLN:N	2.40	0.51
1:Q:89:GLN:O	1:Q:93:THR:HG23	2.11	0.51
1:O:36:GLU:HG2	1:P:36:GLU:CG	2.38	0.51
1:H:18:PRO:HG2	1:H:21:ARG:HD3	1.93	0.51
1:R:42:ALA:N	1:R:43:PRO:HD2	2.25	0.51
1:H:74:TYR:CD1	1:H:84:LEU:HD23	2.46	0.51
1:R:90:TRP:CE3	1:R:94:MSE:HE3	2.46	0.51

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:C:40:MSE:CE	1:C:45:LEU:HB2	2.40	0.51
1:D:26:SER:HB3	1:D:45:LEU:CD2	2.41	0.51
1:Q:43:PRO:O	1:Q:44:TYR:C	2.48	0.51
1:H:68:PHE:O	1:H:69:ARG:HB2	2.11	0.51
1:I:117:VAL:O	1:I:121:ILE:HG13	2.11	0.51
1:R:4:THR:O	1:R:8:ARG:HG3	2.11	0.51
1:M:89:GLN:O	1:M:92:CYS:N	2.44	0.50
1:Q:34:LYS:C	1:Q:36:GLU:N	2.64	0.50
1:O:42:ALA:N	1:O:43:PRO:HD2	2.26	0.50
1:C:121:ILE:HD13	1:D:106:ALA:HB2	1.94	0.50
1:E:36:GLU:HA	1:F:35:ALA:O	2.10	0.50
1:F:98:GLY:O	1:F:102:ILE:HD12	2.11	0.50
1:K:26:SER:HG	1:K:49:ARG:NH1	2.09	0.50
1:E:109:LEU:HD23	1:F:130:ILE:HD12	1.91	0.50
1:J:11:ARG:O	1:J:15:THR:HG22	2.12	0.50
1:B:15:THR:HG21	1:B:88:LEU:HD22	1.92	0.50
1:K:12:LEU:HD13	1:K:68:PHE:CD2	2.46	0.50
1:I:94:MSE:HB3	1:J:94:MSE:HE2	1.91	0.50
1:L:33:LEU:HB3	1:L:38:ILE:HB	1.94	0.50
1:C:27:ALA:O	1:C:31:ALA:N	2.28	0.50
1:H:110:PRO:O	1:H:113:ALA:N	2.45	0.50
1:A:95:ARG:O	1:A:96:ASP:C	2.49	0.50
1:M:9:LEU:O	1:M:12:LEU:HB2	2.11	0.50
1:D:109:LEU:HB2	1:D:114:GLN:HE21	1.76	0.50
1:O:9:LEU:O	1:O:12:LEU:HB2	2.12	0.50
1:G:92:CYS:C	1:G:94:MSE:N	2.64	0.50
1:A:124:LEU:HD13	1:B:113:ALA:O	2.12	0.50
1:D:41:SER:OG	1:D:44:TYR:CB	2.60	0.50
1:F:87:GLU:O	1:F:90:TRP:HB3	2.12	0.50
1:N:33:LEU:HD23	1:N:40:MSE:HE3	1.94	0.50
1:E:89:GLN:O	1:E:92:CYS:HB2	2.12	0.50
1:P:87:GLU:OE2	1:P:87:GLU:HA	2.11	0.50
1:E:9:LEU:O	1:E:12:LEU:HB2	2.11	0.50
1:I:88:LEU:HA	1:I:91:LEU:HD12	1.92	0.50
1:A:25:THR:O	1:A:28:GLU:HB2	2.12	0.50
1:A:92:CYS:C	1:A:94:MSE:N	2.61	0.50
1:I:105:ARG:HD3	1:J:118:LEU:CD1	2.42	0.50
1:M:8:ARG:HG2	1:M:81:TYR:CE1	2.47	0.50
1:J:53:ARG:NH1	1:J:53:ARG:CG	2.75	0.49
1:K:119:ASP:O	1:K:123:GLU:HG3	2.12	0.49
1:R:70:ILE:HG22	1:R:71:LYS:N	2.27	0.49
1:P:84:LEU:O	1:P:88:LEU:HD13	2.11	0.49

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:O:90:TRP:NE1	1:P:94:MSE:HB3	2.28	0.49
1:C:100:ARG:HA	1:D:90:TRP:CH2	2.47	0.49
1:Q:43:PRO:O	1:Q:46:SER:N	2.44	0.49
1:D:73:ALA:O	1:D:75:PHE:N	2.45	0.49
1:Q:94:MSE:HE2	1:R:94:MSE:CA	2.37	0.49
1:K:26:SER:HB3	1:K:45:LEU:CD2	2.42	0.49
1:D:84:LEU:HG	1:D:88:LEU:CD1	2.42	0.49
1:G:94:MSE:HB3	1:H:94:MSE:HE3	1.95	0.49
1:Q:107:HIS:C	1:Q:109:LEU:N	2.65	0.49
1:Q:90:TRP:NE1	1:R:100:ARG:CZ	2.75	0.49
1:H:41:SER:CB	1:H:43:PRO:HD2	2.42	0.49
1:H:44:TYR:HE1	1:H:53:ARG:HG3	1.78	0.49
1:A:105:ARG:C	1:A:107:HIS:N	2.65	0.49
1:Q:94:MSE:HE3	1:R:99:VAL:HG12	1.94	0.49
1:R:92:CYS:O	1:R:94:MSE:O	2.31	0.49
1:F:11:ARG:O	1:F:15:THR:HB	2.12	0.49
1:O:5:PHE:CZ	1:O:9:LEU:HD22	2.47	0.49
1:N:42:ALA:N	1:N:43:PRO:CD	2.75	0.49
1:K:41:SER:CB	1:K:44:TYR:CB	2.91	0.49
1:J:40:MSE:HG3	1:J:44:TYR:HD2	1.78	0.49
1:D:11:ARG:HG3	1:D:11:ARG:O	2.13	0.49
1:Q:105:ARG:O	1:R:125:ARG:NH1	2.46	0.49
1:F:47:GLN:CB	1:F:53:ARG:HG2	2.43	0.49
1:E:47:GLN:HE21	1:E:52:ASN:HB3	1.77	0.49
1:N:50:SER:OG	1:N:52:ASN:ND2	2.46	0.49
1:A:94:MSE:HE1	1:B:100:ARG:HA	1.93	0.49
1:B:15:THR:HG22	1:B:16:VAL:HG23	1.95	0.49
1:E:30:ILE:HD12	1:E:40:MSE:O	2.13	0.49
1:D:89:GLN:OE1	1:D:89:GLN:HA	2.13	0.49
1:G:85:ASP:HA	1:G:88:LEU:HB2	1.95	0.49
1:M:89:GLN:HA	1:M:92:CYS:SG	2.53	0.49
1:G:36:GLU:HG2	1:H:36:GLU:HG2	1.95	0.49
1:M:21:ARG:CG	1:M:21:ARG:NH1	2.65	0.49
1:Q:44:TYR:O	1:Q:47:GLN:HB2	2.13	0.49
1:K:110:PRO:O	1:K:113:ALA:N	2.46	0.49
1:N:120:ARG:O	1:N:123:GLU:HB2	2.12	0.49
1:Q:45:LEU:O	1:Q:47:GLN:N	2.46	0.48
1:I:94:MSE:HG3	1:J:94:MSE:HG2	1.94	0.48
1:R:124:LEU:O	1:R:128:GLU:HG2	2.13	0.48
1:E:47:GLN:O	1:E:51:GLY:N	2.46	0.48
1:I:95:ARG:O	1:I:96:ASP:C	2.51	0.48
1:R:126:ARG:HG2	1:R:131:ASP:CB	2.44	0.48

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:D:68:PHE:O	1:D:70:ILE:HG23	2.13	0.48
1:J:42:ALA:N	1:J:43:PRO:CD	2.76	0.48
1:P:40:MSE:CE	1:P:60:THR:HG23	2.43	0.48
1:J:121:ILE:O	1:J:125:ARG:HG3	2.12	0.48
1:G:94:MSE:HE3	1:H:90:TRP:CH2	2.48	0.48
1:M:87:GLU:OE2	1:N:100:ARG:NH2	2.46	0.48
1:I:94:MSE:CG	1:J:94:MSE:HG2	2.43	0.48
1:C:65:ALA:O	1:C:69:ARG:N	2.44	0.48
1:C:9:LEU:HD23	1:C:49:ARG:HG2	1.95	0.48
1:Q:17:TYR:HB2	1:Q:18:PRO:CD	2.42	0.48
1:O:18:PRO:CD	1:O:21:ARG:HD3	2.42	0.48
1:L:110:PRO:O	1:L:113:ALA:HB3	2.13	0.48
1:G:4:THR:O	1:G:8:ARG:HG3	2.13	0.48
1:H:45:LEU:HD12	1:H:45:LEU:O	2.14	0.48
1:E:9:LEU:O	1:E:12:LEU:N	2.47	0.48
1:L:4:THR:O	1:L:8:ARG:HG3	2.14	0.48
1:G:30:ILE:HD12	1:G:40:MSE:O	2.14	0.48
1:I:6:ALA:O	1:I:7:ALA:C	2.52	0.48
1:I:92:CYS:HA	1:I:95:ARG:HG2	1.96	0.48
1:Q:34:LYS:C	1:Q:36:GLU:H	2.17	0.48
1:Q:21:ARG:NH2	1:Q:28:GLU:CD	2.64	0.48
1:O:17:TYR:HB3	1:O:23:PRO:HA	1.95	0.48
1:I:120:ARG:O	1:I:124:LEU:HG	2.14	0.48
1:I:57:SER:O	1:I:60:THR:HB	2.14	0.48
1:C:90:TRP:CZ3	1:C:94:MSE:HE2	2.49	0.48
1:K:121:ILE:O	1:K:125:ARG:HG3	2.14	0.48
1:D:67:PHE:C	1:D:67:PHE:CD2	2.87	0.48
1:K:117:VAL:HG12	1:K:117:VAL:O	2.13	0.48
1:C:94:MSE:HE3	1:D:100:ARG:HG2	1.94	0.48
1:J:42:ALA:N	1:J:43:PRO:HD2	2.29	0.48
1:D:4:THR:O	1:D:8:ARG:HG3	2.14	0.48
1:G:92:CYS:C	1:G:94:MSE:H	2.16	0.47
1:M:94:MSE:HE1	1:N:100:ARG:HA	1.96	0.47
1:N:90:TRP:HE1	1:N:94:MSE:CE	2.23	0.47
1:O:70:ILE:HD12	1:O:71:LYS:O	2.14	0.47
1:K:117:VAL:CG1	1:K:117:VAL:O	2.61	0.47
1:O:86:LYS:O	1:O:89:GLN:N	2.47	0.47
1:F:90:TRP:HA	1:F:93:THR:HG23	1.96	0.47
1:O:42:ALA:HB3	1:O:43:PRO:HD3	1.95	0.47
1:C:47:GLN:HG2	1:C:52:ASN:CB	2.43	0.47
1:D:109:LEU:HB2	1:D:114:GLN:HG3	1.95	0.47
1:D:33:LEU:HB3	1:D:38:ILE:HG22	1.95	0.47

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:H:86:LYS:O	1:H:89:GLN:N	2.36	0.47
1:O:30:ILE:HD12	1:O:40:MSE:O	2.14	0.47
1:Q:43:PRO:O	1:Q:46:SER:OG	2.28	0.47
1:G:69:ARG:NH2	1:H:67:PHE:O	2.45	0.47
1:E:8:ARG:O	1:E:11:ARG:HB3	2.15	0.47
1:I:103:ALA:HB1	1:J:99:VAL:HG13	1.96	0.47
1:J:43:PRO:O	1:J:46:SER:HB3	2.15	0.47
1:I:43:PRO:O	1:I:47:GLN:HG3	2.14	0.47
1:P:21:ARG:HH22	1:P:24:HIS:HA	1.77	0.47
1:O:4:THR:OG1	1:O:6:ALA:HB3	2.13	0.47
1:J:26:SER:O	1:J:30:ILE:HG12	2.13	0.47
1:D:44:TYR:CE2	1:D:48:LEU:HD11	2.50	0.47
1:O:58:GLY:HA2	1:O:61:MSE:CE	2.41	0.47
1:K:41:SER:HB3	1:K:44:TYR:HB2	1.94	0.47
1:R:128:GLU:CA	1:R:128:GLU:OE1	2.61	0.47
1:L:15:THR:HG23	1:L:16:VAL:HG23	1.96	0.47
1:L:12:LEU:HA	1:L:15:THR:HG22	1.95	0.47
1:R:25:THR:O	1:R:29:VAL:HG23	2.14	0.47
1:K:89:GLN:O	1:K:92:CYS:HB2	2.15	0.47
1:P:67:PHE:CD2	1:P:67:PHE:C	2.87	0.47
1:B:65:ALA:O	1:B:70:ILE:O	2.32	0.47
1:F:8:ARG:NH2	1:F:78:ASP:OD2	2.45	0.47
1:Q:14:ASP:O	1:Q:17:TYR:HE2	1.98	0.47
1:C:84:LEU:CD1	1:D:20:GLY:HA3	2.45	0.47
1:J:17:TYR:CB	1:J:18:PRO:CD	2.92	0.47
1:E:34:LYS:O	1:E:37:GLY:N	2.29	0.47
1:M:18:PRO:HD2	1:M:21:ARG:HD3	1.96	0.47
1:Q:36:GLU:OE1	1:Q:38:ILE:HD12	2.14	0.47
1:C:100:ARG:HD2	1:D:90:TRP:CZ2	2.50	0.47
1:K:95:ARG:O	1:K:96:ASP:C	2.52	0.47
1:F:64:LEU:C	1:F:66:ASN:H	2.19	0.47
1:Q:45:LEU:O	1:Q:46:SER:C	2.53	0.47
1:H:128:GLU:HB3	1:H:130:ILE:HG13	1.96	0.47
1:P:91:LEU:CD1	1:P:91:LEU:N	2.78	0.46
1:B:25:THR:C	1:B:27:ALA:N	2.67	0.46
1:M:42:ALA:N	1:M:43:PRO:HD2	2.30	0.46
1:L:17:TYR:HB2	1:L:18:PRO:CD	2.44	0.46
1:H:15:THR:CG2	1:H:88:LEU:HG	2.34	0.46
1:H:40:MSE:HG2	1:H:41:SER:N	2.30	0.46
1:C:40:MSE:HE2	1:C:45:LEU:CB	2.41	0.46
1:O:44:TYR:CE2	1:O:48:LEU:HD11	2.50	0.46
1:B:11:ARG:HH21	1:B:85:ASP:CG	2.18	0.46

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:L:15:THR:CG2	1:L:88:LEU:HG	2.46	0.46
1:A:67:PHE:CD2	1:A:67:PHE:C	2.89	0.46
1:G:106:ALA:HB2	1:H:121:ILE:HD13	1.98	0.46
1:Q:105:ARG:HD2	1:R:118:LEU:HD22	1.97	0.46
1:P:13:PHE:O	1:P:23:PRO:HB3	2.15	0.46
1:B:13:PHE:CZ	1:B:29:VAL:HG21	2.50	0.46
1:G:96:ASP:O	1:G:99:VAL:HB	2.15	0.46
1:J:94:MSE:O	1:J:95:ARG:CB	2.63	0.46
1:R:18:PRO:HD3	1:R:24:HIS:CE1	2.50	0.46
1:E:4:THR:O	1:E:8:ARG:HG3	2.16	0.46
1:G:90:TRP:CH2	1:H:104:GLN:OE1	2.68	0.46
1:G:88:LEU:HA	1:G:91:LEU:HD12	1.97	0.46
1:E:90:TRP:CH2	1:F:100:ARG:HB3	2.50	0.46
1:L:89:GLN:O	1:L:93:THR:CG2	2.64	0.46
1:I:101:ARG:CG	1:I:101:ARG:HH11	2.26	0.46
1:M:105:ARG:NH2	1:N:125:ARG:HE	2.12	0.46
1:N:71:LYS:HD3	1:N:80:TYR:CZ	2.50	0.46
1:K:94:MSE:O	1:L:90:TRP:HZ2	1.99	0.46
1:M:12:LEU:HD13	1:M:68:PHE:CD2	2.50	0.46
1:H:82:GLU:O	1:H:86:LYS:HG3	2.16	0.46
1:D:90:TRP:NE1	1:D:94:MSE:HE3	2.30	0.46
1:L:48:LEU:HD23	1:L:53:ARG:HB3	1.96	0.46
1:P:18:PRO:HD3	1:P:24:HIS:NE2	2.30	0.46
1:Q:90:TRP:CE2	1:R:100:ARG:CZ	2.99	0.46
1:Q:59:ALA:O	1:Q:62:ALA:HB3	2.16	0.46
1:F:65:ALA:O	1:F:70:ILE:O	2.34	0.46
1:C:105:ARG:HD3	1:D:118:LEU:HD11	1.98	0.46
1:A:95:ARG:NE	1:B:94:MSE:HE1	2.31	0.46
1:C:30:ILE:HD12	1:C:40:MSE:O	2.15	0.46
1:Q:45:LEU:C	1:Q:47:GLN:N	2.69	0.46
1:J:66:ASN:O	1:J:67:PHE:C	2.55	0.46
1:O:57:SER:C	1:O:59:ALA:H	2.18	0.46
1:N:58:GLY:HA2	1:N:61:MSE:CE	2.45	0.46
1:F:90:TRP:HE1	1:F:94:MSE:CE	2.28	0.46
1:N:15:THR:HG22	1:N:16:VAL:HG23	1.93	0.46
1:A:45:LEU:HD12	1:A:45:LEU:O	2.16	0.46
1:I:123:GLU:O	1:I:125:ARG:O	2.33	0.46
1:G:6:ALA:HB2	1:G:48:LEU:O	2.16	0.46
1:G:60:THR:HG22	1:G:64:LEU:HD12	1.98	0.46
1:R:94:MSE:C	1:R:96:ASP:N	2.54	0.45
1:E:100:ARG:HA	1:F:90:TRP:HH2	1.82	0.45
1:E:116:LYS:HE2	1:F:120:ARG:HH22	1.81	0.45

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:G:47:GLN:OE1	1:G:53:ARG:HD2	2.16	0.45
1:C:17:TYR:HB3	1:C:23:PRO:HA	1.98	0.45
1:F:90:TRP:CZ2	1:F:94:MSE:HE3	2.51	0.45
1:E:116:LYS:HE2	1:F:120:ARG:NH2	2.31	0.45
1:O:59:ALA:O	1:O:62:ALA:HB3	2.17	0.45
1:C:77:ASP:C	1:C:77:ASP:OD2	2.53	0.45
1:Q:90:TRP:CZ2	1:R:100:ARG:CG	2.92	0.45
1:R:124:LEU:HD12	1:R:124:LEU:HA	1.84	0.45
1:O:17:TYR:HB2	1:O:18:PRO:CD	2.47	0.45
1:R:126:ARG:HA	1:R:131:ASP:C	2.37	0.45
1:P:47:GLN:NE2	1:P:53:ARG:NH1	2.64	0.45
1:J:125:ARG:O	1:J:131:ASP:N	2.48	0.45
1:D:8:ARG:NH1	1:D:81:TYR:HB2	2.32	0.45
1:C:45:LEU:O	1:C:45:LEU:HD12	2.17	0.45
1:K:94:MSE:O	1:L:94:MSE:HE2	2.16	0.45
1:K:26:SER:HB3	1:K:45:LEU:HD23	1.97	0.45
1:O:17:TYR:CE1	1:O:22:GLY:HA2	2.51	0.45
1:C:13:PHE:CG	1:C:49:ARG:NH2	2.84	0.45
1:C:17:TYR:N	1:C:17:TYR:CD2	2.84	0.45
1:B:64:LEU:C	1:B:66:ASN:H	2.19	0.45
1:C:21:ARG:HG2	1:C:22:GLY:N	2.32	0.45
1:E:90:TRP:CE3	1:E:94:MSE:HE2	2.52	0.45
1:O:47:GLN:CB	1:O:53:ARG:HG2	2.47	0.45
1:N:40:MSE:HE1	1:N:64:LEU:HD21	1.98	0.45
1:M:94:MSE:HB2	1:N:94:MSE:CE	2.24	0.45
1:O:53:ARG:HA	1:O:53:ARG:HD3	1.79	0.45
1:G:42:ALA:N	1:G:43:PRO:HD2	2.31	0.45
1:K:43:PRO:HA	1:K:46:SER:HB2	1.98	0.45
1:D:13:PHE:O	1:D:23:PRO:HB3	2.17	0.45
1:L:44:TYR:CE1	1:L:53:ARG:HG2	2.52	0.45
1:A:105:ARG:HD3	1:B:118:LEU:HD11	1.98	0.45
1:M:110:PRO:HG3	1:N:128:GLU:OE1	2.16	0.45
1:L:109:LEU:HB3	1:L:113:ALA:HB3	1.99	0.45
1:N:111:SER:O	1:N:112:ALA:C	2.54	0.45
1:R:93:THR:O	1:R:94:MSE:O	2.35	0.45
1:K:105:ARG:HD3	1:L:118:LEU:CD1	2.39	0.45
1:K:41:SER:CB	1:K:44:TYR:HB3	2.44	0.45
1:L:11:ARG:HG3	1:L:88:LEU:HD23	1.98	0.45
1:F:64:LEU:C	1:F:66:ASN:N	2.70	0.45
1:F:92:CYS:O	1:F:94:MSE:O	2.34	0.44
1:K:21:ARG:NH2	1:K:28:GLU:CD	2.71	0.44
1:G:21:ARG:HH22	1:G:28:GLU:CD	2.19	0.44

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:N:125:ARG:CZ	1:N:131:ASP:OD2	2.65	0.44
1:D:114:GLN:O	1:D:117:VAL:HB	2.16	0.44
1:E:17:TYR:CD2	1:E:17:TYR:N	2.85	0.44
1:I:21:ARG:HG2	1:I:22:GLY:H	1.81	0.44
1:P:40:MSE:HB2	1:P:40:MSE:HE3	1.92	0.44
1:J:71:LYS:HB2	1:J:80:TYR:CE2	2.52	0.44
1:I:107:HIS:CD2	1:I:107:HIS:O	2.70	0.44
1:I:29:VAL:O	1:I:30:ILE:C	2.55	0.44
1:C:21:ARG:HG2	1:C:22:GLY:H	1.82	0.44
1:Q:90:TRP:HH2	1:Q:94:MSE:CE	2.30	0.44
1:O:57:SER:C	1:O:59:ALA:N	2.70	0.44
1:N:120:ARG:CZ	1:N:124:LEU:HD21	2.48	0.44
1:I:107:HIS:HD2	1:J:96:ASP:OD2	2.00	0.44
1:G:78:ASP:O	1:G:81:TYR:HB3	2.17	0.44
1:F:85:ASP:HA	1:F:88:LEU:HB2	1.99	0.44
1:L:90:TRP:CZ2	1:L:94:MSE:HE3	2.53	0.44
1:P:62:ALA:O	1:P:66:ASN:CG	2.56	0.44
1:F:24:HIS:CD2	1:F:67:PHE:HE2	2.35	0.44
1:B:94:MSE:O	1:B:95:ARG:HG2	2.18	0.44
1:P:50:SER:OG	1:P:51:GLY:N	2.49	0.44
1:R:34:LYS:C	1:R:36:GLU:N	2.64	0.44
1:J:124:LEU:O	1:J:128:GLU:HB2	2.18	0.44
1:O:25:THR:C	1:O:27:ALA:H	2.21	0.44
1:E:83:LYS:O	1:E:83:LYS:HG2	2.17	0.44
1:Q:90:TRP:HH2	1:Q:94:MSE:HE1	1.82	0.44
1:M:21:ARG:HG2	1:M:22:GLY:N	2.33	0.44
1:Q:90:TRP:HZ2	1:R:100:ARG:CB	2.30	0.44
1:H:91:LEU:O	1:H:95:ARG:HG2	2.17	0.44
1:M:88:LEU:HA	1:M:91:LEU:HD12	1.99	0.44
1:R:114:GLN:O	1:R:114:GLN:HG2	2.17	0.44
1:H:41:SER:HB2	1:H:44:TYR:H	1.83	0.44
1:C:100:ARG:HA	1:D:90:TRP:HH2	1.82	0.44
1:G:93:THR:CG2	1:G:93:THR:O	2.65	0.44
1:D:65:ALA:CB	1:D:72:ALA:HA	2.48	0.44
1:H:110:PRO:O	1:H:111:SER:C	2.56	0.44
1:H:125:ARG:NH2	1:H:130:ILE:HG22	2.33	0.44
1:P:68:PHE:O	1:P:69:ARG:HB2	2.18	0.44
1:M:103:ALA:HB1	1:N:99:VAL:HG13	2.00	0.44
1:A:16:VAL:HG12	1:A:16:VAL:O	2.18	0.44
1:O:15:THR:HG22	1:O:16:VAL:N	2.33	0.44
1:A:100:ARG:HD2	1:B:90:TRP:CZ2	2.53	0.44
1:A:42:ALA:HB3	1:A:43:PRO:CD	2.48	0.44

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:R:17:TYR:CG	1:R:23:PRO:HA	2.53	0.44
1:J:73:ALA:O	1:J:77:ASP:N	2.51	0.44
1:G:91:LEU:HD23	1:H:94:MSE:SE	2.68	0.43
1:J:95:ARG:H	1:J:100:ARG:HE	1.66	0.43
1:R:90:TRP:HE3	1:R:90:TRP:O	1.99	0.43
1:P:41:SER:OG	1:P:43:PRO:HD2	2.18	0.43
1:L:115:GLN:O	1:L:115:GLN:OE1	2.36	0.43
1:G:11:ARG:HH21	1:G:85:ASP:CG	2.22	0.43
1:M:94:MSE:HB3	1:N:94:MSE:HE2	1.95	0.43
1:F:124:LEU:HA	1:F:124:LEU:HD23	1.72	0.43
1:P:48:LEU:HD23	1:P:48:LEU:HA	1.90	0.43
1:N:81:TYR:O	1:N:85:ASP:HB2	2.18	0.43
1:B:91:LEU:O	1:B:94:MSE:O	2.36	0.43
1:D:120:ARG:HD2	1:D:123:GLU:OE2	2.18	0.43
1:F:71:LYS:HD3	1:F:80:TYR:CZ	2.53	0.43
1:G:103:ALA:O	1:H:99:VAL:HG13	2.19	0.43
1:G:94:MSE:CE	1:H:94:MSE:CB	2.96	0.43
1:P:91:LEU:N	1:P:91:LEU:HD13	2.33	0.43
1:M:100:ARG:HG3	1:N:90:TRP:CZ3	2.53	0.43
1:I:94:MSE:HE3	1:J:100:ARG:HG2	2.00	0.43
1:K:25:THR:OG1	1:K:28:GLU:HG3	2.18	0.43
1:K:42:ALA:N	1:K:43:PRO:HD2	2.33	0.43
1:D:84:LEU:O	1:D:88:LEU:HD13	2.18	0.43
1:F:24:HIS:CD2	1:F:67:PHE:CE2	3.07	0.43
1:J:65:ALA:O	1:J:70:ILE:HG13	2.19	0.43
1:C:98:GLY:O	1:C:102:ILE:HD12	2.18	0.43
1:I:14:ASP:O	1:I:17:TYR:HE2	2.02	0.43
1:B:45:LEU:O	1:B:49:ARG:HG3	2.18	0.43
1:Q:97:ASP:HA	1:Q:100:ARG:HB3	2.00	0.43
1:C:95:ARG:NE	1:D:94:MSE:HE1	2.34	0.43
1:I:105:ARG:HD3	1:J:118:LEU:HD11	2.00	0.43
1:E:109:LEU:HD23	1:F:130:ILE:HD13	1.97	0.43
1:I:101:ARG:NH1	1:I:101:ARG:HG2	2.29	0.43
1:J:68:PHE:O	1:J:69:ARG:HB2	2.18	0.43
1:B:11:ARG:HH22	1:B:89:GLN:HB2	1.84	0.43
1:Q:42:ALA:N	1:Q:43:PRO:HD2	2.32	0.43
1:N:8:ARG:HG2	1:N:81:TYR:CE1	2.54	0.43
1:E:67:PHE:HD2	1:E:68:PHE:CD2	2.36	0.43
1:M:17:TYR:HB2	1:M:18:PRO:CD	2.49	0.43
1:B:87:GLU:O	1:B:90:TRP:HB3	2.18	0.43
1:P:34:LYS:C	1:P:36:GLU:N	2.70	0.43
1:M:118:LEU:HA	1:M:118:LEU:HD23	1.79	0.43

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:O:25:THR:O	1:O:27:ALA:N	2.52	0.43
1:F:25:THR:OG1	1:F:28:GLU:HG3	2.19	0.43
1:C:94:MSE:HA	1:C:99:VAL:HG11	2.00	0.43
1:I:26:SER:O	1:I:27:ALA:C	2.57	0.43
1:Q:27:ALA:O	1:Q:28:GLU:C	2.57	0.43
1:F:42:ALA:HB3	1:F:43:PRO:HD3	2.00	0.43
1:I:123:GLU:O	1:I:124:LEU:C	2.56	0.43
1:J:26:SER:HB3	1:J:45:LEU:HD23	2.01	0.43
1:R:21:ARG:HG2	1:R:22:GLY:H	1.82	0.43
1:B:78:ASP:O	1:B:82:GLU:N	2.51	0.43
1:C:95:ARG:O	1:C:96:ASP:C	2.56	0.43
1:L:108:GLY:O	1:L:109:LEU:C	2.56	0.43
1:R:15:THR:HG21	1:R:88:LEU:HG	2.01	0.43
1:D:90:TRP:CZ2	1:D:94:MSE:HE3	2.53	0.43
1:B:11:ARG:NH2	1:B:85:ASP:OD1	2.51	0.43
1:E:12:LEU:HD23	1:E:12:LEU:HA	1.88	0.43
1:H:71:LYS:HB2	1:H:80:TYR:CZ	2.53	0.43
1:Q:87:GLU:O	1:Q:91:LEU:HD13	2.19	0.43
1:I:85:ASP:HA	1:I:88:LEU:HB2	2.00	0.43
1:F:89:GLN:OE1	1:F:89:GLN:HA	2.19	0.43
1:E:41:SER:OG	1:E:43:PRO:HD2	2.19	0.43
1:L:120:ARG:O	1:L:121:ILE:C	2.57	0.43
1:E:86:LYS:HB2	1:E:86:LYS:HE3	1.62	0.43
1:L:82:GLU:O	1:L:83:LYS:C	2.58	0.42
1:E:105:ARG:C	1:E:107:HIS:H	2.21	0.42
1:D:15:THR:O	1:D:91:LEU:HD12	2.19	0.42
1:R:69:ARG:O	1:R:70:ILE:HD13	2.19	0.42
1:J:105:ARG:O	1:J:105:ARG:HG2	2.19	0.42
1:G:105:ARG:CG	1:G:105:ARG:HH11	2.07	0.42
1:Q:107:HIS:CD2	1:R:96:ASP:OD1	2.72	0.42
1:B:90:TRP:CE2	1:B:94:MSE:HE3	2.53	0.42
1:D:124:LEU:HD23	1:D:124:LEU:HA	1.76	0.42
1:A:120:ARG:O	1:A:123:GLU:HB2	2.19	0.42
1:Q:65:ALA:HB2	1:Q:75:PHE:HE2	1.83	0.42
1:P:89:GLN:O	1:P:93:THR:HG23	2.20	0.42
1:E:95:ARG:HD3	1:F:94:MSE:HE1	2.01	0.42
1:N:16:VAL:HG12	1:N:16:VAL:O	2.19	0.42
1:K:41:SER:OG	1:K:44:TYR:N	2.41	0.42
1:D:89:GLN:O	1:D:93:THR:HG23	2.19	0.42
1:P:5:PHE:CE2	1:P:9:LEU:HD22	2.55	0.42
1:B:33:LEU:HD23	1:B:38:ILE:HG21	2.00	0.42
1:M:90:TRP:CZ2	1:N:100:ARG:HB3	2.54	0.42

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:R:13:PHE:O	1:R:23:PRO:HB3	2.19	0.42
1:M:87:GLU:OE2	1:N:100:ARG:CZ	2.67	0.42
1:B:89:GLN:OE1	1:B:89:GLN:HA	2.19	0.42
1:B:64:LEU:C	1:B:66:ASN:N	2.72	0.42
1:R:21:ARG:HH22	1:R:28:GLU:CD	2.22	0.42
1:A:17:TYR:N	1:A:17:TYR:CD2	2.88	0.42
1:D:34:LYS:C	1:D:36:GLU:H	2.23	0.42
1:I:90:TRP:C	1:I:92:CYS:H	2.23	0.42
1:R:93:THR:C	1:R:94:MSE:O	2.57	0.42
1:D:90:TRP:CE2	1:D:94:MSE:HE3	2.54	0.42
1:A:40:MSE:HE2	1:A:45:LEU:CB	2.40	0.42
1:E:109:LEU:O	1:E:110:PRO:O	2.38	0.42
1:O:42:ALA:N	1:O:43:PRO:CD	2.82	0.42
1:E:121:ILE:O	1:E:125:ARG:HG3	2.20	0.42
1:O:18:PRO:CG	1:O:21:ARG:HD3	2.49	0.42
1:F:47:GLN:HB3	1:F:53:ARG:HG2	2.02	0.42
1:K:42:ALA:HB3	1:K:43:PRO:HD2	2.00	0.42
1:I:107:HIS:HB2	1:J:99:VAL:HG21	2.00	0.42
1:R:11:ARG:HG3	1:R:88:LEU:HD23	2.01	0.42
1:F:13:PHE:O	1:F:23:PRO:HB3	2.19	0.42
1:K:107:HIS:CD2	1:L:96:ASP:CG	2.93	0.42
1:N:115:GLN:O	1:N:119:ASP:CG	2.58	0.42
1:Q:94:MSE:HE3	1:R:99:VAL:CG1	2.49	0.42
1:R:80:TYR:O	1:R:81:TYR:C	2.58	0.42
1:C:67:PHE:O	1:C:67:PHE:CD2	2.73	0.42
1:B:18:PRO:HD3	1:B:24:HIS:CE1	2.55	0.42
1:I:123:GLU:O	1:I:125:ARG:N	2.53	0.42
1:D:77:ASP:OD2	1:D:80:TYR:N	2.37	0.42
1:R:57:SER:OG	1:R:59:ALA:N	2.52	0.42
1:N:21:ARG:NH2	1:N:28:GLU:OE2	2.43	0.42
1:P:26:SER:O	1:P:30:ILE:HG13	2.19	0.42
1:O:88:LEU:O	1:O:91:LEU:HB2	2.19	0.42
1:M:91:LEU:HB3	1:M:95:ARG:HH21	1.85	0.42
1:D:42:ALA:N	1:D:43:PRO:HD2	2.35	0.42
1:J:115:GLN:OE1	1:J:118:LEU:HD23	2.20	0.42
1:G:12:LEU:HD13	1:G:68:PHE:CD2	2.54	0.42
1:Q:59:ALA:O	1:Q:62:ALA:N	2.53	0.42
1:M:94:MSE:HE1	1:N:100:ARG:HG2	2.01	0.42
1:M:18:PRO:O	1:M:21:ARG:HB3	2.20	0.42
1:R:126:ARG:HG2	1:R:131:ASP:HB3	2.01	0.42
1:D:74:TYR:CD1	1:D:84:LEU:HD23	2.54	0.42
1:M:4:THR:O	1:M:5:PHE:C	2.58	0.42

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:G:57:SER:O	1:G:61:MSE:HG3	2.20	0.42
1:B:115:GLN:HE21	1:B:115:GLN:HB2	1.69	0.42
1:R:48:LEU:HA	1:R:48:LEU:HD23	1.79	0.42
1:P:78:ASP:HA	1:P:81:TYR:HB3	2.02	0.42
1:P:15:THR:O	1:P:91:LEU:HD23	2.20	0.42
1:M:90:TRP:CE2	1:N:100:ARG:HD3	2.54	0.42
1:B:109:LEU:HB2	1:B:114:GLN:HG3	2.02	0.42
1:F:121:ILE:O	1:F:124:LEU:HB2	2.20	0.42
1:L:94:MSE:O	1:L:95:ARG:HG2	2.19	0.42
1:K:21:ARG:NH1	1:K:22:GLY:O	2.46	0.42
1:L:11:ARG:O	1:L:15:THR:HG22	2.19	0.42
1:N:24:HIS:CD2	1:N:67:PHE:CE2	3.08	0.42
1:H:97:ASP:O	1:H:100:ARG:HB2	2.20	0.42
1:J:72:ALA:O	1:J:75:PHE:N	2.46	0.42
1:Q:10:ASN:O	1:Q:13:PHE:HB2	2.20	0.42
1:K:82:GLU:O	1:K:86:LYS:HE3	2.19	0.42
1:B:112:ALA:O	1:B:116:LYS:HG3	2.20	0.42
1:F:94:MSE:O	1:F:95:ARG:CG	2.68	0.41
1:L:90:TRP:HA	1:L:93:THR:HG23	2.01	0.41
1:O:80:TYR:O	1:O:81:TYR:C	2.58	0.41
1:O:64:LEU:O	1:O:65:ALA:C	2.57	0.41
1:O:90:TRP:HZ2	1:P:94:MSE:CA	2.31	0.41
1:A:42:ALA:N	1:A:43:PRO:HD2	2.35	0.41
1:Q:25:THR:O	1:Q:26:SER:C	2.59	0.41
1:F:53:ARG:HG3	1:F:53:ARG:NH1	2.34	0.41
1:R:72:ALA:O	1:R:76:THR:HG23	2.20	0.41
1:O:87:GLU:O	1:O:91:LEU:HG	2.20	0.41
1:P:91:LEU:O	1:P:94:MSE:HB2	2.20	0.41
1:I:114:GLN:CD	1:J:98:GLY:HA3	2.40	0.41
1:E:120:ARG:O	1:E:120:ARG:HG3	2.20	0.41
1:N:24:HIS:HA	1:N:28:GLU:OE2	2.20	0.41
1:C:109:LEU:HD22	1:C:113:ALA:HB1	2.02	0.41
1:J:90:TRP:CE2	1:J:94:MSE:HE3	2.54	0.41
1:Q:107:HIS:ND1	1:R:93:THR:HA	2.34	0.41
1:O:59:ALA:O	1:O:60:THR:C	2.58	0.41
1:I:42:ALA:HB3	1:I:43:PRO:CD	2.49	0.41
1:E:120:ARG:O	1:E:124:LEU:HG	2.20	0.41
1:Q:5:PHE:CE2	1:Q:9:LEU:HD22	2.55	0.41
1:Q:12:LEU:HD13	1:Q:68:PHE:CD2	2.55	0.41
1:G:94:MSE:O	1:G:95:ARG:HD3	2.21	0.41
1:P:80:TYR:HE2	1:P:84:LEU:HD22	1.86	0.41
1:C:18:PRO:HD2	1:C:21:ARG:CD	2.43	0.41

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:Q:94:MSE:HG2	1:R:90:TRP:CZ3	2.54	0.41
1:A:90:TRP:CE3	1:A:94:MSE:CE	3.00	0.41
1:P:35:ALA:O	1:P:36:GLU:HG3	2.21	0.41
1:G:125:ARG:O	1:G:126:ARG:CB	2.66	0.41
1:M:88:LEU:HA	1:M:88:LEU:HD12	1.71	0.41
1:Q:47:GLN:HA	1:Q:50:SER:OG	2.20	0.41
1:J:33:LEU:O	1:J:38:ILE:O	2.39	0.41
1:O:66:ASN:O	1:O:69:ARG:N	2.54	0.41
1:L:8:ARG:O	1:L:11:ARG:HB3	2.19	0.41
1:A:85:ASP:O	1:A:85:ASP:OD1	2.38	0.41
1:I:107:HIS:CD2	1:J:96:ASP:OD2	2.74	0.41
1:H:9:LEU:O	1:H:10:ASN:C	2.56	0.41
1:D:44:TYR:CE1	1:D:53:ARG:NH1	2.89	0.41
1:G:30:ILE:HD11	1:G:40:MSE:HG2	2.02	0.41
1:B:33:LEU:HD23	1:B:38:ILE:CG2	2.50	0.41
1:M:87:GLU:CD	1:N:100:ARG:HH22	2.23	0.41
1:G:105:ARG:CG	1:G:105:ARG:NH1	2.71	0.41
1:I:45:LEU:O	1:I:48:LEU:N	2.54	0.41
1:K:91:LEU:HD23	1:L:94:MSE:SE	2.71	0.41
1:J:109:LEU:HB2	1:J:114:GLN:HG3	2.02	0.41
1:D:88:LEU:O	1:D:91:LEU:HB2	2.21	0.41
1:O:90:TRP:O	1:O:91:LEU:C	2.59	0.41
1:G:105:ARG:NE	1:H:122:ASP:OD1	2.32	0.41
1:Q:106:ALA:O	1:Q:109:LEU:HB2	2.20	0.41
1:H:53:ARG:NH1	1:H:53:ARG:HG3	2.34	0.41
1:O:30:ILE:O	1:O:31:ALA:C	2.60	0.41
1:O:47:GLN:O	1:O:48:LEU:C	2.59	0.41
1:E:122:ASP:OD2	1:F:105:ARG:NH1	2.45	0.41
1:Q:67:PHE:C	1:Q:69:ARG:H	2.25	0.41
1:F:44:TYR:CE2	1:F:48:LEU:HD11	2.56	0.41
1:K:68:PHE:O	1:K:69:ARG:HB2	2.21	0.41
1:R:71:LYS:C	1:R:73:ALA:H	2.22	0.41
1:F:2:SER:N	1:F:78:ASP:OD1	2.53	0.41
1:N:87:GLU:O	1:N:91:LEU:HG	2.21	0.41
1:Q:90:TRP:CH2	1:Q:94:MSE:CE	3.04	0.41
1:F:11:ARG:HH22	1:F:89:GLN:HB2	1.86	0.41
1:E:90:TRP:CZ3	1:E:94:MSE:HE2	2.56	0.41
1:L:53:ARG:HA	1:L:53:ARG:HD3	1.53	0.41
1:M:109:LEU:HA	1:M:110:PRO:HD2	1.81	0.41
1:F:111:SER:O	1:F:112:ALA:C	2.59	0.41
1:N:104:GLN:HG3	1:N:105:ARG:N	2.35	0.41
1:R:70:ILE:CG2	1:R:71:LYS:N	2.84	0.41

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:K:89:GLN:O	1:K:92:CYS:N	2.51	0.41
1:A:78:ASP:O	1:A:82:GLU:HG3	2.21	0.41
1:M:21:ARG:NH1	1:M:22:GLY:O	2.55	0.40
1:B:26:SER:HB3	1:B:45:LEU:HD21	2.01	0.40
1:Q:109:LEU:HD22	1:R:121:ILE:HG23	2.04	0.40
1:Q:110:PRO:HD2	1:Q:113:ALA:HB3	2.02	0.40
1:H:44:TYR:CE1	1:H:53:ARG:HG3	2.56	0.40
1:C:56:PRO:HB2	1:C:60:THR:CG2	2.51	0.40
1:I:103:ALA:HB1	1:J:99:VAL:CG1	2.50	0.40
1:B:13:PHE:HZ	1:B:29:VAL:HG21	1.86	0.40
1:Q:11:ARG:NH2	1:Q:85:ASP:OD2	2.52	0.40
1:C:48:LEU:HD23	1:C:48:LEU:HA	1.67	0.40
1:G:71:LYS:HB2	1:G:80:TYR:CE2	2.55	0.40
1:P:78:ASP:N	1:P:78:ASP:OD2	2.53	0.40
1:K:21:ARG:HG2	1:K:22:GLY:N	2.37	0.40
1:R:124:LEU:O	1:R:128:GLU:HB2	2.21	0.40
1:N:5:PHE:CE2	1:N:56:PRO:HG3	2.56	0.40
1:F:67:PHE:CD2	1:F:67:PHE:C	2.94	0.40
1:Q:65:ALA:HB2	1:Q:75:PHE:CE2	2.56	0.40
1:C:8:ARG:O	1:C:11:ARG:HB3	2.22	0.40
1:C:4:THR:O	1:C:7:ALA:N	2.54	0.40
1:B:46:SER:O	1:B:49:ARG:N	2.55	0.40
1:F:53:ARG:HH11	1:F:53:ARG:HG3	1.87	0.40
1:C:78:ASP:O	1:C:82:GLU:HG3	2.20	0.40
1:L:29:VAL:O	1:L:33:LEU:HD13	2.21	0.40
1:D:109:LEU:HB2	1:D:114:GLN:NE2	2.37	0.40
1:L:120:ARG:O	1:L:122:ASP:N	2.54	0.40
1:C:18:PRO:O	1:C:21:ARG:HB3	2.20	0.40
1:E:10:ASN:OD1	1:E:49:ARG:NE	2.52	0.40
1:M:40:MSE:CE	1:M:60:THR:HG23	2.51	0.40
1:D:84:LEU:HG	1:D:88:LEU:HD11	2.03	0.40
1:L:34:LYS:C	1:L:36:GLU:H	2.25	0.40
1:O:90:TRP:CE2	1:P:94:MSE:HB3	2.57	0.40
1:M:95:ARG:CD	1:N:94:MSE:HE1	2.43	0.40
1:B:90:TRP:NE1	1:B:94:MSE:HE3	2.36	0.40
1:K:94:MSE:HE1	1:L:100:ARG:HA	2.04	0.40
1:K:41:SER:CB	1:K:44:TYR:HB2	2.51	0.40
1:F:38:ILE:HD13	1:F:63:ALA:HB1	2.02	0.40
1:G:77:ASP:C	1:G:77:ASP:OD2	2.60	0.40
1:B:68:PHE:O	1:B:69:ARG:HB2	2.21	0.40

All (4) 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	Distance(Å)	Clash(Å)
1:F:126:ARG:NH2	1:G:126:ARG:O[3.654]	2.05	0.15
1:M:52:ASN:ND2	1:N:50:SER:O[2.544]	2.13	0.07
1:G:53:ARG:NH2	1:J:14:ASP:OD1[2.544]	2.16	0.04
1:N:4:THR:OG1	2:M:133:HOH:O[3.655]	2.17	0.03

## 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	121/135 (90%)	106 (88%)	11 (9%)	4 (3%)	6	7
1	B	128/135 (95%)	116 (91%)	10 (8%)	2 (2%)	14	23
1	C	119/135 (88%)	106 (89%)	12 (10%)	1 (1%)	27	46
1	D	128/135 (95%)	115 (90%)	9 (7%)	4 (3%)	7	8
1	E	121/135 (90%)	104 (86%)	14 (12%)	3 (2%)	9	12
1	F	128/135 (95%)	116 (91%)	11 (9%)	1 (1%)	27	46
1	G	119/135 (88%)	106 (89%)	9 (8%)	4 (3%)	6	7
1	H	128/135 (95%)	114 (89%)	11 (9%)	3 (2%)	10	14
1	I	122/135 (90%)	99 (81%)	21 (17%)	2 (2%)	14	23
1	J	128/135 (95%)	116 (91%)	10 (8%)	2 (2%)	14	23
1	K	122/135 (90%)	112 (92%)	9 (7%)	1 (1%)	27	46
1	L	127/135 (94%)	112 (88%)	12 (9%)	3 (2%)	9	13
1	M	115/135 (85%)	103 (90%)	11 (10%)	1 (1%)	25	42
1	N	128/135 (95%)	111 (87%)	13 (10%)	4 (3%)	7	8
1	O	88/135 (65%)	64 (73%)	21 (24%)	3 (3%)	6	7
1	P	90/135 (67%)	79 (88%)	8 (9%)	3 (3%)	6	7
1	Q	114/135 (84%)	85 (75%)	24 (21%)	5 (4%)	4	4
1	R	119/135 (88%)	99 (83%)	12 (10%)	8 (7%)	2	1
All	All	2145/2430 (88%)	1863 (87%)	228 (11%)	54 (2%)	9	12

All (54) Ramachandran outliers are listed below:



Mol	Chain	Res	Type
1	A	93	THR
1	B	26	SER
1	H	95	ARG
1	P	35	ALA
1	Q	35	ALA
1	Q	111	SER
1	R	35	ALA
1	R	94	MSE
1	R	95	ARG
1	B	110	PRO
1	C	116	LYS
1	D	29	VAL
1	D	35	ALA
1	D	74	TYR
1	G	74	TYR
1	M	124	LEU
1	N	69	ARG
1	N	112	ALA
1	O	58	GLY
1	Q	98	GLY
1	Q	108	GLY
1	A	106	ALA
1	D	104	GLN
1	E	107	HIS
1	G	23	PRO
1	I	124	LEU
1	L	69	ARG
1	L	83	LYS
1	R	119	ASP
1	A	28	GLU
1	A	96	ASP
1	H	69	ARG
1	I	21	ARG
1	J	31	ALA
1	N	78	ASP
1	R	100	ARG
1	G	4	THR
1	G	69	ARG
1	H	111	SER
1	J	118	LEU
1	K	21	ARG
1	L	111	SER
1	O	26	SER

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Mol	Chain	Res	Type
1	O	85	ASP
1	P	81	TYR
1	Q	23	PRO
1	R	57	SER
1	R	82	GLU
1	E	24	HIS
1	E	110	PRO
1	F	65	ALA
1	N	110	PRO
1	R	23	PRO
1	P	23	PRO

### 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	98/103 (95%)	93 (95%)	5 (5%)	33	57
1	B	104/103 (101%)	99 (95%)	5 (5%)	35	60
1	C	97/103 (94%)	91 (94%)	6 (6%)	26	45
1	D	104/103 (101%)	98 (94%)	6 (6%)	28	49
1	E	100/103 (97%)	94 (94%)	6 (6%)	27	47
1	F	104/103 (101%)	90 (86%)	14 (14%)	6	10
1	G	98/103 (95%)	89 (91%)	9 (9%)	13	24
1	H	103/103 (100%)	96 (93%)	7 (7%)	22	39
1	I	99/103 (96%)	93 (94%)	6 (6%)	26	46
1	J	104/103 (101%)	98 (94%)	6 (6%)	28	49
1	K	99/103 (96%)	91 (92%)	8 (8%)	17	30
1	L	103/103 (100%)	97 (94%)	6 (6%)	28	49
1	M	94/103 (91%)	89 (95%)	5 (5%)	32	54
1	N	104/103 (101%)	97 (93%)	7 (7%)	23	40
1	O	72/103 (70%)	65 (90%)	7 (10%)	12	21
1	P	74/103 (72%)	70 (95%)	4 (5%)	31	53

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	Q	92/103 (89%)	85 (92%)	7 (8%)	19	33
1	R	100/103 (97%)	87 (87%)	13 (13%)	6	11
All	All	1749/1854 (94%)	1622 (93%)	127 (7%)	20	36

All (127) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	14	ASP
1	A	60	THR
1	A	88	LEU
1	A	105	ARG
1	A	120	ARG
1	B	15	THR
1	B	41	SER
1	B	93	THR
1	B	111	SER
1	B	115	GLN
1	C	17	TYR
1	C	46	SER
1	C	55	ASN
1	C	60	THR
1	C	88	LEU
1	C	119	ASP
1	D	15	THR
1	D	76	THR
1	D	78	ASP
1	D	107	HIS
1	D	111	SER
1	D	128	GLU
1	E	3	THR
1	E	17	TYR
1	E	46	SER
1	E	96	ASP
1	E	99	VAL
1	E	125	ARG
1	F	3	THR
1	F	11	ARG
1	F	15	THR
1	F	33	LEU
1	F	39	THR
1	F	41	SER

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Mol	Chain	Res	Type
1	F	46	SER
1	F	70	ILE
1	F	88	LEU
1	F	93	THR
1	F	95	ARG
1	F	115	GLN
1	F	126	ARG
1	F	131	ASP
1	G	11	ARG
1	G	15	THR
1	G	46	SER
1	G	82	GLU
1	G	94	MSE
1	G	96	ASP
1	G	102	ILE
1	G	105	ARG
1	G	111	SER
1	H	3	THR
1	H	15	THR
1	H	41	SER
1	H	88	LEU
1	H	93	THR
1	H	128	GLU
1	H	131	ASP
1	I	41	SER
1	I	46	SER
1	I	50	SER
1	I	96	ASP
1	I	102	ILE
1	I	111	SER
1	J	15	THR
1	J	17	TYR
1	J	41	SER
1	J	53	ARG
1	J	70	ILE
1	J	93	THR
1	K	3	THR
1	K	21	ARG
1	K	39	THR
1	K	46	SER
1	K	66	ASN
1	K	88	LEU

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Mol	Chain	Res	Type
1	K	93	THR
1	K	99	VAL
1	L	14	ASP
1	L	46	SER
1	L	53	ARG
1	L	78	ASP
1	L	93	THR
1	L	128	GLU
1	M	21	ARG
1	M	88	LEU
1	M	90	TRP
1	M	99	VAL
1	M	111	SER
1	N	2	SER
1	N	15	THR
1	N	46	SER
1	N	76	THR
1	N	88	LEU
1	N	95	ARG
1	N	107	HIS
1	O	15	THR
1	O	33	LEU
1	O	46	SER
1	O	70	ILE
1	O	78	ASP
1	O	89	GLN
1	O	92	CYS
1	P	21	ARG
1	P	78	ASP
1	P	90	TRP
1	P	91	LEU
1	Q	21	ARG
1	Q	53	ARG
1	Q	88	LEU
1	Q	90	TRP
1	Q	92	CYS
1	Q	94	MSE
1	Q	100	ARG
1	R	4	THR
1	R	21	ARG
1	R	36	GLU
1	R	39	THR

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Mol	Chain	Res	Type
1	R	46	SER
1	R	50	SER
1	R	57	SER
1	R	60	THR
1	R	88	LEU
1	R	90	TRP
1	R	91	LEU
1	R	119	ASP
1	R	130	ILE

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (30) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	89	GLN
1	A	115	GLN
1	B	24	HIS
1	B	52	ASN
1	B	115	GLN
1	D	52	ASN
1	D	66	ASN
1	D	115	GLN
1	F	24	HIS
1	F	66	ASN
1	F	115	GLN
1	G	52	ASN
1	G	107	HIS
1	G	114	GLN
1	H	52	ASN
1	I	107	HIS
1	J	52	ASN
1	K	107	HIS
1	K	115	GLN
1	L	47	GLN
1	L	52	ASN
1	N	52	ASN
1	O	52	ASN
1	P	47	GLN
1	P	52	ASN
1	Q	52	ASN
1	Q	104	GLN
1	R	47	GLN
1	R	52	ASN

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Mol	Chain	Res	Type
1	R	114	GLN

### 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 ⓘ

There are no ligands in this entry.

## 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, 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	123/135 (91%)	-0.42	0 100 100	21, 31, 60, 77	0
1	B	130/135 (96%)	-0.36	0 100 100	21, 31, 47, 57	0
1	C	123/135 (91%)	-0.41	0 100 100	19, 32, 62, 71	0
1	D	130/135 (96%)	-0.42	0 100 100	21, 31, 50, 59	0
1	E	125/135 (92%)	-0.40	0 100 100	20, 33, 57, 67	0
1	F	130/135 (96%)	-0.40	0 100 100	18, 29, 44, 54	0
1	G	123/135 (91%)	-0.41	0 100 100	21, 31, 56, 70	0
1	H	130/135 (96%)	-0.42	0 100 100	19, 29, 48, 63	0
1	I	124/135 (91%)	-0.41	0 100 100	21, 31, 62, 74	0
1	J	130/135 (96%)	-0.42	0 100 100	19, 28, 48, 62	0
1	K	124/135 (91%)	-0.44	1 (0%) 83 84	17, 29, 56, 74	0
1	L	129/135 (95%)	-0.38	0 100 100	22, 30, 47, 61	0
1	M	119/135 (88%)	-0.34	0 100 100	26, 37, 55, 64	0
1	N	130/135 (96%)	-0.53	0 100 100	23, 33, 45, 61	0
1	O	90/135 (66%)	-0.47	0 100 100	30, 36, 51, 60	0
1	P	92/135 (68%)	-0.49	1 (1%) 77 79	23, 33, 42, 58	0
1	Q	116/135 (85%)	-0.45	0 100 100	27, 37, 57, 69	0
1	R	123/135 (91%)	-0.39	1 (0%) 83 84	26, 35, 61, 75	0
All	All	2191/2430 (90%)	-0.42	3 (0%) 93 95	17, 33, 56, 77	0

All (3) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	R	104	GLN	2.7
1	P	92	CYS	2.4
1	K	96	ASP	2.1



## 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 ⓘ

There are no ligands in this entry.

## 6.5 Other polymers ⓘ

There are no such residues in this entry.