



Full wwPDB X-ray Structure Validation Report ⓘ

Nov 9, 2024 – 09:27 AM EST

PDB ID : 5U5Q
Title : 12 Subunit RNA Polymerase II at Room Temperature collected using SFX
Authors : Bushnell, D.A.; Oberthur, D.; Mariani, V.; Yefanov, O.; Tolstikova, A.; Barty, A.
Deposited on : 2016-12-07
Resolution : 3.80 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Xtriage (Phenix) : 1.20.1
EDS : 3.0
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4 : 9.0.003 (Gargrove)
Density-Fitness : 1.0.11
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

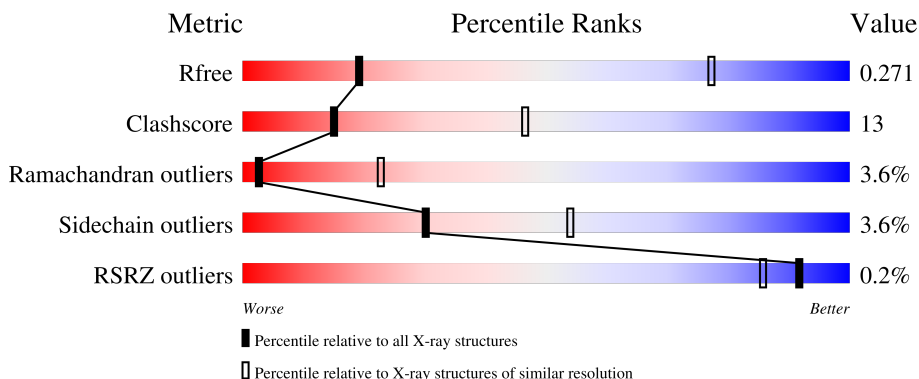
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.80 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.









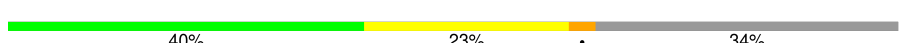
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	1025 (3.98-3.62)
Clashscore	180529	1005 (3.96-3.64)
Ramachandran outliers	177936	1044 (3.98-3.62)
Sidechain outliers	177891	1039 (3.98-3.62)
RSRZ outliers	164620	1025 (3.98-3.62)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1733	
2	B	1224	
3	C	318	
4	D	221	
5	E	215	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
6	F	155	
7	G	171	
8	H	146	
9	I	122	
10	J	70	
11	K	120	
12	L	70	

2 Entry composition [i](#)

There are 14 unique types of molecules in this entry. The entry contains 31634 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called DNA-directed RNA polymerase II subunit RPB1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	1434	11285	7106	1968	2149	62	38	0	0

- Molecule 2 is a protein called DNA-directed RNA polymerase II subunit RPB2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	1150	9138	5778	1601	1703	56	50	0	0

- Molecule 3 is a protein called DNA-directed RNA polymerase II subunit RPB3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	266	2095	1317	348	417	13	0	0	0

- Molecule 4 is a protein called DNA-directed RNA polymerase II subunit RPB4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	D	184	1415	877	250	285	3	0	0	0

- Molecule 5 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
5	E	215	1760	1116	310	322	12	0	0	0

- Molecule 6 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
6	F	87	705	451	119	132	3	0	0	0

- Molecule 7 is a protein called DNA-directed RNA polymerase II subunit RPB7.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
7	G	171	1340	861	222	249	8	0	0	0

- Molecule 8 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
8	H	137	1101	692	185	220	4	0	0	0

- Molecule 9 is a protein called DNA-directed RNA polymerase II subunit RPB9.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
9	I	119	971	596	179	186	10	0	0	0

- Molecule 10 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
10	J	65	532	339	93	94	6	0	0	0

- Molecule 11 is a protein called DNA-directed RNA polymerase II subunit RPB11.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
11	K	115	920	590	157	171	2	0	0	1

- Molecule 12 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
12	L	46	363	224	72	63	4	0	0	0

- Molecule 13 is ZINC ION (three-letter code: ZN) (formula: Zn).

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

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
13	C	1	Total 1	Zn 1	0	0
13	I	2	Total 2	Zn 2	0	0
13	J	1	Total 1	Zn 1	0	0
13	L	1	Total 1	Zn 1	0	0

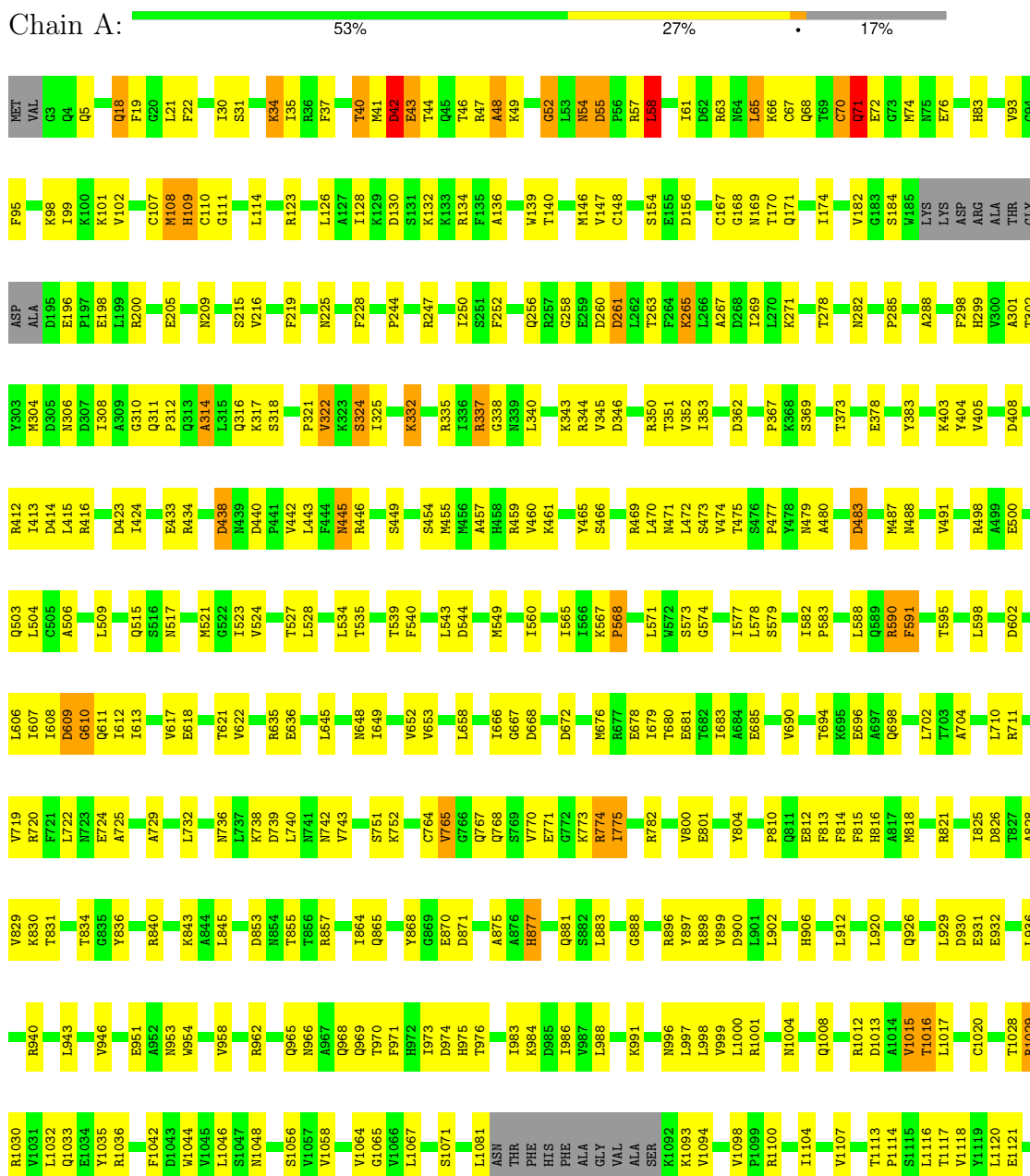
- Molecule 14 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
14	A	1	Total 1	Mg 1	0	0

3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: DNA-directed RNA polymerase II subunit RPB1



H1124	GLY	THR	THR	THR
A1125	GLY	THR	THR	THR
H1140	ALA	THR	THR	THR
V1146	TYR	THR	THR	THR
S1150	GLU	THR	THR	THR
E1151	GLU	THR	THR	THR
Y1152	GLU	THR	THR	THR
Y1154	PRO	THR	THR	THR
D1155	PHE	THR	THR	THR
P1158	GLY	THR	THR	THR
T1161	GLN	THR	THR	THR
E1255	ASP	THR	THR	THR
E1256	GLY	THR	THR	THR
I1163	GLY	THR	THR	THR
D1166	VAL	THR	THR	THR
I1170	THR	THR	THR	THR
M1259	THR	THR	THR	THR
I1263	THR	THR	THR	THR
M1267	ASN	THR	THR	THR
F1174	GLU	THR	THR	THR
S1175	VAL	THR	THR	THR
L1177	SER	THR	THR	THR
L1181	ASN	THR	THR	THR
Q1182	ASN	THR	THR	THR
E1183	ASP	THR	THR	THR
S1184	LEU	THR	THR	THR
F1185	ASP	THR	THR	THR
E1303	THR	THR	THR	THR
W1304	LYS	THR	THR	THR
Q1188	LYS	THR	THR	THR
W1191	ASP	THR	THR	THR
L1192	GLU	THR	THR	THR
L1195	LEU	THR	THR	THR
D1198	PRO	THR	THR	THR
A1201	VAL	THR	THR	THR
T1208	ASP	THR	THR	THR
S1331	GLY	THR	THR	THR
Q1211	ASN	THR	THR	THR
V1212	ASP	THR	THR	THR
R1215	ALA	THR	THR	THR
I1216	MET	THR	THR	THR
K1217	ALA	THR	THR	THR
Q1218	ALA	THR	THR	THR
T1219	GLY	THR	THR	THR
V1226	PHE	THR	THR	THR
E1351	THR	THR	THR	THR
V1355	ALA	THR	THR	THR
L1236	THR	THR	THR	THR
I1237	GLY	THR	THR	THR
I1238	ALA	THR	THR	THR
R1239	ASP	THR	THR	THR
C1240	VAL	THR	THR	THR
R1241	GLY	THR	THR	THR
W1242	LYS	THR	THR	THR
V1243	ILE	THR	THR	THR
R1244	THR	THR	THR	THR
P1245	GLU	THR	THR	THR
Y1246	PRO	THR	THR	THR
S1247	PHE	THR	THR	THR
L1248	GLY	THR	THR	THR
D1249	ALA	THR	THR	THR
A1250	GLN	THR	THR	THR
V1384	ASP	THR	THR	THR
T1385	GLY	THR	THR	THR
E1256	GLY	THR	THR	THR
R1386	GLY	THR	THR	THR
M1259	THR	THR	THR	THR
R1391	THR	THR	THR	THR
L1397	THR	THR	THR	THR
S1401	GLY	THR	THR	THR
F1402	VAL	THR	THR	THR
E1403	GLY	THR	THR	THR
E1404	LEU	THR	THR	THR
T1405	VAL	THR	THR	THR
V1406	PRO	THR	THR	THR
E1407	ASN	THR	THR	THR
I1408	ALA	THR	THR	THR
E1411	ASP	THR	THR	THR
A1414	VAL	THR	THR	THR
S1415	LYS	THR	THR	THR
A1416	ASP	THR	THR	THR
E1417	GLU	THR	THR	THR
L1418	LEU	THR	THR	THR
D1419	MET	THR	THR	THR
G1310	PHE	THR	THR	THR
V1311	SER	THR	THR	THR
G1423	SER	THR	THR	THR
V1424	LEU	THR	THR	THR
S1425	VAL	THR	THR	THR
E1426	ASP	THR	THR	THR
N1427	THR	THR	THR	THR
V1428	GLY	THR	THR	THR
A1434	ASN	THR	THR	THR
P1435	ASP	THR	THR	THR
I1436	ALA	THR	THR	THR
G1437	MET	THR	THR	THR
R1345	ALA	THR	THR	THR
T1438	ALA	THR	THR	THR
F1441	GLY	THR	THR	THR
D1442	THR	THR	THR	THR
V1443	ALA	THR	THR	THR
M1444	ALA	THR	THR	THR
D1369	THR	THR	THR	THR
L1371	GLN	THR	THR	THR
V1372	LEU	THR	THR	THR
D1373	THR	THR	THR	THR
V1374	THR	THR	THR	THR
M1375	PRO	THR	THR	THR
T1376	PRO	THR	THR	THR
T1377	PHE	THR	THR	THR
Q1378	GLY	THR	THR	THR
V1384	GLN	THR	THR	THR
T1385	ASP	THR	THR	THR
R1386	GLY	THR	THR	THR
M1259	THR	THR	THR	THR
R1391	THR	THR	THR	THR
L1397	THR	THR	THR	THR
S1401	GLY	THR	THR	THR
F1402	VAL	THR	THR	THR
E1403	GLY	THR	THR	THR
E1404	LEU	THR	THR	THR
T1405	VAL	THR	THR	THR
V1406	PRO	THR	THR	THR
E1407	ASN	THR	THR	THR
I1408	ALA	THR	THR	THR
E1411	ASP	THR	THR	THR
A1414	VAL	THR	THR	THR
S1415	LYS	THR	THR	THR
A1416	ASP	THR	THR	THR
E1417	GLU	THR	THR	THR
L1418	LEU	THR	THR	THR
D1419	MET	THR	THR	THR
G1310	PHE	THR	THR	THR
V1311	SER	THR	THR	THR
G1423	SER	THR	THR	THR
V1424	LEU	THR	THR	THR
S1425	VAL	THR	THR	THR
E1426	ASP	THR	THR	THR
N1427	THR	THR	THR	THR
V1428	GLY	THR	THR	THR
A1434	ASN	THR	THR	THR
P1435	ASP	THR	THR	THR
I1436	ALA	THR	THR	THR
G1437	MET	THR	THR	THR
R1345	ALA	THR	THR	THR
T1438	ALA	THR	THR	THR
F1441	GLY	THR	THR	THR
D1442	THR	THR	THR	THR
V1443	ALA	THR	THR	THR
M1444	ALA	THR	THR	THR

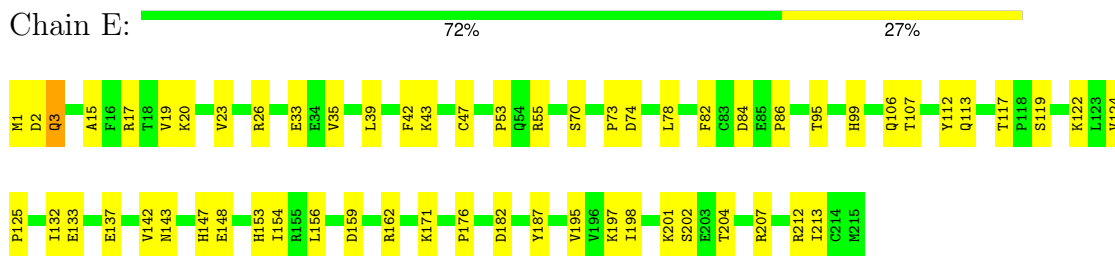
• Molecule 2: DNA-directed RNA polymerase II subunit RPB2

Chain B:

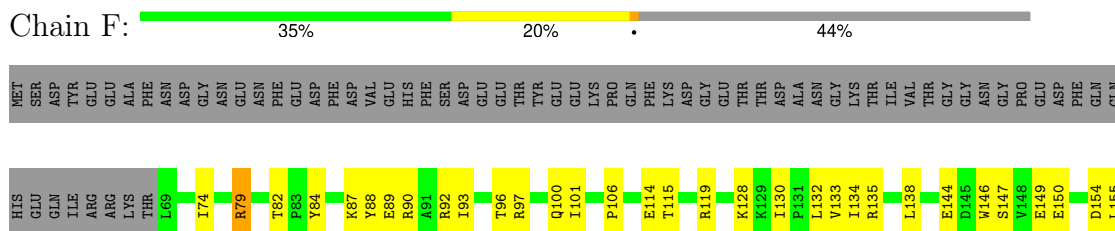


MET	THR	THR	THR	THR
SER	THR	THR	THR	THR
ASP	ASN	THR	THR	THR
LEU	LYS	THR	THR	THR
ALA	THR	THR	THR	THR
ASN	THR	THR	THR	THR
GLY	PRO	THR	THR	THR
GLU	THR	THR	THR	THR
D290	THR	THR	THR	THR
I25	THR	THR	THR	THR
T26	THR	THR	THR	THR
A27	THR	THR	THR	THR
E28	THR	THR	THR	THR
D29	ALA	THR	THR	THR
S30	TYR	THR	THR	THR
V33	LYS	THR	THR	THR
I34	ALA	THR	THR	THR
S35	ASP	THR	THR	THR
R39	GLN	THR	THR	THR
E40	THR	THR	THR	THR
K41	HIS	THR	THR	THR
V44	ASN	THR	THR	THR
S45	GLU	THR	THR	THR
Q46	ASN	THR	THR	THR
Q47	GLU	THR	THR	THR
L48	ASN	THR	THR	THR
D49	THR	THR	THR	THR
S50	PRO	THR	THR	THR
F51	ARG	THR	THR	THR
V55	THR	THR	THR	THR
D56	LEU	THR	THR	THR
T58	LYS	THR	THR	THR
T59	TYR	THR	THR	THR
D61	ILE	THR	THR	THR
I62	ALA	THR	THR	THR
Q76	GLU	THR	THR	THR
HIS	THR	THR	THR	THR
THR	THR	THR	THR	THR
THR	THR	THR	THR	THR
GLU	THR	THR	THR	THR
SER	THR	THR	THR	THR
ASP	GLU	THR	THR	THR
ASN	ILE	THR	THR	THR
ILE	ARG	THR	THR	THR
ARG	THR	THR	THR	THR
T209	THR	THR	THR	THR
E209	THR	THR	THR	THR
K210	THR	THR	THR	THR
P316	THR	THR	THR	THR
K315	THR	THR	THR	THR
P316	THR	THR	THR	THR
C317	THR	THR	THR	THR
V318	THR	THR	THR	THR
I324	THR	THR	THR	THR
Q215	THR	THR	THR	THR
A214	THR	THR	THR	THR
E216	THR	THR	THR	THR
R217	THR	THR	THR	THR
S218	THR	THR	THR	THR
L331	THR	THR	THR	THR
D332	THR	THR	THR	THR
F333	THR	THR	THR	THR
I334	THR	THR	THR	THR
G335	THR	THR	THR	THR
G338	THR	THR	THR	THR
I343	THR	THR	THR	THR
K344	THR	THR	THR	THR
K345	THR	THR	THR	THR
F346	THR	THR	THR	THR
K347	THR	THR	THR	THR
R348	THR	THR	THR	THR
I349	THR	THR	THR	THR
Q350	THR	THR	THR	THR
Y351	THR	THR	THR	THR
A352	THR	THR	THR	THR
K353	THR	THR	THR	THR
L356	THR	THR	THR	THR
L361	THR	THR	THR	THR
P362	THR	THR	THR	THR
K471	THR	THR	THR	THR
A472	THR	THR	THR	THR
S475	THR	THR	THR	THR
D576	THR	THR	THR	THR
A577	THR	THR	THR	THR
A477	THR	THR	THR	THR
G478	THR	THR	THR	THR
V479	THR	THR	THR	THR
S480	THR	THR	THR	THR
L483	THR	THR	THR	THR
W484	THR	THR	THR	THR
R485	THR	THR	THR	THR
H494	THR	THR	THR	THR
M610	THR	THR	THR	THR
L495	THR	THR	THR	THR
R496	THR	THR	THR	THR
R497	THR	THR	THR	THR
T498	THR	THR	THR	THR
N499	THR	THR	THR	THR
T500	THR	THR	THR	THR
G503	THR	THR	THR	THR
F623	THR	THR	THR	THR
P511	THR	THR	THR	THR
L521	THR	THR	THR	THR
V522	THR	THR	THR	THR
C523	THR	THR	THR	THR
T527	THR	THR	THR	THR
P528	THR	THR	THR	THR
E529	THR	THR	THR	THR
G530	THR	THR	THR	THR
Q531	THR	THR	THR	THR
A532	THR	THR	THR	THR
C533	THR	THR	THR	THR
G534	THR	THR	THR	THR
L535	THR	THR	THR	THR
V536	THR	THR	THR	THR
G537	THR	THR	THR	THR
S540	THR	THR	THR	THR
L541	THR	THR	THR	THR
M542	THR	THR	THR	THR
V547	THR	THR	THR	THR
P551	THR	THR	THR	THR
T452	THR	THR	THR	THR
I453	THR	THR	THR	THR
T454	THR	THR	THR	THR
I554	THR	THR	THR	THR
A559	THR	THR	THR	THR
I555	THR	THR	THR	THR
L558	THR	THR	THR	THR
S559	THR	THR	THR	THR
W466	THR	THR	THR	THR
G467	THR	THR	THR	THR
E468	THR	THR	THR	THR
Q469	THR	THR	THR	THR
K470	THR	THR	THR	THR
R471	THR	THR	THR	THR
A472	THR	THR	THR	THR
S475	THR	THR	THR	THR
D576	THR	THR	THR	THR
A577	THR	THR	THR	THR
A477	THR	THR	THR	THR
G478	THR	THR	THR	THR
V479	THR	THR	THR	THR
S480	THR	THR	THR	THR
L483	THR	THR	THR	THR
W484	THR	THR	THR	THR
R485	THR	THR	THR	THR
H494	THR	THR	THR	THR
M610	THR	THR	THR	THR
L495	THR	THR	THR	THR
R496	THR	THR	THR	THR
R497	THR	THR	THR	THR
T498	THR	THR	THR	THR
N499	THR	THR	THR	THR
T500	THR	THR	THR	THR
G503	THR	THR	THR	THR
F623	THR	THR	THR	THR
P511	THR	THR	THR	THR
L521	THR	THR	THR	THR
V522	THR	THR	THR	THR
C523	THR	THR	THR	THR
T527	THR	THR	THR	THR
P528	THR	THR	THR	THR
E529	THR	THR	THR	THR
G530	THR	THR	THR	THR
Q531	THR	THR	THR	THR
A532	THR	THR	THR	THR
C533	THR	THR	THR	THR
G534	THR	THR	THR	THR
L535	THR	THR	THR	THR
V536	THR	THR	THR	THR
G537	THR			

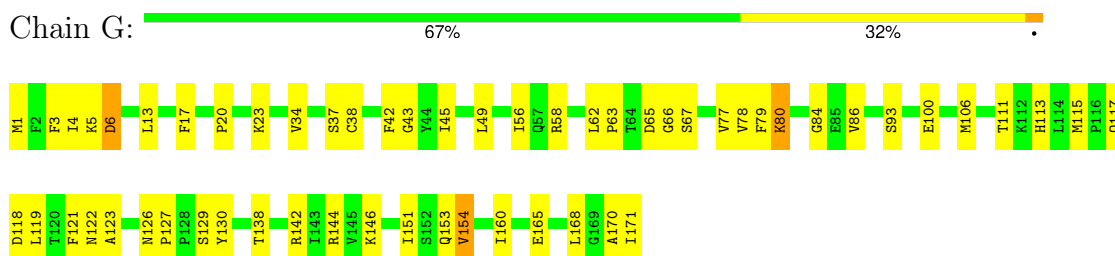
- Molecule 5: DNA-directed RNA polymerases I, II, and III subunit RPABC1



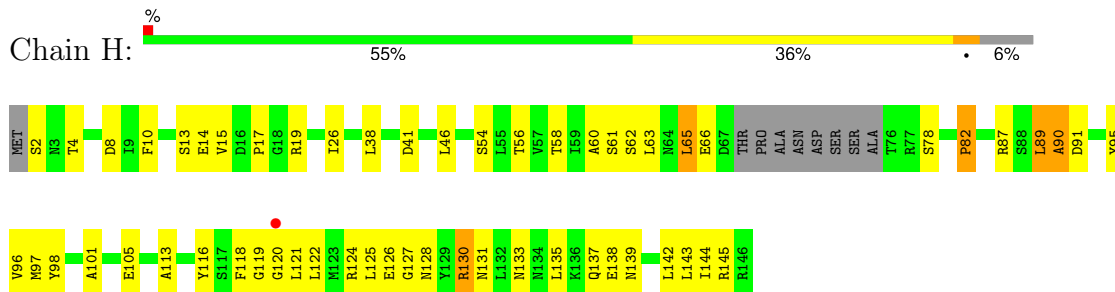
- Molecule 6: DNA-directed RNA polymerases I, II, and III subunit RPABC2



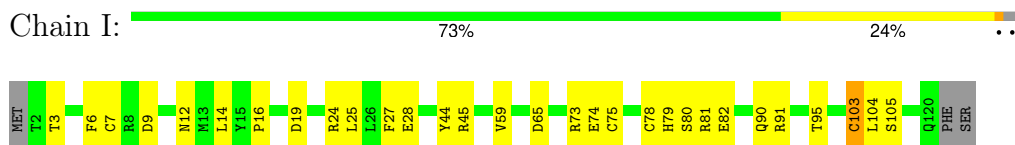
- Molecule 7: DNA-directed RNA polymerase II subunit RPB7



- Molecule 8: DNA-directed RNA polymerases I, II, and III subunit RPABC3



- Molecule 9: DNA-directed RNA polymerase II subunit RPB9




- Molecule 10: DNA-directed RNA polymerases I, II, and III subunit RPABC5

Chain J:  49% 36% 9% 7%



- Molecule 11: DNA-directed RNA polymerase II subunit RPB11

Chain K:  76% 18% . .



- Molecule 12: DNA-directed RNA polymerases I, II, and III subunit RPABC4

Chain L:  40% 23% . 34%



4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	223.40Å 396.80Å 287.90Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	40.61 – 3.80 40.61 – 3.80	Depositor EDS
% Data completeness (in resolution range)	98.9 (40.61-3.80) 98.8 (40.61-3.80)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.17 (at 3.76Å)	Xtrriage
Refinement program	PHENIX (dev_2356: ???)	Depositor
R, R_{free}	0.218 , 0.271 0.220 , 0.271	Depositor DCC
R_{free} test set	2524 reflections (2.01%)	wwPDB-VP
Wilson B-factor (Å ²)	141.0	Xtrriage
Anisotropy	0.340	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.28 , 180.5	EDS
L-test for twinning ²	$\langle L \rangle = 0.37$, $\langle L^2 \rangle = 0.19$	Xtrriage
Estimated twinning fraction	0.105 for 1/2*h-1/2*k,-3/2*h-1/2*k,-l 0.118 for 1/2*h+1/2*k,3/2*h-1/2*k,-l	Xtrriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	31634	wwPDB-VP
Average B, all atoms (Å ²)	169.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.91% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.25	0/11488	0.44	0/15539
2	B	0.25	0/9317	0.46	1/12566 (0.0%)
3	C	0.24	0/2133	0.43	0/2891
4	D	0.24	0/1426	0.41	0/1919
5	E	0.38	1/1796 (0.1%)	0.41	0/2416
6	F	0.24	0/717	0.41	0/967
7	G	0.25	0/1368	0.45	0/1844
8	H	0.24	0/1119	0.46	0/1515
9	I	0.25	0/989	0.46	0/1331
10	J	0.25	0/541	0.47	0/727
11	K	0.25	0/938	0.42	0/1267
12	L	0.23	0/365	0.46	0/485
All	All	0.26	1/32197 (0.0%)	0.44	1/43467 (0.0%)

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	A	0	1
2	B	0	4
All	All	0	5

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	E	124	VAL	C-N	12.32	1.57	1.34

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	758	PHE	CB-CG-CD1	-5.04	117.27	120.80

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	55	ASP	Peptide
2	B	755	ILE	Peptide
2	B	756	ILE	Peptide
2	B	757	PRO	Peptide
2	B	758	PHE	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	11285	0	11338	331	0
2	B	9138	0	9158	285	0
3	C	2095	0	2052	70	0
4	D	1415	0	1368	45	0
5	E	1760	0	1788	36	0
6	F	705	0	731	22	0
7	G	1340	0	1357	33	0
8	H	1101	0	1067	36	0
9	I	971	0	929	19	0
10	J	532	0	544	33	0
11	K	920	0	929	17	0
12	L	363	0	386	11	0
13	A	2	0	0	0	0
13	B	1	0	0	0	0
13	C	1	0	0	0	0
13	I	2	0	0	0	0
13	J	1	0	0	0	0
13	L	1	0	0	0	0
14	A	1	0	0	0	0
All	All	31634	0	31647	851	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including

hydrogen atoms). The all-atom clashscore for this structure is 13.

All (851) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:66:ARG:O	4:D:70:PHE:HB2	1.52	1.10
2:B:475:SER:H	2:B:476:ARG:HA	1.35	0.91
7:G:34:VAL:HG12	7:G:45:ILE:HG21	1.62	0.82
3:C:66:ARG:NH2	10:J:3:VAL:O	2.13	0.81
2:B:983:ARG:HD2	2:B:1091:TYR:HB3	1.63	0.80
6:F:82:THR:HG22	6:F:84:TYR:H	1.46	0.80
2:B:642:ASP:HB3	2:B:649:LYS:HG3	1.64	0.80
6:F:93:ILE:HD11	6:F:134:ILE:HD11	1.62	0.80
7:G:13:LEU:HD21	7:G:17:PHE:HB2	1.63	0.79
1:A:567:LYS:HB3	8:H:95:TYR:HA	1.66	0.78
1:A:110:CYS:SG	1:A:111:GLY:N	2.58	0.77
1:A:332:LYS:H	1:A:337:ARG:HB3	1.48	0.77
1:A:469:ARG:NH2	2:B:991:GLY:O	2.18	0.77
1:A:174:ILE:HA	1:A:182:VAL:O	1.85	0.76
1:A:54:ASN:HB3	1:A:247:ARG:HH12	1.50	0.76
1:A:636:GLU:OE2	1:A:962:ARG:NH1	2.18	0.75
11:K:92:ASN:O	11:K:96:ASN:ND2	2.18	0.75
10:J:44:TYR:HA	10:J:47:ARG:HB3	1.69	0.75
2:B:35:SER:HB3	2:B:39:ARG:HH21	1.52	0.75
3:C:123:ASN:ND2	3:C:125:MET:SD	2.60	0.75
1:A:353:ILE:HG21	1:A:487:MET:HG3	1.69	0.74
1:A:1044:TRP:O	1:A:1048:ASN:ND2	2.20	0.74
2:B:851:PHE:O	2:B:1094:ARG:NH1	2.20	0.74
3:C:36:VAL:HG21	3:C:251:LEU:HB2	1.69	0.73
1:A:1151:GLU:OE2	9:I:45:ARG:NH1	2.22	0.73
2:B:999:MET:HG2	2:B:1007:VAL:HG13	1.70	0.73
2:B:120:ARG:HG2	2:B:955:THR:HG21	1.71	0.73
1:A:37:PHE:HB2	1:A:52:GLY:HA3	1.69	0.72
1:A:1161:THR:HG22	1:A:1163:ILE:H	1.55	0.72
1:A:491:VAL:O	2:B:1150:ARG:NH2	2.22	0.72
2:B:260:GLY:O	2:B:267:ARG:NH1	2.23	0.72
1:A:868:TYR:CE1	1:A:1064:VAL:HG11	2.25	0.71
2:B:857:ARG:NH1	2:B:945:GLU:OE2	2.23	0.71
3:C:142:VAL:H	10:J:16:ASP:HB3	1.55	0.71
1:A:1424:VAL:HG22	1:A:1436:ILE:HD11	1.71	0.71
1:A:1161:THR:OG1	1:A:1239:ARG:NH2	2.24	0.70
9:I:19:ASP:HB3	9:I:24:ARG:HG2	1.72	0.70
8:H:2:SER:N	8:H:62:SER:HG	1.89	0.70

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:187:THR:HG22	4:D:189:ASP:H	1.57	0.70
5:E:47:CYS:HA	5:E:53:PRO:HA	1.74	0.69
3:C:145:CYS:SG	3:C:146:LYS:N	2.65	0.69
1:A:260:ASP:O	1:A:263:THR:OG1	2.10	0.69
5:E:143:ASN:ND2	5:E:187:TYR:OH	2.24	0.69
8:H:61:SER:OG	8:H:62:SER:N	2.22	0.69
2:B:642:ASP:HA	2:B:649:LYS:HA	1.76	0.68
2:B:56:ASP:OD2	2:B:177:LYS:NZ	2.27	0.68
1:A:343:LYS:NZ	2:B:1151:LEU:O	2.27	0.68
1:A:966:ASN:O	1:A:970:THR:OG1	2.09	0.68
2:B:899:ILE:HD11	2:B:911:ILE:HA	1.75	0.68
7:G:122:ASN:HB3	7:G:129:SER:O	1.94	0.68
1:A:278:THR:O	1:A:282:ASN:ND2	2.23	0.67
1:A:1081:LEU:HD11	1:A:1098:VAL:H	1.58	0.67
10:J:64:ASN:HB3	10:J:65:PRO:HD3	1.77	0.67
2:B:348:ARG:O	2:B:352:ALA:CB	2.43	0.67
4:D:50:LEU:HD11	7:G:4:ILE:HG13	1.74	0.67
2:B:763:GLN:HG2	2:B:765:PRO:HD2	1.77	0.67
1:A:946:VAL:HG13	5:E:201:LYS:HB3	1.75	0.67
3:C:100:THR:O	3:C:119:VAL:HB	1.95	0.67
2:B:217:ARG:NH1	2:B:407:ASP:OD1	2.28	0.67
2:B:995:ARG:HD3	11:K:6:ARG:HH12	1.59	0.67
3:C:44:LEU:HB3	3:C:74:SER:HB3	1.76	0.66
2:B:218:SER:OG	2:B:241:ARG:NH1	2.27	0.66
7:G:49:LEU:HD21	7:G:77:VAL:HG23	1.77	0.66
1:A:965:GLN:HA	1:A:968:GLN:HG3	1.77	0.66
2:B:215:GLN:O	2:B:406:LEU:HA	1.95	0.66
9:I:75:CYS:HB2	9:I:79:HIS:H	1.60	0.65
1:A:306:ASN:ND2	1:A:321:PRO:O	2.29	0.65
1:A:1170:ILE:HG22	1:A:1174:PHE:HE2	1.61	0.65
1:A:704:ALA:HB2	1:A:710:LEU:HG	1.79	0.65
1:A:732:LEU:O	1:A:736:ASN:HB2	1.97	0.65
1:A:899:VAL:HB	1:A:929:LEU:HD12	1.77	0.65
10:J:48:ARG:O	10:J:52:THR:OG1	2.15	0.65
11:K:18:LYS:NZ	11:K:38:GLU:OE2	2.30	0.65
1:A:1013:ASP:OD1	5:E:207:ARG:NH1	2.29	0.65
2:B:976:ILE:HD11	2:B:992:ILE:HA	1.78	0.65
8:H:95:TYR:HE1	8:H:97:MET:HG3	1.61	0.65
11:K:88:LYS:O	11:K:92:ASN:ND2	2.27	0.65
1:A:999:VAL:HG12	1:A:1000:LEU:HD12	1.80	0.64
1:A:30:ILE:O	2:B:1183:LYS:NZ	2.29	0.64

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1118:VAL:HG23	1:A:1306:LEU:HB2	1.79	0.64
1:A:1185:PHE:O	1:A:1188:GLN:NE2	2.18	0.64
1:A:483:ASP:HA	2:B:988:GLY:HA2	1.79	0.64
1:A:1215:ARG:O	1:A:1219:THR:OG1	2.15	0.64
2:B:952:VAL:HG13	2:B:966:VAL:HG22	1.80	0.64
1:A:767:GLN:HE21	1:A:774:ARG:HB2	1.62	0.63
1:A:836:TYR:OH	1:A:1403:GLU:OE2	2.17	0.63
1:A:840:ARG:NH2	1:A:1384:VAL:O	2.31	0.63
2:B:884:ARG:HD2	2:B:935:ARG:HD3	1.80	0.63
7:G:111:THR:HG22	7:G:113:HIS:H	1.62	0.63
2:B:1103:ILE:O	2:B:1122:ARG:NH1	2.31	0.63
3:C:116:LYS:HD3	3:C:140:ASN:HB3	1.80	0.63
2:B:449:ASN:ND2	2:B:452:THR:OG1	2.32	0.63
2:B:957:ASN:OD1	2:B:958:GLN:N	2.31	0.63
4:D:24:ALA:HB3	4:D:28:GLN:HB2	1.81	0.63
1:A:43:GLU:HB2	1:A:46:THR:HB	1.81	0.63
1:A:225:ASN:OD1	1:A:228:PHE:N	2.24	0.63
2:B:680:THR:OG1	2:B:681:TRP:N	2.32	0.63
1:A:316:GLN:O	1:A:318:SER:N	2.32	0.62
1:A:898:ARG:O	1:A:1029:ARG:NH1	2.31	0.62
1:A:1012:ARG:O	1:A:1016:THR:OG1	2.17	0.62
2:B:294:ASP:HB2	9:I:12:ASN:HA	1.82	0.62
2:B:287:ARG:NH1	2:B:324:ILE:O	2.32	0.62
2:B:642:ASP:HB3	2:B:649:LYS:HE3	1.80	0.62
1:A:528:LEU:HD23	1:A:751:SER:HA	1.81	0.62
2:B:530:GLY:O	2:B:532:ALA:N	2.33	0.62
2:B:622:LYS:HE2	9:I:59:VAL:HG22	1.80	0.62
2:B:822:ASN:O	10:J:48:ARG:NH1	2.33	0.62
3:C:177:GLU:HB2	3:C:231:ASN:HB3	1.80	0.62
3:C:184:ASN:HD21	3:C:189:THR:H	1.45	0.62
1:A:351:THR:HB	2:B:1103:ILE:HG13	1.81	0.62
2:B:1156:ASP:OD1	2:B:1198:TYR:N	2.33	0.62
1:A:108:MET:O	1:A:110:CYS:N	2.33	0.61
1:A:108:MET:SD	1:A:108:MET:N	2.73	0.61
1:A:881:GLN:O	1:A:953:ASN:HA	2.00	0.61
2:B:806:THR:HG23	2:B:1046:PRO:HD3	1.83	0.61
1:A:1434:ALA:O	1:A:1436:ILE:N	2.33	0.61
8:H:95:TYR:HB3	8:H:144:ILE:HB	1.82	0.61
10:J:10:CYS:SG	10:J:43:ARG:NH2	2.72	0.61
2:B:995:ARG:NH1	2:B:997:GLU:OE1	2.33	0.61
4:D:164:ILE:O	4:D:168:LYS:HB2	2.01	0.61

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1335:ILE:HG23	1:A:1339:LEU:HD12	1.81	0.61
2:B:756:ILE:HG22	2:B:983:ARG:HB3	1.83	0.61
3:C:252:GLN:HG3	11:K:95:ILE:HG23	1.83	0.61
5:E:202:SER:HB3	5:E:204:THR:HG22	1.81	0.61
7:G:117:GLN:N	7:G:117:GLN:OE1	2.33	0.61
1:A:679:ILE:HG23	1:A:729:ALA:HB1	1.81	0.61
1:A:1325:THR:HG22	5:E:148:GLU:HG3	1.83	0.61
3:C:39:ALA:HA	3:C:164:ALA:HB3	1.82	0.60
2:B:343:ILE:HB	2:B:347:LYS:HB2	1.82	0.60
7:G:142:ARG:HB3	7:G:171:ILE:HG13	1.82	0.60
2:B:444:MET:HB3	2:B:445:LYS:HA	1.84	0.60
1:A:148:CYS:HB3	1:A:168:GLY:HA2	1.84	0.60
1:A:855:THR:HG21	1:A:857:ARG:HE	1.65	0.60
1:A:350:ARG:HA	1:A:487:MET:O	2.00	0.60
1:A:433:GLU:OE1	2:B:1108:ARG:NH1	2.34	0.60
1:A:888:GLY:O	1:A:940:ARG:NH2	2.33	0.60
1:A:574:GLY:O	1:A:578:LEU:HB2	2.02	0.60
4:D:32:GLU:O	7:G:5:LYS:NZ	2.33	0.59
10:J:1:MET:N	10:J:54:VAL:O	2.35	0.59
2:B:175:ARG:NH1	2:B:198:ASP:O	2.35	0.59
2:B:604:ARG:NH2	2:B:613:VAL:O	2.35	0.59
2:B:806:THR:HG22	2:B:808:ALA:H	1.66	0.59
4:D:189:ASP:O	4:D:193:THR:OG1	2.15	0.59
2:B:705:MET:H	2:B:710:LEU:HD12	1.68	0.59
11:K:12:LEU:HD21	11:K:18:LYS:HG2	1.85	0.59
1:A:929:LEU:HD21	1:A:983:ILE:HG21	1.85	0.59
4:D:60:LYS:HD3	4:D:115:HIS:CE1	2.36	0.59
5:E:26:ARG:NH2	5:E:133:GLU:OE1	2.30	0.59
1:A:870:GLU:OE1	5:E:202:SER:OG	2.16	0.59
2:B:179:CYS:O	2:B:182:SER:OG	2.19	0.58
3:C:48:SER:HB3	3:C:158:VAL:HB	1.84	0.58
1:A:408:ASP:N	1:A:408:ASP:OD1	2.36	0.58
1:A:830:LYS:O	1:A:834:THR:OG1	2.21	0.58
1:A:1411:GLU:O	1:A:1415:SER:OG	2.22	0.58
2:B:858:SER:HA	2:B:966:VAL:O	2.03	0.58
12:L:40:LEU:HD13	12:L:44:ASP:HB3	1.83	0.58
2:B:750:GLY:O	2:B:754:SER:OG	2.21	0.58
2:B:770:GLN:O	2:B:770:GLN:NE2	2.36	0.58
4:D:56:ARG:HB2	4:D:148:LEU:HB3	1.86	0.58
1:A:1404:GLU:HB2	1:A:1408:ILE:HD11	1.86	0.58
1:A:434:ARG:NH2	1:A:440:ASP:OD2	2.36	0.58

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:361:LEU:HD21	2:B:377:PHE:HD2	1.69	0.58
1:A:446:ARG:HD2	1:A:480:ALA:HB2	1.85	0.57
2:B:1222:ARG:O	2:B:1224:PHE:N	2.37	0.57
3:C:134:ILE:HD12	3:C:141:GLY:H	1.69	0.57
7:G:119:LEU:HD11	7:G:130:TYR:HB3	1.86	0.57
8:H:38:LEU:HD13	8:H:125:LEU:HD13	1.84	0.57
11:K:29:ASN:ND2	11:K:29:ASN:O	2.37	0.57
1:A:335:ARG:HH12	2:B:1202:LEU:HD13	1.70	0.57
1:A:403:LYS:HG3	1:A:404:TYR:HD2	1.69	0.57
1:A:49:LYS:HD3	1:A:55:ASP:HB3	1.87	0.57
1:A:1146:VAL:HG12	1:A:1201:ALA:HB1	1.87	0.57
8:H:113:ALA:HA	8:H:125:LEU:O	2.05	0.57
3:C:79:GLN:O	3:C:127:ARG:NH1	2.38	0.57
8:H:41:ASP:OD2	8:H:122:LEU:N	2.35	0.57
1:A:676:MET:O	1:A:680:THR:OG1	2.19	0.57
2:B:257:LYS:HB2	2:B:270:LYS:O	2.04	0.57
1:A:446:ARG:HB2	1:A:487:MET:SD	2.44	0.57
2:B:641:GLU:HG3	2:B:652:LYS:HE3	1.86	0.57
2:B:348:ARG:O	2:B:352:ALA:HB3	2.05	0.56
2:B:996:ARG:HB3	2:B:1007:VAL:HG21	1.87	0.56
1:A:645:LEU:O	1:A:649:ILE:HG13	2.06	0.56
1:A:836:TYR:CE2	1:A:840:ARG:HD2	2.40	0.56
1:A:943:LEU:HD11	1:A:1020:CYS:HB3	1.87	0.56
2:B:603:LEU:HB3	2:B:609:ILE:HG13	1.87	0.56
2:B:756:ILE:HD13	2:B:770:GLN:HE21	1.70	0.56
12:L:61:THR:HG22	12:L:63:ARG:HG3	1.86	0.56
2:B:234:ILE:HG21	2:B:237:VAL:HG23	1.86	0.56
2:B:559:SER:HA	2:B:563:MET:HB3	1.87	0.56
6:F:130:ILE:HG22	6:F:132:LEU:H	1.71	0.56
9:I:75:CYS:SG	9:I:80:SER:OG	2.63	0.56
1:A:535:THR:HG21	1:A:617:VAL:HG23	1.88	0.56
9:I:14:LEU:HB3	9:I:27:PHE:HB3	1.87	0.56
1:A:868:TYR:CD2	1:A:1058:VAL:HG11	2.40	0.56
5:E:1:MET:N	5:E:2:ASP:HA	2.19	0.56
2:B:373:ARG:HG2	2:B:566:LEU:HD23	1.87	0.56
2:B:1142:GLY:HA3	6:F:88:TYR:HE1	1.71	0.56
1:A:324:SER:OG	1:A:325:ILE:N	2.39	0.55
3:C:56:THR:HG21	3:C:145:CYS:SG	2.47	0.55
1:A:30:ILE:HG23	2:B:1170:THR:HG23	1.86	0.55
1:A:609:ASP:OD1	1:A:969:GLN:NE2	2.32	0.55
2:B:916:THR:HB	2:B:935:ARG:HB2	1.87	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:107:CYS:H	1:A:114:LEU:HD21	1.72	0.55
1:A:868:TYR:HD2	1:A:1058:VAL:HG11	1.72	0.55
1:A:1385:THR:HG22	1:A:1386:ARG:H	1.71	0.55
8:H:65:LEU:H	8:H:65:LEU:HD23	1.71	0.55
1:A:58:LEU:HD12	1:A:244:PRO:HD3	1.86	0.55
1:A:1415:SER:O	1:A:1417:GLU:N	2.39	0.55
10:J:48:ARG:O	10:J:52:THR:CB	2.54	0.55
1:A:101:LYS:HB3	1:A:139:TRP:CD1	2.41	0.55
1:A:567:LYS:HB3	8:H:96:VAL:H	1.70	0.55
2:B:165:VAL:HG21	2:B:445:LYS:HE2	1.87	0.55
2:B:1163:CYS:SG	2:B:1164:GLY:N	2.80	0.55
2:B:115:GLN:NE2	2:B:193:LYS:O	2.36	0.55
1:A:1434:ALA:HB1	1:A:1436:ILE:HD13	1.88	0.55
2:B:637:LEU:HB2	2:B:693:ILE:HD13	1.89	0.55
2:B:642:ASP:CB	2:B:649:LYS:HG3	2.36	0.55
1:A:608:ILE:O	1:A:610:GLY:N	2.39	0.55
2:B:660:LYS:HB3	2:B:679:TYR:CD2	2.41	0.55
2:B:272:THR:OG1	2:B:279:ASP:OD1	2.26	0.55
2:B:348:ARG:O	2:B:352:ALA:HB2	2.07	0.55
2:B:846:ILE:HG23	2:B:974:PRO:HG2	1.88	0.55
11:K:56:VAL:HG22	11:K:77:THR:HG22	1.89	0.55
2:B:29:ASP:HB3	2:B:658:ILE:HD13	1.89	0.54
2:B:1072:MET:HG3	2:B:1085:ILE:HB	1.88	0.54
1:A:40:THR:HG22	1:A:41:MET:HG3	1.89	0.54
3:C:183:TRP:O	3:C:185:LYS:N	2.40	0.54
3:C:35:ARG:HA	3:C:38:ILE:HD12	1.89	0.54
9:I:82:GLU:HB3	9:I:104:LEU:HD12	1.90	0.54
1:A:54:ASN:ND2	1:A:54:ASN:O	2.41	0.54
1:A:67:CYS:O	1:A:70:CYS:HB3	2.07	0.54
1:A:362:ASP:N	1:A:362:ASP:OD1	2.40	0.54
1:A:1125:ALA:HB1	1:A:1303:GLU:HB2	1.87	0.54
3:C:146:LYS:NZ	10:J:58:GLU:OE2	2.30	0.54
1:A:298:PHE:HE1	1:A:312:PRO:HB3	1.73	0.54
2:B:577:ALA:HB1	2:B:589:VAL:HG11	1.88	0.54
3:C:43:THR:HG22	3:C:44:LEU:H	1.73	0.54
3:C:73:GLN:OE1	3:C:75:MET:N	2.41	0.54
1:A:18:GLN:HB3	2:B:1215:ARG:HB2	1.90	0.54
1:A:672:ASP:HB3	1:A:736:ASN:HD21	1.73	0.54
1:A:42:ASP:O	1:A:44:THR:N	2.41	0.54
1:A:136:ALA:O	1:A:140:THR:OG1	2.23	0.54
1:A:1191:TRP:NE1	1:A:1256:GLU:OE1	2.41	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1221:SER:O	2:B:1221:SER:OG	2.25	0.54
8:H:4:THR:HG23	8:H:60:ALA:HB2	1.88	0.54
11:K:49:GLU:HG3	11:K:94:ILE:HG12	1.88	0.54
1:A:668:ASP:OD1	1:A:742:ASN:N	2.37	0.54
2:B:58:THR:HG22	2:B:62:ILE:HD11	1.90	0.54
4:D:145:MET:O	4:D:149:THR:HG22	2.08	0.54
5:E:33:GLU:N	5:E:33:GLU:OE1	2.41	0.54
5:E:159:ASP:OD1	5:E:162:ARG:NH2	2.41	0.54
1:A:58:LEU:H	1:A:58:LEU:HD23	1.71	0.53
1:A:63:ARG:HG2	1:A:74:MET:HE1	1.89	0.53
6:F:96:THR:O	6:F:100:GLN:HG3	2.08	0.53
2:B:123:THR:O	2:B:125:SER:N	2.41	0.53
9:I:16:PRO:HB3	9:I:25:LEU:HD11	1.90	0.53
1:A:369:SER:O	1:A:373:THR:OG1	2.22	0.53
1:A:996:ASN:O	1:A:998:LEU:N	2.42	0.53
2:B:427:ASP:HA	2:B:430:ARG:HD2	1.89	0.53
2:B:1080:LYS:HB2	3:C:188:HIS:HB3	1.90	0.53
4:D:152:SER:OG	4:D:221:TYR:OH	2.22	0.53
6:F:97:ARG:O	6:F:101:ILE:HG13	2.09	0.53
1:A:1094:VAL:HG22	1:A:1113:THR:HG21	1.89	0.53
1:A:524:VAL:O	1:A:527:THR:OG1	2.24	0.53
1:A:668:ASP:HB3	1:A:743:VAL:HG23	1.89	0.53
1:A:826:ASP:O	1:A:830:LYS:HB2	2.07	0.53
1:A:974:ASP:OD2	1:A:976:THR:OG1	2.24	0.53
1:A:1345:ARG:NH1	1:A:1373:ASP:OD2	2.41	0.53
1:A:975:HIS:HA	1:A:1036:ARG:HG3	1.90	0.53
1:A:1117:THR:HG23	1:A:1307:GLU:HG2	1.89	0.53
3:C:18:VAL:O	3:C:231:ASN:HA	2.08	0.53
8:H:118:PHE:O	8:H:120:GLY:N	2.42	0.53
2:B:390:LEU:HB2	2:B:392:ARG:HG3	1.91	0.53
2:B:800:GLN:HB3	10:J:52:THR:HG22	1.89	0.53
1:A:1067:LEU:O	1:A:1071:SER:OG	2.07	0.53
3:C:264:GLN:O	3:C:267:GLN:HG2	2.08	0.53
2:B:957:ASN:HB3	2:B:961:LEU:H	1.74	0.53
7:G:115:MET:HB3	7:G:119:LEU:HD23	1.90	0.53
10:J:7:CYS:SG	10:J:9:SER:N	2.82	0.53
2:B:1009:ASP:OD2	10:J:48:ARG:NH2	2.42	0.53
1:A:898:ARG:NH1	1:A:899:VAL:O	2.42	0.52
1:A:1100:ARG:O	1:A:1104:ILE:HG13	2.09	0.52
1:A:1438:THR:HG23	6:F:92:ARG:HB2	1.90	0.52
1:A:690:VAL:O	1:A:694:THR:OG1	2.26	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:998:ASP:OD1	3:C:35:ARG:NH2	2.42	0.52
4:D:51:ASN:HB2	4:D:182:SER:HB3	1.90	0.52
2:B:445:LYS:HG3	2:B:446:LEU:HA	1.91	0.52
2:B:746:SER:HB3	2:B:1046:PRO:HG2	1.90	0.52
1:A:443:LEU:HD11	1:A:455:MET:HB3	1.91	0.52
1:A:1295:THR:HG23	1:A:1297:GLU:OE1	2.09	0.52
2:B:314:LEU:HD21	2:B:386:LEU:HD11	1.91	0.52
5:E:39:LEU:HA	5:E:42:PHE:HB3	1.91	0.52
8:H:10:PHE:O	8:H:54:SER:HA	2.09	0.52
1:A:1198:ASP:OD2	1:A:1201:ALA:N	2.43	0.52
2:B:757:PRO:HB2	2:B:759:PRO:HA	1.91	0.52
2:B:805:THR:HA	2:B:809:MET:SD	2.50	0.52
3:C:63:ILE:O	3:C:67:LEU:HG	2.09	0.52
12:L:68:GLU:OE1	12:L:68:GLU:N	2.33	0.52
1:A:506:ALA:HB3	1:A:509:LEU:HG	1.92	0.52
1:A:1154:TYR:HB2	1:A:1191:TRP:CZ3	2.44	0.52
1:A:1441:PHE:HE1	6:F:92:ARG:HD3	1.74	0.52
2:B:100:PRO:HG3	2:B:172:ILE:HD12	1.92	0.52
8:H:56:THR:HB	8:H:145:ARG:HG2	1.92	0.52
1:A:739:ASP:OD1	8:H:19:ARG:NH1	2.38	0.52
1:A:1348:LEU:HD23	1:A:1372:VAL:HG23	1.90	0.52
2:B:1106:ARG:NH1	2:B:1125:ASP:O	2.41	0.52
2:B:25:ILE:HG23	2:B:29:ASP:HB2	1.91	0.52
1:A:932:GLU:OE1	1:A:1028:THR:OG1	2.26	0.52
2:B:51:PHE:O	2:B:55:VAL:HG23	2.10	0.52
2:B:168:GLY:H	2:B:453:ILE:HD12	1.75	0.52
2:B:427:ASP:OD1	2:B:430:ARG:NH1	2.43	0.52
11:K:91:CYS:O	11:K:95:ILE:HG13	2.10	0.52
1:A:666:ILE:HD12	1:A:667:GLY:N	2.25	0.51
3:C:134:ILE:HD12	3:C:141:GLY:N	2.25	0.51
8:H:135:LEU:HB3	8:H:137:GLN:HG3	1.92	0.51
1:A:610:GLY:O	1:A:611:GLN:NE2	2.43	0.51
3:C:241:ASP:O	3:C:245:VAL:HG23	2.09	0.51
8:H:56:THR:O	8:H:144:ILE:HA	2.10	0.51
2:B:1028:GLU:O	2:B:1032:SER:OG	2.26	0.51
7:G:34:VAL:O	7:G:37:SER:OG	2.22	0.51
2:B:851:PHE:CD1	2:B:1094:ARG:HB2	2.45	0.51
2:B:898:LEU:HB2	12:L:58:LYS:NZ	2.25	0.51
3:C:69:LEU:O	10:J:6:ARG:NH1	2.39	0.51
4:D:27:LEU:HD13	4:D:173:HIS:CE1	2.46	0.51
8:H:82:PRO:O	8:H:87:ARG:NH2	2.43	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:367:PRO:HB3	1:A:465:TYR:O	2.10	0.51
1:A:1376:THR:O	1:A:1378:GLN:N	2.36	0.51
7:G:165:GLU:HB2	7:G:168:LEU:HD12	1.92	0.51
1:A:285:PRO:HD2	1:A:288:ALA:HB3	1.92	0.51
3:C:63:ILE:HA	3:C:66:ARG:HG3	1.92	0.51
2:B:41:LYS:HE2	2:B:45:SER:HB2	1.93	0.51
1:A:123:ARG:HA	1:A:126:LEU:HD12	1.92	0.51
1:A:1121:GLU:HB3	1:A:1124:HIS:ND1	2.26	0.51
1:A:1370:LEU:O	1:A:1374:VAL:HG23	2.10	0.51
2:B:475:SER:H	2:B:476:ARG:CA	2.17	0.51
4:D:52:LEU:HG	4:D:182:SER:HB2	1.93	0.51
1:A:128:ILE:HG22	1:A:130:ASP:H	1.76	0.51
5:E:195:VAL:HG22	5:E:213:ILE:HG13	1.93	0.51
1:A:560:ILE:HB	8:H:78:SER:HB2	1.93	0.50
4:D:140:ASP:O	4:D:144:THR:OG1	2.20	0.50
7:G:146:LYS:NZ	7:G:165:GLU:OE2	2.42	0.50
10:J:9:SER:OG	10:J:45:CYS:HB2	2.11	0.50
1:A:21:LEU:HD11	1:A:1414:ALA:HA	1.92	0.50
1:A:1155:ASP:HB3	1:A:1241:ARG:HH21	1.76	0.50
1:A:1212:VAL:O	1:A:1216:ILE:HG13	2.11	0.50
1:A:19:PHE:HZ	1:A:1397:LEU:HD21	1.77	0.50
1:A:338:GLY:HA2	2:B:1129:ARG:HH22	1.76	0.50
1:A:845:LEU:O	1:A:1065:GLY:HA3	2.11	0.50
1:A:986:ILE:HD11	1:A:1032:LEU:HD21	1.94	0.50
2:B:349:ILE:O	2:B:353:LYS:HG3	2.12	0.50
2:B:954:VAL:HA	2:B:963:PHE:O	2.11	0.50
3:C:241:ASP:N	3:C:241:ASP:OD1	2.45	0.50
1:A:65:LEU:HB3	1:A:71:GLN:HB3	1.93	0.50
2:B:530:GLY:O	2:B:533:CYS:N	2.44	0.50
1:A:298:PHE:CZ	1:A:314:ALA:HB2	2.47	0.50
1:A:414:ASP:OD1	1:A:415:LEU:N	2.45	0.50
1:A:1015:VAL:O	1:A:1017:LEU:N	2.45	0.50
1:A:1372:VAL:O	1:A:1376:THR:HG22	2.12	0.50
1:A:1419:ASP:OD1	1:A:1426:GLU:OE1	2.29	0.50
2:B:286:PHE:HA	2:B:289:LEU:HD12	1.94	0.50
4:D:120:GLU:HA	4:D:123:LEU:HG	1.92	0.50
1:A:896:ARG:HH21	1:A:1030:ARG:HH21	1.59	0.50
1:A:1407:GLU:OE2	1:A:1407:GLU:N	2.39	0.50
1:A:1386:ARG:HG2	1:A:1403:GLU:OE1	2.12	0.50
2:B:117:ALA:HA	2:B:122:LEU:HB2	1.93	0.50
2:B:314:LEU:O	2:B:318:VAL:HG23	2.11	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:725:ALA:O	1:A:729:ALA:CB	2.60	0.49
2:B:477:ALA:O	2:B:479:VAL:N	2.45	0.49
2:B:753:ALA:O	2:B:757:PRO:HD3	2.12	0.49
3:C:45:ALA:HA	3:C:72:LEU:HD13	1.94	0.49
1:A:260:ASP:OD1	1:A:261:ASP:N	2.44	0.49
2:B:352:ALA:O	2:B:356:LEU:HG	2.12	0.49
1:A:67:CYS:HB2	1:A:71:GLN:H	1.76	0.49
1:A:864:ILE:HG22	1:A:865:GLN:HG3	1.93	0.49
2:B:521:LEU:HD22	2:B:633:VAL:HG12	1.93	0.49
2:B:291:ILE:HG12	2:B:300:HIS:NE2	2.26	0.49
3:C:7:GLN:O	3:C:23:SER:OG	2.30	0.49
5:E:39:LEU:O	5:E:43:LYS:HG3	2.13	0.49
1:A:351:THR:OG1	1:A:352:VAL:N	2.44	0.49
1:A:679:ILE:O	1:A:683:ILE:HG13	2.13	0.49
2:B:649:LYS:NZ	2:B:736:THR:O	2.43	0.49
7:G:153:GLN:HG2	7:G:154:VAL:HG23	1.95	0.49
2:B:128:LEU:HB2	2:B:167:ILE:HD11	1.94	0.49
2:B:261:ARG:O	2:B:263:GLY:N	2.45	0.49
2:B:1037:LEU:O	10:J:47:ARG:NH1	2.45	0.49
2:B:860:MET:HA	2:B:964:VAL:O	2.13	0.49
3:C:8:VAL:HG22	3:C:22:LEU:HA	1.94	0.49
1:A:590:ARG:HH11	1:A:590:ARG:HB2	1.78	0.49
1:A:617:VAL:HG13	1:A:621:THR:HB	1.95	0.49
1:A:813:PHE:HE1	2:B:759:PRO:HB2	1.77	0.49
1:A:971:PHE:HB2	1:A:973:ILE:HD11	1.95	0.49
2:B:426:LYS:O	2:B:430:ARG:HG3	2.12	0.49
1:A:828:ALA:O	1:A:831:THR:HG22	2.13	0.49
1:A:1004:ASN:O	1:A:1008:GLN:HG2	2.12	0.49
2:B:295:GLY:H	2:B:298:LEU:HD23	1.78	0.49
3:C:75:MET:O	3:C:246:ARG:NH2	2.42	0.49
7:G:3:PHE:HB2	7:G:78:VAL:HG23	1.94	0.49
8:H:15:VAL:HG13	8:H:26:ILE:HD11	1.95	0.49
2:B:851:PHE:CE1	2:B:1094:ARG:HB2	2.48	0.49
7:G:121:PHE:CE2	7:G:123:ALA:HB2	2.48	0.49
1:A:472:LEU:O	1:A:474:VAL:N	2.44	0.48
1:A:775:ILE:HG21	1:A:815:PHE:CD1	2.47	0.48
3:C:24:ASN:O	3:C:24:ASN:ND2	2.46	0.48
10:J:32:GLU:O	10:J:36:LEU:HG	2.13	0.48
1:A:184:SER:HA	1:A:198:GLU:O	2.14	0.48
1:A:579:SER:HA	1:A:582:ILE:HG13	1.94	0.48
6:F:79:ARG:HH21	6:F:146:TRP:HA	1.77	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:190:TYR:CZ	2:B:196:PRO:HG3	2.48	0.48
2:B:269:ILE:HD11	2:B:386:LEU:HD21	1.94	0.48
2:B:611:PRO:HG2	2:B:685:LEU:HD21	1.95	0.48
1:A:711:ARG:NH1	9:I:95:THR:OG1	2.47	0.48
1:A:966:ASN:O	1:A:970:THR:CB	2.62	0.48
2:B:785:TYR:HE1	10:J:60:PHE:CE1	2.31	0.48
1:A:108:MET:HE1	1:A:171:GLN:HB3	1.95	0.48
1:A:267:ALA:O	1:A:271:LYS:HG3	2.13	0.48
2:B:778:MET:SD	2:B:794:ASN:HB3	2.54	0.48
1:A:304:MET:O	1:A:324:SER:OG	2.32	0.48
1:A:804:TYR:O	2:B:761:HIS:ND1	2.46	0.48
2:B:185:THR:OG1	2:B:188:ASP:OD1	2.29	0.48
6:F:79:ARG:NH2	6:F:150:GLU:OE1	2.44	0.48
8:H:105:GLU:OE1	8:H:124:ARG:NH2	2.47	0.48
1:A:95:PHE:O	1:A:99:ILE:HG13	2.14	0.48
1:A:475:THR:O	1:A:479:ASN:N	2.47	0.48
1:A:984:LYS:O	1:A:988:LEU:HB2	2.13	0.48
2:B:1023:VAL:O	2:B:1027:ILE:HG13	2.13	0.48
3:C:57:VAL:HG23	3:C:58:LEU:HD22	1.96	0.48
5:E:1:MET:H3	5:E:2:ASP:HA	1.78	0.48
7:G:86:VAL:HG22	7:G:146:LYS:HB2	1.96	0.48
2:B:723:VAL:HA	2:B:724:ASP:HB3	1.94	0.48
2:B:1073:TYR:CE2	2:B:1080:LYS:HG2	2.49	0.48
1:A:404:TYR:HB2	1:A:433:GLU:HB2	1.95	0.48
1:A:591:PHE:HA	1:A:595:THR:HG21	1.95	0.48
1:A:813:PHE:CE1	2:B:759:PRO:HB2	2.49	0.48
1:A:853:ASP:OD1	1:A:853:ASP:N	2.47	0.48
5:E:198:ILE:HD11	5:E:212:ARG:HB2	1.95	0.48
11:K:90:ALA:O	11:K:94:ILE:HG13	2.13	0.48
1:A:54:ASN:HB3	1:A:247:ARG:NH1	2.26	0.47
1:A:732:LEU:O	1:A:736:ASN:CB	2.62	0.47
1:A:877:HIS:ND1	1:A:1056:SER:HA	2.29	0.47
2:B:804:GLY:O	2:B:805:THR:OG1	2.27	0.47
5:E:153:HIS:HA	5:E:197:LYS:O	2.14	0.47
2:B:118:ARG:NH2	2:B:194:GLU:OE1	2.46	0.47
4:D:71:LYS:HA	4:D:74:GLN:HG3	1.96	0.47
1:A:442:VAL:O	1:A:457:ALA:HA	2.14	0.47
2:B:211:VAL:HG23	2:B:483:LEU:HB2	1.96	0.47
2:B:597:MET:SD	2:B:624:LEU:HD11	2.54	0.47
6:F:74:ILE:HG21	6:F:144:GLU:HG2	1.96	0.47
1:A:265:LYS:O	1:A:269:ILE:HG13	2.14	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:15:ALA:O	5:E:19:VAL:HG23	2.14	0.47
7:G:142:ARG:O	7:G:170:ALA:HA	2.15	0.47
8:H:15:VAL:HA	8:H:26:ILE:HG13	1.97	0.47
1:A:588:LEU:O	1:A:606:LEU:HA	2.15	0.47
4:D:57:LEU:O	4:D:61:GLU:HG3	2.15	0.47
1:A:875:ALA:HB2	1:A:1366:ARG:HD3	1.96	0.47
2:B:781:PHE:HD1	2:B:782:LEU:HG	1.79	0.47
4:D:33:PHE:HZ	7:G:80:LYS:HZ2	1.62	0.47
4:D:52:LEU:O	4:D:54:GLU:N	2.39	0.47
10:J:16:ASP:OD1	10:J:16:ASP:N	2.48	0.47
1:A:41:MET:HB3	1:A:48:ALA:O	2.15	0.47
1:A:98:LYS:O	1:A:102:VAL:HG23	2.15	0.47
1:A:252:PHE:O	1:A:256:GLN:HB2	2.15	0.47
1:A:694:THR:O	1:A:698:GLN:HG3	2.15	0.47
1:A:843:LYS:NZ	1:A:1401:SER:OG	2.47	0.47
1:A:870:GLU:HB2	5:E:204:THR:HG21	1.95	0.47
2:B:445:LYS:H	2:B:446:LEU:HA	1.78	0.47
2:B:653:VAL:HG22	2:B:689:LEU:HB3	1.95	0.47
4:D:25:ALA:HB2	7:G:84:GLY:HA3	1.96	0.47
6:F:87:LYS:HA	6:F:155:LEU:HD11	1.96	0.47
8:H:113:ALA:HB2	8:H:126:GLU:HG2	1.96	0.47
8:H:130:ARG:HB2	8:H:133:ASN:HB2	1.97	0.47
1:A:269:ILE:HG12	1:A:299:HIS:HB3	1.96	0.47
2:B:904:ARG:NH1	12:L:66:GLN:O	2.48	0.47
1:A:648:ASN:O	1:A:652:VAL:HG23	2.14	0.47
2:B:261:ARG:HH11	2:B:261:ARG:HB3	1.80	0.47
8:H:58:THR:HB	8:H:143:LEU:HB2	1.97	0.47
2:B:840:ILE:HB	2:B:1011:ILE:HB	1.97	0.47
2:B:1006:ILE:HG23	10:J:45:CYS:HB3	1.97	0.47
4:D:187:THR:HG22	4:D:189:ASP:N	2.27	0.47
5:E:84:ASP:HA	5:E:113:GLN:HE21	1.80	0.47
1:A:515:GLN:HB2	1:A:1071:SER:HB3	1.98	0.46
1:A:1248:LEU:HD12	1:A:1249:ASP:N	2.30	0.46
2:B:46:GLN:HG2	2:B:408:LEU:HD21	1.96	0.46
2:B:126:SER:HB3	2:B:172:ILE:HD11	1.98	0.46
2:B:174:LEU:HD22	2:B:202:TYR:CE2	2.50	0.46
6:F:128:LYS:HD3	6:F:149:GLU:HA	1.97	0.46
1:A:49:LYS:NZ	1:A:61:ILE:HG13	2.31	0.46
1:A:1451:VAL:HG22	7:G:20:PRO:HA	1.96	0.46
2:B:34:ILE:HD11	2:B:743:ILE:HG22	1.97	0.46
3:C:138:GLU:OE1	3:C:138:GLU:N	2.43	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:311:GLN:N	1:A:312:PRO:HD2	2.30	0.46
2:B:635:ARG:NH1	2:B:742:GLU:OE2	2.48	0.46
3:C:176:ILE:HG23	3:C:232:VAL:HA	1.97	0.46
2:B:424:LEU:HD22	2:B:453:ILE:HD11	1.96	0.46
2:B:834:ASN:OD1	2:B:834:ASN:N	2.46	0.46
10:J:10:CYS:SG	10:J:11:GLY:N	2.88	0.46
1:A:1094:VAL:HG13	1:A:1113:THR:HB	1.98	0.46
1:A:1166:ASP:O	1:A:1170:ILE:HG13	2.15	0.46
2:B:475:SER:OG	2:B:476:ARG:O	2.24	0.46
2:B:1135:ARG:O	2:B:1139:ILE:HG13	2.15	0.46
3:C:91:HIS:HB2	3:C:96:SER:OG	2.16	0.46
5:E:86:PRO:HA	5:E:113:GLN:HB2	1.97	0.46
1:A:298:PHE:O	1:A:302:THR:HG22	2.16	0.46
1:A:567:LYS:CB	1:A:568:PRO:HD3	2.46	0.46
2:B:199:MET:SD	2:B:199:MET:N	2.77	0.46
2:B:954:VAL:HG22	2:B:964:VAL:HG13	1.98	0.46
5:E:117:THR:HG22	5:E:119:SER:H	1.80	0.46
7:G:93:SER:OG	7:G:100:GLU:OE1	2.33	0.46
1:A:1351:GLU:O	1:A:1355:VAL:HG23	2.16	0.46
2:B:762:ASN:HD21	2:B:1024:ALA:HB3	1.81	0.46
2:B:789:MET:HE2	2:B:965:LYS:HB3	1.97	0.46
4:D:68:ARG:O	4:D:72:ARG:HG3	2.16	0.46
1:A:565:ILE:HD11	1:A:567:LYS:HE2	1.96	0.46
1:A:1436:ILE:O	1:A:1438:THR:N	2.49	0.46
2:B:332:ASP:O	2:B:348:ARG:HD3	2.16	0.46
2:B:554:ILE:O	2:B:558:LEU:HG	2.16	0.46
4:D:208:GLU:O	4:D:212:LYS:HG3	2.16	0.46
8:H:13:SER:OG	8:H:14:GLU:N	2.49	0.46
1:A:1226:VAL:HG13	1:A:1240:CYS:SG	2.55	0.46
1:A:1308:THR:OG1	1:A:1309:ASP:N	2.49	0.46
2:B:651:LEU:H	2:B:651:LEU:HD12	1.79	0.46
3:C:239:PRO:O	3:C:243:VAL:HG23	2.16	0.46
6:F:87:LYS:HB3	6:F:155:LEU:HD21	1.98	0.46
10:J:3:VAL:HG21	10:J:18:TRP:HB2	1.98	0.46
1:A:438:ASP:OD1	1:A:438:ASP:N	2.48	0.46
1:A:567:LYS:HE3	8:H:46:LEU:HD12	1.97	0.46
1:A:1441:PHE:CE2	6:F:89:GLU:HG3	2.52	0.46
3:C:52:GLU:HB3	3:C:154:LYS:HB3	1.97	0.46
1:A:216:VAL:HA	1:A:219:PHE:CD2	2.51	0.45
1:A:738:LYS:HB2	1:A:740:LEU:HG	1.97	0.45
2:B:1155:SER:OG	2:B:1156:ASP:N	2.48	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:26:ASP:HB2	3:C:29:MET:HB2	1.98	0.45
3:C:167:HIS:CD2	12:L:70:ARG:HG3	2.51	0.45
11:K:61:TYR:HB3	11:K:73:LEU:HD13	1.97	0.45
2:B:212:LEU:HD23	2:B:480:SER:H	1.81	0.45
8:H:96:VAL:HA	8:H:142:LEU:O	2.16	0.45
10:J:1:MET:O	10:J:2:ILE:HG22	2.16	0.45
1:A:46:THR:O	1:A:48:ALA:N	2.49	0.45
1:A:250:ILE:HD12	1:A:250:ILE:H	1.81	0.45
2:B:216:GLU:OE1	2:B:500:THR:OG1	2.33	0.45
2:B:655:LYS:HA	2:B:658:ILE:HD12	1.99	0.45
3:C:22:LEU:O	3:C:227:THR:HA	2.16	0.45
1:A:810:PRO:HB2	2:B:705:MET:HE2	1.99	0.45
2:B:328:GLU:HA	2:B:331:LEU:HD12	1.99	0.45
2:B:770:GLN:HB2	2:B:985:GLY:H	1.81	0.45
4:D:146:GLN:O	4:D:150:ASN:ND2	2.28	0.45
1:A:500:GLU:O	1:A:504:LEU:HB2	2.17	0.45
1:A:534:LEU:HA	1:A:539:THR:HG21	1.98	0.45
1:A:1424:VAL:HG11	2:B:1139:ILE:HD13	1.98	0.45
2:B:496:ARG:NH1	2:B:540:SER:O	2.50	0.45
2:B:619:ILE:HD12	9:I:65:ASP:HB2	1.98	0.45
4:D:159:THR:O	4:D:163:VAL:HG23	2.17	0.45
7:G:144:ARG:HB2	7:G:171:ILE:HD13	1.98	0.45
1:A:350:ARG:NH1	1:A:488:ASN:OD1	2.50	0.45
1:A:449:SER:HB2	2:B:1133:MET:HB3	1.99	0.45
1:A:466:SER:HB3	2:B:1103:ILE:HD12	1.99	0.45
1:A:855:THR:CG2	1:A:857:ARG:HE	2.30	0.45
1:A:902:LEU:HG	1:A:926:GLN:HG3	1.97	0.45
5:E:1:MET:HB2	5:E:3:GLN:N	2.32	0.45
5:E:19:VAL:O	5:E:23:VAL:HG23	2.16	0.45
1:A:607:ILE:HG13	1:A:612:ILE:HA	1.98	0.45
1:A:1377:THR:HG22	5:E:176:PRO:HB3	1.98	0.45
1:A:1418:LEU:HD12	1:A:1419:ASP:H	1.82	0.45
2:B:343:ILE:O	2:B:345:LYS:N	2.49	0.45
2:B:726:ALA:HB1	2:B:1051:THR:HB	1.98	0.45
2:B:1180:PHE:H	2:B:1188:LYS:HE3	1.80	0.45
7:G:62:LEU:HA	7:G:63:PRO:HD3	1.82	0.45
1:A:720:ARG:O	1:A:724:GLU:HG3	2.17	0.45
1:A:800:VAL:HG13	1:A:812:GLU:HB3	1.99	0.45
1:A:814:PHE:O	1:A:818:MET:HG3	2.17	0.45
2:B:338:GLY:HA3	2:B:347:LYS:HD3	1.99	0.45
2:B:523:CYS:HB2	2:B:750:GLY:HA3	1.98	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:788:ARG:NH1	2:B:790:ASP:OD2	2.50	0.45
2:B:806:THR:HB	2:B:809:MET:HG3	1.99	0.45
2:B:827:ILE:HG23	2:B:1012:ILE:HG13	1.99	0.45
10:J:6:ARG:HG2	10:J:13:VAL:HA	1.99	0.45
10:J:17:LYS:HB3	10:J:39:LEU:HD22	1.99	0.45
12:L:55:ILE:HG13	12:L:56:LEU:H	1.82	0.45
1:A:926:GLN:NE2	1:A:930:ASP:OD1	2.49	0.45
2:B:211:VAL:HG21	2:B:483:LEU:HD13	1.99	0.45
2:B:240:ILE:HG23	2:B:254:LEU:HB3	1.99	0.45
2:B:1187:ASN:O	2:B:1191:ILE:HD11	2.17	0.45
1:A:1288:ASP:HA	1:A:1302:PRO:HA	1.99	0.44
2:B:27:ALA:O	2:B:30:SER:OG	2.36	0.44
4:D:67:ARG:HA	4:D:133:THR:HG21	1.99	0.44
8:H:127:GLY:HA3	8:H:130:ARG:NH1	2.32	0.44
1:A:67:CYS:HB2	1:A:71:GLN:N	2.32	0.44
1:A:773:LYS:H	1:A:773:LYS:HD2	1.82	0.44
1:A:896:ARG:NH2	1:A:1030:ARG:HH21	2.14	0.44
1:A:1177:LEU:HB2	1:A:1181:ALA:HA	1.98	0.44
2:B:542:MET:HG3	2:B:747:MET:HB3	2.00	0.44
2:B:901:PRO:HD2	12:L:59:ALA:O	2.17	0.44
3:C:22:LEU:HB3	3:C:25:VAL:HG21	1.99	0.44
3:C:77:ILE:HG13	3:C:161:LYS:HE3	1.99	0.44
4:D:206:GLU:HG2	4:D:209:ARG:HD2	1.98	0.44
7:G:129:SER:HB3	7:G:138:THR:HG23	1.98	0.44
1:A:31:SER:HB2	1:A:83:HIS:HB3	2.00	0.44
1:A:438:ASP:OD2	1:A:461:LYS:HD2	2.17	0.44
1:A:897:TYR:HD2	1:A:936:LEU:HD13	1.83	0.44
1:A:912:LEU:HD22	1:A:1033:GLN:HA	1.99	0.44
2:B:475:SER:N	2:B:476:ARG:HA	2.17	0.44
2:B:756:ILE:CG2	2:B:983:ARG:HB3	2.46	0.44
2:B:1171:VAL:HG11	2:B:1191:ILE:HG21	1.99	0.44
5:E:156:LEU:HD12	5:E:195:VAL:HB	1.98	0.44
11:K:107:THR:O	11:K:111:LEU:HG	2.17	0.44
1:A:567:LYS:HB2	1:A:568:PRO:HD3	1.98	0.44
1:A:951:GLU:O	1:A:954:TRP:NE1	2.49	0.44
2:B:25:ILE:HG13	2:B:658:ILE:HD11	1.99	0.44
2:B:294:ASP:OD1	9:I:12:ASN:ND2	2.42	0.44
2:B:413:LEU:O	2:B:417:PHE:HB2	2.17	0.44
2:B:605:ARG:HB3	2:B:688:GLY:HA2	2.00	0.44
2:B:694:ASP:O	2:B:698:GLU:HB2	2.18	0.44
1:A:93:VAL:CG2	1:A:301:ALA:HA	2.47	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:523:ILE:HD13	1:A:622:VAL:HG22	2.00	0.44
1:A:549:MET:CE	1:A:577:ILE:HD13	2.48	0.44
2:B:386:LEU:O	2:B:390:LEU:HG	2.17	0.44
2:B:494:HIS:O	2:B:494:HIS:ND1	2.51	0.44
2:B:870:ILE:HG22	2:B:917:PRO:HG2	2.00	0.44
1:A:1235:LYS:HD3	1:A:1237:ILE:HD11	2.00	0.44
2:B:445:LYS:H	2:B:446:LEU:CA	2.31	0.44
2:B:847:ASP:HB3	3:C:167:HIS:CE1	2.52	0.44
4:D:56:ARG:NH1	4:D:122:GLU:OE1	2.50	0.44
7:G:65:ASP:O	7:G:67:SER:N	2.51	0.44
2:B:259:TYR:HB2	2:B:268:THR:HG23	2.00	0.44
7:G:151:ILE:HD11	7:G:160:ILE:HD11	2.00	0.44
1:A:752:LYS:HB2	2:B:1015:HIS:HD2	1.83	0.44
1:A:1158:PRO:HG3	1:A:1188:GLN:HE22	1.82	0.44
2:B:309:GLN:OE1	2:B:392:ARG:NH2	2.49	0.44
2:B:468:GLU:HB2	2:B:470:LYS:HG3	1.99	0.44
2:B:1079:LYS:HE3	3:C:188:HIS:NE2	2.32	0.44
3:C:86:CYS:SG	3:C:87:PHE:N	2.91	0.44
10:J:2:ILE:HD12	10:J:2:ILE:HA	1.85	0.44
1:A:825:ILE:O	1:A:829:VAL:HG23	2.18	0.44
1:A:1325:THR:HG23	5:E:147:HIS:HA	1.99	0.44
3:C:66:ARG:HH21	10:J:4:PRO:HA	1.82	0.44
9:I:6:PHE:HA	9:I:14:LEU:HG	1.99	0.44
2:B:240:ILE:CG2	2:B:254:LEU:HB3	2.48	0.43
2:B:809:MET:HA	2:B:812:LEU:HD12	2.00	0.43
2:B:1201:LYS:O	2:B:1205:GLN:HG3	2.18	0.43
4:D:63:LEU:HD13	4:D:66:ARG:HD2	2.00	0.43
1:A:18:GLN:O	2:B:1215:ARG:N	2.43	0.43
1:A:308:ILE:HG22	1:A:310:GLY:H	1.83	0.43
1:A:696:GLU:HG2	1:A:702:LEU:HG	1.99	0.43
1:A:1248:LEU:HD12	1:A:1249:ASP:H	1.83	0.43
1:A:1422:ARG:NH2	2:B:1224:PHE:O	2.51	0.43
2:B:193:LYS:NZ	12:L:32:ALA:O	2.37	0.43
4:D:54:GLU:O	4:D:58:VAL:HG23	2.19	0.43
1:A:1297:GLU:OE1	1:A:1297:GLU:N	2.52	0.43
2:B:112:LEU:HD12	2:B:113:TYR:H	1.84	0.43
4:D:152:SER:HG	4:D:221:TYR:HH	1.56	0.43
7:G:23:LYS:HE3	7:G:56:ILE:HD13	2.01	0.43
1:A:306:ASN:ND2	1:A:322:VAL:HB	2.34	0.43
1:A:534:LEU:HD23	1:A:578:LEU:HD22	2.00	0.43
1:A:1175:SER:HA	1:A:1176:LEU:HA	1.49	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:756:ILE:HG21	2:B:770:GLN:CG	2.48	0.43
2:B:850:LEU:HG	2:B:851:PHE:HD2	1.83	0.43
3:C:73:GLN:OE1	3:C:74:SER:N	2.51	0.43
6:F:114:GLU:OE2	6:F:119:ARG:HD3	2.19	0.43
1:A:523:ILE:HG23	1:A:527:THR:HB	1.99	0.43
1:A:567:LYS:CG	1:A:568:PRO:HD3	2.48	0.43
1:A:883:LEU:HD12	1:A:883:LEU:H	1.83	0.43
2:B:755:ILE:CD1	2:B:812:LEU:HD13	2.49	0.43
2:B:843:GLN:NE2	2:B:847:ASP:OD1	2.48	0.43
2:B:999:MET:HG3	2:B:1008:PRO:HD2	1.99	0.43
1:A:440:ASP:O	1:A:460:VAL:HG23	2.19	0.43
3:C:244:VAL:O	3:C:248:ILE:HG13	2.19	0.43
1:A:931:GLU:OE2	1:A:991:LYS:NZ	2.49	0.43
1:A:1153:TYR:HB2	1:A:1192:LEU:HD23	2.01	0.43
1:A:1428:VAL:HG13	2:B:1151:LEU:HD21	2.01	0.43
2:B:792:MET:HA	2:B:856:PHE:O	2.19	0.43
2:B:936:ASP:OD2	2:B:937:ALA:N	2.52	0.43
4:D:60:LYS:O	4:D:64:VAL:HG23	2.18	0.43
5:E:125:PRO:HB3	5:E:132:ILE:HB	2.00	0.43
10:J:57:ILE:HA	10:J:60:PHE:HD2	1.84	0.43
1:A:1140:HIS:CE1	1:A:1272:THR:HG23	2.54	0.43
2:B:918:ILE:HB	2:B:935:ARG:HG3	2.00	0.43
2:B:1076:HIS:O	3:C:31:ASN:ND2	2.52	0.43
3:C:46:ILE:HD12	3:C:72:LEU:HD11	1.99	0.43
4:D:129:LEU:O	4:D:133:THR:OG1	2.37	0.43
2:B:232:SER:OG	2:B:234:ILE:O	2.28	0.43
2:B:333:PHE:O	2:B:335:GLY:N	2.49	0.43
2:B:363:HIS:O	2:B:365:THR:N	2.52	0.43
2:B:527:THR:OG1	2:B:528:PRO:HD2	2.19	0.43
7:G:6:ASP:OD1	7:G:6:ASP:N	2.52	0.43
1:A:308:ILE:HD12	1:A:308:ILE:H	1.83	0.42
1:A:683:ILE:HG21	1:A:801:GLU:HG3	2.00	0.42
1:A:900:ASP:HB3	1:A:906:HIS:HB3	2.00	0.42
2:B:454:THR:O	2:B:458:LYS:HB2	2.19	0.42
2:B:551:PRO:O	2:B:555:ILE:HG13	2.19	0.42
2:B:861:ASP:OD1	2:B:862:GLN:N	2.52	0.42
3:C:18:VAL:HG12	3:C:20:PHE:CD1	2.55	0.42
3:C:42:PRO:HA	3:C:163:ILE:HG22	2.01	0.42
4:D:53:SER:O	4:D:57:LEU:HG	2.19	0.42
4:D:119:ARG:HD3	4:D:221:TYR:HD2	1.84	0.42
9:I:78:CYS:SG	9:I:80:SER:OG	2.77	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:I:103:CYS:SG	9:I:105:SER:N	2.85	0.42
1:A:1188:GLN:HA	1:A:1243:VAL:HA	2.00	0.42
2:B:535:LEU:HD23	2:B:535:LEU:HA	1.87	0.42
2:B:547:VAL:H	2:B:612:GLU:CD	2.23	0.42
2:B:645:SER:O	2:B:647:GLY:N	2.49	0.42
1:A:345:VAL:HA	2:B:1155:SER:HB2	2.00	0.42
1:A:445:ASN:HB2	1:A:454:SER:O	2.20	0.42
1:A:1444:MET:HE1	6:F:135:ARG:NE	2.34	0.42
2:B:816:GLU:HB3	2:B:817:LEU:HD12	2.00	0.42
3:C:51:VAL:HB	12:L:65:VAL:HG23	1.99	0.42
8:H:98:TYR:OH	8:H:138:GLU:OE1	2.35	0.42
2:B:830:TYR:HB3	2:B:831:SER:H	1.55	0.42
3:C:182:PRO:HB2	3:C:207:CYS:SG	2.59	0.42
1:A:70:CYS:O	1:A:72:GLU:HG2	2.20	0.42
1:A:412:ARG:HH22	2:B:1108:ARG:NH1	2.17	0.42
1:A:719:VAL:HA	1:A:722:LEU:HD12	2.01	0.42
3:C:56:THR:HG22	3:C:57:VAL:H	1.85	0.42
3:C:251:LEU:O	3:C:255:VAL:HG23	2.18	0.42
4:D:115:HIS:HB3	4:D:116:SER:H	1.55	0.42
8:H:101:ALA:HB2	8:H:116:TYR:CZ	2.54	0.42
1:A:606:LEU:HG	1:A:613:ILE:HD13	2.02	0.42
1:A:1100:ARG:HH21	1:A:1351:GLU:HG2	1.83	0.42
2:B:637:LEU:HD12	2:B:693:ILE:HD13	2.00	0.42
2:B:644:GLU:HG2	2:B:654:ARG:HH22	1.83	0.42
2:B:1016:ALA:O	2:B:1020:ARG:HG3	2.20	0.42
5:E:55:ARG:O	5:E:82:PHE:HB2	2.19	0.42
8:H:8:ASP:HB3	8:H:10:PHE:HE1	1.83	0.42
1:A:34:LYS:HE2	1:A:34:LYS:HB2	1.83	0.42
1:A:132:LYS:NZ	1:A:1411:GLU:HB3	2.35	0.42
1:A:583:PRO:O	1:A:610:GLY:HA3	2.20	0.42
1:A:1036:ARG:H	1:A:1036:ARG:HG2	1.71	0.42
2:B:756:ILE:N	2:B:757:PRO:CD	2.83	0.42
2:B:760:ASP:OD1	2:B:760:ASP:N	2.53	0.42
3:C:34:ARG:O	3:C:38:ILE:HG13	2.19	0.42
5:E:20:LYS:HB3	5:E:35:VAL:HG22	2.01	0.42
6:F:138:LEU:HD23	6:F:138:LEU:HA	1.82	0.42
1:A:22:PHE:CD2	2:B:1213:THR:HG22	2.55	0.42
1:A:340:LEU:HD21	2:B:1200:ALA:N	2.35	0.42
1:A:344:ARG:NE	2:B:1120:GLU:HB2	2.35	0.42
1:A:1120:LEU:HD13	1:A:1304:TRP:O	2.19	0.42
8:H:63:LEU:HB3	8:H:90:ALA:HB3	2.01	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:H:118:PHE:HB2	8:H:121:LEU:HB2	2.01	0.42
9:I:73:ARG:O	9:I:81:ARG:HA	2.20	0.42
1:A:565:ILE:HG22	1:A:571:LEU:H	1.85	0.42
1:A:658:LEU:HD12	2:B:830:TYR:O	2.19	0.42
2:B:61:ASP:OD1	2:B:61:ASP:N	2.53	0.42
2:B:797:TYR:HB3	2:B:798:TYR:CD1	2.55	0.42
3:C:56:THR:HA	3:C:151:GLN:NE2	2.35	0.42
3:C:110:THR:HA	3:C:147:LEU:O	2.20	0.42
10:J:57:ILE:HA	10:J:60:PHE:CD2	2.54	0.42
1:A:146:MET:O	1:A:171:GLN:N	2.45	0.41
1:A:472:LEU:O	1:A:475:THR:HG22	2.19	0.41
2:B:766:ARG:NH2	2:B:1020:ARG:HD3	2.35	0.41
3:C:62:PHE:CE1	3:C:66:ARG:HD2	2.54	0.41
4:D:207:LEU:O	4:D:211:LEU:HG	2.20	0.41
1:A:346:ASP:HB3	2:B:1108:ARG:H	1.86	0.41
1:A:383:TYR:HB3	6:F:115:THR:HA	2.02	0.41
1:A:678:GLU:O	1:A:681:GLU:HG2	2.20	0.41
1:A:768:GLN:HG3	1:A:816:HIS:HA	2.02	0.41
1:A:1208:THR:N	1:A:1211:GLN:OE1	2.49	0.41
2:B:797:TYR:CE1	2:B:854:LEU:HG	2.55	0.41
3:C:5:GLY:O	3:C:7:GLN:N	2.53	0.41
1:A:540:PHE:HB3	1:A:571:LEU:HD23	2.01	0.41
1:A:1259:MET:O	1:A:1263:ILE:HG13	2.21	0.41
2:B:424:LEU:O	2:B:428:ILE:HG13	2.19	0.41
2:B:1106:ARG:NH2	2:B:1118:PRO:HB3	2.36	0.41
3:C:98:VAL:HG23	3:C:122:SER:HB3	2.01	0.41
7:G:43:GLY:HA3	7:G:80:LYS:HB3	2.02	0.41
7:G:126:ASN:HA	7:G:127:PRO:HA	1.95	0.41
9:I:14:LEU:HA	9:I:28:GLU:O	2.20	0.41
9:I:74:GLU:HB2	9:I:79:HIS:HA	2.02	0.41
10:J:48:ARG:O	10:J:52:THR:HB	2.20	0.41
1:A:49:LYS:HZ1	1:A:61:ILE:HG13	1.85	0.41
2:B:213:ILE:HD11	2:B:494:HIS:CE1	2.55	0.41
2:B:576:ASP:OD1	2:B:622:LYS:NZ	2.54	0.41
1:A:107:CYS:HB2	1:A:171:GLN:OE1	2.20	0.41
1:A:1444:MET:O	6:F:133:VAL:N	2.53	0.41
2:B:741:CYS:SG	2:B:742:GLU:N	2.94	0.41
2:B:959:ASP:OD1	2:B:959:ASP:N	2.54	0.41
5:E:95:THR:O	5:E:99:HIS:HB3	2.20	0.41
5:E:112:TYR:O	5:E:137:GLU:HB2	2.20	0.41
6:F:97:ARG:NH2	6:F:106:PRO:O	2.53	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:L:32:ALA:HB3	12:L:55:ILE:HD12	2.03	0.41
2:B:1162:ILE:HG22	2:B:1163:CYS:O	2.20	0.41
5:E:153:HIS:C	5:E:154:ILE:HD12	2.40	0.41
1:A:1211:GLN:H	1:A:1211:GLN:HG3	1.59	0.41
2:B:648:HIS:CG	2:B:649:LYS:H	2.39	0.41
2:B:758:PHE:CZ	2:B:1044:ALA:HB1	2.56	0.41
8:H:95:TYR:CE1	8:H:97:MET:HG3	2.50	0.41
10:J:5:VAL:HG12	10:J:6:ARG:HG3	2.01	0.41
1:A:362:ASP:OD2	1:A:459:ARG:HD3	2.21	0.41
1:A:1042:PHE:CE2	1:A:1046:LEU:HD11	2.56	0.41
1:A:107:CYS:N	1:A:114:LEU:HD21	2.34	0.41
1:A:108:MET:HE2	1:A:108:MET:H	1.86	0.41
1:A:306:ASN:HD22	1:A:322:VAL:HB	1.86	0.41
1:A:770:VAL:HG12	1:A:771:GLU:HG3	2.03	0.41
1:A:1015:VAL:HB	1:A:1016:THR:H	1.75	0.41
1:A:1324:PRO:HB2	5:E:142:VAL:HG11	2.03	0.41
2:B:33:VAL:HG12	2:B:681:TRP:HZ3	1.86	0.41
2:B:44:VAL:HG23	2:B:48:LEU:HD11	2.03	0.41
2:B:308:TRP:CH2	9:I:45:ARG:HD3	2.55	0.41
2:B:498:THR:O	2:B:536:VAL:HA	2.21	0.41
2:B:499:ASN:OD1	2:B:500:THR:N	2.54	0.41
2:B:906:SER:OG	2:B:907:GLY:N	2.54	0.41
2:B:975:GLN:O	2:B:990:ILE:HD12	2.21	0.41
2:B:1165:ILE:H	2:B:1165:ILE:HD12	1.85	0.41
4:D:3:VAL:HB	4:D:4:SER:H	1.66	0.41
8:H:89:LEU:O	8:H:91:ASP:N	2.45	0.41
10:J:45:CYS:SG	10:J:46:CYS:N	2.94	0.41
11:K:7:PHE:C	11:K:9:LEU:H	2.24	0.41
11:K:77:THR:OG1	11:K:81:TYR:O	2.32	0.41
11:K:94:ILE:O	11:K:98:LEU:HG	2.21	0.41
1:A:147:VAL:HG22	1:A:170:THR:HA	2.02	0.41
1:A:405:VAL:O	1:A:413:ILE:HB	2.21	0.41
1:A:477:PRO:HG3	1:A:521:MET:HE2	2.02	0.41
1:A:517:ASN:O	1:A:517:ASN:ND2	2.53	0.41
1:A:1116:LEU:HG	1:A:1308:THR:CG2	2.51	0.41
1:A:1444:MET:HB3	7:G:58:ARG:HB3	2.03	0.41
4:D:52:LEU:O	4:D:53:SER:OG	2.36	0.41
5:E:171:LYS:HA	5:E:171:LYS:HD3	1.90	0.41
1:A:471:ASN:OD1	1:A:472:LEU:N	2.54	0.40
1:A:649:ILE:O	1:A:653:VAL:HG23	2.21	0.40
1:A:1120:LEU:HD23	1:A:1124:HIS:O	2.21	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:628:THR:O	2:B:628:THR:OG1	2.38	0.40
2:B:854:LEU:HB3	2:B:856:PHE:HE1	1.86	0.40
1:A:205:GLU:O	1:A:209:ASN:HB2	2.21	0.40
1:A:855:THR:HG21	1:A:857:ARG:NE	2.33	0.40
2:B:446:LEU:HD12	2:B:448:ILE:HD13	2.04	0.40
4:D:67:ARG:O	4:D:71:LYS:HG3	2.21	0.40
6:F:89:GLU:HG2	6:F:134:ILE:HD13	2.02	0.40
2:B:108:VAL:HB	2:B:109:THR:H	1.71	0.40
2:B:209:GLU:OE1	2:B:485:ARG:NH2	2.51	0.40
2:B:542:MET:CG	2:B:747:MET:HB3	2.50	0.40
2:B:854:LEU:HB3	2:B:856:PHE:CE1	2.57	0.40
2:B:1173:ALA:HB1	2:B:1175:LEU:HD21	2.04	0.40
4:D:158:GLU:H	4:D:158:GLU:CD	2.24	0.40
5:E:78:LEU:HA	5:E:107:THR:HB	2.03	0.40
11:K:29:ASN:ND2	11:K:77:THR:O	2.54	0.40
1:A:216:VAL:HA	1:A:219:PHE:HD2	1.85	0.40
1:A:765:VAL:HB	1:A:800:VAL:HB	2.02	0.40
1:A:1247:SER:H	1:A:1248:LEU:HA	1.86	0.40
2:B:299:GLU:OE2	2:B:571:PRO:HD2	2.22	0.40
2:B:313:MET:O	2:B:316:PRO:HD2	2.22	0.40
2:B:423:LYS:O	2:B:426:LYS:HG2	2.22	0.40
2:B:764:SER:N	2:B:765:PRO:HD2	2.37	0.40
2:B:866:TYR:HD2	2:B:870:ILE:HB	1.85	0.40
3:C:73:GLN:HA	3:C:133:ILE:HD11	2.03	0.40
3:C:146:LYS:HB2	10:J:57:ILE:HD11	2.02	0.40
1:A:95:PHE:CE1	1:A:1414:ALA:HB2	2.57	0.40
1:A:109:HIS:CE1	1:A:169:ASN:HB2	2.56	0.40
1:A:1116:LEU:HD23	1:A:1311:VAL:HA	2.02	0.40
1:A:1195:LEU:HD11	1:A:1267:MET:HE3	2.04	0.40
2:B:1147:LEU:HD23	2:B:1147:LEU:HA	1.80	0.40
3:C:49:VAL:HG21	3:C:67:LEU:HD12	2.04	0.40
4:D:121:LYS:H	4:D:121:LYS:HG2	1.67	0.40
4:D:148:LEU:O	4:D:152:SER:HB3	2.21	0.40
4:D:167:LEU:HB2	4:D:177:VAL:HG13	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	1428/1733 (82%)	1222 (86%)	149 (10%)	57 (4%)	2	21
2	B	1142/1224 (93%)	943 (83%)	155 (14%)	44 (4%)	2	21
3	C	264/318 (83%)	221 (84%)	35 (13%)	8 (3%)	3	26
4	D	180/221 (81%)	155 (86%)	19 (11%)	6 (3%)	3	24
5	E	213/215 (99%)	188 (88%)	21 (10%)	4 (2%)	6	33
6	F	85/155 (55%)	77 (91%)	7 (8%)	1 (1%)	11	40
7	G	169/171 (99%)	156 (92%)	11 (6%)	2 (1%)	11	40
8	H	133/146 (91%)	103 (77%)	22 (16%)	8 (6%)	1	15
9	I	117/122 (96%)	98 (84%)	15 (13%)	4 (3%)	3	24
10	J	63/70 (90%)	51 (81%)	9 (14%)	3 (5%)	2	18
11	K	113/120 (94%)	105 (93%)	8 (7%)	0	100	100
12	L	44/70 (63%)	25 (57%)	14 (32%)	5 (11%)	0	5
All	All	3951/4565 (86%)	3344 (85%)	465 (12%)	142 (4%)	3	23

All (142) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	47	ARG
1	A	54	ASN
1	A	1114	PRO
1	A	1416	ALA
1	A	1437	GLY
2	B	124	TYR
2	B	367	LEU
2	B	531	GLN
2	B	670	GLU
2	B	712	PRO
2	B	1046	PRO
3	C	161	LYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
4	D	117	GLU
8	H	17	PRO
8	H	82	PRO
9	I	3	THR
10	J	2	ILE
1	A	40	THR
1	A	43	GLU
1	A	58	LEU
1	A	109	HIS
1	A	156	ASP
1	A	317	LYS
1	A	543	LEU
1	A	775	ILE
1	A	997	LEU
1	A	1016	THR
1	A	1245	PRO
1	A	1339	LEU
2	B	176	SER
2	B	260	GLY
2	B	438	GLU
2	B	478	GLY
2	B	648	HIS
2	B	716	ASN
2	B	805	THR
2	B	1156	ASP
4	D	35	LEU
4	D	155	ARG
4	D	217	LEU
5	E	122	LYS
8	H	89	LEU
8	H	119	GLY
8	H	131	ASN
8	H	139	ASN
1	A	5	GLN
1	A	48	ALA
1	A	66	LYS
1	A	154	SER
1	A	167	CYS
1	A	196	GLU
1	A	314	ALA
1	A	332	LYS
1	A	423	ASP

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	568	PRO
1	A	765	VAL
1	A	920	LEU
1	A	1249	ASP
1	A	1250	ALA
1	A	1331	SER
1	A	1377	THR
1	A	1405	THR
2	B	262	GLU
2	B	344	LYS
2	B	675	ASP
2	B	711	GLU
2	B	881	ASN
2	B	1165	ILE
2	B	1223	ASP
3	C	5	GLY
3	C	128	ASN
3	C	175	ALA
3	C	184	ASN
7	G	66	GLY
7	G	154	VAL
8	H	128	ASN
9	I	9	ASP
10	J	64	ASN
12	L	55	ILE
1	A	42	ASP
1	A	52	GLY
1	A	76	GLU
1	A	258	GLY
1	A	473	SER
1	A	591	PHE
1	A	609	ASP
1	A	1255	GLU
2	B	334	ILE
2	B	475	SER
2	B	673	PHE
2	B	749	LEU
2	B	757	PRO
2	B	792	MET
2	B	880	THR
2	B	1096	ARG
3	C	110	THR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
4	D	198	LEU
9	I	90	GLN
12	L	50	ASP
1	A	35	ILE
1	A	57	ARG
1	A	65	LEU
1	A	71	GLN
1	A	108	MET
1	A	322	VAL
1	A	424	ILE
1	A	871	ASP
1	A	958	VAL
1	A	1093	LYS
1	A	1183	GLN
2	B	108	VAL
2	B	305	VAL
2	B	713	ALA
2	B	1017	ILE
2	B	1108	ARG
2	B	1157	ALA
2	B	1181	GLU
3	C	227	THR
4	D	36	LYS
5	E	73	PRO
5	E	106	GLN
8	H	90	ALA
9	I	91	ARG
10	J	62	ARG
12	L	53	HIS
1	A	1435	PRO
2	B	472	ALA
2	B	960	GLY
5	E	3	GLN
6	F	154	ASP
12	L	56	LEU
2	B	511	PRO
2	B	575	PRO
3	C	142	VAL
1	A	610	GLY
2	B	167	ILE
12	L	52	GLY
2	B	349	ILE

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	B	503	GLY
1	A	1015	VAL
1	A	1107	VAL
2	B	1214	PRO

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	1255/1520 (83%)	1205 (96%)	50 (4%)	27	50
2	B	995/1061 (94%)	957 (96%)	38 (4%)	28	52
3	C	234/274 (85%)	230 (98%)	4 (2%)	56	72
4	D	147/200 (74%)	144 (98%)	3 (2%)	50	68
5	E	197/197 (100%)	193 (98%)	4 (2%)	50	68
6	F	77/137 (56%)	74 (96%)	3 (4%)	27	51
7	G	152/152 (100%)	144 (95%)	8 (5%)	19	44
8	H	121/128 (94%)	118 (98%)	3 (2%)	42	62
9	I	113/116 (97%)	110 (97%)	3 (3%)	40	60
10	J	60/65 (92%)	56 (93%)	4 (7%)	13	38
11	K	99/102 (97%)	96 (97%)	3 (3%)	36	58
12	L	40/57 (70%)	38 (95%)	2 (5%)	20	45
All	All	3490/4009 (87%)	3365 (96%)	125 (4%)	30	54

All (125) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	18	GLN
1	A	34	LYS
1	A	42	ASP
1	A	58	LEU
1	A	68	GLN
1	A	70	CYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	71	GLN
1	A	134	ARG
1	A	200	ARG
1	A	215	SER
1	A	261	ASP
1	A	265	LYS
1	A	324	SER
1	A	337	ARG
1	A	378	GLU
1	A	416	ARG
1	A	438	ASP
1	A	445	ASN
1	A	470	LEU
1	A	483	ASP
1	A	498	ARG
1	A	503	GLN
1	A	544	ASP
1	A	573	SER
1	A	590	ARG
1	A	598	LEU
1	A	602	ASP
1	A	618	GLU
1	A	635	ARG
1	A	685	GLU
1	A	764	CYS
1	A	774	ARG
1	A	782	ARG
1	A	821	ARG
1	A	877	HIS
1	A	1001	ARG
1	A	1029	ARG
1	A	1035	TYR
1	A	1140	HIS
1	A	1150	SER
1	A	1176	LEU
1	A	1218	GLN
1	A	1249	ASP
1	A	1255	GLU
1	A	1256	GLU
1	A	1297	GLU
1	A	1359	ASP
1	A	1390	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	1391	ARG
1	A	1442	ASP
2	B	39	ARG
2	B	50	SER
2	B	61	ASP
2	B	175	ARG
2	B	188	ASP
2	B	194	GLU
2	B	199	MET
2	B	232	SER
2	B	261	ARG
2	B	289	LEU
2	B	294	ASP
2	B	351	TYR
2	B	394	ASP
2	B	401	PHE
2	B	417	PHE
2	B	466	TRP
2	B	496	ARG
2	B	537	LYS
2	B	644	GLU
2	B	670	GLU
2	B	678	GLU
2	B	679	TYR
2	B	705	MET
2	B	830	TYR
2	B	959	ASP
2	B	1020	ARG
2	B	1049	ASP
2	B	1092	TYR
2	B	1108	ARG
2	B	1122	ARG
2	B	1125	ASP
2	B	1129	ARG
2	B	1148	LYS
2	B	1156	ASP
2	B	1163	CYS
2	B	1183	LYS
2	B	1221	SER
2	B	1222	ARG
3	C	136	ASP
3	C	140	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	C	148	ARG
3	C	188	HIS
4	D	70	PHE
4	D	114	MET
4	D	120	GLU
5	E	17	ARG
5	E	70	SER
5	E	74	ASP
5	E	182	ASP
6	F	79	ARG
6	F	90	ARG
6	F	147	SER
7	G	1	MET
7	G	6	ASP
7	G	38	CYS
7	G	42	PHE
7	G	79	PHE
7	G	80	LYS
7	G	106	MET
7	G	118	ASP
8	H	65	LEU
8	H	66	GLU
8	H	130	ARG
9	I	7	CYS
9	I	44	TYR
9	I	103	CYS
10	J	7	CYS
10	J	10	CYS
10	J	47	ARG
10	J	48	ARG
11	K	6	ARG
11	K	29	ASN
11	K	52	ASN
12	L	27	LEU
12	L	54	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	256	GLN
1	A	458	HIS
1	A	1140	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	B	449	ASN
2	B	770	GLN
3	C	31	ASN
3	C	123	ASN
4	D	115	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 9 ligands modelled in this entry, 9 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

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

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

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	1429/1733 (82%)	-0.75	0 100 100	57, 151, 244, 348	0
2	B	1144/1224 (93%)	-0.62	5 (0%) 89 78	78, 157, 266, 369	0
3	C	266/318 (83%)	-0.87	0 100 100	83, 158, 209, 278	0
4	D	184/221 (83%)	-0.72	0 100 100	135, 220, 290, 320	0
5	E	215/215 (100%)	-0.84	0 100 100	102, 201, 277, 336	0
6	F	87/155 (56%)	-0.88	0 100 100	71, 124, 184, 213	0
7	G	171/171 (100%)	-0.80	0 100 100	121, 185, 244, 270	0
8	H	137/146 (93%)	-0.68	1 (0%) 84 72	140, 201, 276, 327	0
9	I	119/122 (97%)	-0.82	0 100 100	121, 172, 245, 277	0
10	J	65/70 (92%)	-0.82	0 100 100	110, 154, 200, 238	0
11	K	115/120 (95%)	-0.93	0 100 100	85, 141, 206, 267	0
12	L	46/70 (65%)	-0.44	0 100 100	123, 198, 252, 288	0
All	All	3978/4565 (87%)	-0.73	6 (0%) 92 86	57, 161, 260, 369	0

All (6) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	758	PHE	3.3
2	B	757	PRO	3.0
2	B	819	ALA	2.7
2	B	441	ASP	2.7
8	H	120	GLY	2.6
2	B	1046	PRO	2.4

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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. 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	RSCC	RSR	B-factors(Å ²)	Q<0.9
13	ZN	A	1801	1/1	0.98	0.02	233,233,233,233	0
14	MG	A	1803	1/1	0.98	0.07	67,67,67,67	0
13	ZN	L	101	1/1	0.99	0.03	135,135,135,135	0
13	ZN	I	202	1/1	0.99	0.03	193,193,193,193	0
13	ZN	I	201	1/1	1.00	0.01	100,100,100,100	0
13	ZN	A	1802	1/1	1.00	0.02	107,107,107,107	0
13	ZN	J	101	1/1	1.00	0.03	131,131,131,131	0
13	ZN	B	1301	1/1	1.00	0.02	122,122,122,122	0
13	ZN	C	401	1/1	1.00	0.08	171,171,171,171	0

6.5 Other polymers [i](#)

There are no such residues in this entry.