



Full wwPDB X-ray Structure Validation Report ⓘ

May 15, 2020 – 01:28 am BST

PDB ID : 1FW6
Title : CRYSTAL STRUCTURE OF A TAQ MUTS-DNA-ADP TERNARY COMPLEX
Authors : Junop, M.S.; Obmolova, G.; Rausch, K.; Hsieh, P.; Yang, W.
Deposited on : 2000-09-21
Resolution : 2.70 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtrriage (Phenix) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.11

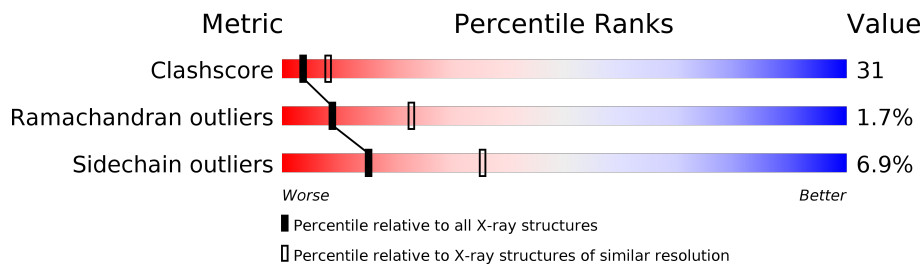
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.70 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))
Clashscore	141614	3122 (2.70-2.70)
Ramachandran outliers	138981	3069 (2.70-2.70)
Sidechain outliers	138945	3069 (2.70-2.70)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria 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 $\leq 5\%$

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	C	23	
2	D	22	
3	A	768	
3	B	768	

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 13165 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 DNA chain called 5'-D(*GP*CP*GP*AP*CP*GP*CP*TP*AP*GP*CP*GP*TP*GP*CP*GP*GP*CP*TP*CP*GP*TP*C)-3'.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
1	C	23	469	222	87	138	22	0	0	0

- Molecule 2 is a DNA chain called 5'-D(*GP*GP*AP*CP*GP*AP*GP*CP*CP*GP*CP*CP*GP*CP*TP*AP*GP*CP*GP*TP*CP*G)-3'.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
2	D	22	450	212	88	129	21	0	0	0

- Molecule 3 is a protein called DNA MISMATCH REPAIR PROTEIN MUTS.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
			Total	C	N	O	S	Se			
3	A	759	6006	3825	1068	1099	1	13	0	0	0
3	B	749	5936	3784	1055	1083	1	13	0	0	0

There are 26 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	MSE	MET	MODIFIED RESIDUE	UNP Q56215
A	4	MSE	MET	MODIFIED RESIDUE	UNP Q56215
A	70	MSE	MET	MODIFIED RESIDUE	UNP Q56215
A	88	MSE	MET	MODIFIED RESIDUE	UNP Q56215
A	201	MSE	MET	MODIFIED RESIDUE	UNP Q56215
A	250	MSE	MET	MODIFIED RESIDUE	UNP Q56215
A	481	MSE	MET	MODIFIED RESIDUE	UNP Q56215
A	574	MSE	MET	MODIFIED RESIDUE	UNP Q56215
A	586	MSE	MET	MODIFIED RESIDUE	UNP Q56215
A	640	MSE	MET	MODIFIED RESIDUE	UNP Q56215

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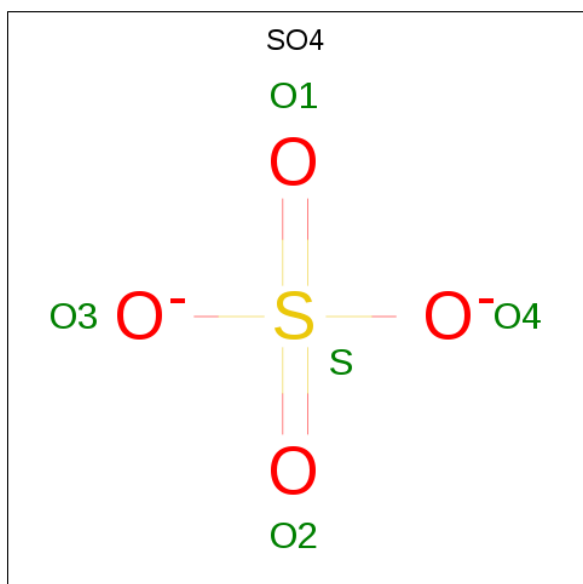
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Chain	Residue	Modelled	Actual	Comment	Reference
A	643	MSE	MET	MODIFIED RESIDUE	UNP Q56215
A	744	MSE	MET	MODIFIED RESIDUE	UNP Q56215
A	762	MSE	MET	MODIFIED RESIDUE	UNP Q56215
B	1001	MSE	MET	MODIFIED RESIDUE	UNP Q56215
B	1004	MSE	MET	MODIFIED RESIDUE	UNP Q56215
B	1070	MSE	MET	MODIFIED RESIDUE	UNP Q56215
B	1088	MSE	MET	MODIFIED RESIDUE	UNP Q56215
B	1201	MSE	MET	MODIFIED RESIDUE	UNP Q56215
B	1250	MSE	MET	MODIFIED RESIDUE	UNP Q56215
B	1481	MSE	MET	MODIFIED RESIDUE	UNP Q56215
B	1574	MSE	MET	MODIFIED RESIDUE	UNP Q56215
B	1586	MSE	MET	MODIFIED RESIDUE	UNP Q56215
B	1640	MSE	MET	MODIFIED RESIDUE	UNP Q56215
B	1643	MSE	MET	MODIFIED RESIDUE	UNP Q56215
B	1744	MSE	MET	MODIFIED RESIDUE	UNP Q56215
B	1762	MSE	MET	MODIFIED RESIDUE	UNP Q56215

- Molecule 4 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

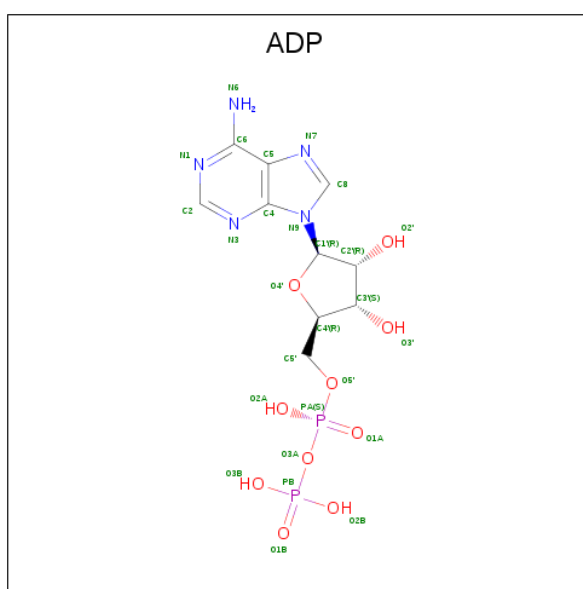
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	B	1	Total Mg 1 1	0	0
4	A	1	Total Mg 1 1	0	0

- Molecule 5 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total O S 5 4 1	0	0
5	A	1	Total O S 5 4 1	0	0
5	B	1	Total O S 5 4 1	0	0
5	B	1	Total O S 5 4 1	0	0

- Molecule 6 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total C N O P 27 10 5 10 2	0	0
6	B	1	Total C N O P 27 10 5 10 2	0	0

- Molecule 7 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	C	4	Total O 4 4	0	0
7	D	4	Total O 4 4	0	0
7	A	105	Total O 105 105	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	B	115	Total 115	O 115	0	0

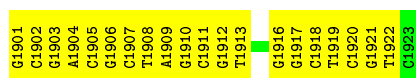
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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. 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. 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.

Note EDS was not executed.

- Molecule 1: 5'-D(*GP*CP*GP*AP*CP*GP*CP*TP*AP*GP*CP*GP*TP*GP*CP*GP*GP*CP*TP*CP*GP*TP*C)-3'

Chain C: 



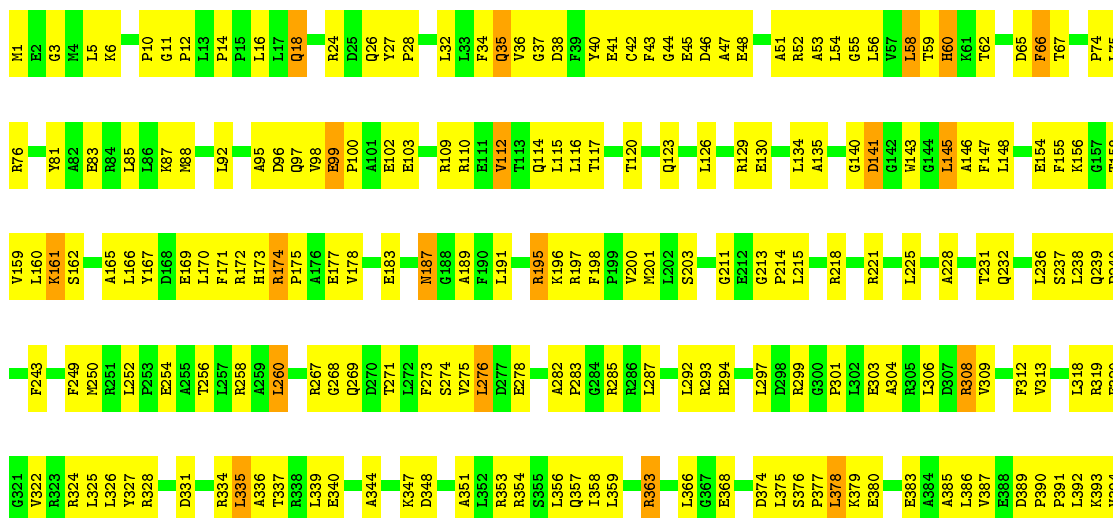
- Molecule 2: 5'-D(*GP*GP*AP*CP*GP*AP*GP*CP*CP*GP*CP*CP*GP*CP*TP*AP*GP*CP*GP*TP*CP*G)-3'

Chain D: 



- Molecule 3: DNA MISMATCH REPAIR PROTEIN MUTS

Chain A: 



S395	Y476	A555	GLY	R716	R1001	A1077	G1153	Q1232	L1332	R1412	M1481	M1574	D1662
E396	T477	G596	G635	E717	E1002	F1078	E1154	G1233	R1338	A1413	K1484	E1577	E1663
G397	L478	R557	R636	E718	G1003	L0885	F1155	G1234	L1339	A1414	E1485	E1578	E1664
I400	P479	E562	T638	M1004	M1004	L1088	G1156	A1235	E1340	R1416	R1486	L1579	L1668
R401	K482	R563	F639	L1005	K1006	M1088	T1158	S1237	L1341	E1417	E1487	L1580	S1669
D405	E483	R564	M640	E484	P1010	G1089	V1459	L1238	G1342	A1420	V1488	L1581	V1674
L408	K484	T565	V641	E485	G1011	R1090	L1160	Q1239	R1343	Y1421	L1491	P1584	V1674
D409	E486	E566	E642	E487	P1012	R1091	K1161	M1250	S1345	F1422	E1492	M1585	T1678
A410	E488	F567	M643	E487	L1013	L1092	K1162	P1253	P1346	E1423	I1495	M1586	A1662
L411	Y489	E573	V646	E489	P1014	Q1097	L1166	P1256	D1348	E1425	R1498	K1589	A1663
R412	R490	M574	E652	Y489	L1016	E1099	Y1167	T1256	L1349	E1426	R1498	K1589	L1684
A413	L491	L578	L660	R490	L1017	P1100	D1168	L1257	L1353	E1429	E1499	K1589	L1685
R414	E492	V579	L661	L491	Q1018	ALA	R1169	A1259	R1354	E1430	E1500	L1593	L1686
R416	A493	L580	D662	R492	Q1019	GLU	GLU	A1260	R1354	E1431	R1501	R1594	L1687
V419	L494	I581	D663	R493	Y1020	ALA	R1173	F1263	L1356	E1432	V1502	R1595	R1688
A420	I495	T582	E663	R494	V1021	ALA	R1174	E1264	Q1357	R1433	F1503	T1596	A1689
R422	R496	G583	M664	R495	E1022	GLU	R1175	P1265	E1358	T1434	L1594	T1597	L1692
V420	R497	P584	G665	R496	L1023	GLY	P1176	L1266	P1360	G1435	E1505	R1507	L1693
A426	R499	A587	G667	R499	D1025	LEU	E1176	R1267	P1360	I4435	V1506	A1603	T1695
R430	E500	N585	T668	R499	Q1026	V1108	A1177	G1268	P1360	T1437	E1508	Q1604	T1696
E431	E501	R666	E667	R499	E1027	R1110	E1177	Q1268	P1360	K1439	R1509	V1605	H1696
P436	E502	N586	G667	R499	Y1027	R1111	P1178	Q1268	H1364	V1440	A1511	Q1605	Y1697
L438	R509	E587	T671	R500	D1028	E1111	T1112	Q1268	L1366	V1443	R1512	V1609	F1698
R439	A516	A587	L671	R501	D1029	T1112	T1113	T1271	L1366	N1443	L1523	V1610	F1699
V440	L517	L593	D672	E501	Y1030	T1113	G1114	T1271	E1367	F1446	L1524	P1610	F1699
Y442	R508	R594	G673	E502	L1031	T1114	L1114	L1276	G1367	Y1449	A1525	H1615	L1700
N443	R509	Q595	A675	R503	L1033	T1115	L1115	R1280	K1378	E1450	V1529	H1616	L1701
R448	A516	I599	A677	R504	L1034	T1116	L1116	T1281	L1378	E1451	A1537	P1617	T1701
Y449	L517	V605	L677	R505	F1034	T1117	G1188	T1281	K1379	E1452	R1539	L1618	M1709
L450	E526	G606	R678	R507	Q1035	T1118	D1192	T1281	E1383	Y1456	Y1540	L1619	M1710
R454	D528	E612	L678	R507	Y1040	T1119	K1196	P1283	A1385	Y1457	Y1542	F1619	M1711
P455	V529	E613	E682	R507	E1041	T1120	F1198	G1284	L1386	V1460	V1543	L1624	L1711
Y456	L533	H615	R682	R508	C1042	T1121	P1199	R1285	L1386	V1461	P1545	R1625	L1711
Y457	E535	L614	E682	R509	E1047	T1122	V1200	R1286	E1388	Y1462	A1546	R1625	L1711
P461	E535	L614	E682	R509	A1047	T1123	P1201	L1287	D1389	Y1463	F1547	R1625	L1711
R463	E535	L614	E682	R509	E1048	T1124	L1202	S1290	P1390	Y1464	L1551	M1640	P1730
Y464	R539	Y623	R682	R509	R1049	T1126	L1202	P1296	D1390	Y1465	L1552	E1644	P1730
R465	Y540	T623	E682	R509	R1050	L1126	P1209	L1296	D1390	Y1466	L1553	E1644	P1730
P466	Y540	T623	E682	R509	L1056	L1126	E1210	L1297	D1390	Y1467	L1553	E1644	P1730
V467	F547	T624	R625	R509	L1057	T1137	G1213	L1297	D1390	Y1468	L1554	E1644	P1730
Q468	G548	R625	R625	R509	L1054	T1137	P1214	L1297	D1390	Y1469	L1554	E1644	P1730
K471	D549	A528	R625	R509	L1055	T1137	P1214	L1297	D1390	Y1470	L1554	E1644	P1730
R550	R550	R625	R625	R509	L1055	T1137	P1214	L1297	D1390	Y1471	L1554	E1644	P1730
L551	R550	R625	R625	R509	L1055	T1137	P1214	L1297	D1390	Y1472	L1554	E1644	P1730
R554	R550	R625	R625	R509	L1055	T1137	P1214	L1297	D1390	Y1473	L1554	E1644	P1730
ALA	ALA	ALA	ALA	ALA	L1055	T1137	P1214	L1297	D1390	Y1474	L1554	E1644	P1730
	ALA	ALA	ALA	ALA	L1055	T1137	P1214	L1297	D1390	Y1475	L1554	E1644	P1730
	ALA	ALA	ALA	ALA	L1055	T1137	P1214	L1297	D1390	Y1476	L1554	E1644	P1730
	ALA	ALA	ALA	ALA	L1055	T1137	P1214	L1297	D1390	Y1477	L1554	E1644	P1730
	ALA	ALA	ALA	ALA	L1055	T1137	P1214	L1297	D1390	Y1478	L1554	E1644	P1730
	ALA	ALA	ALA	ALA	L1055	T1137	P1214	L1297	D1390	Y1479	L1554	E1644	P1730
	ALA	ALA	ALA	ALA	L1055	T1137	P1214	L1297	D1390	Y1480	L1554	E1644	P1730

• Molecule 3: DNA MISMATCH REPAIR PROTEIN MUTS



M1001	A1047	G1055	D1065	L1054	E1002	R1047	L1054	Q1042	L1054	R1076	L1075	R1076
E1002	E1048	L1056	F1066	L1054	G1003	E1048	G1142	C1042	L1054	L1075	R1076	R1076
G1003	R1049	L1056	F1066	L1054	M1004	R1049	G1143	C1042	L1054	L1075	R1076	R1076
M1004	R1049	L1056	F1066	L1054	L1005	R1049	G1144	C1042	L1054	L1075	R1076	R1076
L1005	R1049	L1056	F1066	L1054	K1006	R1049	G1145	C1042	L1054	L1075	R1076	R1076
K1006	R1049	L1056	F1066	L1054	P1010	R1049	G1146	C1042	L1054	L1075	R1076	R1076
P1010	R1049	L1056	F1066	L1054	G1011	R1049	G1147	C1042	L1054	L1075	R1076	R1076
G1011	R1049	L1056	F1066	L1054	P1012	R1049	G1148	C1042	L1054	L1075	R1076	R1076
P1012	R1049	L1056	F1066	L1054	L1013	R1049	G1149	C1042	L1054	L1075	R1076	R1076
L1013	R1049	L1056	F1066	L1054	P1014	R1049	G1150	C1042	L1054	L1075	R1076	R1076
P1014	R1049	L1056	F1066	L1054	L1016	R1049	G1151	C1042	L1054	L1075	R1076	R1076
L1016	R1049	L1056	F1066	L1054	L1017	R1049	G1152	C1042	L1054	L1075	R1076	R1076
L1017	R1049	L1056	F1066	L1054	Q1018	R1049	G1153	C1042	L1054	L1075	R1076	R1076
Q1018	R1049	L1056	F1066	L1054	Q1019	R1049	G1154	C1042	L1054	L1075	R1076	R1076
Q1019	R1049	L1056	F1066	L1054	Y1020	R1049	G1155	C1042	L1054	L1075	R1076	R1076
Y1020	R1049	L1056	F1066	L1054	V1021	R1049	G1156	C1042	L1054	L1075	R1076	R1076
V1021	R1049	L1056	F1066	L1054	E1022	R1049	G1157	C1042	L1054	L1075	R1076	R1076
E1022	R1049	L1056	F1066	L1054	L1023	R1049	G1158	C1042	L1054	L1075	R1076	R1076
L1023	R1049	L1056	F1066	L1054	D1025	R1049	G1159	C1042	L1054	L1075	R1076	R1076
D1025	R1049	L1056	F1066	L1054	Q1026	R1049	G1160	C1042	L1054	L1075	R1076	R1076
Q1026	R1049	L1056	F1066	L1054	E1027	R1049	G1161	C1042	L1054	L1075	R1076	R1076
E1027	R1049	L1056	F1066	L1054	Y1027	R1049	G1162	C1042	L1054	L1075	R1076	R1076
Y1027	R1049	L1056	F1066	L1054	D1028	R1049	G1163	C1042	L1054	L1075	R1076	R1076
D1028	R1049	L1056	F1066	L1054	D1029	R1049	G1164	C1042	L1054	L1075	R1076	R1076
D1029	R1049	L1056	F1066	L1054	Y1030	R1049	G1165	C1042	L1054	L1075	R1076	R1076
Y1030	R1049	L1056	F1066	L1054	L1031	R1049	G1166	C1042	L1054	L1075	R1076	R1076
L1031	R1049	L1056	F1066	L1054	L1033	R1049	G1167	C1042	L1054	L1075	R1076	R1076
L1033	R1049	L1056	F1066	L1054	L1034	R1049	G1168	C1042	L1054	L1075	R1076	R1076
L1034	R1049	L1056	F1066	L1054	F1034	R1049	G1169	C1042	L1054	L1075	R1076	R1076
F1034	R1049	L1056	F1066	L1054	Q1035	R1049	G1170	C1042	L1054	L1075	R1076	R1076
Q1035	R1049	L1056	F1066	L1054	Y1040	R1049	G1171	C1042	L1054	L1075	R1076	R1076
Y1040	R1049	L1056	F1066	L1054	E1041	R1049	G1172	C1042	L1054	L1075	R1076	R1076
E1041	R1049	L1056	F1066	L1054	C1042	R1049	G1173	C1042	L1054	L1075	R1076	R1076
C1042	R1049	L1056	F1066	L1054	A1047	R1049	G1174	C1042	L1054	L1075	R1076	R1076
A1047	R1049	L1056	F1066	L1054	E1048	R1049	G1175	C1042	L1054	L1075	R1076	R1076
E1048	R1049	L1056	F1066	L1054	R1049	R1049	G1176	C1042	L1054	L1075	R1076	R1076
R1049	R1049	L1056	F1066	L1054	R1049	R1049	G1177	C1042	L1054	L1075	R1076	R1076
R1049	R1049	L1056	F1066	L1054	R1049	R1049	G1178	C1042	L1054	L1075	R1076	R1076
R1049	R1049	L1056	F1066	L1054	R1049	R1049	G1179	C1042	L1054	L1075	R1076	R1076
R1049	R1049	L1056	F1066	L1054	R1049	R1049	G1180	C1042	L1054	L1075	R1076	R1076
R1049	R1049	L1056	F1066	L1054	R1049	R1049	G1181	C1042	L1054	L1075	R1076	R1076
R1049	R1049	L1056	F1066	L1054	R1049	R1049	G1182	C1042	L1054	L1075	R1076	R1076
R1049	R1049	L1056	F1066	L1054	R1049	R1049	G1183	C1042	L1054	L1075	R1076	R1076
R1049	R1049	L1056	F1066	L1054	R1049	R1049	G1184	C1042	L1054	L1075	R1076	R1076
R1049	R1049	L1056	F1066	L1054	R1049	R1049	G1185	C1042	L1054	L1075	R1076	R1076
R1049	R1049	L1056	F1066	L1054	R10							

A1745	G1746	L1747	P1748	V1751	L1758	L1759	M1762	ALA	ALA	ARG	ARG	GLU	GLY
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4 Data and refinement statistics

Xtrriage (Phenix) and EDS were not executed - this section is therefore incomplete.

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	103.72Å 113.50Å 160.50Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	23.17 – 2.70	Depositor
% Data completeness (in resolution range)	90.8 (23.17-2.70)	Depositor
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	CNS	Depositor
R, R_{free}	0.218 , 0.280	Depositor
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	13165	wwPDB-VP
Average B, all atoms (Å ²)	45.0	wwPDB-VP

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: MG, SO4, ADP

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	C	0.32	0/525	0.66	0/809
2	D	0.29	0/505	0.66	0/778
3	A	0.39	0/6111	0.66	1/8249 (0.0%)
3	B	0.39	0/6040	0.68	2/8152 (0.0%)
All	All	0.38	0/13181	0.67	3/17988 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	1268	GLY	N-CA-C	-5.30	99.86	113.10
3	A	134	LEU	N-CA-C	-5.13	97.14	111.00
3	B	1329	LEU	CA-CB-CG	5.09	127.02	115.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	469	0	259	35	0
2	D	450	0	246	38	0
3	A	6006	0	6093	362	0
3	B	5936	0	6023	381	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	A	1	0	0	0	0
4	B	1	0	0	0	0
5	A	10	0	0	0	0
5	B	10	0	0	0	0
6	A	27	0	12	2	0
6	B	27	0	12	3	0
7	A	105	0	0	13	0
7	B	115	0	0	20	0
7	C	4	0	0	6	0
7	D	4	0	0	0	0
All	All	13165	0	12645	798	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 31.

All (798) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:1663:GLU:HG3	7:B:150:HOH:O	1.40	1.18
3:B:1597:ALA:HB2	3:B:1660:LEU:HD11	1.34	1.10
3:A:267:ARG:HB2	3:A:269:GLN:HE21	1.12	1.07
1:C:1916:DG:H2''	1:C:1917:DG:H5'	1.35	1.07
3:B:1723:VAL:HG13	7:B:149:HOH:O	1.54	1.06
3:B:1117:THR:HG23	3:B:1177:GLU:OE1	1.60	1.00
3:B:1001:MSE:HE3	3:B:1004:MSE:HG3	1.44	0.98
3:A:59:THR:HG22	3:A:60:HIS:H	1.27	0.96
3:A:722:LEU:H	3:A:744:MSE:HE1	1.31	0.95
3:A:174:ARG:HE	3:A:174:ARG:HA	1.31	0.94
3:B:1368:GLU:HG2	7:B:163:HOH:O	1.67	0.94
2:D:1967:DG:H2''	2:D:1968:DC:H5''	1.50	0.92
3:B:1574:MSE:HE3	3:B:1579:VAL:HG23	1.51	0.92
3:A:267:ARG:O	3:A:269:GLN:HG3	1.71	0.88
3:A:267:ARG:HB2	3:A:269:GLN:NE2	1.86	0.88
1:C:1909:DA:H5''	3:B:1453:THR:HB	1.55	0.87
3:B:1269:GLN:NE2	3:B:1270:ASP:H	1.73	0.87
3:A:581:ILE:HD11	3:A:692:LEU:HD22	1.55	0.86
3:A:35:GLN:HG3	3:A:97:GLN:HG3	1.58	0.86
3:A:201:MSE:HE3	3:A:203:SER:OG	1.78	0.84
3:B:1553:ILE:HD11	3:B:1616:LEU:HD21	1.60	0.83
1:C:1916:DG:N7	7:C:195:HOH:O	2.11	0.83
3:A:172:ARG:O	3:A:293:ARG:HD3	1.78	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:722:LEU:H	3:A:744:MSE:CE	1.93	0.81
3:A:519:GLU:HG3	3:A:522:ARG:HH11	1.45	0.81
3:A:161:LYS:HD2	3:A:162:SER:H	1.46	0.81
3:A:722:LEU:HB2	3:A:744:MSE:HE1	1.61	0.81
3:A:161:LYS:HD2	3:A:162:SER:N	1.96	0.81
3:B:1593:LEU:HD22	3:B:1692:LEU:HB3	1.62	0.81
1:C:1909:DA:H2''	1:C:1910:DG:H5'	1.63	0.80
3:A:595:GLN:NE2	7:A:1954:HOH:O	2.12	0.80
2:D:1958:DC:H4'	3:B:1443:ASN:HD21	1.46	0.80
1:C:1903:DG:H2''	1:C:1904:DA:C5'	2.12	0.79
3:B:1397:GLY:HA2	3:B:1499:GLU:OE1	1.82	0.79
3:B:1027:TYR:CE1	3:B:1112:VAL:HG21	2.17	0.79
3:B:1076:ARG:HG3	3:B:1077:ALA:H	1.47	0.79
3:A:497:ARG:O	3:A:501:GLU:HG3	1.83	0.79
3:B:1018:GLN:O	3:B:1022:GLU:HG3	1.83	0.78
6:B:1999:ADP:H3'	7:B:165:HOH:O	1.81	0.78
3:A:322:VAL:HG11	3:A:527:LEU:HD22	1.63	0.78
3:B:1085:LEU:O	3:B:1090:PHE:HB2	1.83	0.78
3:A:672:ASP:O	3:A:676:ILE:HG12	1.84	0.78
3:A:171:PHE:CD2	3:A:254:GLU:HG3	2.19	0.78
3:A:674:VAL:CG1	3:A:699:GLU:HG3	2.15	0.77
2:D:1956:DA:OP1	3:B:1108:VAL:HG22	1.85	0.77
3:B:1685:HIS:HE1	3:B:1707:ARG:H	1.32	0.77
3:A:394:VAL:HG21	3:A:500:GLU:HA	1.67	0.77
3:B:1057:VAL:HG23	7:B:219:HOH:O	1.83	0.77
3:A:51:ALA:HA	3:A:56:LEU:HB2	1.67	0.76
3:B:1034:PHE:CZ	3:B:1110:ARG:HD2	2.21	0.76
3:B:1439:LYS:HB2	3:B:1451:GLU:HB3	1.67	0.76
2:D:1962:DC:H1'	2:D:1963:DG:H5''	1.68	0.76
3:A:722:LEU:N	3:A:744:MSE:HE1	2.00	0.75
3:B:1318:LEU:HD12	3:B:1365:LEU:HD22	1.68	0.75
3:B:1097:GLN:NE2	3:B:1110:ARG:HH21	1.85	0.74
1:C:1903:DG:H2''	1:C:1904:DA:H5'	1.69	0.74
3:A:353:ARG:O	3:A:357:GLN:HG3	1.88	0.73
3:B:1379:LYS:O	3:B:1383:GLU:HG3	1.88	0.73
3:A:35:GLN:HB3	3:A:95:ALA:O	1.89	0.73
3:B:1160:LEU:HD22	3:B:1166:LEU:HA	1.69	0.73
3:A:256:THR:O	3:A:260:LEU:HB2	1.88	0.73
3:B:1005:LEU:HD21	3:B:1068:THR:HG21	1.69	0.72
3:B:1129:ARG:HD2	3:B:1285:ARG:NH1	2.04	0.72
1:C:1916:DG:H4'	7:C:211:HOH:O	1.89	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:328:ARG:O	3:A:354:ARG:NH1	2.23	0.72
3:A:493:ALA:HA	3:A:496:ARG:NH1	2.05	0.72
3:A:368:GLU:CB	7:A:1927:HOH:O	2.37	0.72
3:B:1574:MSE:HE3	3:B:1579:VAL:CG2	2.19	0.72
3:B:1316:GLY:O	3:B:1320:GLU:HG3	1.90	0.71
3:B:1122:LEU:H	3:B:1123:GLN:NE2	1.89	0.71
3:B:1454:ARG:HH11	3:B:1454:ARG:HG2	1.55	0.71
3:B:1433:THR:HG22	3:B:1435:ILE:HG13	1.71	0.71
3:B:1280:ARG:HG3	3:B:1280:ARG:HH11	1.55	0.71
3:A:507:ARG:HD2	7:A:1876:HOH:O	1.91	0.70
3:A:585:ASN:O	3:A:586:MSE:HB2	1.91	0.70
3:A:593:LEU:CD2	3:A:692:LEU:HB3	2.21	0.70
2:D:1967:DG:C2'	2:D:1968:DC:H5''	2.19	0.70
3:A:759:LEU:HA	3:A:762:MSE:HE2	1.73	0.70
3:B:1229:GLN:HG2	3:B:1236:LEU:HG	1.74	0.70
3:B:1395:SER:O	3:B:1396:GLU:HB2	1.91	0.70
3:A:758:LEU:O	3:A:762:MSE:HG3	1.92	0.70
1:C:1916:DG:H2''	7:C:146:HOH:O	1.92	0.70
3:A:405:ASP:HB3	3:A:408:LEU:HB3	1.73	0.70
3:A:328:ARG:HB2	3:A:358:ILE:HD11	1.74	0.69
3:B:1426:GLU:O	3:B:1430:ARG:HG2	1.92	0.69
2:D:1968:DC:H2''	2:D:1969:DG:O5'	1.92	0.69
3:B:1456:TYR:O	3:B:1460:VAL:HG23	1.92	0.69
3:B:1446:PHE:HB2	7:B:58:HOH:O	1.92	0.69
3:A:438:LEU:HD21	3:A:450:LEU:HD22	1.73	0.69
3:A:563:ARG:HA	3:A:563:ARG:NE	2.08	0.69
1:C:1916:DG:H2''	1:C:1917:DG:C5'	2.18	0.69
3:B:1122:LEU:H	3:B:1123:GLN:HE21	1.41	0.69
3:A:102:GLU:HG3	7:A:1895:HOH:O	1.92	0.68
3:B:1124:GLU:HG2	7:B:185:HOH:O	1.92	0.68
3:B:1117:THR:CG2	3:B:1177:GLU:OE1	2.41	0.68
3:A:593:LEU:HD22	3:A:692:LEU:HB3	1.73	0.68
3:A:60:HIS:CD2	3:A:60:HIS:N	2.62	0.68
3:B:1435:ILE:HG22	3:B:1438:LEU:H	1.59	0.68
3:A:59:THR:HG22	3:A:60:HIS:N	2.07	0.68
3:B:1097:GLN:HE21	3:B:1110:ARG:HH21	1.40	0.68
3:A:267:ARG:CB	3:A:269:GLN:HE21	2.01	0.67
3:B:1338:ARG:NH1	7:B:185:HOH:O	2.26	0.67
3:A:115:LEU:HB2	3:A:231:THR:HA	1.77	0.67
3:A:92:LEU:HD12	3:A:116:LEU:HD12	1.76	0.67
3:A:547:PHE:HA	3:A:616:LEU:O	1.95	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:1010:PRO:HG2	3:B:1011:GLY:H	1.60	0.67
3:B:1123:GLN:HG3	3:B:1126:LEU:HD12	1.76	0.67
3:B:1460:VAL:HG11	3:B:1476:TYR:CZ	2.30	0.67
3:A:140:GLY:O	3:A:141:ASP:HB2	1.95	0.66
3:A:336:ALA:O	3:A:340:GLU:HG3	1.95	0.66
3:B:1376:SER:OG	3:B:1377:PRO:HD3	1.96	0.66
3:A:411:LEU:HB3	3:A:495:ILE:HG12	1.77	0.66
3:A:550:ARG:HH11	3:A:550:ARG:HG3	1.60	0.66
3:A:636:LYS:HE3	3:A:636:LYS:HA	1.76	0.66
3:B:1585:ASN:O	3:B:1586:MSE:HB2	1.95	0.66
3:B:1604:GLN:HE22	3:B:1619:PHE:H	1.44	0.66
3:A:555:ALA:HB3	3:A:612:GLU:HB2	1.77	0.66
3:B:1269:GLN:CG	3:B:1270:ASP:H	2.09	0.66
3:A:363:ARG:HH22	3:A:374:ASP:CA	2.09	0.66
3:A:5:LEU:HD11	3:A:44:GLY:HA3	1.77	0.66
3:A:308:ARG:HH11	3:A:308:ARG:CG	2.09	0.65
3:B:1140:GLY:HA3	7:B:70:HOH:O	1.95	0.65
1:C:1921:DG:OP1	3:A:471:LYS:HE3	1.95	0.65
3:B:1027:TYR:HE1	3:B:1112:VAL:HG21	1.61	0.65
3:B:1269:GLN:CD	3:B:1270:ASP:H	1.98	0.65
1:C:1916:DG:C2'	7:C:146:HOH:O	2.43	0.65
3:A:506:VAL:O	3:A:509:ARG:HB2	1.97	0.65
3:B:1353:ARG:O	3:B:1357:GLN:HG3	1.97	0.65
3:A:155:PHE:CZ	3:A:221:ARG:HG3	2.32	0.65
3:B:1737:TYR:O	3:B:1741:VAL:HG23	1.97	0.65
2:D:1955:DG:OP1	3:B:1015:PRO:HG2	1.96	0.65
3:A:678:THR:O	3:A:682:GLU:HG3	1.96	0.65
3:A:677:ALA:HB1	3:A:700:LEU:HD11	1.77	0.65
3:B:1747:LEU:CD1	3:B:1748:PRO:HD2	2.26	0.65
2:D:1962:DC:H2''	2:D:1963:DG:C5'	2.27	0.65
3:A:519:GLU:HG3	3:A:522:ARG:NH1	2.12	0.65
1:C:1905:DC:H2''	1:C:1906:DG:H5'	1.77	0.65
3:B:1435:ILE:HG12	3:B:1456:TYR:HD2	1.61	0.64
3:B:1269:GLN:O	3:B:1270:ASP:HB2	1.98	0.64
3:B:1387:VAL:HG23	3:B:1399:LEU:O	1.98	0.64
1:C:1901:DG:H1'	1:C:1902:DC:H5''	1.80	0.64
3:A:440:VAL:HG22	3:A:450:LEU:HD23	1.78	0.64
3:A:588:GLY:HA2	6:A:999:ADP:O2A	1.96	0.64
3:A:177:GLU:HG3	3:A:201:MSE:HE2	1.80	0.64
3:B:1011:GLY:HA3	3:B:1065:ASP:HB3	1.80	0.64
3:B:1674:VAL:HG22	3:B:1697:TYR:CD2	2.33	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:1152:THR:HG22	3:B:1154:GLU:H	1.62	0.64
3:B:1363:ARG:NH2	3:B:1368:GLU:HB2	2.12	0.64
3:B:1435:ILE:HG12	3:B:1456:TYR:CD2	2.32	0.64
3:A:636:LYS:HB2	3:B:1586:MSE:HE3	1.80	0.64
3:B:1525:ALA:O	3:B:1529:VAL:HG23	1.97	0.64
3:A:396:GLU:HG3	3:A:397:GLY:N	2.13	0.63
3:B:1450:LEU:HD13	3:B:1464:TYR:CE2	2.33	0.63
1:C:1903:DG:H2''	1:C:1904:DA:H5''	1.80	0.63
2:D:1965:DT:H2''	2:D:1966:DA:C8	2.34	0.63
3:B:1123:GLN:NE2	3:B:1123:GLN:H	1.96	0.63
3:B:1267:ARG:NE	3:B:1267:ARG:HA	2.12	0.63
3:A:331:ASP:OD2	3:A:334:ARG:HD2	1.99	0.63
3:A:12:PRO:HD2	3:A:65:ASP:OD1	1.98	0.63
3:A:363:ARG:HH22	3:A:374:ASP:HA	1.62	0.63
3:B:1340:GLU:HA	3:B:1511:LYS:HE2	1.81	0.63
3:B:1477:THR:CG2	3:B:1478:LEU:N	2.61	0.63
3:B:1585:ASN:ND2	3:B:1589:LYS:NZ	2.45	0.63
3:A:448:TYR:HD1	3:A:485:GLU:HG3	1.63	0.63
3:A:636:LYS:HB3	3:B:1586:MSE:HG2	1.79	0.63
3:B:1114:GLN:O	3:B:1115:LEU:HD23	1.99	0.62
3:B:1356:LEU:O	3:B:1360:PRO:HD3	1.99	0.62
3:A:426:GLU:OE2	3:A:439:LYS:HA	1.99	0.62
3:A:498:ARG:O	3:A:502:VAL:HG23	2.00	0.62
3:A:765:ARG:HH11	3:A:765:ARG:HG2	1.64	0.62
2:D:1955:DG:OP1	2:D:1955:DG:H4'	1.99	0.62
3:B:1708:LEU:HD12	3:B:1709:LYS:H	1.63	0.62
3:B:1143:TRP:HZ3	3:B:1161:LYS:O	1.82	0.62
2:D:1962:DC:H2''	2:D:1963:DG:H5'	1.82	0.62
3:A:708:LEU:C	3:A:708:LEU:HD23	2.20	0.62
3:B:1318:LEU:O	3:B:1322:VAL:HG23	2.00	0.62
3:A:100:PRO:HG2	3:A:103:GLU:CG	2.30	0.62
3:B:1747:LEU:HD13	3:B:1748:PRO:HD2	1.81	0.62
3:B:1454:ARG:HH11	3:B:1457:TYR:HE2	1.48	0.61
3:B:1066:PHE:HE2	3:B:1068:THR:HB	1.64	0.61
3:B:1388:GLU:HG3	3:B:1401:ARG:HH22	1.65	0.61
3:B:1354:ARG:CZ	3:B:1358:ILE:HD12	2.30	0.61
3:B:1236:LEU:HB2	3:B:1238:LEU:HD11	1.81	0.61
3:A:174:ARG:NE	3:A:174:ARG:HA	2.12	0.61
3:B:1363:ARG:HH11	3:B:1363:ARG:HG2	1.66	0.61
3:A:717:GLU:HG2	3:A:722:LEU:HD21	1.82	0.61
3:B:1711:LEU:HD23	3:B:1730:PRO:HA	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:27:TYR:CE1	3:A:112:VAL:HG21	2.36	0.60
3:A:14:PRO:O	3:A:18:GLN:HB2	2.00	0.60
3:A:239:GLN:NE2	3:A:240:PRO:HD2	2.15	0.60
3:B:1029:ASP:HB3	3:B:1091:ARG:NH2	2.16	0.60
3:B:1158:THR:HG23	3:B:1160:LEU:HD11	1.83	0.60
3:B:1066:PHE:CE2	3:B:1068:THR:HB	2.37	0.60
3:B:1210:GLU:HG3	3:B:1225:LEU:HD12	1.81	0.60
3:B:1426:GLU:HG3	3:B:1440:VAL:HG23	1.82	0.60
3:B:1430:ARG:HB3	3:B:1435:ILE:O	2.02	0.60
3:A:114:GLN:HE22	3:A:123:GLN:HE22	1.48	0.60
3:A:454:ARG:HB3	3:A:455:PRO:HD3	1.83	0.60
3:B:1169:GLU:O	3:B:1173:HIS:HD2	1.83	0.60
3:A:376:SER:N	3:A:377:PRO:HD2	2.15	0.60
3:A:368:GLU:HB3	7:A:1927:HOH:O	1.97	0.60
3:B:1399:LEU:HD21	3:B:1503:PHE:CD1	2.36	0.60
3:B:1668:THR:OG1	3:B:1669:SER:N	2.35	0.60
3:A:318:LEU:HD11	3:A:366:LEU:HD23	1.84	0.60
3:A:574:MSE:HE3	3:A:579:VAL:HG23	1.82	0.60
3:B:1564:ARG:HD3	7:B:15:HOH:O	2.00	0.60
3:B:1678:THR:O	3:B:1682:GLU:HG3	2.02	0.60
3:A:479:PRO:HA	3:A:482:LYS:NZ	2.16	0.60
3:B:1183:GLU:OE2	3:B:1219:ARG:NH2	2.29	0.60
3:A:380:GLU:OE2	7:A:1948:HOH:O	2.15	0.60
3:A:487:GLU:OE1	7:A:1946:HOH:O	2.17	0.60
3:B:1013:LEU:HD21	3:B:1021:VAL:HG21	1.84	0.60
3:B:1698:PHE:O	3:B:1701:THR:HB	2.01	0.60
3:B:1589:LYS:HE3	6:B:1999:ADP:O1B	2.01	0.60
3:B:1076:ARG:HG3	3:B:1077:ALA:N	2.17	0.59
3:B:1366:LEU:HD13	3:B:1370:VAL:HG21	1.82	0.59
3:B:1636:LYS:HG2	3:B:1640:MSE:HE3	1.84	0.59
3:A:415:HIS:O	3:A:419:VAL:HG23	2.01	0.59
3:A:509:ARG:HE	3:A:509:ARG:HA	1.68	0.59
3:B:1269:GLN:HE21	3:B:1270:ASP:H	1.49	0.59
3:B:1389:ASP:OD1	3:B:1389:ASP:O	2.20	0.59
3:B:1454:ARG:HA	3:B:1457:TYR:CE2	2.38	0.59
3:B:1624:THR:HG22	3:B:1660:LEU:HD12	1.83	0.59
3:A:748:PRO:HB2	3:A:751:VAL:HG23	1.85	0.59
3:B:1097:GLN:HG2	3:B:1110:ARG:NE	2.18	0.59
3:B:1258:ARG:HH11	3:B:1258:ARG:HG2	1.68	0.59
3:A:394:VAL:HG13	3:A:395:SER:N	2.17	0.59
3:A:308:ARG:HH11	3:A:308:ARG:HG2	1.68	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:493:ALA:HA	3:A:496:ARG:HH12	1.67	0.58
3:A:554:ARG:O	3:A:555:ALA:HB3	2.03	0.58
2:D:1967:DG:H2''	2:D:1968:DC:C5'	2.30	0.58
3:B:1160:LEU:HD12	3:B:1160:LEU:N	2.18	0.58
1:C:1921:DG:H2'	1:C:1922:DT:H71	1.86	0.58
3:A:548:GLY:O	3:A:617:PRO:HA	2.03	0.58
3:B:1178:VAL:HG23	3:B:1200:VAL:HG11	1.85	0.58
3:B:1685:HIS:O	3:B:1707:ARG:NH2	2.33	0.58
3:B:1282:ALA:HB3	3:B:1283:PRO:HD3	1.86	0.58
3:B:1636:LYS:CG	3:B:1640:MSE:HE3	2.33	0.58
3:A:160:LEU:N	3:A:160:LEU:HD12	2.19	0.58
2:D:1969:DG:H2''	2:D:1970:DT:C5'	2.33	0.58
3:A:130:GLU:OE2	3:A:285:ARG:HD3	2.03	0.58
3:A:76:ARG:NH1	3:A:76:ARG:HB3	2.19	0.58
3:B:1425:LEU:HD21	3:B:1481:MSE:SE	2.54	0.57
3:A:40:TYR:CE1	3:A:75:LEU:HD22	2.39	0.57
3:B:1001:MSE:HB3	3:B:1004:MSE:HB2	1.85	0.57
3:B:1716:ARG:HG3	3:B:1725:TYR:CE1	2.38	0.57
3:A:123:GLN:HB2	3:A:126:LEU:HD12	1.84	0.57
3:B:1547:PHE:HA	3:B:1616:LEU:O	2.05	0.57
3:B:1685:HIS:CE1	3:B:1707:ARG:H	2.17	0.57
3:A:155:PHE:HZ	3:A:221:ARG:HG3	1.69	0.57
3:A:583:GLY:O	3:A:589:LYS:NZ	2.35	0.57
2:D:1955:DG:H2'	2:D:1956:DA:H8	1.68	0.57
3:A:356:LEU:HA	3:A:359:LEU:HD13	1.87	0.57
2:D:1960:DG:H2''	2:D:1961:DC:OP2	2.04	0.57
3:B:1065:ASP:OD1	7:B:156:HOH:O	2.18	0.57
3:A:405:ASP:OD1	3:A:498:ARG:NE	2.34	0.57
3:B:1434:GLY:O	3:B:1436:PRO:HD3	2.05	0.57
3:B:1346:PRO:HB3	3:B:1399:LEU:HD11	1.85	0.57
1:C:1917:DG:H5'	7:C:146:HOH:O	2.04	0.56
3:A:174:ARG:CA	3:A:174:ARG:HE	2.13	0.56
3:A:287:LEU:HD23	3:A:529:VAL:HG21	1.87	0.56
3:A:299:ARG:NH1	3:A:303:GLU:OE2	2.38	0.56
3:A:335:LEU:HD21	3:A:348:ASP:HB3	1.87	0.56
3:A:705:LEU:N	7:A:1854:HOH:O	2.37	0.56
3:B:1299:ARG:NH2	3:B:1547:PHE:O	2.38	0.56
3:A:674:VAL:HG13	3:A:699:GLU:HG3	1.87	0.56
3:B:1005:LEU:CD2	3:B:1068:THR:HG21	2.34	0.56
3:A:716:ARG:O	3:A:718:GLU:HG3	2.05	0.56
3:B:1388:GLU:HG3	3:B:1401:ARG:NH2	2.19	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:35:GLN:HB3	3:A:96:ASP:HA	1.87	0.56
3:B:1200:VAL:O	3:B:1202:LEU:HD13	2.06	0.56
3:A:463:GLU:H	3:A:463:GLU:CD	2.08	0.56
3:B:1153:GLY:O	3:B:1239:GLN:HG2	2.06	0.56
3:B:1010:PRO:O	3:B:1011:GLY:O	2.24	0.56
2:D:1958:DC:C4'	3:B:1443:ASN:HD21	2.15	0.56
3:B:1758:LEU:O	3:B:1762:MSE:HG3	2.05	0.56
3:A:177:GLU:CD	3:A:201:MSE:HE2	2.26	0.56
1:C:1910:DG:OP1	3:B:1439:LYS:NZ	2.35	0.56
3:A:704:GLY:O	3:A:705:LEU:HD23	2.05	0.56
3:B:1585:ASN:HD22	3:B:1589:LYS:NZ	2.03	0.56
3:A:325:LEU:HD22	3:A:358:ILE:HG23	1.88	0.56
3:A:52:ARG:HG3	3:A:53:ALA:N	2.21	0.56
3:A:74:PRO:HB2	3:A:76:ARG:HG2	1.88	0.56
3:B:1554:ARG:HH11	3:B:1554:ARG:HG2	1.70	0.56
3:A:177:GLU:CG	3:A:201:MSE:HE2	2.36	0.55
3:B:1161:LYS:HD2	3:B:1161:LYS:N	2.21	0.55
3:B:1265:PRO:C	3:B:1267:ARG:H	2.09	0.55
3:B:1122:LEU:HD21	3:B:1341:LEU:HD13	1.87	0.55
3:A:392:LEU:HG	3:A:393:LYS:HG3	1.88	0.55
3:B:1120:THR:O	3:B:1150:VAL:HG21	2.07	0.55
3:A:114:GLN:NE2	3:A:123:GLN:HE22	2.04	0.55
3:A:24:ARG:HA	3:A:32:LEU:HD22	1.87	0.55
3:A:430:ARG:HD3	3:A:436:PRO:O	2.07	0.55
2:D:1962:DC:H5'	3:A:38:ASP:OD2	2.06	0.55
3:A:35:GLN:HG2	3:A:97:GLN:H	1.72	0.55
3:A:416:ARG:HH11	3:A:416:ARG:HG2	1.72	0.55
3:A:550:ARG:NH1	3:A:550:ARG:HG3	2.20	0.55
3:B:1215:LEU:O	3:B:1219:ARG:HG3	2.07	0.55
3:B:1625:ARG:O	3:B:1625:ARG:HG3	2.05	0.55
3:B:1145:LEU:HD21	3:B:1170:LEU:HD23	1.89	0.55
3:A:201:MSE:HE3	3:A:203:SER:HG	1.71	0.55
3:B:1250:MSE:HE3	3:B:1604:GLN:HB2	1.88	0.55
3:A:312:PHE:HB3	3:A:319:ARG:HG3	1.88	0.54
3:A:375:LEU:C	3:A:377:PRO:HD2	2.27	0.54
1:C:1916:DG:C4'	7:C:211:HOH:O	2.50	0.54
3:A:674:VAL:HG11	3:A:699:GLU:HG3	1.89	0.54
3:A:756:ARG:HH11	3:A:756:ARG:HG2	1.73	0.54
2:D:1955:DG:H2'	2:D:1956:DA:C8	2.42	0.54
3:B:1143:TRP:HB3	3:B:1166:LEU:HD13	1.90	0.54
3:B:1232:GLN:HG2	3:B:1341:LEU:HD22	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:1597:ALA:HB2	3:B:1660:LEU:CD1	2.24	0.54
3:B:1110:ARG:HH11	3:B:1110:ARG:HG3	1.72	0.54
3:A:585:ASN:HD21	3:A:696:HIS:HE1	1.56	0.54
3:B:1054:LEU:HD23	3:B:1088:MSE:HE1	1.90	0.54
3:B:1385:ALA:HB2	3:B:1404:TYR:CE1	2.43	0.54
3:B:1450:LEU:O	3:B:1475:ARG:HA	2.07	0.54
3:B:1696:HIS:N	7:B:150:HOH:O	2.40	0.54
3:A:408:LEU:HD21	3:A:412:ARG:HH12	1.73	0.54
3:A:482:LYS:HD2	3:A:486:ARG:HH22	1.72	0.54
3:A:357:GLN:HG2	3:A:379:LYS:HD2	1.90	0.54
3:B:1114:GLN:HE21	3:B:1343:ARG:NH1	2.05	0.54
3:A:438:LEU:HD23	3:A:438:LEU:C	2.27	0.54
3:B:1097:GLN:HE21	3:B:1110:ARG:HE	1.56	0.54
3:B:1563:ARG:HA	3:B:1563:ARG:NH1	2.22	0.54
3:A:100:PRO:HG2	3:A:103:GLU:HG3	1.89	0.53
3:A:62:THR:HG23	3:A:67:THR:HB	1.91	0.53
3:B:1123:GLN:CG	3:B:1126:LEU:HD12	2.38	0.53
3:B:1357:GLN:O	3:B:1360:PRO:HD2	2.09	0.53
3:B:1449:TYR:HA	3:B:1481:MSE:HE1	1.91	0.53
3:A:92:LEU:HB2	3:A:116:LEU:HB2	1.89	0.53
3:B:1617:PRO:HG2	3:B:1619:PHE:CZ	2.43	0.53
2:D:1962:DC:C1'	2:D:1963:DG:H5''	2.37	0.53
3:A:299:ARG:O	3:A:303:GLU:HG2	2.09	0.53
3:B:1192:ASP:O	3:B:1196:LYS:HG3	2.09	0.53
3:B:1269:GLN:CG	3:B:1270:ASP:N	2.70	0.53
2:D:1969:DG:H2''	2:D:1970:DT:H5''	1.90	0.53
3:A:308:ARG:HH11	3:A:308:ARG:CB	2.22	0.53
3:B:1097:GLN:HE21	3:B:1110:ARG:NH2	2.05	0.53
3:B:1439:LYS:HD2	3:B:1451:GLU:OE1	2.08	0.53
3:A:379:LYS:HB3	3:A:379:LYS:NZ	2.24	0.53
3:A:663:GLU:O	3:A:666:ARG:HG2	2.09	0.53
3:B:1413:ALA:HA	3:B:1416:ARG:NH1	2.23	0.53
3:B:1454:ARG:NH1	3:B:1457:TYR:HE2	2.06	0.53
3:B:1477:THR:HG22	3:B:1478:LEU:N	2.24	0.53
1:C:1909:DA:H5''	3:B:1453:THR:CB	2.35	0.53
3:A:148:LEU:HD12	3:A:154:GLU:O	2.09	0.53
3:A:327:TYR:O	7:A:1936:HOH:O	2.19	0.53
3:A:551:LEU:HA	3:A:615:HIS:O	2.08	0.53
3:B:1129:ARG:HB3	3:B:1285:ARG:HD2	1.91	0.53
3:B:1353:ARG:HG3	3:B:1354:ARG:N	2.24	0.53
3:B:1356:LEU:HB3	3:B:1379:LYS:HB2	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:1901:DG:H2''	1:C:1902:DC:H5''	1.90	0.53
3:A:114:GLN:HE22	3:A:123:GLN:NE2	2.06	0.53
3:B:1051:ALA:HA	3:B:1056:LEU:HB2	1.91	0.52
3:B:1024:ARG:HD2	3:B:1024:ARG:C	2.29	0.52
3:B:1040:TYR:CE1	3:B:1075:LEU:HD22	2.45	0.52
3:A:442:TYR:HE1	3:A:489:TYR:HH	1.57	0.52
3:A:557:ARG:HG3	3:A:610:PRO:HB2	1.90	0.52
3:A:642:GLU:OE2	3:A:666:ARG:NH1	2.40	0.52
3:B:1454:ARG:NH1	3:B:1454:ARG:HG2	2.23	0.52
3:B:1485:GLU:C	3:B:1487:GLU:H	2.12	0.52
3:B:1213:GLY:O	3:B:1218:ARG:HD2	2.10	0.52
3:B:1498:ARG:HD2	3:B:1501:GLU:OE1	2.09	0.52
3:B:1287:LEU:HD23	3:B:1529:VAL:HG21	1.91	0.52
3:A:16:LEU:HD11	3:A:110:ARG:NH1	2.25	0.52
3:A:237:SER:OG	3:A:340:GLU:OE1	2.27	0.52
3:A:273:PHE:HD1	3:A:292:LEU:HD12	1.74	0.52
3:A:609:VAL:HB	3:A:610:PRO:HD2	1.91	0.52
3:B:1269:GLN:NE2	3:B:1270:ASP:N	2.52	0.52
3:B:1232:GLN:O	3:B:1234:GLY:N	2.42	0.52
3:B:1558:HIS:CD2	3:B:1561:VAL:H	2.28	0.52
3:A:756:ARG:O	3:A:760:GLN:HG3	2.10	0.52
3:B:1363:ARG:HG2	3:B:1363:ARG:NH1	2.22	0.52
2:D:1970:DT:H2''	2:D:1971:DC:C5	2.45	0.52
3:A:734:SER:HB2	3:A:735:LYS:HD3	1.92	0.52
3:A:354:ARG:HH11	3:A:354:ARG:HG2	1.73	0.52
3:A:574:MSE:HG2	3:A:579:VAL:HG21	1.92	0.52
3:B:1551:LEU:HD23	3:B:1551:LEU:C	2.31	0.52
3:A:661:LEU:HD13	3:A:664:VAL:HG21	1.92	0.51
3:B:1299:ARG:HH21	3:B:1547:PHE:HB2	1.73	0.51
3:A:386:LEU:O	3:A:401:ARG:HG3	2.11	0.51
3:B:1426:GLU:HG2	3:B:1430:ARG:CZ	2.40	0.51
3:A:431:GLU:OE1	3:A:431:GLU:HA	2.10	0.51
3:A:535:GLU:HG3	3:A:539:ARG:HH12	1.74	0.51
3:A:636:LYS:CB	3:B:1586:MSE:HE3	2.40	0.51
3:B:1363:ARG:HH22	3:B:1368:GLU:HB2	1.75	0.51
2:D:1961:DC:H2'	2:D:1962:DC:C5	2.46	0.51
3:A:557:ARG:NE	3:A:562:GLU:OE2	2.42	0.51
3:A:6:LYS:HD3	3:A:45:GLU:HG2	1.92	0.51
3:B:1453:THR:OG1	3:B:1455:PRO:HD2	2.10	0.51
3:A:172:ARG:HH22	3:A:252:LEU:H	1.57	0.51
3:A:35:GLN:HG2	3:A:97:GLN:N	2.25	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:394:VAL:HG21	3:A:500:GLU:CA	2.39	0.51
3:B:1011:GLY:HA3	3:B:1065:ASP:CB	2.40	0.51
3:B:1167:TYR:CD2	3:B:1198:PHE:HE1	2.29	0.51
3:B:1129:ARG:HD2	3:B:1285:ARG:CZ	2.41	0.51
3:B:1585:ASN:ND2	3:B:1589:LYS:HZ3	2.07	0.51
3:B:1502:VAL:O	3:B:1506:VAL:HG23	2.10	0.51
3:B:1580:LEU:HD12	3:B:1701:THR:HA	1.93	0.51
1:C:1901:DG:C2'	1:C:1902:DC:H5''	2.41	0.51
2:D:1962:DC:C2'	2:D:1963:DG:H5''	2.41	0.51
3:B:1435:ILE:C	3:B:1437:THR:H	2.14	0.51
1:C:1902:DC:H2''	1:C:1903:DG:C8	2.45	0.50
1:C:1904:DA:H2	2:D:1971:DC:O2	1.94	0.50
3:A:160:LEU:HD23	3:A:165:ALA:HB1	1.94	0.50
3:A:172:ARG:O	3:A:293:ARG:CD	2.57	0.50
3:A:271:THR:O	3:A:275:VAL:HG23	2.11	0.50
3:A:685:HIS:HE1	3:A:707:ARG:H	1.58	0.50
3:A:59:THR:CG2	3:A:60:HIS:H	2.10	0.50
3:A:676:ILE:O	3:A:680:VAL:HG23	2.11	0.50
3:B:1030:TYR:N	3:B:1030:TYR:CD1	2.78	0.50
3:B:1434:GLY:O	3:B:1436:PRO:CD	2.60	0.50
3:B:1585:ASN:ND2	3:B:1589:LYS:HZ1	2.08	0.50
3:B:1098:VAL:O	3:B:1099:GLU:C	2.49	0.50
3:B:1363:ARG:HH12	3:B:1367:GLY:HA2	1.75	0.50
1:C:1917:DG:H2''	1:C:1918:DC:OP2	2.11	0.50
3:B:1092:LEU:HB2	3:B:1116:LEU:HB2	1.94	0.50
3:A:169:GLU:O	3:A:173:HIS:HD2	1.94	0.50
3:A:461:PRO:HG2	3:A:464:TYR:CD1	2.46	0.50
3:A:170:LEU:HD12	3:A:198:PHE:CE2	2.47	0.50
3:A:83:GLU:CG	3:A:87:LYS:HE2	2.42	0.50
3:B:1450:LEU:HD13	3:B:1464:TYR:CZ	2.46	0.50
3:B:1578:LEU:HD23	3:B:1708:LEU:HD13	1.94	0.50
3:B:1415:HIS:CE1	3:B:1492:GLU:HG2	2.47	0.50
3:B:1685:HIS:HE1	3:B:1707:ARG:N	2.06	0.50
1:C:1912:DG:O6	2:D:1962:DC:N4	2.43	0.50
3:A:256:THR:CG2	3:A:260:LEU:HD22	2.42	0.49
3:A:580:LEU:HD23	3:A:693:PHE:HB3	1.94	0.49
3:A:670:SER:O	3:A:674:VAL:HG23	2.12	0.49
3:B:1110:ARG:NH1	3:B:1110:ARG:HG3	2.27	0.49
3:A:379:LYS:HZ3	3:A:379:LYS:HB3	1.77	0.49
3:A:581:ILE:HG22	3:A:589:LYS:HG2	1.95	0.49
3:B:1258:ARG:NH1	3:B:1258:ARG:HG2	2.26	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:1604:GLN:HE22	3:B:1619:PHE:N	2.10	0.49
3:B:1640:MSE:O	3:B:1644:GLU:HG3	2.13	0.49
3:B:1354:ARG:HD2	7:B:201:HOH:O	2.12	0.49
3:B:1357:GLN:HA	3:B:1379:LYS:HD2	1.95	0.49
1:C:1912:DG:H2''	1:C:1913:DT:OP2	2.12	0.49
3:A:308:ARG:HH11	3:A:308:ARG:HB3	1.76	0.49
3:A:156:LYS:NZ	3:A:173:HIS:HE1	2.11	0.49
3:A:467:VAL:HG21	3:A:477:THR:OG1	2.13	0.49
3:A:595:GLN:O	3:A:599:ILE:HG13	2.12	0.49
3:B:1115:LEU:HB2	3:B:1231:THR:HA	1.94	0.49
3:B:1359:LEU:HB3	3:B:1360:PRO:HD3	1.94	0.49
6:B:1999:ADP:C3'	7:B:165:HOH:O	2.52	0.49
3:A:554:ARG:NH1	3:A:613:GLU:OE2	2.46	0.49
3:B:1270:ASP:HB2	7:B:15:HOH:O	2.12	0.49
3:B:1353:ARG:NH2	3:B:1388:GLU:HA	2.28	0.49
3:A:722:LEU:CB	3:A:744:MSE:HE1	2.37	0.48
3:A:35:GLN:NE2	3:A:37:GLY:O	2.46	0.48
3:A:482:LYS:HG2	3:A:486:ARG:HH12	1.78	0.48
3:B:1478:LEU:HG	3:B:1479:PRO:HD2	1.95	0.48
3:B:1150:VAL:HG22	7:B:46:HOH:O	2.13	0.48
3:B:1469:THR:C	3:B:1470:LEU:HD12	2.33	0.48
3:B:1654:THR:O	3:B:1689:ALA:HB2	2.12	0.48
3:B:1579:VAL:HB	3:B:1692:LEU:HD23	1.95	0.48
3:A:24:ARG:HD2	3:A:46:ASP:OD2	2.13	0.48
3:A:535:GLU:CG	3:A:539:ARG:HH12	2.26	0.48
3:B:1551:LEU:HD21	3:B:1553:ILE:HD12	1.95	0.48
3:B:1636:LYS:HG2	3:B:1640:MSE:CE	2.43	0.48
3:A:668:THR:HG23	3:A:669:SER:N	2.29	0.48
3:A:718:GLU:O	3:A:719:ALA:C	2.51	0.48
3:B:1584:PRO:HB3	3:B:1737:TYR:CD1	2.49	0.48
3:A:366:LEU:CD1	3:A:527:LEU:HD11	2.44	0.48
3:A:557:ARG:HA	3:A:567:PHE:CE2	2.48	0.48
3:A:540:TYR:O	3:A:557:ARG:NH2	2.47	0.48
3:A:586:MSE:SE	3:B:1640:MSE:HE2	2.64	0.48
3:B:1097:GLN:NE2	3:B:1110:ARG:NH2	2.60	0.48
3:B:1297:LEU:O	3:B:1618:LEU:HD13	2.14	0.48
3:A:297:LEU:O	3:A:618:LEU:HD13	2.12	0.48
3:A:642:GLU:O	3:A:646:VAL:HG23	2.13	0.48
3:A:95:ALA:HA	3:A:112:VAL:HA	1.94	0.48
2:D:1959:DC:H2''	2:D:1960:DG:H5'	1.96	0.48
3:A:145:LEU:HD11	3:A:147:PHE:CZ	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:539:ARG:HG2	3:A:540:TYR:CE2	2.48	0.48
3:A:588:GLY:CA	6:A:999:ADP:O2A	2.62	0.48
3:B:1543:VAL:HG12	3:B:1544:ARG:N	2.29	0.48
3:A:421:TYR:CE1	3:A:484:LYS:HG3	2.48	0.48
3:B:1232:GLN:OE1	3:B:1343:ARG:NE	2.46	0.48
3:B:1615:HIS:CD2	3:B:1615:HIS:N	2.82	0.48
3:B:1429:GLU:O	3:B:1432:ARG:N	2.47	0.47
3:A:487:GLU:O	3:A:491:LEU:HG	2.14	0.47
3:A:276:LEU:O	3:A:536:VAL:HG21	2.14	0.47
3:A:554:ARG:NH2	3:A:612:GLU:OE1	2.47	0.47
3:B:1174:ARG:HD3	3:B:1174:ARG:HA	1.69	0.47
3:B:1470:LEU:N	3:B:1470:LEU:HD12	2.30	0.47
3:B:1604:GLN:NE2	3:B:1619:PHE:H	2.11	0.47
3:A:249:PHE:CG	3:A:294:HIS:HB3	2.50	0.47
3:A:525:ALA:O	3:A:529:VAL:HG23	2.14	0.47
3:B:1433:THR:HG22	3:B:1433:THR:O	2.14	0.47
3:B:1687:ARG:O	3:B:1688:ARG:HB2	2.14	0.47
1:C:1921:DG:C2'	1:C:1922:DT:H71	2.44	0.47
3:B:1688:ARG:NH2	3:B:1707:ARG:NH1	2.62	0.47
3:B:1026:GLN:O	3:B:1028:PRO:HD2	2.15	0.47
3:B:1181:ALA:HB1	3:B:1183:GLU:OE1	2.15	0.47
3:A:43:PHE:HA	3:A:47:ALA:HB2	1.97	0.47
3:A:479:PRO:HA	3:A:482:LYS:HZ3	1.78	0.47
3:B:1394:VAL:O	3:B:1395:SER:HB3	2.15	0.47
3:B:1539:ARG:HD2	3:B:1540:TYR:CZ	2.49	0.47
3:A:83:GLU:O	3:A:87:LYS:HG3	2.14	0.47
3:B:1022:GLU:O	3:B:1026:GLN:HG3	2.14	0.47
3:B:1412:ARG:O	3:B:1416:ARG:HG3	2.15	0.47
3:A:635:GLY:HA2	3:A:640:MSE:SE	2.65	0.47
3:A:734:SER:CB	3:A:735:LYS:HD3	2.44	0.47
3:B:1042:CYS:O	3:B:1047:ALA:HB2	2.15	0.47
3:B:1661:LEU:HD22	3:B:1664:VAL:HG21	1.97	0.47
3:A:135:ALA:HB3	3:A:178:VAL:HG22	1.96	0.47
3:A:442:TYR:HE1	3:A:489:TYR:OH	1.97	0.47
3:B:1452:VAL:O	3:B:1473:ARG:HB2	2.14	0.47
3:B:1663:GLU:CG	7:B:150:HOH:O	2.24	0.47
3:A:324:ARG:HD2	7:A:1856:HOH:O	2.14	0.46
3:B:1387:VAL:C	3:B:1389:ASP:H	2.19	0.46
3:A:225:LEU:CD2	3:A:238:LEU:HD11	2.45	0.46
3:A:225:LEU:HD21	3:A:238:LEU:HD11	1.96	0.46
3:A:129:ARG:HD3	3:A:285:ARG:NH1	2.30	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:308:ARG:HG2	3:A:308:ARG:NH1	2.26	0.46
3:A:376:SER:O	3:A:380:GLU:HG3	2.15	0.46
3:B:1346:PRO:HD2	3:B:1392:LEU:HA	1.97	0.46
3:B:1345:SER:O	3:B:1348:ASP:HB2	2.14	0.46
3:B:1470:LEU:CD2	3:B:1473:ARG:HE	2.28	0.46
3:B:1473:ARG:HD3	3:B:1473:ARG:N	2.30	0.46
3:B:1692:LEU:HD23	3:B:1692:LEU:HA	1.69	0.46
1:C:1918:DC:H2'	1:C:1919:DT:H5'	1.96	0.46
3:A:171:PHE:CE2	3:A:254:GLU:HG3	2.49	0.46
3:B:1269:GLN:HG3	3:B:1270:ASP:H	1.80	0.46
3:B:1417:GLU:O	3:B:1420:ALA:HB3	2.14	0.46
3:B:1722:LEU:HB2	3:B:1744:MSE:CE	2.46	0.46
3:A:187:ASN:OD1	3:A:189:ALA:HB3	2.15	0.46
3:A:335:LEU:HD21	3:A:348:ASP:CB	2.45	0.46
3:A:35:GLN:O	3:A:35:GLN:HG3	2.15	0.46
3:A:623:TYR:CE2	3:A:652:GLU:OE2	2.69	0.46
3:B:1602:LEU:O	3:B:1605:VAL:HG12	2.15	0.46
3:B:1685:HIS:CE1	3:B:1707:ARG:HB2	2.50	0.46
3:B:1747:LEU:HD12	3:B:1748:PRO:HD2	1.96	0.46
3:A:258:ARG:HH11	3:A:258:ARG:HG2	1.80	0.46
3:A:377:PRO:HG2	3:A:378:LEU:H	1.80	0.46
3:A:454:ARG:HA	3:A:457:TYR:CE1	2.50	0.46
3:B:1363:ARG:NH1	3:B:1367:GLY:HA2	2.30	0.46
3:A:24:ARG:CA	3:A:32:LEU:HD22	2.46	0.46
3:A:412:ARG:O	3:A:416:ARG:HG3	2.16	0.46
3:A:6:LYS:HE2	3:A:48:GLU:OE1	2.15	0.46
3:B:1485:GLU:C	3:B:1487:GLU:N	2.68	0.46
3:A:322:VAL:O	3:A:326:LEU:HG	2.15	0.46
3:A:58:LEU:HD23	3:A:58:LEU:HA	1.76	0.46
3:A:85:LEU:HA	3:A:88:MSE:HE3	1.96	0.46
3:B:1558:HIS:CD2	3:B:1561:VAL:HG23	2.50	0.46
2:D:1955:DG:C2'	2:D:1956:DA:H8	2.29	0.46
3:A:200:VAL:HG12	3:A:201:MSE:N	2.30	0.45
3:B:1581:ILE:HA	3:B:1711:LEU:O	2.16	0.45
3:A:140:GLY:O	3:A:141:ASP:CB	2.62	0.45
3:A:191:LEU:HG	3:A:195:ARG:NH1	2.31	0.45
3:A:66:PHE:C	3:A:66:PHE:CD2	2.89	0.45
3:B:1040:TYR:CD1	3:B:1075:LEU:HD22	2.51	0.45
3:B:1123:GLN:HE21	3:B:1123:GLN:H	1.63	0.45
3:B:1551:LEU:HG	3:B:1616:LEU:HD23	1.97	0.45
3:A:533:LEU:HD22	3:A:607:SER:HB2	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:624:THR:HG22	3:A:660:LEU:HB2	1.97	0.45
3:B:1256:THR:HA	3:B:1624:THR:OG1	2.15	0.45
3:A:586:MSE:SE	3:B:1640:MSE:CE	3.15	0.45
3:A:16:LEU:CD1	3:A:110:ARG:NH1	2.80	0.45
3:A:239:GLN:HE21	3:A:240:PRO:HD2	1.81	0.45
3:B:1016:LEU:HD11	3:B:1034:PHE:HE2	1.80	0.45
3:B:1152:THR:HG22	3:B:1154:GLU:N	2.31	0.45
3:B:1470:LEU:HD22	3:B:1473:ARG:NE	2.32	0.45
3:A:385:ALA:O	3:A:400:ILE:HA	2.16	0.45
3:A:704:GLY:HA2	7:A:1854:HOH:O	2.16	0.45
3:A:83:GLU:HG2	3:A:87:LYS:HE2	1.98	0.45
3:B:1006:LYS:NZ	3:B:1048:GLU:OE1	2.49	0.45
3:B:1356:LEU:HD11	3:B:1378:LEU:HD13	1.98	0.45
3:B:1735:LYS:HB3	3:B:1735:LYS:HE2	1.77	0.45
3:B:1181:ALA:HB1	3:B:1182:PRO:HD2	1.99	0.45
3:A:34:PHE:O	3:A:41:GLU:N	2.39	0.45
3:A:36:VAL:HG22	3:A:110:ARG:NH1	2.31	0.45
3:A:282:ALA:HB3	3:A:283:PRO:HD3	1.98	0.45
3:A:717:GLU:HG2	3:A:722:LEU:CD2	2.45	0.45
3:B:1200:VAL:O	3:B:1202:LEU:CD1	2.65	0.45
3:B:1509:ARG:HH11	3:B:1509:ARG:HG2	1.82	0.45
1:C:1908:DT:H3	2:D:1966:DA:H61	1.65	0.45
3:A:465:ARG:O	3:A:476:TYR:HA	2.17	0.45
3:B:1345:SER:HB2	3:B:1392:LEU:HD22	1.98	0.45
3:B:1537:ALA:HA	3:B:1542:TYR:HB2	1.99	0.45
3:A:183:GLU:CD	3:A:183:GLU:H	2.18	0.45
3:A:211:GLY:O	3:A:218:ARG:HD2	2.17	0.45
3:A:232:GLN:HG3	3:A:236:LEU:HD23	1.99	0.45
1:C:1907:DC:H2'	1:C:1908:DT:O5'	2.16	0.45
3:A:256:THR:HG22	3:A:260:LEU:HD22	1.98	0.44
3:A:580:LEU:HD13	3:A:701:THR:HA	1.99	0.44
3:B:1156:LYS:NZ	3:B:1173:HIS:HE1	2.15	0.44
3:B:1232:GLN:HG3	3:B:1232:GLN:O	2.17	0.44
3:B:1339:LEU:HD23	3:B:1344:ALA:CB	2.47	0.44
3:B:1636:LYS:CD	3:B:1640:MSE:HE3	2.47	0.44
3:A:278:GLU:HG3	3:A:536:VAL:CG2	2.47	0.44
3:A:390:PRO:HA	3:A:391:PRO:HD3	1.81	0.44
3:A:582:THR:O	3:A:712:HIS:HA	2.17	0.44
3:B:1287:LEU:O	3:B:1290:SER:HB3	2.17	0.44
3:A:309:VAL:O	3:A:313:VAL:HG23	2.18	0.44
3:A:440:VAL:HG22	3:A:450:LEU:CD2	2.46	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:1076:ARG:CG	3:B:1077:ALA:H	2.25	0.44
3:B:1429:GLU:C	3:B:1431:GLU:N	2.70	0.44
3:A:393:LYS:O	3:A:396:GLU:HG2	2.17	0.44
3:A:468:GLN:NE2	3:A:475:ARG:HH11	2.14	0.44
3:A:551:LEU:O	3:A:573:GLU:HA	2.18	0.44
3:A:76:ARG:CB	3:A:76:ARG:HH11	2.30	0.44
3:B:1119:GLY:O	3:B:1134:LEU:HB2	2.17	0.44
3:B:1268:GLY:O	3:B:1269:GLN:O	2.35	0.44
3:B:1280:ARG:HG3	3:B:1280:ARG:NH1	2.27	0.44
3:B:1595:GLN:HG3	3:B:1596:THR:N	2.32	0.44
3:B:1663:GLU:OE1	3:B:1696:HIS:ND1	2.50	0.44
3:A:16:LEU:HD11	3:A:34:PHE:HE2	1.83	0.44
2:D:1959:DC:H1'	2:D:1960:DG:H5'	2.00	0.44
3:A:742:ALA:O	3:A:745:ALA:HB3	2.17	0.44
3:B:1020:TYR:CE1	3:B:1032:LEU:HD12	2.52	0.44
3:B:1396:GLU:HA	3:B:1396:GLU:OE1	2.18	0.44
3:A:26:GLN:C	3:A:28:PRO:HD3	2.38	0.44
3:A:482:LYS:CG	3:A:486:ARG:HH22	2.30	0.44
1:C:1920:DC:H2'	1:C:1921:DG:C8	2.53	0.44
2:D:1962:DC:C2'	2:D:1963:DG:C5'	2.96	0.44
3:A:375:LEU:HD21	3:A:516:ALA:HB1	1.99	0.44
3:A:415:HIS:CE1	3:A:492:GLU:HG3	2.52	0.44
3:A:430:ARG:HG2	3:A:438:LEU:HB3	2.00	0.44
3:A:35:GLN:CG	3:A:97:GLN:HG3	2.38	0.44
3:B:1346:PRO:HB3	3:B:1399:LEU:CD1	2.47	0.44
3:B:1477:THR:HG23	3:B:1478:LEU:H	1.82	0.44
3:B:1663:GLU:OE1	3:B:1696:HIS:CE1	2.71	0.44
3:A:213:GLY:O	3:A:218:ARG:HD3	2.18	0.43
3:B:1035:GLN:O	3:B:1110:ARG:NE	2.50	0.43
3:B:1581:ILE:HD11	3:B:1692:LEU:HD22	1.99	0.43
3:B:1693:PHE:C	3:B:1693:PHE:CD2	2.91	0.43
3:A:637:SER:OG	3:A:638:THR:N	2.51	0.43
3:A:11:GLY:HA3	3:A:65:ASP:HB3	2.00	0.43
3:A:574:MSE:HE1	3:A:691:THR:N	2.34	0.43
3:A:717:GLU:HA	3:A:722:LEU:HD23	2.00	0.43
3:A:379:LYS:HE2	3:A:383:GLU:OE2	2.17	0.43
3:B:1076:ARG:O	3:B:1078:PHE:N	2.52	0.43
3:A:191:LEU:HG	3:A:195:ARG:HH12	1.82	0.43
3:A:356:LEU:HD11	3:A:378:LEU:HD13	2.01	0.43
3:A:474:GLN:HG2	3:A:476:TYR:OH	2.18	0.43
3:A:448:TYR:CD1	3:A:485:GLU:HG3	2.50	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:1015:PRO:HG2	3:B:1016:LEU:H	1.83	0.43
3:B:1748:PRO:HB2	3:B:1751:VAL:HG23	2.00	0.43
3:A:410:ALA:O	3:A:413:ALA:HB3	2.18	0.43
3:A:678:THR:HA	3:A:700:LEU:CD2	2.49	0.43
3:A:682:GLU:O	3:A:686:GLU:HG3	2.17	0.43
3:B:1167:TYR:CD2	3:B:1197:ARG:HD3	2.53	0.43
3:B:1435:ILE:HG23	3:B:1456:TYR:CD2	2.54	0.43
3:B:1454:ARG:HD3	3:B:1457:TYR:CE2	2.54	0.43
3:B:1574:MSE:HG2	3:B:1579:VAL:HG21	2.00	0.43
1:C:1901:DG:C1'	1:C:1902:DC:H5''	2.46	0.43
2:D:1955:DG:C2'	2:D:1956:DA:C8	3.01	0.43
3:A:320:GLU:O	3:A:324:ARG:HB2	2.19	0.43
3:B:1554:ARG:NH1	3:B:1554:ARG:HG2	2.33	0.43
3:B:1564:ARG:O	3:B:1565:THR:HG23	2.19	0.43
3:A:685:HIS:CE1	3:A:707:ARG:HB2	2.54	0.43
3:A:5:LEU:CD1	3:A:44:GLY:HA3	2.46	0.43
3:A:565:THR:CG2	3:A:566:GLU:N	2.81	0.43
3:B:1108:VAL:O	3:B:1108:VAL:HG12	2.17	0.43
3:B:1116:LEU:N	3:B:1116:LEU:HD12	2.34	0.43
3:B:1250:MSE:HB3	3:B:1295:PRO:HB2	2.01	0.43
3:B:1580:LEU:HD23	3:B:1693:PHE:HB3	2.00	0.43
3:A:581:ILE:HD13	3:A:592:PHE:HD2	1.84	0.43
3:B:1739:VAL:HG21	3:B:1759:LEU:HD11	2.01	0.43
3:A:42:CYS:O	3:A:47:ALA:HB2	2.18	0.42
3:A:750:GLU:CD	3:A:750:GLU:H	2.21	0.42
3:B:1122:LEU:HD21	3:B:1341:LEU:CD1	2.49	0.42
3:B:1141:ASP:N	7:B:70:HOH:O	2.49	0.42
3:B:1174:ARG:N	3:B:1175:PRO:HD3	2.34	0.42
3:B:1188:GLY:O	3:B:1192:ASP:OD1	2.36	0.42
3:B:1388:GLU:O	3:B:1389:ASP:HB2	2.19	0.42
3:B:1345:SER:CB	3:B:1392:LEU:HD22	2.48	0.42
3:A:143:TRP:CE3	3:A:166:LEU:HD22	2.54	0.42
3:A:267:ARG:O	3:A:269:GLN:N	2.52	0.42
3:A:348:ASP:O	3:A:351:ALA:HB3	2.20	0.42
3:B:1349:LEU:HB3	3:B:1386:LEU:HD11	2.01	0.42
3:B:1491:LEU:O	3:B:1495:ILE:HG13	2.20	0.42
3:A:535:GLU:HG3	3:A:539:ARG:NH1	2.34	0.42
3:A:12:PRO:HG2	3:A:65:ASP:OD2	2.18	0.42
3:A:54:LEU:HD13	3:A:81:TYR:CD1	2.54	0.42
3:B:1346:PRO:HD2	3:B:1392:LEU:HB2	2.00	0.42
2:D:1964:DC:H2''	2:D:1965:DT:H5'	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:145:LEU:HD22	3:A:146:ALA:N	2.34	0.42
3:A:250:MSE:HE2	3:A:619:PHE:HB2	2.01	0.42
3:A:751:VAL:HG21	3:B:1650:LEU:HD13	2.01	0.42
3:A:35:GLN:CB	3:A:96:ASP:HA	2.48	0.42
3:A:99:GLU:HB2	3:A:109:ARG:NH2	2.34	0.42
3:B:1099:GLU:HA	3:B:1100:PRO:HD2	1.76	0.42
3:B:1137:ILE:HA	3:B:1144:GLY:O	2.19	0.42
3:B:1354:ARG:NH1	3:B:1358:ILE:HD12	2.35	0.42
3:A:442:TYR:CG	3:A:443:ASN:N	2.87	0.42
3:B:1097:GLN:HE21	3:B:1110:ARG:NE	2.17	0.42
3:B:1470:LEU:HD22	3:B:1473:ARG:HE	1.85	0.42
3:B:1693:PHE:HD2	3:B:1693:PHE:C	2.22	0.42
3:A:396:GLU:O	3:A:397:GLY:O	2.37	0.42
3:B:1001:MSE:CB	3:B:1004:MSE:HB2	2.50	0.42
3:B:1742:ALA:O	3:B:1745:ALA:HB3	2.20	0.42
3:A:140:GLY:N	7:A:1919:HOH:O	2.22	0.42
3:A:752:VAL:O	3:A:755:ALA:HB3	2.20	0.42
3:B:1041:GLU:OE1	3:B:1072:GLY:HA3	2.19	0.42
3:B:1390:PRO:HA	3:B:1391:PRO:HD3	1.86	0.42
3:B:1678:THR:HA	3:B:1700:LEU:HD21	2.01	0.42
3:A:337:THR:OG1	3:A:518:ARG:NH2	2.53	0.42
3:A:449:TYR:CD1	3:A:449:TYR:C	2.93	0.42
3:B:1462:LYS:C	3:B:1464:TYR:N	2.71	0.42
3:B:1370:VAL:CG1	3:B:1523:ILE:HG21	2.50	0.42
3:B:1747:LEU:HD13	3:B:1748:PRO:CD	2.49	0.42
3:A:117:THR:OG1	3:A:120:THR:HG23	2.20	0.42
3:A:366:LEU:HD11	3:A:527:LEU:HD11	2.00	0.42
3:B:1217:LEU:HD23	3:B:1217:LEU:HA	1.75	0.42
3:B:1451:GLU:HG3	3:B:1475:ARG:HG2	2.01	0.42
1:C:1910:DG:H2"	1:C:1911:DC:OP2	2.20	0.42
3:A:747:LEU:HD22	3:A:748:PRO:HD2	2.01	0.41
3:A:40:TYR:OH	3:A:96:ASP:OD1	2.34	0.41
3:B:1013:LEU:CD2	3:B:1021:VAL:HG21	2.50	0.41
3:B:1024:ARG:HD2	3:B:1024:ARG:O	2.20	0.41
3:B:1232:GLN:CG	3:B:1232:GLN:O	2.68	0.41
3:B:1421:TYR:CD2	3:B:1421:TYR:C	2.93	0.41
3:B:1488:VAL:O	3:B:1492:GLU:HG3	2.19	0.41
3:A:347:LYS:HB2	3:A:347:LYS:HE2	1.87	0.41
3:A:394:VAL:CG1	3:A:395:SER:N	2.82	0.41
3:B:1167:TYR:CE2	3:B:1197:ARG:HD3	2.54	0.41
3:B:1625:ARG:NH1	7:B:8:HOH:O	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:387:VAL:HG23	3:A:389:ASP:C	2.40	0.41
3:A:387:VAL:O	3:A:390:PRO:HD3	2.19	0.41
3:A:450:LEU:HA	3:A:450:LEU:HD23	1.92	0.41
3:A:585:ASN:ND2	3:A:589:LYS:HZ1	2.18	0.41
3:B:1280:ARG:NH1	3:B:1323:ARG:O	2.53	0.41
3:B:1577:GLU:HB3	3:B:1707:ARG:O	2.20	0.41
3:B:1693:PHE:CE2	3:B:1695:THR:HB	2.55	0.41
3:A:339:LEU:HD23	3:A:344:ALA:CB	2.49	0.41
3:A:421:TYR:CD2	3:A:422:PHE:N	2.88	0.41
3:B:1013:LEU:HD12	3:B:1013:LEU:HA	1.76	0.41
3:B:1253:PRO:HB2	7:B:90:HOH:O	2.20	0.41
3:B:1438:LEU:HD13	3:B:1452:VAL:HG22	2.02	0.41
2:D:1969:DG:H2''	2:D:1970:DT:O5'	2.20	0.41
3:A:170:LEU:CD1	3:A:175:PRO:HG3	2.50	0.41
3:A:379:LYS:O	3:A:383:GLU:HG3	2.20	0.41
3:A:464:TYR:HB3	3:A:476:TYR:CD2	2.56	0.41
3:B:1429:GLU:O	3:B:1431:GLU:N	2.54	0.41
3:B:1508:GLU:O	3:B:1512:ARG:HG3	2.20	0.41
3:B:1636:LYS:HD3	3:B:1640:MSE:HE3	2.02	0.41
3:A:158:THR:OG1	3:A:159:VAL:N	2.53	0.41
3:A:273:PHE:HD1	3:A:292:LEU:CD1	2.34	0.41
3:B:1163:LYS:HG3	3:B:1167:TYR:CE1	2.56	0.41
3:B:1465:ARG:HH11	3:B:1465:ARG:HG3	1.86	0.41
3:B:1543:VAL:CG1	3:B:1544:ARG:N	2.84	0.41
3:B:1684:LEU:HA	3:B:1684:LEU:HD23	1.94	0.41
3:B:1708:LEU:HD12	3:B:1709:LYS:N	2.31	0.41
3:A:167:TYR:HD2	3:A:197:ARG:NH1	2.19	0.41
3:A:376:SER:N	3:A:377:PRO:CD	2.82	0.41
3:A:712:HIS:CE1	3:A:729:LEU:HB2	2.56	0.41
3:A:765:ARG:NH1	3:A:765:ARG:HG2	2.32	0.41
3:A:51:ALA:O	3:A:55:GLY:N	2.54	0.41
3:A:564:ARG:HH11	3:A:564:ARG:HG2	1.86	0.41
3:A:682:GLU:O	3:A:685:HIS:HB3	2.20	0.41
3:B:1256:THR:CG2	3:B:1260:LEU:HD22	2.51	0.41
3:B:1449:TYR:CD1	3:B:1449:TYR:C	2.94	0.41
3:A:589:LYS:HZ2	3:A:696:HIS:CE1	2.39	0.41
3:A:722:LEU:HB2	3:A:744:MSE:CE	2.43	0.41
3:B:1099:GLU:O	3:B:1100:PRO:C	2.59	0.41
3:B:1225:LEU:O	3:B:1229:GLN:HG3	2.21	0.41
3:B:1400:ILE:HG12	3:B:1499:GLU:HG3	2.03	0.41
3:B:1564:ARG:HB2	3:B:1564:ARG:HE	1.60	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:394:VAL:HG13	3:A:395:SER:H	1.83	0.41
3:A:482:LYS:CD	3:A:486:ARG:HH22	2.34	0.41
3:A:519:GLU:O	3:A:519:GLU:HG2	2.20	0.41
3:A:52:ARG:CG	3:A:53:ALA:N	2.84	0.41
3:A:669:SER:HB2	3:B:1736:SER:OG	2.21	0.41
3:B:1049:ARG:NH1	3:B:1049:ARG:HG3	2.36	0.41
3:B:1170:LEU:HA	3:B:1170:LEU:HD22	1.85	0.41
3:B:1269:GLN:HG3	3:B:1270:ASP:N	2.35	0.41
3:B:1429:GLU:C	3:B:1431:GLU:H	2.24	0.41
2:D:1970:DT:H2''	2:D:1971:DC:C6	2.56	0.41
2:D:1971:DC:C2'	2:D:1972:DG:H5''	2.50	0.41
3:A:491:LEU:O	3:A:495:ILE:HG13	2.21	0.40
3:A:639:PHE:O	3:A:643:MSE:HG2	2.21	0.40
3:B:1174:ARG:NH2	3:B:1264:GLU:OE1	2.55	0.40
3:B:1609:VAL:HB	3:B:1610:PRO:HD2	2.03	0.40
3:A:468:GLN:HE22	3:A:475:ARG:HH11	1.68	0.40
3:A:554:ARG:O	3:A:555:ALA:CB	2.69	0.40
3:A:306:LEU:HD23	3:A:606:GLY:O	2.21	0.40
3:B:1148:LEU:HB2	3:B:1224:LEU:HD13	2.03	0.40
2:D:1957:DG:H2''	2:D:1958:DC:C5	2.56	0.40
2:D:1956:DA:H2''	2:D:1957:DG:H8	1.86	0.40
1:C:1916:DG:N2	2:D:1960:DG:N2	2.69	0.40
3:A:170:LEU:HD11	3:A:175:PRO:HG3	2.03	0.40
3:A:214:PRO:O	3:A:218:ARG:HG3	2.22	0.40
3:A:301:PRO:O	3:A:304:ALA:HB3	2.21	0.40
3:A:722:LEU:HD11	3:A:737:TYR:HD2	1.85	0.40
3:B:1068:THR:OG1	3:B:1069:PRO:HD2	2.20	0.40
3:B:1143:TRP:CZ3	3:B:1161:LYS:O	2.69	0.40
3:B:1210:GLU:OE1	3:B:1221:ARG:CD	2.69	0.40
3:B:1421:TYR:C	3:B:1423:LEU:H	2.23	0.40
3:B:1385:ALA:HB2	3:B:1404:TYR:CZ	2.57	0.40
3:A:218:ARG:NE	7:A:1886:HOH:O	2.54	0.40
3:A:228:ALA:HB3	3:A:236:LEU:HD11	2.04	0.40
3:A:748:PRO:HB2	3:A:751:VAL:CG2	2.50	0.40
3:B:1263:PHE:O	3:B:1271:THR:HG21	2.21	0.40
3:B:1558:HIS:HD2	3:B:1561:VAL:H	1.68	0.40
1:C:1918:DC:H2''	1:C:1919:DT:C5'	2.51	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	
3	A	755/768 (98%)	688 (91%)	58 (8%)	9 (1%)	13	32
3	B	743/768 (97%)	661 (89%)	65 (9%)	17 (2%)	6	16
All	All	1498/1536 (98%)	1349 (90%)	123 (8%)	26 (2%)	9	23

All (26) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	B	1010	PRO
3	B	1011	GLY
3	B	1233	GLY
3	B	1269	GLN
3	B	1391	PRO
3	B	1396	GLU
3	A	141	ASP
3	A	187	ASN
3	A	268	GLY
3	A	397	GLY
3	A	719	ALA
3	B	1077	ALA
3	A	3	GLY
3	A	98	VAL
3	A	703	LEU
3	B	1315	GLU
3	B	1438	LEU
3	A	10	PRO
3	B	1078	PHE
3	B	1389	ASP
3	B	1267	ARG
3	B	1388	GLU
3	B	1719	ALA
3	B	1209	PRO
3	B	1435	ILE

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Mol	Chain	Res	Type
3	B	1394	VAL

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	
3	A	613/606 (101%)	572 (93%)	41 (7%)	16	37
3	B	608/606 (100%)	565 (93%)	43 (7%)	14	34
All	All	1221/1212 (101%)	1137 (93%)	84 (7%)	15	35

All (84) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	A	1	MSE
3	A	18	GLN
3	A	35	GLN
3	A	58	LEU
3	A	60	HIS
3	A	66	PHE
3	A	99	GLU
3	A	112	VAL
3	A	145	LEU
3	A	161	LYS
3	A	174	ARG
3	A	195	ARG
3	A	196	LYS
3	A	215	LEU
3	A	243	PHE
3	A	260	LEU
3	A	274	SER
3	A	276	LEU
3	A	308	ARG
3	A	335	LEU
3	A	363	ARG
3	A	378	LEU

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Mol	Chain	Res	Type
3	A	509	ARG
3	A	527	LEU
3	A	554	ARG
3	A	557	ARG
3	A	563	ARG
3	A	578	LEU
3	A	605	VAL
3	A	607	SER
3	A	625	ARG
3	A	636	LYS
3	A	660	LEU
3	A	666	ARG
3	A	672	ASP
3	A	674	VAL
3	A	693	PHE
3	A	699	GLU
3	A	716	ARG
3	A	735	LYS
3	A	747	LEU
3	B	1002	GLU
3	B	1006	LYS
3	B	1013	LEU
3	B	1018	GLN
3	B	1030	TYR
3	B	1070	MSE
3	B	1075	LEU
3	B	1115	LEU
3	B	1117	THR
3	B	1122	LEU
3	B	1123	GLN
3	B	1145	LEU
3	B	1161	LYS
3	B	1170	LEU
3	B	1183	GLU
3	B	1192	ASP
3	B	1217	LEU
3	B	1238	LEU
3	B	1250	MSE
3	B	1260	LEU
3	B	1276	LEU
3	B	1315	GLU
3	B	1332	LEU

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Mol	Chain	Res	Type
3	B	1353	ARG
3	B	1358	ILE
3	B	1378	LEU
3	B	1391	PRO
3	B	1396	GLU
3	B	1416	ARG
3	B	1446	PHE
3	B	1454	ARG
3	B	1473	ARG
3	B	1484	LYS
3	B	1505	GLU
3	B	1546	ARG
3	B	1557	ARG
3	B	1563	ARG
3	B	1605	VAL
3	B	1648	LEU
3	B	1663	GLU
3	B	1693	PHE
3	B	1727	GLN
3	B	1747	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (25) such sidechains are listed below:

Mol	Chain	Res	Type
3	A	35	GLN
3	A	60	HIS
3	A	114	GLN
3	A	132	ASN
3	A	173	HIS
3	A	232	GLN
3	A	239	GLN
3	A	269	GLN
3	A	357	GLN
3	A	415	HIS
3	A	468	GLN
3	A	585	ASN
3	A	685	HIS
3	B	1097	GLN
3	B	1114	GLN
3	B	1123	GLN
3	B	1173	HIS
3	B	1269	GLN

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Mol	Chain	Res	Type
3	B	1289	GLN
3	B	1415	HIS
3	B	1474	GLN
3	B	1558	HIS
3	B	1585	ASN
3	B	1604	GLN
3	B	1685	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 carbohydrates in this entry.

5.6 Ligand geometry [i](#)

Of 8 ligands modelled in this entry, 2 are monoatomic - leaving 6 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	SO4	A	852	-	4,4,4	0.18	0	6,6,6	0.25	0
6	ADP	B	1999	4	24,29,29	1.04	3 (12%)	29,45,45	1.41	7 (24%)
6	ADP	A	999	4	24,29,29	1.09	3 (12%)	29,45,45	2.00	8 (27%)
5	SO4	B	1852	-	4,4,4	0.23	0	6,6,6	0.35	0
5	SO4	A	1853	-	4,4,4	0.29	0	6,6,6	0.05	0
5	SO4	B	853	-	4,4,4	0.26	0	6,6,6	0.14	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	ADP	A	999	4	-	7/12/32/32	0/3/3/3
6	ADP	B	1999	4	-	2/12/32/32	0/3/3/3

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	A	999	ADP	C2-N3	2.39	1.35	1.32
6	A	999	ADP	C8-N7	-2.28	1.30	1.34
6	B	1999	ADP	C8-N7	-2.22	1.30	1.34
6	B	1999	ADP	C2-N3	2.14	1.35	1.32
6	A	999	ADP	PB-O2B	-2.13	1.46	1.54
6	B	1999	ADP	PB-O2B	-2.00	1.47	1.54

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	A	999	ADP	O5'-C5'-C4'	5.47	127.81	108.99
6	A	999	ADP	C5'-C4'-C3'	-4.83	97.07	115.18
6	A	999	ADP	O2B-PB-O3A	3.20	115.37	104.64
6	A	999	ADP	O2B-PB-O1B	3.17	123.07	110.68
6	B	1999	ADP	C4-C5-N7	2.93	112.45	109.40
6	B	1999	ADP	O4'-C4'-C5'	-2.75	100.34	109.37
6	A	999	ADP	O3B-PB-O3A	-2.75	95.43	104.64
6	B	1999	ADP	O2B-PB-O3A	2.67	113.58	104.64
6	B	1999	ADP	O3'-C3'-C4'	2.57	118.47	111.05
6	B	1999	ADP	PA-O5'-C5'	-2.47	107.19	121.68
6	B	1999	ADP	N3-C2-N1	-2.44	124.87	128.68
6	A	999	ADP	C2'-C3'-C4'	2.37	107.24	102.64
6	A	999	ADP	O3A-PB-O1B	-2.07	99.73	111.19
6	B	1999	ADP	O2B-PB-O1B	2.04	118.67	110.68
6	A	999	ADP	N3-C2-N1	-2.03	125.51	128.68

There are no chirality outliers.

All (9) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	999	ADP	PA-O3A-PB-O2B

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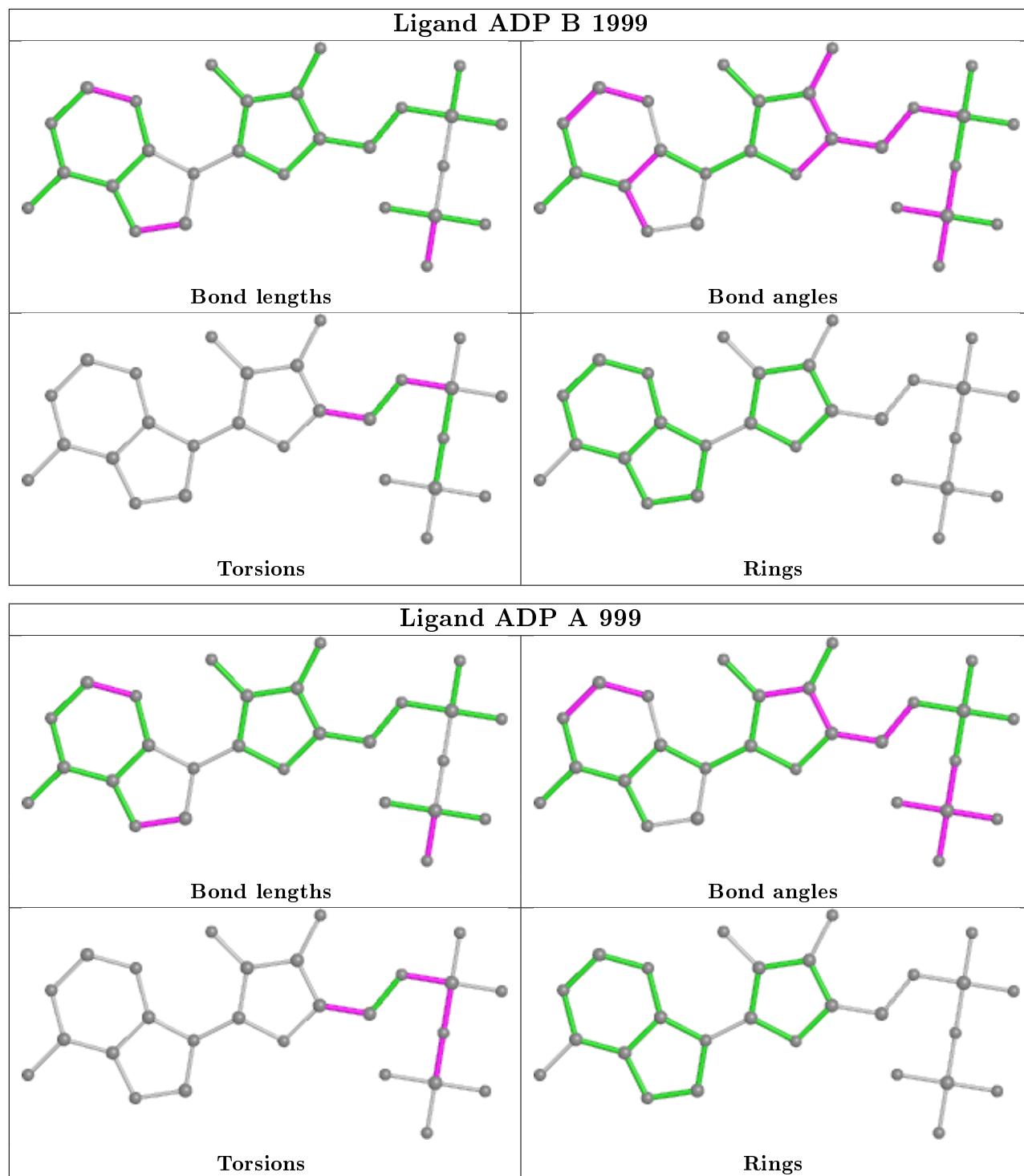
Mol	Chain	Res	Type	Atoms
6	A	999	ADP	C5'-O5'-PA-O3A
6	A	999	ADP	C3'-C4'-C5'-O5'
6	A	999	ADP	PB-O3A-PA-O2A
6	A	999	ADP	C5'-O5'-PA-O2A
6	A	999	ADP	PA-O3A-PB-O1B
6	B	1999	ADP	C3'-C4'-C5'-O5'
6	A	999	ADP	PB-O3A-PA-O1A
6	B	1999	ADP	C5'-O5'-PA-O1A

There are no ring outliers.

2 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	B	1999	ADP	3	0
6	A	999	ADP	2	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



5.7 Other polymers [i](#)

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

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates

EDS was not executed - this section is therefore empty.

6.4 Ligands

EDS was not executed - this section is therefore empty.

6.5 Other polymers

EDS was not executed - this section is therefore empty.