



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 3, 2023 – 07:29 AM EDT

PDB ID : 1FC0
Title : HUMAN LIVER GLYCOGEN PHOSPHORYLASE COMPLEXED WITH N-ACETYL-BETA-D-GLUCOPYRANOSYLAMINE
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Deposited on : 2000-07-17
Resolution : 2.40 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
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.34
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.34

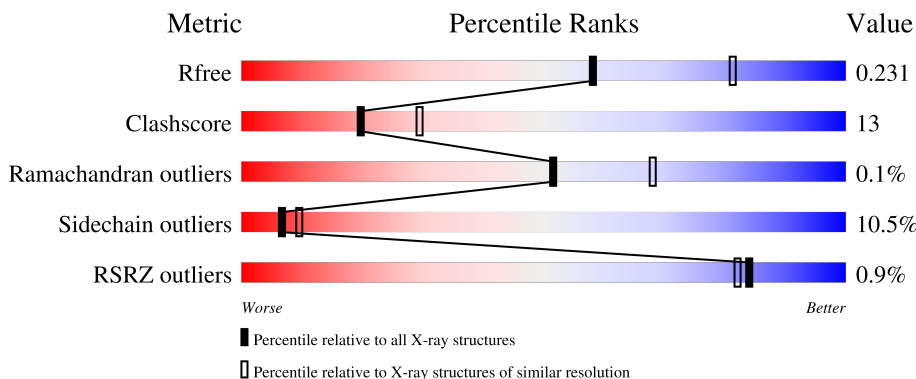
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.40 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3907 (2.40-2.40)
Clashscore	141614	4398 (2.40-2.40)
Ramachandran outliers	138981	4318 (2.40-2.40)
Sidechain outliers	138945	4319 (2.40-2.40)
RSRZ outliers	127900	3811 (2.40-2.40)

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	846	 % 63% 27% • 6%
1	B	846	 % 62% 28% • 6%

2 Entry composition [i](#)

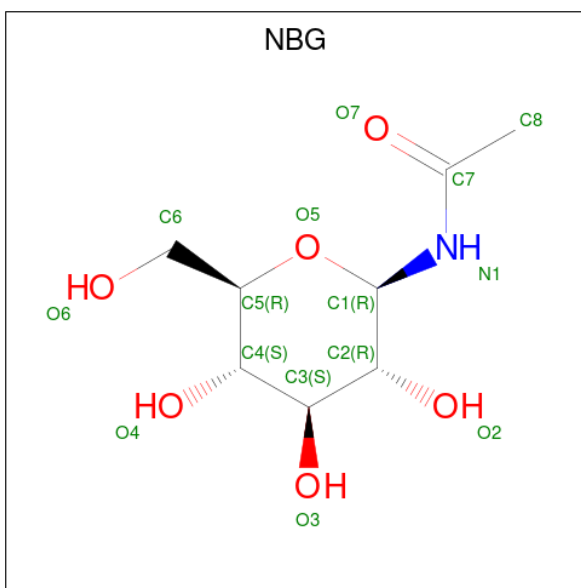
There are 4 unique types of molecules in this entry. The entry contains 13169 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 GLYCOGEN PHOSPHORYLASE, LIVER FORM.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	792	Total 6425	C 4129	N 1090	O 1177	S 29	0	0	0
1	B	793	Total 6429	C 4131	N 1091	O 1178	S 29	0	0	0

- Molecule 2 is N-acetyl-beta-D-glucopyranosylamine (three-letter code: NBG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
2	A	1	Total 15	C 8	N 1	O 6	0	0
2	B	1	Total 15	C 8	N 1	O 6	0	0

- Molecule 3 is PYRIDOXAL-5'-PHOSPHATE (three-letter code: PLP) (formula: $C_8H_{10}NO_6P$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
3	A	1	15	8	1	5	1	0	0
3	B	1	15	8	1	5	1	0	0

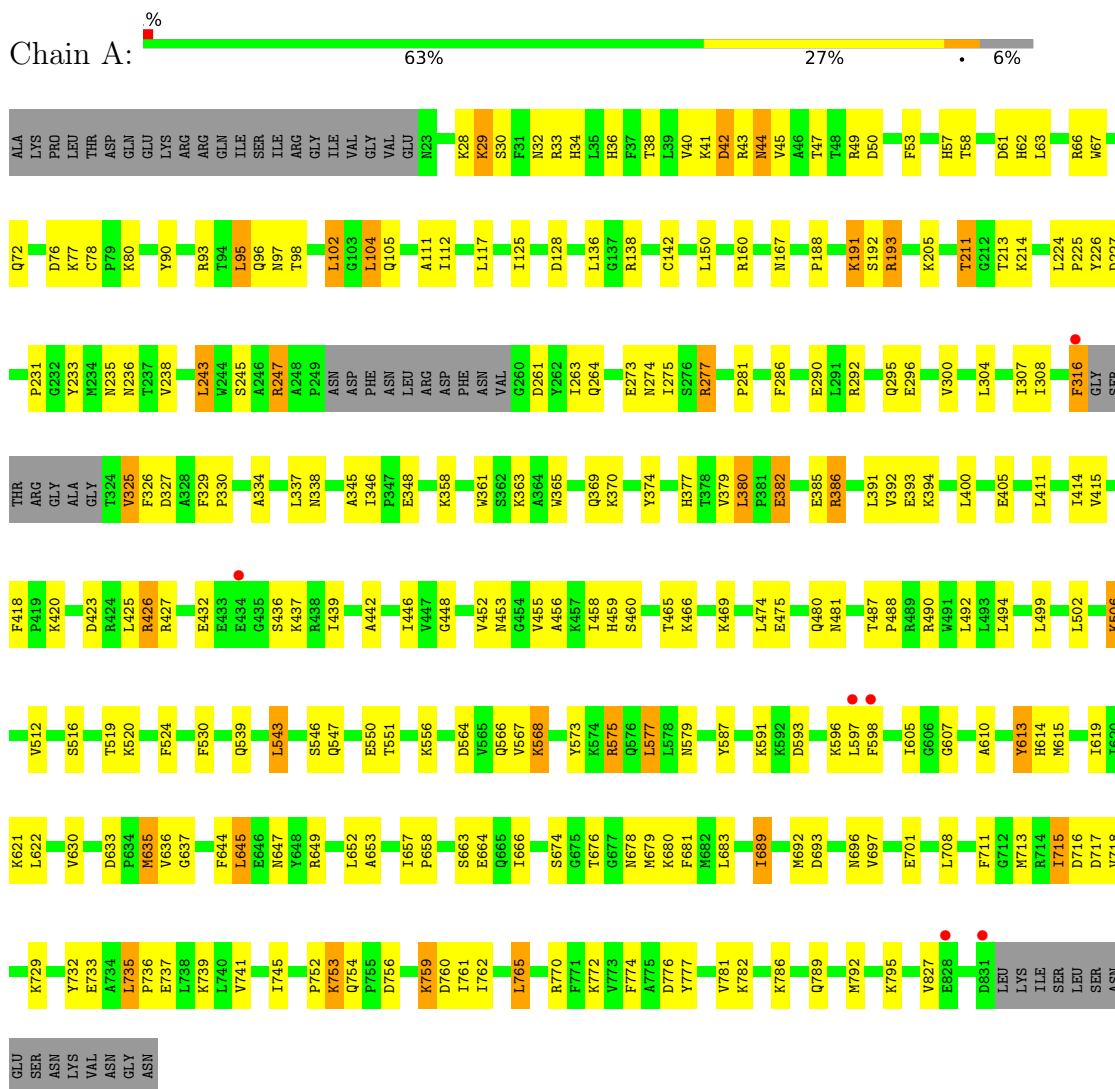
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
4	A	151	151	151	0	0
4	B	104	104	104	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: GLYCOGEN PHOSPHORYLASE, LIVER FORM



- Molecule 1: GLYCOGEN PHOSPHORYLASE, LIVER FORM



S1830	D1831	LEU	LYS	ILE	SER	LEU	SER	ASN	E1730	E1731	E1732	E1733	A1734	L1735	P1736	E1737	L1738	K1739	L1740	V1741	I1745	P1752	K1753	Q1754	P1755	D1756	K1759	D1760	I1761	I1762	L1765	R1770	F1771	K1772	F1773	F1774	A1775	D1776	Y1777	V1781	K1782	K1786	Q1789	M1792	K1795	V1827	E1828	P1829	A1610	Y1613	H1614	M1615	I1619	I1620	K1621	L1622	V1630	M1635	F1644	L1645	E1646	M1647	Y1648	R1649	V1650	S1651	L1652	A1653	I1657	P1658	S1663	E1664	Q1665	I1666	S1667	T1668	A1673	S1674	G1675	T1676	K1680	F1681	M1682	L1683	I1689	M1692	D1693	M1696	V1697	E1698	E1701	L1708	F1711	L1492	L1499	L1502	K1506	S1516	T1519	K1520	F1524	D1527	F1530	Q1539	L1543	S1546	Q1547	E1550	T1551	K1554	V1555	K1556	D1564	V1565	Q1566	V1567	K1568	R1575	Q1576	L1577	L1578	M1579	Y1587	K1591	D1593	P1594	K1595	K1596	F1598	I1605	G1606	G1607	L1400	E1405	L1411	I1414	V1415	F1418	P1419	K1420	D1423	R1424	L1425	R1426	R1427	E1432	S1436	K1437	R1438	I1439	A1442	I1446	V1447	G1448	V1452	M1453	G1454	V1455	A1456	K1457	I1458	H1459	S1460	D1461	I1462	T1465	K1466	K1469	L1474	E1475	Q1480	N1481	T1487	P1488	R1489	R1490	W1491	L1304	I1308	F1316	GLY	SER	THR	ARG	GLY	ALA	G1323	T1324	V1325	F1326	D1327	A1328	F1329	P1330	A1334	L1337	M1338	D1339	P1342	A1345	I1346	P1347	E1348	W1361	W1365	Q1369	K1370	Y1374	H1377	T1378	V1379	L1380	E1382	A1383	L1384	E1385	R1386	L1391	V1392	E1393	K1394	P1397	M1210	T1213	K1214	W1215	D1217	L1224	P1225	Y1226	D1227	P1231	M1235	N1236	T1237	V1238	L1243	W1244	S1245	A1246	R1247	A1248	P1249	ASN	ASP	PHE	ASN	LEU	ASP	PHE	ASN	VAL	G1260	D1261	Y1262	I1263	Q1264	E1273	N1274	I1275	S1276	R1277	F1286	E1290	L1291	R1292	Q1295	E1296	V1300	C1078	F1079	K1080	K1214	Y1090	R1093	T1094	L1095	T1098	L1102	G1103	L1104	E1110	A1111	I1112	Y1113	Q1114	I1119	L1122	I1125	E1126	D1128	G1135	L1136	G1137	R1138	G1142	L1150	R1160	M1167	I1170	W1174	Y1185	P1188	K1191	S1192	R1193	V1206	E1207	H1208	T1209	ALA	LYS	PRO	LEU	THR	ASP	GLN	GLU	LYS	ARG	ARG	GLN	ILE	SER	ILE	ARG	GLY	ILE	VAL	GLY	VAL	GLU	V1024	K1028	K1029	R1033	H1034	L1035	H1036	F1037	T1038	L1039	V1040	K1041	D1042	R1043	M1044	V1045	A1046	T1047	T1048	R1049	D1050	F1053	T1058	V1059	D1061	H1062	L1063	R1066	W1067	K1077
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4 Data and refinement statistics i

Property	Value	Source
Space group	P 31	Depositor
Cell constants a, b, c, α , β , γ	124.00Å 124.00Å 122.28Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	30.00 – 2.40 19.58 – 2.40	Depositor EDS
% Data completeness (in resolution range)	95.1 (30.00-2.40) 95.2 (19.58-2.40)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.76 (at 2.41Å)	Xtriage
Refinement program	CNS	Depositor
R, R_{free}	0.198 , 0.235 0.192 , 0.231	Depositor DCC
R_{free} test set	8191 reflections (10.03%)	wwPDB-VP
Wilson B-factor (Å ²)	30.5	Xtriage
Anisotropy	0.394	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 32.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.28$	Xtriage
Estimated twinning fraction	0.025 for -h,-k,l 0.082 for h,-h-k,-l 0.033 for -k,-h,-l	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	13169	wwPDB-VP
Average B, all atoms (Å ²)	35.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.81% 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

5.1 Standard geometry

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

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	0.35	0/6569	0.57	0/8884
1	B	0.34	0/6573	0.56	0/8889
All	All	0.34	0/13142	0.56	0/17773

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	6425	0	6419	154	0
1	B	6429	0	6422	175	0
2	A	15	0	15	0	0
2	B	15	0	15	0	0
3	A	15	0	6	0	0
3	B	15	0	7	0	0
4	A	151	0	0	6	0
4	B	104	0	0	2	0
All	All	13169	0	12884	328	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 (328) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1274:ASN:ND2	1:B:1277:ARG:HH11	1.61	0.97
1:B:1713:MET:HB2	1:B:1717:ASP:HB2	1.47	0.95
1:A:547:GLN:O	1:A:551:THR:HG23	1.66	0.95
1:A:713:MET:HB2	1:A:717:ASP:HB2	1.47	0.94
1:A:274:ASN:ND2	1:A:277:ARG:HH11	1.66	0.94
1:B:1274:ASN:HD22	1:B:1277:ARG:HH11	1.16	0.93
1:B:1547:GLN:O	1:B:1551:THR:HG23	1.69	0.93
1:A:274:ASN:HD22	1:A:277:ARG:HH11	1.20	0.89
1:B:1411:LEU:HA	1:B:1414:ILE:HD12	1.54	0.89
1:A:411:LEU:HA	1:A:414:ILE:HD12	1.56	0.86
1:B:1615:MET:HE3	1:B:1761:ILE:HG12	1.58	0.85
1:A:615:MET:HE3	1:A:761:ILE:HG12	1.55	0.85
1:A:42:ASP:HB3	1:A:44:ASN:ND2	1.96	0.81
1:B:1042:ASP:HB3	1:B:1044:ASN:ND2	1.97	0.78
1:B:1752:PRO:HB2	1:B:1753:LYS:HE2	1.69	0.74
1:A:752:PRO:HB2	1:A:753:LYS:HE2	1.70	0.72
1:A:224:LEU:HD12	1:A:225:PRO:HD2	1.72	0.70
1:B:1224:LEU:HD12	1:B:1225:PRO:HD2	1.72	0.70
1:A:93:ARG:O	1:A:490:ARG:NH2	2.25	0.69
1:B:1207:GLU:HG2	1:B:1209:THR:HG23	1.74	0.69
1:B:1329:PHE:HB3	1:B:1330:PRO:HD3	1.74	0.69
1:A:506:LYS:HD3	1:A:524:PHE:CE2	2.28	0.68
1:A:160:ARG:HB2	1:A:243:LEU:HB3	1.75	0.68
1:B:1235:ASN:O	1:B:1236:ASN:HB2	1.91	0.68
1:B:1160:ARG:HB2	1:B:1243:LEU:HB3	1.74	0.68
1:B:1170:ILE:CG1	1:B:1646:GLU:HG3	2.24	0.68
1:B:1029:LYS:HB3	1:B:1033:ARG:NH2	2.10	0.67
1:A:653:ALA:O	1:A:657:ILE:HG13	1.95	0.67
1:A:329:PHE:HB3	1:A:330:PRO:HD3	1.75	0.67
1:B:1591:LYS:HD2	1:B:1635:MET:HG2	1.77	0.67
1:B:1653:ALA:O	1:B:1657:ILE:HG13	1.95	0.67
1:B:1128:ASP:OD2	1:B:1651:SER:HB3	1.94	0.67
1:B:1506:LYS:HD3	1:B:1524:PHE:CE2	2.30	0.67
1:A:566:GLN:HA	4:A:2108:HOH:O	1.94	0.66
1:A:235:ASN:O	1:A:236:ASN:HB2	1.94	0.66
1:B:1049:ARG:NH2	1:B:1185:TYR:HB3	2.11	0.66
1:B:1292:ARG:O	1:B:1296:GLU:HG3	1.96	0.66
1:B:1615:MET:HE1	1:B:1761:ILE:HA	1.78	0.65
1:A:591:LYS:HD2	1:A:635:MET:HG2	1.77	0.65
1:B:1206:VAL:HG23	1:B:1397:PRO:HB2	1.79	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:292:ARG:O	1:A:296:GLU:HG3	1.96	0.65
1:A:615:MET:HE1	1:A:761:ILE:HA	1.79	0.65
1:B:1170:ILE:HG13	1:B:1646:GLU:HG3	1.79	0.65
1:B:1777:TYR:O	1:B:1781:VAL:HG23	1.98	0.63
1:A:777:TYR:O	1:A:781:VAL:HG23	1.99	0.62
1:A:29:LYS:HB3	1:A:33:ARG:NH2	2.13	0.62
1:B:1042:ASP:HB3	1:B:1044:ASN:HD21	1.65	0.62
1:A:455:VAL:H	1:A:459:HIS:HD2	1.47	0.62
1:B:1455:VAL:H	1:B:1459:HIS:HD2	1.46	0.61
1:A:290:GLU:HG3	1:A:391:LEU:HD11	1.83	0.61
1:A:96:GLN:HG2	1:A:494:LEU:HG	1.82	0.61
1:B:1275:ILE:O	1:B:1295:GLN:HG2	2.00	0.60
1:A:42:ASP:HB3	1:A:44:ASN:HD21	1.65	0.60
1:B:1566:GLN:HB2	1:B:1664:GLU:HB2	1.83	0.60
1:B:1034:HIS:HD2	1:B:1038:THR:OG1	1.83	0.60
1:A:275:ILE:O	1:A:295:GLN:HG2	2.02	0.59
1:A:488:PRO:O	1:A:492:LEU:HB3	2.02	0.59
1:B:1098:THR:HG22	1:B:1102:LEU:HD22	1.84	0.59
1:A:274:ASN:HD22	1:A:277:ARG:HD2	1.68	0.59
1:B:1539:GLN:HE21	1:B:1543:LEU:HD12	1.68	0.59
1:B:1024:VAL:HG22	1:B:1110:GLU:HB3	1.83	0.59
1:A:80:LYS:HB3	1:A:827:VAL:HG12	1.85	0.58
1:A:539:GLN:HE21	1:A:543:LEU:HD12	1.68	0.58
1:B:1290:GLU:HG3	1:B:1391:LEU:HD11	1.84	0.58
1:B:1693:ASP:O	1:B:1696:ASN:HB2	2.03	0.58
1:B:1488:PRO:O	1:B:1492:LEU:HB3	2.04	0.58
1:B:1575:ARG:HD3	1:B:1666:ILE:O	2.03	0.58
1:A:34:HIS:HD2	1:A:38:THR:OG1	1.85	0.58
1:B:1274:ASN:HD22	1:B:1277:ARG:HD2	1.69	0.58
1:A:575:ARG:HD3	1:A:666:ILE:O	2.03	0.58
1:B:1346:ILE:HD13	1:B:1448:GLY:HA3	1.85	0.58
1:A:693:ASP:O	1:A:696:ASN:HB2	2.04	0.57
1:A:697:VAL:O	1:A:701:GLU:HG3	2.05	0.57
1:B:1411:LEU:HD23	1:B:1414:ILE:CD1	2.35	0.57
1:A:566:GLN:HB2	1:A:664:GLU:HB2	1.85	0.57
1:A:615:MET:CE	1:A:761:ILE:HA	2.36	0.56
1:A:393:GLU:HB2	1:A:400:LEU:CD2	2.35	0.56
1:B:1432:GLU:O	1:B:1437:LYS:HA	2.06	0.56
1:B:1615:MET:CE	1:B:1761:ILE:HA	2.36	0.56
1:B:1713:MET:HB2	1:B:1717:ASP:CB	2.30	0.56
1:A:96:GLN:NE2	1:A:105:GLN:HE22	2.03	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:442:ALA:O	1:A:446:ILE:HG13	2.06	0.56
1:B:1024:VAL:CG2	1:B:1110:GLU:HB3	2.37	0.55
1:A:346:ILE:HD13	1:A:448:GLY:HA3	1.89	0.55
1:B:1193:ARG:NH1	1:B:1227:ASP:OD1	2.40	0.55
1:B:1575:ARG:NH2	1:B:1776:ASP:HB2	2.22	0.55
1:B:1697:VAL:O	1:B:1701:GLU:HG3	2.06	0.55
1:B:1080:LYS:HE2	1:B:1334:ALA:HB2	1.88	0.55
1:B:1122:LEU:O	1:B:1125:ILE:HB	2.07	0.55
1:B:1216:ILE:HD12	1:B:1217:ASP:OD2	2.06	0.55
1:B:1338:ASN:OD1	1:B:1377:HIS:NE2	2.40	0.55
1:B:1506:LYS:HD2	1:B:1530:PHE:CD1	2.41	0.55
1:B:1053:PHE:HE1	1:B:1188:PRO:HD3	1.71	0.55
1:B:1174:TRP:CZ2	1:B:1621:LYS:HG3	2.42	0.55
1:B:1261:ASP:OD1	1:B:1264:GLN:HB2	2.07	0.55
1:A:316:PHE:CZ	1:A:325:VAL:HB	2.41	0.54
1:A:732:TYR:CE1	1:A:739:LYS:HG3	2.43	0.54
1:B:1324:THR:HG22	1:B:1325:VAL:N	2.22	0.54
1:A:411:LEU:HD23	1:A:414:ILE:CD1	2.37	0.54
1:B:1029:LYS:HB3	1:B:1033:ARG:HH21	1.72	0.54
1:A:53:PHE:HE1	1:A:188:PRO:HD3	1.72	0.54
1:A:432:GLU:O	1:A:437:LYS:HA	2.06	0.54
1:B:1170:ILE:HG12	1:B:1646:GLU:HG3	1.89	0.54
1:B:1462:ILE:HD11	1:B:1715:ILE:HD13	1.90	0.54
1:A:506:LYS:HD2	1:A:530:PHE:CD1	2.43	0.53
1:A:575:ARG:NH2	1:A:776:ASP:HB2	2.22	0.53
1:B:1192:SER:HB3	1:B:1226:TYR:CE1	2.43	0.53
1:B:1093:ARG:O	1:B:1490:ARG:NH2	2.37	0.53
1:B:1286:PHE:CD1	1:B:1385:GLU:HG2	2.44	0.53
1:B:1393:GLU:HB2	1:B:1400:LEU:CD2	2.39	0.53
1:A:713:MET:HB2	1:A:717:ASP:CB	2.30	0.53
1:B:1415:VAL:HG22	1:B:1425:LEU:HD11	1.91	0.53
1:A:465:THR:O	1:A:469:LYS:HB2	2.09	0.53
1:A:415:VAL:HG22	1:A:425:LEU:HD11	1.91	0.53
1:B:1274:ASN:ND2	1:B:1277:ARG:NH1	2.45	0.52
1:B:1465:THR:O	1:B:1469:LYS:HB2	2.10	0.52
1:B:1732:TYR:CE1	1:B:1739:LYS:HG3	2.44	0.52
1:A:649:ARG:HG2	1:A:649:ARG:HH11	1.75	0.52
1:B:1274:ASN:ND2	1:B:1277:ARG:HD2	2.24	0.52
1:B:1593:ASP:CG	1:B:1596:LYS:HB2	2.30	0.52
1:A:98:THR:HG22	1:A:102:LEU:HD22	1.91	0.52
1:A:593:ASP:CG	1:A:596:LYS:HB2	2.31	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1649:ARG:HH11	1:B:1649:ARG:HG2	1.75	0.52
1:A:316:PHE:CE1	1:A:325:VAL:HB	2.45	0.51
1:A:737:GLU:O	1:A:741:VAL:HG23	2.11	0.51
1:B:1411:LEU:HD23	1:B:1414:ILE:HD13	1.91	0.51
1:A:47:THR:H	1:A:50:ASP:HB2	1.76	0.51
1:B:1415:VAL:HG23	1:B:1425:LEU:HD21	1.93	0.51
1:A:415:VAL:HG23	1:A:425:LEU:HD21	1.92	0.51
1:B:1442:ALA:O	1:B:1446:ILE:HG13	2.10	0.51
1:B:1737:GLU:O	1:B:1741:VAL:HG23	2.11	0.51
1:A:167:ASN:ND2	1:A:647:ASN:HD21	2.09	0.51
1:A:261:ASP:OD1	1:A:264:GLN:HB2	2.11	0.51
1:A:274:ASN:ND2	1:A:277:ARG:HD2	2.25	0.51
1:B:1036:HIS:O	1:B:1040:VAL:HA	2.11	0.51
1:B:1028:LYS:HE2	1:B:1114:GLN:NE2	2.26	0.51
1:B:1300:VAL:HG13	1:B:1345:ALA:HA	1.92	0.51
1:A:80:LYS:HE2	1:A:334:ALA:HB2	1.92	0.50
1:A:307:ILE:HG23	4:A:2226:HOH:O	2.10	0.50
1:B:1382:GLU:CD	1:B:1770:ARG:HH22	2.15	0.50
1:A:325:VAL:CG2	1:A:326:PHE:N	2.74	0.50
1:B:1361:TRP:CH2	1:B:1405:GLU:HB3	2.46	0.50
1:B:1216:ILE:HD12	1:B:1217:ASP:CG	2.31	0.50
1:A:47:THR:O	1:A:50:ASP:HB2	2.12	0.50
1:A:97:ASN:HA	1:A:494:LEU:HD12	1.94	0.50
1:A:192:SER:HB3	1:A:226:TYR:CE1	2.47	0.50
1:A:281:PRO:HG3	1:B:1262:TYR:CE2	2.46	0.50
1:A:286:PHE:CD1	1:A:385:GLU:HG2	2.46	0.49
1:A:34:HIS:HE1	1:A:61:ASP:OD2	1.95	0.49
1:A:330:PRO:HB3	1:A:370:LYS:HB3	1.93	0.49
1:B:1047:THR:O	1:B:1050:ASP:HB2	2.11	0.49
1:A:689:ILE:HG23	1:A:689:ILE:O	2.13	0.49
1:A:136:LEU:HD11	1:A:338:ASN:OD1	2.13	0.49
1:B:1575:ARG:HH22	1:B:1776:ASP:CG	2.14	0.49
1:A:36:HIS:O	1:A:40:VAL:HA	2.12	0.49
1:B:1568:LYS:O	1:B:1607:GLY:HA3	2.12	0.49
1:A:193:ARG:HD2	1:A:227:ASP:OD1	2.13	0.49
1:A:263:ILE:HG12	4:A:2177:HOH:O	2.12	0.49
1:A:29:LYS:HB3	1:A:33:ARG:HH21	1.77	0.49
1:A:789:GLN:O	1:A:792:MET:HB2	2.13	0.49
1:A:58:THR:O	1:A:62:HIS:HD2	1.96	0.49
1:B:1047:THR:H	1:B:1050:ASP:HB2	1.78	0.49
1:A:568:LYS:O	1:A:607:GLY:HA3	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:692:MET:HG3	1:A:697:VAL:HG22	1.94	0.49
1:A:142:CYS:SG	1:A:487:THR:HG22	2.53	0.48
1:B:1330:PRO:HB3	1:B:1370:LYS:HB3	1.94	0.48
1:A:28:LYS:HG2	1:A:111:ALA:HB1	1.94	0.48
1:B:1058:THR:O	1:B:1062:HIS:HD2	1.97	0.48
1:A:411:LEU:HD23	1:A:414:ILE:HD13	1.95	0.48
1:B:1174:TRP:CH2	1:B:1621:LYS:HG3	2.48	0.48
1:B:1455:VAL:H	1:B:1459:HIS:CD2	2.29	0.48
1:B:1689:ILE:HG23	1:B:1689:ILE:O	2.13	0.48
1:B:1300:VAL:HG22	1:B:1345:ALA:HB2	1.95	0.48
1:A:193:ARG:HH11	1:A:193:ARG:HA	1.78	0.48
1:A:605:ILE:O	1:A:644:PHE:HA	2.14	0.48
1:B:1274:ASN:HD22	1:B:1277:ARG:NH1	1.99	0.48
1:B:1718:VAL:HG13	1:B:1772:LYS:HE2	1.96	0.48
1:A:300:VAL:HG13	1:A:345:ALA:HA	1.95	0.48
1:A:455:VAL:H	1:A:459:HIS:CD2	2.29	0.48
1:A:753:LYS:O	1:A:754:GLN:HG3	2.14	0.48
1:B:1324:THR:CG2	1:B:1325:VAL:N	2.76	0.48
1:B:1605:ILE:O	1:B:1644:PHE:HA	2.14	0.48
1:A:167:ASN:ND2	4:A:2154:HOH:O	2.46	0.47
1:A:300:VAL:HG22	1:A:345:ALA:HB2	1.96	0.47
1:B:1049:ARG:NH2	1:B:1053:PHE:HE2	2.12	0.47
1:B:1142:CYS:SG	1:B:1487:THR:HG22	2.54	0.47
1:B:1034:HIS:HE1	1:B:1061:ASP:OD2	1.97	0.47
1:A:423:ASP:OD1	1:A:427:ARG:HD3	2.14	0.47
1:A:423:ASP:O	1:A:426:ARG:HG3	2.15	0.47
1:B:1167:ASN:ND2	1:B:1647:ASN:HD21	2.13	0.47
1:A:380:LEU:HD13	1:A:382:GLU:OE2	2.14	0.47
1:A:759:LYS:HA	1:A:759:LYS:HD3	1.40	0.47
1:B:1247:ARG:HA	1:B:1273:GLU:HG2	1.97	0.47
1:B:1381:PRO:HA	1:B:1384:LEU:CD1	2.45	0.47
1:B:1676:THR:O	1:B:1680:LYS:HG3	2.15	0.47
1:A:49:ARG:HG2	4:A:2211:HOH:O	2.14	0.47
1:A:304:LEU:HD12	1:A:348:GLU:CG	2.45	0.47
1:B:1459:HIS:HB2	1:B:1673:ALA:O	2.14	0.47
1:B:1423:ASP:OD1	1:B:1427:ARG:HD3	2.15	0.47
1:B:1066:ARG:CD	1:B:1236:ASN:HA	2.44	0.46
1:B:1457:LYS:HG3	1:B:1698:GLU:CD	2.36	0.46
1:B:1692:MET:HG3	1:B:1697:VAL:HG22	1.97	0.46
1:B:1789:GLN:O	1:B:1792:MET:HB2	2.15	0.46
1:A:456:ALA:HB2	1:A:674:SER:HB2	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1577:LEU:HG	1:B:1619:ILE:HG12	1.98	0.46
1:B:1304:LEU:HD12	1:B:1348:GLU:CG	2.46	0.46
1:A:577:LEU:HG	1:A:619:ILE:HG12	1.96	0.46
1:A:41:LYS:HD2	1:A:45:VAL:HG23	1.98	0.46
1:B:1423:ASP:O	1:B:1426:ARG:HG3	2.15	0.46
1:B:1224:LEU:HD12	1:B:1225:PRO:CD	2.45	0.46
1:A:386:ARG:HH11	1:A:386:ARG:HB2	1.81	0.46
1:A:614:HIS:HE1	1:A:760:ASP:OD1	1.99	0.46
1:A:112:ILE:HG23	1:A:117:LEU:HB2	1.97	0.45
1:A:66:ARG:CD	1:A:236:ASN:HA	2.46	0.45
1:A:575:ARG:HH22	1:A:776:ASP:CG	2.16	0.45
1:B:1080:LYS:HB3	1:B:1827:VAL:HG12	1.99	0.45
1:B:1456:ALA:HB2	1:B:1674:SER:HB2	1.99	0.45
1:B:1614:HIS:HE1	1:B:1760:ASP:OD1	1.99	0.45
1:A:63:LEU:HD21	1:A:231:PRO:HB3	1.97	0.45
1:A:587:TYR:CD1	1:A:630:VAL:HG22	2.51	0.45
1:B:1102:LEU:HB3	1:B:1104:LEU:HD23	1.98	0.45
1:B:1828:GLU:HA	1:B:1829:PRO:HD3	1.85	0.45
1:A:361:TRP:CH2	1:A:405:GLU:HB3	2.52	0.45
1:B:1374:TYR:CD2	1:B:1452:VAL:HG13	2.51	0.45
1:A:657:ILE:HB	1:A:658:PRO:HD3	1.99	0.45
1:B:1386:ARG:HH11	1:B:1386:ARG:HB2	1.81	0.45
1:B:1587:TYR:CD1	1:B:1630:VAL:HG22	2.52	0.45
1:B:1049:ARG:HH22	1:B:1185:TYR:HB3	1.80	0.45
1:A:191:LYS:HA	1:A:191:LYS:HD2	1.78	0.45
1:A:374:TYR:CD2	1:A:452:VAL:HG13	2.52	0.45
1:B:1663:SER:HB2	1:B:1681:PHE:CG	2.52	0.45
1:A:247:ARG:HA	1:A:273:GLU:HG2	1.99	0.44
1:A:789:GLN:HA	1:A:792:MET:HE2	2.00	0.44
1:B:1135:GLY:HA3	4:B:2153:HOH:O	2.17	0.44
1:A:745:ILE:HG22	1:A:762:ILE:HD11	1.99	0.44
1:B:1063:LEU:HG	1:B:1102:LEU:HD21	1.99	0.44
1:A:386:ARG:HH11	1:A:386:ARG:CB	2.31	0.44
1:A:666:ILE:HG22	1:A:711:PHE:CE2	2.53	0.44
1:A:575:ARG:HH22	1:A:776:ASP:CB	2.31	0.44
1:A:645:LEU:HD23	1:A:645:LEU:HA	1.86	0.44
1:A:663:SER:HB2	1:A:681:PHE:CG	2.52	0.44
1:B:1745:ILE:CG2	1:B:1762:ILE:HD11	2.48	0.44
1:A:102:LEU:HB3	1:A:104:LEU:HD22	1.99	0.44
1:B:1028:LYS:HG2	1:B:1111:ALA:HB1	2.00	0.44
1:B:1753:LYS:O	1:B:1754:GLN:HG3	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:43:ARG:HD2	1:A:43:ARG:HA	1.85	0.44
1:B:1024:VAL:HG13	1:B:1111:ALA:HA	1.99	0.44
1:A:745:ILE:CG2	1:A:762:ILE:HD11	2.47	0.43
1:B:1067:TRP:HA	1:B:1238:VAL:HB	2.00	0.43
1:B:1136:LEU:HD11	1:B:1338:ASN:OD1	2.18	0.43
1:A:67:TRP:HA	1:A:238:VAL:HB	2.00	0.43
1:A:460:SER:CB	1:A:481:ASN:HB2	2.49	0.43
1:B:1041:LYS:HD2	1:B:1045:VAL:HG23	2.00	0.43
1:B:1657:ILE:HB	1:B:1658:PRO:HD3	1.99	0.43
1:B:1765:LEU:HG	1:B:1774:PHE:CZ	2.53	0.43
1:A:233:TYR:CE2	1:A:512:VAL:HG11	2.53	0.43
1:A:543:LEU:O	1:A:547:GLN:HG3	2.19	0.43
1:A:458:ILE:HG23	1:A:459:HIS:N	2.34	0.43
1:B:1365:TRP:CD1	1:B:1369:GLN:NE2	2.87	0.43
1:A:524:PHE:N	1:A:524:PHE:CD1	2.87	0.43
1:A:676:THR:O	1:A:680:LYS:HG3	2.19	0.43
1:A:718:VAL:HG13	1:A:772:LYS:HE2	2.01	0.43
1:A:516:SER:O	1:A:519:THR:HG23	2.19	0.42
1:B:1392:VAL:HG21	1:B:1439:ILE:HD12	2.01	0.42
1:B:1575:ARG:HH22	1:B:1776:ASP:CB	2.31	0.42
1:A:224:LEU:HD12	1:A:225:PRO:CD	2.46	0.42
1:B:1460:SER:CB	1:B:1481:ASN:HB2	2.49	0.42
1:B:1077:LYS:HD3	1:B:1077:LYS:HA	1.57	0.42
1:B:1524:PHE:CD1	1:B:1524:PHE:N	2.86	0.42
1:A:211:THR:O	1:A:358:LYS:NZ	2.52	0.42
1:A:392:VAL:HG21	1:A:439:ILE:HD12	2.00	0.42
1:B:1458:ILE:HG23	1:B:1459:HIS:N	2.34	0.42
1:B:1731:TYR:O	1:B:1735:LEU:HD12	2.20	0.42
1:A:365:TRP:CD1	1:A:369:GLN:NE2	2.88	0.42
1:A:678:ASN:OD1	1:A:679:MET:N	2.53	0.42
1:A:41:LYS:NZ	1:A:50:ASP:OD2	2.51	0.42
1:B:1053:PHE:CE1	1:B:1188:PRO:HD3	2.52	0.42
1:B:1066:ARG:HG2	1:B:1236:ASN:O	2.19	0.42
1:B:1102:LEU:HB3	1:B:1104:LEU:CD2	2.49	0.42
1:A:546:SER:O	1:A:550:GLU:HG3	2.20	0.42
1:B:1386:ARG:HH11	1:B:1386:ARG:CB	2.32	0.42
1:B:1543:LEU:O	1:B:1547:GLN:HG3	2.19	0.42
1:B:1745:ILE:HG22	1:B:1762:ILE:HD11	2.00	0.42
1:B:1049:ARG:NH1	1:B:1053:PHE:HE2	2.18	0.42
1:B:1063:LEU:HD21	1:B:1231:PRO:HB3	2.01	0.42
1:A:735:LEU:HA	1:A:736:PRO:HD2	1.78	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1300:VAL:CG1	1:B:1345:ALA:HA	2.50	0.41
1:A:66:ARG:HD3	1:A:236:ASN:HA	2.02	0.41
1:A:636:VAL:CG2	1:A:637:GLY:N	2.83	0.41
1:B:1041:LYS:NZ	1:B:1050:ASP:OD2	2.49	0.41
1:B:1564:ASP:OD1	1:B:1664:GLU:OE2	2.38	0.41
1:B:1594:PRO:HG3	1:B:1635:MET:SD	2.60	0.41
1:A:53:PHE:CE1	1:A:188:PRO:HD3	2.54	0.41
1:A:610:ALA:HB3	1:A:613:TYR:HB2	2.01	0.41
1:B:1112:ILE:HG13	1:B:1119:ILE:HD13	2.02	0.41
1:B:1170:ILE:HG12	1:B:1646:GLU:CG	2.49	0.41
1:B:1207:GLU:O	1:B:1213:THR:HA	2.21	0.41
1:B:1610:ALA:HB3	1:B:1613:TYR:HB2	2.02	0.41
1:A:72:GLN:HE21	1:A:76:ASP:CG	2.23	0.41
1:B:1462:ILE:HD11	1:B:1715:ILE:CD1	2.51	0.41
1:B:1516:SER:O	1:B:1519:THR:HG23	2.19	0.41
1:B:1666:ILE:HG22	1:B:1711:PHE:CE2	2.55	0.41
1:A:564:ASP:OD1	1:A:664:GLU:OE2	2.39	0.41
1:A:66:ARG:HG2	1:A:236:ASN:O	2.21	0.41
1:B:1049:ARG:CZ	1:B:1053:PHE:HE2	2.34	0.41
1:B:1125:ILE:HD13	1:B:1125:ILE:HA	1.90	0.41
1:B:1191:LYS:HD2	1:B:1191:LYS:HA	1.80	0.41
1:B:1060:ARG:O	1:B:1063:LEU:HB2	2.21	0.41
1:A:49:ARG:HA	1:A:125:ILE:HG21	2.03	0.40
1:B:1527:ASP:HB3	1:B:1530:PHE:HB3	2.03	0.40
1:A:96:GLN:HE21	1:A:105:GLN:HE22	1.69	0.40
1:A:327:ASP:OD1	1:A:363:LYS:HE2	2.21	0.40
1:A:418:PHE:CE1	1:A:474:LEU:HD11	2.57	0.40
1:A:765:LEU:HG	1:A:774:PHE:CZ	2.56	0.40
1:B:1167:ASN:HD22	1:B:1647:ASN:HD21	1.69	0.40
1:B:1382:GLU:OE2	1:B:1770:ARG:NH2	2.54	0.40
1:B:1546:SER:O	1:B:1550:GLU:HG3	2.20	0.40
1:B:1066:ARG:HD3	1:B:1236:ASN:HA	2.02	0.40
1:B:1458:ILE:HG22	4:B:2076:HOH:O	2.21	0.40
1:B:1668:THR:OG1	1:B:1771:PHE:HB3	2.22	0.40
1:A:715:ILE:HG23	1:A:716:ASP:N	2.36	0.40
1:B:1418:PHE:CE1	1:B:1474:LEU:HD11	2.56	0.40
1:A:32:ASN:HD22	1:A:32:ASN:HA	1.71	0.40
1:A:57:HIS:HD2	4:A:2064:HOH:O	2.04	0.40
1:A:633:ASP:OD2	1:A:635:MET:HB3	2.22	0.40
1:B:1095:LEU:HB2	1:B:1126:GLU:OE1	2.22	0.40
1:B:1339:ASP:O	1:B:1342:PRO:HD2	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1789:GLN:HA	1:B:1792:MET:HE2	2.04	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	786/846 (93%)	739 (94%)	46 (6%)	1 (0%)	51 68
1	B	787/846 (93%)	738 (94%)	48 (6%)	1 (0%)	51 68
All	All	1573/1692 (93%)	1477 (94%)	94 (6%)	2 (0%)	51 68

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	95	LEU
1	B	1095	LEU

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	693/739 (94%)	618 (89%)	75 (11%)	6 9
1	B	693/739 (94%)	622 (90%)	71 (10%)	7 10
All	All	1386/1478 (94%)	1240 (90%)	146 (10%)	7 9

All (146) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	29	LYS
1	A	30	SER
1	A	42	ASP
1	A	44	ASN
1	A	77	LYS
1	A	78	CYS
1	A	90	TYR
1	A	95	LEU
1	A	102	LEU
1	A	104	LEU
1	A	128	ASP
1	A	138	ARG
1	A	150	LEU
1	A	191	LYS
1	A	193	ARG
1	A	205	LYS
1	A	211	THR
1	A	213	THR
1	A	214	LYS
1	A	243	LEU
1	A	245	SER
1	A	247	ARG
1	A	277	ARG
1	A	308	ILE
1	A	316	PHE
1	A	325	VAL
1	A	337	LEU
1	A	377	HIS
1	A	379	VAL
1	A	380	LEU
1	A	382	GLU
1	A	386	ARG
1	A	394	LYS
1	A	420	LYS
1	A	426	ARG
1	A	436	SER
1	A	453	ASN
1	A	466	LYS
1	A	475	GLU
1	A	480	GLN
1	A	499	LEU
1	A	502	LEU

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Mol	Chain	Res	Type
1	A	506	LYS
1	A	520	LYS
1	A	543	LEU
1	A	556	LYS
1	A	567	VAL
1	A	568	LYS
1	A	573	TYR
1	A	575	ARG
1	A	577	LEU
1	A	579	ASN
1	A	597	LEU
1	A	598	PHE
1	A	613	TYR
1	A	621	LYS
1	A	622	LEU
1	A	635	MET
1	A	645	LEU
1	A	652	LEU
1	A	683	LEU
1	A	689	ILE
1	A	708	LEU
1	A	715	ILE
1	A	729	LYS
1	A	733	GLU
1	A	735	LEU
1	A	753	LYS
1	A	756	ASP
1	A	759	LYS
1	A	765	LEU
1	A	770	ARG
1	A	782	LYS
1	A	786	LYS
1	A	795	LYS
1	B	1042	ASP
1	B	1044	ASN
1	B	1077	LYS
1	B	1078	CYS
1	B	1090	TYR
1	B	1095	LEU
1	B	1102	LEU
1	B	1104	LEU
1	B	1110	GLU

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Mol	Chain	Res	Type
1	B	1128	ASP
1	B	1138	ARG
1	B	1150	LEU
1	B	1191	LYS
1	B	1210	ASN
1	B	1214	LYS
1	B	1216	ILE
1	B	1243	LEU
1	B	1245	SER
1	B	1247	ARG
1	B	1277	ARG
1	B	1308	ILE
1	B	1316	PHE
1	B	1327	ASP
1	B	1337	LEU
1	B	1379	VAL
1	B	1386	ARG
1	B	1394	LYS
1	B	1420	LYS
1	B	1426	ARG
1	B	1436	SER
1	B	1453	ASN
1	B	1466	LYS
1	B	1475	GLU
1	B	1480	GLN
1	B	1499	LEU
1	B	1502	LEU
1	B	1506	LYS
1	B	1520	LYS
1	B	1543	LEU
1	B	1556	LYS
1	B	1567	VAL
1	B	1568	LYS
1	B	1575	ARG
1	B	1577	LEU
1	B	1579	ASN
1	B	1597	LEU
1	B	1598	PHE
1	B	1613	TYR
1	B	1621	LYS
1	B	1622	LEU
1	B	1635	MET

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Mol	Chain	Res	Type
1	B	1645	LEU
1	B	1652	LEU
1	B	1683	LEU
1	B	1689	ILE
1	B	1692	MET
1	B	1708	LEU
1	B	1715	ILE
1	B	1729	LYS
1	B	1733	GLU
1	B	1735	LEU
1	B	1753	LYS
1	B	1756	ASP
1	B	1759	LYS
1	B	1765	LEU
1	B	1770	ARG
1	B	1782	LYS
1	B	1786	LYS
1	B	1795	LYS
1	B	1830	SER
1	B	1831	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (48) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	32	ASN
1	A	34	HIS
1	A	44	ASN
1	A	62	HIS
1	A	72	GLN
1	A	97	ASN
1	A	105	GLN
1	A	106	ASN
1	A	114	GLN
1	A	167	ASN
1	A	239	ASN
1	A	270	ASN
1	A	274	ASN
1	A	284	ASN
1	A	305	GLN
1	A	369	GLN
1	A	410	HIS
1	A	450	HIS

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Mol	Chain	Res	Type
1	A	459	HIS
1	A	481	ASN
1	A	539	GLN
1	A	541	ASN
1	A	566	GLN
1	A	571	HIS
1	A	579	ASN
1	A	614	HIS
1	B	1032	ASN
1	B	1034	HIS
1	B	1044	ASN
1	B	1062	HIS
1	B	1072	GLN
1	B	1114	GLN
1	B	1167	ASN
1	B	1239	ASN
1	B	1270	ASN
1	B	1274	ASN
1	B	1284	ASN
1	B	1305	GLN
1	B	1369	GLN
1	B	1410	HIS
1	B	1459	HIS
1	B	1481	ASN
1	B	1539	GLN
1	B	1541	ASN
1	B	1566	GLN
1	B	1571	HIS
1	B	1579	ASN
1	B	1614	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

4 ligands are modelled in this entry.

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
2	NBG	B	1861	-	15,15,15	1.47	2 (13%)	21,21,21	1.31	3 (14%)
3	PLP	B	1860	1	15,15,16	1.92	4 (26%)	20,22,23	0.99	2 (10%)
2	NBG	A	861	-	15,15,15	1.22	1 (6%)	21,21,21	1.58	4 (19%)
3	PLP	A	860	1	15,15,16	1.86	3 (20%)	20,22,23	1.28	2 (10%)

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
2	NBG	B	1861	-	-	0/6/26/26	0/1/1/1
3	PLP	B	1860	1	-	0/6/6/8	0/1/1/1
2	NBG	A	861	-	-	0/6/26/26	0/1/1/1
3	PLP	A	860	1	-	2/6/6/8	0/1/1/1

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	1860	PLP	C4A-C4	-5.47	1.40	1.51
3	A	860	PLP	C4A-C4	-4.36	1.42	1.51
3	A	860	PLP	C3-C2	-3.91	1.37	1.40
2	B	1861	NBG	C2-C1	3.74	1.56	1.52
2	A	861	NBG	C2-C1	3.56	1.56	1.52
2	B	1861	NBG	C1-N1	2.71	1.46	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	1860	PLP	C5A-C5	2.24	1.57	1.50
3	A	860	PLP	P-O3P	-2.14	1.46	1.54
3	B	1860	PLP	P-O2P	-2.08	1.46	1.54
3	B	1860	PLP	C3-C2	-2.03	1.38	1.40

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	861	NBG	C5-O5-C1	4.73	118.93	112.52
2	B	1861	NBG	C5-O5-C1	3.97	117.90	112.52
2	A	861	NBG	C3-C2-C1	2.78	114.00	109.94
2	A	861	NBG	C2-C1-N1	-2.66	108.19	111.30
2	B	1861	NBG	C3-C2-C1	2.44	113.49	109.94
2	A	861	NBG	O5-C1-C2	2.35	112.19	109.83
2	B	1861	NBG	C2-C1-N1	-2.32	108.58	111.30
3	B	1860	PLP	O2P-P-O4P	-2.30	100.60	106.73
3	A	860	PLP	O3P-P-O2P	2.13	115.79	107.64
3	B	1860	PLP	O3P-P-O2P	2.07	115.55	107.64
3	A	860	PLP	C5A-C5-C6	-2.06	115.99	119.37

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	860	PLP	C6-C5-C5A-O4P
3	A	860	PLP	C4-C5-C5A-O4P

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	792/846 (93%)	-0.57	6 (0%) 86 84	15, 31, 57, 101	0
1	B	793/846 (93%)	-0.52	8 (1%) 82 80	16, 32, 60, 101	0
All	All	1585/1692 (93%)	-0.54	14 (0%) 84 82	15, 32, 59, 101	0

All (14) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	1831	ASP	4.9
1	B	1316	PHE	4.7
1	A	831	ASP	4.7
1	B	1420	LYS	4.0
1	A	598	PHE	3.7
1	A	434	GLU	3.3
1	B	1554	LYS	3.1
1	B	1598	PHE	3.1
1	A	597	LEU	2.8
1	A	828	GLU	2.7
1	B	1830	SER	2.7
1	B	1597	LEU	2.4
1	A	316	PHE	2.3
1	B	1324	THR	2.0

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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
2	NBG	B	1861	15/15	0.96	0.12	17,31,35,38	0
2	NBG	A	861	15/15	0.98	0.11	14,23,31,32	0
3	PLP	B	1860	15/16	0.98	0.09	14,19,31,34	0
3	PLP	A	860	15/16	0.99	0.09	3,13,26,31	0

6.5 Other polymers [i](#)

There are no such residues in this entry.