



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 16, 2021 – 11:01 PM EDT

PDB ID : 1NT4
Title : Crystal structure of Escherichia coli periplasmic glucose-1-phosphatase H18A mutant complexed with glucose-1-phosphate
Authors : Lee, D.C.; Cottrill, M.A.; Forsberg, C.W.; Jia, Z.; Montreal-Kingston Bacterial Structural Genomics Initiative (BSGI)
Deposited on : 2003-01-28
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 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) : 2.23.2

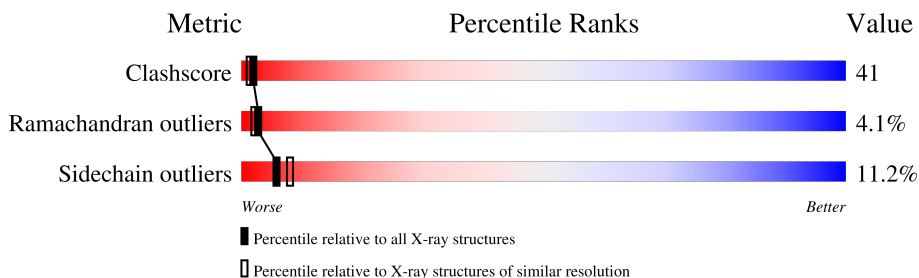
1 Overall quality at a glance

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))
Clashscore	141614	4398 (2.40-2.40)
Ramachandran outliers	138981	4318 (2.40-2.40)
Sidechain outliers	138945	4319 (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 $\leq 5\%$.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	391	
1	B	391	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	XGP	A	2000	-	-	X	-
2	XGP	B	2001	-	-	X	-

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 6499 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.

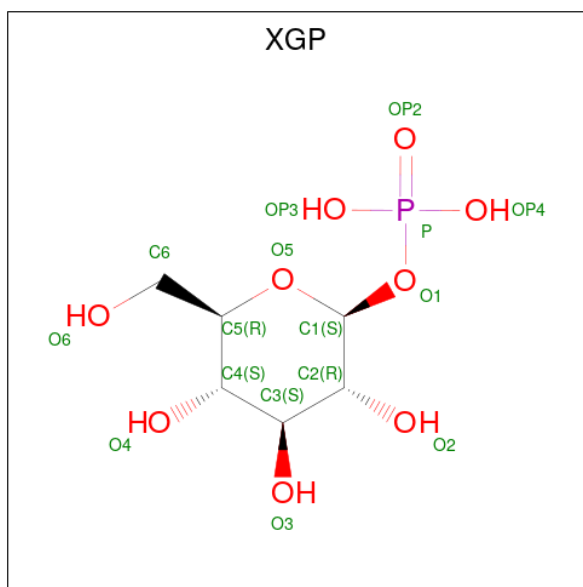
- Molecule 1 is a protein called Glucose-1-phosphatase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	391	Total 3058	C 1935	N 513	O 593	S 17	0	0	0
1	B	391	Total 3058	C 1935	N 513	O 593	S 17	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	18	ALA	HIS	engineered mutation	UNP P19926
B	1018	ALA	HIS	engineered mutation	UNP P19926

- Molecule 2 is 1-O-phosphono-beta-D-glucopyranose (three-letter code: XGP) (formula: $C_6H_{13}O_9P$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O	P		
2	A	1	Total 16	C 6	O 9	P 1	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	B	1	Total	C	O	P	0	0
			16	6	9	1		

- Molecule 3 is water.

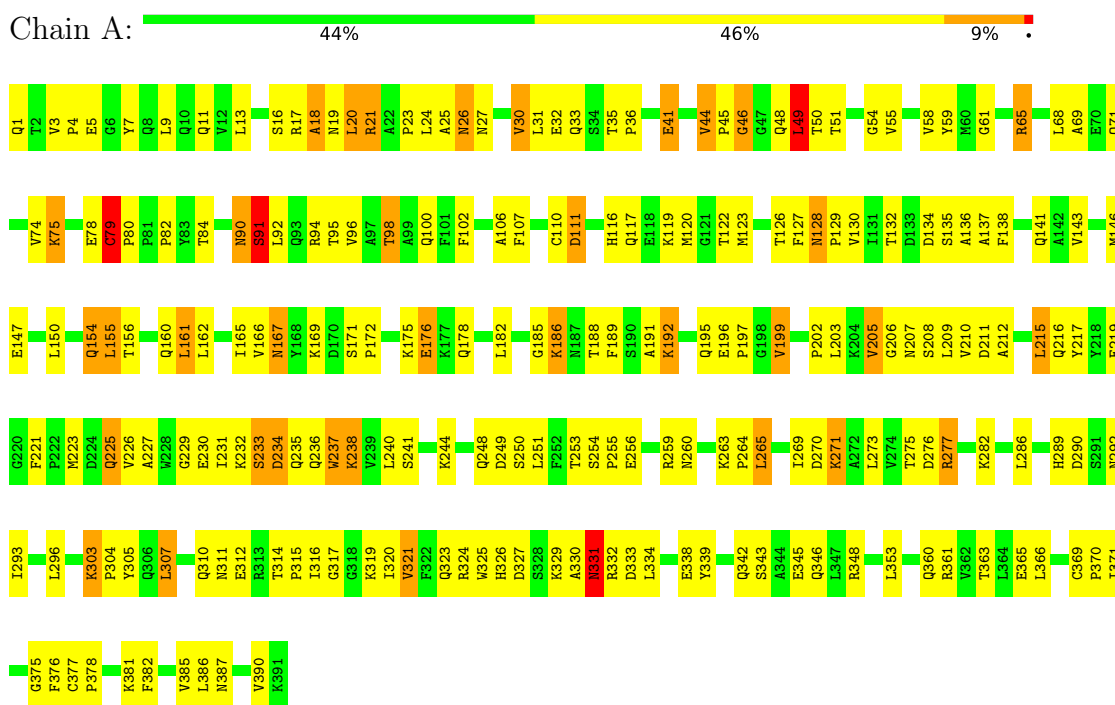
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	181	Total	O	0	0
			181	181		
3	B	170	Total	O	0	0
			170	170		

3 Residue-property plots [i](#)

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. 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: Glucose-1-phosphatase



- Molecule 1: Glucose-1-phosphatase



S1233	T1314	K1391	S1234	P1315	R1324	S1235	W1325	E1338	T1269	L1243	P1264	I1269	D1270	Q1356	P1281	L1286	V1287	C1369	L1293	L1297	L1298	Y1305	P1377	P1378	D1236	I1316	H1326	H1327	H1328	F1329	K1329	A1330	M1331	R1332	D1333	L1334	M1335	E1339	Y1339	Y1340	Y1341	Q1342	S1343	Q1346	L1347	R1348	T1354	L1355	Q1356	A1357	P1358	A1359	Q1360	R1361	V1362	T1363	L1364	E1365	L1366	C1369	P1370	L1371	C1377	P1378	F1382	D1383	S1384	V1385	L1386	M1387	E1388	I1271	K1272	V1274	T1275	D1276	R1277	I1282	I1283	L1287	H1288	D1289	S1291	I1292	I1293	L1297	T1298	Y1306	L1307	H1308	D1309	Q1310	M1311	E1312	R1313
-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------

4 Data and refinement statistics

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

Property	Value	Source
Space group	H 3	Depositor
Cell constants a, b, c, α , β , γ	156.26Å 156.26Å 84.58Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	30.00 – 2.40	Depositor
% Data completeness (in resolution range)	91.9 (30.00-2.40)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	0.08	Depositor
Refinement program	CNS	Depositor
R, R_{free}	0.218 , 0.284	Depositor
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	6499	wwPDB-VP
Average B, all atoms (Å ²)	30.0	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: XGP

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	0.39	0/3128	0.66	1/4248 (0.0%)
1	B	0.40	0/3128	0.68	1/4248 (0.0%)
All	All	0.40	0/6256	0.67	2/8496 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	49	LEU	CA-CB-CG	6.42	130.07	115.30
1	B	1356	GLN	N-CA-C	-5.17	97.06	111.00

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	A	3058	0	2996	243	0
1	B	3058	0	2993	256	0
2	A	16	0	10	6	0
2	B	16	0	10	6	0
3	A	181	0	0	21	0
3	B	170	0	0	14	0
All	All	6499	0	6009	501	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 41.

All (501) 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:A:332:ARG:HH12	1:A:334:LEU:HD11	1.17	1.08
1:A:223:MET:HB3	1:A:232:LYS:HD2	1.37	1.07
1:A:186:LYS:H	1:A:186:LYS:HD2	1.19	1.03
1:B:1231:ILE:CD1	1:B:1232:LYS:H	1.73	1.02
1:B:1277:ARG:HD2	1:B:1324:ARG:HH21	1.26	1.00
1:B:1231:ILE:HD13	1:B:1232:LYS:H	1.25	1.00
1:B:1031:LEU:HD13	1:B:1209:LEU:HD12	1.44	0.98
1:B:1186:LYS:HG2	1:B:1187:ASN:H	1.29	0.98
1:A:199:VAL:HG22	1:A:251:LEU:HD21	1.48	0.96
1:A:92:LEU:O	1:A:96:VAL:HG12	1.67	0.95
1:B:1186:LYS:O	1:B:1187:ASN:HB2	1.67	0.94
1:B:1343:SER:H	1:B:1346:GLN:HE21	1.00	0.93
1:B:1310:GLN:HG2	1:B:1315:PRO:HG3	1.50	0.92
1:B:1227:ALA:HB3	1:B:1231:ILE:HG13	1.51	0.92
1:B:1343:SER:H	1:B:1346:GLN:NE2	1.68	0.91
1:B:1293:ILE:HG23	1:B:1320:ILE:HD11	1.51	0.91
1:B:1289:HIS:CG	2:B:2001:XGP:O6	2.24	0.91
1:A:49:LEU:HD23	1:A:98:THR:HG22	1.55	0.89
1:A:199:VAL:HG11	1:A:203:LEU:HD23	1.56	0.87
1:A:169:LYS:O	1:A:169:LYS:HD3	1.75	0.86
2:A:2000:XGP:H6	3:A:3181:HOH:O	1.74	0.86
1:B:1011:GLN:HE21	1:B:1277:ARG:HD3	1.41	0.85
1:B:1277:ARG:HD2	1:B:1324:ARG:NH2	1.91	0.85
1:B:1343:SER:N	1:B:1346:GLN:HE21	1.75	0.85
1:B:1019:ASN:HD22	1:B:1020:LEU:H	1.19	0.84
1:B:1146:MET:HE1	1:B:1197:PRO:O	1.76	0.84
1:A:90:ASN:H	1:A:90:ASN:HD22	1.22	0.84
1:B:1234:ASP:OD2	1:B:1236:GLN:HG3	1.79	0.83
1:B:1005:GLU:CD	1:B:1006:GLY:H	1.81	0.82
1:A:332:ARG:NH1	1:A:334:LEU:HD11	1.95	0.81
1:A:132:THR:H	1:A:260:ASN:HD21	1.27	0.80
1:A:310:GLN:HG2	1:A:315:PRO:HG3	1.62	0.79
1:A:5:GLU:CD	1:A:5:GLU:H	1.85	0.79
1:A:35:THR:HB	1:A:166:VAL:HG13	1.65	0.79
1:B:1226:VAL:O	1:B:1231:ILE:HD11	1.83	0.78
1:B:1289:HIS:ND1	2:B:2001:XGP:OP4	2.15	0.78
1:A:79:CYS:SG	1:A:80:PRO:HD2	2.25	0.77

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:192:LYS:CD	1:A:195:GLN:HB2	2.14	0.77
1:A:289:HIS:CG	2:A:2000:XGP:O6	2.37	0.77
1:B:1238:LYS:HD2	1:B:1311:ASN:ND2	2.00	0.77
1:A:186:LYS:H	1:A:186:LYS:CD	1.89	0.77
1:B:1332:ARG:HE	1:B:1334:LEU:HD21	1.50	0.76
1:B:1132:THR:H	1:B:1260:ASN:HD21	1.33	0.76
1:B:1192:LYS:HD3	1:B:1195:GLN:NE2	2.01	0.76
1:A:366:LEU:HD23	1:A:385:VAL:HG11	1.68	0.75
1:B:1031:LEU:HD12	1:B:1039:TRP:CZ2	2.21	0.74
1:A:303:LYS:HG3	1:A:304:PRO:HD2	1.69	0.74
1:A:19:ASN:HD22	1:A:20:LEU:H	1.33	0.74
1:A:227:ALA:HB3	1:A:231:ILE:HG22	1.68	0.73
1:B:1169:LYS:O	1:B:1170:ASP:HB2	1.88	0.73
1:A:90:ASN:HB3	1:A:127:PHE:CD2	2.24	0.73
1:A:119:LYS:HE2	1:A:122:THR:HG21	1.69	0.73
1:B:1238:LYS:HD2	1:B:1311:ASN:HD21	1.50	0.72
1:B:1265:LEU:O	1:B:1269:ILE:HG12	1.89	0.72
1:A:186:LYS:HD2	1:A:186:LYS:N	1.98	0.72
1:B:1186:LYS:HD2	1:B:1186:LYS:N	2.05	0.72
1:B:1231:ILE:CD1	1:B:1232:LYS:N	2.52	0.72
1:B:1270:ASP:O	1:B:1274:VAL:HG13	1.90	0.72
1:A:161:LEU:HD11	1:A:236:GLN:HB3	1.71	0.71
1:A:265:LEU:O	1:A:269:ILE:HG12	1.90	0.71
1:A:17:ARG:HD2	1:A:314:THR:HG22	1.73	0.71
1:A:25:ALA:HB2	1:A:46:GLY:HA2	1.73	0.71
1:A:233:SER:HB3	1:A:236:GLN:NE2	2.06	0.71
1:B:1186:LYS:HD2	1:B:1186:LYS:H	1.54	0.71
1:A:90:ASN:HB3	1:A:127:PHE:HD2	1.56	0.71
1:B:1146:MET:CE	1:B:1197:PRO:HB2	2.21	0.71
1:A:51:THR:O	1:A:55:VAL:HG23	1.90	0.71
1:B:1088:TYR:O	1:B:1089:ALA:HB3	1.91	0.71
1:A:377:CYS:SG	1:A:378:PRO:HD2	2.30	0.70
1:B:1186:LYS:CG	1:B:1187:ASN:H	2.03	0.70
1:B:1293:ILE:HG23	1:B:1320:ILE:CD1	2.22	0.70
1:A:44:VAL:HG13	1:A:48:GLN:HB2	1.74	0.70
1:B:1135:SER:HB3	1:B:1138:PHE:HB3	1.72	0.69
1:A:249:ASP:O	1:A:253:THR:HB	1.92	0.69
1:B:1031:LEU:HD12	1:B:1039:TRP:CH2	2.27	0.69
1:A:166:VAL:HG21	1:A:209:LEU:HD23	1.75	0.69
1:B:1231:ILE:O	1:B:1233:SER:N	2.26	0.69
1:B:1110:CYS:O	1:B:1111:ASP:HB2	1.93	0.68

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:17:ARG:O	1:A:17:ARG:HG2	1.93	0.68
1:A:165:ILE:HG23	1:A:230:GLU:CB	2.24	0.68
1:A:18:ALA:HA	1:A:98:THR:HG21	1.76	0.68
1:B:1249:ASP:O	1:B:1253:THR:HB	1.94	0.68
1:B:1289:HIS:CB	2:B:2001:XGP:O6	2.41	0.68
1:A:192:LYS:HD3	1:A:195:GLN:HB2	1.75	0.68
1:A:123:MET:HE3	1:A:128:ASN:HA	1.76	0.67
1:B:1049:LEU:HD13	1:B:1050:THR:O	1.93	0.67
1:A:143:VAL:O	1:A:147:GLU:HG3	1.95	0.67
1:B:1314:THR:O	1:B:1314:THR:HG22	1.95	0.67
1:B:1018:ALA:O	1:B:1316:ILE:O	2.12	0.66
1:A:223:MET:HE2	1:A:223:MET:HA	1.77	0.66
1:B:1227:ALA:CB	1:B:1231:ILE:HG13	2.24	0.66
1:B:1020:LEU:O	1:B:1049:LEU:O	2.13	0.66
1:B:1098:THR:HG23	1:B:1287:VAL:HG11	1.78	0.66
1:A:94:ARG:O	1:A:98:THR:HG23	1.96	0.66
1:B:1290:ASP:HB2	1:B:1314:THR:HG21	1.78	0.66
1:B:1186:LYS:HG2	1:B:1187:ASN:N	2.08	0.65
1:A:226:VAL:HG23	1:A:226:VAL:O	1.96	0.65
1:B:1186:LYS:H	1:B:1186:LYS:HZ3	1.42	0.65
1:A:18:ALA:O	1:A:316:ILE:O	2.15	0.65
1:B:1015:MET:HG3	1:B:1293:ILE:CD1	2.26	0.65
1:B:1371:ILE:HD11	3:B:3175:HOH:O	1.96	0.65
1:A:270:ASP:HB2	1:A:386:LEU:HB3	1.79	0.65
1:A:233:SER:HB3	1:A:236:GLN:HE21	1.61	0.65
1:A:175:LYS:O	1:A:176:GLU:HB2	1.97	0.65
1:A:19:ASN:ND2	1:A:20:LEU:H	1.95	0.65
1:B:1011:GLN:NE2	1:B:1277:ARG:NH1	2.45	0.65
1:B:1128:ASN:HD22	1:B:1129:PRO:HD2	1.61	0.65
1:A:96:VAL:O	1:A:100:GLN:HG3	1.95	0.64
1:B:1119:LYS:HD3	1:B:1122:THR:HG21	1.79	0.64
1:A:20:LEU:HD11	1:A:219:GLU:HA	1.78	0.64
1:A:65:ARG:HH21	1:A:74:VAL:HG11	1.61	0.64
1:A:192:LYS:HD2	1:A:192:LYS:O	1.98	0.64
1:B:1186:LYS:H	1:B:1186:LYS:CD	2.11	0.64
1:B:1172:PRO:O	1:B:1176:GLU:HB3	1.98	0.63
1:A:20:LEU:HD23	1:A:215:LEU:HD12	1.81	0.63
1:B:1384:SER:O	1:B:1388:GLU:HB2	1.99	0.63
1:B:1175:LYS:HD2	1:B:1175:LYS:O	1.98	0.63
1:A:156:THR:O	1:A:160:GLN:HG3	1.99	0.62
1:A:212:ALA:O	1:A:216:GLN:HG3	1.98	0.62

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:175:LYS:O	1:A:176:GLU:CB	2.47	0.62
1:A:255:PRO:HG2	1:A:256:GLU:OE2	1.99	0.62
1:A:254:SER:HB3	3:A:3061:HOH:O	2.00	0.62
1:B:1366:LEU:HD23	1:B:1385:VAL:HG11	1.81	0.62
1:A:223:MET:HA	1:A:223:MET:CE	2.29	0.62
1:A:221:PHE:HB3	1:A:225:GLN:HB3	1.82	0.62
1:A:343:SER:H	1:A:346:GLN:NE2	1.98	0.62
1:B:1088:TYR:O	1:B:1115:HIS:O	2.18	0.61
1:B:1202:PRO:HA	1:B:1205:VAL:CG1	2.30	0.61
1:B:1346:GLN:NE2	1:B:1360:GLN:HE21	1.98	0.61
1:B:1289:HIS:CD2	2:B:2001:XGP:O6	2.53	0.61
1:B:1086:TYR:HB2	1:B:1281:PRO:HG3	1.82	0.61
1:A:231:ILE:HG13	1:A:240:LEU:HD12	1.83	0.61
1:B:1310:GLN:NE2	1:B:1312:GLU:HG2	2.15	0.61
1:A:232:LYS:O	1:A:233:SER:HB3	1.99	0.61
1:A:146:MET:HG2	1:A:250:SER:O	2.00	0.61
1:B:1212:ALA:O	1:B:1216:GLN:HG3	2.00	0.61
1:A:21:ARG:HA	1:A:49:LEU:HA	1.82	0.61
1:A:165:ILE:HG23	1:A:230:GLU:HB2	1.83	0.61
1:B:1186:LYS:HB3	1:B:1186:LYS:HZ2	1.65	0.61
1:B:1015:MET:HG3	1:B:1293:ILE:HD13	1.83	0.60
1:B:1165:ILE:HG23	1:B:1230:GLU:HB2	1.83	0.60
1:B:1310:GLN:HE21	1:B:1312:GLU:H	1.50	0.60
1:A:21:ARG:NH2	1:A:24:LEU:HD13	2.17	0.60
1:B:1090:ASN:N	1:B:1095:THR:HG21	2.16	0.60
1:B:1253:THR:O	1:B:1298:THR:HG21	2.01	0.60
1:B:1219:GLU:HA	1:B:1219:GLU:OE1	2.02	0.59
1:A:277:ARG:HB3	1:A:324:ARG:HH12	1.66	0.59
1:B:1011:GLN:HB3	1:B:1277:ARG:NH1	2.17	0.59
1:A:192:LYS:HD3	1:A:195:GLN:OE1	2.02	0.59
1:B:1098:THR:CG2	1:B:1287:VAL:HG11	2.33	0.59
1:B:1255:PRO:O	1:B:1259:ARG:HG2	2.01	0.59
1:A:273:LEU:O	1:A:277:ARG:HG2	2.03	0.59
1:B:1019:ASN:ND2	1:B:1020:LEU:H	1.97	0.59
1:A:21:ARG:HD2	1:A:94:ARG:HD2	1.85	0.59
1:A:71:GLN:OE1	1:A:325:TRP:HH2	1.86	0.59
1:A:165:ILE:HG23	1:A:230:GLU:HB3	1.84	0.58
1:A:232:LYS:HG3	3:A:3040:HOH:O	2.02	0.58
1:A:126:THR:O	1:A:265:LEU:HD13	2.03	0.58
1:A:303:LYS:HB2	1:A:303:LYS:NZ	2.19	0.58
1:B:1138:PHE:HA	1:B:1141:GLN:NE2	2.19	0.58

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1146:MET:HE3	1:B:1197:PRO:HB2	1.86	0.58
1:A:227:ALA:HB3	1:A:231:ILE:CG2	2.33	0.58
1:A:334:LEU:HD23	1:A:378:PRO:HA	1.86	0.58
1:B:1192:LYS:HD2	1:B:1192:LYS:O	2.04	0.58
1:B:1078:GLU:O	1:B:1079:CYS:HB2	2.02	0.58
1:A:5:GLU:CD	1:A:5:GLU:N	2.57	0.58
1:B:1316:ILE:CG2	1:B:1317:GLY:N	2.67	0.58
1:B:1192:LYS:CD	1:B:1195:GLN:HB2	2.34	0.57
1:B:1135:SER:HB3	1:B:1138:PHE:CB	2.33	0.57
1:B:1290:ASP:CB	1:B:1314:THR:HG21	2.34	0.57
1:B:1316:ILE:HG23	1:B:1317:GLY:N	2.18	0.57
1:A:231:ILE:HG13	1:A:240:LEU:CD1	2.35	0.57
1:B:1098:THR:HB	3:B:3183:HOH:O	2.04	0.57
1:A:110:CYS:O	1:A:111:ASP:CB	2.53	0.57
1:B:1020:LEU:O	1:B:1049:LEU:HD22	2.04	0.57
1:B:1057:GLU:OE2	1:B:1102:PHE:HB2	2.05	0.57
1:B:1217:TYR:CE2	1:B:1348:ARG:HG3	2.39	0.57
1:A:65:ARG:HH21	1:A:74:VAL:CG1	2.18	0.57
1:B:1174:CYS:O	1:B:1178:GLN:HA	2.04	0.57
1:B:1343:SER:OG	1:B:1346:GLN:HG3	2.05	0.56
1:A:17:ARG:NH2	1:A:316:ILE:HA	2.21	0.56
1:A:49:LEU:HD13	1:A:50:THR:O	2.04	0.56
1:A:269:ILE:CG2	1:A:273:LEU:HD22	2.36	0.56
1:B:1021:ARG:NH1	1:B:1024:LEU:HD13	2.20	0.56
1:A:74:VAL:HG12	1:A:75:LYS:N	2.21	0.56
1:A:84:THR:HG23	1:A:282:LYS:HD2	1.86	0.56
1:A:21:ARG:CZ	1:A:24:LEU:HD13	2.36	0.56
1:B:1011:GLN:HE21	1:B:1277:ARG:CD	2.16	0.56
1:B:1134:ASP:HB3	1:B:1193:TYR:CG	2.41	0.56
1:B:1015:MET:HE3	1:B:1265:LEU:HG	1.88	0.56
1:B:1142:ALA:O	1:B:1146:MET:HG3	2.07	0.56
1:B:1227:ALA:HB3	1:B:1231:ILE:CG1	2.32	0.55
1:B:1165:ILE:HG23	1:B:1230:GLU:CB	2.36	0.55
1:A:27:ASN:O	1:A:31:LEU:HD13	2.06	0.55
1:A:165:ILE:HD13	1:A:231:ILE:HA	1.87	0.55
1:A:271:LYS:HA	1:A:275:THR:OG1	2.07	0.55
1:A:4:PRO:HG2	1:A:7:TYR:CE1	2.41	0.55
1:A:381:LYS:O	1:A:385:VAL:HG23	2.07	0.55
1:A:290:ASP:HA	1:A:314:THR:HG21	1.89	0.55
2:A:2000:XGP:C6	3:A:3181:HOH:O	2.44	0.55
1:B:1202:PRO:HA	1:B:1205:VAL:HG13	1.89	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1075:LYS:HE2	1:B:1075:LYS:HA	1.89	0.54
1:A:90:ASN:HD21	1:A:95:THR:HG21	1.71	0.54
1:B:1011:GLN:CB	1:B:1277:ARG:NH1	2.70	0.54
1:B:1223:MET:SD	1:B:1348:ARG:NH2	2.80	0.54
1:A:189:PHE:CE1	1:A:199:VAL:HG13	2.42	0.54
1:A:202:PRO:HA	1:A:205:VAL:CG1	2.38	0.54
1:A:303:LYS:HG3	1:A:304:PRO:CD	2.37	0.54
1:B:1006:GLY:O	1:B:1007:TYR:HB2	2.08	0.54
1:B:1186:LYS:N	1:B:1186:LYS:HZ3	2.06	0.53
1:B:1297:LEU:CD1	1:B:1320:ILE:HD13	2.38	0.53
1:B:1086:TYR:CB	1:B:1281:PRO:HG3	2.39	0.53
1:B:1232:LYS:O	1:B:1233:SER:C	2.46	0.53
1:B:1065:ARG:HG2	1:B:1065:ARG:HH11	1.73	0.53
1:A:321:VAL:O	1:A:321:VAL:CG2	2.56	0.53
1:A:365:GLU:OE1	1:A:370:PRO:HA	2.09	0.53
1:A:17:ARG:O	1:A:17:ARG:CG	2.56	0.53
1:A:248:GLN:HE22	1:A:290:ASP:HB2	1.73	0.53
1:A:21:ARG:HH21	1:A:23:PRO:HA	1.73	0.53
1:A:91:SER:HB2	1:A:120:MET:HA	1.91	0.53
1:B:1271:LYS:HA	1:B:1275:THR:OG1	2.08	0.53
1:B:1085:VAL:HG13	1:B:1283:ILE:HG22	1.91	0.52
1:A:263:LYS:HE2	1:A:264:PRO:HD3	1.90	0.52
1:B:1186:LYS:HB3	1:B:1186:LYS:NZ	2.24	0.52
1:A:175:LYS:NZ	1:A:175:LYS:HB3	2.24	0.52
1:A:310:GLN:HE21	1:A:312:GLU:HG2	1.74	0.52
1:B:1123:MET:HE2	1:B:1128:ASN:HA	1.91	0.52
1:B:1153:LEU:HB3	1:B:1155:LEU:HD13	1.91	0.52
1:A:75:LYS:N	1:A:75:LYS:HD3	2.25	0.52
1:B:1146:MET:HE1	1:B:1197:PRO:HB2	1.91	0.52
1:A:41:GLU:HG2	3:A:3057:HOH:O	2.10	0.52
1:A:44:VAL:CG1	1:A:48:GLN:HB2	2.39	0.52
1:B:1199:VAL:HG22	1:B:1200:SER:N	2.25	0.52
1:B:1162:LEU:O	1:B:1166:VAL:HB	2.09	0.52
1:A:74:VAL:CG1	1:A:75:LYS:N	2.73	0.52
1:A:74:VAL:HG13	3:A:3030:HOH:O	2.10	0.52
1:B:1011:GLN:HB3	1:B:1277:ARG:HH12	1.73	0.52
1:B:1015:MET:CE	1:B:1265:LEU:HG	2.40	0.52
1:B:1116:HIS:HD2	1:B:1117:GLN:O	1.91	0.52
1:A:90:ASN:HD22	1:A:90:ASN:N	1.94	0.52
1:A:24:LEU:HG	1:A:26:ASN:ND2	2.25	0.52
1:A:75:LYS:HG2	3:A:3030:HOH:O	2.08	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:223:MET:HE3	1:A:348:ARG:NH2	2.25	0.51
1:A:235:GLN:OE1	1:A:235:GLN:HA	2.10	0.51
1:A:320:ILE:N	1:A:320:ILE:HD12	2.25	0.51
1:B:1186:LYS:N	1:B:1186:LYS:CD	2.73	0.51
1:A:17:ARG:CZ	1:A:316:ILE:HD12	2.40	0.51
1:A:165:ILE:HD12	1:A:240:LEU:HD11	1.92	0.51
1:A:69:ALA:HA	1:A:74:VAL:O	2.09	0.51
1:B:1088:TYR:O	1:B:1089:ALA:CB	2.56	0.51
1:A:137:ALA:O	1:A:141:GLN:HG3	2.11	0.51
1:A:205:VAL:O	1:A:209:LEU:HD13	2.11	0.51
1:B:1167:ASN:O	1:B:1169:LYS:O	2.28	0.51
1:A:110:CYS:O	1:A:111:ASP:HB2	2.10	0.51
1:A:128:ASN:HD22	1:A:129:PRO:HD2	1.74	0.51
1:B:1065:ARG:HE	1:B:1074:VAL:CG1	2.23	0.51
1:A:49:LEU:CD2	1:A:98:THR:HG22	2.35	0.51
1:B:1005:GLU:CD	1:B:1006:GLY:N	2.60	0.51
1:A:263:LYS:HE2	3:A:3038:HOH:O	2.10	0.51
1:A:217:TYR:CE2	1:A:348:ARG:HD2	2.46	0.51
1:B:1074:VAL:HG22	1:B:1080:PRO:HB3	1.93	0.51
1:A:134:ASP:HA	3:A:3154:HOH:O	2.10	0.50
1:A:192:LYS:HD3	1:A:195:GLN:CB	2.41	0.50
1:A:4:PRO:HG2	1:A:7:TYR:CD1	2.46	0.50
1:B:1365:GLU:HB2	1:B:1371:ILE:HD12	1.93	0.50
1:A:155:LEU:N	1:A:155:LEU:HD22	2.27	0.50
1:B:1066:GLU:HB3	1:B:1355:LEU:HG	1.93	0.50
1:B:1277:ARG:CZ	1:B:1324:ARG:HE	2.25	0.50
1:A:11:GLN:NE2	1:A:324:ARG:NH1	2.60	0.50
1:B:1326:HIS:HE1	1:B:1328:SER:HA	1.76	0.50
1:A:333:ASP:O	1:A:334:LEU:HD23	2.11	0.50
1:A:17:ARG:O	1:A:18:ALA:O	2.29	0.50
1:A:18:ALA:CA	1:A:98:THR:HG21	2.40	0.50
1:A:146:MET:HE3	1:A:197:PRO:HB2	1.93	0.50
1:B:1231:ILE:HD12	1:B:1232:LYS:H	1.72	0.50
1:A:256:GLU:HA	1:A:259:ARG:NH2	2.27	0.49
1:B:1011:GLN:NE2	1:B:1277:ARG:HD3	2.20	0.49
1:B:1155:LEU:HG	1:B:1243:LEU:HD23	1.93	0.49
1:B:1088:TYR:HB3	1:B:1286:LEU:HD12	1.93	0.49
1:B:1186:LYS:H	1:B:1186:LYS:NZ	2.10	0.49
1:B:1377:CYS:SG	1:B:1378:PRO:HD2	2.52	0.49
1:B:1139:SER:O	1:B:1143:VAL:HG23	2.12	0.49
1:B:1143:VAL:O	1:B:1147:GLU:HG3	2.12	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1155:LEU:O	1:B:1157:ASP:N	2.46	0.49
1:B:1192:LYS:HD3	1:B:1195:GLN:CD	2.32	0.49
1:B:1335:MET:HG2	1:B:1382:PHE:CD1	2.48	0.49
1:B:1231:ILE:O	1:B:1232:LYS:C	2.50	0.49
1:A:3:VAL:HG21	1:A:325:TRP:CZ3	2.48	0.49
1:A:167:ASN:C	1:A:167:ASN:HD22	2.16	0.49
1:A:226:VAL:O	1:A:226:VAL:CG2	2.60	0.49
1:A:343:SER:H	1:A:346:GLN:HE21	1.59	0.49
1:B:1291:SER:OG	2:B:2001:XGP:H5	2.13	0.49
1:A:232:LYS:O	1:A:236:GLN:NE2	2.46	0.49
1:B:1207:ASN:O	1:B:1211:ASP:HB2	2.13	0.49
1:B:1231:ILE:HD12	1:B:1232:LYS:N	2.28	0.48
1:A:221:PHE:O	1:A:348:ARG:NH2	2.46	0.48
1:B:1146:MET:HE2	1:B:1251:LEU:HA	1.94	0.48
1:B:1226:VAL:O	1:B:1226:VAL:HG13	2.13	0.48
1:B:1310:GLN:HE21	1:B:1312:GLU:HG2	1.77	0.48
1:A:206:GLY:O	1:A:210:VAL:HG23	2.13	0.48
1:A:59:TYR:HB3	1:A:353:LEU:HB2	1.96	0.48
1:B:1169:LYS:HG2	3:B:3186:HOH:O	2.14	0.48
1:A:20:LEU:HD11	1:A:219:GLU:CA	2.43	0.48
1:A:79:CYS:SG	1:A:107:PHE:HB3	2.53	0.48
1:B:1049:LEU:O	1:B:1050:THR:HG23	2.14	0.48
1:B:1031:LEU:HD21	3:B:3012:HOH:O	2.14	0.48
1:B:1186:LYS:O	1:B:1187:ASN:CB	2.49	0.48
1:A:248:GLN:NE2	1:A:290:ASP:HB2	2.29	0.48
1:B:1020:LEU:HA	1:B:1316:ILE:HG12	1.96	0.48
1:B:1159:TYR:O	1:B:1163:GLU:HG3	2.14	0.48
1:A:21:ARG:O	1:A:215:LEU:HG	2.14	0.47
1:A:305:TYR:CD1	1:A:307:LEU:HD13	2.49	0.47
1:B:1192:LYS:HD2	1:B:1195:GLN:HB2	1.96	0.47
1:A:30:VAL:HG12	3:A:3091:HOH:O	2.14	0.47
1:A:45:PRO:O	1:A:46:GLY:C	2.52	0.47
1:B:1049:LEU:HD23	3:B:3183:HOH:O	2.13	0.47
1:A:13:LEU:HD23	1:A:13:LEU:C	2.34	0.47
1:A:33:GLN:O	1:A:171:SER:HB2	2.14	0.47
1:A:35:THR:HA	1:A:171:SER:HB3	1.96	0.47
1:A:303:LYS:CG	1:A:304:PRO:HD2	2.42	0.47
1:A:155:LEU:HD22	1:A:155:LEU:H	1.79	0.47
1:A:326:HIS:NE2	1:A:331:ASN:ND2	2.63	0.47
1:A:332:ARG:NH1	1:A:334:LEU:HD21	2.30	0.47
1:B:1094:ARG:O	1:B:1098:THR:HG22	2.14	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1146:MET:CE	1:B:1251:LEU:HA	2.45	0.47
1:B:1270:ASP:OD1	1:B:1386:LEU:HB3	2.14	0.47
1:B:1310:GLN:HG2	1:B:1315:PRO:CG	2.34	0.47
1:A:130:VAL:HB	1:A:195:GLN:N	2.30	0.47
1:A:289:HIS:CB	2:A:2000:XGP:O6	2.62	0.47
1:A:321:VAL:CG2	1:A:323:GLN:HE21	2.28	0.47
1:B:1033:GLN:HA	1:B:1172:PRO:HG2	1.97	0.47
1:B:1357:ALA:N	1:B:1358:PRO:HD3	2.29	0.47
1:A:271:LYS:O	1:A:276:ASP:HB2	2.15	0.47
1:A:342:GLN:HA	1:A:346:GLN:NE2	2.30	0.47
1:B:1161:LEU:O	1:B:1165:ILE:HG12	2.15	0.47
1:A:21:ARG:HD2	1:A:94:ARG:CD	2.44	0.47
1:A:314:THR:HG22	1:A:314:THR:O	2.15	0.47
1:B:1060:MET:HE1	1:B:1341:TYR:HA	1.96	0.47
1:A:231:ILE:HG12	1:A:231:ILE:O	2.15	0.46
1:A:386:LEU:O	1:A:390:VAL:HG23	2.15	0.46
1:B:1289:HIS:HB2	2:B:2001:XGP:O6	2.14	0.46
1:B:1326:HIS:CE1	1:B:1328:SER:HA	2.49	0.46
1:B:1096:VAL:HG21	1:B:1120:MET:HE1	1.97	0.46
1:B:1264:PRO:HG2	3:B:3065:HOH:O	2.14	0.46
1:B:1297:LEU:HD11	1:B:1320:ILE:HD13	1.97	0.46
1:A:74:VAL:HG12	1:A:75:LYS:O	2.14	0.46
1:B:1049:LEU:HD11	1:B:1054:GLY:N	2.30	0.46
1:B:1331:ASN:OD1	1:B:1331:ASN:O	2.33	0.46
1:B:1017:ARG:HG2	1:B:1018:ALA:N	2.30	0.46
1:B:1293:ILE:CG2	1:B:1320:ILE:HD11	2.35	0.46
1:B:1309:ASP:HB3	1:B:1343:SER:HB2	1.96	0.46
1:B:1357:ALA:N	1:B:1358:PRO:CD	2.78	0.46
1:B:1011:GLN:CB	1:B:1277:ARG:HH11	2.27	0.46
1:A:207:ASN:O	1:A:211:ASP:HB2	2.16	0.46
1:A:371:ILE:HG13	1:A:375:GLY:C	2.35	0.46
1:B:1354:THR:OG1	1:B:1356:GLN:O	2.30	0.46
1:B:1064:MET:O	1:B:1068:LEU:HB2	2.16	0.46
1:B:1138:PHE:C	1:B:1138:PHE:CD1	2.89	0.46
1:B:1254:SER:HB3	1:B:1257:VAL:HG13	1.98	0.46
1:A:327:ASP:OD2	1:A:327:ASP:C	2.53	0.46
1:A:154:GLN:C	1:A:155:LEU:HD13	2.36	0.45
1:B:1274:VAL:HG22	1:B:1275:THR:N	2.31	0.45
1:B:1359:ALA:HA	3:B:3191:HOH:O	2.16	0.45
1:A:192:LYS:HD2	1:A:195:GLN:HB2	1.93	0.45
1:A:256:GLU:CD	1:A:256:GLU:H	2.19	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1356:GLN:O	1:B:1357:ALA:HB3	2.16	0.45
1:A:35:THR:OG1	1:A:36:PRO:HD2	2.16	0.45
1:A:196:GLU:OE2	2:A:2000:XGP:O4	2.35	0.45
1:A:316:ILE:CG2	1:A:317:GLY:N	2.79	0.45
1:A:238:LYS:O	1:A:238:LYS:NZ	2.38	0.45
1:A:292:ASN:O	1:A:296:LEU:HB2	2.17	0.45
1:B:1310:GLN:NE2	1:B:1312:GLU:CG	2.78	0.45
1:A:31:LEU:HD11	1:A:208:SER:HB3	1.98	0.45
1:A:32:GLU:HA	3:A:3218:HOH:O	2.17	0.45
1:B:1233:SER:HB2	1:B:1236:GLN:OE1	2.17	0.45
1:B:1067:TRP:CE3	1:B:1068:LEU:HD12	2.52	0.45
1:A:227:ALA:O	1:A:230:GLU:HB2	2.17	0.45
1:A:310:GLN:NE2	1:A:312:GLU:CG	2.80	0.45
1:A:310:GLN:NE2	1:A:312:GLU:HG2	2.32	0.45
1:B:1197:PRO:O	1:B:1198:GLY:O	2.35	0.45
1:A:54:GLY:O	1:A:58:VAL:HG23	2.17	0.45
1:A:65:ARG:HD2	1:A:106:ALA:O	2.17	0.45
1:A:269:ILE:O	1:A:273:LEU:HB2	2.17	0.45
1:A:293:ILE:HG21	1:A:320:ILE:HD11	1.98	0.45
1:A:310:GLN:HE21	1:A:312:GLU:CG	2.29	0.45
1:A:61:GLY:HA2	1:A:102:PHE:CE1	2.52	0.44
1:A:136:ALA:N	3:A:3203:HOH:O	2.49	0.44
1:A:189:PHE:CD1	1:A:199:VAL:HG13	2.52	0.44
1:A:229:GLY:O	1:A:232:LYS:HB2	2.17	0.44
1:A:321:VAL:O	1:A:321:VAL:HG23	2.17	0.44
1:B:1057:GLU:HG2	1:B:1098:THR:O	2.16	0.44
1:B:1177:LYS:HD2	3:B:3287:HOH:O	2.17	0.44
1:A:377:CYS:SG	1:A:378:PRO:CD	3.05	0.44
1:B:1133:ASP:C	1:B:1135:SER:H	2.20	0.44
1:A:13:LEU:HD13	1:A:273:LEU:HD13	1.98	0.44
1:B:1011:GLN:CD	1:B:1277:ARG:NH1	2.70	0.44
1:B:1305:TYR:CD2	1:B:1307:LEU:HD13	2.53	0.44
1:B:1363:THR:HG22	3:B:3151:HOH:O	2.17	0.44
1:A:223:MET:O	1:A:226:VAL:HG22	2.17	0.44
1:B:1085:VAL:HG13	1:B:1283:ILE:CG2	2.48	0.44
1:B:1027:ASN:O	1:B:1031:LEU:HD23	2.17	0.44
1:B:1201:GLY:O	1:B:1205:VAL:HG12	2.17	0.44
1:A:9:LEU:HD13	1:A:325:TRP:CE2	2.52	0.44
1:B:1074:VAL:HG22	3:B:3070:HOH:O	2.17	0.44
1:B:1090:ASN:ND2	1:B:1092:LEU:HG	2.33	0.44
1:B:1090:ASN:H	1:B:1095:THR:HG21	1.82	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1249:ASP:HA	1:B:1253:THR:OG1	2.17	0.44
1:A:20:LEU:HD13	1:A:219:GLU:OE2	2.17	0.44
1:A:33:GLN:HA	1:A:172:PRO:HG2	1.99	0.44
1:A:175:LYS:HE2	3:A:3307:HOH:O	2.17	0.44
1:B:1146:MET:HE2	1:B:1251:LEU:HD23	1.99	0.44
1:A:35:THR:HB	1:A:166:VAL:CG1	2.43	0.43
1:B:1270:ASP:HA	1:B:1386:LEU:HD23	2.00	0.43
1:A:79:CYS:N	3:A:3277:HOH:O	2.49	0.43
1:A:234:ASP:OD1	1:A:236:GLN:HG3	2.18	0.43
1:B:1037:ASN:C	1:B:1038:LYS:HE2	2.39	0.43
1:B:1106:ALA:C	1:B:1108:PRO:HD3	2.38	0.43
1:B:1329:LYS:HG2	3:B:3214:HOH:O	2.17	0.43
1:A:290:ASP:OD2	2:A:2000:XGP:C1	2.66	0.43
1:B:1011:GLN:NE2	1:B:1277:ARG:HH11	2.15	0.43
1:B:1017:ARG:NH2	1:B:1314:THR:O	2.51	0.43
1:A:327:ASP:O	1:A:330:ALA:O	2.37	0.43
1:B:1169:LYS:O	1:B:1170:ASP:CB	2.60	0.43
1:B:1231:ILE:HD12	1:B:1231:ILE:N	2.33	0.43
1:B:1252:PHE:CE2	1:B:1291:SER:HB3	2.53	0.43
1:A:325:TRP:CG	1:A:376:PHE:HE2	2.37	0.43
1:A:90:ASN:N	1:A:90:ASN:ND2	2.65	0.43
1:A:235:GLN:C	1:A:237:TRP:N	2.70	0.43
1:B:1049:LEU:C	1:B:1050:THR:HG23	2.39	0.43
1:A:316:ILE:HG23	1:A:317:GLY:N	2.32	0.43
1:B:1065:ARG:HG2	1:B:1065:ARG:NH1	2.33	0.43
1:B:1265:LEU:HD12	1:B:1265:LEU:HA	1.73	0.43
1:B:1277:ARG:HD2	1:B:1324:ARG:CZ	2.49	0.43
1:B:1061:GLY:HA2	1:B:1102:PHE:CE1	2.54	0.43
1:B:1273:LEU:CB	1:B:1277:ARG:NH2	2.82	0.43
1:A:361:ARG:CZ	3:A:3059:HOH:O	2.67	0.42
1:B:1168:TYR:CE1	1:B:1182:LEU:HD13	2.54	0.42
1:B:1216:GLN:OE1	1:B:1226:VAL:HA	2.19	0.42
1:A:65:ARG:NH2	1:A:74:VAL:HG11	2.32	0.42
1:A:273:LEU:HD23	1:A:382:PHE:CZ	2.54	0.42
1:B:1075:LYS:HG3	1:B:1077:GLY:H	1.85	0.42
1:A:16:SER:CB	1:A:319:LYS:HG2	2.50	0.42
1:B:1099:ALA:HB2	1:B:1287:VAL:HG21	2.01	0.42
1:B:1226:VAL:HG13	1:B:1231:ILE:HD11	2.01	0.42
1:A:217:TYR:CZ	1:A:348:ARG:HD2	2.54	0.42
1:A:310:GLN:CG	1:A:315:PRO:HG3	2.42	0.42
1:B:1168:TYR:C	1:B:1169:LYS:O	2.53	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1277:ARG:NH1	1:B:1324:ARG:HE	2.17	0.42
1:B:1338:GLU:OE2	1:B:1361:ARG:NH1	2.53	0.42
1:A:135:SER:C	1:A:137:ALA:H	2.23	0.42
1:B:1232:LYS:HE3	3:B:3098:HOH:O	2.18	0.42
1:A:330:ALA:O	1:A:332:ARG:N	2.45	0.42
1:B:1308:HIS:O	1:B:1309:ASP:HB2	2.20	0.42
1:B:1326:HIS:ND1	1:B:1326:HIS:C	2.73	0.42
1:A:138:PHE:HB3	3:A:3203:HOH:O	2.20	0.42
1:A:211:ASP:OD2	1:A:244:LYS:HE2	2.20	0.42
1:B:1132:THR:N	1:B:1260:ASN:HD21	2.11	0.42
1:A:265:LEU:HD12	1:A:265:LEU:HA	1.91	0.42
1:A:241:SER:HB3	3:A:3265:HOH:O	2.20	0.41
1:B:1081:PRO:HA	1:B:1082:PRO:HD3	1.93	0.41
1:B:1168:TYR:O	1:B:1169:LYS:C	2.59	0.41
1:A:1:GLN:HG2	3:A:3171:HOH:O	2.20	0.41
1:A:185:GLY:HA3	1:A:202:PRO:HG3	2.02	0.41
1:A:270:ASP:OD1	1:A:387:ASN:OD1	2.38	0.41
1:A:346:GLN:NE2	1:A:360:GLN:HE21	2.18	0.41
1:B:1168:TYR:CZ	1:B:1182:LEU:HD13	2.56	0.41
1:B:1290:ASP:HB2	1:B:1314:THR:CG2	2.48	0.41
1:B:1218:TYR:CE1	1:B:1347:LEU:HD12	2.56	0.41
1:A:244:LYS:NZ	1:A:312:GLU:HB3	2.36	0.41
1:B:1069:ALA:HA	1:B:1074:VAL:O	2.20	0.41
1:A:25:ALA:HB2	1:A:46:GLY:CA	2.47	0.41
1:A:138:PHE:CD1	1:A:138:PHE:C	2.94	0.41
1:A:21:ARG:NH2	1:A:23:PRO:HA	2.35	0.41
1:A:116:HIS:HD2	1:A:117:GLN:O	2.03	0.41
1:B:1319:LYS:HE2	1:B:1319:LYS:HB3	1.94	0.41
1:A:91:SER:HA	1:A:120:MET:SD	2.61	0.41
1:A:175:LYS:HD2	3:A:3253:HOH:O	2.19	0.41
1:A:269:ILE:HG22	1:A:273:LEU:HD22	2.02	0.41
1:A:338:GLU:HG2	1:A:363:THR:HG22	2.02	0.41
1:B:1201:GLY:O	1:B:1204:LYS:HB3	2.20	0.41
1:B:1233:SER:O	1:B:1234:ASP:OD2	2.37	0.41
1:A:269:ILE:HG23	1:A:273:LEU:HD22	2.03	0.41
1:B:1056:LEU:HB3	1:B:1342:GLN:HE22	1.86	0.41
1:B:1128:ASN:HD22	1:B:1129:PRO:CD	2.31	0.41
1:B:1259:ARG:HD2	3:B:3254:HOH:O	2.21	0.41
1:A:311:ASN:HB2	3:A:3205:HOH:O	2.20	0.40
1:B:1093:GLN:HA	3:B:3258:HOH:O	2.21	0.40
1:B:1095:THR:O	1:B:1098:THR:CG2	2.69	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1049:LEU:O	1:B:1050:THR:CB	2.69	0.40
1:B:1297:LEU:HD12	1:B:1297:LEU:HA	1.85	0.40
1:B:1049:LEU:CD1	1:B:1050:THR:O	2.67	0.40
1:B:1134:ASP:HB3	1:B:1193:TYR:CD2	2.57	0.40
1:A:26:ASN:ND2	3:A:3105:HOH:O	2.54	0.40
1:A:175:LYS:O	1:A:176:GLU:CG	2.69	0.40
1:B:1065:ARG:NE	1:B:1074:VAL:HG11	2.36	0.40
1:B:1132:THR:HG22	1:B:1260:ASN:OD1	2.21	0.40
1:B:1307:LEU:HD23	1:B:1315:PRO:HD3	2.02	0.40
1:B:1310:GLN:NE2	1:B:1311:ASN:H	2.19	0.40
1:B:1020:LEU:HD11	1:B:1219:GLU:HA	2.03	0.40
1:B:1297:LEU:HD13	1:B:1320:ILE:HD13	2.03	0.40
1:B:1307:LEU:HD23	1:B:1315:PRO:CD	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	
1	A	389/391 (100%)	352 (90%)	22 (6%)	15 (4%)	3	2
1	B	389/391 (100%)	347 (89%)	25 (6%)	17 (4%)	2	2
All	All	778/782 (100%)	699 (90%)	47 (6%)	32 (4%)	3	2

All (32) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	79	CYS
1	A	91	SER
1	A	111	ASP
1	A	176	GLU
1	A	234	ASP

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	1186	LYS
1	B	1187	ASN
1	B	1198	GLY
1	B	1232	LYS
1	A	18	ALA
1	A	46	GLY
1	A	78	GLU
1	A	271	LYS
1	A	329	LYS
1	A	331	ASN
1	B	1156	THR
1	B	1231	ILE
1	A	82	PRO
1	A	178	GLN
1	B	1078	GLU
1	B	1176	GLU
1	B	1008	GLN
1	B	1079	CYS
1	B	1233	SER
1	B	1329	LYS
1	A	191	ALA
1	B	1082	PRO
1	B	1089	ALA
1	B	1111	ASP
1	B	1343	SER
1	A	233	SER
1	B	1197	PRO

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	335/335 (100%)	294 (88%)	41 (12%)	5 6
1	B	335/335 (100%)	301 (90%)	34 (10%)	7 11
All	All	670/670 (100%)	595 (89%)	75 (11%)	6 8

All (75) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	20	LEU
1	A	21	ARG
1	A	26	ASN
1	A	30	VAL
1	A	41	GLU
1	A	44	VAL
1	A	49	LEU
1	A	65	ARG
1	A	68	LEU
1	A	75	LYS
1	A	79	CYS
1	A	90	ASN
1	A	91	SER
1	A	98	THR
1	A	128	ASN
1	A	150	LEU
1	A	154	GLN
1	A	155	LEU
1	A	161	LEU
1	A	162	LEU
1	A	167	ASN
1	A	182	LEU
1	A	186	LYS
1	A	188	THR
1	A	192	LYS
1	A	199	VAL
1	A	205	VAL
1	A	215	LEU
1	A	225	GLN
1	A	237	TRP
1	A	238	LYS
1	A	265	LEU
1	A	277	ARG
1	A	286	LEU
1	A	303	LYS
1	A	307	LEU
1	A	321	VAL
1	A	331	ASN
1	A	339	TYR
1	A	345	GLU
1	A	369	CYS
1	B	1005	GLU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	1011	GLN
1	B	1019	ASN
1	B	1024	LEU
1	B	1049	LEU
1	B	1074	VAL
1	B	1075	LYS
1	B	1082	PRO
1	B	1088	TYR
1	B	1128	ASN
1	B	1150	LEU
1	B	1153	LEU
1	B	1156	THR
1	B	1161	LEU
1	B	1162	LEU
1	B	1167	ASN
1	B	1186	LYS
1	B	1192	LYS
1	B	1205	VAL
1	B	1209	LEU
1	B	1215	LEU
1	B	1231	ILE
1	B	1237	TRP
1	B	1265	LEU
1	B	1274	VAL
1	B	1286	LEU
1	B	1297	LEU
1	B	1306	GLN
1	B	1307	LEU
1	B	1309	ASP
1	B	1339	TYR
1	B	1348	ARG
1	B	1363	THR
1	B	1369	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (41) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	11	GLN
1	A	19	ASN
1	A	26	ASN
1	A	71	GLN
1	A	90	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	117	GLN
1	A	128	ASN
1	A	141	GLN
1	A	167	ASN
1	A	194	GLN
1	A	236	GLN
1	A	248	GLN
1	A	260	ASN
1	A	306	GLN
1	A	308	HIS
1	A	310	GLN
1	A	311	ASN
1	A	331	ASN
1	A	346	GLN
1	A	349	ASN
1	A	360	GLN
1	A	387	ASN
1	B	1008	GLN
1	B	1011	GLN
1	B	1019	ASN
1	B	1033	GLN
1	B	1062	HIS
1	B	1071	GLN
1	B	1116	HIS
1	B	1128	ASN
1	B	1141	GLN
1	B	1167	ASN
1	B	1195	GLN
1	B	1260	ASN
1	B	1306	GLN
1	B	1310	GLN
1	B	1311	ASN
1	B	1331	ASN
1	B	1342	GLN
1	B	1346	GLN
1	B	1349	ASN

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](#)

2 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	XGP	B	2001	-	15,16,16	1.34	2 (13%)	23,24,24	0.82	1 (4%)
2	XGP	A	2000	-	15,16,16	1.11	1 (6%)	23,24,24	0.82	1 (4%)

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	XGP	B	2001	-	-	1/7/27/27	0/1/1/1
2	XGP	A	2000	-	-	1/7/27/27	0/1/1/1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	2001	XGP	P-OP2	2.76	1.59	1.50
2	B	2001	XGP	C4-C3	2.07	1.57	1.52
2	A	2000	XGP	C4-C3	2.06	1.57	1.52

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	2001	XGP	O5-C1-O1	-2.71	107.82	111.36
2	A	2000	XGP	O5-C1-O1	-2.70	107.83	111.36

There are no chirality outliers.

All (2) torsion outliers are listed below:

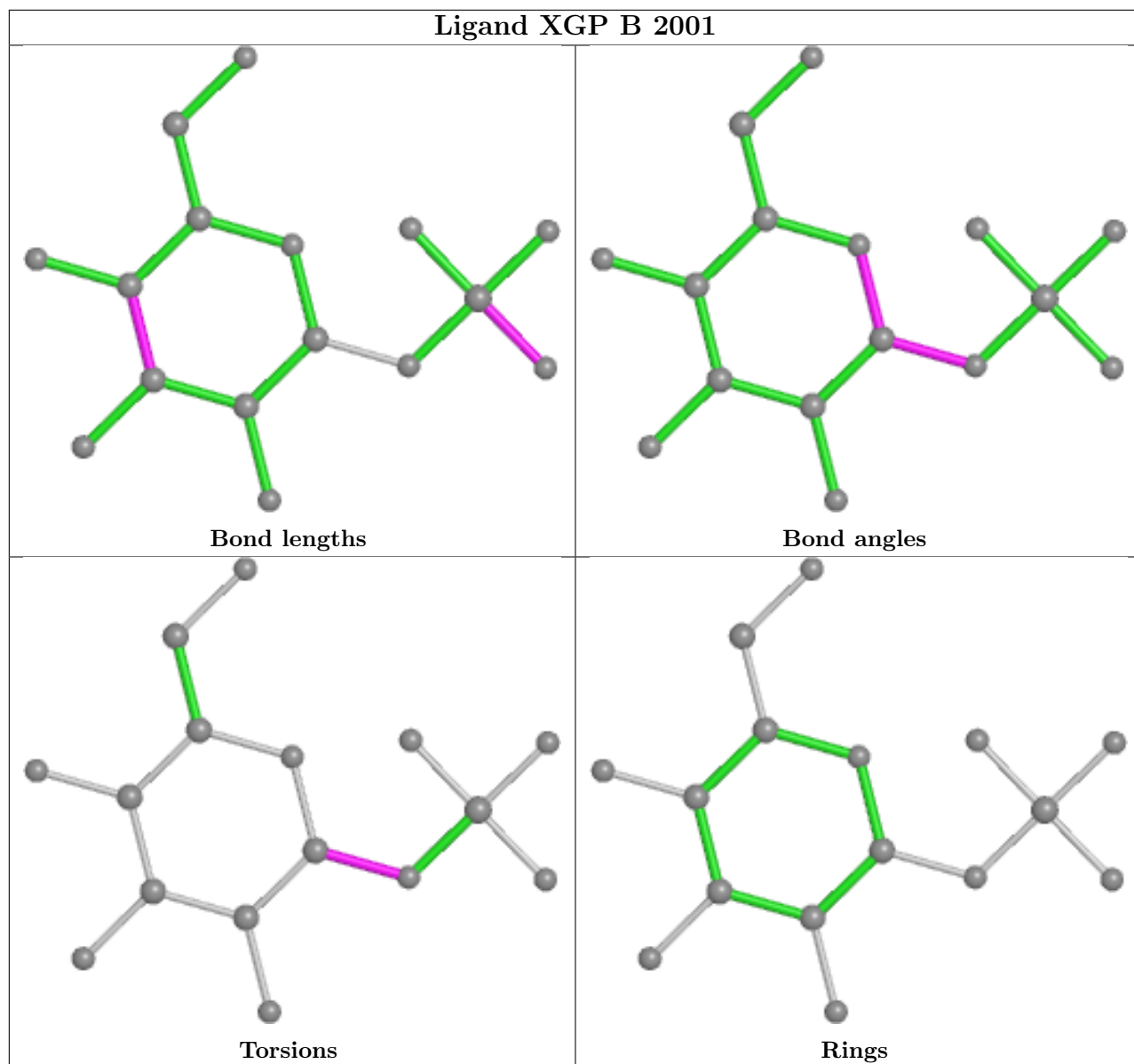
Mol	Chain	Res	Type	Atoms
2	A	2000	XGP	C2-C1-O1-P
2	B	2001	XGP	C2-C1-O1-P

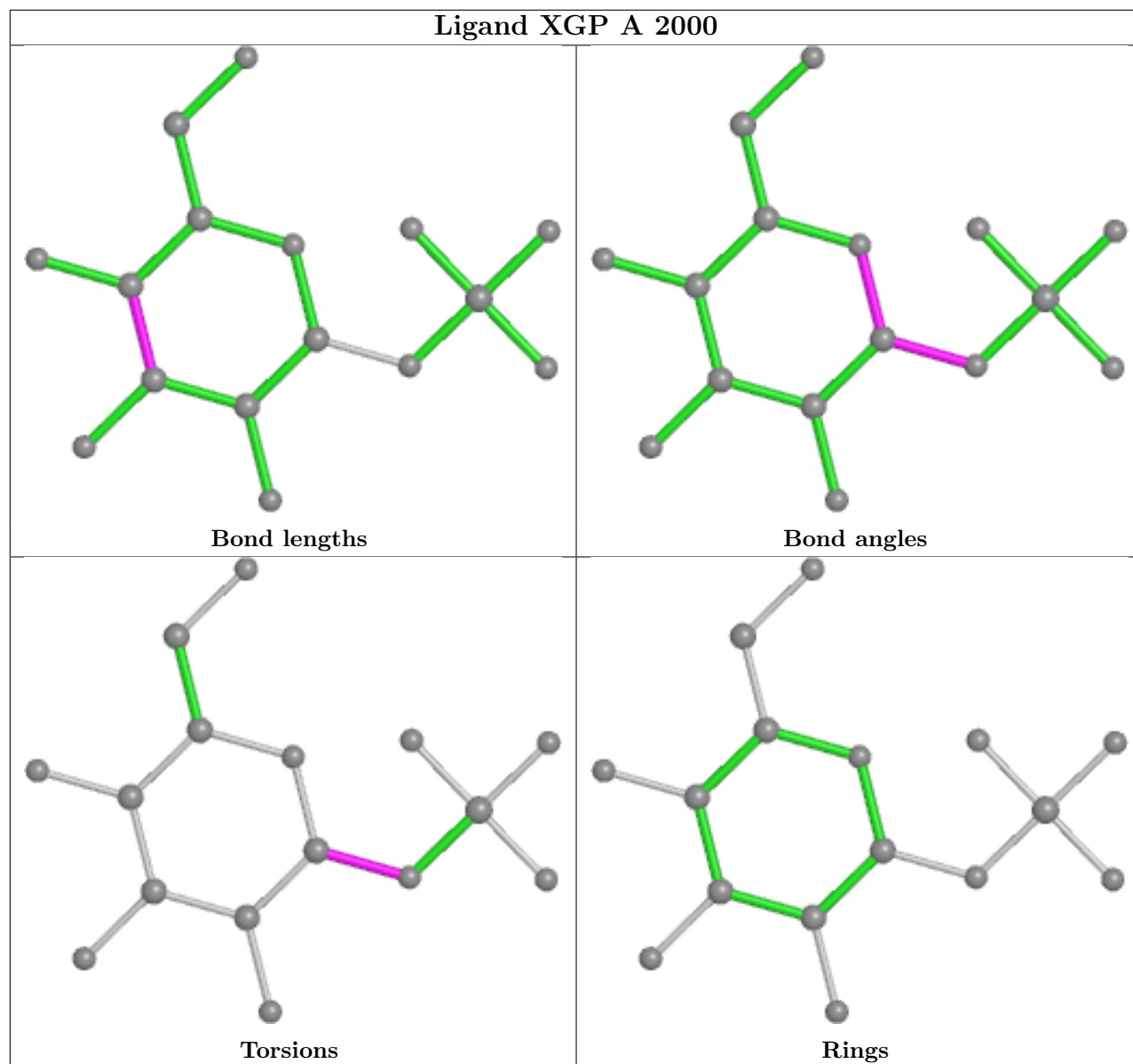
There are no ring outliers.

2 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	2001	XGP	6	0
2	A	2000	XGP	6	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 [i](#)

There are no chain breaks in this entry.

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

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

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates [i](#)

EDS was not executed - this section is therefore empty.

6.4 Ligands [i](#)

EDS was not executed - this section is therefore empty.

6.5 Other polymers [i](#)

EDS was not executed - this section is therefore empty.