



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 14, 2020 – 08:40 am BST

PDB ID : 1QR6
Title : HUMAN MITOCHONDRIAL NAD(P)-DEPENDENT MALIC ENZYME
Authors : Xu, Y.; Bhargava, G.; Wu, H.; Loeber, G.; Tong, L.
Deposited on : 1999-06-18
Resolution : 2.10 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

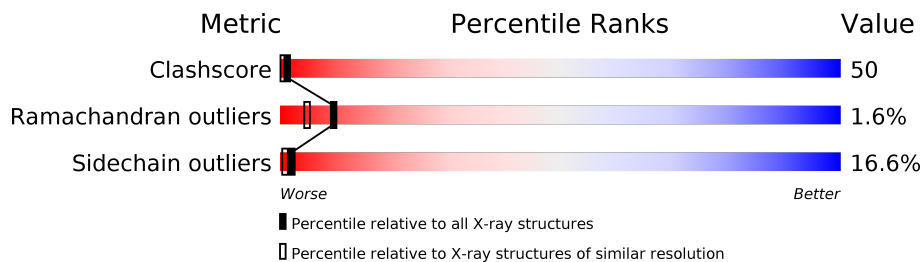
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.10 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	5710 (2.10-2.10)
Ramachandran outliers	138981	5647 (2.10-2.10)
Sidechain outliers	138945	5648 (2.10-2.10)

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	A	584	 36% 49% 9% 6%
1	B	584	 37% 47% 11% 6%

2 Entry composition i

There are 3 unique types of molecules in this entry. The entry contains 9620 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 MALIC ENZYME 2.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
			Total	C	N	O	S	Se			
1	A	551	4342	2779	739	801	9	14	10	0	0
1	B	551	4342	2779	739	801	9	14	0	0	0

There are 28 discrepancies between the modelled and reference sequences:

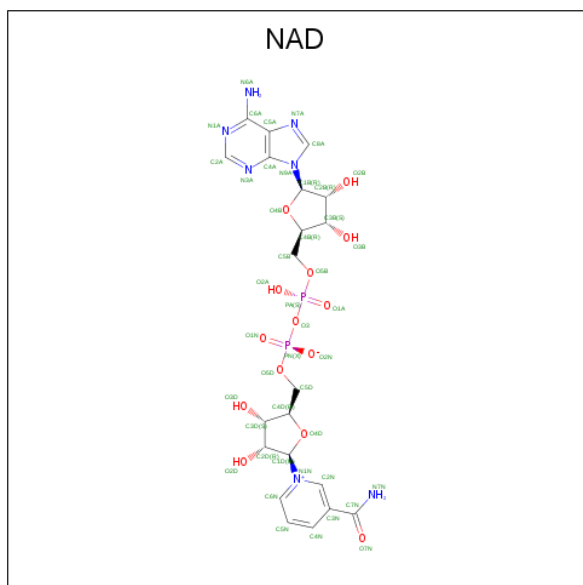
Chain	Residue	Modelled	Actual	Comment	Reference
A	29	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	38	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	47	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	75	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	86	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	108	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	177	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	219	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	239	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	325	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	327	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	343	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	407	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	539	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1029	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1038	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1047	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1075	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1086	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1108	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1177	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1219	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1239	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1325	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1327	MSE	MET	MODIFIED RESIDUE	UNP P23368

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1343	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1407	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1539	MSE	MET	MODIFIED RESIDUE	UNP P23368

- Molecule 2 is NICOTINAMIDE-ADENINE-DINUCLEOTIDE (three-letter code: NAD) (formula: C₂₁H₂₇N₇O₁₄P₂).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
2	A	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
2	A	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
2	B	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
2	B	1	Total	C	N	O	P	0	0
			44	21	7	14	2		

- Molecule 3 is water.

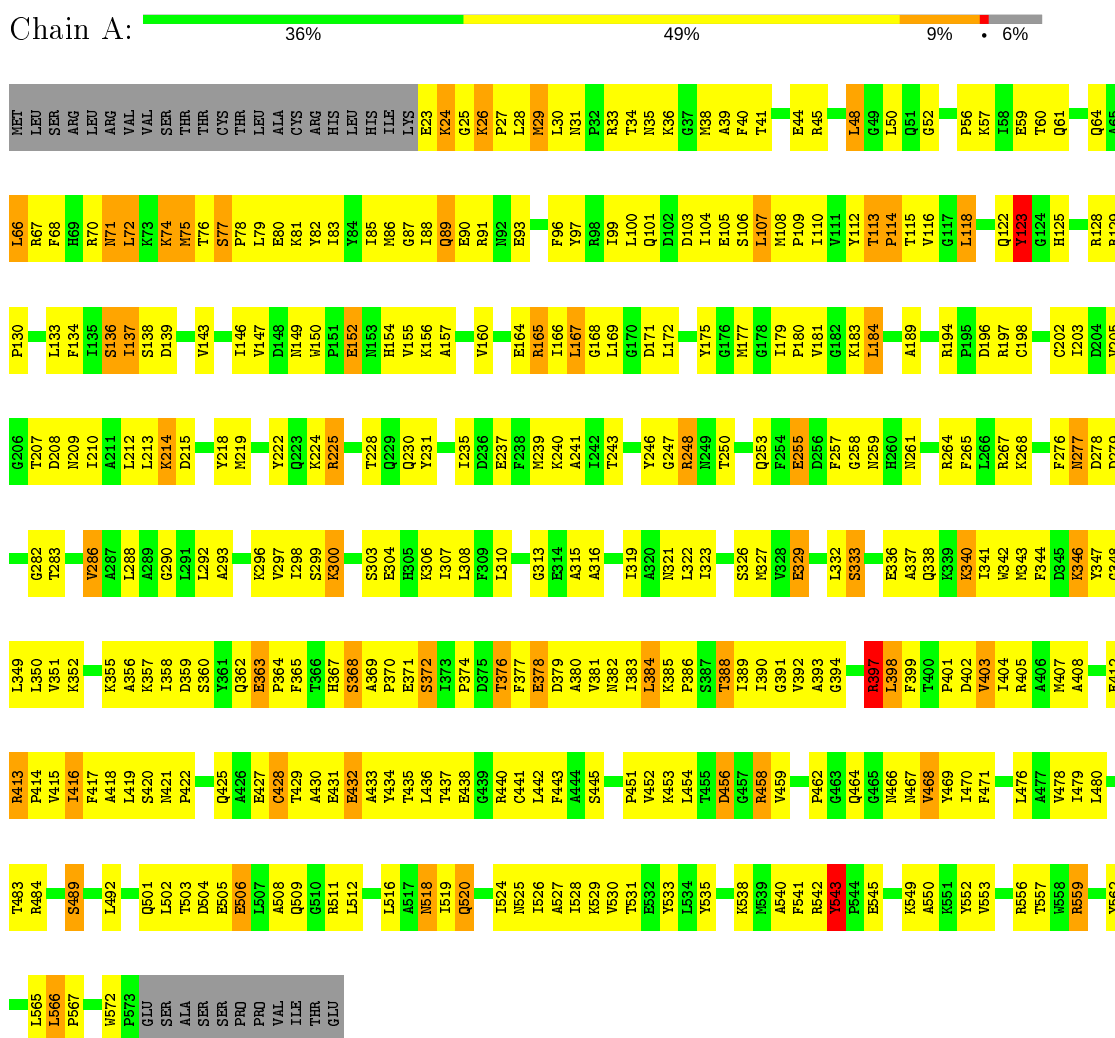
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	374	Total	O	0	0
			374	374		
3	B	386	Total	O	0	0
			386	386		

3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of 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: MALIC ENZYME 2



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Y1562	Y1490	I1410	Y1347	L1266	A1191	G1124	D1062
L1565	F1491	M1411	G1348	R1267	G1192	H1125	I1063
L1566	L1492	E1412	L1349	R1270	I1193	F1127	Q1064
E1571	E1493	R1413	L1350	F1276	P1196	R1128	A1065
W1572	A1494	V1414	K1351	M1277	D1199	K1131	L1066
P1573	K1496	I1416	G1353	D1279	C1198	G1132	R1067
GLU	A1497	A1418	R1354	I1280	L1133	L1137	F1068
SER	Q1501	L1419	K1355	Q1281	S1136	S1136	H1069
SER	L1502	S1420	A1357	G1282	I1137	K1073	M1071
SER	E1505	T1423	I1358	V1205	R1140	K1074	L1072
PRO	A1424	A1423	S1360	G1206	V1143	M1075	K1074
PRO	Q1425	A1426	Y1361	T1207	S1077	S1077	M1075
VAL	L1426	E1427	L1362	I1210	R1144	P1078	L1079
ILE	E1427	E1428	E1363	I1214	S1145	L1079	E1080
THR	C1428	T1429	P1364	L1213	I1146	K1081	K1081
GLU	T1429	E1432	H1367	K1214	V1147	Y1082	Y1082
	E1432	A1433	S1368	D1215	M1149	W1150	Y1084
	A1433	L1436	A1369	P1216	W1150	P1151	I1085
	L1436	T1437	S1372	F1217	Y1218	E1152	M1086
	T1437	R1440	I1373	Y1297	K1224	M1153	G1087
	R1440	R1441	P1374	I1298	R1225	H1154	I1088
	L1441	L1442	D1375	S1299	R1226	K1156	E1090
	L1442	S1445	T1376	K1300	R1227	K1156	R1091
	L1442	G1446	F1377	P1301	I1235	V1160	E1093
	S1445	K1453	E1378	I1302	I1235	D1162	K1094
	G1446	L1454	D1379	S1303	E1164	G1163	L1095
	K1453	T1455	A1380	E1304	R1165	G1164	F1096
	L1454	D1456	M1381	R1305	L1166	R1165	I1099
	T1455	G1457	I1381	H1305	L1167	L1167	L1100
	D1456	S1457	M1382	K1306	G1168	L1169	D1103
	G1457	K1458	I1383	A1315	L1172	L1172	I1104
	S1458	L1458	L1384	I1242	G1173	S1105	E1105
	M1525	V1459	K1385	I1243	V1174	L1107	S1106
	I1526	F1460	P1386	I1319	Y1175	M1108	L1107
	A1527	T1461	S1387	A1320	G1247	P1109	P1109
	I1528	P1462	T1388	M1321	R1248	I1110	I1110
	K1529	Q1463	G1394	L1322	M1249	G1176	I1111
	V1530	G1464	R1397	I1323	T1250	M1177	V1112
	T1531	Q1464	T1398	V1324	G1250	G1178	V1112
	Y1533	N1465	L1399	M1325	T1250	I1179	V1112
	K1538	M1466	F1399	V1328	Q1253	P1180	T1113
	R1542	N1466	T1400	L1332	F1254	V1181	T1114
	Y1543	M1467	P1401	L1332	E1255	G1182	T1115
	E1544	V1468	D1402	L1332	E1255	K1183	V1116
	E1545	Y1469	V1403	K1340	G1258	L1184	G1117
	P1546	Y1469	I1404	M1343	N1259	L1184	L1118
	E1547	P1472	R1405	M1343	H1260	C1185	A1119
	K1551	D1478	A1406	F1344	M1261	Y1187	C1120
	K1554	N1482	M1407	D1345	R1264	T1188	S1121
	E1555	T1483	A1408	K1346	F1265	A1189	Q1122
	W1558	R1484	A1408			C1190	Y1123
	W1559	S1489	S1409				

4 Data and refinement statistics

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

Property	Value	Source
Space group	B 1 1 2	Depositor
Cell constants a, b, c, α , β , γ	204.40Å 107.00Å 59.20Å 90.00° 90.00° 101.90°	Depositor
Resolution (Å)	20.00 – 2.10	Depositor
% Data completeness (in resolution range)	87.0 (20.00-2.10)	Depositor
R_{merge}	0.04	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	X-PLOR 3.843	Depositor
R, R_{free}	0.228 , 0.287	Depositor
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	9620	wwPDB-VP
Average B, all atoms (Å ²)	31.0	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: NAD

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	0.37	0/4422	0.64	2/5967 (0.0%)
1	B	0.37	0/4422	0.63	3/5967 (0.1%)
All	All	0.37	0/8844	0.63	5/11934 (0.0%)

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	1543	TYR	N-CA-C	7.24	130.53	111.00
1	A	543	TYR	N-CA-C	6.19	127.71	111.00
1	A	542	ARG	N-CA-C	-5.91	95.03	111.00
1	B	1542	ARG	N-CA-C	-5.62	95.81	111.00
1	B	1543	TYR	C-N-CD	5.00	138.90	128.40

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	4342	0	4366	455	0
1	B	4342	0	4366	441	0
2	A	88	0	52	2	0
2	B	88	0	52	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	A	374	0	0	145	0
3	B	386	0	0	155	0
All	All	9620	0	8836	884	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 50.

All (884) 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:1107:LEU:HD12	3:B:2496:HOH:O	1.42	1.19
1:A:218:TYR:HB2	3:A:2698:HOH:O	1.44	1.18
1:B:1472:PRO:HB2	3:B:2252:HOH:O	1.48	1.11
1:A:215:ASP:HB3	3:A:2698:HOH:O	1.51	1.10
1:B:1243:THR:HB	1:B:1248:ARG:HE	1.20	1.06
1:B:1513:TYR:HB3	3:B:2740:HOH:O	1.55	1.05
1:B:1113:THR:HB	1:B:1114:PRO:HD3	1.39	1.05
1:A:85:ILE:HG23	1:A:86:MSE:HE3	1.39	1.05
1:A:454:LEU:HD12	3:A:2700:HOH:O	1.58	1.03
1:B:1410:ILE:HG21	3:B:2585:HOH:O	1.60	1.01
1:B:1298:ILE:HG13	3:B:2614:HOH:O	1.61	1.00
1:B:1177:MSE:HG2	1:B:1202:CYS:HB2	1.46	0.97
1:B:1287:ALA:HA	3:B:2167:HOH:O	1.62	0.97
1:A:433:ALA:HB3	3:A:2670:HOH:O	1.62	0.97
1:B:1297:VAL:HG12	1:B:1298:ILE:HD13	1.48	0.96
1:B:1454:LEU:HD11	1:B:1460:PHE:HE2	1.31	0.95
1:B:1385:LYS:HB2	3:B:2680:HOH:O	1.65	0.94
1:A:104:ILE:HG13	1:A:108:MSE:HE2	1.49	0.94
1:A:72:LEU:HA	1:A:75:MSE:HE3	1.48	0.94
1:B:1310:LEU:HD12	3:B:2076:HOH:O	1.66	0.94
1:B:1492:LEU:HB2	3:B:2514:HOH:O	1.65	0.94
1:B:1543:TYR:O	1:B:1545:GLU:N	2.01	0.93
1:A:453:LYS:HE2	3:A:2688:HOH:O	1.67	0.93
1:A:86:MSE:HA	1:A:86:MSE:HE2	1.50	0.93
1:A:61:GLN:HA	1:A:64:GLN:HE21	1.31	0.92
1:B:1261:ASN:HD22	1:B:1264:ARG:HE	1.01	0.92
1:A:113:THR:HB	1:A:114:PRO:HD3	1.48	0.92
1:A:376:THR:HG22	1:A:379:ASP:H	1.36	0.91
1:A:543:TYR:O	1:A:545:GLU:N	2.05	0.90
1:A:393:ALA:HB3	3:A:2677:HOH:O	1.72	0.90
1:B:1526:ILE:HG23	3:B:2727:HOH:O	1.72	0.89

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:307:ILE:HG23	1:A:388:THR:HG22	1.53	0.88
1:B:1177:MSE:HG2	1:B:1202:CYS:CB	2.02	0.88
1:A:349:LEU:HD23	3:A:2556:HOH:O	1.74	0.88
1:A:527:ALA:O	1:A:531:THR:HG23	1.74	0.87
1:B:1057:LYS:HB3	3:B:2238:HOH:O	1.75	0.86
1:B:1086:MSE:HA	1:B:1086:MSE:HE2	1.57	0.86
1:B:1527:ALA:O	1:B:1531:THR:HG23	1.76	0.86
1:A:277:ASN:HD21	1:A:279:ASP:HB2	1.39	0.85
1:A:44:GLU:O	1:A:48:LEU:HB2	1.75	0.85
1:A:431:GLU:HG2	1:A:452:VAL:HG22	1.58	0.85
1:B:1429:THR:HG23	1:B:1432:GLU:H	1.41	0.85
1:A:518:ASN:HB3	3:A:2661:HOH:O	1.75	0.85
1:A:91:ARG:HD2	3:B:2639:HOH:O	1.76	0.84
1:B:1308:LEU:HB3	1:B:1389:ILE:HD12	1.59	0.84
1:A:437:THR:HG23	3:A:2220:HOH:O	1.77	0.84
1:B:1547:GLU:HG2	3:B:2652:HOH:O	1.76	0.84
1:A:557:THR:HG22	3:A:2386:HOH:O	1.77	0.84
1:B:1515:PRO:HG2	1:B:1518:ASN:HD21	1.43	0.84
1:A:476:LEU:HD21	3:A:2386:HOH:O	1.77	0.84
1:B:1354:ARG:HD3	1:B:1358:ILE:HD11	1.58	0.84
1:A:167:LEU:HD11	3:A:2550:HOH:O	1.77	0.84
1:B:1058:ILE:HG13	3:B:2147:HOH:O	1.77	0.83
1:B:1194:ARG:HA	3:B:2518:HOH:O	1.79	0.83
1:A:374:PRO:HG3	1:A:380:ALA:HA	1.58	0.83
1:A:392:VAL:O	1:A:392:VAL:HG12	1.76	0.83
1:A:389:ILE:HG21	3:A:2333:HOH:O	1.77	0.83
1:B:1261:ASN:ND2	1:B:1264:ARG:HE	1.76	0.83
1:B:1319:ILE:HG23	3:B:2547:HOH:O	1.77	0.83
1:B:1558:TRP:HB3	3:B:2518:HOH:O	1.78	0.83
1:A:454:LEU:HA	3:A:2627:HOH:O	1.80	0.82
1:A:531:THR:HB	3:A:2234:HOH:O	1.78	0.82
1:B:1454:LEU:HD11	1:B:1460:PHE:CE2	2.13	0.82
1:A:429:THR:HG23	1:A:432:GLU:H	1.43	0.82
1:A:376:THR:HG23	1:A:378:GLU:H	1.44	0.82
1:B:1442:LEU:HD12	3:B:2614:HOH:O	1.79	0.82
1:A:109:PRO:O	1:A:114:PRO:HD2	1.79	0.82
1:A:24:LYS:HA	1:A:28:LEU:HD22	1.60	0.82
1:A:388:THR:HG23	3:A:2287:HOH:O	1.79	0.81
1:A:86:MSE:HE1	1:A:96:PHE:CE1	2.15	0.81
1:A:154:HIS:O	1:A:197:ARG:HG2	1.81	0.81
1:B:1405:ARG:HD2	3:B:2359:HOH:O	1.81	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:378:GLU:OE1	1:A:402:ASP:HB3	1.80	0.80
1:A:99:ILE:HG21	3:A:2715:HOH:O	1.80	0.80
1:A:338:GLN:HB3	3:A:2569:HOH:O	1.80	0.80
1:B:1109:PRO:O	1:B:1114:PRO:HD2	1.82	0.80
1:B:1104:ILE:HG13	1:B:1108:MSE:HG3	1.63	0.80
1:B:1039:ALA:HA	1:B:1059:GLU:O	1.82	0.79
1:A:78:PRO:HG3	3:A:2628:HOH:O	1.81	0.79
1:A:327:MSE:HE3	1:A:337:ALA:HB1	1.65	0.79
1:A:372:SER:HB2	1:A:383:ILE:HG12	1.64	0.79
1:A:390:ILE:HG12	3:A:2571:HOH:O	1.83	0.79
1:B:1392:VAL:O	1:B:1392:VAL:HG12	1.82	0.79
1:A:288:LEU:HG	3:A:2469:HOH:O	1.81	0.79
1:A:128:ARG:HH22	1:B:1128:ARG:NH1	1.80	0.79
1:A:436:LEU:HB3	3:A:2512:HOH:O	1.83	0.79
1:B:1514:PRO:O	3:B:2740:HOH:O	2.01	0.78
1:A:471:PHE:CD1	3:A:2711:HOH:O	2.36	0.78
1:A:296:LYS:HE3	3:A:2737:HOH:O	1.83	0.78
1:B:1428:CYS:SG	3:B:2311:HOH:O	2.42	0.77
1:B:1351:VAL:HG11	1:B:1369:ALA:HB2	1.66	0.77
1:A:435:THR:HA	3:A:2229:HOH:O	1.83	0.77
1:B:1411:ASN:HB2	3:B:2146:HOH:O	1.84	0.77
1:A:437:THR:HG22	3:A:2063:HOH:O	1.83	0.77
1:A:310:LEU:HD23	1:A:427:GLU:HG2	1.68	0.76
1:B:1113:THR:CB	1:B:1114:PRO:HD3	2.15	0.76
1:A:386:PRO:HG2	3:A:2256:HOH:O	1.85	0.76
1:B:1085:ILE:HG23	1:B:1086:MSE:HE3	1.66	0.76
1:A:113:THR:CB	1:A:114:PRO:HD3	2.16	0.76
1:B:1406:ALA:C	3:B:2312:HOH:O	2.25	0.76
1:A:437:THR:HG21	1:A:441:CYS:HB3	1.68	0.75
1:A:416:ILE:HD11	1:A:441:CYS:CB	2.16	0.75
1:B:1240:LYS:HE2	3:B:2724:HOH:O	1.87	0.75
1:B:1294:ALA:HB1	1:B:1442:LEU:HD13	1.67	0.75
1:A:315:ALA:HA	3:A:2644:HOH:O	1.87	0.74
1:A:85:ILE:HG13	3:A:2715:HOH:O	1.87	0.74
1:B:1526:ILE:CG2	3:B:2727:HOH:O	2.32	0.74
1:B:1078:PRO:HB3	3:B:2741:HOH:O	1.87	0.74
1:A:212:LEU:O	3:A:2698:HOH:O	2.05	0.74
1:B:1207:THR:HG21	3:B:2716:HOH:O	1.85	0.74
1:A:308:LEU:HB3	1:A:389:ILE:HD12	1.67	0.74
1:A:250:THR:HB	3:A:2279:HOH:O	1.87	0.74
1:B:1399:PHE:HD1	3:B:2311:HOH:O	1.70	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1078:PRO:HD2	3:B:2507:HOH:O	1.87	0.73
1:B:1307:ILE:HG23	1:B:1388:THR:HG22	1.68	0.73
1:B:1411:ASN:ND2	3:B:2146:HOH:O	2.22	0.73
1:B:1320:ALA:HB2	3:B:2102:HOH:O	1.87	0.73
1:B:1340:LYS:HE3	3:B:2280:HOH:O	1.88	0.73
1:A:104:ILE:CG1	1:A:108:MSE:HE2	2.18	0.73
1:A:23:GLU:HG2	1:A:24:LYS:N	2.04	0.73
1:B:1513:TYR:OH	3:B:2167:HOH:O	2.05	0.73
1:A:440:ARG:HG2	3:A:2237:HOH:O	1.87	0.73
1:B:1308:LEU:HB2	1:B:1386:PRO:HG3	1.71	0.73
1:B:1414:PRO:HA	3:B:2146:HOH:O	1.89	0.73
1:B:1043:GLN:HB3	3:B:2742:HOH:O	1.87	0.73
1:B:1526:ILE:O	1:B:1530:VAL:HG23	1.87	0.73
1:A:179:ILE:HB	1:A:180:PRO:HD3	1.71	0.72
1:A:376:THR:CG2	1:A:379:ASP:H	2.02	0.72
1:B:1308:LEU:HB3	1:B:1389:ILE:CD1	2.19	0.72
1:A:128:ARG:HH12	1:B:1128:ARG:HH12	1.34	0.72
1:B:1261:ASN:HD22	1:B:1264:ARG:NE	1.84	0.72
1:B:1386:PRO:HG2	3:B:2265:HOH:O	1.90	0.72
1:A:292:LEU:HD11	3:A:2469:HOH:O	1.89	0.72
1:B:1165:ARG:HD3	1:B:1258:GLY:HA2	1.71	0.72
1:B:1372:SER:O	1:B:1383:ILE:HD13	1.89	0.72
1:A:265:PHE:HD1	3:A:2457:HOH:O	1.72	0.72
1:A:433:ALA:O	1:A:437:THR:HG23	1.90	0.72
1:A:416:ILE:HD11	1:A:441:CYS:HB2	1.70	0.72
1:A:454:LEU:HD11	3:A:2178:HOH:O	1.89	0.72
1:A:86:MSE:HE1	1:A:96:PHE:CZ	2.24	0.72
1:B:1217:PHE:HB3	3:B:2107:HOH:O	1.90	0.71
1:B:1113:THR:HB	1:B:1114:PRO:CD	2.19	0.71
1:A:456:ASP:OD1	1:A:458:ARG:HB2	1.90	0.71
1:A:367:HIS:HE1	3:A:2569:HOH:O	1.71	0.71
1:B:1163:GLY:HA2	1:B:1166:ILE:HD11	1.72	0.71
1:A:82:TYR:HD2	1:A:83:ILE:HD13	1.54	0.71
1:A:454:LEU:HD22	3:A:2229:HOH:O	1.89	0.71
1:B:1183:LYS:HE2	1:B:1255:GLU:OE2	1.91	0.70
1:A:506:GLU:O	1:A:511:ARG:HB2	1.91	0.70
1:A:64:GLN:O	1:A:68:PHE:HD1	1.73	0.70
1:A:385:LYS:HG3	3:A:2226:HOH:O	1.91	0.70
1:A:553:VAL:HG13	3:A:2141:HOH:O	1.91	0.70
1:B:1302:ILE:HA	1:B:1305:HIS:CD2	2.27	0.70
1:A:466:ASN:CB	3:A:2681:HOH:O	2.40	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1378:GLU:OE1	1:B:1402:ASP:HB3	1.92	0.69
1:B:1523:SER:HB3	3:B:2252:HOH:O	1.91	0.69
1:A:26:LYS:HE3	3:B:2492:HOH:O	1.93	0.69
1:A:183:LYS:HG3	3:A:2534:HOH:O	1.92	0.69
1:A:152:GLU:HG2	1:A:196:ASP:O	1.92	0.69
1:A:243:THR:HG22	3:A:2279:HOH:O	1.92	0.69
1:B:1086:MSE:HE1	1:B:1096:PHE:CE1	2.27	0.69
1:A:374:PRO:HD3	1:A:383:ILE:HD13	1.73	0.69
1:A:471:PHE:CE2	3:A:2692:HOH:O	2.45	0.69
1:B:1152:GLU:HG2	1:B:1196:ASP:O	1.93	0.69
1:B:1090:GLU:HB3	3:B:2094:HOH:O	1.91	0.69
2:A:601:NAD:H4N	3:A:2275:HOH:O	1.93	0.69
1:B:1454:LEU:HD12	1:B:1458:ARG:HB2	1.75	0.69
1:A:404:ILE:CG2	3:A:2220:HOH:O	2.41	0.68
1:A:79:LEU:O	1:A:83:ILE:HG12	1.93	0.68
1:B:1060:THR:H	1:B:1063:ILE:HD12	1.58	0.68
1:B:1179:ILE:HB	1:B:1180:PRO:HD3	1.75	0.68
1:A:381:VAL:HG22	3:A:2256:HOH:O	1.91	0.68
1:B:1061:GLN:NE2	3:B:2583:HOH:O	2.25	0.68
1:A:307:ILE:HG23	1:A:388:THR:CG2	2.24	0.68
1:B:1558:TRP:CB	3:B:2518:HOH:O	2.40	0.68
1:A:464:GLN:HA	3:A:2143:HOH:O	1.91	0.68
1:B:1511:ARG:HH11	1:B:1511:ARG:HG2	1.58	0.68
1:A:303:SER:O	1:A:340:LYS:HE2	1.94	0.68
1:A:80:GLU:C	3:A:2308:HOH:O	2.32	0.68
1:B:1409:SER:N	3:B:2312:HOH:O	2.13	0.68
1:A:48:LEU:HD22	3:A:2081:HOH:O	1.94	0.68
1:B:1325:MSE:HE2	3:B:2514:HOH:O	1.94	0.68
1:B:1325:MSE:CE	3:B:2514:HOH:O	2.41	0.67
1:B:1381:VAL:HG22	3:B:2265:HOH:O	1.93	0.67
1:A:459:VAL:HA	3:A:2189:HOH:O	1.94	0.67
1:A:376:THR:HG23	1:A:378:GLU:N	2.09	0.67
1:A:401:PRO:HB3	1:A:436:LEU:HD21	1.76	0.67
1:B:1058:ILE:HG22	3:B:2329:HOH:O	1.95	0.67
1:B:1103:ASP:HB3	1:B:1107:LEU:HD22	1.77	0.67
1:B:1392:VAL:O	1:B:1392:VAL:CG1	2.42	0.67
1:B:1484:ARG:HB2	3:B:2087:HOH:O	1.95	0.66
1:A:85:ILE:HG23	1:A:86:MSE:CE	2.20	0.66
1:B:1110:ILE:HB	3:B:2496:HOH:O	1.95	0.66
1:B:1294:ALA:CB	1:B:1442:LEU:HD13	2.26	0.66
1:B:1519:ILE:HG23	3:B:2565:HOH:O	1.93	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:235:ILE:O	1:A:239:MSE:HG2	1.95	0.66
1:A:327:MSE:HE1	1:A:337:ALA:O	1.94	0.66
1:A:183:LYS:NZ	3:A:2692:HOH:O	2.20	0.65
1:A:225:ARG:HB2	3:A:2531:HOH:O	1.95	0.65
1:B:1043:GLN:HE21	1:B:1566:LEU:HD11	1.61	0.65
1:A:415:VAL:N	3:A:2752:HOH:O	2.25	0.65
1:B:1153:ASN:HD22	1:B:1245:ARG:HH21	1.44	0.65
1:A:405:ARG:HA	3:A:2512:HOH:O	1.97	0.65
1:B:1086:MSE:HE1	1:B:1096:PHE:CZ	2.32	0.65
1:B:1277:ASN:HD22	1:B:1277:ASN:C	1.99	0.65
1:B:1551:LYS:O	1:B:1555:GLU:HG3	1.95	0.65
1:A:128:ARG:HH12	1:B:1128:ARG:NH1	1.94	0.65
1:B:1202:CYS:SG	3:B:2416:HOH:O	2.54	0.65
1:B:1104:ILE:HD13	3:B:2565:HOH:O	1.97	0.65
1:B:1207:THR:CB	3:B:2716:HOH:O	2.44	0.65
1:B:1038:MSE:SE	3:B:2238:HOH:O	2.64	0.65
1:A:128:ARG:NH1	1:B:1128:ARG:HH12	1.95	0.65
1:B:1294:ALA:HB1	1:B:1442:LEU:CD1	2.27	0.65
1:A:471:PHE:CG	3:A:2711:HOH:O	2.49	0.64
1:A:321:ASN:HB3	3:A:2678:HOH:O	1.96	0.64
1:A:467:ASN:OD1	3:A:2275:HOH:O	2.14	0.64
1:A:129:ARG:HG3	1:A:130:PRO:HD2	1.77	0.64
1:A:377:PHE:CZ	1:A:389:ILE:HD11	2.32	0.64
1:A:468:VAL:HA	1:A:471:PHE:CE2	2.32	0.64
1:B:1169:LEU:N	1:B:1169:LEU:HD12	2.13	0.64
1:A:347:TYR:CD1	1:A:356:ALA:HB1	2.32	0.64
1:B:1188:THR:CG2	3:B:2409:HOH:O	2.46	0.64
1:B:1137:ILE:O	1:B:1140:ARG:HG2	1.98	0.63
1:B:1250:THR:HB	3:B:2746:HOH:O	1.97	0.63
1:B:1308:LEU:HD23	1:B:1389:ILE:HD11	1.79	0.63
1:A:40:PHE:HE2	1:A:565:LEU:HD12	1.62	0.63
1:B:1538:LYS:HA	3:B:2213:HOH:O	1.97	0.63
1:B:1038:MSE:HG2	1:B:1057:LYS:O	1.99	0.63
1:A:413:ARG:HD2	3:A:2134:HOH:O	1.98	0.63
1:B:1376:THR:HG22	1:B:1379:ASP:H	1.63	0.63
1:B:1349:LEU:HD21	1:B:1384:LEU:HD21	1.79	0.63
1:B:1059:GLU:CD	1:B:1067:ARG:HH12	2.02	0.63
1:A:524:ILE:HD12	3:A:2386:HOH:O	1.97	0.63
1:B:1112:TYR:CG	1:B:1113:THR:N	2.66	0.63
1:A:184:LEU:HG	1:A:198:CYS:HB3	1.81	0.63
1:A:208:ASP:N	3:A:2531:HOH:O	2.31	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:108:MSE:CE	1:A:519:ILE:HG21	2.29	0.62
1:A:308:LEU:HB3	1:A:389:ILE:CD1	2.28	0.62
1:B:1103:ASP:O	1:B:1107:LEU:HB2	2.00	0.62
1:B:1243:THR:HB	1:B:1248:ARG:NE	2.04	0.62
1:B:1404:ILE:HD12	1:B:1436:LEU:HD12	1.80	0.62
1:B:1414:PRO:HB3	3:B:2146:HOH:O	1.99	0.62
1:B:1214:LYS:HD3	3:B:2156:HOH:O	2.00	0.62
1:A:136:SER:OG	1:A:138:SER:HB2	2.00	0.62
1:A:85:ILE:HA	1:A:88:ILE:HD12	1.81	0.62
1:A:434:TYR:HB3	3:A:2178:HOH:O	2.00	0.62
1:A:113:THR:HB	1:A:114:PRO:CD	2.27	0.62
1:B:1177:MSE:SE	3:B:2597:HOH:O	2.68	0.61
1:B:1024:LYS:HB2	3:B:2310:HOH:O	1.99	0.61
1:B:1188:THR:HG21	3:B:2409:HOH:O	1.99	0.61
1:A:277:ASN:ND2	1:A:279:ASP:HB2	2.14	0.61
1:B:1082:TYR:HD2	1:B:1083:ILE:HD13	1.65	0.61
1:B:1207:THR:CG2	3:B:2716:HOH:O	2.44	0.61
1:B:1357:LYS:HB3	1:B:1357:LYS:NZ	2.16	0.61
1:A:189:ALA:O	1:A:520:GLN:NE2	2.34	0.61
1:B:1024:LYS:HE3	3:B:2310:HOH:O	2.00	0.61
1:B:1075:MSE:HG2	1:B:1080:GLU:CD	2.21	0.61
1:A:228:THR:HG23	3:A:2560:HOH:O	2.00	0.61
1:A:297:VAL:HG12	1:A:298:ILE:HD13	1.83	0.61
1:A:86:MSE:HE2	1:A:86:MSE:CA	2.28	0.61
1:B:1494:ALA:HB1	3:B:2727:HOH:O	2.00	0.61
1:A:183:LYS:HE3	3:A:2711:HOH:O	2.00	0.61
1:A:374:PRO:CD	1:A:383:ILE:HD13	2.31	0.61
1:A:261:ASN:HD22	1:A:264:ARG:HE	1.47	0.60
1:B:1110:ILE:CB	3:B:2496:HOH:O	2.48	0.60
1:A:177:MSE:HE1	1:A:181:VAL:HG23	1.83	0.60
1:A:454:LEU:CD2	3:A:2229:HOH:O	2.47	0.60
1:B:1389:ILE:HG21	3:B:2538:HOH:O	1.99	0.60
1:B:1152:GLU:HG3	3:B:2660:HOH:O	2.02	0.60
1:B:1184:LEU:HG	1:B:1198:CYS:HB3	1.83	0.60
1:B:1392:VAL:HG12	3:B:2035:HOH:O	2.01	0.60
1:B:1394:GLY:HA2	1:B:1420:SER:HB3	1.84	0.60
1:A:469:TYR:CE1	3:A:2681:HOH:O	2.52	0.60
1:A:505:GLU:H	1:A:505:GLU:CD	2.04	0.60
1:A:218:TYR:O	1:B:1057:LYS:HE2	2.01	0.60
1:B:1089:GLN:HG3	1:B:1090:GLU:N	2.16	0.60
1:A:112:TYR:O	1:A:116:VAL:HG12	2.01	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:177:MSE:CE	1:A:181:VAL:HG23	2.31	0.60
1:B:1399:PHE:CD1	3:B:2311:HOH:O	2.51	0.60
1:A:489:SER:HB2	1:A:533:TYR:OH	2.02	0.59
1:A:518:ASN:HA	3:A:2214:HOH:O	2.03	0.59
1:B:1513:TYR:C	3:B:2740:HOH:O	2.40	0.59
1:B:1091:ARG:HD2	3:B:2640:HOH:O	2.02	0.59
1:B:1282:GLY:O	1:B:1286:VAL:HG22	2.03	0.59
1:A:177:MSE:HG2	1:A:202:CYS:CB	2.33	0.59
1:A:342:TRP:HA	3:A:2437:HOH:O	2.01	0.59
1:A:401:PRO:O	1:A:405:ARG:HG2	2.03	0.59
1:B:1150:TRP:CE2	1:B:1199:LEU:HD13	2.38	0.59
1:B:1288:LEU:N	3:B:2547:HOH:O	2.34	0.59
1:A:116:VAL:HG13	3:A:2550:HOH:O	2.03	0.59
1:B:1428:CYS:HB3	3:B:2311:HOH:O	2.02	0.59
1:B:1469:TYR:CZ	1:B:1516:LEU:HD13	2.37	0.59
1:A:407:MSE:HE1	3:A:2256:HOH:O	2.03	0.59
1:B:1079:LEU:HD21	1:B:1122:GLN:HG3	1.85	0.59
1:B:1433:ALA:O	1:B:1437:THR:HG23	2.03	0.59
1:B:1515:PRO:HG2	1:B:1518:ASN:ND2	2.15	0.59
1:A:112:TYR:CG	1:A:113:THR:N	2.71	0.59
1:B:1413:ARG:HA	1:B:1440:ARG:O	2.02	0.59
1:B:1086:MSE:CE	1:B:1096:PHE:CE1	2.86	0.58
1:B:1429:THR:HG22	1:B:1432:GLU:CG	2.33	0.58
1:B:1429:THR:HG22	1:B:1432:GLU:OE1	2.03	0.58
1:A:462:PRO:HG3	3:A:2582:HOH:O	2.02	0.58
1:A:108:MSE:N	1:A:109:PRO:HD2	2.18	0.58
1:A:505:GLU:HG2	3:A:2714:HOH:O	2.03	0.58
1:B:1277:ASN:ND2	1:B:1279:ASP:H	2.01	0.58
1:A:103:ASP:HB3	1:A:107:LEU:HD22	1.84	0.58
1:A:75:MSE:SE	3:A:2308:HOH:O	2.71	0.58
1:B:1286:VAL:HG11	1:B:1466:ASN:O	2.03	0.58
1:A:404:ILE:HG22	3:A:2220:HOH:O	2.02	0.58
1:A:72:LEU:HA	1:A:75:MSE:CE	2.28	0.58
1:B:1077:SER:O	1:B:1081:LYS:HG3	2.04	0.58
1:B:1207:THR:HB	3:B:2716:HOH:O	2.03	0.58
1:A:137:ILE:HG13	1:A:137:ILE:O	2.03	0.58
1:A:379:ASP:O	1:A:383:ILE:HD12	2.03	0.58
1:A:438:GLU:HA	3:A:2555:HOH:O	2.03	0.58
1:B:1153:ASN:ND2	1:B:1245:ARG:HH21	2.02	0.58
1:B:1298:ILE:HD11	1:B:1442:LEU:HD11	1.85	0.58
1:A:416:ILE:HD11	1:A:441:CYS:SG	2.44	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1298:ILE:O	1:B:1300:LYS:N	2.36	0.58
1:A:60:THR:O	1:A:64:GLN:HG3	2.03	0.58
1:B:1302:ILE:CD1	3:B:2722:HOH:O	2.52	0.58
1:B:1454:LEU:CD1	1:B:1458:ARG:HB2	2.34	0.58
1:B:1559:ARG:HG2	3:B:2338:HOH:O	2.04	0.58
1:A:286:VAL:HG13	1:A:470:ILE:HG12	1.84	0.58
1:A:458:ARG:NH2	3:A:2700:HOH:O	2.37	0.57
1:B:1525:ASN:O	1:B:1529:LYS:HG2	2.04	0.57
1:A:293:ALA:O	1:A:296:LYS:HB2	2.03	0.57
1:A:381:VAL:CG2	1:A:407:MSE:HE1	2.34	0.57
1:B:1573:PRO:HA	3:B:2734:HOH:O	2.03	0.57
1:A:129:ARG:HB3	3:A:2434:HOH:O	2.03	0.57
1:A:86:MSE:CE	1:A:96:PHE:CE1	2.88	0.57
1:B:1117:GLY:O	1:B:1169:LEU:HD21	2.04	0.57
1:B:1231:TYR:O	1:B:1235:ILE:HG12	2.04	0.57
1:A:405:ARG:CA	3:A:2512:HOH:O	2.52	0.57
1:B:1401:PRO:HA	1:B:1436:LEU:CD1	2.34	0.57
1:A:109:PRO:HA	1:A:113:THR:HB	1.86	0.57
1:A:505:GLU:O	1:A:509:GLN:HG3	2.04	0.57
1:B:1300:LYS:HD3	1:B:1304:GLU:HB3	1.86	0.57
1:B:1315:ALA:HB3	1:B:1392:VAL:CG1	2.34	0.57
1:A:166:ILE:N	1:A:166:ILE:HD12	2.20	0.57
1:A:277:ASN:ND2	1:A:279:ASP:H	2.03	0.57
1:A:36:LYS:O	1:A:39:ALA:HB3	2.05	0.57
1:B:1043:GLN:NE2	1:B:1566:LEU:HD11	2.20	0.57
1:B:1123:TYR:HB3	1:B:1175:TYR:CD2	2.39	0.57
1:B:1399:PHE:CG	1:B:1427:GLU:HB3	2.40	0.57
1:A:315:ALA:HB3	1:A:392:VAL:HG11	1.85	0.57
1:A:437:THR:CG2	3:A:2220:HOH:O	2.45	0.57
1:B:1073:LYS:HE2	1:B:1074:LYS:NZ	2.20	0.57
1:A:430:ALA:HB2	3:A:2582:HOH:O	2.05	0.56
1:B:1033:ARG:NH1	1:B:1093:GLU:OE1	2.38	0.56
1:A:440:ARG:HB3	3:A:2134:HOH:O	2.05	0.56
1:A:41:THR:OG1	1:A:44:GLU:HG3	2.05	0.56
1:B:1195:PRO:HG3	3:B:2409:HOH:O	2.06	0.56
1:A:248:ARG:HB3	1:A:484:ARG:NH2	2.21	0.56
1:A:397:ARG:NE	3:A:2162:HOH:O	2.37	0.56
1:A:139:ASP:OD2	1:A:146:ILE:HD11	2.06	0.56
1:A:349:LEU:HD21	1:A:384:LEU:HD21	1.86	0.56
1:A:52:GLY:HA3	1:B:1146:ILE:HG23	1.87	0.56
1:A:543:TYR:C	1:A:545:GLU:N	2.58	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1218:TYR:CZ	3:B:2716:HOH:O	2.53	0.56
1:B:1177:MSE:HG2	1:B:1202:CYS:HB3	1.88	0.56
1:A:526:ILE:O	1:A:530:VAL:HG23	2.05	0.55
1:B:1177:MSE:N	3:B:2416:HOH:O	2.39	0.55
1:B:1489:SER:HA	3:B:2514:HOH:O	2.06	0.55
1:A:431:GLU:HB3	3:A:2735:HOH:O	2.05	0.55
1:B:1319:ILE:HG22	1:B:1323:ILE:HD12	1.88	0.55
1:B:1194:ARG:HB2	1:B:1197:ARG:HG3	1.88	0.55
1:A:282:GLY:O	1:A:286:VAL:HG22	2.06	0.55
1:A:70:ARG:O	1:A:74:LYS:HG3	2.07	0.55
1:B:1385:LYS:HA	3:B:2585:HOH:O	2.06	0.55
1:A:381:VAL:HG13	3:A:2256:HOH:O	2.07	0.55
1:A:382:ASN:O	1:A:385:LYS:HG3	2.07	0.55
1:B:1057:LYS:CB	3:B:2238:HOH:O	2.44	0.55
1:A:381:VAL:HG22	1:A:407:MSE:HE1	1.87	0.55
1:A:394:GLY:HA2	1:A:420:SER:HB3	1.89	0.55
1:A:177:MSE:HG2	1:A:202:CYS:HB2	1.88	0.55
1:B:1023:GLU:HA	3:B:2347:HOH:O	2.07	0.55
1:A:139:ASP:CG	1:A:146:ILE:HD11	2.26	0.55
1:B:1294:ALA:O	1:B:1297:VAL:HB	2.07	0.55
1:A:342:TRP:CH2	1:A:367:HIS:HB2	2.42	0.55
1:A:71:ASN:O	1:A:75:MSE:CE	2.55	0.54
1:B:1068:PHE:CZ	1:B:1072:LEU:HD13	2.42	0.54
1:B:1143:VAL:O	1:B:1147:VAL:HG23	2.07	0.54
1:A:57:LYS:HD2	1:B:1218:TYR:O	2.07	0.54
1:A:219:MSE:HE3	3:A:2095:HOH:O	2.06	0.54
1:A:283:THR:HA	3:A:2275:HOH:O	2.07	0.54
1:A:315:ALA:O	1:A:319:ILE:HD12	2.06	0.54
1:A:346:LYS:HE3	1:A:347:TYR:CZ	2.41	0.54
1:A:370:PRO:HD2	3:A:2556:HOH:O	2.06	0.54
1:A:79:LEU:HD13	1:A:118:LEU:HD13	1.88	0.54
1:A:81:LYS:HE3	3:A:2451:HOH:O	2.07	0.54
1:B:1061:GLN:HA	1:B:1064:GLN:HE21	1.71	0.54
1:B:1064:GLN:OE1	3:B:2704:HOH:O	2.18	0.54
1:B:1131:LYS:HE3	3:B:2094:HOH:O	2.07	0.54
1:B:1243:THR:HG22	3:B:2746:HOH:O	2.06	0.54
1:B:1253:GLN:HG3	1:B:1276:PHE:CZ	2.43	0.54
1:B:1401:PRO:HA	1:B:1436:LEU:HD13	1.89	0.54
1:A:23:GLU:HG2	1:A:24:LYS:H	1.70	0.54
1:A:520:GLN:HG3	3:A:2214:HOH:O	2.06	0.54
1:A:412:GLU:HG3	1:A:413:ARG:HG2	1.88	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:476:LEU:CD2	3:A:2386:HOH:O	2.45	0.54
1:A:484:ARG:HG3	1:A:541:PHE:CE1	2.42	0.54
1:B:1332:LEU:HD12	1:B:1332:LEU:N	2.22	0.54
1:A:283:THR:OG1	3:A:2275:HOH:O	2.19	0.54
1:B:1235:ILE:O	1:B:1239:MSE:HG2	2.07	0.54
1:B:1296:LYS:NZ	3:B:2480:HOH:O	2.39	0.54
1:A:416:ILE:HG22	3:A:2333:HOH:O	2.08	0.54
1:B:1344:PHE:CZ	1:B:1348:GLY:HA2	2.43	0.54
1:B:1104:ILE:HG12	1:B:1108:MSE:HE2	1.90	0.54
1:B:1047:MSE:HE3	3:B:2742:HOH:O	2.07	0.53
1:B:1144:ARG:NH1	1:B:1245:ARG:HB2	2.23	0.53
1:B:1248:ARG:HD2	1:B:1248:ARG:N	2.23	0.53
1:B:1414:PRO:CA	3:B:2146:HOH:O	2.49	0.53
1:A:225:ARG:CB	3:A:2531:HOH:O	2.54	0.53
1:A:261:ASN:ND2	1:A:264:ARG:HE	2.05	0.53
1:A:183:LYS:NZ	1:A:255:GLU:OE1	2.41	0.53
1:A:165:ARG:HD3	1:A:258:GLY:HA2	1.89	0.53
1:B:1036:LYS:NZ	3:B:2244:HOH:O	2.40	0.53
1:B:1346:LYS:HE2	1:B:1347:TYR:CZ	2.44	0.53
1:A:277:ASN:HD22	1:A:277:ASN:C	2.11	0.53
1:B:1043:GLN:CB	3:B:2742:HOH:O	2.53	0.53
1:B:1385:LYS:HD2	3:B:2680:HOH:O	2.07	0.53
1:B:1388:THR:OG1	1:B:1415:VAL:HB	2.08	0.53
1:A:372:SER:O	1:A:383:ILE:HG21	2.09	0.53
1:B:1261:ASN:ND2	1:B:1264:ARG:NE	2.52	0.53
1:B:1389:ILE:HG12	3:B:2538:HOH:O	2.09	0.53
1:A:343:MSE:HE2	1:A:365:PHE:HB2	1.91	0.53
1:A:344:PHE:CD1	1:A:349:LEU:N	2.76	0.53
1:B:1108:MSE:N	1:B:1109:PRO:HD2	2.23	0.53
1:B:1109:PRO:HA	1:B:1114:PRO:CD	2.39	0.53
1:B:1389:ILE:HG23	1:B:1399:PHE:CZ	2.44	0.53
1:A:213:LEU:HD11	1:A:224:LYS:HD3	1.89	0.53
1:A:374:PRO:HG3	1:A:380:ALA:CA	2.36	0.53
1:B:1177:MSE:CG	3:B:2597:HOH:O	2.57	0.53
1:B:1412:GLU:HG3	1:B:1413:ARG:HG2	1.90	0.53
1:A:177:MSE:HE1	1:A:181:VAL:CG2	2.38	0.52
1:A:452:VAL:O	1:A:452:VAL:HG12	2.09	0.52
3:A:2638:HOH:O	1:B:1125:HIS:HB3	2.09	0.52
1:A:129:ARG:HG3	1:A:130:PRO:CD	2.39	0.52
1:A:501:GLN:HE22	1:A:525:ASN:HD22	1.58	0.52
1:A:207:THR:C	3:A:2531:HOH:O	2.47	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:392:VAL:CG1	1:A:392:VAL:O	2.49	0.52
1:B:1205:VAL:HG22	3:B:2363:HOH:O	2.08	0.52
1:B:1310:LEU:HB3	1:B:1391:GLY:HA2	1.90	0.52
1:B:1407:MSE:HE3	3:B:2538:HOH:O	2.09	0.52
1:B:1514:PRO:N	3:B:2740:HOH:O	2.41	0.52
1:A:278:ASP:OD1	1:A:282:GLY:HA3	2.09	0.52
1:A:452:VAL:HG12	1:A:454:LEU:HD21	1.92	0.52
1:B:1289:ALA:HA	3:B:2674:HOH:O	2.09	0.52
1:A:143:VAL:O	1:A:147:VAL:HG23	2.09	0.52
1:B:1406:ALA:O	1:B:1410:ILE:HD12	2.09	0.52
1:B:1478:VAL:HG13	1:B:1483:THR:HB	1.92	0.52
1:A:552:TYR:O	1:A:556:ARG:HD2	2.10	0.52
1:B:1523:SER:CB	3:B:2252:HOH:O	2.52	0.52
1:A:437:THR:O	1:A:438:GLU:HB2	2.09	0.52
1:A:80:GLU:HG2	3:A:2308:HOH:O	2.09	0.52
1:B:1193:ILE:C	3:B:2518:HOH:O	2.46	0.52
1:B:1297:VAL:HG12	1:B:1298:ILE:CD1	2.32	0.52
1:A:377:PHE:CE2	1:A:389:ILE:HD11	2.45	0.52
1:A:386:PRO:CG	3:A:2256:HOH:O	2.53	0.52
1:B:1086:MSE:CA	1:B:1086:MSE:HE2	2.34	0.52
1:A:128:ARG:NH2	1:B:1128:ARG:NH1	2.55	0.52
1:B:1373:ILE:HG22	1:B:1373:ILE:O	2.08	0.52
1:A:103:ASP:HB3	1:A:107:LEU:CD2	2.39	0.51
1:A:347:TYR:HD1	1:A:356:ALA:HB1	1.76	0.51
1:A:435:THR:HG22	3:A:2229:HOH:O	2.10	0.51
1:B:1095:LEU:HG	1:B:1099:ILE:HD12	1.91	0.51
1:B:1099:ILE:HG22	1:B:1100:LEU:N	2.23	0.51
1:B:1286:VAL:HG12	3:B:2570:HOH:O	2.10	0.51
1:A:104:ILE:O	1:A:108:MSE:HG3	2.10	0.51
1:A:378:GLU:HG3	1:A:403:VAL:HG23	1.93	0.51
1:B:1110:ILE:HG13	3:B:2496:HOH:O	2.09	0.51
1:B:1165:ARG:CZ	3:B:2673:HOH:O	2.58	0.51
1:A:265:PHE:CD1	3:A:2457:HOH:O	2.53	0.51
1:B:1079:LEU:O	1:B:1083:ILE:HG12	2.10	0.51
1:B:1227:ARG:HG2	1:B:1227:ARG:HH11	1.75	0.51
1:B:1287:ALA:HB3	3:B:2547:HOH:O	2.10	0.51
1:B:1453:LYS:HB2	1:B:1459:VAL:HG13	1.92	0.51
1:B:1467:ASN:ND2	2:B:1601:NAD:H71N	2.09	0.51
1:B:1543:TYR:C	1:B:1545:GLU:N	2.63	0.51
1:A:277:ASN:HD22	1:A:279:ASP:N	2.09	0.51
1:A:310:LEU:CD2	1:A:427:GLU:HG2	2.40	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1086:MSE:CE	1:B:1096:PHE:HE1	2.23	0.51
1:B:1292:LEU:CD1	3:B:2674:HOH:O	2.59	0.51
1:B:1109:PRO:HA	1:B:1114:PRO:HD2	1.93	0.51
1:B:1292:LEU:HD12	3:B:2674:HOH:O	2.09	0.51
1:A:104:ILE:HG13	1:A:108:MSE:CE	2.33	0.51
1:A:346:LYS:HE3	1:A:347:TYR:CE2	2.46	0.51
1:B:1315:ALA:HB3	1:B:1392:VAL:HG11	1.91	0.51
1:A:329:GLU:HG3	1:A:329:GLU:O	2.11	0.51
1:A:333:SER:HB3	1:A:336:GLU:OE2	2.11	0.51
1:B:1047:MSE:HG3	3:B:2742:HOH:O	2.11	0.51
1:A:108:MSE:HE1	1:A:519:ILE:HG21	1.92	0.50
1:A:459:VAL:HG13	3:A:2189:HOH:O	2.11	0.50
1:A:86:MSE:CE	1:A:86:MSE:HA	2.28	0.50
1:B:1301:PRO:O	1:B:1304:GLU:HB2	2.11	0.50
1:A:24:LYS:HB2	1:A:48:LEU:O	2.12	0.50
1:A:404:ILE:HG22	3:A:2063:HOH:O	2.12	0.50
1:A:458:ARG:CZ	3:A:2700:HOH:O	2.58	0.50
1:B:1086:MSE:HA	1:B:1086:MSE:CE	2.38	0.50
1:A:39:ALA:HA	1:A:59:GLU:O	2.11	0.50
1:B:1378:GLU:CD	1:B:1402:ASP:HB3	2.31	0.50
1:B:1039:ALA:N	3:B:2704:HOH:O	2.44	0.50
1:B:1494:ALA:CB	3:B:2727:HOH:O	2.57	0.50
1:A:261:ASN:HD22	1:A:264:ARG:NE	2.09	0.50
1:A:352:LYS:HB2	1:A:368:SER:HA	1.93	0.50
1:B:1031:ASN:HB3	1:B:1034:THR:OG1	2.12	0.50
1:B:1068:PHE:HB2	3:B:2449:HOH:O	2.11	0.50
1:B:1354:ARG:HD3	1:B:1358:ILE:CD1	2.38	0.50
1:B:1428:CYS:CB	3:B:2311:HOH:O	2.58	0.50
1:A:175:TYR:HE2	1:A:219:MSE:HG3	1.77	0.50
1:A:408:ALA:HB2	3:A:2063:HOH:O	2.11	0.50
1:A:415:VAL:CG1	3:A:2287:HOH:O	2.59	0.50
1:B:1094:LYS:C	3:B:2583:HOH:O	2.50	0.50
1:A:113:THR:CB	1:A:114:PRO:CD	2.88	0.50
1:A:78:PRO:HA	1:A:81:LYS:HG3	1.94	0.50
1:B:1453:LYS:HA	1:B:1459:VAL:HA	1.93	0.50
1:A:372:SER:O	1:A:383:ILE:HG12	2.12	0.50
1:A:45:ARG:HA	1:A:50:LEU:HD12	1.93	0.50
1:B:1195:PRO:CG	3:B:2409:HOH:O	2.60	0.50
1:A:478:VAL:HG13	1:A:483:THR:HB	1.93	0.49
1:B:1154:HIS:O	1:B:1197:ARG:HD3	2.11	0.49
1:B:1469:TYR:HB3	1:B:1498:LEU:HD22	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1381:VAL:CG2	1:B:1407:MSE:HE1	2.43	0.49
1:A:183:LYS:NZ	1:A:255:GLU:OE2	2.44	0.49
1:A:418:ALA:O	1:A:445:SER:HA	2.12	0.49
1:A:462:PRO:CB	3:A:2582:HOH:O	2.59	0.49
1:B:1538:LYS:NZ	1:B:1543:TYR:OH	2.42	0.49
1:A:183:LYS:O	3:A:2534:HOH:O	2.20	0.49
1:B:1502:LEU:HD11	1:B:1512:LEU:C	2.32	0.49
1:B:1060:THR:O	1:B:1064:GLN:HG3	2.11	0.49
1:B:1277:ASN:HD21	1:B:1279:ASP:HB2	1.77	0.49
1:B:1310:LEU:HG	1:B:1393:ALA:HB2	1.95	0.49
1:A:23:GLU:CG	1:A:24:LYS:H	2.26	0.49
1:B:1489:SER:HB2	1:B:1533:TYR:OH	2.13	0.49
1:A:128:ARG:HG3	3:A:2271:HOH:O	2.12	0.49
1:A:467:ASN:ND2	3:A:2275:HOH:O	2.46	0.49
1:B:1140:ARG:HH11	1:B:1140:ARG:HG2	1.78	0.49
1:B:1357:LYS:CB	1:B:1357:LYS:NZ	2.75	0.49
1:B:1414:PRO:HD2	1:B:1440:ARG:O	2.13	0.49
1:B:1511:ARG:CG	1:B:1511:ARG:HH11	2.25	0.49
1:A:323:ILE:HG22	1:A:327:MSE:HE2	1.94	0.49
1:A:99:ILE:CG2	3:A:2715:HOH:O	2.50	0.49
1:B:1513:TYR:CB	3:B:2740:HOH:O	2.33	0.49
1:A:26:LYS:HA	1:A:29:MSE:HG3	1.95	0.48
1:A:327:MSE:HE3	1:A:337:ALA:CB	2.41	0.48
1:B:1061:GLN:NE2	3:B:2349:HOH:O	2.46	0.48
1:B:1294:ALA:CA	1:B:1442:LEU:HD13	2.43	0.48
1:A:408:ALA:HA	1:A:414:PRO:HG3	1.95	0.48
1:A:399:PHE:HB2	1:A:428:CYS:HB3	1.94	0.48
1:A:35:ASN:ND2	1:A:91:ARG:O	2.44	0.48
1:A:376:THR:HG22	1:A:379:ASP:N	2.18	0.48
1:A:100:LEU:HD12	1:A:100:LEU:O	2.13	0.48
1:A:443:PHE:CD2	3:A:2582:HOH:O	2.65	0.48
1:A:535:TYR:CD2	1:A:540:ALA:HB3	2.49	0.48
1:B:1169:LEU:N	1:B:1169:LEU:CD1	2.77	0.48
1:B:1069:HIS:O	1:B:1073:LYS:HB3	2.13	0.48
1:B:1144:ARG:NH1	1:B:1148:ASP:OD1	2.47	0.48
1:A:156:LYS:HD2	1:A:156:LYS:HA	1.70	0.48
1:A:157:ALA:HB2	1:A:479:ILE:HD11	1.95	0.48
1:A:415:VAL:HG12	3:A:2287:HOH:O	2.13	0.48
1:A:528:ILE:HD13	1:A:550:ALA:HA	1.95	0.48
1:A:82:TYR:CD2	1:A:83:ILE:HD13	2.43	0.48
1:A:33:ARG:NH1	1:A:93:GLU:OE1	2.47	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1351:VAL:CG1	1:B:1369:ALA:HB2	2.40	0.48
1:B:1442:LEU:CD1	3:B:2614:HOH:O	2.48	0.48
1:B:1415:VAL:HG22	1:B:1442:LEU:HB2	1.96	0.48
1:A:377:PHE:O	1:A:381:VAL:HG23	2.13	0.48
1:A:109:PRO:HA	1:A:114:PRO:CD	2.44	0.48
1:A:31:ASN:HB3	1:A:34:THR:OG1	2.12	0.48
1:B:1277:ASN:C	1:B:1277:ASN:ND2	2.67	0.48
1:B:1363:GLU:N	1:B:1364:PRO:HD2	2.29	0.48
1:A:203:ILE:HG22	1:A:205:VAL:HG13	1.95	0.48
1:B:1213:LEU:HB2	3:B:2156:HOH:O	2.14	0.48
1:B:1345:ASP:HB2	2:B:1601:NAD:O2B	2.14	0.48
1:A:101:GLN:NE2	3:A:2709:HOH:O	2.28	0.47
1:B:1182:GLY:O	1:B:1185:CYS:HB2	2.14	0.47
1:A:118:LEU:O	1:A:122:GLN:HG2	2.13	0.47
1:B:1073:LYS:HE2	1:B:1074:LYS:CE	2.45	0.47
1:B:1202:CYS:HB2	3:B:2416:HOH:O	2.14	0.47
1:A:231:TYR:O	1:A:235:ILE:HG12	2.14	0.47
1:A:357:LYS:O	1:A:358:ILE:HD12	2.15	0.47
1:A:421:ASN:HB3	1:A:422:PRO:HA	1.97	0.47
1:B:1177:MSE:HA	3:B:2416:HOH:O	2.14	0.47
1:B:1372:SER:O	1:B:1374:PRO:HD3	2.15	0.47
1:A:401:PRO:HA	1:A:436:LEU:CD2	2.45	0.47
1:B:1131:LYS:NZ	3:B:2137:HOH:O	2.46	0.47
1:A:414:PRO:CA	3:A:2752:HOH:O	2.63	0.47
1:B:1105:GLU:HB3	3:B:2228:HOH:O	2.14	0.47
1:B:1165:ARG:NH2	3:B:2673:HOH:O	2.46	0.47
1:B:1301:PRO:HG3	3:B:2524:HOH:O	2.15	0.47
1:A:177:MSE:CE	1:A:181:VAL:CG2	2.93	0.47
1:A:28:LEU:CD2	1:A:48:LEU:HG	2.45	0.47
1:B:1166:ILE:HG13	1:B:1172:LEU:HD12	1.95	0.47
1:B:1414:PRO:CB	3:B:2146:HOH:O	2.59	0.47
1:B:1109:PRO:CA	1:B:1114:PRO:HD2	2.44	0.47
1:A:171:ASP:OD1	1:A:171:ASP:C	2.53	0.47
1:A:286:VAL:HG11	1:A:466:ASN:O	2.15	0.47
1:B:1558:TRP:CE3	3:B:2409:HOH:O	2.68	0.47
1:B:1137:ILE:O	1:B:1140:ARG:NH1	2.46	0.47
1:B:1179:ILE:HG21	3:B:2405:HOH:O	2.15	0.47
1:B:1267:ARG:CZ	1:B:1267:ARG:HB3	2.45	0.47
1:A:241:ALA:HA	3:A:2305:HOH:O	2.15	0.47
1:A:310:LEU:HD23	1:A:427:GLU:CG	2.42	0.47
1:A:435:THR:CA	3:A:2229:HOH:O	2.55	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1295:GLN:C	1:B:1297:VAL:H	2.18	0.47
1:A:194:ARG:NH2	1:A:196:ASP:OD2	2.48	0.46
1:B:1122:GLN:HB2	1:B:1126:ILE:HG12	1.97	0.46
1:A:133:LEU:HD13	1:A:150:TRP:HE3	1.81	0.46
1:B:1215:ASP:OD1	1:B:1216:PRO:HD2	2.15	0.46
1:B:1328:VAL:HA	1:B:1332:LEU:O	2.16	0.46
1:B:1308:LEU:CB	1:B:1386:PRO:HG3	2.44	0.46
1:A:110:ILE:O	1:A:115:THR:HB	2.15	0.46
1:A:553:VAL:HG22	3:A:2141:HOH:O	2.15	0.46
1:B:1321:ASN:HB3	3:B:2288:HOH:O	2.15	0.46
1:B:1429:THR:HG22	1:B:1432:GLU:CD	2.35	0.46
1:A:91:ARG:HH12	1:B:1090:GLU:CD	2.19	0.46
1:B:1156:LYS:HA	1:B:1156:LYS:HD2	1.74	0.46
1:A:225:ARG:HG2	1:A:225:ARG:HH11	1.80	0.46
1:A:344:PHE:CZ	1:A:348:GLY:HA2	2.50	0.46
1:A:417:PHE:HD2	3:A:2571:HOH:O	1.98	0.46
1:A:57:LYS:NZ	1:A:59:GLU:OE2	2.44	0.46
1:B:1068:PHE:CD2	1:B:1068:PHE:C	2.88	0.46
1:A:208:ASP:HA	1:A:224:LYS:HD2	1.97	0.46
1:A:323:ILE:O	1:A:327:MSE:HG3	2.15	0.46
1:A:524:ILE:O	1:A:527:ALA:HB3	2.16	0.46
2:A:602:NAD:H52N	3:A:2302:HOH:O	2.15	0.46
1:B:1277:ASN:HD22	1:B:1279:ASP:H	1.63	0.46
1:B:1288:LEU:HD21	1:B:1492:LEU:CD1	2.45	0.46
1:A:429:THR:HG22	1:A:432:GLU:OE1	2.15	0.46
1:B:1354:ARG:HG2	1:B:1356:ALA:O	2.16	0.46
1:A:483:THR:HG23	3:A:2032:HOH:O	2.15	0.46
1:B:1267:ARG:HH11	1:B:1267:ARG:HG2	1.81	0.46
1:B:1393:ALA:HA	2:B:1601:NAD:O4B	2.16	0.46
1:B:1389:ILE:HG22	1:B:1416:ILE:HA	1.97	0.46
1:A:129:ARG:HD3	3:B:2650:HOH:O	2.16	0.46
1:A:288:LEU:CG	3:A:2469:HOH:O	2.51	0.46
1:B:1325:MSE:HE1	3:B:2514:HOH:O	2.12	0.46
1:B:1502:LEU:HD23	1:B:1506:GLU:OE1	2.15	0.46
1:A:122:GLN:O	1:A:123:TYR:C	2.53	0.45
1:A:383:ILE:HG22	1:A:384:LEU:HD13	1.98	0.45
1:A:407:MSE:HB2	1:A:407:MSE:HE2	1.84	0.45
1:B:1315:ALA:HB3	1:B:1392:VAL:HG13	1.98	0.45
1:A:103:ASP:O	1:A:107:LEU:HB2	2.16	0.45
1:A:134:PHE:CE2	1:A:177:MSE:HG3	2.51	0.45
1:A:442:LEU:HA	3:A:2371:HOH:O	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1167:LEU:N	1:B:1167:LEU:HD23	2.30	0.45
1:B:1243:THR:HG22	1:B:1247:GLY:O	2.16	0.45
1:A:310:LEU:HD21	1:A:398:LEU:HB2	1.98	0.45
1:A:462:PRO:CG	3:A:2582:HOH:O	2.62	0.45
1:A:108:MSE:N	1:A:109:PRO:CD	2.79	0.45
1:A:172:LEU:O	1:A:175:TYR:HB2	2.16	0.45
1:A:288:LEU:HD22	1:A:322:LEU:HG	1.99	0.45
1:A:374:PRO:HB3	1:A:379:ASP:CB	2.47	0.45
1:A:407:MSE:SE	3:A:2256:HOH:O	2.85	0.45
1:B:1376:THR:HG22	1:B:1378:GLU:N	2.31	0.45
1:A:33:ARG:NH2	1:A:196:ASP:HA	2.32	0.45
1:B:1166:ILE:HG22	1:B:1167:LEU:HG	1.99	0.45
1:B:1250:THR:N	3:B:2746:HOH:O	2.49	0.45
1:A:212:LEU:HD22	1:A:218:TYR:CD2	2.50	0.45
1:A:466:ASN:HB3	3:A:2681:HOH:O	2.08	0.45
1:A:538:LYS:HA	3:A:2201:HOH:O	2.17	0.45
1:A:71:ASN:O	1:A:75:MSE:HE3	2.16	0.45
1:B:1076:THR:N	1:B:1080:GLU:OE2	2.49	0.45
1:B:1194:ARG:CA	3:B:2518:HOH:O	2.53	0.45
1:A:326:SER:HB2	1:A:492:LEU:HD11	1.99	0.45
1:A:208:ASP:OD1	1:A:224:LYS:HD2	2.17	0.45
1:A:253:GLN:HG3	1:A:276:PHE:CZ	2.52	0.45
1:A:97:TYR:O	1:A:101:GLN:HG3	2.17	0.45
1:B:1120:CYS:O	1:B:1175:TYR:HB3	2.16	0.45
1:B:1238:PHE:CE1	1:B:1242:ILE:HG13	2.52	0.45
1:A:300:LYS:HE3	1:A:304:GLU:HB3	1.99	0.45
3:A:2541:HOH:O	1:B:1026:LYS:HE3	2.17	0.45
1:B:1286:VAL:HG21	1:B:1467:ASN:ND2	2.32	0.45
1:B:1295:GLN:C	1:B:1297:VAL:N	2.71	0.45
1:B:1529:LYS:NZ	3:B:2699:HOH:O	2.49	0.45
1:A:164:GLU:O	1:A:164:GLU:HG3	2.16	0.45
1:A:315:ALA:HB3	1:A:392:VAL:CG1	2.45	0.45
1:A:467:ASN:C	1:A:469:TYR:H	2.18	0.45
1:B:1343:MSE:SE	3:B:2102:HOH:O	2.85	0.45
1:B:1466:ASN:OD1	1:B:1468:VAL:HG13	2.16	0.45
1:A:183:LYS:CE	3:A:2711:HOH:O	2.63	0.44
1:A:253:GLN:HG3	1:A:276:PHE:CE2	2.52	0.44
1:B:1041:THR:OG1	1:B:1044:GLU:HG3	2.18	0.44
1:B:1087:GLY:HA2	1:B:1090:GLU:HG2	1.99	0.44
1:B:1106:SER:C	1:B:1109:PRO:HD2	2.38	0.44
1:A:87:GLY:O	1:A:91:ARG:HG3	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1029:MSE:SE	1:B:1050:LEU:HD22	2.67	0.44
1:B:1407:MSE:N	3:B:2312:HOH:O	2.45	0.44
1:B:1043:GLN:CD	3:B:2742:HOH:O	2.56	0.44
1:B:1073:LYS:HG2	1:B:1074:LYS:N	2.33	0.44
1:B:1108:MSE:CE	1:B:1519:ILE:HG21	2.48	0.44
1:B:1118:LEU:HD22	1:B:1122:GLN:HE21	1.82	0.44
1:A:113:THR:CG2	1:A:114:PRO:HD3	2.47	0.44
1:A:183:LYS:NZ	1:A:255:GLU:CD	2.71	0.44
1:A:277:ASN:ND2	1:A:279:ASP:N	2.63	0.44
1:A:381:VAL:O	1:A:385:LYS:HA	2.16	0.44
1:A:557:THR:CG2	3:A:2386:HOH:O	2.47	0.44
1:B:1381:VAL:HG22	1:B:1407:MSE:HE1	1.99	0.44
1:A:214:LYS:NZ	3:A:2463:HOH:O	2.46	0.44
1:A:363:GLU:HG2	1:A:364:PRO:HD3	2.00	0.44
1:A:66:LEU:O	1:A:70:ARG:HG3	2.17	0.44
1:B:1376:THR:O	1:B:1379:ASP:HB2	2.17	0.44
1:A:112:TYR:O	1:A:113:THR:C	2.56	0.44
1:A:277:ASN:HD22	1:A:279:ASP:H	1.63	0.44
1:B:1109:PRO:C	1:B:1114:PRO:HD2	2.37	0.44
1:B:1383:ILE:HG22	1:B:1384:LEU:HD13	2.00	0.44
1:A:261:ASN:ND2	1:A:264:ARG:NE	2.65	0.44
1:B:1194:ARG:N	3:B:2518:HOH:O	2.50	0.44
1:A:225:ARG:CG	1:A:225:ARG:HH11	2.30	0.44
1:A:430:ALA:CB	3:A:2582:HOH:O	2.65	0.44
1:A:436:LEU:HB2	3:A:2220:HOH:O	2.16	0.44
1:A:452:VAL:C	3:A:2189:HOH:O	2.55	0.44
1:B:1153:ASN:HB2	3:B:2730:HOH:O	2.18	0.44
1:B:1187:TYR:O	1:B:1191:ALA:HB3	2.18	0.44
1:A:209:ASN:HB3	1:A:212:LEU:HD12	2.00	0.44
1:A:89:GLN:HG3	1:A:90:GLU:N	2.33	0.44
1:B:1294:ALA:HA	1:B:1442:LEU:HD13	2.00	0.44
1:A:67:ARG:CZ	3:A:2659:HOH:O	2.65	0.43
1:B:1038:MSE:HB2	1:B:1038:MSE:HE3	1.95	0.43
1:B:1089:GLN:OE1	1:B:1131:LYS:HE2	2.18	0.43
1:A:430:ALA:O	1:A:434:TYR:HD1	2.02	0.43
1:A:518:ASN:CB	3:A:2661:HOH:O	2.51	0.43
1:B:1385:LYS:CA	3:B:2585:HOH:O	2.64	0.43
1:A:167:LEU:HB2	1:A:168:GLY:H	1.58	0.43
1:A:397:ARG:HA	1:A:427:GLU:O	2.18	0.43
1:B:1177:MSE:CA	3:B:2416:HOH:O	2.66	0.43
1:B:1306:LYS:HB3	1:B:1386:PRO:HA	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1408:ALA:HB2	1:B:1437:THR:HG22	2.01	0.43
1:A:109:PRO:CA	1:A:114:PRO:HD2	2.48	0.43
1:A:243:THR:HG22	1:A:247:GLY:O	2.19	0.43
1:A:327:MSE:HB3	1:A:332:LEU:HD22	2.00	0.43
1:A:64:GLN:HE22	1:A:562:TYR:HE1	1.65	0.43
1:B:1040:PHE:HE2	1:B:1565:LEU:HD11	1.84	0.43
1:A:467:ASN:C	1:A:469:TYR:N	2.71	0.43
1:B:1036:LYS:O	1:B:1039:ALA:HB3	2.19	0.43
1:B:1418:ALA:O	1:B:1445:SER:HA	2.19	0.43
1:A:128:ARG:HH22	1:B:1128:ARG:HH12	1.62	0.43
1:A:351:VAL:HG11	1:A:369:ALA:HB2	2.00	0.43
1:A:351:VAL:CG1	1:A:352:LYS:N	2.82	0.43
1:A:355:LYS:HD3	1:A:355:LYS:HA	1.87	0.43
1:A:383:ILE:C	3:A:2226:HOH:O	2.57	0.43
1:A:429:THR:HG22	1:A:432:GLU:HB2	1.99	0.43
1:A:344:PHE:CE1	1:A:348:GLY:HA2	2.54	0.43
1:A:298:ILE:HD11	1:A:413:ARG:HB2	2.01	0.43
1:B:1110:ILE:CG1	3:B:2496:HOH:O	2.67	0.43
1:B:1482:ASN:HD22	1:B:1542:ARG:HA	1.82	0.43
1:A:218:TYR:HB3	1:A:222:TYR:OH	2.19	0.43
1:B:1043:GLN:NE2	3:B:2742:HOH:O	2.52	0.43
1:B:1095:LEU:N	3:B:2583:HOH:O	2.51	0.43
1:B:1073:LYS:HG2	1:B:1074:LYS:HE2	2.01	0.42
1:B:1092:ASN:HD21	1:B:1562:TYR:HH	1.62	0.42
1:A:310:LEU:HB3	1:A:391:GLY:HA2	2.01	0.42
1:B:1108:MSE:N	1:B:1109:PRO:CD	2.82	0.42
1:B:1277:ASN:HD22	1:B:1279:ASP:N	2.18	0.42
1:A:136:SER:C	1:A:138:SER:N	2.72	0.42
1:A:405:ARG:N	3:A:2512:HOH:O	2.51	0.42
1:B:1113:THR:CB	1:B:1114:PRO:CD	2.84	0.42
1:B:1453:LYS:HG2	1:B:1459:VAL:HG22	2.00	0.42
1:B:1512:LEU:HA	1:B:1512:LEU:HD12	1.87	0.42
1:A:166:ILE:H	1:A:166:ILE:HD12	1.83	0.42
1:B:1091:ARG:NH2	3:B:2646:HOH:O	2.41	0.42
1:B:1467:ASN:HD21	2:B:1601:NAD:H71N	1.67	0.42
1:A:467:ASN:O	1:A:469:TYR:N	2.52	0.42
1:B:1031:ASN:HD21	1:B:1033:ARG:HB2	1.83	0.42
1:B:1177:MSE:O	1:B:1181:VAL:HG23	2.20	0.42
1:B:1538:LYS:HE3	1:B:1543:TYR:OH	2.18	0.42
1:A:404:ILE:HG22	3:A:2512:HOH:O	2.19	0.42
1:A:503:THR:O	1:A:506:GLU:HG3	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1133:LEU:HB2	1:B:1199:LEU:HD11	2.01	0.42
1:B:1161:THR:CG2	3:B:2416:HOH:O	2.67	0.42
1:A:104:ILE:HG23	1:A:105:GLU:N	2.35	0.42
1:A:146:ILE:HG23	1:B:1052:GLY:HA3	2.02	0.42
1:A:359:ASP:OD2	1:A:359:ASP:C	2.57	0.42
1:A:308:LEU:HB2	1:A:386:PRO:HG3	2.02	0.42
1:A:535:TYR:CD1	1:A:549:LYS:HE3	2.55	0.42
1:A:566:LEU:HD22	1:A:567:PRO:HD2	2.02	0.42
1:B:1038:MSE:HE3	3:B:2026:HOH:O	2.19	0.42
3:A:2408:HOH:O	1:B:1067:ARG:HD3	2.18	0.42
1:B:1118:LEU:O	1:B:1122:GLN:HG2	2.20	0.42
1:B:1401:PRO:O	1:B:1405:ARG:HG2	2.20	0.42
1:B:1446:GLY:O	1:B:1464:GLN:NE2	2.43	0.42
1:A:109:PRO:C	1:A:114:PRO:HD2	2.40	0.42
1:A:203:ILE:HD12	1:A:203:ILE:N	2.35	0.42
1:A:64:GLN:O	1:A:68:PHE:CD1	2.62	0.42
1:A:77:SER:HA	1:A:78:PRO:HD3	1.90	0.42
1:B:1167:LEU:HB2	1:B:1169:LEU:HD13	2.02	0.42
1:B:1407:MSE:SE	3:B:2265:HOH:O	2.87	0.42
1:B:1505:GLU:H	1:B:1505:GLU:HG2	1.45	0.42
1:A:466:ASN:OD1	1:A:468:VAL:HG13	2.19	0.42
1:A:86:MSE:HE1	1:A:96:PHE:HE1	1.79	0.42
1:B:1089:GLN:HE21	1:B:1089:GLN:HB2	1.57	0.42
1:B:1317:LEU:HD13	1:B:1361:TYR:HB3	2.02	0.42
1:B:1343:MSE:HE1	1:B:1362:GLN:HG2	2.02	0.42
1:B:1281:GLN:NE2	1:B:1491:PHE:CE1	2.88	0.42
1:B:1528:ILE:HD11	1:B:1554:LYS:CE	2.50	0.42
1:A:177:MSE:O	1:A:180:PRO:HD2	2.20	0.41
1:A:367:HIS:CE1	3:A:2569:HOH:O	2.58	0.41
1:B:1445:SER:O	1:B:1464:GLN:HA	2.19	0.41
1:B:1492:LEU:CB	3:B:2514:HOH:O	2.45	0.41
1:A:351:VAL:HG13	1:A:352:LYS:N	2.36	0.41
1:A:429:THR:HG22	1:A:432:GLU:CG	2.50	0.41
1:A:504:ASP:HB2	1:A:505:GLU:OE2	2.19	0.41
1:A:559:ARG:N	1:A:559:ARG:HD3	2.34	0.41
1:B:1352:LYS:HB2	1:B:1367:HIS:O	2.19	0.41
1:B:1460:PHE:O	1:B:1462:PRO:HD3	2.20	0.41
1:A:503:THR:OG1	1:A:506:GLU:HG2	2.19	0.41
1:B:1344:PHE:CD1	1:B:1349:LEU:N	2.88	0.41
1:B:1394:GLY:N	1:B:1420:SER:OG	2.47	0.41
1:B:1520:GLN:HB2	3:B:2219:HOH:O	2.19	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:137:ILE:HD11	1:A:230:GLN:HB3	2.02	0.41
1:A:359:ASP:OD2	1:A:362:GLN:N	2.53	0.41
1:B:1310:LEU:CD2	1:B:1427:GLU:CG	2.98	0.41
1:B:1507:LEU:HD12	1:B:1507:LEU:HA	1.74	0.41
1:A:378:GLU:O	1:A:382:ASN:ND2	2.53	0.41
1:B:1112:TYR:HA	1:B:1116:VAL:HB	2.02	0.41
1:B:1227:ARG:CG	1:B:1227:ARG:HH11	2.33	0.41
1:B:1464:GLN:NE2	1:B:1466:ASN:HD22	2.19	0.41
1:A:30:LEU:HD12	3:B:2362:HOH:O	2.21	0.41
1:A:379:ASP:O	1:A:382:ASN:HB2	2.20	0.41
1:B:1066:LEU:HD12	1:B:1066:LEU:HA	1.85	0.41
1:B:1073:LYS:CG	1:B:1074:LYS:N	2.83	0.41
1:B:1317:LEU:HD13	1:B:1361:TYR:CB	2.50	0.41
1:B:1455:THR:HG23	1:B:1456:ASP:N	2.35	0.41
1:A:72:LEU:CA	1:A:75:MSE:HE3	2.35	0.41
1:B:1501:GLN:HE21	1:B:1522:VAL:HG22	1.86	0.41
1:B:1511:ARG:CG	1:B:1511:ARG:NH1	2.82	0.41
1:A:218:TYR:HB3	1:A:222:TYR:CZ	2.56	0.41
1:A:277:ASN:ND2	1:A:277:ASN:C	2.73	0.41
1:A:436:LEU:C	3:A:2220:HOH:O	2.58	0.41
1:A:505:GLU:O	1:A:508:ALA:HB3	2.20	0.41
1:B:1100:LEU:HD21	1:B:1189:ALA:HB2	2.02	0.41
1:B:1308:LEU:HG	1:B:1377:PHE:CE1	2.56	0.41
1:B:1202:CYS:CB	3:B:2416:HOH:O	2.69	0.41
1:B:1277:ASN:ND2	1:B:1279:ASP:N	2.69	0.41
1:B:1300:LYS:HD2	1:B:1305:HIS:CD2	2.56	0.41
1:A:109:PRO:HA	1:A:114:PRO:HD2	2.02	0.41
1:A:292:LEU:HD21	3:A:2469:HOH:O	2.21	0.41
1:A:313:GLY:O	1:A:316:ALA:N	2.54	0.41
1:A:363:GLU:N	1:A:364:PRO:HD2	2.35	0.41
1:A:374:PRO:HB3	1:A:379:ASP:HB3	2.03	0.41
1:A:402:ASP:HA	1:A:405:ARG:HD2	2.03	0.41
1:A:453:LYS:N	3:A:2189:HOH:O	2.53	0.41
1:A:476:LEU:O	1:A:480:LEU:HG	2.21	0.41
1:A:130:PRO:HG2	1:B:1054:LEU:HD23	2.03	0.41
1:B:1071:ASN:O	1:B:1075:MSE:HE3	2.21	0.41
1:B:1310:LEU:CD2	1:B:1427:GLU:HG2	2.51	0.41
1:B:1109:PRO:HA	1:B:1114:PRO:HD3	2.02	0.41
1:B:1456:ASP:OD1	1:B:1458:ARG:NH1	2.53	0.41
1:B:1501:GLN:NE2	1:B:1522:VAL:HA	2.36	0.41
1:A:128:ARG:NH2	1:B:1128:ARG:HH12	2.16	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:155:VAL:HB	1:A:246:TYR:CD2	2.56	0.40
1:A:290:GLY:O	1:A:293:ALA:HB3	2.21	0.40
1:B:1501:GLN:HE22	1:B:1525:ASN:HD22	1.69	0.40
1:A:146:ILE:O	1:A:149:ASN:HB2	2.22	0.40
1:A:230:GLN:HE21	1:A:230:GLN:HB2	1.63	0.40
1:A:384:LEU:C	3:A:2226:HOH:O	2.58	0.40
1:A:429:THR:CG2	1:A:432:GLU:H	2.24	0.40
1:A:412:GLU:O	1:A:440:ARG:HB3	2.20	0.40
1:A:76:THR:HG22	1:A:77:SER:N	2.36	0.40
1:B:1043:GLN:O	1:B:1047:MSE:HG3	2.21	0.40
1:B:1117:GLY:O	1:B:1169:LEU:CD2	2.70	0.40
1:B:1413:ARG:HB3	1:B:1413:ARG:HE	1.62	0.40
1:B:1416:ILE:C	1:B:1417:PHE:HD1	2.25	0.40
1:B:1565:LEU:HD21	3:B:2420:HOH:O	2.20	0.40
1:A:25:GLY:C	1:A:27:PRO:HD2	2.41	0.40
1:A:392:VAL:HG12	3:A:2008:HOH:O	2.22	0.40
1:A:432:GLU:O	1:A:436:LEU:HD13	2.21	0.40
1:A:438:GLU:O	1:A:458:ARG:NH2	2.53	0.40
1:B:1266:LEU:O	1:B:1270:ARG:HG2	2.20	0.40
1:A:341:ILE:O	1:A:367:HIS:NE2	2.42	0.40
1:A:480:LEU:HD12	3:A:2141:HOH:O	2.20	0.40
1:B:1196:ASP:O	3:B:2002:HOH:O	2.22	0.40
1:B:1224:LYS:NZ	3:B:2504:HOH:O	2.54	0.40
1:B:1300:LYS:CD	1:B:1304:GLU:HB3	2.52	0.40
1:B:1429:THR:CG2	1:B:1432:GLU:H	2.21	0.40
1:B:1281:GLN:NE2	1:B:1491:PHE:HE1	2.20	0.40
1:A:109:PRO:HA	1:A:114:PRO:HD3	2.02	0.40
1:A:118:LEU:HD22	1:A:122:GLN:HE21	1.86	0.40
1:A:177:MSE:HE3	1:A:181:VAL:HG23	2.03	0.40
1:A:343:MSE:O	1:A:350:LEU:HD23	2.21	0.40
1:A:505:GLU:HB3	3:A:2714:HOH:O	2.21	0.40
1:B:1045:ARG:HA	1:B:1050:LEU:HB2	2.04	0.40
1:A:91:ARG:NH1	1:B:1090:GLU:OE1	2.53	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	549/584 (94%)	505 (92%)	35 (6%)	9 (2%)	9 5
1	B	549/584 (94%)	502 (91%)	38 (7%)	9 (2%)	9 5
All	All	1098/1168 (94%)	1007 (92%)	73 (7%)	18 (2%)	9 5

All (18) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	113	THR
1	B	1113	THR
1	B	1299	SER
1	B	1571	GLU
1	A	259	ASN
1	A	432	GLU
1	B	1259	ASN
1	A	114	PRO
1	A	451	PRO
1	B	1114	PRO
1	A	56	PRO
1	A	123	TYR
1	A	397	ARG
1	B	1076	THR
1	B	1354	ARG
1	A	468	VAL
1	B	1301	PRO
1	B	1056	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	465/484 (96%)	390 (84%)	75 (16%)	2	1
1	B	465/484 (96%)	386 (83%)	79 (17%)	2	1
All	All	930/968 (96%)	776 (83%)	154 (17%)	2	1

All (154) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	24	LYS
1	A	26	LYS
1	A	29	MSE
1	A	38	MSE
1	A	48	LEU
1	A	66	LEU
1	A	71	ASN
1	A	72	LEU
1	A	74	LYS
1	A	75	MSE
1	A	77	SER
1	A	89	GLN
1	A	106	SER
1	A	107	LEU
1	A	118	LEU
1	A	123	TYR
1	A	125	HIS
1	A	136	SER
1	A	137	ILE
1	A	152	GLU
1	A	160	VAL
1	A	165	ARG
1	A	167	LEU
1	A	169	LEU
1	A	184	LEU
1	A	210	ILE
1	A	214	LYS
1	A	225	ARG
1	A	237	GLU
1	A	240	LYS
1	A	248	ARG
1	A	255	GLU
1	A	257	PHE

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Mol	Chain	Res	Type
1	A	267	ARG
1	A	268	LYS
1	A	277	ASN
1	A	286	VAL
1	A	299	SER
1	A	300	LYS
1	A	306	LYS
1	A	329	GLU
1	A	333	SER
1	A	340	LYS
1	A	346	LYS
1	A	360	SER
1	A	363	GLU
1	A	368	SER
1	A	371	GLU
1	A	372	SER
1	A	376	THR
1	A	378	GLU
1	A	384	LEU
1	A	388	THR
1	A	397	ARG
1	A	398	LEU
1	A	403	VAL
1	A	413	ARG
1	A	416	ILE
1	A	419	LEU
1	A	425	GLN
1	A	428	CYS
1	A	456	ASP
1	A	458	ARG
1	A	489	SER
1	A	502	LEU
1	A	506	GLU
1	A	512	LEU
1	A	516	LEU
1	A	518	ASN
1	A	520	GLN
1	A	529	LYS
1	A	543	TYR
1	A	559	ARG
1	A	566	LEU
1	A	572	TRP

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Mol	Chain	Res	Type
1	B	1030	LEU
1	B	1038	MSE
1	B	1043	GLN
1	B	1048	LEU
1	B	1057	LYS
1	B	1066	LEU
1	B	1068	PHE
1	B	1072	LEU
1	B	1074	LYS
1	B	1089	GLN
1	B	1093	GLU
1	B	1104	ILE
1	B	1106	SER
1	B	1107	LEU
1	B	1118	LEU
1	B	1121	SER
1	B	1123	TYR
1	B	1136	SER
1	B	1137	ILE
1	B	1144	ARG
1	B	1154	HIS
1	B	1160	VAL
1	B	1174	VAL
1	B	1184	LEU
1	B	1210	ILE
1	B	1214	LYS
1	B	1224	LYS
1	B	1225	ARG
1	B	1232	ASP
1	B	1248	ARG
1	B	1276	PHE
1	B	1277	ASN
1	B	1286	VAL
1	B	1295	GLN
1	B	1298	ILE
1	B	1300	LYS
1	B	1302	ILE
1	B	1340	LYS
1	B	1346	LYS
1	B	1352	LYS
1	B	1354	ARG
1	B	1355	LYS

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Mol	Chain	Res	Type
1	B	1357	LYS
1	B	1360	SER
1	B	1363	GLU
1	B	1368	SER
1	B	1372	SER
1	B	1375	ASP
1	B	1384	LEU
1	B	1385	LYS
1	B	1388	THR
1	B	1397	ARG
1	B	1398	LEU
1	B	1409	SER
1	B	1413	ARG
1	B	1419	LEU
1	B	1423	THR
1	B	1425	GLN
1	B	1428	CYS
1	B	1453	LYS
1	B	1454	LEU
1	B	1456	ASP
1	B	1461	THR
1	B	1467	ASN
1	B	1489	SER
1	B	1496	LYS
1	B	1505	GLU
1	B	1509	GLN
1	B	1511	ARG
1	B	1512	LEU
1	B	1516	LEU
1	B	1518	ASN
1	B	1520	GLN
1	B	1538	LYS
1	B	1547	GLU
1	B	1554	LYS
1	B	1559	ARG
1	B	1566	LEU
1	B	1572	TRP

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (34) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	43	GLN

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Mol	Chain	Res	Type
1	A	46	GLN
1	A	64	GLN
1	A	71	ASN
1	A	122	GLN
1	A	230	GLN
1	A	261	ASN
1	A	277	ASN
1	A	295	GLN
1	A	330	ASN
1	A	382	ASN
1	A	425	GLN
1	A	482	ASN
1	A	485	HIS
1	A	501	GLN
1	A	509	GLN
1	A	520	GLN
1	B	1031	ASN
1	B	1043	GLN
1	B	1046	GLN
1	B	1064	GLN
1	B	1071	ASN
1	B	1122	GLN
1	B	1153	ASN
1	B	1261	ASN
1	B	1277	ASN
1	B	1330	ASN
1	B	1425	GLN
1	B	1464	GLN
1	B	1467	ASN
1	B	1482	ASN
1	B	1501	GLN
1	B	1509	GLN
1	B	1518	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 carbohydrates 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	NAD	A	601	-	42,48,48	1.95	11 (26%)	50,73,73	1.36	5 (10%)
2	NAD	B	1601	-	42,48,48	1.86	11 (26%)	50,73,73	1.32	5 (10%)
2	NAD	B	1602	-	42,48,48	2.02	8 (19%)	50,73,73	1.48	6 (12%)
2	NAD	A	602	-	42,48,48	2.24	10 (23%)	50,73,73	1.53	6 (12%)

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	NAD	A	601	-	-	2/26/62/62	0/5/5/5
2	NAD	B	1601	-	-	1/26/62/62	0/5/5/5
2	NAD	B	1602	-	-	13/26/62/62	0/5/5/5
2	NAD	A	602	-	-	12/26/62/62	0/5/5/5

All (40) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	602	NAD	C2N-N1N	9.02	1.45	1.35
2	B	1602	NAD	C2N-N1N	7.03	1.43	1.35
2	A	601	NAD	C2N-N1N	6.82	1.43	1.35
2	B	1601	NAD	C2N-N1N	5.83	1.42	1.35
2	B	1602	NAD	O4D-C1D	4.75	1.47	1.41
2	A	602	NAD	O4B-C1B	4.53	1.47	1.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	602	NAD	O4D-C1D	4.48	1.47	1.41
2	A	601	NAD	O4D-C1D	4.25	1.47	1.41
2	B	1602	NAD	O4B-C1B	4.21	1.47	1.41
2	A	602	NAD	C3N-C7N	4.03	1.56	1.50
2	B	1602	NAD	C6N-N1N	3.95	1.45	1.35
2	B	1601	NAD	O4D-C1D	3.66	1.46	1.41
2	A	601	NAD	O4B-C1B	3.62	1.46	1.41
2	B	1601	NAD	C2A-N3A	3.56	1.37	1.32
2	A	602	NAD	C2A-N3A	3.55	1.37	1.32
2	B	1601	NAD	C6N-N1N	3.42	1.43	1.35
2	A	601	NAD	C2B-C1B	-3.41	1.48	1.53
2	B	1601	NAD	O4B-C1B	3.37	1.45	1.41
2	B	1602	NAD	C2A-N3A	3.36	1.37	1.32
2	A	601	NAD	C2A-N3A	3.29	1.37	1.32
2	B	1602	NAD	C3N-C7N	3.26	1.55	1.50
2	A	602	NAD	C6N-N1N	3.20	1.43	1.35
2	A	601	NAD	C6N-N1N	3.06	1.42	1.35
2	B	1601	NAD	C2B-C1B	-2.97	1.49	1.53
2	B	1602	NAD	C5A-C4A	-2.84	1.33	1.40
2	A	602	NAD	C5A-C4A	-2.77	1.33	1.40
2	A	602	NAD	C2N-C3N	2.66	1.43	1.39
2	B	1601	NAD	C2D-C1D	-2.63	1.49	1.53
2	A	601	NAD	C5A-C4A	-2.57	1.34	1.40
2	A	601	NAD	C2D-C1D	-2.56	1.49	1.53
2	B	1601	NAD	C3N-C7N	2.56	1.54	1.50
2	B	1601	NAD	C5A-C4A	-2.54	1.34	1.40
2	A	601	NAD	C5A-N7A	-2.36	1.31	1.39
2	A	602	NAD	C2A-N1A	2.35	1.38	1.33
2	A	601	NAD	C3N-C7N	2.31	1.54	1.50
2	A	601	NAD	C2A-N1A	2.25	1.38	1.33
2	B	1601	NAD	C5A-N7A	-2.15	1.31	1.39
2	B	1601	NAD	C2A-N1A	2.11	1.37	1.33
2	B	1602	NAD	C5A-N7A	-2.10	1.32	1.39
2	A	602	NAD	C4A-N3A	2.04	1.38	1.35

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	602	NAD	N3A-C2A-N1A	-5.28	120.42	128.68
2	B	1602	NAD	N3A-C2A-N1A	-5.27	120.44	128.68
2	A	601	NAD	N3A-C2A-N1A	-5.01	120.85	128.68
2	B	1601	NAD	N3A-C2A-N1A	-4.99	120.88	128.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	601	NAD	C4A-C5A-N7A	4.25	113.83	109.40
2	B	1601	NAD	C4A-C5A-N7A	4.21	113.78	109.40
2	B	1602	NAD	C4A-C5A-N7A	4.14	113.71	109.40
2	B	1602	NAD	C3D-C2D-C1D	3.97	106.95	100.98
2	A	602	NAD	C4A-C5A-N7A	3.85	113.41	109.40
2	A	602	NAD	C6N-N1N-C2N	-3.80	118.51	121.97
2	A	602	NAD	C3D-C2D-C1D	3.69	106.53	100.98
2	B	1602	NAD	C6N-N1N-C2N	-2.93	119.30	121.97
2	A	601	NAD	C3D-C2D-C1D	2.87	105.30	100.98
2	A	601	NAD	C3B-C2B-C1B	2.55	104.82	100.98
2	A	602	NAD	C3B-C2B-C1B	2.53	104.79	100.98
2	A	601	NAD	C6N-N1N-C2N	-2.44	119.75	121.97
2	B	1601	NAD	C3B-C2B-C1B	2.43	104.64	100.98
2	A	602	NAD	C2D-C3D-C4D	2.25	107.01	102.64
2	B	1601	NAD	C3D-C2D-C1D	2.23	104.33	100.98
2	B	1601	NAD	C6N-N1N-C2N	-2.06	120.10	121.97
2	B	1602	NAD	C3B-C2B-C1B	2.03	104.03	100.98
2	B	1602	NAD	C2D-C3D-C4D	2.02	106.58	102.64

There are no chirality outliers.

All (28) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	1602	NAD	C5B-O5B-PA-O1A
2	B	1602	NAD	C5D-O5D-PN-O1N
2	B	1602	NAD	C5D-O5D-PN-O2N
2	B	1602	NAD	C3D-C4D-C5D-O5D
2	B	1602	NAD	O4D-C1D-N1N-C2N
2	B	1602	NAD	O4D-C1D-N1N-C6N
2	B	1602	NAD	C2D-C1D-N1N-C2N
2	B	1602	NAD	C2D-C1D-N1N-C6N
2	A	602	NAD	C5B-O5B-PA-O1A
2	A	602	NAD	C5B-O5B-PA-O2A
2	A	602	NAD	C5D-O5D-PN-O1N
2	A	602	NAD	C5D-O5D-PN-O2N
2	A	602	NAD	O4D-C4D-C5D-O5D
2	A	602	NAD	C3D-C4D-C5D-O5D
2	A	602	NAD	O4D-C1D-N1N-C2N
2	A	602	NAD	O4D-C1D-N1N-C6N
2	A	602	NAD	C2D-C1D-N1N-C2N
2	A	602	NAD	C2D-C1D-N1N-C6N
2	B	1602	NAD	O4D-C4D-C5D-O5D

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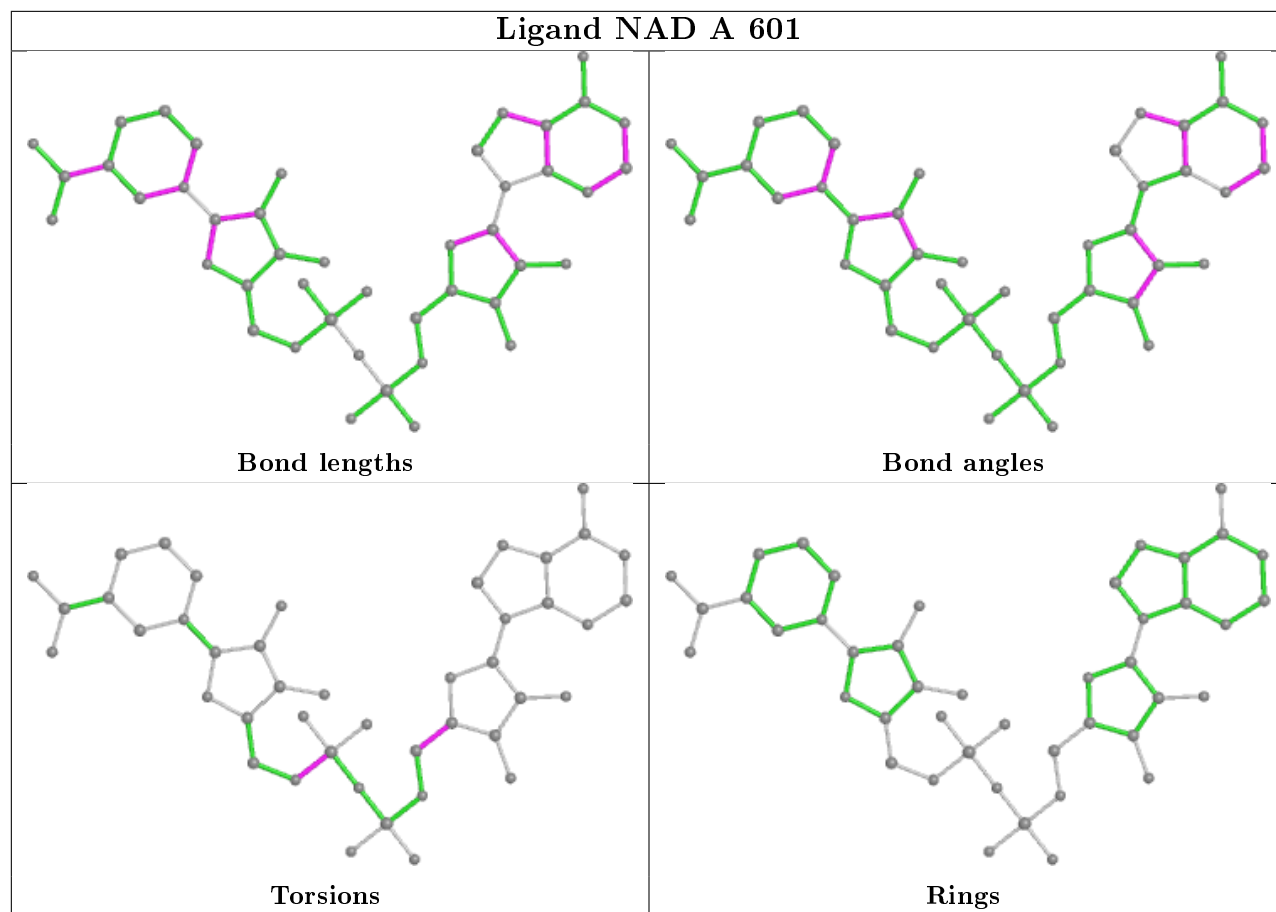
Mol	Chain	Res	Type	Atoms
2	B	1602	NAD	C5D-O5D-PN-O3
2	A	602	NAD	C5D-O5D-PN-O3
2	B	1602	NAD	C5B-O5B-PA-O2A
2	B	1602	NAD	C4D-C5D-O5D-PN
2	A	601	NAD	C5D-O5D-PN-O3
2	B	1602	NAD	C5B-O5B-PA-O3
2	A	602	NAD	C5B-O5B-PA-O3
2	B	1601	NAD	O4B-C4B-C5B-O5B
2	A	601	NAD	O4B-C4B-C5B-O5B

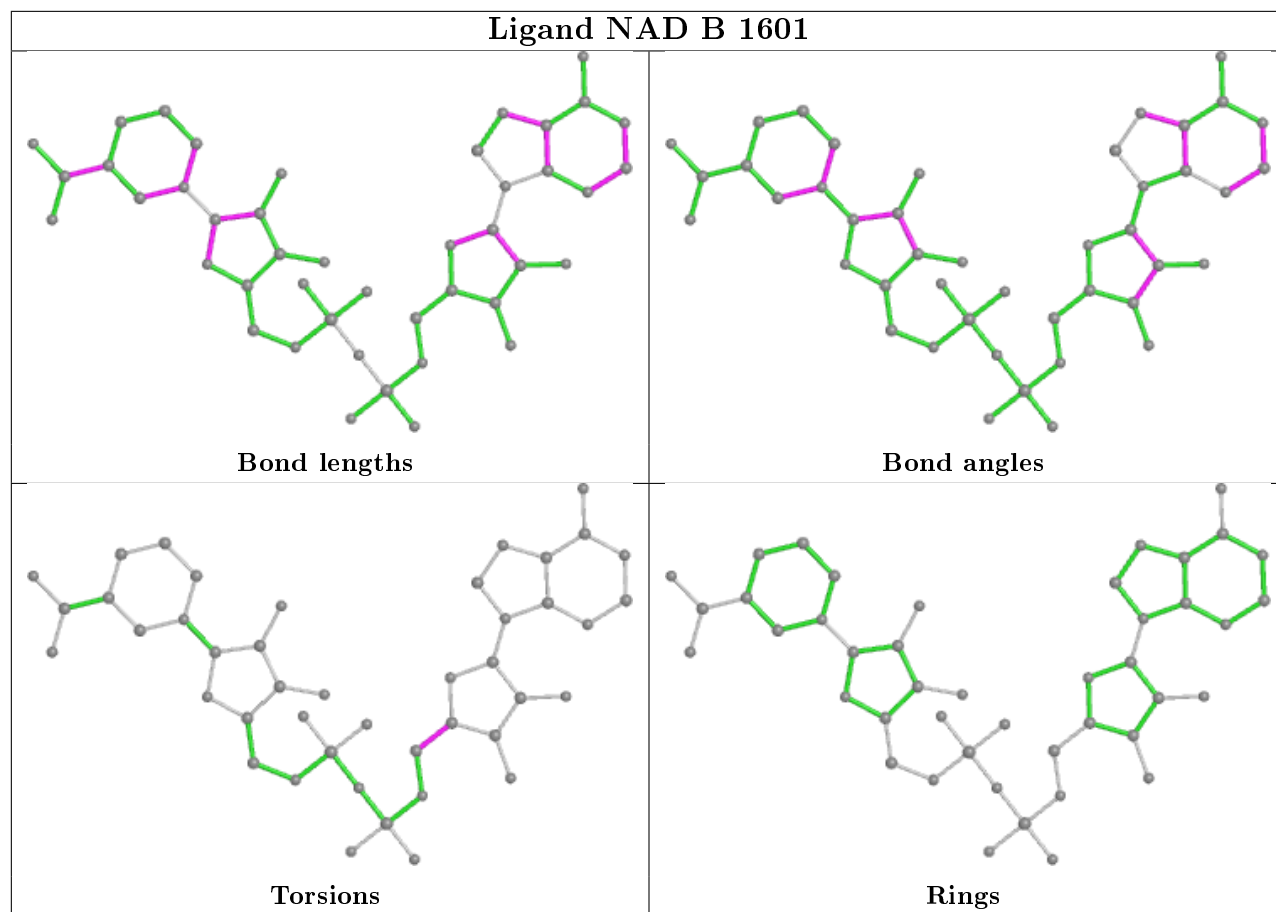
There are no ring outliers.

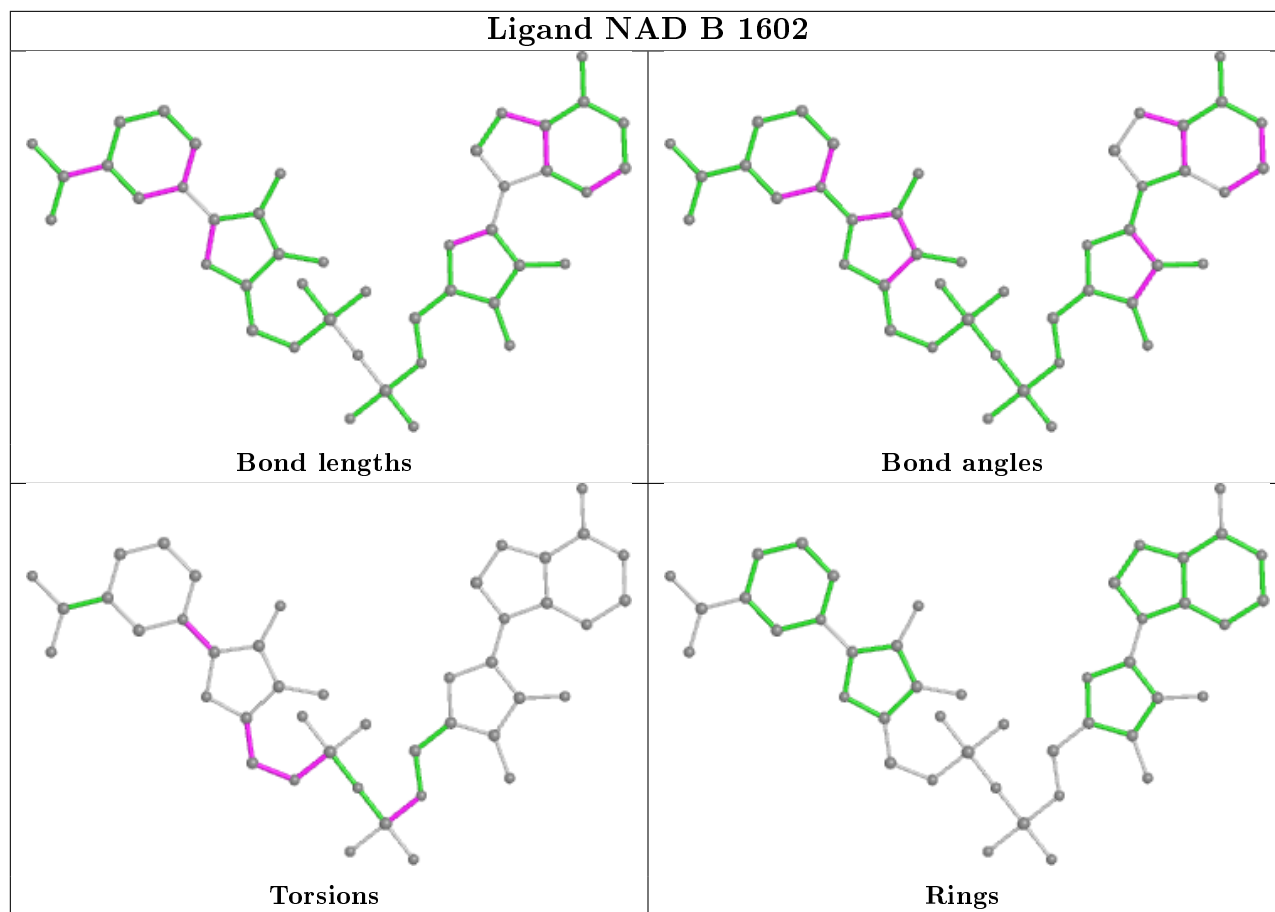
3 monomers are involved in 6 short contacts:

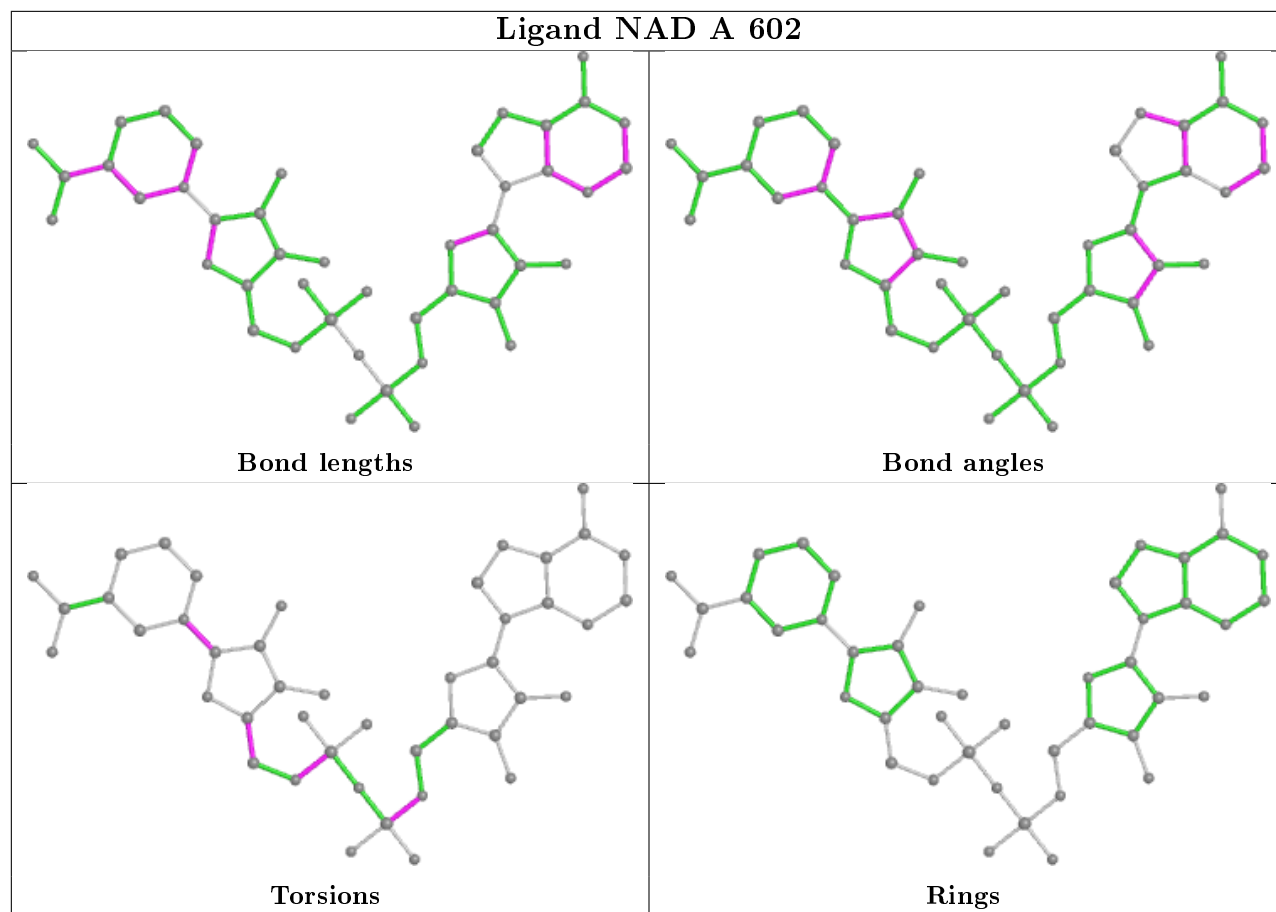
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	601	NAD	1	0
2	B	1601	NAD	4	0
2	A	602	NAD	1	0

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

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.