



# Full wwPDB X-ray Structure Validation Report ⓘ

Jun 12, 2024 – 07:33 AM EDT

PDB ID : 1QHM  
Title : ESCHERICHIA COLI PYRUVATE FORMATE LYASE LARGE DOMAIN  
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Deposited on : 1999-05-19  
Resolution : 2.80 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467  
Xtrriage (Phenix) : **NOT EXECUTED**  
EDS : **NOT EXECUTED**  
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) : 2.36.2

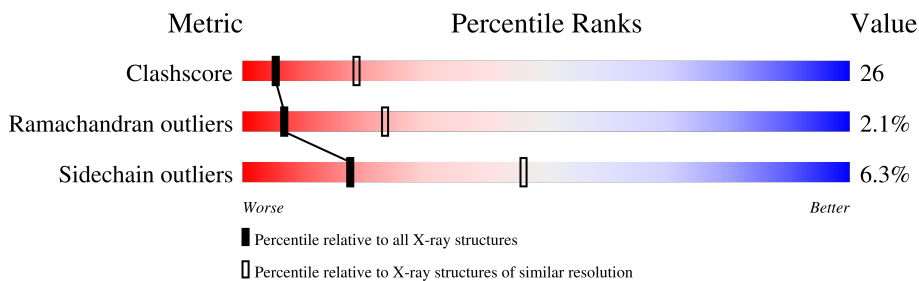
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.80 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)

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  $\geq 3$ , 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	624	
1	B	624	

## 2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 9810 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 PYRUVATE FORMATE-LYASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	612	4794	3034	810	920	30	0	0	1
1	B	612	4782	3026	809	917	30	0	0	1

- Molecule 2 is water.

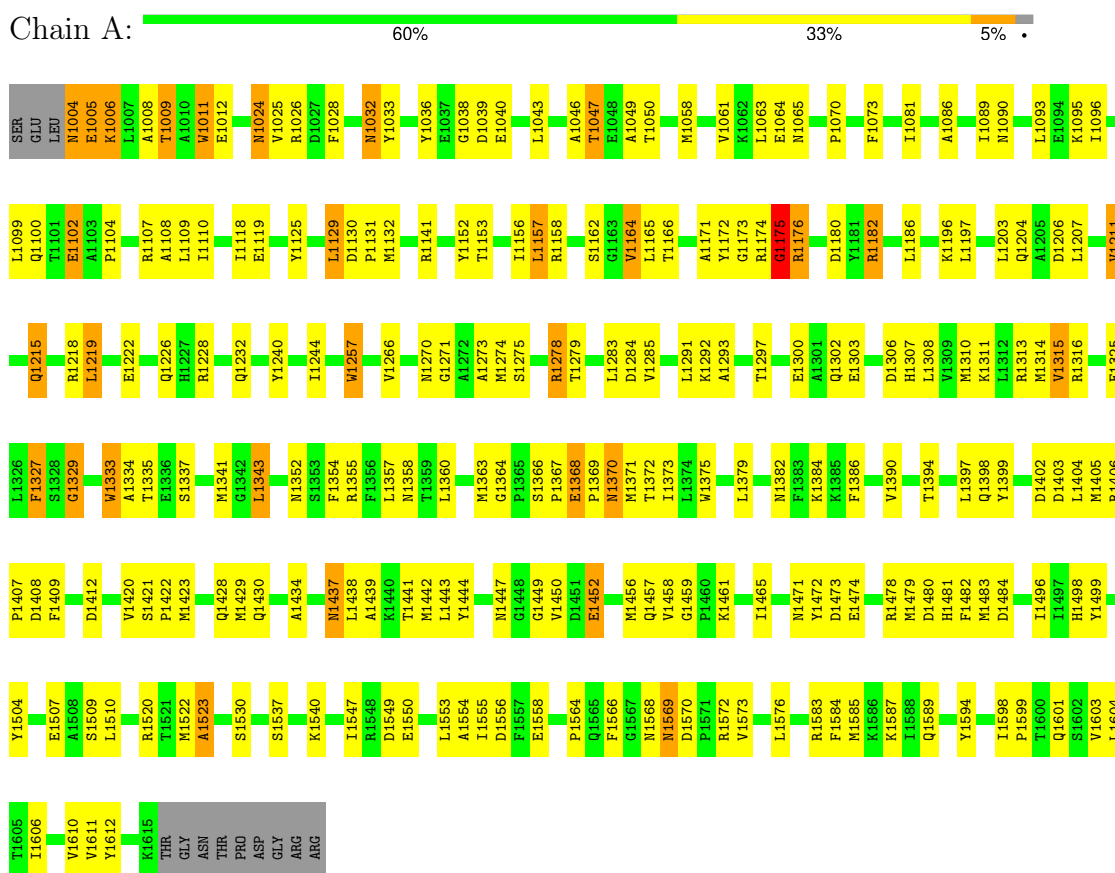
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
2	A	125	125	125	0	0
2	B	109	109	109	0	0

### 3 Residue-property plots

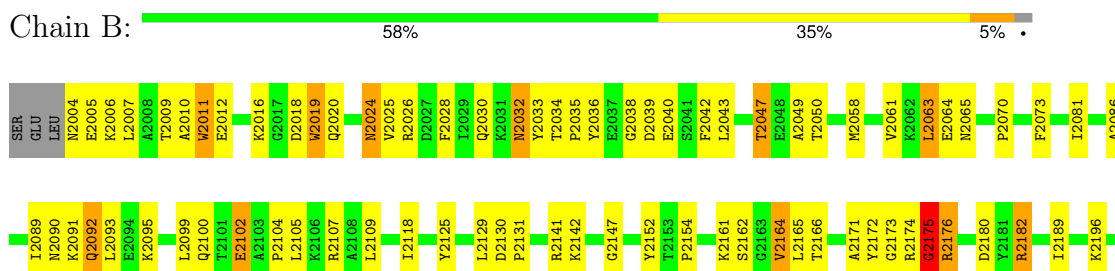
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded 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: PYRUVATE FORMATE-LYASE



- Molecule 1: PYRUVATE FORMATE-LYASE



A2577	R2478	Y2399	M2314	L2203
R2583	M2479	E2400	V2315	D2206
F2584	H2480	M2401	R2316	L2207
M2585	D2481	D2402	E2322	V2211
K2586	F2482	D2403	E2325	Q2215
K2587	M2483	L2404	L2326	L2218
I2588	D2484	M2405	F2327	L2219
Q2589	I2491	R2406	S2328	E2222
Y2594	I2496	F2407	G2329	Q2226
Q2601	I2497	D2408	W2333	K2234
S2602	H2498	F2409	A2334	Y2240
V2603	Y2499	D2412	T2335	I2244
L2604	Y2504	V2420	E2336	P2247
M2609	Y2504	S2421	S2337	K2257
V2610	E2507	P2422	M2341	V2286
K2615	A2508	M2423	G2342	G2271
THR	S2509	Q2428	L2343	A2272
GLY	L2510	M2429	R2346	A2273
ASN	R2520	Q2430	R2346	H2274
THR	A2523	A2434	K2351	S2275
PRO	S2535	M2437	M2352	R2278
ASP	I2539	L2438	S2353	T2279
GLY	K2540	A2439	F2354	L2283
ARG	V2544	K2440	R2355	D2284
	A2545	T2441	F2356	V2285
	R2546	M2442	L2357	L2291
	I2547	L2443	M2358	K2292
	R2548	M2447	I2359	A2293
	D2549	G2448	L2360	T2297
	E2550	D2451	S2366	E2300
	L2553	E2452	P2367	A2301
	A2554	K2453	E2368	Q2302
	I2555	L2454	P2369	E2303
	D2556	K2455	M2370	D2306
	F2557	M2456	M2371	H2307
	E2558	Q2457	T2372	L2308
	I2559	V2458	I2373	V2309
	P2564	G2459	L2375	H2310
	Q2565	F2460	L2379	K2311
	F2566	K2461	M2382	L2312
	G2567	E2462	F2383	R2313
	M2568	P2464	K2384	
	N2569	I2465	R2385	
	D2570	D2468	F2386	
	P2571	V2469	V2390	
	R2572	L2470	T2394	
	V2573	M2471	L2397	
	D2574	Y2472	Q2398	
	D2575	D2473		
	L2576	E2474		

## 4 Data and refinement statistics

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

Property	Value	Source
Space group	P 65	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	140.80Å 140.80Å 215.90Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	20.00 – 2.80	Depositor
% Data completeness (in resolution range)	99.0 (20.00-2.80)	Depositor
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	5.20	Depositor
Refinement program	CNS 0.4	Depositor
R, $R_{free}$	0.228 , 0.253	Depositor
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	9810	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	63.0	wwPDB-VP

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

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	0.46	0/4891	0.66	2/6623 (0.0%)
1	B	0.46	0/4879	0.67	2/6610 (0.0%)
All	All	0.46	0/9770	0.67	4/13233 (0.0%)

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1175	GLY	N-CA-C	6.33	128.93	113.10
1	B	2175	GLY	N-CA-C	6.09	128.32	113.10
1	A	1176	ARG	N-CA-C	-5.68	95.66	111.00
1	B	2176	ARG	N-CA-C	-5.52	96.09	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	4794	0	4659	235	0
1	B	4782	0	4636	261	0
2	A	125	0	0	3	0
2	B	109	0	0	5	0
All	All	9810	0	9295	493	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 26.

All (493) 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:2465:ILE:CA	1:B:2478:ARG:HH12	1.42	1.33
1:B:2465:ILE:CG1	1:B:2478:ARG:NH1	1.96	1.28
1:B:2465:ILE:HG13	1:B:2478:ARG:NH1	1.57	1.14
1:B:2465:ILE:CA	1:B:2478:ARG:NH1	2.11	1.14
1:B:2465:ILE:N	1:B:2478:ARG:HH12	1.49	1.11
1:B:2465:ILE:HA	1:B:2478:ARG:HH12	1.17	1.06
1:B:2465:ILE:HG12	1:B:2478:ARG:CZ	1.85	1.05
1:B:2465:ILE:HA	1:B:2478:ARG:NH1	1.70	1.05
1:B:2465:ILE:HG13	1:B:2478:ARG:HH11	1.09	1.05
1:A:1465:ILE:HA	1:A:1478:ARG:NH2	1.78	0.98
1:B:2016:LYS:HA	1:B:2020:GLN:OE1	1.64	0.96
1:B:2215:GLN:H	1:B:2215:GLN:HE21	1.14	0.94
1:A:1465:ILE:HA	1:A:1478:ARG:HH22	1.29	0.93
1:A:1215:GLN:H	1:A:1215:GLN:HE21	1.11	0.92
1:A:1570:ASP:OD1	1:A:1572:ARG:HG2	1.70	0.91
1:B:2100:GLN:HE22	1:B:2316:ARG:H	1.19	0.88
1:B:2006:LYS:O	1:B:2009:THR:HG22	1.74	0.88
1:A:1284:ASP:HB2	1:A:1352:ASN:HB2	1.54	0.88
1:A:1100:GLN:HE22	1:A:1316:ARG:H	1.21	0.87
1:B:2310:MET:HG2	1:B:2314:MET:HE2	1.56	0.86
1:B:2284:ASP:HB2	1:B:2352:ASN:HB2	1.58	0.85
1:B:2559:ILE:H	1:B:2559:ILE:HD13	1.40	0.84
1:A:1310:MET:HG2	1:A:1314:MET:HE2	1.59	0.83
1:B:2465:ILE:N	1:B:2478:ARG:NH1	2.24	0.83
1:B:2465:ILE:HG12	1:B:2478:ARG:NH1	1.83	0.83
1:B:2465:ILE:HA	1:B:2478:ARG:CZ	2.08	0.82
1:B:2465:ILE:CG1	1:B:2478:ARG:CZ	2.54	0.81
1:A:1011:TRP:CH2	1:A:1186:LEU:O	2.34	0.81
1:A:1447:ASN:ND2	1:A:1554:ALA:H	1.79	0.81
1:B:2032:ASN:N	1:B:2032:ASN:HD22	1.79	0.79
1:B:2196:LYS:HZ2	1:B:2226:GLN:HE22	1.28	0.79
1:A:1447:ASN:HD21	1:A:1554:ALA:H	1.31	0.78
1:A:1004:ASN:HD22	1:A:1006:LYS:H	1.29	0.78
1:A:1465:ILE:N	1:A:1478:ARG:NH1	2.17	0.78
1:B:2100:GLN:NE2	1:B:2315:VAL:HA	1.99	0.78
1:A:1100:GLN:NE2	1:A:1315:VAL:HA	1.99	0.77
1:A:1215:GLN:H	1:A:1215:GLN:NE2	1.82	0.76
1:A:1011:TRP:HH2	1:A:1186:LEU:O	1.66	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2465:ILE:CB	1:B:2478:ARG:NH1	2.49	0.75
1:B:2368:GLU:O	1:B:2370:ASN:N	2.20	0.75
1:B:2465:ILE:HA	1:B:2478:ARG:NH2	2.02	0.75
1:A:1368:GLU:O	1:A:1370:ASN:N	2.19	0.73
1:A:1313:ARG:HG2	1:A:1369:PRO:CG	2.19	0.73
1:A:1032:ASN:N	1:A:1032:ASN:HD22	1.85	0.72
1:A:1108:ALA:HB1	2:A:78:HOH:O	1.89	0.72
1:B:2313:ARG:HG2	1:B:2369:PRO:CG	2.20	0.72
1:A:1215:GLN:HE21	1:A:1215:GLN:N	1.88	0.71
1:B:2033:TYR:HA	1:B:2285:VAL:HG12	1.72	0.71
1:B:2215:GLN:H	1:B:2215:GLN:NE2	1.85	0.70
1:B:2573:VAL:HG23	1:B:2574:ASP:N	2.06	0.70
1:A:1033:TYR:HA	1:A:1285:VAL:HG12	1.74	0.69
1:A:1047:THR:HG22	1:A:1050:THR:H	1.58	0.69
1:B:2559:ILE:HD13	1:B:2559:ILE:N	2.07	0.69
1:B:2090:ASN:OD1	1:B:2093:LEU:HD23	1.91	0.69
1:B:2564:PRO:HG2	1:B:2573:VAL:HG13	1.75	0.69
1:A:1465:ILE:HD11	1:A:1478:ARG:HD2	1.73	0.69
1:A:1196:LYS:NZ	1:A:1226:GLN:HE22	1.91	0.68
1:B:2271:GLY:H	1:B:2274:MET:HE1	1.56	0.68
1:A:1090:ASN:HD22	1:A:1093:LEU:H	1.41	0.67
1:B:2369:PRO:O	1:B:2371:MET:HG3	1.94	0.67
1:B:2180:ASP:OD1	1:B:2182:ARG:HD3	1.94	0.67
1:B:2032:ASN:N	1:B:2032:ASN:ND2	2.39	0.67
1:A:1004:ASN:HD22	1:A:1006:LYS:N	1.93	0.67
1:A:1043:LEU:HD21	1:A:1354:PHE:HB3	1.76	0.67
1:B:2372:THR:HG22	1:B:2398:GLN:HB2	1.77	0.67
1:A:1368:GLU:OE1	1:A:1368:GLU:HA	1.94	0.67
1:B:2583:ARG:O	1:B:2587:LYS:HG2	1.95	0.67
1:B:2468:ASP:OD1	1:B:2469:VAL:N	2.28	0.66
1:B:2437:ASN:C	1:B:2437:ASN:HD22	1.99	0.66
1:B:2043:LEU:HD21	1:B:2354:PHE:HB3	1.77	0.66
1:A:1372:THR:HG22	1:A:1398:GLN:HB2	1.78	0.66
1:A:1465:ILE:CD1	1:A:1478:ARG:HD2	2.26	0.66
1:B:2465:ILE:HA	1:B:2478:ARG:HH22	1.61	0.66
1:B:2215:GLN:HE21	1:B:2215:GLN:N	1.92	0.66
1:A:1297:THR:HG23	1:A:1300:GLU:OE1	1.96	0.65
1:B:2368:GLU:OE1	1:B:2368:GLU:HA	1.96	0.65
1:A:1004:ASN:ND2	1:A:1006:LYS:H	1.94	0.65
1:B:2297:THR:HG23	1:B:2300:GLU:OE1	1.96	0.65
1:A:1325:GLU:HA	1:A:1329:GLY:O	1.96	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1437:ASN:C	1:A:1437:ASN:HD22	1.99	0.65
1:A:1032:ASN:N	1:A:1032:ASN:ND2	2.45	0.65
1:A:1369:PRO:O	1:A:1371:MET:HG3	1.96	0.65
1:B:2573:VAL:HG23	1:B:2574:ASP:H	1.60	0.64
1:B:2196:LYS:NZ	1:B:2226:GLN:HE22	1.96	0.64
1:A:1271:GLY:H	1:A:1274:MET:HE1	1.61	0.64
1:A:1196:LYS:HZ1	1:A:1226:GLN:HE22	1.44	0.64
1:A:1429:MET:HG2	1:A:1520:ARG:NH1	2.12	0.63
1:A:1583:ARG:O	1:A:1587:LYS:HG2	1.98	0.63
1:B:2203:LEU:HD11	1:B:2219:LEU:HD13	1.80	0.63
1:B:2375:TRP:HA	1:B:2379:LEU:HD11	1.81	0.63
1:A:1109:LEU:HD22	1:A:1118:ILE:HG23	1.80	0.63
1:B:2109:LEU:HD22	1:B:2118:ILE:HG23	1.80	0.63
1:B:2429:MET:HG2	1:B:2520:ARG:NH1	2.13	0.63
1:B:2100:GLN:HE22	1:B:2316:ARG:N	1.95	0.63
1:B:2047:THR:HG22	1:B:2050:THR:H	1.64	0.62
1:A:1601:GLN:OE1	1:A:1603:VAL:HG12	2.00	0.62
1:B:2278:ARG:HG2	1:B:2337:SER:HB2	1.81	0.62
1:A:1089:ILE:HD12	1:A:1310:MET:HE3	1.80	0.62
1:A:1458:VAL:HG23	1:A:1459:GLY:N	2.14	0.62
1:A:1180:ASP:OD1	1:A:1182:ARG:HD3	2.00	0.62
1:A:1465:ILE:HA	1:A:1478:ARG:CZ	1.97	0.62
1:A:1465:ILE:HG13	1:A:1478:ARG:CD	2.21	0.62
1:B:2244:ILE:HG22	1:B:2257:TRP:CE2	2.34	0.62
1:A:1375:TRP:HA	1:A:1379:LEU:HD11	1.82	0.61
1:A:1404:LEU:O	1:A:1408:ASP:HB2	1.99	0.61
1:B:2548:ARG:NH1	2:B:61:HOH:O	2.34	0.61
1:B:2032:ASN:HD22	1:B:2032:ASN:H	1.47	0.61
1:A:1090:ASN:HD22	1:A:1093:LEU:N	1.98	0.61
1:B:2404:LEU:O	1:B:2408:ASP:HB2	2.00	0.61
1:B:2544:VAL:HG12	1:B:2559:ILE:HG22	1.83	0.61
1:A:1437:ASN:ND2	1:A:1439:ALA:H	1.99	0.61
1:B:2311:LYS:HA	1:B:2314:MET:HE3	1.81	0.61
1:A:1244:ILE:HG22	1:A:1257:TRP:CE2	2.37	0.60
1:A:1278:ARG:HG2	1:A:1337:SER:HB2	1.81	0.60
1:A:1313:ARG:HG2	1:A:1369:PRO:CD	2.31	0.60
1:B:2601:GLN:OE1	1:B:2603:VAL:HG12	2.01	0.60
1:A:1279:THR:HG22	1:A:1283:LEU:HG	1.82	0.60
1:A:1311:LYS:HA	1:A:1314:MET:HE3	1.84	0.60
1:A:1047:THR:HG21	1:A:1303:GLU:OE2	2.02	0.60
1:B:2004:ASN:ND2	1:B:2007:LEU:HD13	2.17	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2092:GLN:N	1:B:2092:GLN:CD	2.54	0.60
1:B:2469:VAL:HA	1:B:2544:VAL:O	2.02	0.60
1:A:1090:ASN:ND2	1:A:1093:LEU:HG	2.17	0.59
1:B:2162:SER:OG	1:B:2164:VAL:HG22	2.01	0.59
1:B:2313:ARG:HG2	1:B:2369:PRO:CD	2.32	0.59
1:B:2089:ILE:HD12	1:B:2310:MET:HE3	1.84	0.59
1:B:2313:ARG:HG2	1:B:2369:PRO:HG2	1.85	0.59
1:A:1100:GLN:HE22	1:A:1316:ARG:N	1.97	0.59
1:A:1313:ARG:HG2	1:A:1369:PRO:HG2	1.84	0.59
1:A:1310:MET:HG2	1:A:1314:MET:CE	2.32	0.59
1:A:1175:GLY:O	1:A:1176:ARG:HD2	2.03	0.59
1:B:2279:THR:HG22	1:B:2283:LEU:HG	1.83	0.59
1:B:2604:LEU:C	1:B:2604:LEU:HD23	2.21	0.59
1:B:2302:GLN:NE2	1:B:2355:ARG:HA	2.18	0.58
1:B:2585:MET:O	1:B:2589:GLN:HG3	2.02	0.58
1:A:1564:PRO:HG3	1:A:1572:ARG:HG3	1.86	0.58
1:A:1549:ASP:HB3	1:A:1555:ILE:HG13	1.83	0.58
1:B:2036:TYR:CZ	1:B:2038:GLY:HA3	2.38	0.58
1:B:2437:ASN:ND2	1:B:2439:ALA:H	2.00	0.58
1:B:2175:GLY:O	1:B:2176:ARG:HD2	2.03	0.58
1:B:2465:ILE:HG12	1:B:2478:ARG:NE	2.18	0.58
1:A:1158:ARG:HG2	1:A:1456:MET:HE3	1.86	0.58
1:A:1207:LEU:HD21	1:B:2496:ILE:HD11	1.84	0.58
1:B:2310:MET:HG2	1:B:2314:MET:CE	2.32	0.58
1:B:2402:ASP:CG	1:B:2406:ARG:NH1	2.57	0.58
1:A:1162:SER:OG	1:A:1164:VAL:HG22	2.04	0.58
1:A:1274:MET:HB2	2:A:222:HOH:O	2.04	0.58
1:A:1302:GLN:NE2	1:A:1355:ARG:HA	2.19	0.57
1:A:1402:ASP:CG	1:A:1406:ARG:NH1	2.57	0.57
1:A:1423:MET:HE2	1:A:1428:GLN:O	2.03	0.57
1:A:1465:ILE:CG1	1:A:1478:ARG:CD	2.81	0.57
1:A:1604:LEU:C	1:A:1604:LEU:HD23	2.25	0.57
1:B:2092:GLN:OE1	1:B:2093:LEU:N	2.36	0.57
1:A:1203:LEU:HD11	1:A:1219:LEU:HD13	1.84	0.57
1:A:1611:VAL:HG12	1:A:1612:TYR:N	2.17	0.57
1:A:1484:ASP:OD1	1:A:1587:LYS:HD2	2.04	0.57
1:A:1040:GLU:N	1:A:1040:GLU:OE1	2.36	0.57
1:A:1555:ILE:O	1:A:1556:ASP:HB2	2.03	0.57
1:B:2047:THR:HG21	1:B:2303:GLU:OE2	2.05	0.57
1:A:1585:MET:O	1:A:1589:GLN:HG3	2.04	0.56
1:B:2086:ALA:HA	1:B:2240:TYR:CZ	2.40	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2470:LEU:HG	1:B:2546:PRO:HG3	1.87	0.56
1:A:1206:ASP:HA	1:A:1211:VAL:HG13	1.88	0.56
1:B:2437:ASN:HD21	1:B:2439:ALA:HB3	1.70	0.56
1:B:2447:ASN:HD21	1:B:2554:ALA:H	1.51	0.56
1:B:2464:PRO:C	1:B:2478:ARG:HH12	2.08	0.56
1:A:1507:GLU:HB3	1:A:1510:LEU:HD13	1.87	0.56
1:B:2196:LYS:HZ2	1:B:2226:GLN:NE2	2.01	0.56
1:B:2058:MET:HE2	1:B:2058:MET:HA	1.88	0.56
1:B:2448:GLY:HA2	1:B:2462:SER:OG	2.06	0.56
1:B:2459:GLY:HA3	1:B:2482:PHE:CZ	2.40	0.56
1:A:1086:ALA:HA	1:A:1240:TYR:CZ	2.41	0.55
1:B:2484:ASP:OD1	1:B:2587:LYS:HD2	2.05	0.55
1:A:1043:LEU:HD12	1:A:1358:ASN:OD1	2.07	0.55
1:A:1047:THR:CG2	1:A:1049:ALA:H	2.19	0.55
1:B:2070:PRO:HD3	1:B:2125:TYR:CE1	2.42	0.55
1:A:1171:ALA:O	1:A:1172:TYR:HB3	2.06	0.55
1:B:2271:GLY:H	1:B:2274:MET:CE	2.19	0.55
1:B:2102:GLU:CD	1:B:2102:GLU:H	2.10	0.55
1:A:1032:ASN:HD22	1:A:1032:ASN:H	1.54	0.55
1:A:1564:PRO:HB2	1:A:1573:VAL:CG2	2.36	0.55
1:B:2333:TRP:O	1:B:2335:THR:N	2.40	0.55
1:A:1070:PRO:HD3	1:A:1125:TYR:CE1	2.42	0.54
1:A:1420:VAL:HG22	1:A:1430:GLN:OE1	2.08	0.54
1:A:1004:ASN:HD22	1:A:1005:GLU:N	2.06	0.54
1:A:1036:TYR:CZ	1:A:1038:GLY:HA3	2.43	0.54
1:B:2206:ASP:HA	1:B:2211:VAL:HG13	1.88	0.54
1:B:2368:GLU:C	1:B:2370:ASN:N	2.61	0.54
1:A:1089:ILE:CD1	1:A:1310:MET:HE3	2.37	0.54
1:A:1176:ARG:HG3	1:A:1273:ALA:HB3	1.90	0.54
1:A:1333:TRP:O	1:A:1335:THR:N	2.41	0.54
1:A:1373:ILE:HD12	1:A:1399:TYR:CE2	2.43	0.54
1:B:2421:SER:HB2	1:B:2430:GLN:HE22	1.73	0.54
1:A:1102:GLU:CD	1:A:1102:GLU:H	2.10	0.54
1:A:1352:ASN:HA	1:A:1355:ARG:HH11	1.73	0.54
1:B:2058:MET:HA	1:B:2058:MET:CE	2.37	0.54
1:B:2176:ARG:HG3	1:B:2273:ALA:HB3	1.89	0.54
1:B:2539:ILE:HA	1:B:2544:VAL:HG21	1.89	0.54
1:B:2043:LEU:HD12	1:B:2358:ASN:OD1	2.08	0.53
1:B:2166:THR:O	1:B:2434:ALA:HB1	2.07	0.53
1:B:2314:MET:HB3	2:B:28:HOH:O	2.06	0.53
1:B:2507:GLU:HB3	1:B:2510:LEU:HD13	1.89	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2423:MET:HE2	1:B:2428:GLN:O	2.07	0.53
1:A:1465:ILE:CG1	1:A:1478:ARG:HD2	2.38	0.53
1:B:2042:PHE:CE2	1:B:2351:LYS:HD2	2.43	0.53
1:B:2047:THR:HG22	1:B:2049:ALA:N	2.23	0.53
1:B:2047:THR:CG2	1:B:2049:ALA:H	2.21	0.53
1:A:1421:SER:HB2	1:A:1430:GLN:HE22	1.73	0.53
1:B:2352:ASN:HA	1:B:2355:ARG:HH11	1.72	0.53
1:B:2386:PHE:O	1:B:2390:VAL:HG23	2.09	0.53
1:B:2570:ASP:O	1:B:2573:VAL:HG22	2.08	0.53
1:A:1291:LEU:C	1:A:1293:ALA:H	2.13	0.53
1:B:2325:GLU:HA	1:B:2329:GLY:O	2.09	0.53
1:A:1004:ASN:ND2	1:A:1005:GLU:H	2.07	0.53
1:A:1058:MET:HA	1:A:1058:MET:CE	2.39	0.52
1:B:2040:GLU:OE1	1:B:2040:GLU:N	2.35	0.52
1:B:2092:GLN:CD	1:B:2092:GLN:H	2.13	0.52
1:B:2372:THR:HA	1:B:2398:GLN:HB2	1.91	0.52
1:A:1357:LEU:HD22	1:A:1397:LEU:HD11	1.91	0.52
1:A:1204:GLN:NE2	1:B:2154:PRO:HD2	2.24	0.52
1:A:1465:ILE:HG13	1:A:1478:ARG:HD2	1.91	0.52
1:B:2171:ALA:O	1:B:2172:TYR:HB3	2.08	0.52
1:B:2244:ILE:HG22	1:B:2257:TRP:CD2	2.45	0.52
1:A:1368:GLU:C	1:A:1370:ASN:N	2.61	0.52
1:A:1047:THR:HG22	1:A:1049:ALA:N	2.24	0.52
1:B:2090:ASN:ND2	1:B:2092:GLN:HE22	2.08	0.52
1:B:2437:ASN:HD22	1:B:2439:ALA:H	1.58	0.52
1:A:1004:ASN:ND2	1:A:1005:GLU:N	2.58	0.51
1:A:1109:LEU:HD22	1:A:1118:ILE:CG2	2.40	0.51
1:A:1442:MET:HG3	1:A:1479:MET:HE2	1.92	0.51
1:B:2373:ILE:HD12	1:B:2399:TYR:CE2	2.45	0.51
1:A:1064:GLU:OE1	1:A:1316:ARG:NH1	2.43	0.51
1:A:1166:THR:O	1:A:1434:ALA:HB1	2.10	0.51
1:B:2564:PRO:HG3	1:B:2572:ARG:HG2	1.91	0.51
1:A:1271:GLY:H	1:A:1274:MET:CE	2.23	0.51
1:A:1279:THR:HG22	1:A:1283:LEU:CD1	2.41	0.51
1:A:1375:TRP:CZ2	1:A:1384:LYS:HD2	2.46	0.51
1:B:2036:TYR:CE1	1:B:2038:GLY:HA3	2.45	0.51
1:B:2341:MET:O	1:B:2406:ARG:HD3	2.11	0.51
1:B:2090:ASN:ND2	1:B:2092:GLN:NE2	2.57	0.51
1:A:1402:ASP:OD2	1:A:1406:ARG:NH1	2.43	0.51
1:B:2402:ASP:OD2	1:B:2406:ARG:NH1	2.44	0.50
1:A:1568:ASN:O	1:A:1570:ASP:N	2.43	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2284:ASP:HB2	1:B:2352:ASN:CB	2.36	0.50
1:A:1402:ASP:OD1	1:A:1406:ARG:HB2	2.12	0.50
1:B:2058:MET:HE2	1:B:2061:VAL:HB	1.93	0.50
1:B:2375:TRP:CZ2	1:B:2384:LYS:HD2	2.47	0.50
1:A:1009:THR:O	1:A:1012:GLU:HB2	2.11	0.50
1:A:1437:ASN:HD21	1:A:1439:ALA:HB3	1.76	0.50
1:B:2009:THR:O	1:B:2012:GLU:HG3	2.12	0.50
1:A:1372:THR:HA	1:A:1398:GLN:HB2	1.94	0.50
1:A:1386:PHE:O	1:A:1390:VAL:HG23	2.12	0.50
1:B:2373:ILE:HD11	1:B:2397:LEU:HD13	1.93	0.50
1:B:2402:ASP:OD1	1:B:2406:ARG:HB2	2.12	0.50
1:B:2420:VAL:HG22	1:B:2430:GLN:OE1	2.11	0.50
1:B:2109:LEU:HD22	1:B:2118:ILE:CG2	2.41	0.49
1:A:1058:MET:HE1	1:A:1061:VAL:CB	2.43	0.49
1:A:1099:LEU:HD11	1:A:1104:PRO:HG3	1.93	0.49
1:A:1284:ASP:HB2	1:A:1352:ASN:CB	2.33	0.49
1:B:2086:ALA:HA	1:B:2240:TYR:CE1	2.47	0.49
1:A:1437:ASN:HD22	1:A:1439:ALA:H	1.59	0.49
1:B:2099:LEU:HD11	1:B:2104:PRO:HG3	1.94	0.49
1:B:2544:VAL:HA	1:B:2558:GLU:O	2.12	0.49
1:A:1458:VAL:CG2	1:A:1459:GLY:N	2.75	0.49
1:B:2368:GLU:C	1:B:2370:ASN:H	2.13	0.49
1:A:1058:MET:HE1	1:A:1061:VAL:HB	1.95	0.49
1:B:2423:MET:HE1	1:B:2430:GLN:N	2.28	0.49
1:B:2442:MET:HG3	1:B:2479:MET:HE2	1.93	0.49
1:A:1215:GLN:NE2	1:A:1215:GLN:N	2.55	0.49
1:A:1373:ILE:HD11	1:A:1397:LEU:HD13	1.95	0.49
1:B:2559:ILE:N	1:B:2559:ILE:CD1	2.74	0.49
1:B:2573:VAL:CG2	1:B:2574:ASP:N	2.74	0.49
1:A:1423:MET:HE1	1:A:1430:GLN:N	2.27	0.49
1:B:2604:LEU:HD23	1:B:2604:LEU:O	2.13	0.49
1:A:1090:ASN:CG	1:A:1093:LEU:HD12	2.32	0.48
1:A:1610:VAL:HG23	1:A:1610:VAL:O	2.13	0.48
1:B:2465:ILE:CG1	1:B:2478:ARG:HD2	2.43	0.48
1:B:2039:ASP:HB2	1:B:2040:GLU:OE1	2.13	0.48
1:A:1047:THR:HG22	1:A:1049:ALA:H	1.79	0.48
1:A:1291:LEU:O	1:A:1293:ALA:N	2.46	0.48
1:B:2016:LYS:HA	1:B:2020:GLN:CD	2.30	0.48
1:A:1218:ARG:O	1:A:1222:GLU:HG3	2.14	0.48
1:A:1036:TYR:CE1	1:A:1038:GLY:HA3	2.49	0.48
1:B:2042:PHE:CZ	1:B:2351:LYS:HD2	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2549:ASP:O	1:B:2550:GLU:C	2.52	0.48
1:A:1244:ILE:HG22	1:A:1257:TRP:CD2	2.48	0.48
1:B:2279:THR:HG22	1:B:2283:LEU:CD1	2.43	0.48
1:B:2452:GLU:C	1:B:2454:LEU:H	2.17	0.48
1:A:1028:PHE:CE2	1:A:1285:VAL:HG21	2.48	0.48
1:A:1403:ASP:OD1	1:A:1406:ARG:NH2	2.46	0.48
1:A:1073:PHE:HA	1:A:1107:ARG:O	2.13	0.47
1:A:1444:TYR:CD2	1:A:1458:VAL:HG21	2.49	0.47
1:B:2009:THR:HG23	1:B:2010:ALA:N	2.29	0.47
1:B:2028:PHE:CE2	1:B:2285:VAL:HG21	2.49	0.47
1:B:2064:GLU:OE1	1:B:2316:ARG:NH1	2.47	0.47
1:B:2357:LEU:HD22	1:B:2397:LEU:HD11	1.95	0.47
1:A:1472:TYR:HB2	1:A:1540:LYS:HB3	1.97	0.47
1:B:2370:ASN:OD1	1:B:2398:GLN:HG3	2.13	0.47
1:B:2061:VAL:HG12	1:B:2065:ASN:HD21	1.79	0.47
1:A:1211:VAL:HG22	1:A:1211:VAL:O	2.15	0.47
1:A:1343:LEU:HD22	1:A:1412:ASP:OD2	2.15	0.47
1:A:1429:MET:O	1:A:1520:ARG:HA	2.15	0.47
1:A:1086:ALA:HA	1:A:1240:TYR:CE1	2.49	0.47
1:A:1564:PRO:HG2	1:A:1573:VAL:HG22	1.96	0.47
1:B:2026:ARG:NH2	1:B:2343:LEU:HD23	2.30	0.47
1:B:2073:PHE:HA	1:B:2107:ARG:O	2.13	0.47
1:B:2468:ASP:O	1:B:2469:VAL:HB	2.13	0.47
1:B:2573:VAL:CG2	1:B:2574:ASP:H	2.26	0.47
1:A:1039:ASP:HB2	1:A:1040:GLU:OE1	2.14	0.47
1:A:1409:PHE:CZ	1:A:1422:PRO:HB2	2.50	0.47
1:B:2047:THR:HG22	1:B:2049:ALA:H	1.78	0.47
1:B:2090:ASN:OD1	1:B:2093:LEU:CD2	2.60	0.47
1:B:2275:SER:HA	1:B:2335:THR:H	1.79	0.47
1:B:2564:PRO:O	1:B:2573:VAL:HG11	2.15	0.47
1:B:2610:VAL:HG23	1:B:2610:VAL:O	2.15	0.47
1:A:1370:ASN:OD1	1:A:1398:GLN:HG3	2.15	0.46
1:A:1547:ILE:HD11	1:A:1558:GLU:HG3	1.96	0.46
1:B:2081:ILE:HD11	1:B:2509:SER:HB3	1.97	0.46
1:B:2092:GLN:N	1:B:2092:GLN:OE1	2.48	0.46
1:B:2564:PRO:CG	1:B:2573:VAL:HG13	2.43	0.46
1:B:2030:GLN:HE21	1:B:2346:ARG:HH21	1.63	0.46
1:A:1081:ILE:HD11	1:A:1509:SER:HB3	1.96	0.46
1:A:1026:ARG:NH2	1:A:1343:LEU:HD23	2.29	0.46
1:A:1452:GLU:HG3	1:A:1555:ILE:HD13	1.97	0.46
1:B:2058:MET:HE2	1:B:2061:VAL:HG21	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2089:ILE:CD1	1:B:2310:MET:HE3	2.44	0.46
1:B:2556:ASP:OD1	1:B:2557:PHE:N	2.45	0.46
1:B:2406:ARG:HB3	1:B:2407:PRO:CD	2.46	0.46
1:B:2483:MET:CE	1:B:2584:PHE:HB2	2.45	0.46
1:A:1196:LYS:NZ	1:A:1226:GLN:NE2	2.62	0.46
1:A:1530:SER:HB2	1:A:1566:PHE:CD2	2.50	0.46
1:B:2011:TRP:HZ3	1:B:2247:PRO:CB	2.29	0.46
1:B:2472:TYR:HB2	1:B:2540:LYS:HB3	1.98	0.46
1:A:1611:VAL:CG1	1:A:1612:TYR:N	2.78	0.46
1:B:2058:MET:HE2	1:B:2061:VAL:CG2	2.45	0.46
1:B:2141:ARG:NH2	1:B:2504:TYR:O	2.48	0.46
1:A:1341:MET:O	1:A:1406:ARG:HD3	2.16	0.46
1:A:1360:LEU:HB3	1:A:1394:THR:HG21	1.96	0.46
1:A:1058:MET:HE1	1:A:1061:VAL:HG21	1.96	0.46
1:B:2189:ILE:HG21	1:B:2234:LYS:HG3	1.97	0.46
1:B:2360:LEU:HB3	1:B:2394:THR:HG21	1.97	0.46
1:B:2372:THR:HG22	1:B:2398:GLN:CB	2.45	0.46
1:B:2437:ASN:C	1:B:2437:ASN:ND2	2.69	0.46
1:B:2481:HIS:O	1:B:2484:ASP:HB2	2.16	0.46
1:B:2565:GLN:O	1:B:2573:VAL:HG21	2.15	0.46
1:A:1457:GLN:OE1	1:A:1461:LYS:HA	2.15	0.45
1:B:2011:TRP:HZ3	1:B:2247:PRO:CG	2.28	0.45
1:B:2215:GLN:NE2	1:B:2215:GLN:N	2.59	0.45
1:B:2343:LEU:HD22	1:B:2412:ASP:OD2	2.15	0.45
1:B:2403:ASP:HA	1:B:2406:ARG:NH2	2.31	0.45
1:A:1174:ARG:HH11	1:A:1498:HIS:HD2	1.64	0.45
1:A:1275:SER:HA	1:A:1335:THR:H	1.80	0.45
1:B:2373:ILE:N	1:B:2398:GLN:O	2.41	0.45
1:A:1450:VAL:HG11	1:A:1553:LEU:CD1	2.47	0.45
1:A:1437:ASN:HD22	1:A:1438:LEU:N	2.13	0.45
1:B:2222:GLU:O	1:B:2226:GLN:HG3	2.16	0.45
1:B:2429:MET:O	1:B:2520:ARG:HA	2.15	0.45
1:A:1005:GLU:O	1:A:1008:ALA:HB3	2.17	0.45
1:A:1130:ASP:OD1	1:A:1131:PRO:HD2	2.17	0.45
1:B:2266:VAL:HG12	1:B:2266:VAL:O	2.17	0.45
1:B:2564:PRO:HG3	1:B:2572:ARG:CG	2.47	0.45
1:A:1141:ARG:NH2	1:A:1504:TYR:O	2.50	0.45
1:B:2402:ASP:CG	1:B:2406:ARG:HH12	2.20	0.45
1:B:2409:PHE:CZ	1:B:2422:PRO:HB2	2.52	0.45
1:B:2539:ILE:HA	1:B:2544:VAL:CG2	2.46	0.45
1:A:1095:LYS:H	1:A:1307:HIS:CD2	2.35	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2130:ASP:OD1	1:B:2131:PRO:HD2	2.17	0.45
1:B:2366:SER:HA	1:B:2367:PRO:HD3	1.84	0.45
1:B:2554:ALA:HB1	1:B:2557:PHE:CZ	2.51	0.45
1:B:2564:PRO:HG2	1:B:2573:VAL:CG1	2.44	0.45
1:A:1402:ASP:CG	1:A:1406:ARG:HH12	2.19	0.44
1:A:1420:VAL:HG23	1:A:1523:ALA:HB1	1.98	0.44
1:A:1430:GLN:HG2	1:A:1523:ALA:HB2	1.98	0.44
1:B:2471:ASN:HD22	1:B:2474:GLU:HB2	1.82	0.44
1:A:1372:THR:HG22	1:A:1398:GLN:CB	2.46	0.44
1:B:2040:GLU:O	1:B:2043:LEU:HB2	2.18	0.44
1:B:2441:THR:HG23	1:B:2482:PHE:HD2	1.82	0.44
1:A:1573:VAL:O	1:A:1576:LEU:HB2	2.17	0.44
1:A:1604:LEU:HD23	1:A:1604:LEU:O	2.18	0.44
1:A:1266:VAL:HG12	1:A:1266:VAL:O	2.16	0.44
1:B:2092:GLN:OE1	1:B:2093:LEU:HD23	2.18	0.44
1:B:2457:GLN:CD	1:B:2461:LYS:HG2	2.38	0.44
1:A:1279:THR:HG22	1:A:1283:LEU:CG	2.45	0.44
1:A:1406:ARG:HB3	1:A:1407:PRO:CD	2.47	0.44
1:B:2058:MET:CE	1:B:2061:VAL:HG21	2.47	0.44
1:A:1510:LEU:HD12	1:A:1510:LEU:N	2.33	0.44
1:A:1549:ASP:HB3	1:A:1555:ILE:CG1	2.48	0.44
1:A:1222:GLU:O	1:A:1226:GLN:HG3	2.17	0.44
1:A:1311:LYS:HD3	1:A:1314:MET:HE1	2.00	0.44
1:A:1569:ASN:CG	2:A:151:HOH:O	2.55	0.44
1:B:2161:LYS:HG2	1:B:2456:MET:CE	2.48	0.44
1:B:2291:LEU:C	1:B:2293:ALA:H	2.21	0.44
1:A:1403:ASP:HA	1:A:1406:ARG:NH2	2.33	0.43
1:B:2011:TRP:CZ3	1:B:2247:PRO:HG3	2.53	0.43
1:A:1090:ASN:ND2	1:A:1093:LEU:CG	2.81	0.43
1:A:1405:MET:O	1:A:1406:ARG:C	2.57	0.43
1:B:2372:THR:HA	1:B:2398:GLN:O	2.18	0.43
1:B:2430:GLN:HG2	1:B:2523:ALA:HB2	2.00	0.43
1:A:1406:ARG:N	1:A:1407:PRO:HD2	2.34	0.43
1:B:2548:ARG:HA	1:B:2553:LEU:O	2.19	0.43
1:A:1360:LEU:HA	1:A:1364:GLY:O	2.19	0.43
1:A:1368:GLU:C	1:A:1370:ASN:H	2.14	0.43
1:B:2058:MET:HE2	1:B:2061:VAL:CB	2.49	0.43
1:A:1174:ARG:HG3	1:A:1175:GLY:N	2.34	0.43
1:A:1313:ARG:HG2	1:A:1369:PRO:HD3	2.01	0.43
1:A:1471:ASN:HD22	1:A:1474:GLU:HB2	1.84	0.43
1:B:2011:TRP:HZ3	1:B:2247:PRO:HB2	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2095:LYS:H	1:B:2307:HIS:CD2	2.36	0.43
1:B:2211:VAL:HG22	1:B:2211:VAL:O	2.18	0.43
1:B:2335:THR:OG1	1:B:2370:ASN:ND2	2.51	0.43
1:B:2420:VAL:HG23	1:B:2523:ALA:HB1	2.00	0.43
1:B:2459:GLY:HA3	1:B:2482:PHE:HZ	1.84	0.43
1:A:1437:ASN:C	1:A:1437:ASN:ND2	2.68	0.43
1:B:2403:ASP:OD1	1:B:2406:ARG:NH2	2.47	0.43
1:A:1327:PHE:C	1:A:1329:GLY:N	2.72	0.43
1:A:1441:THR:HG23	1:A:1482:PHE:HD2	1.84	0.43
1:A:1481:HIS:O	1:A:1484:ASP:HB2	2.19	0.43
1:B:2025:VAL:O	1:B:2028:PHE:HB3	2.19	0.43
1:B:2279:THR:HG22	1:B:2283:LEU:CG	2.47	0.43
1:A:1040:GLU:O	1:A:1043:LEU:HB2	2.18	0.43
1:A:1313:ARG:CG	1:A:1369:PRO:HG2	2.49	0.43
1:A:1483:MET:CE	1:A:1584:PHE:HB2	2.49	0.43
1:B:2006:LYS:O	1:B:2007:LEU:C	2.57	0.43
1:B:2510:LEU:HD12	1:B:2510:LEU:N	2.34	0.43
1:A:1302:GLN:NE2	1:A:1355:ARG:CA	2.82	0.42
1:A:1357:LEU:HD22	1:A:1397:LEU:CD1	2.49	0.42
1:B:2011:TRP:CZ3	1:B:2247:PRO:CB	3.02	0.42
1:B:2311:LYS:HD3	1:B:2314:MET:HE1	2.01	0.42
1:B:2442:MET:CE	1:B:2535:SER:HB3	2.48	0.42
1:B:2572:ARG:HD3	1:B:2572:ARG:H	1.85	0.42
1:B:2451:ASP:OD1	1:B:2454:LEU:HB2	2.18	0.42
1:B:2499:TYR:HA	1:B:2594:TYR:CZ	2.54	0.42
1:B:2090:ASN:HB3	1:B:2093:LEU:HB2	2.01	0.42
1:B:2174:ARG:HH11	1:B:2498:HIS:HD2	1.66	0.42
1:B:2174:ARG:HG3	1:B:2175:GLY:N	2.34	0.42
1:A:1153:THR:OG1	1:A:1156:ILE:HG13	2.19	0.42
1:A:1061:VAL:HG12	1:A:1065:ASN:HD21	1.84	0.42
1:A:1522:MET:HB3	1:A:1599:PRO:HA	2.01	0.42
1:A:1564:PRO:HB2	1:A:1573:VAL:HG23	2.01	0.42
1:B:2257:TRP:HE3	1:B:2257:TRP:N	2.18	0.42
1:A:1480:ASP:OD2	1:A:1583:ARG:NH1	2.53	0.42
1:B:2011:TRP:CZ3	1:B:2247:PRO:CG	3.03	0.42
1:A:1058:MET:HE1	1:A:1061:VAL:CG2	2.50	0.42
1:A:1110:ILE:HD12	1:A:1270:ASN:HB3	2.02	0.42
1:B:2024:ASN:C	1:B:2024:ASN:HD22	2.23	0.42
1:B:2437:ASN:HD22	1:B:2438:LEU:N	2.17	0.42
1:A:1058:MET:CE	1:A:1061:VAL:HG21	2.50	0.42
1:B:2105:LEU:HD23	2:B:28:HOH:O	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:2218:ARG:O	1:B:2222:GLU:HG3	2.20	0.42
1:A:1095:LYS:O	1:A:1096:ILE:HD12	2.20	0.41
1:B:2313:ARG:CG	1:B:2369:PRO:HG2	2.49	0.41
1:B:2571:PRO:O	1:B:2575:ASP:N	2.51	0.41
1:A:1158:ARG:HG2	1:A:1456:MET:CE	2.49	0.41
1:A:1306:ASP:O	1:A:1310:MET:HB2	2.20	0.41
1:A:1555:ILE:O	1:A:1555:ILE:HG22	2.20	0.41
1:B:2036:TYR:CZ	1:B:2038:GLY:CA	3.03	0.41
1:B:2303:GLU:HA	2:B:196:HOH:O	2.18	0.41
1:A:1310:MET:SD	1:A:1363:MET:HE3	2.61	0.41
1:B:2302:GLN:NE2	1:B:2355:ARG:CA	2.83	0.41
1:A:1196:LYS:HZ1	1:A:1226:GLN:NE2	2.12	0.41
1:A:1257:TRP:HE3	1:A:1257:TRP:N	2.17	0.41
1:A:1372:THR:CG2	1:A:1398:GLN:HB2	2.48	0.41
1:A:1335:THR:OG1	1:A:1370:ASN:ND2	2.52	0.41
1:A:1366:SER:HA	1:A:1367:PRO:HD3	1.86	0.41
1:B:2559:ILE:HG12	1:B:2559:ILE:O	2.20	0.41
1:B:2011:TRP:CD1	1:B:2019:TRP:CH2	3.08	0.41
1:B:2405:MET:O	1:B:2406:ARG:C	2.59	0.41
1:A:1025:VAL:O	1:A:1028:PHE:HB3	2.21	0.41
1:B:2306:ASP:O	1:B:2310:MET:HB2	2.21	0.41
1:B:2406:ARG:HB3	1:B:2407:PRO:HD3	2.03	0.41
1:A:1496:ILE:HD11	1:B:2207:LEU:HD21	2.02	0.41
1:A:1564:PRO:HB3	1:A:1570:ASP:OD2	2.20	0.41
1:A:1024:ASN:C	1:A:1024:ASN:HD22	2.23	0.41
1:A:1598:ILE:HA	1:A:1599:PRO:HD3	1.98	0.41
1:B:2142:LYS:HE2	1:B:2147:GLY:HA2	2.03	0.41
1:B:2568:ASN:O	1:B:2570:ASP:N	2.54	0.41
1:A:1119:GLU:HG2	1:A:1129:LEU:HD12	2.02	0.41
1:A:1157:LEU:HD12	1:A:1157:LEU:HA	1.85	0.41
1:A:1228:ARG:O	1:A:1232:GLN:HG3	2.20	0.41
1:A:1291:LEU:C	1:A:1293:ALA:N	2.74	0.40
1:B:2491:ILE:HD13	1:B:2491:ILE:HA	1.98	0.40
1:A:1449:GLY:O	1:A:1458:VAL:HG22	2.20	0.40
1:A:1499:TYR:HA	1:A:1594:TYR:CZ	2.56	0.40
1:A:1606:ILE:O	1:A:1606:ILE:HG23	2.21	0.40
1:B:2018:ASP:O	1:B:2020:GLN:N	2.54	0.40
1:B:2063:LEU:O	1:B:2063:LEU:HD23	2.21	0.40
1:B:2401:ASN:OD1	1:B:2403:ASP:HB2	2.21	0.40
1:B:2034:THR:HA	1:B:2035:PRO:HD2	1.95	0.40
1:A:1197:LEU:HD22	2:B:184:HOH:O	2.20	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1447:ASN:HD21	1:A:1554:ALA:N	2.10	0.40
1:A:1537:SER:OG	1:A:1564:PRO:HG2	2.22	0.40
1:B:2089:ILE:HD12	1:B:2310:MET:CE	2.51	0.40
1:B:2566:PHE:HE2	1:B:2577:ALA:CB	2.34	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	610/624 (98%)	545 (89%)	54 (9%)	11 (2%)	8	28
1	B	610/624 (98%)	539 (88%)	56 (9%)	15 (2%)	5	19
All	All	1220/1248 (98%)	1084 (89%)	110 (9%)	26 (2%)	7	23

All (26) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1175	GLY
1	A	1569	ASN
1	B	2175	GLY
1	B	2327	PHE
1	B	2329	GLY
1	A	1173	GLY
1	A	1292	LYS
1	A	1334	ALA
1	A	1370	ASN
1	B	2173	GLY
1	B	2334	ALA
1	B	2370	ASN
1	B	2569	ASN
1	A	1006	LYS

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Mol	Chain	Res	Type
1	B	2091	LYS
1	B	2325	GLU
1	B	2326	LEU
1	A	1327	PHE
1	A	1329	GLY
1	B	2005	GLU
1	B	2019	TRP
1	B	2550	GLU
1	A	1523	ALA
1	A	1046	ALA
1	B	2292	LYS
1	B	2469	VAL

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	502/528 (95%)	470 (94%)	32 (6%)	17 45
1	B	499/528 (94%)	468 (94%)	31 (6%)	18 47
All	All	1001/1056 (95%)	938 (94%)	63 (6%)	18 46

All (63) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1004	ASN
1	A	1005	GLU
1	A	1009	THR
1	A	1011	TRP
1	A	1024	ASN
1	A	1032	ASN
1	A	1047	THR
1	A	1063	LEU
1	A	1102	GLU
1	A	1129	LEU
1	A	1132	MET

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	A	1152	TYR
1	A	1157	LEU
1	A	1164	VAL
1	A	1165	LEU
1	A	1182	ARG
1	A	1211	VAL
1	A	1215	GLN
1	A	1219	LEU
1	A	1257	TRP
1	A	1278	ARG
1	A	1308	LEU
1	A	1315	VAL
1	A	1333	TRP
1	A	1343	LEU
1	A	1368	GLU
1	A	1382	ASN
1	A	1437	ASN
1	A	1443	LEU
1	A	1452	GLU
1	A	1473	ASP
1	A	1550	GLU
1	B	2011	TRP
1	B	2024	ASN
1	B	2032	ASN
1	B	2047	THR
1	B	2063	LEU
1	B	2092	GLN
1	B	2102	GLU
1	B	2129	LEU
1	B	2152	TYR
1	B	2164	VAL
1	B	2165	LEU
1	B	2182	ARG
1	B	2211	VAL
1	B	2215	GLN
1	B	2219	LEU
1	B	2257	TRP
1	B	2278	ARG
1	B	2308	LEU
1	B	2315	VAL
1	B	2322	GLU
1	B	2333	TRP

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Mol	Chain	Res	Type
1	B	2343	LEU
1	B	2368	GLU
1	B	2382	ASN
1	B	2437	ASN
1	B	2443	LEU
1	B	2473	ASP
1	B	2559	ILE
1	B	2569	ASN
1	B	2572	ARG
1	B	2609	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (39) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	1004	ASN
1	A	1024	ASN
1	A	1030	GLN
1	A	1065	ASN
1	A	1090	ASN
1	A	1100	GLN
1	A	1146	GLN
1	A	1204	GLN
1	A	1212	ASN
1	A	1215	GLN
1	A	1226	GLN
1	A	1269	GLN
1	A	1302	GLN
1	A	1428	GLN
1	A	1430	GLN
1	A	1437	ASN
1	A	1447	ASN
1	A	1457	GLN
1	A	1471	ASN
1	A	1498	HIS
1	A	1565	GLN
1	B	2024	ASN
1	B	2030	GLN
1	B	2065	ASN
1	B	2090	ASN
1	B	2100	GLN
1	B	2146	GLN
1	B	2212	ASN

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Mol	Chain	Res	Type
1	B	2215	GLN
1	B	2226	GLN
1	B	2269	GLN
1	B	2302	GLN
1	B	2428	GLN
1	B	2430	GLN
1	B	2437	ASN
1	B	2447	ASN
1	B	2457	GLN
1	B	2471	ASN
1	B	2498	HIS

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

### 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.