Full wwPDB EM Validation Report

Jul 16, 2025 – 02:21 AM JST

PDB ID	:	9IZ0 / pdb_00009iz0
EMDB ID	:	EMD-61006
Title	:	ATM/Tel1 bound to CHK2 peptide
Authors	:	Wang, P.
Deposited on	:	2024-07-31
Resolution	:	3.63 Å(reported)

This is a Full wwPDB EM 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/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references ①) were used in the production of this report:

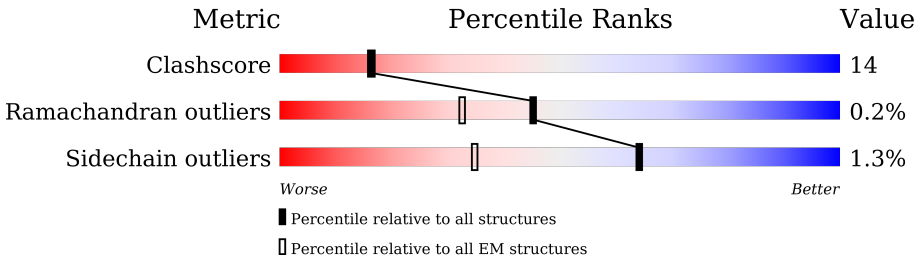
EMDB validation analysis	:	FAILED
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	FAILED
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.63 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)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 <=5%

Mol	Chain	Length	Quality of chain
1	F	8	62% 38%
2	A	2812	68% 18% • 14%
2	B	2812	68% 18% 14%

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 32048 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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.

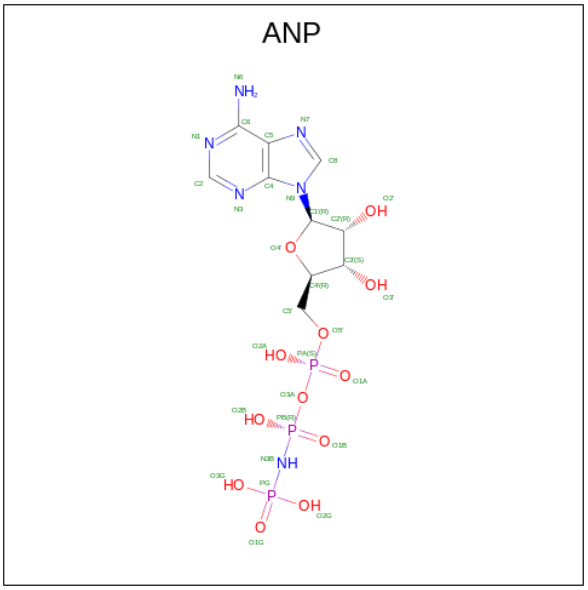
- Molecule 1 is a protein called VAL-SER-THR-GLN-GLU-LEU-TYR-SER.

Mol	Chain	Residues	Atoms				AltConf	Trace
1	F	8	Total	C	N	O	0	0
			64	40	9	15		

- Molecule 2 is a protein called Serine/threonine-protein kinase tel1.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	A	2430	Total	C	N	O	S	0	0
			15929	10030	2839	3040	20		
2	B	2424	Total	C	N	O	S	0	0
			15993	10091	2847	3035	20		

- Molecule 3 is PHOSPHOAMINOPHOSPHONIC ACID-ADENYLATE ESTER (CCD ID: ANP) (formula: $C_{10}H_{17}N_6O_{12}P_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
3	A	1	Total	C	N	O	P	0
			31	10	6	12	3	

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Mol	Chain	Residues	Atoms					AltConf
3	B	1	Total	C	N	O	P	0
			31	10	6	12	3	

3 Residue-property plots (i)

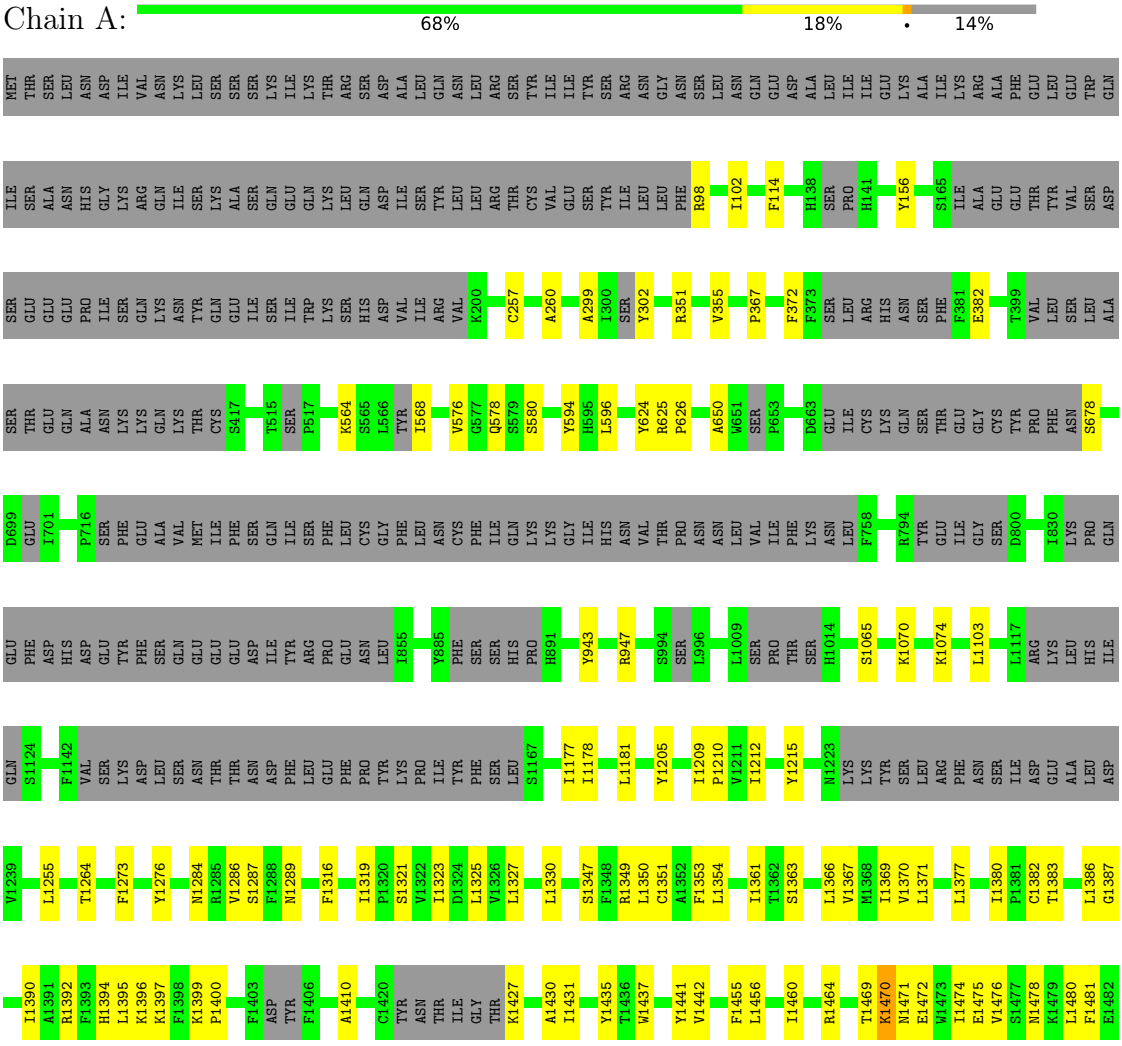
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

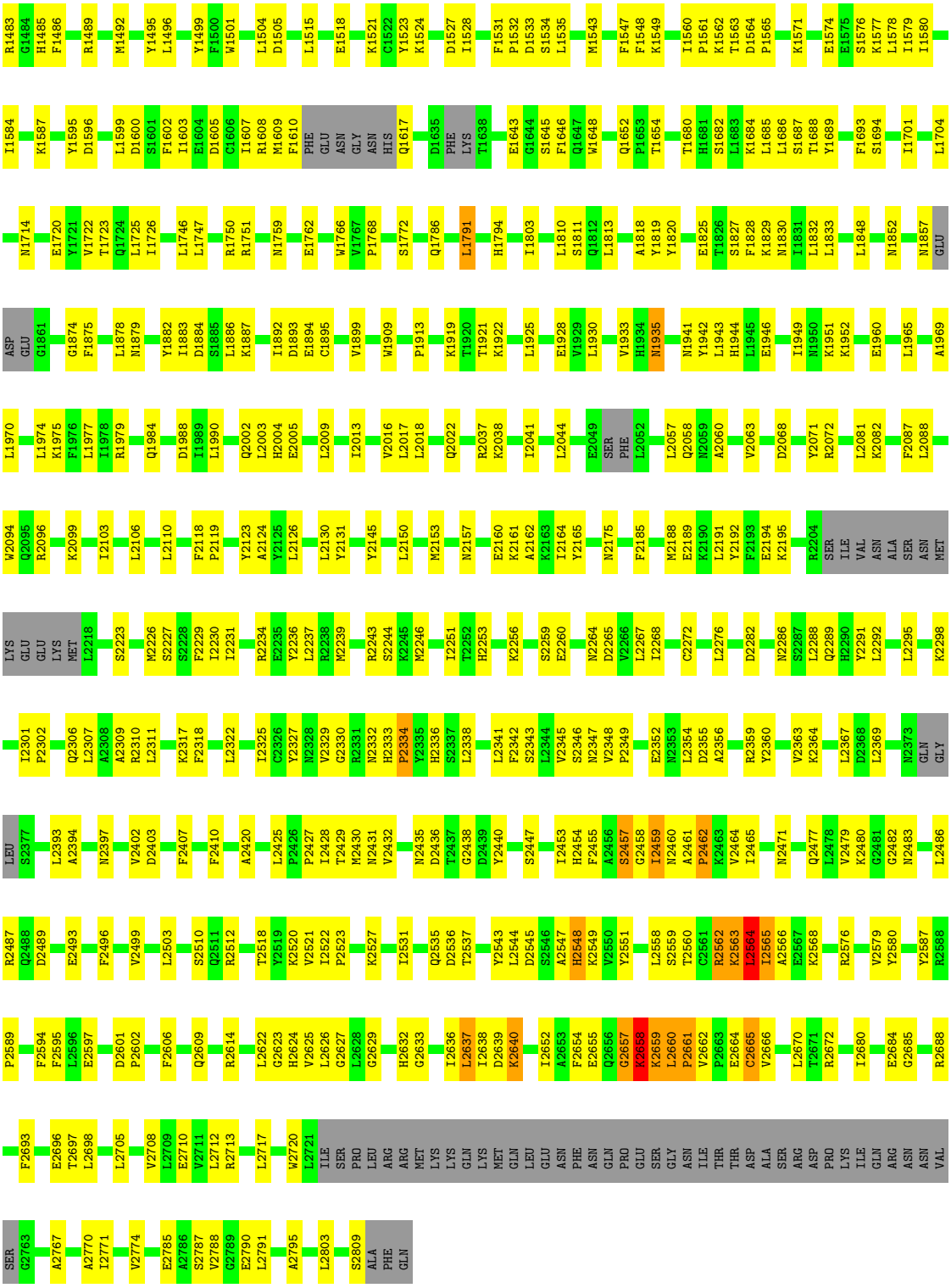
- Molecule 1: VAL-SER-THR-GLN-GLU-LEU-TYR-SER

Chain F:

- Molecule 2: Serine/threonine-protein kinase tel1

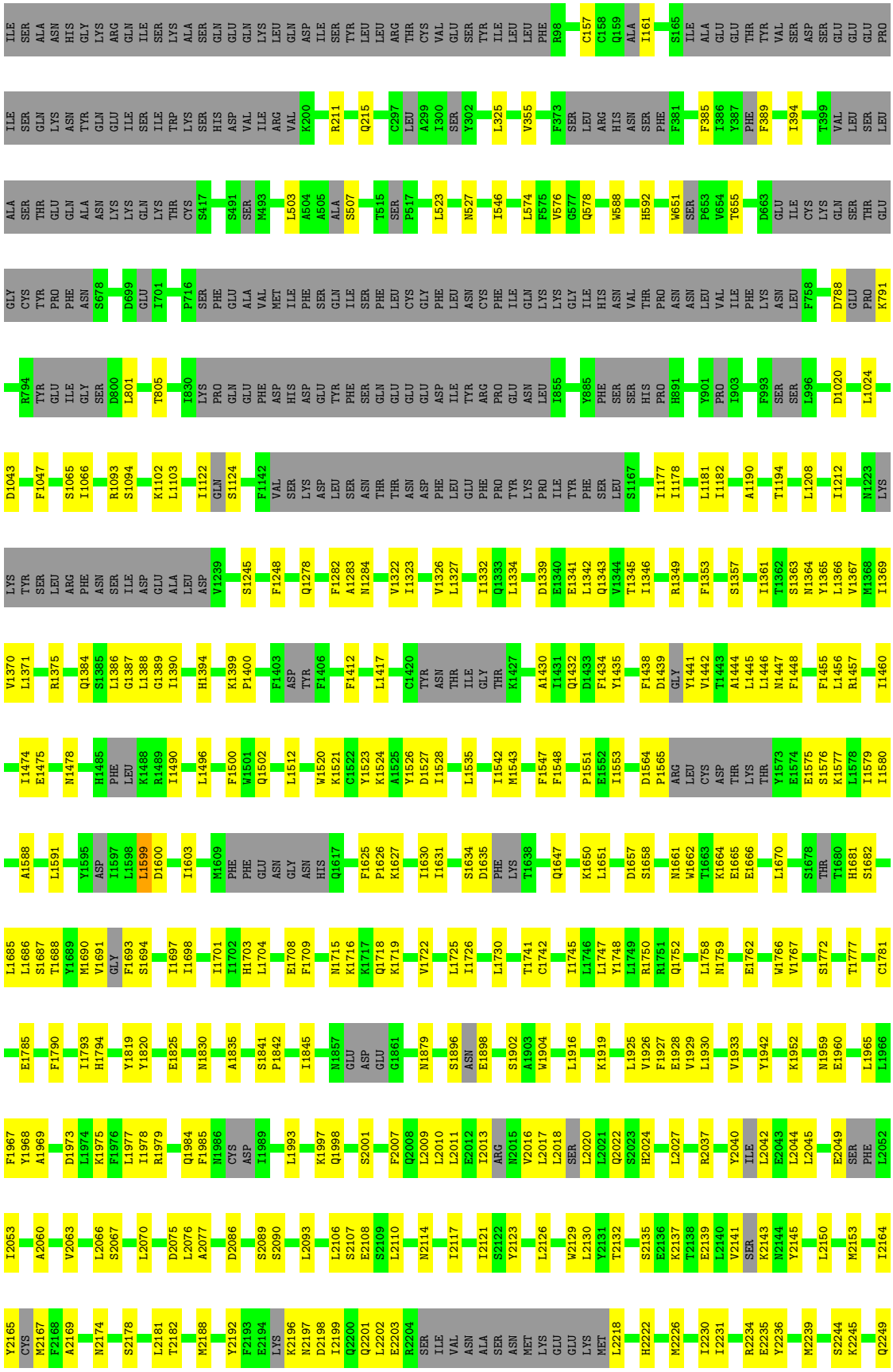
Chain A:

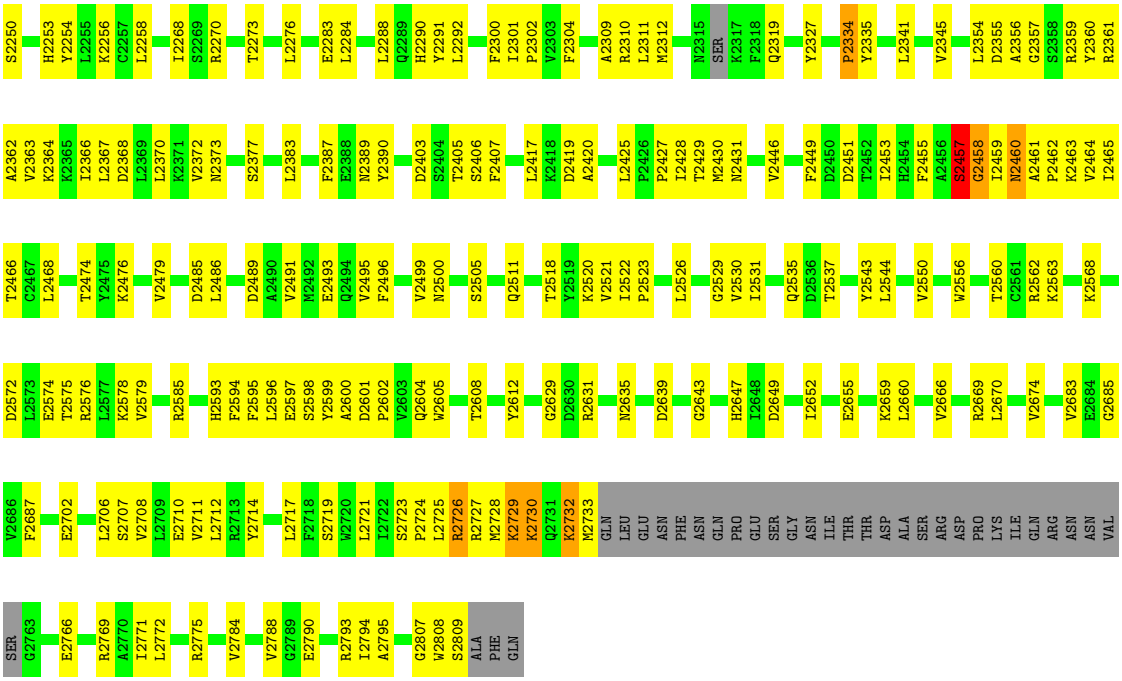




• Molecule 2: Serine/threonine-protein kinase tel1

Chain B:




S2250 H2253 Y2254 L2255 K2256 C2257 L2258 I2268 S2269 R2270 T2273 L2276 E2283 L2284 L2288 Q2289 H2290 Y2291 L2292 F2300 I2301 P2302 V2303 F2304 A2309 R2310 L2311 M2312 N2315 SER K2317 F2318 Q2319 Y2327 P2334 Y2335 L2341 V2345 L2354 D2355 A2356 G2357 S2358 R2359 Y2360 R2361
A2362 V2363 K2364 K2365 I2366 L2367 D2368 L2369 L2370 K2371 V2372 N2373 S2377 L2383 F2387 E2388 N2389 Y2390 D2403 S2404 T2405 S2406 F2407 L2417 K2418 D2419 A2420 L2425 P2426 P2427 I2428 T2429 M2430 N2431 V2446 F2449 D2450 D2451 T2452 I2453 H2454 F2455 A2456 S2457 G2458 I2459 N2460 A2461 P2462 K2463 V2464 I2465
T2466 C2467 L2468 T2474 Y2475 K2476 V2479 D2485 L2486 D2489 A2490 V2491 M2492 E2493 Q2494 V2495 F2496 V2499 N2500 S2505 Q2511 T2518 Y2519 K2520 V2521 I2522 P2523 L2526 G2529 V2530 I2531 Q2535 D2536 T2537 Y2543 L2544 V2550 W2556 T2560 C2561 R2562 K2563 K2568
D2572 L2573 E2574 T2575 R2576 L2577 K2578 V2579 R2585 H2593 F2594 F2595 L2596 E2597 S2598 Y2599 A2600 D2601 P2602 V2603 Q2604 W2605 T2608 Y2612 G2629 D2630 R2631 N2635 D2639 G2643 H2647 I2648 D2649 I2652 E2655 K2659 L2660 V2666 R2669 L2670 V2674 V2683 E2684 G2685
V2686 F2687 E2702 L2706 S2707 V2708 L2709 E2710 V2711 L2712 R2713 V2714 L2717 F2718 S2719 W2720 L2721 I2722 S2723 P2724 L2725 R2726 R2727 M2728 K2729 K2730 Q2731 K2732 M2733 GLN LEU GLU ASN PHE ASN GLN PRO GLU SER GLY ASN ILE THR THR ASP ALA SER ARG ASP PRO LYS ILE GLN ARG ASN ASN VAL
SER G2763 E2766 R2769 A2770 I2771 L2772 R2775 V2784 V2788 G2789 E2790 R2793 I2794 A2795 G2807 W2808 S2809 ALA PHE GLN

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	64713	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor

5 Model quality

5.1 Standard geometry

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

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	F	0.67	0/64	0.74	0/86
2	A	0.20	1/16139 (0.0%)	0.43	10/22100 (0.0%)
2	B	0.15	0/16185	0.36	3/22124 (0.0%)
All	All	0.18	1/32388 (0.0%)	0.39	13/44310 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
2	A	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	2658	LYS	CA-C	-12.38	1.36	1.52

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	2334	PRO	CA-N-CD	-9.86	98.20	112.00
2	A	2661	PRO	N-CA-C	-6.93	103.89	113.53
2	B	2334	PRO	CA-N-CD	-6.40	103.04	112.00
2	B	2458	GLY	N-CA-C	-5.92	104.83	113.48
2	A	2457	SER	N-CA-C	5.72	117.84	108.52
2	A	2565	ILE	N-CA-C	-5.61	104.07	111.09
2	A	2564	LEU	N-CA-C	-5.51	105.28	111.28
2	A	2661	PRO	CA-C-N	-5.46	117.34	123.02
2	A	2661	PRO	C-N-CA	-5.46	117.34	123.02

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	2334	PRO	N-CD-CG	-5.37	95.14	103.20
2	A	2563	LYS	CB-CA-C	5.22	120.83	110.17
2	A	650	ALA	N-CA-C	-5.09	105.91	111.82
2	B	2457	SER	N-CA-C	5.01	116.74	111.28

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	A	2657	GLY	Mainchain

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	F	64	0	59	6	0
2	A	15929	0	12395	416	0
2	B	15993	0	12577	381	0
3	A	31	0	13	3	0
3	B	31	0	13	4	0
All	All	32048	0	25057	799	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 14.

All (799) 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)
2:A:2195:LYS:HD3	2:A:2229:PHE:HB2	1.56	0.88
2:A:2018:LEU:HB3	2:A:2037:ARG:HH22	1.38	0.88
2:B:2459:ILE:HG22	2:B:2459:ILE:O	1.73	0.86
2:A:1399:LYS:HG3	2:A:1400:PRO:HD3	1.59	0.84
2:A:1492:MET:HE3	2:A:1492:MET:H	1.41	0.84
2:A:2560:THR:O	2:A:2564:LEU:HB2	1.78	0.83
2:B:2652:ILE:CG1	2:B:2726:ARG:HH12	1.92	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:2334:PRO:HD2	2:B:2335:TYR:H	1.45	0.81
2:A:2457:SER:HA	2:A:2462:PRO:HG2	1.61	0.80
2:A:2460:ASN:CG	2:A:2482:GLY:HA3	2.05	0.80
2:A:1564:ASP:HB2	2:A:1579:ILE:HG13	1.64	0.80
2:A:2563:LYS:HA	2:A:2566:ALA:HB2	1.64	0.80
2:A:2563:LYS:HA	2:A:2566:ALA:CB	2.12	0.79
2:B:1366:LEU:HA	2:B:1369:ILE:HD12	1.63	0.79
2:B:2192:TYR:O	2:B:2196:LYS:N	2.15	0.79
2:A:2342:PHE:HA	2:A:2345:VAL:HG12	1.66	0.78
2:A:2521:VAL:HG12	2:A:2523:PRO:HD3	1.66	0.78
2:B:2660:LEU:HD23	2:B:2727:ARG:HB3	1.67	0.77
2:B:503:LEU:O	2:B:507:SER:N	2.19	0.76
2:A:1825:GLU:O	2:A:1830:ASN:ND2	2.18	0.76
2:A:2563:LYS:O	2:A:2566:ALA:HB3	1.84	0.76
2:B:1896:SER:HG	2:B:1898:GLU:N	1.83	0.75
2:B:2652:ILE:HG12	2:B:2726:ARG:HH12	1.49	0.75
2:A:1977:LEU:HA	2:A:1984:GLN:HB3	1.68	0.75
2:B:385:PHE:O	2:B:389:PHE:N	2.20	0.75
2:A:2562:ARG:HG3	2:A:2563:LYS:H	1.51	0.75
2:A:2162:ALA:HB2	2:A:2260:GLU:HB2	1.68	0.74
2:B:1547:PHE:HD2	2:B:1969:ALA:HB2	1.51	0.74
2:A:2499:VAL:HG11	2:A:2622:LEU:HD11	1.68	0.74
2:B:1346:ILE:HA	2:B:1349:ARG:HG3	1.70	0.74
2:A:2657:GLY:C	2:A:2659:LYS:N	2.45	0.73
2:B:2537:THR:HG22	2:B:2639:ASP:HA	1.70	0.73
1:F:69:GLN:CD	2:A:2662:VAL:HB	2.13	0.73
2:B:2659:LYS:HB3	2:B:2727:ARG:CZ	2.19	0.73
2:B:2460:ASN:C	2:B:2462:PRO:HD3	2.13	0.73
2:A:2126:LEU:HD23	2:A:2145:TYR:HE2	1.53	0.72
2:B:1580:ILE:HG23	2:B:1704:LEU:HD12	1.70	0.72
2:A:257:CYS:HA	2:A:260:ALA:HB3	1.71	0.72
2:A:1832:LEU:HD12	2:A:1848:LEU:HB3	1.71	0.72
2:B:1182:ILE:HD11	2:B:1212:ILE:HG13	1.71	0.72
2:B:2772:LEU:HA	2:B:2775:ARG:HD2	1.71	0.72
2:B:2354:LEU:HD12	2:B:2355:ASP:H	1.53	0.71
2:A:2685:GLY:H	2:A:2688:ARG:HG2	1.55	0.71
2:B:1925:LEU:HD12	2:B:1952:LYS:HE3	1.72	0.71
2:B:1553:ILE:HD11	2:B:1965:LEU:HD22	1.72	0.71
2:B:2044:LEU:HD21	2:B:2063:VAL:HB	1.72	0.71
2:B:2276:LEU:HD22	2:B:2310:ARG:HG2	1.72	0.71
2:B:1284:ASN:HB2	2:B:1430:ALA:HB1	1.72	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:2657:GLY:O	2:A:2660:LEU:N	2.24	0.70
2:B:2486:LEU:HD23	2:B:2529:GLY:HA3	1.73	0.70
2:A:1367:VAL:O	2:A:1371:LEU:HD12	1.92	0.70
2:B:2301:ILE:HG13	2:B:2302:PRO:HD3	1.72	0.70
2:A:1478:ASN:HA	2:A:1481:PHE:HE1	1.56	0.70
2:B:1825:GLU:O	2:B:1830:ASN:ND2	2.27	0.68
2:A:2243:ARG:NH2	2:A:2244:SER:OG	2.25	0.68
2:B:1591:LEU:HD13	2:B:1693:PHE:HE1	1.58	0.68
2:A:1747:LEU:HD21	2:A:2601:ASP:HB2	1.76	0.68
2:A:2161:LYS:HG2	2:A:2165:TYR:CE1	2.27	0.68
2:B:2562:ARG:HG2	2:B:2807:GLY:HA2	1.76	0.68
2:B:2188:MET:HE2	2:B:2236:TYR:HB2	1.74	0.68
2:B:1375:ARG:HB2	2:B:1412:PHE:HE1	1.59	0.67
2:B:1588:ALA:HA	2:B:1591:LEU:HD12	1.76	0.67
2:B:2121:ILE:HA	2:B:2164:ILE:HD11	1.75	0.67
2:A:2018:LEU:HG	2:A:2037:ARG:HH12	1.59	0.67
2:A:2544:LEU:HA	2:A:2547:ALA:HB3	1.75	0.67
2:A:2420:ALA:HB3	2:A:2447:SER:HB2	1.77	0.67
2:A:2658:LYS:HD3	2:A:2664:GLU:HB2	1.77	0.67
2:B:1576:SER:O	2:B:1580:ILE:HG13	1.94	0.67
2:A:1576:SER:O	2:A:1580:ILE:HD12	1.95	0.67
2:B:1094:SER:H	2:B:1342:LEU:HD21	1.60	0.67
2:B:2652:ILE:CG1	2:B:2726:ARG:NH1	2.58	0.66
2:A:2665:CYS:SG	2:A:2803:LEU:HB3	2.35	0.66
2:B:2669:ARG:HH21	2:B:2809:SER:HA	1.60	0.66
2:A:2044:LEU:HD21	2:A:2063:VAL:HB	1.77	0.66
2:A:1688:THR:HA	2:A:1694:SER:HB3	1.78	0.66
2:B:1916:LEU:HD11	2:B:1952:LYS:HB2	1.78	0.66
2:A:2038:LYS:HD3	2:A:2071:TYR:HB2	1.78	0.65
2:A:2267:LEU:HD12	2:A:2267:LEU:H	1.61	0.65
2:B:1759:ASN:ND2	2:B:2550:VAL:O	2.29	0.65
2:B:2245:LYS:HE2	2:B:2249:GLN:HG3	1.79	0.65
2:B:2652:ILE:HG12	2:B:2726:ARG:NH1	2.12	0.65
2:A:1531:PHE:HE2	2:A:1535:LEU:HG	1.60	0.65
2:A:2672:ARG:HH21	2:A:2809:SER:HB3	1.60	0.64
2:B:2652:ILE:HG13	2:B:2726:ARG:HH12	1.62	0.64
2:A:2453:ILE:HG22	2:A:2455:PHE:HB3	1.79	0.64
2:B:1399:LYS:HG3	2:B:1400:PRO:HD3	1.78	0.64
2:B:1942:TYR:HE2	2:B:1979:ARG:HA	1.63	0.64
2:B:1930:LEU:HD21	2:B:2013:ILE:HG23	1.80	0.64
2:A:1654:THR:HA	2:A:1689:TYR:HA	1.80	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:2489:ASP:O	2:B:2493:GLU:HG2	1.97	0.64
2:B:1748:TYR:O	2:B:1752:GLN:NE2	2.30	0.63
2:A:2106:LEU:HD23	2:A:2126:LEU:HD13	1.81	0.63
2:B:1334:LEU:HB2	2:B:1346:ILE:HG21	1.81	0.63
2:A:299:ALA:O	2:A:302:TYR:N	2.32	0.63
2:A:2192:TYR:O	2:A:2195:LYS:HG3	1.98	0.63
2:A:1377:LEU:HA	2:A:1380:ILE:HD12	1.80	0.63
2:B:1439:ASP:HA	2:B:1442:VAL:HG12	1.79	0.62
2:B:2284:LEU:O	2:B:2288:LEU:HG	1.99	0.62
2:A:2660:LEU:HD13	2:A:2661:PRO:HD2	1.80	0.62
2:A:2306:GLN:O	2:A:2310:ARG:HG2	1.98	0.62
2:B:157:CYS:O	2:B:161:ILE:N	2.33	0.62
2:A:1480:LEU:O	2:A:1485:HIS:ND1	2.31	0.62
2:B:1670:LEU:HB3	2:B:1709:PHE:HE2	1.64	0.62
2:A:2044:LEU:HD22	2:A:2060:ALA:HA	1.81	0.62
2:B:2635:ASN:HD22	2:B:2649:ASP:HB3	1.65	0.62
2:B:2013:ILE:O	2:B:2017:LEU:HB2	2.00	0.61
2:B:2766:GLU:OE1	2:B:2769:ARG:NH2	2.33	0.61
2:B:1975:LYS:O	2:B:1979:ARG:HG2	2.00	0.61
2:B:2390:TYR:HD2	2:B:2530:VAL:HG21	1.65	0.61
2:A:1949:ILE:HG21	2:A:1975:LYS:HD3	1.80	0.61
2:A:2071:TYR:CZ	2:A:2082:LYS:HB2	2.35	0.61
2:B:1742:CYS:HA	2:B:1745:ILE:HD12	1.80	0.61
2:A:1470:LYS:O	2:A:1474:ILE:HD12	2.00	0.61
2:A:1560:ILE:HG13	2:A:1561:PRO:HD2	1.81	0.61
2:A:2072:ARG:HH22	2:A:2082:LYS:HE2	1.66	0.61
2:A:2457:SER:OG	2:A:2462:PRO:HD2	2.01	0.61
2:B:2107:SER:HA	2:B:2126:LEU:HD11	1.81	0.61
2:A:1486:PHE:HA	2:A:1489:ARG:HB2	1.82	0.61
2:A:2044:LEU:HD12	2:A:2088:LEU:HD21	1.81	0.61
2:B:2040:TYR:O	2:B:2042:LEU:N	2.34	0.61
2:B:2465:ILE:HG22	2:B:2466:THR:H	1.65	0.61
2:B:1190:ALA:O	2:B:1194:THR:HG23	2.00	0.60
2:A:564:LYS:O	2:A:568:ILE:N	2.35	0.60
2:A:1988:ASP:O	2:A:1990:LEU:N	2.30	0.60
2:B:2790:GLU:O	2:B:2794:ILE:HG13	2.02	0.60
2:B:1718:GLN:O	2:B:1722:VAL:HG13	2.01	0.60
2:A:1874:GLY:HA3	2:A:2058:GLN:HB3	1.84	0.60
2:B:2341:LEU:O	2:B:2345:VAL:HG23	2.01	0.60
2:B:2725:LEU:H	2:B:2725:LEU:HD12	1.67	0.60
2:A:1942:TYR:O	2:A:1979:ARG:NH2	2.35	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1386:LEU:O	2:B:1390:ILE:HG13	2.03	0.59
2:B:1524:LYS:HE2	2:B:1960:GLU:HA	1.83	0.59
2:B:2334:PRO:HD2	2:B:2335:TYR:N	2.16	0.59
2:A:1286:VAL:O	2:A:1289:ASN:ND2	2.35	0.59
2:A:2402:VAL:CG1	2:A:2454:HIS:HA	2.33	0.59
2:B:1490:ILE:HB	2:B:1496:LEU:HD13	1.84	0.59
2:A:1495:TYR:O	2:A:1499:TYR:N	2.35	0.59
2:B:2359:ARG:O	2:B:2363:VAL:HG22	2.01	0.59
2:B:1323:ILE:O	2:B:1327:LEU:HG	2.02	0.59
2:A:2427:PRO:HG2	2:A:2430:MET:SD	2.43	0.59
2:A:2464:VAL:C	2:A:2465:ILE:HD12	2.28	0.59
2:B:2268:ILE:HD11	2:B:2300:PHE:HD1	1.68	0.59
2:A:2003:LEU:HD23	2:A:2004:HIS:H	1.67	0.58
2:B:1439:ASP:O	2:B:1441:TYR:N	2.36	0.58
2:B:2024:HIS:HB3	2:B:2027:LEU:HB2	1.84	0.58
3:B:2901:ANP:O1B	3:B:2901:ANP:O2G	2.21	0.58
2:A:2708:VAL:O	2:A:2712:LEU:HG	2.02	0.58
2:B:2273:THR:HB	2:B:2711:VAL:HG12	1.84	0.58
2:A:1492:MET:H	2:A:1492:MET:CE	2.14	0.58
2:A:2355:ASP:OD1	2:A:2359:ARG:NH2	2.37	0.58
2:A:2657:GLY:O	2:A:2658:LYS:C	2.45	0.58
2:A:1396:LYS:HD2	2:A:1437:TRP:HZ2	1.68	0.58
2:B:1384:GLN:O	2:B:1388:LEU:HD12	2.04	0.58
2:B:1390:ILE:HG23	2:B:1394:HIS:CE1	2.38	0.58
2:B:2110:LEU:HD22	2:B:2126:LEU:HD12	1.85	0.58
2:B:2165:TYR:O	2:B:2167:MET:N	2.36	0.58
2:A:1578:LEU:HD23	2:A:1579:ILE:HD13	1.85	0.58
2:B:2231:ILE:HD12	2:B:2234:ARG:HH21	1.69	0.58
2:A:2191:LEU:HA	2:A:2194:GLU:HG2	1.85	0.57
2:B:1631:ILE:HA	2:B:1635:ASP:HB2	1.85	0.57
2:B:2486:LEU:HD12	2:B:2489:ASP:HB2	1.85	0.57
2:B:2067:SER:HA	2:B:2070:LEU:HD12	1.84	0.57
2:B:2288:LEU:O	2:B:2292:LEU:HB2	2.04	0.57
2:B:2635:ASN:ND2	3:B:2901:ANP:O3G	2.37	0.57
2:B:1978:ILE:HG22	2:B:1979:ARG:HD2	1.87	0.57
2:A:2041:ILE:HA	2:A:2088:LEU:HD22	1.85	0.57
2:B:2496:PHE:O	2:B:2500:ASN:ND2	2.29	0.57
2:A:1178:ILE:HA	2:A:1181:LEU:HD12	1.87	0.57
2:A:2038:LYS:HB3	2:A:2081:LEU:HD21	1.87	0.57
2:B:2403:ASP:O	2:B:2455:PHE:N	2.34	0.57
2:A:2276:LEU:HD23	2:A:2318:PHE:HZ	1.70	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:2288:LEU:HA	2:B:2291:TYR:HB2	1.87	0.57
2:B:2383:LEU:HG	2:B:2425:LEU:HD11	1.86	0.57
2:A:624:TYR:O	2:A:1941:ASN:ND2	2.38	0.57
2:A:1603:ILE:O	2:A:1607:ILE:HG22	2.05	0.57
2:A:1791:LEU:HB3	2:A:2680:ILE:HD13	1.87	0.57
2:A:1813:LEU:HD21	2:A:2606:PHE:CZ	2.39	0.56
2:B:2560:THR:HA	2:B:2563:LYS:HE3	1.87	0.56
2:A:2563:LYS:HD3	2:A:2566:ALA:CB	2.34	0.56
2:B:1365:TYR:CE2	2:B:1369:ILE:HD11	2.40	0.56
2:B:1697:ILE:HG23	2:B:1698:ILE:HD13	1.87	0.56
2:B:1925:LEU:HD21	2:B:1967:PHE:HB2	1.86	0.56
2:A:1395:LEU:HB3	2:A:1441:TYR:CZ	2.40	0.56
2:B:2702:GLU:O	2:B:2706:LEU:HB2	2.06	0.56
2:A:1478:ASN:HA	2:A:1481:PHE:CE1	2.39	0.56
2:A:2457:SER:OG	2:A:2462:PRO:CD	2.54	0.56
2:B:2719:SER:C	2:B:2721:LEU:H	2.13	0.56
2:B:2197:ASN:OD1	2:B:2201:GLN:NE2	2.39	0.56
2:B:1367:VAL:HG23	2:B:1394:HIS:HB3	1.88	0.56
2:B:1726:ILE:HD12	2:B:1767:VAL:HG11	1.87	0.56
2:B:2670:LEU:HB2	2:B:2795:ALA:HB1	1.87	0.56
2:B:2357:GLY:O	2:B:2361:ARG:NH2	2.38	0.56
2:B:2405:THR:OG1	2:B:2406:SER:N	2.39	0.56
2:B:2009:LEU:HD12	2:B:2013:ILE:HD11	1.88	0.55
2:A:1720:GLU:OE2	2:A:1720:GLU:N	2.38	0.55
2:A:1921:THR:HG22	2:A:1922:LYS:H	1.71	0.55
2:A:2407:PHE:HD2	2:A:2453:ILE:H	1.54	0.55
2:B:1820:TYR:HB2	2:B:2685:GLY:HA2	1.88	0.55
1:F:67:SER:HB2	2:A:2562:ARG:HH12	1.71	0.55
2:A:1471:ASN:O	2:A:1475:GLU:HG2	2.06	0.55
2:A:2453:ILE:C	2:A:2455:PHE:H	2.14	0.55
2:A:2429:THR:HG22	2:A:2522:ILE:HD13	1.88	0.55
2:A:1387:GLY:HA2	2:A:1390:ILE:HG12	1.87	0.55
2:A:114:PHE:HA	2:A:156:TYR:HA	1.89	0.55
2:A:1646:PHE:HD1	2:A:1648:TRP:H	1.54	0.55
2:A:1177:ILE:O	2:A:1181:LEU:HG	2.07	0.55
2:A:1772:SER:HB3	2:A:1794:HIS:CE1	2.42	0.55
2:A:1786:GLN:HB2	2:A:2602:PRO:HG3	1.87	0.55
2:A:2589:PRO:HD3	2:A:2672:ARG:HH12	1.72	0.55
2:A:1455:PHE:HB3	2:A:1476:VAL:HG13	1.88	0.55
2:A:1723:THR:HG21	2:A:1768:PRO:HG2	1.88	0.55
2:A:2223:SER:HA	2:A:2226:MET:HG3	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:2698:LEU:HD12	2:A:2705:LEU:HD22	1.88	0.55
2:B:2724:PRO:HA	2:B:2727:ARG:CZ	2.37	0.55
2:B:1575:GLU:O	2:B:1579:ILE:HG12	2.06	0.55
2:B:2354:LEU:HG	2:B:2356:ALA:H	1.72	0.55
2:B:2710:GLU:HG3	2:B:2714:TYR:HE2	1.70	0.55
2:A:1879:ASN:O	2:A:1883:ILE:HG12	2.07	0.54
2:A:2106:LEU:HG	2:A:2126:LEU:HD22	1.88	0.54
2:B:1474:ILE:O	2:B:1478:ASN:ND2	2.38	0.54
2:B:2106:LEU:HG	2:B:2126:LEU:HG	1.89	0.54
2:A:2175:ASN:HB3	2:A:2246:MET:HE3	1.89	0.54
2:B:1547:PHE:CE1	2:B:1551:PRO:HB3	2.42	0.54
2:B:1928:GLU:OE1	2:B:1952:LYS:NZ	2.30	0.54
2:B:2367:LEU:HD13	2:B:2370:LEU:HD21	1.90	0.54
2:A:1470:LYS:HD3	2:A:1471:ASN:N	2.23	0.54
2:A:1528:ILE:HA	2:A:1531:PHE:HD1	1.71	0.54
2:A:1884:ASP:HA	2:A:1887:LYS:HD3	1.89	0.54
2:A:2503:LEU:O	2:A:2510:SER:OG	2.25	0.54
2:B:1455:PHE:H	2:B:1457:ARG:HH22	1.54	0.54
2:A:2587:TYR:O	2:A:2672:ARG:NH2	2.37	0.54
2:B:1919:LYS:HD3	2:B:1959:ASN:HD22	1.72	0.54
2:B:2708:VAL:O	2:B:2711:VAL:HG22	2.06	0.54
2:B:1284:ASN:HD22	2:B:1388:LEU:HD13	1.73	0.54
2:A:1264:THR:HG21	2:A:1287:SER:HA	1.89	0.54
2:B:2562:ARG:HH21	2:B:2809:SER:H	1.56	0.54
2:A:2003:LEU:HD23	2:A:2004:HIS:N	2.23	0.54
2:A:2334:PRO:O	2:A:2338:LEU:HB2	2.08	0.54
2:B:1177:ILE:O	2:B:1181:LEU:HD22	2.08	0.54
2:B:2366:ILE:O	2:B:2370:LEU:HD23	2.08	0.54
2:B:2724:PRO:HA	2:B:2727:ARG:NE	2.23	0.54
2:A:2352:GLU:H	2:A:2352:GLU:CD	2.16	0.54
2:B:2420:ALA:HA	2:B:2446:VAL:HG13	1.90	0.54
2:B:1904:TRP:HB3	2:B:1927:PHE:HD1	1.73	0.53
2:B:1701:ILE:HA	2:B:1704:LEU:HD23	1.91	0.53
2:B:1926:VAL:HG21	2:B:2009:LEU:HD11	1.89	0.53
2:A:1811:SER:HA	2:A:1819:TYR:HB2	1.90	0.53
2:A:2453:ILE:HG23	2:A:2464:VAL:O	2.09	0.53
2:B:1547:PHE:HE1	2:B:1551:PRO:HB3	1.74	0.53
2:B:2360:TYR:CE2	2:B:2364:LYS:HD2	2.43	0.53
2:B:2464:VAL:HG11	2:B:2476:LYS:HE3	1.90	0.53
2:B:1339:ASP:O	2:B:1343:GLN:HG2	2.08	0.53
2:A:1442:VAL:HG12	2:A:1456:LEU:HD13	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1596:ASP:O	2:A:1600:ASP:HB2	2.09	0.53
2:B:2652:ILE:HD12	2:B:2730:LYS:HG2	1.90	0.53
2:A:2334:PRO:HA	2:A:2338:LEU:HD23	1.91	0.52
2:B:1388:LEU:HB3	2:B:1434:PHE:CE2	2.44	0.52
2:A:2486:LEU:HB3	2:A:2523:PRO:HB3	1.91	0.52
2:B:1993:LEU:O	2:B:1997:LYS:N	2.33	0.52
2:A:2272:CYS:O	2:A:2276:LEU:HD12	2.09	0.52
2:B:2018:LEU:O	2:B:2020:LEU:N	2.42	0.52
2:A:1323:ILE:HG21	2:A:1361:ILE:HD12	1.92	0.52
2:A:2563:LYS:C	2:A:2566:ALA:HB3	2.34	0.52
2:B:1942:TYR:CE2	2:B:1979:ARG:HA	2.43	0.52
1:F:69:GLN:OE1	2:A:2662:VAL:HB	2.08	0.52
2:A:1942:TYR:HB2	2:A:1979:ARG:HH21	1.75	0.52
2:A:2568:LYS:HG3	2:A:2576:ARG:HG2	1.91	0.52
2:B:1093:ARG:H	2:B:1342:LEU:HD11	1.74	0.52
2:B:1691:VAL:O	2:B:1693:PHE:N	2.43	0.52
2:B:1703:HIS:ND1	2:B:1748:TYR:HD2	2.08	0.52
2:A:2562:ARG:HG3	2:A:2563:LYS:N	2.22	0.52
2:B:2631:ARG:HD2	2:B:2647:HIS:CE1	2.45	0.52
2:B:2669:ARG:HG3	2:B:2808:TRP:CZ3	2.45	0.52
2:A:2480:LYS:NZ	3:A:2901:ANP:H8	2.25	0.52
2:A:2563:LYS:CA	2:A:2566:ALA:HB3	2.40	0.52
2:B:1666:GLU:OE2	2:B:1725:LEU:HB2	2.10	0.52
2:B:2312:MET:N	2:B:2319:GLN:OE1	2.42	0.52
2:A:2185:PHE:HE2	2:A:2243:ARG:HD3	1.74	0.51
2:B:2666:VAL:HG23	2:B:2795:ALA:HA	1.93	0.51
2:B:2526:LEU:H	2:B:2526:LEU:HD12	1.75	0.51
2:B:2702:GLU:HG3	2:B:2706:LEU:HD23	1.92	0.51
2:A:1543:MET:HE3	2:A:1543:MET:HA	1.93	0.51
2:A:2346:SER:OG	2:A:2347:ASN:ND2	2.43	0.51
2:B:1577:LYS:HA	2:B:1580:ILE:HD12	1.92	0.51
2:B:2460:ASN:O	2:B:2462:PRO:HD3	2.10	0.51
2:B:2670:LEU:HD13	2:B:2683:VAL:HG11	1.92	0.51
2:B:1432:GLN:HA	2:B:1435:TYR:CD2	2.45	0.51
2:B:2599:TYR:CD2	2:B:2608:THR:HG21	2.45	0.51
2:B:2669:ARG:HG3	2:B:2808:TRP:CH2	2.45	0.51
2:B:2496:PHE:HA	2:B:2499:VAL:HG22	1.91	0.51
2:B:2387:PHE:HE1	2:B:2428:ILE:HG21	1.75	0.51
2:A:2537:THR:HG22	2:A:2639:ASP:HA	1.91	0.51
2:B:1691:VAL:O	2:B:1694:SER:N	2.43	0.51
2:B:1697:ILE:O	2:B:1701:ILE:HG12	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:2459:ILE:HG22	2:A:2460:ASN:HD22	1.76	0.51
2:A:2713:ARG:NE	2:A:2771:ILE:HG21	2.25	0.51
3:A:2901:ANP:O2G	3:A:2901:ANP:O1B	2.29	0.51
2:B:2218:LEU:O	2:B:2222:HIS:N	2.41	0.51
2:B:2359:ARG:HH12	2:B:2717:LEU:HD21	1.76	0.51
2:A:1813:LEU:HD21	2:A:2606:PHE:HZ	1.75	0.50
2:A:2512:ARG:HH21	2:A:2693:PHE:HE2	1.59	0.50
2:B:1682:SER:O	2:B:1687:SER:N	2.43	0.50
2:A:1386:LEU:O	2:A:1390:ILE:HG23	2.12	0.50
2:A:2188:MET:HE1	2:A:2236:TYR:HA	1.93	0.50
2:A:2453:ILE:C	2:A:2455:PHE:N	2.65	0.50
2:A:2625:VAL:O	2:A:2774:VAL:HG22	2.11	0.50
2:B:2123:TYR:HD1	2:B:2145:TYR:HA	1.75	0.50
2:B:2198:ASP:N	2:B:2198:ASP:OD1	2.43	0.50
2:B:1977:LEU:HG	2:B:1984:GLN:HB3	1.92	0.50
2:A:1726:ILE:HG21	2:A:1746:LEU:HD21	1.94	0.50
2:B:1520:TRP:HB3	2:B:1543:MET:SD	2.52	0.50
2:A:2360:TYR:HA	2:A:2363:VAL:HG12	1.94	0.50
2:A:2770:ALA:O	2:A:2774:VAL:HG23	2.12	0.50
2:A:1605:ASP:HB2	2:A:1645:SER:OG	2.12	0.50
2:A:2157:ASN:HA	2:A:2161:LYS:HD2	1.92	0.50
2:A:2236:TYR:HD2	2:A:2237:LEU:HD23	1.77	0.50
2:B:1178:ILE:O	2:B:1182:ILE:HG23	2.11	0.50
2:A:2188:MET:O	2:A:2191:LEU:HD12	2.11	0.50
2:B:1334:LEU:HA	2:B:1346:ILE:HD13	1.92	0.50
2:B:2639:ASP:O	2:B:2643:GLY:N	2.40	0.50
2:A:2496:PHE:HB3	2:A:2518:THR:HG22	1.93	0.50
2:B:1502:GLN:HA	2:B:1535:LEU:HD11	1.92	0.50
2:B:1904:TRP:HD1	2:B:1927:PHE:HB2	1.77	0.50
2:B:2301:ILE:HA	2:B:2304:PHE:HB2	1.94	0.50
2:B:2601:ASP:HB2	2:B:2602:PRO:HD2	1.94	0.50
2:A:1941:ASN:OD1	2:A:1944:HIS:N	2.43	0.50
2:A:2150:LEU:HA	2:A:2153:MET:HG2	1.94	0.50
2:A:2336:HIS:NE2	2:A:2432:VAL:HG23	2.27	0.50
2:A:2544:LEU:O	2:A:2548:HIS:HB2	2.12	0.50
2:A:2397:ASN:ND2	2:A:2461:ALA:HB2	2.27	0.49
2:B:1627:LYS:HZ3	2:B:1630:ILE:HD11	1.77	0.49
2:B:2001:SER:HA	2:B:2511:GLN:HA	1.93	0.49
2:A:1580:ILE:HG23	2:A:1704:LEU:HB3	1.94	0.49
2:A:2013:ILE:HA	2:A:2016:VAL:HG12	1.94	0.49
2:A:1909:TRP:CZ3	2:A:1930:LEU:HB3	2.46	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1946:GLU:HG3	2:A:1975:LYS:HZ1	1.78	0.49
2:B:2165:TYR:CD2	2:B:2256:LYS:HB3	2.48	0.49
1:F:69:GLN:NE2	2:A:2662:VAL:HB	2.27	0.49
2:A:2226:MET:SD	2:A:2227:SER:N	2.85	0.49
2:A:2309:ALA:HA	2:A:2359:ARG:HD3	1.94	0.49
2:A:2330:GLY:O	2:A:2334:PRO:HD3	2.11	0.49
2:A:2594:PHE:HE2	2:A:2638:ILE:HG21	1.76	0.49
2:B:1967:PHE:CD1	2:B:1967:PHE:C	2.91	0.49
2:B:2521:VAL:HG12	2:B:2523:PRO:HD3	1.93	0.49
2:A:1595:TYR:CD1	2:A:1599:LEU:HD11	2.46	0.49
2:A:2565:ILE:HD12	2:A:2568:LYS:HD3	1.95	0.49
2:B:2459:ILE:O	2:B:2459:ILE:CG2	2.46	0.49
2:A:943:TYR:O	2:A:947:ARG:CB	2.61	0.49
2:A:1893:ASP:O	2:A:1895:CYS:N	2.41	0.49
2:A:2153:MET:HE2	2:A:2161:LYS:HG3	1.93	0.49
2:A:2713:ARG:HH21	2:A:2771:ILE:HD13	1.76	0.49
2:B:1446:LEU:HD22	2:B:1457:ARG:HD2	1.93	0.49
2:B:1835:ALA:HB3	2:B:1845:ILE:HD13	1.95	0.49
2:A:1759:ASN:HD21	2:A:2551:TYR:HA	1.78	0.49
2:A:2402:VAL:HG11	2:A:2407:PHE:CD2	2.48	0.49
2:B:2202:LEU:HD22	2:B:2222:HIS:CE1	2.48	0.49
2:B:2707:SER:O	2:B:2711:VAL:HG13	2.13	0.49
2:A:2563:LYS:HD3	2:A:2566:ALA:HB1	1.94	0.49
2:B:1332:ILE:HG23	2:B:1650:LYS:HE2	1.94	0.49
2:B:1363:SER:O	2:B:1367:VAL:HG12	2.12	0.49
2:A:2512:ARG:O	2:A:2614:ARG:NH1	2.46	0.49
2:B:2629:GLY:HA3	2:B:2652:ILE:HG22	1.94	0.48
2:A:2459:ILE:HG22	2:A:2460:ASN:ND2	2.28	0.48
2:A:2565:ILE:HA	2:A:2568:LYS:HB3	1.94	0.48
2:A:2624:HIS:ND1	2:A:2791:LEU:HD11	2.28	0.48
2:A:2639:ASP:O	2:A:2640:LYS:HB2	2.14	0.48
2:B:574:LEU:HA	2:B:578:GLN:N	2.28	0.48
2:A:1321:SER:O	2:A:1325:LEU:HG	2.14	0.48
2:A:1524:LYS:NZ	2:A:1960:GLU:HA	2.27	0.48
2:A:1810:LEU:HB3	2:A:1819:TYR:HA	1.95	0.48
2:A:2767:ALA:O	2:A:2771:ILE:HG22	2.12	0.48
2:B:1353:PHE:O	2:B:1357:SER:N	2.46	0.48
2:A:1875:PHE:HB3	2:A:1878:LEU:HD12	1.96	0.48
2:A:1933:VAL:HG21	2:A:1974:LEU:HD11	1.94	0.48
2:A:2057:LEU:HD21	2:A:2096:ARG:HG2	1.96	0.48
2:B:1512:LEU:HD13	2:B:1542:ILE:HD12	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:2719:SER:C	2:B:2721:LEU:N	2.69	0.48
2:A:1747:LEU:HD12	2:A:1750:ARG:HD3	1.96	0.48
2:A:1827:SER:OG	2:A:1828:PHE:N	2.47	0.48
2:B:1600:ASP:HA	2:B:1603:ILE:HD12	1.96	0.48
2:B:1747:LEU:HD21	2:B:2602:PRO:HD3	1.94	0.48
1:F:71:LEU:HA	2:A:2660:LEU:HD11	1.96	0.48
2:A:2402:VAL:HG13	2:A:2454:HIS:CD2	2.48	0.48
2:B:2771:ILE:O	2:B:2775:ARG:HG3	2.14	0.48
2:A:1469:THR:OG1	2:A:1472:GLU:HG2	2.14	0.48
2:A:1574:GLU:HA	2:A:1577:LYS:HE2	1.95	0.48
2:A:2256:LYS:HD3	2:A:2291:TYR:HE2	1.79	0.48
2:B:1367:VAL:O	2:B:1371:LEU:HG	2.13	0.48
2:A:1518:GLU:OE1	2:A:1521:LYS:HB3	2.14	0.48
2:A:2568:LYS:HB2	2:A:2579:VAL:HG21	1.96	0.48
2:B:2044:LEU:HD22	2:B:2060:ALA:HA	1.96	0.48
2:B:2732:LYS:HB3	2:B:2732:LYS:HE3	1.57	0.48
2:A:1829:LYS:O	2:A:1833:LEU:HG	2.14	0.48
2:A:2354:LEU:HG	2:A:2356:ALA:H	1.79	0.48
2:A:2654:PHE:CD2	2:A:2720:TRP:HD1	2.32	0.48
2:B:1438:PHE:O	2:B:1442:VAL:N	2.32	0.48
2:B:1523:TYR:CD2	2:B:1524:LYS:HG2	2.49	0.48
2:B:2368:ASP:O	2:B:2372:VAL:HG23	2.13	0.48
2:A:2402:VAL:HG12	2:A:2454:HIS:HA	1.94	0.47
2:A:2558:LEU:O	2:A:2562:ARG:HG2	2.13	0.47
2:A:2336:HIS:NE2	2:A:2432:VAL:O	2.46	0.47
2:A:2480:LYS:HZ1	3:A:2901:ANP:H8	1.79	0.47
2:A:2684:GLU:HG3	2:A:2688:ARG:HH11	1.79	0.47
2:B:1364:ASN:OD1	2:B:1365:TYR:N	2.47	0.47
2:B:2153:MET:HE3	2:B:2165:TYR:CZ	2.49	0.47
2:B:2235:GLU:O	2:B:2239:MET:HG2	2.14	0.47
2:B:2407:PHE:CZ	2:B:2451:ASP:HA	2.48	0.47
2:A:2301:ILE:HG12	2:A:2302:PRO:HD3	1.96	0.47
2:A:2310:ARG:HB2	2:A:2322:LEU:HD21	1.96	0.47
2:A:2520:LYS:HG2	2:A:2522:ILE:HD11	1.97	0.47
2:A:2126:LEU:HD12	2:A:2126:LEU:HA	1.73	0.47
2:A:1327:LEU:HD11	2:A:1369:ILE:HG23	1.96	0.47
2:A:1347:SER:O	2:A:1350:LEU:HD12	2.15	0.47
2:A:1350:LEU:HA	2:A:1353:PHE:CD2	2.49	0.47
2:A:1390:ILE:O	2:A:1394:HIS:ND1	2.48	0.47
2:A:1882:TYR:CZ	2:A:1886:LEU:HD11	2.49	0.47
2:B:801:LEU:HA	2:B:805:THR:HA	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:2575:THR:O	2:B:2578:LYS:HG3	2.13	0.47
2:A:1818:ALA:C	2:A:1820:TYR:H	2.23	0.47
2:A:2265:ASP:O	2:A:2268:ILE:HG22	2.14	0.47
2:A:2349:PRO:HB2	2:A:2352:GLU:OE2	2.14	0.47
2:A:2536:ASP:N	2:A:2536:ASP:OD1	2.48	0.47
2:B:1283:ALA:HB3	2:B:1389:GLY:HA2	1.95	0.47
2:A:1316:PHE:HA	2:A:1319:ILE:HD11	1.97	0.47
2:A:1548:PHE:HB3	2:A:1549:LYS:HD3	1.95	0.47
2:A:2161:LYS:HG2	2:A:2165:TYR:HE1	1.76	0.47
2:A:2227:SER:O	2:A:2230:ILE:HG22	2.15	0.47
2:A:2431:ASN:HA	2:A:2520:LYS:HE3	1.96	0.47
2:A:2657:GLY:O	2:A:2659:LYS:N	2.48	0.47
2:B:1122:ILE:O	2:B:1124:SER:N	2.47	0.47
2:B:1985:PHE:CD1	2:B:1985:PHE:C	2.93	0.47
2:B:2165:TYR:CZ	2:B:2256:LYS:HD3	2.49	0.47
2:B:2309:ALA:HA	2:B:2359:ARG:NH2	2.30	0.47
2:A:1913:PRO:HB2	2:A:1928:GLU:HG2	1.95	0.47
2:A:2264:ASN:HB3	2:A:2267:LEU:HD11	1.96	0.47
2:A:2670:LEU:HD12	2:A:2670:LEU:HA	1.76	0.47
2:B:1664:LYS:HA	2:B:1698:ILE:HG21	1.97	0.47
2:A:1255:LEU:HA	2:A:1349:ARG:NH2	2.30	0.47
2:A:2453:ILE:O	2:A:2455:PHE:N	2.43	0.47
2:A:2659:LYS:HE2	2:A:2659:LYS:HB2	1.61	0.47
2:B:2086:ASP:O	2:B:2090:SER:OG	2.30	0.47
2:B:2355:ASP:O	2:B:2359:ARG:HG3	2.15	0.47
2:B:2468:LEU:HA	2:B:2474:THR:HB	1.97	0.47
2:B:2670:LEU:HD11	2:B:2687:PHE:CZ	2.50	0.47
2:A:1884:ASP:OD1	2:A:1884:ASP:N	2.47	0.46
2:A:2535:GLN:O	2:A:2537:THR:HG23	2.15	0.46
2:A:2595:PHE:CE2	2:A:2609:GLN:HA	2.50	0.46
2:B:1093:ARG:H	2:B:1342:LEU:CD1	2.28	0.46
2:B:1500:PHE:HD1	2:B:1500:PHE:H	1.63	0.46
2:B:2137:LYS:HG2	2:B:2139:GLU:H	1.79	0.46
2:B:1657:ASP:OD2	2:B:1688:THR:OG1	2.33	0.46
2:B:2016:VAL:O	2:B:2020:LEU:HG	2.14	0.46
2:A:1952:LYS:HA	2:A:1952:LYS:HD3	1.72	0.46
2:A:2094:TRP:CZ3	2:A:2099:LYS:HB3	2.50	0.46
2:A:2306:GLN:HE21	2:A:2712:LEU:HD23	1.80	0.46
2:A:2636:ILE:C	2:A:2637:LEU:HD23	2.41	0.46
2:B:1278:GLN:O	2:B:1282:PHE:N	2.49	0.46
2:B:2568:LYS:HD2	2:B:2579:VAL:HG11	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:2655:GLU:OE1	2:B:2659:LYS:NZ	2.42	0.46
2:A:351:ARG:H	2:A:367:PRO:N	2.14	0.46
2:A:1759:ASN:HB3	2:A:1762:GLU:H	1.81	0.46
2:A:2226:MET:HA	2:A:2229:PHE:CE2	2.50	0.46
2:B:2169:ALA:HA	2:B:2250:SER:HA	1.97	0.46
2:B:2407:PHE:HE1	2:B:2417:LEU:HD11	1.81	0.46
2:A:594:TYR:C	2:A:596:LEU:H	2.22	0.46
2:A:2087:PHE:HA	2:A:2106:LEU:HD13	1.98	0.46
2:A:2160:GLU:O	2:A:2164:ILE:HG12	2.16	0.46
2:B:1371:LEU:HB3	2:B:1412:PHE:CE2	2.50	0.46
2:B:2045:LEU:O	2:B:2049:GLU:N	2.24	0.46
2:A:1925:LEU:HD11	2:A:1952:LYS:HD2	1.96	0.46
2:A:2118:PHE:N	2:A:2119:PRO:HD3	2.31	0.46
2:A:2710:GLU:HA	2:A:2713:ARG:HG3	1.97	0.46
2:B:1020:ASP:O	2:B:1024:LEU:N	2.38	0.46
2:B:2309:ALA:HB2	2:B:2717:LEU:HD11	1.98	0.46
2:A:1382:CYS:SG	2:A:1383:THR:N	2.89	0.46
2:A:1687:SER:HA	2:A:1693:PHE:CG	2.51	0.46
2:B:1390:ILE:O	2:B:1394:HIS:ND1	2.38	0.46
2:B:1722:VAL:HA	2:B:1725:LEU:HG	1.98	0.46
2:A:2429:THR:HG21	2:A:2477:GLN:HG3	1.96	0.46
2:B:1375:ARG:HB2	2:B:1412:PHE:CE1	2.46	0.46
2:B:2669:ARG:NH2	2:B:2809:SER:HA	2.28	0.46
2:B:1580:ILE:HD13	2:B:1708:GLU:HG2	1.96	0.46
2:B:1599:LEU:O	2:B:1603:ILE:HG13	2.16	0.45
2:B:2593:HIS:HA	2:B:2596:LEU:HG	1.97	0.45
2:A:1652:GLN:HB3	2:A:1689:TYR:CD1	2.51	0.45
2:A:1687:SER:O	2:A:1693:PHE:HB3	2.16	0.45
2:A:2259:SER:HB2	2:A:2295:LEU:HD22	1.99	0.45
2:B:2011:LEU:HD11	2:B:2053:ILE:HD12	1.98	0.45
2:A:1687:SER:HA	2:A:1693:PHE:CD2	2.51	0.45
2:A:2325:ILE:O	2:A:2329:VAL:HG22	2.16	0.45
2:B:2010:LEU:HB2	2:B:2053:ILE:HG21	1.99	0.45
2:A:1602:PHE:CD1	2:A:1686:LEU:HD21	2.52	0.45
2:A:1682:SER:O	2:A:1685:LEU:HG	2.17	0.45
2:A:1720:GLU:O	2:A:1723:THR:HG22	2.17	0.45
2:A:2311:LEU:HA	2:A:2322:LEU:HD23	1.98	0.45
2:A:1762:GLU:O	2:A:1766:TRP:N	2.50	0.45
2:B:2449:PHE:HD1	2:B:2465:ILE:HG21	1.81	0.45
2:B:2461:ALA:O	2:B:2463:LYS:NZ	2.50	0.45
2:A:2282:ASP:HB2	2:A:2317:LYS:HG3	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:2471:ASN:OD1	2:A:2471:ASN:N	2.50	0.45
2:B:2066:LEU:O	2:B:2070:LEU:HG	2.15	0.45
2:B:2459:ILE:HG21	2:B:2733:MET:SD	2.57	0.45
2:A:1363:SER:HB3	2:A:1366:LEU:HD23	1.98	0.45
2:A:1410:ALA:HB1	2:A:1486:PHE:HZ	1.81	0.45
2:A:1750:ARG:NH2	2:A:2597:GLU:H	2.15	0.45
2:A:2153:MET:HE3	2:A:2153:MET:HA	1.99	0.45
2:A:2480:LYS:NZ	2:A:2531:ILE:HD11	2.32	0.45
2:B:1625:PHE:HB2	2:B:1626:PRO:HD3	1.99	0.45
2:B:2453:ILE:HG22	2:B:2465:ILE:HG13	1.99	0.45
2:A:1212:ILE:HA	2:A:1215:TYR:CE2	2.51	0.45
2:A:2037:ARG:HA	2:A:2037:ARG:NH1	2.32	0.45
2:A:2559:SER:HA	2:A:2562:ARG:HG2	1.98	0.45
2:B:1341:GLU:O	2:B:1345:THR:HG23	2.16	0.45
2:B:1580:ILE:HG13	2:B:1580:ILE:H	1.64	0.45
2:A:1351:CYS:HA	2:A:1354:LEU:HD12	1.98	0.45
2:B:1043:ASP:O	2:B:1047:PHE:N	2.50	0.45
2:B:2130:LEU:HD22	2:B:2135:SER:HB3	1.99	0.45
2:B:2389:ASN:ND2	2:B:2419:ASP:OD2	2.49	0.45
2:A:2239:MET:HE2	2:A:2239:MET:HA	1.98	0.45
2:A:1563:THR:HG23	2:A:1565:PRO:HD2	1.99	0.44
2:A:1722:VAL:O	2:A:1725:LEU:HG	2.17	0.44
2:B:2188:MET:O	2:B:2188:MET:HE3	2.17	0.44
2:B:2327:TYR:N	2:B:2366:ILE:HD11	2.32	0.44
2:B:2556:TRP:HB3	2:B:2560:THR:HB	1.99	0.44
2:B:2729:LYS:HD3	2:B:2729:LYS:HA	1.73	0.44
2:A:1366:LEU:O	2:A:1369:ILE:HG22	2.17	0.44
2:A:1464:ARG:O	2:A:1464:ARG:HG3	2.17	0.44
2:A:2327:TYR:CZ	2:A:2369:LEU:HG	2.52	0.44
2:B:1065:SER:C	2:B:1103:LEU:HA	2.43	0.44
2:A:1894:GLU:HA	2:A:1899:VAL:HG21	1.98	0.44
2:A:2563:LYS:HA	2:A:2566:ALA:HB3	1.91	0.44
2:A:2627:GLY:HA3	2:A:2655:GLU:H	1.81	0.44
2:B:2231:ILE:HG23	2:B:2234:ARG:NH2	2.32	0.44
2:A:1941:ASN:CG	2:A:1943:LEU:H	2.25	0.44
2:A:2188:MET:CE	2:A:2236:TYR:HA	2.47	0.44
2:B:1444:ALA:HA	2:B:1447:ASN:ND2	2.33	0.44
2:B:1670:LEU:HD21	2:B:1722:VAL:HG12	1.99	0.44
2:B:2178:SER:O	2:B:2182:THR:HG22	2.17	0.44
2:A:1501:TRP:O	2:A:1505:ASP:N	2.46	0.44
2:A:1562:LYS:O	2:A:1562:LYS:HG3	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1909:TRP:CH2	2:A:1930:LEU:HB3	2.52	0.44
2:A:2545:ASP:O	2:A:2549:LYS:HG2	2.17	0.44
2:A:2595:PHE:HE2	2:A:2609:GLN:HA	1.81	0.44
2:B:2521:VAL:C	2:B:2522:ILE:HD12	2.42	0.44
2:B:2572:ASP:OD2	2:B:2574:GLU:N	2.51	0.44
2:B:2596:LEU:C	2:B:2598:SER:H	2.25	0.44
2:A:2231:ILE:O	2:A:2234:ARG:HG2	2.17	0.44
2:B:1527:ASP:C	2:B:1528:ILE:HD13	2.42	0.44
2:B:1772:SER:HB2	2:B:1794:HIS:CE1	2.53	0.44
2:A:1392:ARG:O	2:A:1396:LYS:HG3	2.18	0.44
2:A:1548:PHE:HE1	2:A:1969:ALA:HB1	1.82	0.44
2:A:2543:TYR:CE2	2:A:2594:PHE:HB2	2.53	0.44
2:B:1390:ILE:HG13	2:B:1390:ILE:H	1.68	0.44
2:B:1548:PHE:CZ	2:B:1973:ASP:HB2	2.52	0.44
2:B:2226:MET:O	2:B:2230:ILE:HG12	2.18	0.44
2:B:2535:GLN:O	2:B:2537:THR:HG23	2.17	0.44
2:B:2543:TYR:CZ	2:B:2594:PHE:HD2	2.36	0.44
2:A:1852:ASN:ND2	2:A:1857:ASN:HB2	2.33	0.44
2:A:2629:GLY:N	2:A:2652:ILE:O	2.49	0.44
2:B:1688:THR:OG1	2:B:1688:THR:O	2.35	0.44
2:B:1750:ARG:HB3	2:B:2597:GLU:OE1	2.18	0.44
2:B:1366:LEU:O	2:B:1370:VAL:HG23	2.17	0.44
2:B:1681:HIS:O	2:B:1685:LEU:HG	2.18	0.44
2:A:1975:LYS:O	2:A:1979:ARG:HG2	2.18	0.43
2:B:1284:ASN:CB	2:B:1430:ALA:HB1	2.43	0.43
2:B:1929:VAL:O	2:B:1933:VAL:HG13	2.17	0.43
2:B:2129:TRP:O	2:B:2132:THR:OG1	2.33	0.43
2:A:1547:PHE:HD2	2:A:1969:ALA:HB2	1.83	0.43
2:A:2487:ARG:HD3	2:A:2717:LEU:HD13	2.00	0.43
2:A:2803:LEU:HD23	2:A:2803:LEU:O	2.18	0.43
2:B:1388:LEU:HB3	2:B:1434:PHE:HE2	1.82	0.43
2:B:2652:ILE:HG13	2:B:2726:ARG:NH1	2.28	0.43
2:A:1580:ILE:O	2:A:1584:ILE:HG12	2.17	0.43
2:A:1587:LYS:HD3	2:A:1701:ILE:HG23	1.99	0.43
2:B:1719:LYS:O	2:B:1722:VAL:HG22	2.18	0.43
2:B:2007:PHE:HB2	2:B:2053:ILE:HG23	2.00	0.43
2:B:2427:PRO:HD2	2:B:2430:MET:SD	2.58	0.43
2:B:2522:ILE:HD12	2:B:2522:ILE:N	2.33	0.43
2:A:1273:PHE:HA	2:A:1276:TYR:CD2	2.54	0.43
2:A:1427:LYS:O	2:A:1431:ILE:HG12	2.19	0.43
2:B:1460:ILE:HD12	2:B:1460:ILE:HA	1.85	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:2493:GLU:OE1	2:B:2518:THR:OG1	2.31	0.43
2:A:1946:GLU:OE2	2:A:1979:ARG:NH1	2.52	0.43
2:A:2356:ALA:O	2:A:2359:ARG:HG2	2.17	0.43
2:B:2568:LYS:HB3	2:B:2568:LYS:HE2	1.75	0.43
3:B:2901:ANP:O2G	3:B:2901:ANP:O1A	2.36	0.43
2:A:1946:GLU:HG3	2:A:1979:ARG:HH12	1.83	0.43
2:A:1951:LYS:HE3	2:A:1951:LYS:HB2	1.72	0.43
2:A:2103:ILE:HD12	2:A:2130:LEU:HD23	1.99	0.43
2:A:2458:GLY:H	2:A:2462:PRO:HG2	1.83	0.43
2:A:2343:SER:HB2	2:A:2523:PRO:O	2.18	0.43
2:A:2393:LEU:HD11	2:A:2465:ILE:HD11	2.01	0.43
2:B:2428:ILE:HB	2:B:2522:ILE:HG21	2.01	0.43
2:A:1205:TYR:CZ	2:A:1212:ILE:HG13	2.54	0.43
2:A:1435:TYR:HB3	2:A:1464:ARG:HD3	2.00	0.43
2:A:2298:LYS:NZ	2:A:2436:ASP:OD1	2.32	0.43
2:A:2332:ASN:ND2	2:A:2438:GLY:HA3	2.34	0.43
2:B:1650:LYS:HA	2:B:1650:LYS:HD2	1.63	0.43
2:B:1741:THR:O	2:B:1745:ILE:HG13	2.18	0.43
2:B:1758:LEU:N	2:B:1762:GLU:OE2	2.51	0.43
2:B:1777:THR:O	2:B:1781:CYS:N	2.51	0.43
2:B:1790:PHE:O	2:B:1793:ILE:HG22	2.18	0.43
2:B:2429:THR:HA	2:B:2522:ILE:HD13	1.99	0.43
2:B:2585:ARG:HA	2:B:2585:ARG:NE	2.34	0.43
2:A:1643:GLU:OE1	2:A:1645:SER:HB2	2.19	0.43
2:A:1935:ASN:ND2	2:A:1935:ASN:C	2.76	0.43
2:A:2165:TYR:HB3	2:A:2253:HIS:ND1	2.34	0.43
2:A:2251:ILE:HG21	2:A:2288:LEU:HD13	2.00	0.43
2:A:2624:HIS:CE1	2:A:2791:LEU:HD11	2.54	0.43
2:A:2720:TRP:CG	2:A:2767:ALA:HB2	2.54	0.43
2:B:651:TRP:O	2:B:655:THR:N	2.52	0.43
2:B:1448:PHE:C	2:B:1448:PHE:CD1	2.97	0.43
2:B:2199:ILE:O	2:B:2203:GLU:HG2	2.19	0.43
2:B:2520:LYS:NZ	2:B:2522:ILE:HD11	2.33	0.43
2:A:1496:LEU:HG	2:A:1527:ASP:O	2.18	0.43
2:B:1658:SER:HA	2:B:1691:VAL:HG23	2.01	0.43
2:B:2174:ASN:O	2:B:2178:SER:N	2.52	0.43
2:A:626:PRO:N	2:A:1943:LEU:HB3	2.34	0.42
2:A:1070:LYS:O	2:A:1074:LYS:N	2.51	0.42
2:A:2698:LEU:CD1	2:A:2705:LEU:HD22	2.50	0.42
2:A:2713:ARG:NH2	2:A:2771:ILE:HD13	2.34	0.42
2:B:788:ASP:O	2:B:791:LYS:N	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:2491:VAL:O	2:B:2495:VAL:HG23	2.19	0.42
2:A:1523:TYR:CE1	2:A:1524:LYS:HE2	2.54	0.42
2:B:1785:GLU:OE1	2:B:1785:GLU:N	2.40	0.42
2:B:2076:LEU:HG	2:B:2077:ALA:N	2.35	0.42
2:B:2114:ASN:HB2	2:B:2117:ILE:HB	2.00	0.42
2:B:2178:SER:HB3	2:B:2181:LEU:HB2	2.01	0.42
2:B:2405:THR:HG23	2:B:2453:ILE:HG13	2.01	0.42
2:B:2431:ASN:OD1	2:B:2431:ASN:N	2.52	0.42
2:B:2458:GLY:HA3	3:B:2901:ANP:H4'	2.01	0.42
2:A:1524:LYS:HZ1	2:A:1960:GLU:HA	1.84	0.42
2:A:2785:GLU:O	2:A:2788:VAL:HG12	2.19	0.42
2:B:1322:VAL:O	2:B:1326:VAL:HG23	2.19	0.42
2:B:2110:LEU:HD21	2:B:2123:TYR:CG	2.54	0.42
2:B:2459:ILE:CG2	2:B:2733:MET:CE	2.97	0.42
2:B:2659:LYS:HB3	2:B:2727:ARG:NE	2.34	0.42
2:A:1886:LEU:HD13	2:A:1892:ILE:HD12	2.01	0.42
2:A:1984:GLN:OE1	2:A:1984:GLN:N	2.52	0.42
2:B:2040:TYR:C	2:B:2044:LEU:HB2	2.44	0.42
2:B:2075:ASP:OD1	2:B:2076:LEU:N	2.52	0.42
2:A:372:PHE:H	2:A:382:GLU:H	1.68	0.42
2:A:1852:ASN:HD22	2:A:1857:ASN:HB2	1.83	0.42
2:A:2096:ARG:HE	2:A:2096:ARG:HB3	1.71	0.42
2:A:2666:VAL:HG23	2:A:2795:ALA:HA	2.02	0.42
2:B:1365:TYR:CE1	2:B:1630:ILE:HG23	2.54	0.42
2:B:1998:GLN:HG3	2:B:2505:SER:HA	2.02	0.42
2:B:2270:ARG:HA	2:B:2273:THR:HG22	2.01	0.42
2:B:2150:LEU:O	2:B:2153:MET:HB3	2.19	0.42
2:B:2290:HIS:O	2:B:2290:HIS:ND1	2.45	0.42
2:B:2479:VAL:HG22	2:B:2530:VAL:HG22	2.02	0.42
2:A:1531:PHE:HD2	2:A:1532:PRO:HD2	1.84	0.42
2:A:2071:TYR:CE2	2:A:2082:LYS:HB2	2.55	0.42
2:B:1455:PHE:H	2:B:1457:ARG:NH2	2.17	0.42
2:B:1661:ASN:O	2:B:1665:GLU:HG2	2.19	0.42
2:B:1993:LEU:HD22	2:B:2053:ILE:HG13	2.01	0.42
2:A:1810:LEU:HD12	2:A:1819:TYR:H	1.85	0.42
2:A:2131:TYR:OH	2:A:2175:ASN:HA	2.20	0.42
2:A:2364:LYS:HA	2:A:2367:LEU:HD12	2.00	0.42
2:A:678:SER:HA	2:A:1941:ASN:HD22	1.85	0.42
2:A:1803:ILE:HD13	2:A:1803:ILE:HA	1.88	0.42
2:B:2521:VAL:HG22	2:B:2531:ILE:HG22	2.02	0.42
2:A:578:GLN:C	2:A:580:SER:H	2.27	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1370:VAL:HG11	2:A:1394:HIS:CD2	2.55	0.42
2:A:1609:MET:O	2:A:1617:GLN:N	2.52	0.42
2:A:2110:LEU:HD21	2:A:2123:TYR:HA	2.01	0.42
2:A:2189:GLU:HG3	2:A:2236:TYR:HE1	1.85	0.42
2:A:2486:LEU:HA	2:A:2486:LEU:HD23	1.76	0.42
2:A:2576:ARG:HH21	2:B:2234:ARG:HH22	1.68	0.42
2:A:2787:SER:O	2:A:2790:GLU:HG3	2.20	0.42
2:B:1879:ASN:ND2	2:B:1902:SER:HB3	2.35	0.42
2:B:1965:LEU:HA	2:B:1968:TYR:HD2	1.85	0.42
2:B:2543:TYR:CE2	2:B:2594:PHE:HB2	2.55	0.42
2:B:2543:TYR:CG	2:B:2544:LEU:N	2.88	0.42
2:B:2708:VAL:O	2:B:2712:LEU:HD12	2.20	0.42
2:A:2403:ASP:HA	2:A:2454:HIS:CD2	2.55	0.41
2:B:2044:LEU:HD23	2:B:2044:LEU:HA	1.58	0.41
2:B:2373:ASN:O	2:B:2377:SER:N	2.53	0.41
2:A:98:ARG:O	2:A:102:ILE:N	2.51	0.41
2:A:1825:GLU:HG3	2:B:2108:GLU:OE1	2.20	0.41
2:B:1526:TYR:HB2	2:B:1528:ILE:HD11	2.02	0.41
2:B:1730:LEU:HD23	2:B:1730:LEU:HA	1.90	0.41
2:B:1819:TYR:HD1	2:B:1819:TYR:O	2.04	0.41
2:B:2141:VAL:O	2:B:2143:LYS:N	2.53	0.41
2:B:2165:TYR:CE1	2:B:2256:LYS:HD3	2.55	0.41
2:B:2612:TYR:OH	2:B:2674:VAL:HG13	2.20	0.41
2:A:2124:ALA:HB3	2:A:2164:ILE:HD12	2.02	0.41
2:A:2346:SER:OG	2:A:2347:ASN:N	2.52	0.41
2:A:2483:ASN:HA	2:A:2527:LYS:HA	2.02	0.41
2:A:2489:ASP:O	2:A:2493:GLU:HG2	2.20	0.41
2:B:1384:GLN:O	2:B:1387:GLY:N	2.53	0.41
2:B:1564:ASP:HB2	2:B:1565:PRO:HD3	2.01	0.41
2:B:2311:LEU:HD13	2:B:2362:ALA:HB3	2.01	0.41
2:B:2427:PRO:O	2:B:2430:MET:HG2	2.20	0.41
2:A:1284:ASN:HA	2:A:1430:ALA:HB1	2.02	0.41
2:A:1460:ILE:HD12	2:A:1460:ILE:HA	1.92	0.41
2:A:1483:ARG:H	2:A:1485:HIS:CE1	2.38	0.41
2:B:2459:ILE:HG22	2:B:2733:MET:HE3	2.01	0.41
2:A:1209:ILE:N	2:A:1210:PRO:HD2	2.34	0.41
2:A:1504:LEU:HD11	2:A:1515:LEU:HD13	2.01	0.41
2:A:1714:ASN:OD1	2:A:1714:ASN:N	2.51	0.41
2:A:2126:LEU:HB3	2:A:2145:TYR:HD2	1.85	0.41
2:A:2625:VAL:HG13	2:A:2774:VAL:HG13	2.03	0.41
2:A:2696:GLU:HG3	2:A:2697:THR:N	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1390:ILE:HA	2:B:1394:HIS:CE1	2.56	0.41
2:B:2310:ARG:NH1	2:B:2714:TYR:O	2.53	0.41
2:B:2457:SER:O	2:B:2458:GLY:C	2.61	0.41
2:A:1759:ASN:ND2	2:A:2551:TYR:HA	2.35	0.41
2:A:2286:ASN:O	2:A:2289:GLN:HG3	2.20	0.41
2:A:2543:TYR:C	2:A:2545:ASP:H	2.27	0.41
2:B:588:TRP:O	2:B:592:HIS:N	2.50	0.41
2:B:1715:ASN:OD1	2:B:1716:LYS:N	2.53	0.41
2:B:2790:GLU:HG2	2:B:2793:ARG:HH21	1.86	0.41
2:A:2435:ASN:ND2	2:A:2438:GLY:H	2.18	0.41
2:A:2632:HIS:CG	2:A:2633:GLY:N	2.89	0.41
2:B:1662:TRP:O	2:B:1666:GLU:HG3	2.20	0.41
2:B:2572:ASP:O	2:B:2576:ARG:HG2	2.21	0.41
2:A:1427:LYS:HE2	2:A:1431:ILE:HD11	2.03	0.41
2:A:1560:ILE:HG23	2:A:1561:PRO:O	2.21	0.41
2:A:1580:ILE:HD12	2:A:1580:ILE:H	1.86	0.41
2:A:1599:LEU:HD13	2:A:1693:PHE:HE2	1.86	0.41
2:A:1686:LEU:O	2:A:1689:TYR:HB3	2.21	0.41
2:A:2243:ARG:O	2:A:2246:MET:HG2	2.20	0.41
2:A:2425:LEU:HD23	2:A:2425:LEU:HA	1.93	0.41
2:B:523:LEU:O	2:B:527:ASN:N	2.51	0.41
2:B:1417:LEU:HD12	2:B:1417:LEU:O	2.21	0.41
2:B:1441:TYR:O	2:B:1445:LEU:HG	2.20	0.41
2:B:1521:LYS:HE3	2:B:1521:LYS:HB2	1.91	0.41
2:B:2254:TYR:O	2:B:2258:LEU:HG	2.21	0.41
2:B:2311:LEU:O	2:B:2359:ARG:HG2	2.21	0.41
2:A:1532:PRO:HD2	2:A:1535:LEU:HB3	2.02	0.41
2:A:1605:ASP:HA	2:A:1608:ARG:HB3	2.02	0.41
2:A:1949:ILE:HG13	2:A:1974:LEU:HD22	2.03	0.41
2:A:2022:GLN:OE1	2:A:2037:ARG:HB2	2.21	0.41
2:A:2626:LEU:HD23	2:A:2654:PHE:HE1	1.86	0.41
2:B:211:ARG:O	2:B:215:GLN:N	2.53	0.41
2:B:1066:ILE:N	2:B:1102:LYS:O	2.53	0.41
2:B:1182:ILE:HD13	2:B:1208:LEU:HD23	2.03	0.41
2:B:1387:GLY:HA2	2:B:1390:ILE:HD12	2.02	0.41
2:B:1512:LEU:HD23	2:B:1512:LEU:HA	1.89	0.41
2:B:1547:PHE:CG	2:B:1965:LEU:HD21	2.55	0.41
2:B:1647:GLN:H	2:B:1650:LYS:HB2	1.85	0.41
2:B:1690:MET:O	2:B:1694:SER:N	2.48	0.41
2:B:1841:SER:N	2:B:1842:PRO:HD2	2.36	0.41
2:A:1397:LYS:HA	2:A:1397:LYS:HD3	1.65	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:2009:LEU:CD2	2:A:2013:ILE:HD11	2.51	0.41
2:A:2292:LEU:HD13	2:A:2325:ILE:HD11	2.03	0.41
2:A:2307:LEU:HD12	2:A:2307:LEU:HA	1.88	0.41
2:A:2480:LYS:HZ1	2:A:2531:ILE:HD11	1.85	0.41
2:A:2487:ARG:HD3	2:A:2717:LEU:HD22	2.03	0.41
2:B:1284:ASN:ND2	2:B:1388:LEU:HD13	2.35	0.41
2:A:1330:LEU:HD11	2:A:1350:LEU:HD23	2.02	0.40
2:A:1564:ASP:HB2	2:A:1579:ILE:HG21	2.02	0.40
2:A:1680:THR:O	2:A:1684:LYS:HG2	2.21	0.40
2:A:2185:PHE:CE2	2:A:2243:ARG:HD3	2.55	0.40
2:A:2227:SER:O	2:A:2231:ILE:HG12	2.21	0.40
2:A:2333:HIS:HE1	2:A:2440:TYR:HE2	1.68	0.40
2:B:325:LEU:CB	2:B:394:ILE:HA	2.52	0.40
2:B:1475:GLU:HA	2:B:1478:ASN:HD21	1.86	0.40
2:B:2600:ALA:HB3	2:B:2604:GLN:HB3	2.03	0.40
2:B:2710:GLU:O	2:B:2714:TYR:HD2	2.05	0.40
2:A:1523:TYR:OH	2:A:1965:LEU:HB2	2.22	0.40
2:A:1548:PHE:CE1	2:A:1969:ALA:HB1	2.56	0.40
2:A:1919:LYS:HA	2:A:1919:LYS:HD3	1.78	0.40
2:A:2705:LEU:HD12	2:A:2705:LEU:HA	1.64	0.40
2:B:1685:LEU:HD12	2:B:1686:LEU:N	2.36	0.40
2:B:2137:LYS:HE3	2:B:2139:GLU:HB3	2.03	0.40
2:B:2595:PHE:C	2:B:2605:TRP:HD1	2.29	0.40
2:A:625:ARG:N	2:A:1944:HIS:HB2	2.35	0.40
2:A:1065:SER:C	2:A:1103:LEU:HA	2.46	0.40
2:A:1751:ARG:HD2	2:A:1751:ARG:HA	1.79	0.40
2:A:2002:GLN:O	2:A:2003:LEU:HB2	2.22	0.40
2:A:2394:ALA:HB2	2:A:2479:VAL:HB	2.04	0.40
2:A:2698:LEU:HD13	2:A:2698:LEU:HA	1.89	0.40
2:B:1245:SER:HA	2:B:1248:PHE:CD1	2.57	0.40
2:B:2022:GLN:NE2	2:B:2037:ARG:HG2	2.37	0.40
1:F:71:LEU:O	1:F:71:LEU:HD12	2.20	0.40
2:A:1533:ASP:OD1	2:A:1534:SER:N	2.55	0.40
2:A:1607:ILE:O	2:A:1610:PHE:HB2	2.22	0.40
2:A:2428:ILE:H	2:A:2428:ILE:HG13	1.68	0.40
2:A:2623:GLY:O	2:A:2627:GLY:N	2.54	0.40
2:A:2654:PHE:HD2	2:A:2720:TRP:HD1	1.69	0.40
2:B:1361:ILE:HA	2:B:1366:LEU:CD2	2.51	0.40
2:B:1651:LEU:HD12	2:B:1651:LEU:HA	1.92	0.40
2:B:2595:PHE:N	2:B:2595:PHE:CD1	2.90	0.40
2:B:2784:VAL:O	2:B:2788:VAL:HG13	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1750:ARG:HH22	2:A:2597:GLU:H	1.68	0.40
2:A:1946:GLU:HG3	2:A:1979:ARG:NH1	2.37	0.40
2:A:1974:LEU:HG	2:A:2017:LEU:HD21	2.04	0.40
2:A:2256:LYS:HB2	2:A:2256:LYS:HE2	1.81	0.40
2:A:2342:PHE:O	2:A:2346:SER:N	2.54	0.40
2:A:2352:GLU:OE2	2:A:2352:GLU:N	2.36	0.40
2:A:2568:LYS:HZ3	2:A:2580:TYR:HB2	1.86	0.40
2:A:2606:PHE:CD1	2:A:2606:PHE:C	2.99	0.40
2:B:2089:SER:O	2:B:2093:LEU:HG	2.22	0.40
2:B:2165:TYR:HB3	2:B:2253:HIS:O	2.22	0.40
2:B:2188:MET:HE3	2:B:2192:TYR:HB2	2.03	0.40
2:B:2244:SER:OG	2:B:2283:GLU:OE2	2.37	0.40
2:B:2245:LYS:O	2:B:2249:GLN:HG2	2.22	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 PDB entries followed by that with respect to all EM entries.

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	F	6/8 (75%)	5 (83%)	1 (17%)	0	100	100
2	A	2372/2812 (84%)	2222 (94%)	142 (6%)	8 (0%)	37	66
2	B	2330/2812 (83%)	2190 (94%)	137 (6%)	3 (0%)	48	78
All	All	4708/5632 (84%)	4417 (94%)	280 (6%)	11 (0%)	45	72

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	A	1571	LYS
2	A	2640	LYS
2	A	2658	LYS
2	A	2462	PRO

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Mol	Chain	Res	Type
2	A	2562	ARG
2	A	2410	PHE
2	A	355	VAL
2	B	355	VAL
2	A	576	VAL
2	B	546	ILE
2	B	576	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 PDB entries followed by that with respect to all EM entries.

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	F	8/8 (100%)	8 (100%)	0	100	100
2	A	1106/2621 (42%)	1090 (99%)	16 (1%)	62	78
2	B	1126/2621 (43%)	1113 (99%)	13 (1%)	67	80
All	All	2240/5250 (43%)	2211 (99%)	29 (1%)	64	79

All (29) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	A	1470	LYS
2	A	1791	LEU
2	A	1935	ASN
2	A	1970	LEU
2	A	2005	GLU
2	A	2068	ASP
2	A	2341	LEU
2	A	2348	VAL
2	A	2459	ILE
2	A	2548	HIS
2	A	2564	LEU
2	A	2637	LEU
2	A	2658	LYS
2	A	2659	LYS
2	A	2660	LEU

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Mol	Chain	Res	Type
2	A	2665	CYS
2	B	1456	LEU
2	B	1599	LEU
2	B	1634	SER
2	B	1766	TRP
2	B	2457	SER
2	B	2460	ASN
2	B	2485	ASP
2	B	2723	SER
2	B	2726	ARG
2	B	2728	MET
2	B	2729	LYS
2	B	2730	LYS
2	B	2732	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (24) such sidechains are listed below:

Mol	Chain	Res	Type
2	A	1703	HIS
2	A	1744	ASN
2	A	1752	GLN
2	A	1852	ASN
2	A	1935	ASN
2	A	2286	ASN
2	A	2332	ASN
2	A	2333	HIS
2	A	2454	HIS
2	A	2477	GLN
2	A	2494	GLN
2	A	2511	GLN
2	B	1289	ASN
2	B	1558	HIS
2	B	1744	ASN
2	B	1759	ASN
2	B	1879	ASN
2	B	1957	ASN
2	B	1996	ASN
2	B	2128	ASN
2	B	2152	HIS
2	B	2374	GLN
2	B	2454	HIS
2	B	2477	GLN

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 oligosaccharides in this entry.

5.6 Ligand geometry (i)

2 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
3	ANP	A	2901	-	29,33,33	1.09	4 (13%)	31,52,52	1.10	2 (6%)
3	ANP	B	2901	-	29,33,33	1.09	4 (13%)	31,52,52	1.05	2 (6%)

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
3	ANP	A	2901	-	-	5/14/38/38	0/3/3/3
3	ANP	B	2901	-	-	7/14/38/38	0/3/3/3

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	2901	ANP	PG-N3B	2.47	1.69	1.63

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	2901	ANP	PG-O1G	2.45	1.50	1.46
3	A	2901	ANP	PG-N3B	2.44	1.69	1.63
3	A	2901	ANP	PG-O1G	2.39	1.49	1.46
3	A	2901	ANP	PB-O3A	-2.36	1.56	1.59
3	B	2901	ANP	PB-O3A	-2.29	1.56	1.59
3	A	2901	ANP	PB-O1B	2.28	1.49	1.46
3	B	2901	ANP	PB-O1B	2.23	1.49	1.46

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	A	2901	ANP	PB-O3A-PA	-3.84	119.09	132.62
3	B	2901	ANP	PB-O3A-PA	-3.61	119.91	132.62
3	A	2901	ANP	C5-C6-N6	2.29	123.83	120.35
3	B	2901	ANP	C5-C6-N6	2.28	123.81	120.35

There are no chirality outliers.

All (12) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	2901	ANP	PB-N3B-PG-O1G
3	A	2901	ANP	O4'-C4'-C5'-O5'
3	B	2901	ANP	PB-N3B-PG-O1G
3	B	2901	ANP	C5'-O5'-PA-O3A
3	A	2901	ANP	C3'-C4'-C5'-O5'
3	B	2901	ANP	O4'-C4'-C5'-O5'
3	A	2901	ANP	C4'-C5'-O5'-PA
3	B	2901	ANP	C4'-C5'-O5'-PA
3	B	2901	ANP	C5'-O5'-PA-O1A
3	B	2901	ANP	PG-N3B-PB-O3A
3	B	2901	ANP	C3'-C4'-C5'-O5'
3	A	2901	ANP	C5'-O5'-PA-O1A

There are no ring outliers.

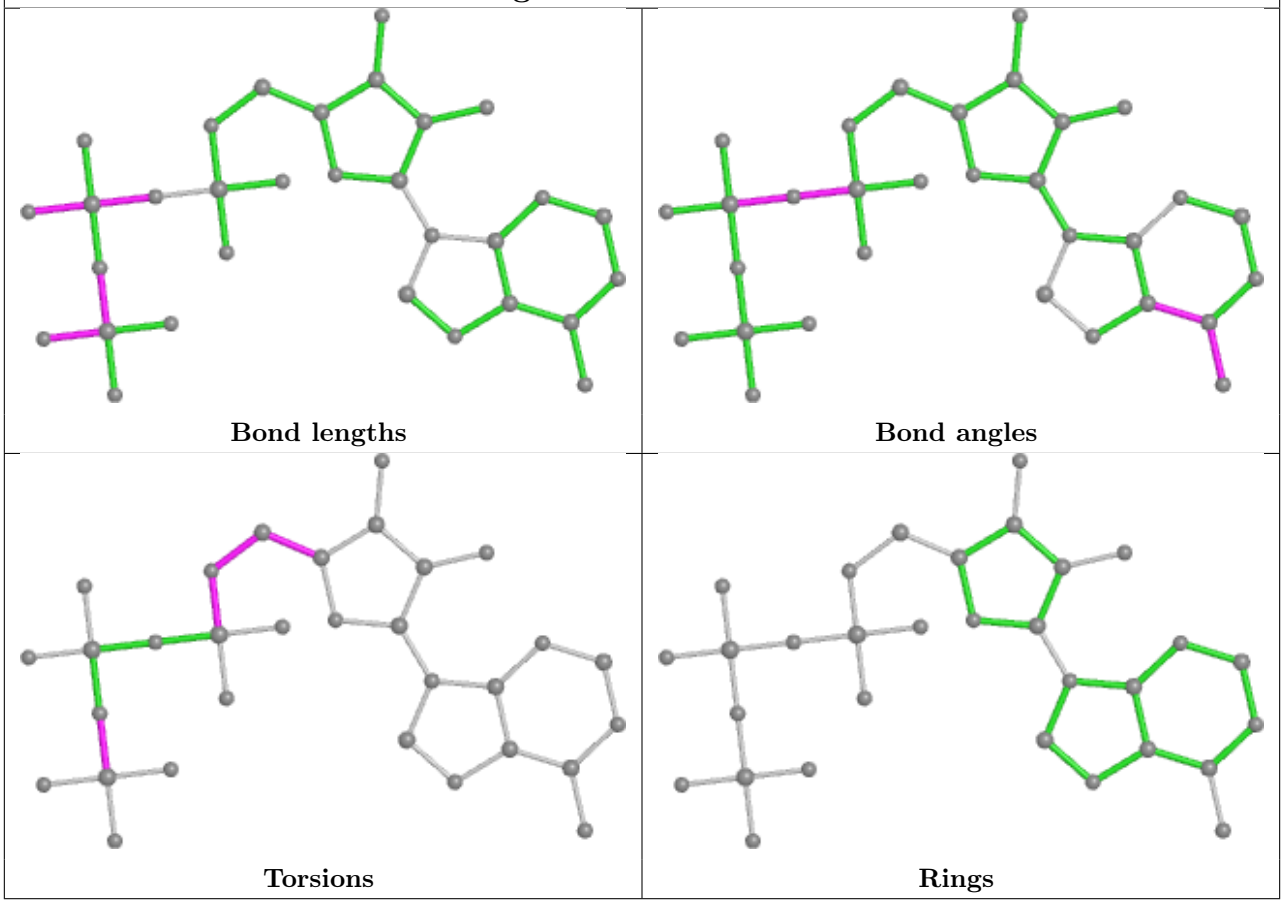
2 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	2901	ANP	3	0
3	B	2901	ANP	4	0

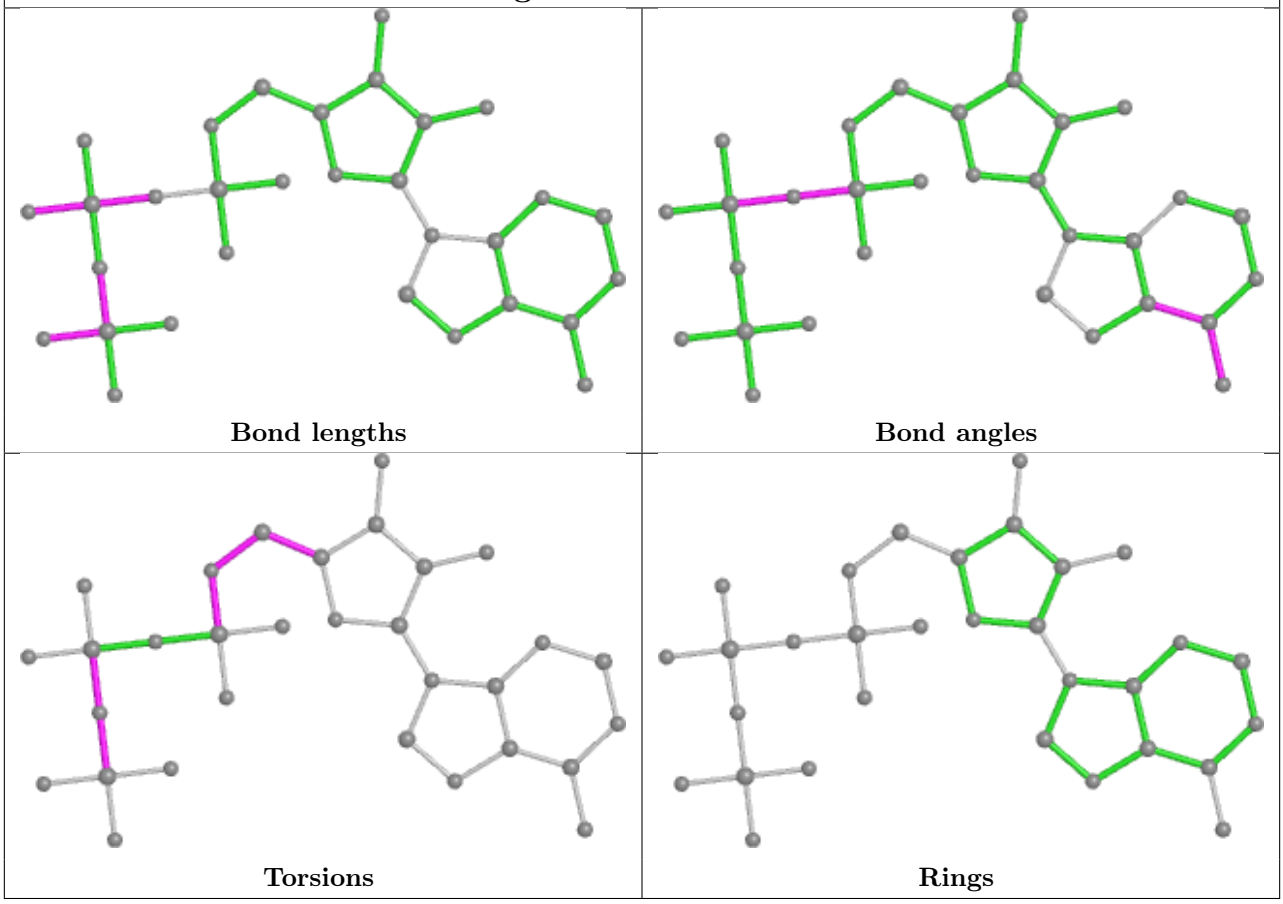
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths,

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 then 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.

Ligand ANP A 2901



Ligand ANP B 2901



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.