Full wwPDB X-ray Structure Validation Report (i)

Mar 5, 2026 – 04:11 AM UTC

PDB ID	:	6UU0 / pdb_00006uu0
Title	:	E. coli sigma-S transcription initiation complex with a 3-nt RNA and a mismatching GTP ("Fresh" crystal soaked with GTP for 1 hour)
Authors	:	Zuo, Y.; De, S.; Steitz, T.A.
Deposited on	:	2019-10-30
Resolution	:	3.90 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 (i) 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 (i)) were used in the production of this report:

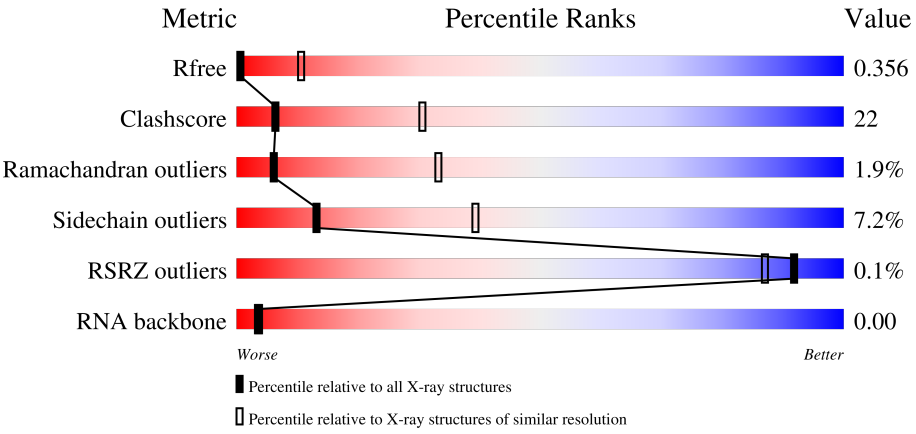
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 3.90 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	1270 (4.10-3.70)
Clashscore	190562	1034 (4.08-3.72)
Ramachandran outliers	187476	1251 (4.10-3.70)
Sidechain outliers	187428	1243 (4.10-3.70)
RSRZ outliers	180081	1269 (4.10-3.70)
RNA backbone	3983	1014 (4.70-3.10)

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 of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	AAA	242	60% 31% · 5%
1	BBB	242	61% 30% · 6%
2	CCC	1342	61% 34% ·
3	DDD	1407	56% 36% · ·

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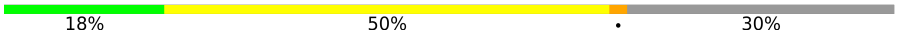
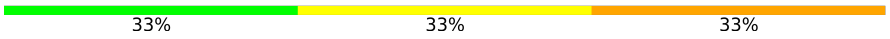
Mol	Chain	Length	Quality of chain
4	EEE	90	
5	FFF	336	
6	111	50	
7	222	50	
8	333	3	

2 Entry composition (i)

There are 11 unique types of molecules in this entry. The entry contains 28977 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 DNA-directed RNA polymerase subunit alpha.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	AAA	230	Total	C	N	O	S	0	0	0
			1787	1112	317	352	6			
1	BBB	228	Total	C	N	O	S	0	0	0
			1767	1100	312	349	6			

There are 14 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AAA	-6	ALA	-	expression tag	UNP A0A377D9Q8
AAA	-5	HIS	-	expression tag	UNP A0A377D9Q8
AAA	-4	HIS	-	expression tag	UNP A0A377D9Q8
AAA	-3	HIS	-	expression tag	UNP A0A377D9Q8
AAA	-2	HIS	-	expression tag	UNP A0A377D9Q8
AAA	-1	HIS	-	expression tag	UNP A0A377D9Q8
AAA	0	HIS	-	expression tag	UNP A0A377D9Q8
BBB	-6	ALA	-	expression tag	UNP A0A377D9Q8
BBB	-5	HIS	-	expression tag	UNP A0A377D9Q8
BBB	-4	HIS	-	expression tag	UNP A0A377D9Q8
BBB	-3	HIS	-	expression tag	UNP A0A377D9Q8
BBB	-2	HIS	-	expression tag	UNP A0A377D9Q8
BBB	-1	HIS	-	expression tag	UNP A0A377D9Q8
BBB	0	HIS	-	expression tag	UNP A0A377D9Q8

- Molecule 2 is a protein called DNA-directed RNA polymerase subunit beta.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	CCC	1341	Total	C	N	O	S	0	0	0
			10576	6636	1842	2055	43			

- Molecule 3 is a protein called DNA-directed RNA polymerase subunit beta'.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	DDD	1350	Total	C	N	O	S	0	0	0
			10478	6578	1867	1984	49			

- Molecule 4 is a protein called DNA-directed RNA polymerase subunit omega.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	EEE	79	Total	C	N	O	S	0	0	0
			627	382	118	126	1			

- Molecule 5 is a protein called RNA polymerase sigma factor RpoS.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	FFF	277	Total	C	N	O	S	0	0	0
			2253	1411	415	423	4			

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
FFF	2	GLY	SER	conflict	UNP P13445
FFF	33	GLU	GLN	conflict	UNP P13445
FFF	329	LEU	-	expression tag	UNP P13445
FFF	330	GLU	-	expression tag	UNP P13445
FFF	331	HIS	-	expression tag	UNP P13445
FFF	332	HIS	-	expression tag	UNP P13445
FFF	333	HIS	-	expression tag	UNP P13445
FFF	334	HIS	-	expression tag	UNP P13445
FFF	335	HIS	-	expression tag	UNP P13445
FFF	336	HIS	-	expression tag	UNP P13445

- Molecule 6 is a DNA chain called Synthetic DNA 50-MER (promoter non-template strand).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
6	111	32	Total	C	N	O	P	0	0	0
			660	313	122	193	32			

- Molecule 7 is a DNA chain called Synthetic DNA 50-MER (promoter template strand).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
7	222	35	Total	C	N	O	P	0	0	0
			716	342	132	208	34			

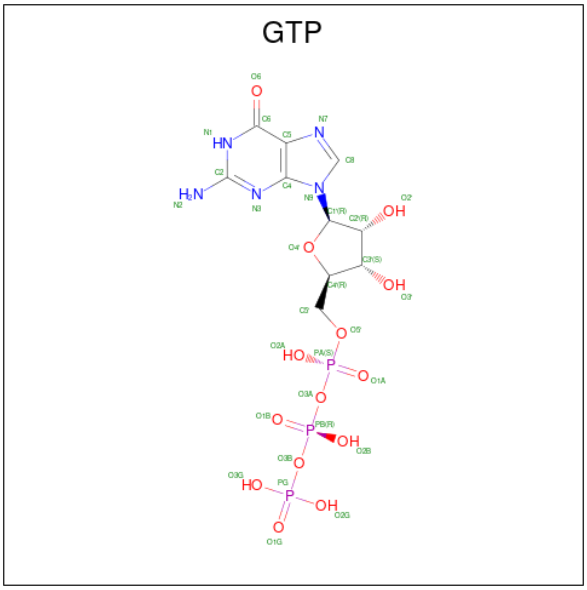
- Molecule 8 is a RNA chain called RNA 3-mer (de novo synthesized).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
8	333	3	Total	C	N	O	P	0	0	0
			77	30	15	27	5			

- Molecule 9 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	CCC	1	Total	Mg	0	0
			1	1		
9	333	1	Total	Mg	0	0
			1	1		

- Molecule 10 is GUANOSINE-5'-TRIPHOSPHATE (CCD ID: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
10	CCC	1	Total	C	N	O	P	0	0
			32	10	5	14	3		

- Molecule 11 is ZINC ION (CCD ID: ZN) (formula: Zn).

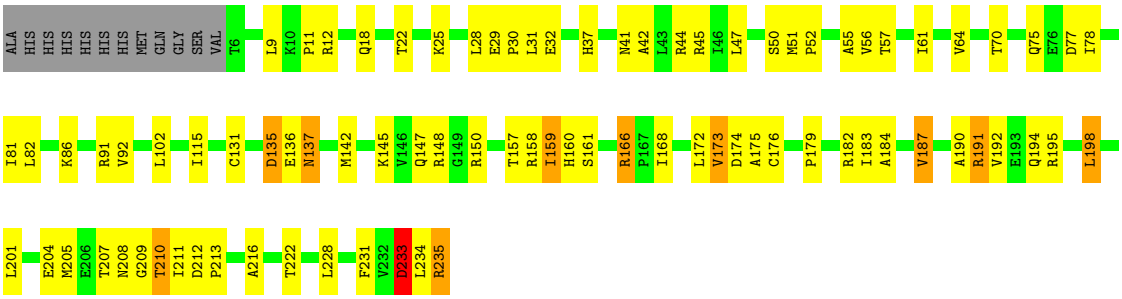
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
11	DDD	2	Total	Zn	0	0
			2	2		

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 and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

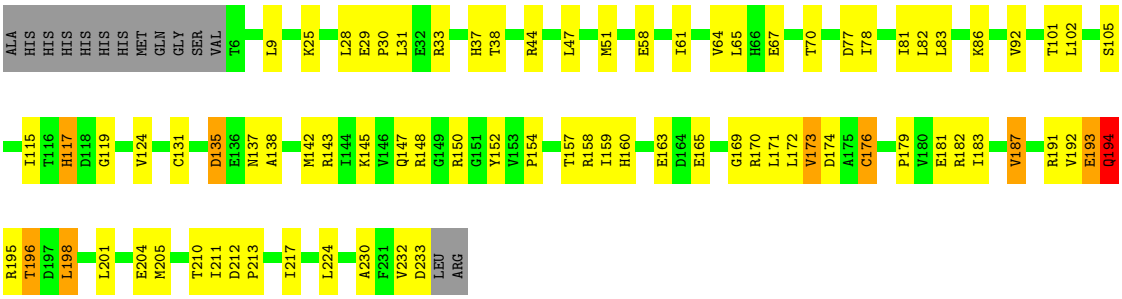
• Molecule 1: DNA-directed RNA polymerase subunit alpha

Chain AAA:



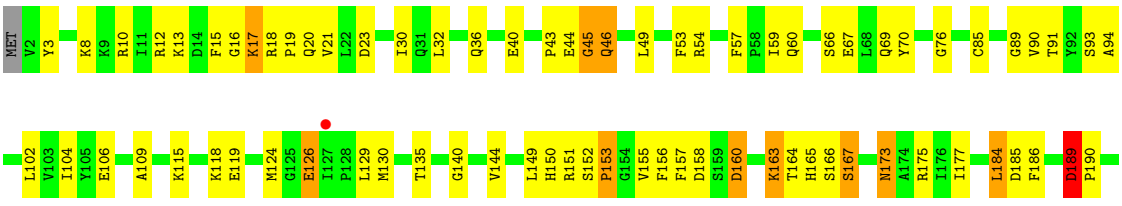
• Molecule 1: DNA-directed RNA polymerase subunit alpha

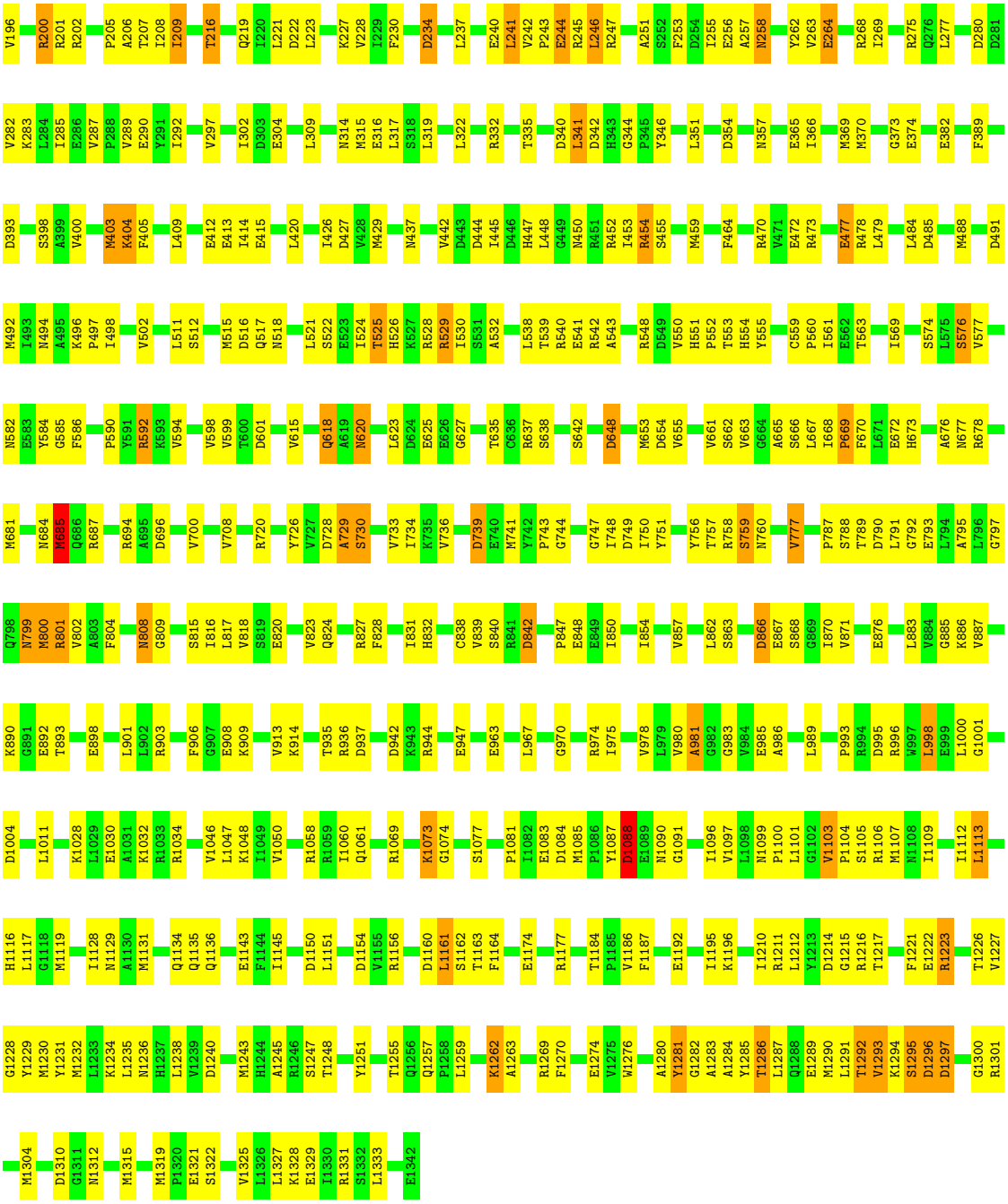
Chain BBB:



• Molecule 2: DNA-directed RNA polymerase subunit beta

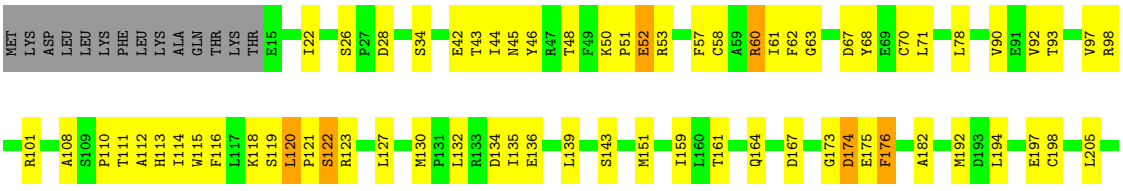
Chain CCC:

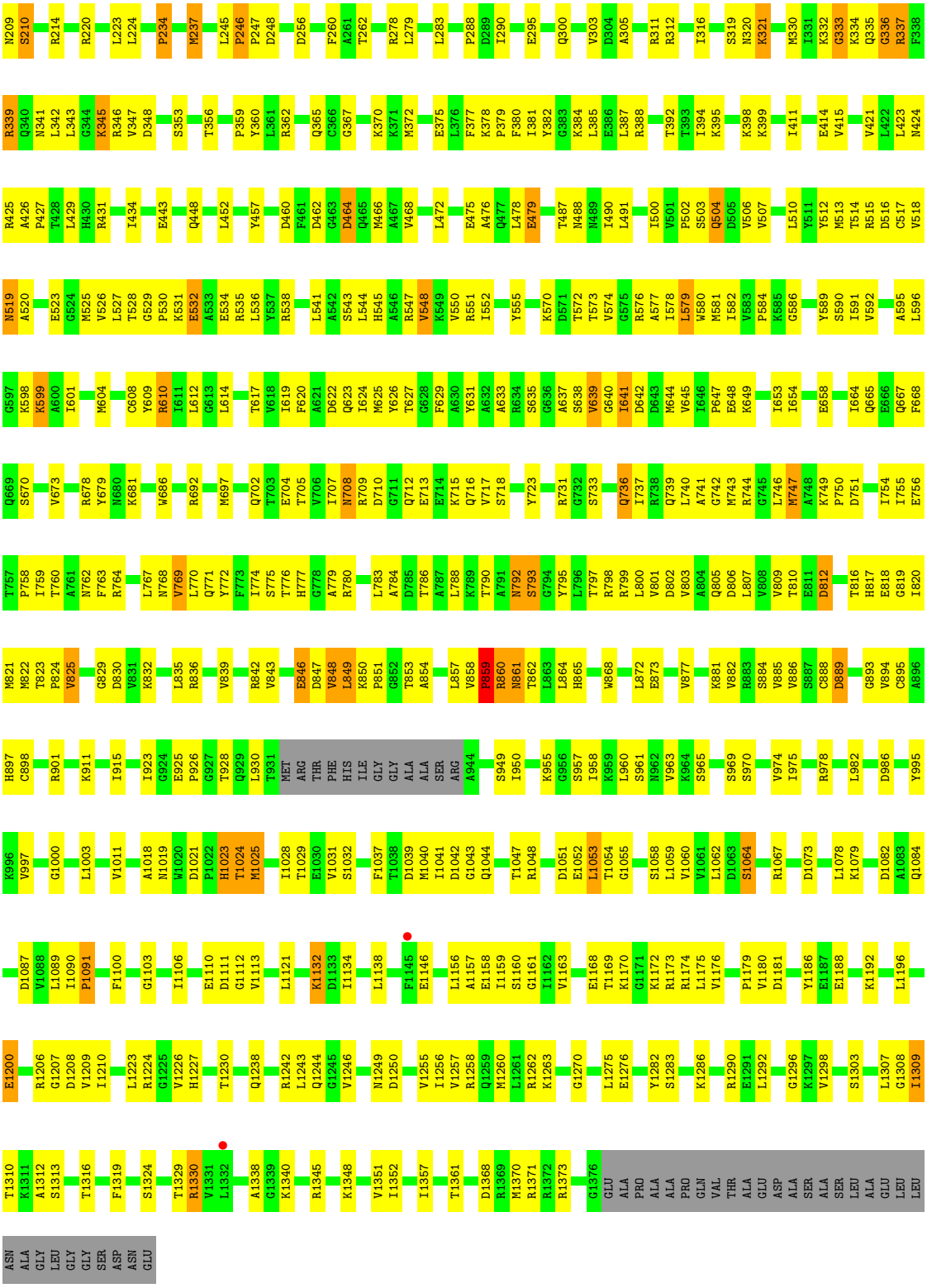




• Molecule 3: DNA-directed RNA polymerase subunit beta'

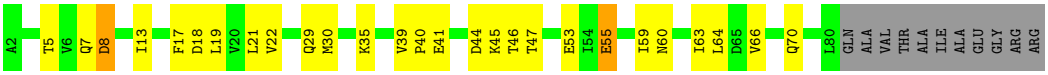
Chain DDD:





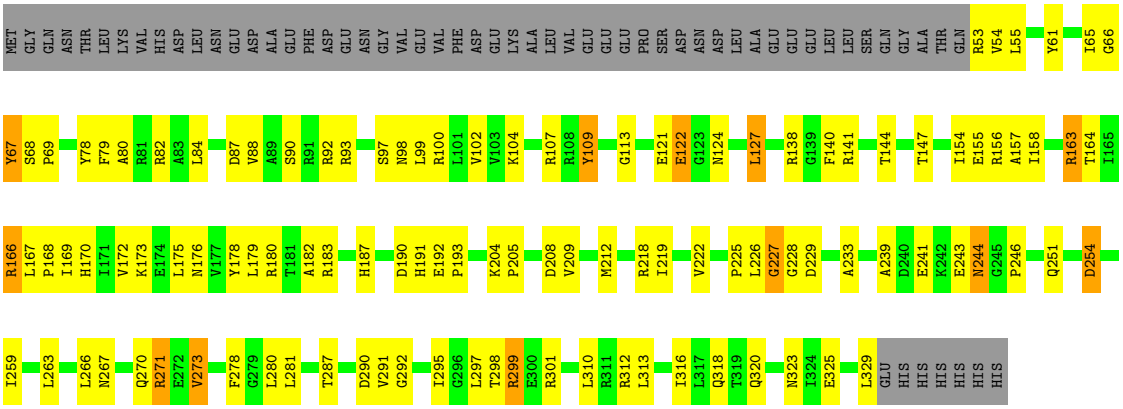
• Molecule 4: DNA-directed RNA polymerase subunit omega

Chain EEE:



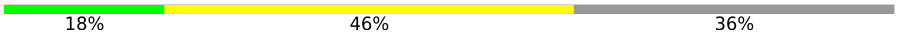
• Molecule 5: RNA polymerase sigma factor RpoS

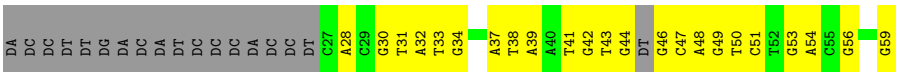
Chain FFF:



• Molecule 6: Synthetic DNA 50-MER (promoter non-template strand)

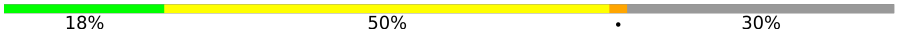
Chain 111:

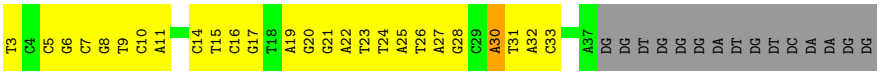




• Molecule 7: Synthetic DNA 50-MER (promoter template strand)

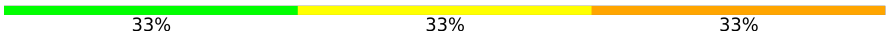
Chain 222:





• Molecule 8: RNA 3-mer (de novo synthesized)

Chain 333:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	132.80Å 156.16Å 233.37Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.20 – 3.90 49.20 – 3.90	Depositor EDS
% Data completeness (in resolution range)	98.2 (49.20-3.90) 98.2 (49.20-3.90)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.05 (at 3.88Å)	Xtriage
Refinement program	REFMAC 5.8.0257	Depositor
R, R_{free}	0.314 , 0.368 0.307 , 0.356	Depositor DCC
R_{free} test set	2123 reflections (4.73%)	wwPDB-VP
Wilson B-factor (Å^2)	168.6	Xtriage
Anisotropy	0.188	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.27 , 227.6	EDS
L-test for twinning[2]	$< \|L\| > = 0.31$, $< L^2 > = 0.15$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	28977	wwPDB-VP
Average B, all atoms (Å^2)	287.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.90% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: GTP, MG, ZN

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	AAA	0.95	0/1809	1.23	0/2450
1	BBB	0.96	0/1789	1.23	3/2425 (0.1%)
2	CCC	0.92	0/10745	1.31	22/14499 (0.2%)
3	DDD	0.94	0/10636	1.29	9/14362 (0.1%)
4	EEE	0.88	0/629	1.39	0/847
5	FFF	0.97	0/2282	1.35	2/3076 (0.1%)
6	111	0.33	0/739	0.60	0/1137
7	222	0.34	0/803	0.59	1/1238 (0.1%)
8	333	0.45	0/50	0.95	0/76
All	All	0.91	0/29482	1.27	37/40110 (0.1%)

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	CCC	0	1

There are no bond length outliers.

All (37) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	CCC	563	THR	CB-CA-C	9.02	122.90	109.63
2	CCC	1084	ASP	CA-CB-CG	7.57	120.17	112.60
2	CCC	454	ARG	CB-CA-C	-6.76	99.60	111.22
2	CCC	153	PRO	N-CD-CG	-6.65	93.23	103.20
3	DDD	460	ASP	CA-CB-CG	6.51	119.11	112.60
1	BBB	135	ASP	CA-CB-CG	6.41	119.01	112.60
2	CCC	1310	ASP	N-CA-C	-6.33	105.55	113.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	CCC	216	THR	CA-CB-OG1	-6.26	100.20	109.60
3	DDD	246	PRO	CA-C-N	6.04	125.52	119.24
3	DDD	246	PRO	C-N-CA	6.04	125.52	119.24
2	CCC	787	PRO	CA-C-N	-6.03	114.19	122.87
2	CCC	787	PRO	C-N-CA	-6.03	114.19	122.87
2	CCC	153	PRO	CB-CA-C	5.99	118.79	110.95
1	BBB	196	THR	CA-C-N	5.89	129.26	120.31
1	BBB	196	THR	C-N-CA	5.89	129.26	120.31
2	CCC	1222	GLU	N-CA-C	-5.76	106.20	113.18
3	DDD	641	ILE	N-CA-C	-5.71	107.93	113.53
7	222	30	DA	C4'-C3'-O3'	5.67	118.51	110.00
2	CCC	685	MET	N-CA-CB	5.56	118.86	110.30
5	FFF	67	TYR	CB-CA-C	5.52	120.20	110.37
2	CCC	1222	GLU	CB-CA-C	5.50	120.89	109.95
2	CCC	412	GLU	N-CA-C	-5.44	106.32	113.12
2	CCC	1088	ASP	CB-CA-C	-5.40	98.42	110.19
3	DDD	504	GLN	CB-CA-C	-5.39	110.34	116.54
3	DDD	123	ARG	N-CA-C	-5.35	106.81	113.55
3	DDD	532	GLU	N-CA-C	-5.32	105.65	111.82
3	DDD	1039	ASP	CA-C-N	-5.30	114.50	122.24
3	DDD	1039	ASP	C-N-CA	-5.30	114.50	122.24
2	CCC	517	GLN	CB-CA-C	-5.29	102.61	111.13
2	CCC	842	ASP	CB-CA-C	5.28	118.86	109.72
2	CCC	669	PRO	CB-CA-C	-5.24	102.91	111.56
2	CCC	1295	SER	O-C-N	5.22	124.69	120.83
5	FFF	273	VAL	N-CA-C	-5.19	108.78	113.71
2	CCC	1048	LYS	CB-CA-C	-5.16	99.35	110.45
2	CCC	189	ASP	CB-CA-C	5.11	116.50	108.63
2	CCC	17	LYS	N-CA-C	-5.06	108.13	114.56
2	CCC	1184	THR	CB-CA-C	5.02	116.87	110.34

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	CCC	1282	GLY	Peptide

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	AAA	1787	0	1813	76	0
1	BBB	1767	0	1789	84	0
2	CCC	10576	0	10591	470	0
3	DDD	10478	0	10691	581	2
4	EEE	627	0	634	22	0
5	FFF	2253	0	2298	120	1
6	111	660	0	362	57	1
7	222	716	0	396	58	1
8	333	77	0	32	7	0
9	333	1	0	0	0	0
9	CCC	1	0	0	0	0
10	CCC	32	0	12	7	0
11	DDD	2	0	0	1	0
All	All	28977	0	28618	1260	3

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 22.

All (1260) 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)
3:DDD:525:MET:O	3:DDD:548:VAL:HG22	1.37	1.23
3:DDD:572:THR:HG21	3:DDD:589:TYR:OH	1.35	1.22
3:DDD:525:MET:N	3:DDD:548:VAL:HG23	1.58	1.18
3:DDD:825:VAL:HG11	3:DDD:1242:ARG:NH1	1.60	1.17
2:CCC:1106:ARG:NH1	10:CCC:1402:GTP:O1G	1.79	1.16
3:DDD:644:MET:O	3:DDD:764:ARG:NH1	1.77	1.15
3:DDD:525:MET:H	3:DDD:548:VAL:HG23	1.08	1.14
3:DDD:525:MET:N	3:DDD:548:VAL:CG2	2.12	1.12
3:DDD:452:LEU:HD21	3:DDD:502:PRO:HG3	1.17	1.12
2:CCC:175:ARG:NH1	6:111:50:DT:H72	1.64	1.11
2:CCC:444:ASP:O	2:CCC:450:ASN:ND2	1.83	1.11
3:DDD:516:ASP:HB3	3:DDD:573:THR:HG21	1.24	1.11
2:CCC:1226:THR:OG1	3:DDD:639:VAL:O	1.69	1.10
1:BBB:176:CYS:HB3	3:DDD:535:ARG:NH2	1.66	1.09
2:CCC:1116:HIS:CD2	3:DDD:641:ILE:HG12	1.85	1.09
2:CCC:175:ARG:CZ	6:111:50:DT:H72	1.83	1.08
3:DDD:641:ILE:O	3:DDD:764:ARG:NH2	1.88	1.07
2:CCC:551:HIS:CE1	2:CCC:552:PRO:HD2	1.90	1.06

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:516:ASP:CB	3:DDD:573:THR:HG21	1.84	1.06
2:CCC:551:HIS:ND1	2:CCC:552:PRO:HD2	1.71	1.04
2:CCC:525:THR:HG21	2:CCC:687:ARG:HD3	1.40	1.03
3:DDD:452:LEU:HD21	3:DDD:502:PRO:CG	1.89	1.02
3:DDD:707:ILE:HD12	3:DDD:716:GLN:NE2	1.75	1.02
3:DDD:888:CYS:SG	11:DDD:1502:ZN:ZN	1.47	1.02
5:FFF:109:TYR:OH	5:FFF:155:GLU:HG3	1.61	1.00
3:DDD:388:ARG:NH2	3:DDD:414:GLU:OE1	1.96	0.99
2:CCC:221:LEU:HD11	2:CCC:314:ASN:HB2	1.44	0.99
2:CCC:196:VAL:HG23	2:CCC:206:ALA:HA	1.45	0.96
3:DDD:525:MET:H	3:DDD:548:VAL:CG2	1.72	0.96
3:DDD:825:VAL:HG11	3:DDD:1242:ARG:HH12	1.28	0.96
3:DDD:759:ILE:HG23	3:DDD:771:GLN:CD	1.89	0.96
2:CCC:901:LEU:HD13	5:FFF:278:PHE:CE2	2.02	0.94
2:CCC:200:ARG:NH1	6:111:50:DT:C7	2.31	0.93
1:AAA:184:ALA:HB2	2:CCC:1091:GLY:HA3	1.49	0.93
2:CCC:200:ARG:NH1	6:111:50:DT:C5	2.37	0.92
7:222:30:DA:H2'	7:222:31:DT:H72	1.50	0.92
2:CCC:1116:HIS:HD2	3:DDD:641:ILE:HG12	1.32	0.91
5:FFF:192:GLU:HG3	5:FFF:193:PRO:HD2	1.52	0.91
1:BBB:152:TYR:CE2	3:DDD:536:LEU:HD21	2.06	0.90
3:DDD:392:THR:HG21	5:FFF:320:GLN:O	1.71	0.90
3:DDD:513:MET:SD	3:DDD:631:TYR:CG	2.65	0.90
5:FFF:109:TYR:OH	5:FFF:155:GLU:CG	2.19	0.90
1:BBB:25:LYS:HG2	1:BBB:204:GLU:HG2	1.54	0.90
5:FFF:163:ARG:NH2	7:222:25:DA:N6	2.19	0.90
2:CCC:251:ALA:CB	2:CCC:263:VAL:HG11	2.02	0.89
3:DDD:452:LEU:CD2	3:DDD:502:PRO:HG3	2.00	0.89
3:DDD:836:ARG:HD3	3:DDD:873:GLU:OE2	1.72	0.89
1:BBB:193:GLU:O	1:BBB:194:GLN:HB2	1.71	0.89
3:DDD:614:LEU:CD2	4:EEE:5:THR:HG21	2.02	0.89
2:CCC:1073:LYS:NZ	8:333:16:G:OP1	2.04	0.89
5:FFF:163:ARG:NH2	7:222:25:DA:C6	2.41	0.89
2:CCC:32:LEU:HA	2:CCC:130:MET:HE1	1.55	0.88
3:DDD:491:LEU:HD11	3:DDD:610:ARG:HH21	1.36	0.88
1:AAA:52:PRO:O	1:AAA:211:ILE:HD11	1.73	0.88
3:DDD:525:MET:C	3:DDD:548:VAL:HG22	1.98	0.88
1:BBB:176:CYS:HB3	3:DDD:535:ARG:HH22	1.39	0.87
5:FFF:163:ARG:HH22	7:222:25:DA:N6	1.71	0.87
2:CCC:201:ARG:HB2	2:CCC:369:MET:HE2	1.57	0.86
1:AAA:86:LYS:HG2	1:AAA:174:ASP:O	1.75	0.86

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:CCC:175:ARG:CZ	6:111:50:DT:C7	2.53	0.86
3:DDD:525:MET:HB2	3:DDD:548:VAL:HG21	1.57	0.85
1:BBB:44:ARG:HH12	3:DDD:538:ARG:HD3	1.42	0.84
3:DDD:742:GLY:O	3:DDD:762:ASN:HB3	1.76	0.84
2:CCC:681:MET:O	2:CCC:685:MET:HG2	1.76	0.84
2:CCC:551:HIS:CG	2:CCC:552:PRO:HD2	2.11	0.84
3:DDD:614:LEU:HD21	4:EEE:5:THR:HG21	1.60	0.84
3:DDD:1132:LYS:HE2	3:DDD:1243:LEU:HD22	1.60	0.83
3:DDD:527:LEU:HB2	3:DDD:550:VAL:HG13	1.61	0.83
3:DDD:850:LYS:HB2	3:DDD:851:PRO:HD2	1.60	0.82
3:DDD:839:VAL:HG13	3:DDD:882:VAL:HG11	1.60	0.82
3:DDD:42:GLU:HG2	5:FFF:166:ARG:HD2	1.61	0.82
5:FFF:273:VAL:HG13	5:FFF:291:VAL:HG11	1.59	0.82
2:CCC:200:ARG:HH12	6:111:50:DT:H73	1.42	0.82
7:222:30:DA:C2'	7:222:31:DT:H72	2.09	0.82
2:CCC:726:TYR:HB3	2:CCC:733:VAL:CG2	2.09	0.82
2:CCC:887:VAL:HB	2:CCC:913:VAL:CG1	2.09	0.82
2:CCC:560:PRO:HB2	3:DDD:776:THR:HG21	1.62	0.81
3:DDD:800:LEU:HD22	3:DDD:1256:ILE:HD13	1.60	0.81
2:CCC:200:ARG:HH12	6:111:50:DT:C7	1.90	0.81
3:DDD:121:PRO:O	3:DDD:122:SER:HB3	1.80	0.81
3:DDD:642:ASP:HA	3:DDD:764:ARG:HH22	1.46	0.81
1:BBB:152:TYR:CZ	3:DDD:536:LEU:HD21	2.15	0.81
2:CCC:200:ARG:NH1	6:111:50:DT:H73	1.96	0.81
2:CCC:255:ILE:HD12	2:CCC:263:VAL:HG21	1.64	0.80
2:CCC:555:TYR:CD1	2:CCC:637:ARG:NH2	2.49	0.80
3:DDD:793:SER:OG	3:DDD:928:THR:OG1	1.96	0.80
1:BBB:44:ARG:HH12	3:DDD:538:ARG:CD	1.95	0.80
3:DDD:673:VAL:CG1	3:DDD:678:ARG:HB2	2.11	0.80
5:FFF:227:GLY:HA2	7:222:19:DA:N1	1.97	0.80
1:AAA:32:GLU:OE2	1:BBB:150:ARG:NH2	2.15	0.80
1:AAA:82:LEU:HD22	1:AAA:173:VAL:HG21	1.64	0.80
2:CCC:448:LEU:HG	2:CCC:553:THR:OG1	1.82	0.80
3:DDD:392:THR:CG2	5:FFF:320:GLN:O	2.30	0.79
7:222:30:DA:H2"	7:222:31:DT:C6	2.17	0.79
1:BBB:58:GLU:OE1	1:BBB:170:ARG:NE	2.14	0.79
3:DDD:22:ILE:HD11	3:DDD:1319:PHE:CE1	2.17	0.79
5:FFF:163:ARG:HG2	5:FFF:167:LEU:HD12	1.65	0.79
5:FFF:226:LEU:O	7:222:20:DG:O6	2.00	0.79
1:AAA:9:LEU:HD21	1:AAA:198:LEU:HD11	1.63	0.78
2:CCC:790:ASP:O	2:CCC:792:GLY:N	2.16	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:707:ILE:CD1	3:DDD:716:GLN:NE2	2.47	0.78
3:DDD:759:ILE:HG23	3:DDD:771:GLN:NE2	1.98	0.78
3:DDD:859:PRO:HG2	3:DDD:862:THR:HG21	1.63	0.78
2:CCC:186:PHE:CE1	2:CCC:196:VAL:HG22	2.17	0.78
2:CCC:1223:ARG:HD3	3:DDD:637:ALA:HA	1.65	0.78
3:DDD:679:TYR:OH	3:DDD:754:ILE:N	2.17	0.78
6:111:32:DA:C2	7:222:32:DA:C4	2.72	0.77
1:BBB:83:LEU:HD21	3:DDD:526:VAL:HB	1.66	0.77
2:CCC:809:GLY:HA3	3:DDD:629:PHE:CE1	2.19	0.77
5:FFF:183:ARG:NH2	7:222:26:DT:OP2	2.17	0.77
3:DDD:865:HIS:CE1	3:DDD:901:ARG:HH22	2.03	0.77
3:DDD:1156:LEU:CD2	3:DDD:1224:ARG:HH21	1.96	0.77
3:DDD:653:ILE:HG12	3:DDD:692:ARG:NH1	1.98	0.77
3:DDD:491:LEU:CD1	3:DDD:610:ARG:NH2	2.47	0.77
2:CCC:165:HIS:CE1	2:CCC:190:PRO:HG3	2.19	0.77
3:DDD:1132:LYS:HE2	3:DDD:1243:LEU:CD2	2.14	0.77
2:CCC:94:ALA:HB2	2:CCC:129:LEU:HD11	1.67	0.76
6:111:53:DG:N2	7:222:11:DA:C2	2.53	0.76
2:CCC:1333:LEU:O	3:DDD:113:HIS:CE1	2.38	0.76
2:CCC:158:ASP:OD2	2:CCC:445:ILE:HD11	1.86	0.76
1:BBB:181:GLU:HG3	3:DDD:531:LYS:HB3	1.67	0.76
2:CCC:237:LEU:HD12	2:CCC:289:VAL:HA	1.65	0.76
3:DDD:134:ASP:CG	3:DDD:159:ILE:HD11	2.11	0.76
2:CCC:936:ARG:CG	2:CCC:937:ASP:H	1.99	0.76
2:CCC:3:TYR:O	2:CCC:8:LYS:HE3	1.83	0.76
3:DDD:825:VAL:CG1	3:DDD:1242:ARG:HH12	1.99	0.76
1:BBB:176:CYS:CB	3:DDD:535:ARG:HH22	1.99	0.75
3:DDD:525:MET:CA	3:DDD:548:VAL:CG2	2.64	0.75
3:DDD:528:THR:O	3:DDD:528:THR:OG1	2.03	0.75
6:111:50:DT:H4'	6:111:50:DT:OP1	1.87	0.75
1:AAA:75:GLN:O	2:CCC:729:ALA:HB2	1.88	0.74
3:DDD:173:GLY:O	3:DDD:175:GLU:N	2.20	0.74
5:FFF:170:HIS:CE1	6:111:32:DA:N7	2.55	0.74
2:CCC:551:HIS:CG	2:CCC:552:PRO:CD	2.70	0.74
2:CCC:551:HIS:ND1	2:CCC:552:PRO:CD	2.49	0.74
7:222:30:DA:H2"	7:222:31:DT:C7	2.17	0.74
3:DDD:836:ARG:CD	3:DDD:873:GLU:OE2	2.35	0.74
3:DDD:1029:THR:HG23	3:DDD:1121:LEU:HG	1.70	0.74
2:CCC:555:TYR:CE1	2:CCC:637:ARG:NH2	2.56	0.74
2:CCC:903:ARG:HE	2:CCC:909:LYS:HG2	1.51	0.74
3:DDD:759:ILE:HD13	3:DDD:771:GLN:HB3	1.68	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:CCC:494:ASN:ND2	7:222:25:DA:OP1	2.19	0.73
2:CCC:1101:LEU:O	3:DDD:731:ARG:HG2	1.88	0.73
3:DDD:491:LEU:CD1	3:DDD:610:ARG:HH21	2.00	0.73
1:BBB:9:LEU:HD21	1:BBB:198:LEU:HD11	1.70	0.73
2:CCC:342:ASP:O	2:CCC:437:ASN:CG	2.31	0.73
3:DDD:452:LEU:CD2	3:DDD:502:PRO:CG	2.62	0.73
3:DDD:895:CYS:SG	3:DDD:898:CYS:HB2	2.27	0.73
3:DDD:518:VAL:HG22	3:DDD:547:ARG:HH22	1.52	0.73
2:CCC:1281:TYR:OH	3:DDD:434:ILE:O	2.06	0.73
2:CCC:1333:LEU:O	3:DDD:113:HIS:HE1	1.72	0.73
2:CCC:373:GLY:HA3	5:FFF:54:VAL:HG22	1.71	0.73
2:CCC:175:ARG:NH1	6:111:50:DT:C7	2.50	0.72
2:CCC:93:SER:OG	2:CCC:126:GLU:OE1	2.06	0.72
1:BBB:44:ARG:NH1	3:DDD:538:ARG:HD3	2.03	0.72
1:BBB:179:PRO:HG3	1:BBB:211:ILE:HD12	1.71	0.72
2:CCC:447:HIS:ND1	2:CCC:553:THR:HG21	2.04	0.72
1:BBB:44:ARG:NH1	3:DDD:538:ARG:CD	2.51	0.72
2:CCC:936:ARG:CG	2:CCC:937:ASP:N	2.52	0.72
3:DDD:491:LEU:HD11	3:DDD:610:ARG:NH2	2.03	0.72
3:DDD:641:ILE:O	3:DDD:764:ARG:CZ	2.37	0.72
2:CCC:529:ARG:NH2	8:333:14:GTP:O2B	2.23	0.72
6:111:31:DT:H2"	6:111:32:DA:OP2	1.87	0.72
1:AAA:182:ARG:NH1	2:CCC:1090:ASN:O	2.22	0.72
2:CCC:10:ARG:NH2	2:CCC:790:ASP:OD1	2.23	0.72
2:CCC:1270:PHE:CE1	2:CCC:1290:MET:HE3	2.26	0.71
3:DDD:513:MET:SD	3:DDD:631:TYR:CB	2.78	0.71
1:BBB:182:ARG:HD3	3:DDD:581:MET:HE1	1.72	0.71
2:CCC:648:ASP:OD1	2:CCC:648:ASP:N	2.21	0.71
2:CCC:700:VAL:O	2:CCC:1069:ARG:NH2	2.18	0.71
2:CCC:163:LYS:HG2	2:CCC:164:THR:N	2.04	0.71
2:CCC:230:PHE:CD1	2:CCC:292:ILE:HD11	2.26	0.71
1:BBB:67:GLU:HB3	1:BBB:171:LEU:HD22	1.73	0.70
2:CCC:525:THR:HG21	2:CCC:687:ARG:CD	2.19	0.70
3:DDD:825:VAL:CG1	3:DDD:1242:ARG:NH1	2.50	0.70
3:DDD:958:ILE:HG23	3:DDD:982:LEU:HD11	1.73	0.70
2:CCC:18:ARG:NH2	2:CCC:620:ASN:O	2.24	0.70
3:DDD:507:VAL:HG21	3:DDD:598:LYS:HB2	1.73	0.70
6:111:49:DG:H4'	6:111:49:DG:OP1	1.91	0.70
2:CCC:1088:ASP:HB3	2:CCC:1090:ASN:H	1.55	0.70
3:DDD:849:LEU:HA	3:DDD:857:LEU:HB3	1.74	0.70
3:DDD:707:ILE:HD12	3:DDD:716:GLN:HE21	1.53	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:CCC:257:ALA:HB3	2:CCC:262:TYR:CE2	2.27	0.70
3:DDD:1257:VAL:HG22	3:DDD:1260:MET:HE3	1.74	0.69
5:FFF:170:HIS:CG	6:111:31:DT:H73	2.27	0.69
7:222:30:DA:C2'	7:222:31:DT:C7	2.70	0.69
2:CCC:1284:ALA:HA	3:DDD:1357:ILE:HD12	1.73	0.69
5:FFF:180:ARG:NH2	7:222:27:DA:H5"	2.07	0.69
3:DDD:362:ARG:N	3:DDD:365:GLN:OE1	2.21	0.69
3:DDD:930:LEU:HD11	3:DDD:1246:VAL:CG2	2.21	0.69
6:111:53:DG:H1'	6:111:54:DA:H5'	1.75	0.69
3:DDD:519:ASN:HA	3:DDD:523:GLU:CD	2.17	0.69
5:FFF:263:LEU:HD13	5:FFF:281:LEU:HD11	1.74	0.69
2:CCC:1291:LEU:HD11	3:DDD:1351:VAL:HG13	1.74	0.69
3:DDD:1156:LEU:HD23	3:DDD:1209:VAL:HA	1.74	0.69
2:CCC:251:ALA:HB2	2:CCC:263:VAL:HG11	1.72	0.69
3:DDD:958:ILE:HG23	3:DDD:982:LEU:CD1	2.23	0.69
2:CCC:663:VAL:O	2:CCC:666:SER:OG	2.10	0.68
3:DDD:518:VAL:HG22	3:DDD:547:ARG:NH2	2.06	0.68
3:DDD:849:LEU:HD11	3:DDD:853:THR:HA	1.76	0.68
1:AAA:211:ILE:CG2	1:AAA:216:ALA:HB2	2.22	0.68
7:222:22:DA:H1'	7:222:23:DT:H5'	1.75	0.68
7:222:32:DA:H2"	7:222:33:DC:C5	2.29	0.68
2:CCC:696:ASP:O	2:CCC:795:ALA:HB1	1.94	0.68
3:DDD:850:LYS:HB2	3:DDD:851:PRO:CD	2.22	0.68
1:AAA:158:ARG:HD2	1:AAA:172:LEU:HD21	1.76	0.68
5:FFF:164:THR:HB	5:FFF:219:ILE:HD12	1.75	0.68
3:DDD:836:ARG:HD2	3:DDD:873:GLU:CD	2.17	0.68
1:BBB:193:GLU:O	1:BBB:194:GLN:CB	2.42	0.68
3:DDD:858:VAL:HG13	3:DDD:868:TRP:CZ3	2.29	0.68
1:AAA:82:LEU:HB3	1:AAA:173:VAL:HG11	1.75	0.68
2:CCC:936:ARG:HG2	2:CCC:937:ASP:N	2.08	0.67
3:DDD:895:CYS:SG	3:DDD:898:CYS:CB	2.82	0.67
3:DDD:1156:LEU:HD21	3:DDD:1224:ARG:HH21	1.57	0.67
3:DDD:58:CYS:SG	3:DDD:60:ARG:HB3	2.34	0.67
1:AAA:158:ARG:HB3	1:AAA:172:LEU:HD21	1.74	0.67
3:DDD:525:MET:C	3:DDD:548:VAL:CG2	2.67	0.67
3:DDD:491:LEU:HD13	3:DDD:610:ARG:NH2	2.10	0.67
2:CCC:43:PRO:O	2:CCC:54:ARG:NH1	2.27	0.67
5:FFF:104:LYS:HE3	6:111:42:DG:OP1	1.94	0.67
2:CCC:1295:SER:OG	3:DDD:346:ARG:O	2.12	0.67
3:DDD:320:ASN:O	3:DDD:321:LYS:HB2	1.95	0.67
3:DDD:475:GLU:O	3:DDD:479:GLU:HG2	1.93	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:222:31:DT:H1'	7:222:32:DA:H5'	1.76	0.67
7:222:30:DA:H2"	7:222:31:DT:C5	2.29	0.67
1:AAA:41:ASN:ND2	2:CCC:1216:ARG:O	2.28	0.67
3:DDD:519:ASN:OD1	3:DDD:520:ALA:N	2.24	0.67
3:DDD:642:ASP:HA	3:DDD:764:ARG:NH2	2.10	0.67
1:BBB:83:LEU:HG	3:DDD:526:VAL:CG1	2.25	0.67
5:FFF:182:ALA:HB1	5:FFF:193:PRO:HG3	1.75	0.67
3:DDD:1257:VAL:HG22	3:DDD:1260:MET:CE	2.26	0.66
2:CCC:736:VAL:O	2:CCC:741:MET:HE3	1.96	0.66
2:CCC:532:ALA:HB1	2:CCC:538:LEU:HD12	1.78	0.66
5:FFF:259:ILE:HG21	5:FFF:280:LEU:HD11	1.78	0.66
2:CCC:936:ARG:HG3	2:CCC:937:ASP:H	1.59	0.66
3:DDD:800:LEU:HD23	3:DDD:1309:ILE:HD11	1.75	0.66
3:DDD:312:ARG:HG2	3:DDD:312:ARG:O	1.96	0.66
3:DDD:653:ILE:HG12	3:DDD:692:ARG:HH12	1.60	0.66
3:DDD:707:ILE:CD1	3:DDD:716:GLN:HE21	2.08	0.66
3:DDD:26:SER:OG	3:DDD:28:ASP:OD1	2.03	0.66
3:DDD:48:THR:O	3:DDD:50:LYS:N	2.27	0.66
3:DDD:320:ASN:O	3:DDD:321:LYS:CB	2.44	0.65
3:DDD:572:THR:OG1	3:DDD:576:ARG:HD2	1.97	0.65
1:AAA:44:ARG:NH2	2:CCC:1083:GLU:O	2.29	0.65
2:CCC:184:LEU:HG	2:CCC:389:PHE:CE2	2.32	0.65
2:CCC:201:ARG:HB2	2:CCC:369:MET:CE	2.26	0.65
2:CCC:244:GLU:HG2	2:CCC:245:ARG:N	2.11	0.65
3:DDD:1330:ARG:NH2	7:222:10:DC:OP1	2.29	0.65
2:CCC:541:GLU:HG3	2:CCC:542:ARG:N	2.12	0.65
3:DDD:139:LEU:HD22	3:DDD:300:GLN:HE22	1.61	0.65
3:DDD:503:SER:HB3	3:DDD:598:LYS:HD2	1.76	0.65
2:CCC:577:VAL:HG23	2:CCC:661:VAL:O	1.96	0.65
2:CCC:804:PHE:O	3:DDD:638:SER:HB2	1.96	0.65
3:DDD:517:CYS:H	3:DDD:545:HIS:HB3	1.60	0.65
2:CCC:1245:ALA:HB2	3:DDD:372:MET:HG3	1.78	0.65
6:111:30:DG:C8	6:111:31:DT:H72	2.31	0.65
3:DDD:97:VAL:HG12	3:DDD:101:ARG:HG3	1.79	0.64
3:DDD:679:TYR:HE1	3:DDD:754:ILE:O	1.80	0.64
3:DDD:792:ASN:N	3:DDD:792:ASN:OD1	2.27	0.64
3:DDD:1023:HIS:O	3:DDD:1024:THR:HB	1.95	0.64
2:CCC:221:LEU:HD11	2:CCC:314:ASN:CB	2.24	0.64
2:CCC:741:MET:HE2	2:CCC:747:GLY:O	1.98	0.64
3:DDD:378:LYS:N	3:DDD:379:PRO:HD2	2.12	0.64
1:AAA:56:VAL:O	1:AAA:175:ALA:HB2	1.98	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:525:MET:CB	3:DDD:548:VAL:HG21	2.28	0.64
3:DDD:1161:GLY:HA3	3:DDD:1179:PRO:HA	1.79	0.64
1:BBB:152:TYR:CE2	3:DDD:536:LEU:CD2	2.81	0.64
6:111:32:DA:C2	7:222:32:DA:N3	2.66	0.64
1:BBB:124:VAL:HG21	1:BBB:210:THR:HG22	1.79	0.64
2:CCC:223:LEU:HD13	2:CCC:426:ILE:HD13	1.79	0.64
3:DDD:647:PRO:HG3	3:DDD:697:MET:HA	1.79	0.64
3:DDD:686:TRP:CD2	3:DDD:758:PRO:HG3	2.33	0.64
5:FFF:170:HIS:CE1	6:111:31:DT:C5	2.86	0.64
3:DDD:516:ASP:HB2	3:DDD:573:THR:HG21	1.75	0.63
3:DDD:839:VAL:HG12	3:DDD:839:VAL:O	1.98	0.63
1:AAA:37:HIS:NE2	1:AAA:187:VAL:HG21	2.13	0.63
2:CCC:1210:ILE:HD12	2:CCC:1227:VAL:HB	1.80	0.63
4:EEE:8:ASP:OD1	4:EEE:8:ASP:N	2.31	0.63
2:CCC:1221:PHE:CE1	3:DDD:633:ALA:O	2.52	0.63
5:FFF:122:GLU:HG2	5:FFF:157:ALA:HB2	1.81	0.63
3:DDD:97:VAL:HG11	3:DDD:101:ARG:HE	1.64	0.63
3:DDD:359:PRO:O	3:DDD:625:MET:CE	2.47	0.63
2:CCC:241:LEU:HD13	2:CCC:285:ILE:HD12	1.81	0.63
3:DDD:839:VAL:CG1	3:DDD:882:VAL:HG11	2.28	0.63
3:DDD:1157:ALA:O	3:DDD:1207:GLY:N	2.28	0.63
3:DDD:679:TYR:HA	3:DDD:756:GLU:OE2	1.99	0.62
3:DDD:743:MET:HG3	3:DDD:760:THR:HA	1.80	0.62
3:DDD:114:ILE:HG12	3:DDD:311:ARG:HD2	1.80	0.62
3:DDD:647:PRO:HG3	3:DDD:697:MET:CA	2.30	0.62
3:DDD:759:ILE:HD13	3:DDD:771:GLN:CB	2.28	0.62
1:AAA:86:LYS:HE2	1:AAA:174:ASP:H	1.63	0.62
1:AAA:209:GLY:O	1:AAA:210:THR:C	2.42	0.62
1:BBB:47:LEU:HD13	1:BBB:205:MET:HE2	1.81	0.62
2:CCC:1221:PHE:HE1	3:DDD:633:ALA:O	1.81	0.62
4:EEE:29:GLN:HB3	4:EEE:35:LYS:HG3	1.81	0.62
2:CCC:289:VAL:HG12	2:CCC:319:LEU:HD23	1.82	0.62
2:CCC:1113:LEU:HG	3:DDD:641:ILE:HD11	1.81	0.62
3:DDD:1309:ILE:HG22	3:DDD:1310:THR:N	2.15	0.62
2:CCC:263:VAL:CG1	2:CCC:269:ILE:HD11	2.30	0.62
2:CCC:414:ILE:HG13	2:CCC:415:GLU:N	2.14	0.62
2:CCC:901:LEU:HD13	5:FFF:278:PHE:CD2	2.33	0.62
2:CCC:1101:LEU:HD13	3:DDD:504:GLN:HA	1.80	0.62
2:CCC:32:LEU:HD23	2:CCC:130:MET:CE	2.29	0.62
2:CCC:157:PHE:O	2:CCC:442:VAL:HG13	1.99	0.62
2:CCC:201:ARG:CB	2:CCC:369:MET:HE2	2.28	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:645:VAL:O	3:DDD:741:ALA:HB1	1.99	0.62
3:DDD:807:LEU:CD2	3:DDD:1255:VAL:HG13	2.29	0.62
1:BBB:86:LYS:CE	1:BBB:173:VAL:HG12	2.30	0.62
2:CCC:804:PHE:O	3:DDD:638:SER:CB	2.47	0.62
3:DDD:22:ILE:CD1	3:DDD:1319:PHE:CE1	2.83	0.62
1:BBB:44:ARG:NH1	3:DDD:538:ARG:HD2	2.15	0.61
2:CCC:524:ILE:O	2:CCC:528:ARG:HG2	1.99	0.61
1:AAA:166:ARG:NH2	2:CCC:863:SER:OG	2.32	0.61
1:BBB:37:HIS:NE2	1:BBB:187:VAL:HG21	2.15	0.61
2:CCC:19:PRO:HA	2:CCC:1156:ARG:HD2	1.81	0.61
2:CCC:3:TYR:O	2:CCC:8:LYS:CE	2.48	0.61
2:CCC:262:TYR:OH	2:CCC:280:ASP:OD2	2.18	0.61
3:DDD:744:ARG:HH21	3:DDD:775:SER:HB2	1.65	0.61
2:CCC:389:PHE:HB3	2:CCC:420:LEU:HD12	1.82	0.61
2:CCC:868:SER:OG	2:CCC:944:ARG:N	2.33	0.61
2:CCC:1129:ASN:HA	2:CCC:1177:ARG:HG3	1.81	0.61
3:DDD:733:SER:H	3:DDD:736:GLN:HG3	1.65	0.61
3:DDD:1338:ALA:HB3	3:DDD:1340:LYS:HG3	1.82	0.61
2:CCC:175:ARG:NE	6:111:50:DT:O4	2.34	0.61
2:CCC:1105:SER:HB3	3:DDD:731:ARG:HG3	1.82	0.61
3:DDD:572:THR:HG21	3:DDD:589:TYR:CZ	2.35	0.61
3:DDD:886:VAL:HG21	3:DDD:1230:THR:HG21	1.81	0.61
3:DDD:1003:LEU:HD23	3:DDD:1018:ALA:HB2	1.83	0.61
3:DDD:975:ILE:HD12	3:DDD:997:VAL:HG11	1.82	0.60
3:DDD:800:LEU:HD22	3:DDD:1256:ILE:CD1	2.31	0.60
6:111:32:DA:C2	7:222:32:DA:C2	2.89	0.60
3:DDD:334:LYS:O	3:DDD:339:ARG:HB2	2.02	0.60
7:222:32:DA:H2"	7:222:33:DC:C6	2.36	0.60
1:BBB:30:PRO:HB2	1:BBB:198:LEU:HD12	1.82	0.60
1:BBB:82:LEU:HD22	1:BBB:173:VAL:HG21	1.83	0.60
2:CCC:263:VAL:HG13	2:CCC:269:ILE:HD11	1.83	0.60
2:CCC:374:GLU:OE1	6:111:44:DG:N2	2.28	0.60
3:DDD:686:TRP:CD1	3:DDD:758:PRO:HD3	2.36	0.60
4:EEE:30:MET:HG2	4:EEE:35:LYS:O	2.01	0.60
2:CCC:1304:MET:CE	3:DDD:472:LEU:HD13	2.31	0.60
3:DDD:395:LYS:HE2	5:FFF:329:LEU:HD22	1.83	0.60
3:DDD:673:VAL:HG11	3:DDD:678:ARG:HB2	1.83	0.60
3:DDD:1169:THR:OG1	3:DDD:1174:ARG:NH2	2.35	0.60
5:FFF:170:HIS:NE2	6:111:31:DT:C6	2.69	0.60
5:FFF:176:ASN:OD1	7:222:26:DT:H73	2.02	0.60
1:AAA:184:ALA:HB2	2:CCC:1091:GLY:CA	2.29	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:1156:LEU:HD21	3:DDD:1224:ARG:NH2	2.16	0.60
1:AAA:57:THR:HG23	1:AAA:158:ARG:CZ	2.32	0.60
2:CCC:548:ARG:HD3	2:CCC:569:ILE:O	2.01	0.60
3:DDD:836:ARG:CD	3:DDD:873:GLU:CD	2.75	0.60
2:CCC:118:LYS:HD3	2:CCC:488:MET:HG2	1.84	0.60
1:AAA:211:ILE:HG21	1:AAA:216:ALA:HB2	1.82	0.59
2:CCC:559:CYS:HB2	2:CCC:662:SER:HB3	1.84	0.59
3:DDD:609:TYR:HA	3:DDD:617:THR:HG21	1.84	0.59
2:CCC:244:GLU:HG2	2:CCC:245:ARG:H	1.67	0.59
5:FFF:61:TYR:CE2	5:FFF:65:ILE:HD11	2.38	0.59
5:FFF:170:HIS:HE1	6:111:32:DA:N7	2.00	0.59
1:AAA:57:THR:HG23	1:AAA:158:ARG:NH2	2.17	0.59
3:DDD:1134:ILE:HD11	3:DDD:1244:GLN:HG3	1.84	0.59
2:CCC:734:ILE:HD11	2:CCC:777:VAL:HG23	1.85	0.59
3:DDD:464:ASP:CG	8:333:16:G:O2'	2.45	0.59
2:CCC:887:VAL:HB	2:CCC:913:VAL:HG12	1.84	0.59
2:CCC:1304:MET:HE1	3:DDD:472:LEU:HD13	1.84	0.59
1:AAA:30:PRO:HB2	1:AAA:198:LEU:HD12	1.84	0.59
1:BBB:47:LEU:HA	1:BBB:51:MET:HG2	1.85	0.59
1:BBB:86:LYS:HE3	1:BBB:173:VAL:HG12	1.83	0.59
3:DDD:1029:THR:CG2	3:DDD:1121:LEU:HG	2.32	0.59
2:CCC:448:LEU:HD11	2:CCC:554:HIS:HA	1.84	0.59
2:CCC:898:GLU:HG3	5:FFF:259:ILE:CD1	2.33	0.59
3:DDD:709:ARG:O	3:DDD:710:ASP:C	2.45	0.59
2:CCC:599:VAL:HG21	2:CCC:623:LEU:HD21	1.85	0.59
3:DDD:817:HIS:HB3	3:DDD:860:ARG:HH21	1.67	0.59
3:DDD:42:GLU:OE2	5:FFF:166:ARG:HD2	2.03	0.59
3:DDD:245:LEU:HD12	3:DDD:246:PRO:HD2	1.84	0.59
3:DDD:614:LEU:HD23	4:EEE:7:GLN:HB2	1.83	0.59
5:FFF:292:GLY:HA2	5:FFF:297:LEU:H	1.67	0.59
2:CCC:1283:ALA:HB1	2:CCC:1286:THR:OG1	2.02	0.58
2:CCC:342:ASP:O	2:CCC:437:ASN:ND2	2.36	0.58
3:DDD:392:THR:HG21	5:FFF:320:GLN:C	2.28	0.58
1:BBB:196:THR:HG21	3:DDD:370:LYS:NZ	2.19	0.58
2:CCC:1214:ASP:OD2	2:CCC:1217:THR:HG23	2.03	0.58
3:DDD:426:ALA:HB1	7:222:14:DC:O2	2.04	0.58
7:222:15:DT:H5"	7:222:15:DT:H6	1.67	0.58
2:CCC:340:ASP:HB3	2:CCC:341:LEU:HG	1.84	0.58
3:DDD:68:TYR:CD2	3:DDD:78:LEU:HD23	2.37	0.58
3:DDD:176:PHE:O	3:DDD:176:PHE:CD2	2.56	0.58
3:DDD:488:ASN:OD1	4:EEE:5:THR:HG23	2.03	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:797:THR:O	3:DDD:801:VAL:HG23	2.04	0.58
3:DDD:803:VAL:CG2	3:DDD:1313:SER:OG	2.52	0.58
1:AAA:145:LYS:HD3	1:AAA:147:GLN:HE21	1.69	0.58
3:DDD:452:LEU:HD22	3:DDD:502:PRO:CD	2.34	0.58
3:DDD:572:THR:CG2	3:DDD:589:TYR:OH	2.30	0.58
3:DDD:385:LEU:CD2	3:DDD:411:ILE:HD13	2.32	0.58
5:FFF:61:TYR:CZ	5:FFF:65:ILE:HD11	2.39	0.58
2:CCC:642:SER:CB	3:DDD:770:LEU:HD21	2.34	0.58
2:CCC:200:ARG:NH1	6:111:50:DT:C4	2.72	0.58
2:CCC:292:ILE:CG2	2:CCC:322:LEU:HD11	2.34	0.58
2:CCC:369:MET:HG3	2:CCC:370:MET:N	2.17	0.58
1:BBB:145:LYS:HD3	1:BBB:147:GLN:HE21	1.67	0.58
2:CCC:734:ILE:CG2	2:CCC:749:ASP:HB2	2.33	0.58
2:CCC:809:GLY:CA	3:DDD:629:PHE:CE1	2.87	0.57
2:CCC:1160:ASP:O	2:CCC:1161:LEU:C	2.47	0.57
3:DDD:1000:GLY:HA2	3:DDD:1028:ILE:HD12	1.85	0.57
3:DDD:1134:ILE:CD1	3:DDD:1244:GLN:HG3	2.33	0.57
7:222:19:DA:H2'	7:222:20:DG:O4'	2.04	0.57
2:CCC:582:ASN:OD1	2:CCC:586:PHE:N	2.36	0.57
2:CCC:666:SER:HA	2:CCC:1186:VAL:HG21	1.86	0.57
3:DDD:514:THR:HB	3:DDD:595:ALA:HA	1.86	0.57
3:DDD:975:ILE:CD1	3:DDD:997:VAL:HG11	2.34	0.57
2:CCC:743:PRO:HA	2:CCC:974:ARG:NH2	2.18	0.57
3:DDD:1282:TYR:CE1	3:DDD:1286:LYS:HD2	2.40	0.57
5:FFF:244:ASN:N	5:FFF:244:ASN:OD1	2.38	0.57
5:FFF:271:ARG:O	5:FFF:271:ARG:HG2	2.04	0.57
3:DDD:68:TYR:C	3:DDD:92:VAL:HG13	2.30	0.57
3:DDD:1042:ASP:OD1	3:DDD:1043:GLY:N	2.37	0.57
1:BBB:152:TYR:HD2	3:DDD:541:LEU:HD13	1.70	0.57
3:DDD:1275:LEU:HG	3:DDD:1276:GLU:H	1.70	0.57
2:CCC:36:GLN:O	2:CCC:40:GLU:HB2	2.04	0.57
3:DDD:385:LEU:HD23	3:DDD:411:ILE:HD13	1.85	0.57
3:DDD:525:MET:O	3:DDD:548:VAL:CG2	2.31	0.57
3:DDD:1110:GLU:O	3:DDD:1113:VAL:HG23	2.03	0.57
2:CCC:32:LEU:CD2	2:CCC:130:MET:HE3	2.35	0.57
2:CCC:244:GLU:O	2:CCC:245:ARG:C	2.47	0.57
2:CCC:257:ALA:O	2:CCC:258:ASN:HB3	2.05	0.57
2:CCC:582:ASN:ND2	2:CCC:586:PHE:HB2	2.19	0.57
3:DDD:510:LEU:HD22	3:DDD:579:LEU:HD11	1.87	0.57
1:AAA:11:PRO:O	1:BBB:230:ALA:HB2	2.05	0.57
2:CCC:49:LEU:CD2	2:CCC:464:PHE:CE2	2.88	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:CCC:448:LEU:HD12	2:CCC:553:THR:C	2.30	0.57
2:CCC:1287:LEU:HD23	3:DDD:1357:ILE:HD11	1.87	0.57
6:111:33:DT:H2"	6:111:34:DG:H5'	1.87	0.57
2:CCC:292:ILE:HB	2:CCC:322:LEU:HD11	1.86	0.57
2:CCC:672:GLU:HG2	2:CCC:1187:PHE:HA	1.86	0.57
2:CCC:1103:VAL:HB	2:CCC:1104:PRO:CD	2.35	0.57
1:AAA:212:ASP:OD1	1:AAA:213:PRO:HD2	2.05	0.56
2:CCC:1161:LEU:HD12	2:CCC:1164:PHE:CD2	2.40	0.56
2:CCC:1276:TRP:CH2	3:DDD:798:ARG:HG3	2.41	0.56
3:DDD:614:LEU:HD21	4:EEE:5:THR:CG2	2.34	0.56
5:FFF:259:ILE:CG2	5:FFF:280:LEU:HD21	2.35	0.56
1:AAA:86:LYS:HE2	1:AAA:174:ASP:N	2.19	0.56
1:BBB:86:LYS:HE2	1:BBB:174:ASP:H	1.70	0.56
1:BBB:135:ASP:OD1	1:BBB:138:ALA:HB2	2.05	0.56
2:CCC:541:GLU:OE1	6:111:51:DC:C4	2.58	0.56
3:DDD:51:PRO:HB3	3:DDD:57:PHE:O	2.05	0.56
3:DDD:609:TYR:HA	3:DDD:617:THR:CG2	2.35	0.56
3:DDD:705:THR:CG2	3:DDD:707:ILE:HG13	2.35	0.56
5:FFF:141:ARG:HB2	6:111:39:DA:OP2	2.05	0.56
6:111:49:DG:H2"	6:111:50:DT:H5"	1.86	0.56
1:BBB:86:LYS:CE	1:BBB:174:ASP:HB2	2.34	0.56
2:CCC:135:THR:HG21	2:CCC:515:MET:HE1	1.88	0.56
3:DDD:705:THR:HG22	3:DDD:707:ILE:HG13	1.88	0.56
3:DDD:1029:THR:HG22	3:DDD:1121:LEU:HD11	1.87	0.56
5:FFF:169:ILE:O	5:FFF:173:LYS:HG2	2.06	0.56
2:CCC:1257:GLN:NE2	3:DDD:341:ASN:O	2.39	0.56
3:DDD:367:GLY:HA3	3:DDD:448:GLN:HB2	1.86	0.56
2:CCC:297:VAL:HG13	2:CCC:317:LEU:HG	1.88	0.56
2:CCC:726:TYR:HB3	2:CCC:733:VAL:HG23	1.86	0.56
2:CCC:150:HIS:CE1	2:CCC:454:ARG:HG3	2.41	0.56
2:CCC:661:VAL:HG13	2:CCC:665:ALA:HB3	1.87	0.56
4:EEE:29:GLN:HE22	4:EEE:64:LEU:HD22	1.70	0.56
1:BBB:83:LEU:HD11	3:DDD:526:VAL:C	2.31	0.56
3:DDD:134:ASP:CB	3:DDD:159:ILE:HD11	2.36	0.56
2:CCC:901:LEU:CD1	5:FFF:278:PHE:CE2	2.86	0.56
2:CCC:1214:ASP:OD1	2:CCC:1214:ASP:C	2.50	0.55
2:CCC:555:TYR:OH	2:CCC:654:ASP:OD2	2.16	0.55
3:DDD:118:LYS:NZ	3:DDD:136:GLU:OE2	2.40	0.55
1:AAA:86:LYS:CE	1:AAA:173:VAL:HG12	2.37	0.55
2:CCC:748:ILE:HD11	2:CCC:970:GLY:HA3	1.89	0.55
3:DDD:112:ALA:H	3:DDD:300:GLN:HE21	1.54	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:552:ILE:CG2	3:DDD:580:TRP:CD1	2.89	0.55
3:DDD:707:ILE:HD12	3:DDD:716:GLN:CD	2.29	0.55
5:FFF:263:LEU:HD13	5:FFF:281:LEU:CD1	2.36	0.55
2:CCC:1291:LEU:HA	3:DDD:345:LYS:HD2	1.89	0.55
10:CCC:1402:GTP:O1A	10:CCC:1402:GTP:O3'	2.23	0.55
1:AAA:32:GLU:CD	1:BBB:150:ARG:HH21	2.10	0.55
2:CCC:253:PHE:CE1	2:CCC:287:VAL:HG12	2.41	0.55
1:BBB:83:LEU:HG	3:DDD:526:VAL:HG11	1.88	0.55
3:DDD:97:VAL:HG11	3:DDD:101:ARG:NE	2.21	0.55
2:CCC:993:PRO:HG2	2:CCC:996:ARG:CZ	2.36	0.55
2:CCC:1101:LEU:HD22	3:DDD:731:ARG:HB2	1.87	0.55
5:FFF:168:PRO:O	5:FFF:172:VAL:HG23	2.07	0.55
5:FFF:109:TYR:CD2	5:FFF:154:ILE:HG21	2.42	0.55
2:CCC:240:GLU:HA	2:CCC:283:LYS:O	2.07	0.55
2:CCC:263:VAL:HG22	2:CCC:269:ILE:HD12	1.87	0.55
2:CCC:344:GLY:HA3	2:CCC:346:TYR:CZ	2.42	0.55
2:CCC:1270:PHE:CE1	2:CCC:1290:MET:CE	2.90	0.55
5:FFF:259:ILE:HG21	5:FFF:280:LEU:HD21	1.89	0.55
7:222:21:DG:H2"	7:222:22:DA:OP2	2.07	0.55
1:BBB:157:THR:HG22	1:BBB:157:THR:O	2.07	0.55
2:CCC:1112:ILE:HG21	3:DDD:640:GLY:O	2.07	0.55
3:DDD:800:LEU:CD2	3:DDD:1309:ILE:HD11	2.36	0.55
5:FFF:298:THR:HG21	5:FFF:301:ARG:HD3	1.89	0.55
2:CCC:799:ASN:C	2:CCC:800:MET:HG2	2.31	0.54
3:DDD:974:VAL:HG11	3:DDD:1028:ILE:HD13	1.89	0.54
5:FFF:158:ILE:HG22	7:222:26:DT:O2	2.07	0.54
2:CCC:1255:THR:HG21	3:DDD:341:ASN:CG	2.32	0.54
1:AAA:135:ASP:OD1	1:AAA:136:GLU:N	2.40	0.54
3:DDD:394:ILE:HD12	5:FFF:254:ASP:CG	2.32	0.54
3:DDD:744:ARG:HD3	3:DDD:767:LEU:HD22	1.89	0.54
3:DDD:755:ILE:HD13	3:DDD:774:ILE:CD1	2.38	0.54
4:EEE:53:GLU:HB3	4:EEE:59:ILE:HG12	1.89	0.54
5:FFF:192:GLU:CG	5:FFF:193:PRO:HD2	2.32	0.54
7:222:16:DC:H42	8:333:14:GTP:HN1	1.52	0.54
1:BBB:182:ARG:HG3	3:DDD:534:GLU:OE2	2.08	0.54
2:CCC:1312:ASN:OD1	2:CCC:1312:ASN:O	2.24	0.54
3:DDD:43:THR:OG1	3:DDD:44:ILE:N	2.35	0.54
3:DDD:516:ASP:HB3	3:DDD:573:THR:CG2	2.17	0.54
3:DDD:518:VAL:HB	3:DDD:707:ILE:HG21	1.88	0.54
3:DDD:513:MET:HG2	3:DDD:544:LEU:HD13	1.89	0.54
3:DDD:807:LEU:HD11	3:DDD:894:VAL:HG13	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:EEE:18:ASP:O	4:EEE:22:VAL:HG23	2.08	0.54
2:CCC:202:ARG:NH2	7:222:7:DC:H5'	2.22	0.54
2:CCC:373:GLY:CA	5:FFF:54:VAL:HG22	2.36	0.54
2:CCC:734:ILE:HD11	2:CCC:777:VAL:CG2	2.37	0.54
2:CCC:866:ASP:OD2	2:CCC:944:ARG:HD3	2.08	0.54
3:DDD:517:CYS:H	3:DDD:545:HIS:CB	2.20	0.54
3:DDD:1134:ILE:HG23	3:DDD:1138:LEU:HG	1.89	0.54
3:DDD:395:LYS:HG2	5:FFF:329:LEU:HD13	1.88	0.54
3:DDD:552:ILE:HG23	3:DDD:580:TRP:CD1	2.43	0.54
5:FFF:178:TYR:CE1	5:FFF:209:VAL:HG22	2.42	0.54
2:CCC:32:LEU:HD23	2:CCC:130:MET:HE3	1.89	0.54
2:CCC:528:ARG:HD2	2:CCC:663:VAL:HG21	1.90	0.54
2:CCC:1312:ASN:OD1	2:CCC:1312:ASN:C	2.51	0.54
10:CCC:1402:GTP:O1A	10:CCC:1402:GTP:C3'	2.55	0.54
3:DDD:1163:VAL:HG13	3:DDD:1176:VAL:O	2.08	0.54
2:CCC:12:ARG:NH2	2:CCC:793:GLU:OE1	2.38	0.54
2:CCC:222:ASP:OD1	2:CCC:227:LYS:HE3	2.08	0.54
3:DDD:452:LEU:CD2	3:DDD:502:PRO:CD	2.86	0.54
3:DDD:63:GLY:O	3:DDD:98:ARG:HD2	2.08	0.54
3:DDD:462:ASP:OD1	8:333:16:G:H4'	2.08	0.54
1:AAA:29:GLU:HB2	1:AAA:30:PRO:HA	1.90	0.53
1:AAA:179:PRO:HG3	1:AAA:211:ILE:HD12	1.88	0.53
2:CCC:1085:MET:HE1	2:CCC:1097:VAL:HG23	1.90	0.53
3:DDD:427:PRO:HG2	3:DDD:429:LEU:HD21	1.89	0.53
5:FFF:175:LEU:O	5:FFF:179:LEU:HG	2.07	0.53
7:222:22:DA:H2"	7:222:23:DT:O5'	2.07	0.53
3:DDD:120:LEU:HA	3:DDD:121:PRO:C	2.32	0.53
3:DDD:353:SER:CB	3:DDD:372:MET:HE1	2.38	0.53
5:FFF:53:ARG:O	5:FFF:55:LEU:HG	2.08	0.53
2:CCC:124:MET:HE2	2:CCC:498:ILE:CD1	2.39	0.53
2:CCC:302:ILE:HG22	2:CCC:309:LEU:HD23	1.90	0.53
2:CCC:369:MET:CG	2:CCC:370:MET:N	2.70	0.53
3:DDD:452:LEU:CD2	3:DDD:502:PRO:N	2.71	0.53
3:DDD:491:LEU:HD13	3:DDD:610:ARG:HH22	1.71	0.53
3:DDD:574:VAL:O	3:DDD:578:ILE:HG13	2.08	0.53
3:DDD:755:ILE:HD13	3:DDD:774:ILE:HD13	1.90	0.53
5:FFF:82:ARG:HG2	5:FFF:87:ASP:HB2	1.89	0.53
3:DDD:609:TYR:CA	3:DDD:617:THR:HG21	2.38	0.53
1:BBB:176:CYS:CB	3:DDD:535:ARG:NH2	2.52	0.53
2:CCC:1294:LYS:HB3	3:DDD:347:VAL:HG13	1.89	0.53
3:DDD:1156:LEU:CD2	3:DDD:1224:ARG:NH2	2.70	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:950:ILE:HD13	3:DDD:995:TYR:HB3	1.91	0.53
3:DDD:1156:LEU:HD21	3:DDD:1209:VAL:HG22	1.90	0.53
2:CCC:1186:VAL:HG12	2:CCC:1187:PHE:CD2	2.42	0.53
3:DDD:1158:GLU:O	3:DDD:1206:ARG:HG2	2.09	0.53
2:CCC:726:TYR:HB3	2:CCC:733:VAL:HG22	1.89	0.53
2:CCC:808:ASN:HD22	2:CCC:808:ASN:N	2.05	0.53
2:CCC:1001:GLY:HA2	2:CCC:1011:LEU:CD2	2.39	0.53
3:DDD:97:VAL:CG1	3:DDD:101:ARG:HG3	2.39	0.53
3:DDD:516:ASP:CB	3:DDD:573:THR:CG2	2.75	0.53
1:AAA:31:LEU:CD1	1:AAA:201:LEU:HB2	2.39	0.53
1:AAA:211:ILE:HG22	1:AAA:216:ALA:HB2	1.90	0.53
1:BBB:179:PRO:HG3	1:BBB:211:ILE:CD1	2.38	0.53
2:CCC:1270:PHE:CZ	2:CCC:1290:MET:HE3	2.44	0.53
3:DDD:487:THR:O	3:DDD:490:ILE:HG13	2.07	0.53
3:DDD:974:VAL:CG1	3:DDD:1028:ILE:HD13	2.38	0.53
7:222:22:DA:H1'	7:222:23:DT:C5'	2.39	0.53
3:DDD:464:ASP:OD1	3:DDD:464:ASP:N	2.42	0.52
3:DDD:709:ARG:O	3:DDD:709:ARG:CG	2.57	0.52
3:DDD:795:TYR:CZ	3:DDD:799:ARG:HD3	2.44	0.52
5:FFF:204:LYS:HB3	5:FFF:205:PRO:CD	2.39	0.52
1:BBB:158:ARG:HD2	1:BBB:172:LEU:HD21	1.92	0.52
1:BBB:176:CYS:HB3	3:DDD:535:ARG:CZ	2.36	0.52
2:CCC:173:ASN:C	2:CCC:173:ASN:OD1	2.51	0.52
3:DDD:46:TYR:HE1	6:111:31:DT:OP1	1.92	0.52
1:BBB:29:GLU:HB2	1:BBB:30:PRO:HA	1.90	0.52
1:BBB:64:VAL:HG13	1:BBB:78:ILE:HD13	1.92	0.52
2:CCC:898:GLU:OE2	5:FFF:259:ILE:HD13	2.09	0.52
2:CCC:1284:ALA:HA	3:DDD:1357:ILE:CD1	2.38	0.52
3:DDD:1156:LEU:HD11	3:DDD:1224:ARG:NH2	2.23	0.52
3:DDD:115:TRP:CZ2	3:DDD:1329:THR:HG22	2.44	0.52
3:DDD:812:ASP:OD1	3:DDD:812:ASP:N	2.40	0.52
3:DDD:1292:LEU:O	3:DDD:1296:GLY:N	2.36	0.52
5:FFF:170:HIS:CG	6:111:31:DT:C7	2.92	0.52
5:FFF:183:ARG:O	5:FFF:187:HIS:ND1	2.43	0.52
2:CCC:551:HIS:CD2	2:CCC:552:PRO:HD2	2.45	0.52
3:DDD:42:GLU:CG	5:FFF:166:ARG:HD2	2.37	0.52
3:DDD:97:VAL:CG1	3:DDD:101:ARG:HE	2.23	0.52
3:DDD:353:SER:HB2	3:DDD:372:MET:HE1	1.92	0.52
3:DDD:518:VAL:HG23	3:DDD:716:GLN:OE1	2.09	0.52
3:DDD:768:ASN:OD1	3:DDD:771:GLN:HG3	2.09	0.52
3:DDD:800:LEU:HD23	3:DDD:1309:ILE:CD1	2.40	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:965:SER:CB	3:DDD:975:ILE:HA	2.39	0.52
2:CCC:277:LEU:HD12	2:CCC:282:VAL:HG21	1.92	0.52
2:CCC:898:GLU:HG3	5:FFF:259:ILE:HD11	1.92	0.52
3:DDD:525:MET:CA	3:DDD:548:VAL:HG21	2.40	0.52
1:AAA:231:PHE:O	1:AAA:235:ARG:OXT	2.27	0.52
1:BBB:86:LYS:HG2	1:BBB:174:ASP:O	2.09	0.52
2:CCC:521:LEU:HD13	2:CCC:667:LEU:HD11	1.91	0.52
3:DDD:111:THR:HG21	3:DDD:303:VAL:HG11	1.91	0.52
3:DDD:452:LEU:HD21	3:DDD:502:PRO:CB	2.39	0.52
2:CCC:720:ARG:HD2	2:CCC:736:VAL:HG21	1.91	0.52
3:DDD:278:ARG:HB3	3:DDD:295:GLU:OE2	2.10	0.52
3:DDD:343:LEU:HD11	3:DDD:1324:SER:HB2	1.91	0.52
5:FFF:218:ARG:NH2	7:222:24:DT:O4	2.43	0.52
2:CCC:739:ASP:OD1	2:CCC:739:ASP:N	2.42	0.52
3:DDD:279:LEU:HD13	3:DDD:295:GLU:HB3	1.91	0.52
5:FFF:66:GLY:HA2	5:FFF:100:ARG:NH2	2.24	0.52
2:CCC:700:VAL:HG13	2:CCC:1117:LEU:HD23	1.91	0.51
3:DDD:97:VAL:CG1	3:DDD:101:ARG:NE	2.73	0.51
1:AAA:47:LEU:HA	1:AAA:51:MET:HG2	1.92	0.51
1:BBB:192:VAL:O	1:BBB:194:GLN:N	2.44	0.51
2:CCC:448:LEU:HD12	2:CCC:553:THR:O	2.10	0.51
3:DDD:476:ALA:HA	3:DDD:479:GLU:HG3	1.92	0.51
1:AAA:44:ARG:NH2	2:CCC:1215:GLY:HA2	2.25	0.51
2:CCC:870:ILE:HG13	2:CCC:944:ARG:HG2	1.92	0.51
2:CCC:1270:PHE:N	3:DDD:345:LYS:O	2.38	0.51
2:CCC:1276:TRP:HH2	3:DDD:798:ARG:HG3	1.74	0.51
5:FFF:102:VAL:HG11	5:FFF:124:ASN:OD1	2.10	0.51
1:BBB:212:ASP:OD1	1:BBB:213:PRO:HD2	2.09	0.51
2:CCC:1083:GLU:H	2:CCC:1083:GLU:CD	2.17	0.51
3:DDD:516:ASP:HA	3:DDD:545:HIS:HB3	1.93	0.51
3:DDD:809:VAL:CG2	3:DDD:915:ILE:HD11	2.40	0.51
7:222:16:DC:H5"	7:222:16:DC:H6	1.75	0.51
7:222:27:DA:H2"	7:222:28:DG:C8	2.46	0.51
3:DDD:335:GLN:O	3:DDD:336:GLY:O	2.28	0.51
3:DDD:517:CYS:N	3:DDD:545:HIS:HB3	2.23	0.51
6:111:37:DA:H4'	6:111:38:DT:OP1	2.08	0.51
1:AAA:86:LYS:HE2	1:AAA:173:VAL:HG12	1.92	0.51
1:AAA:179:PRO:HG3	1:AAA:211:ILE:CD1	2.41	0.51
1:BBB:82:LEU:HD22	1:BBB:173:VAL:CG2	2.41	0.51
1:BBB:205:MET:HE1	1:BBB:217:ILE:HG13	1.92	0.51
2:CCC:1103:VAL:HB	2:CCC:1104:PRO:HD3	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:807:LEU:HD23	3:DDD:1255:VAL:HG13	1.93	0.51
6:111:47:DC:H2"	6:111:48:DA:H5'	1.92	0.51
3:DDD:620:PHE:O	3:DDD:624:ILE:HG13	2.10	0.51
3:DDD:1156:LEU:HD22	3:DDD:1224:ARG:HH21	1.73	0.51
7:222:5:DC:H1'	7:222:6:DG:H5'	1.92	0.51
7:222:30:DA:C2'	7:222:31:DT:C5	2.94	0.51
1:AAA:47:LEU:HD13	1:AAA:183:ILE:HD12	1.93	0.51
2:CCC:590:PRO:HB2	2:CCC:655:VAL:HG21	1.91	0.51
2:CCC:1161:LEU:O	2:CCC:1163:THR:N	2.44	0.51
2:CCC:1285:TYR:CD2	3:DDD:1361:THR:HG21	2.46	0.51
3:DDD:888:CYS:CB	3:DDD:898:CYS:SG	2.99	0.51
3:DDD:886:VAL:HG21	3:DDD:1230:THR:CG2	2.41	0.51
2:CCC:555:TYR:CE1	2:CCC:637:ARG:CZ	2.95	0.50
2:CCC:685:MET:HE2	2:CCC:1235:LEU:CD1	2.41	0.50
2:CCC:685:MET:HE2	2:CCC:1235:LEU:HD11	1.92	0.50
3:DDD:803:VAL:HG23	3:DDD:1313:SER:OG	2.11	0.50
3:DDD:1368:ASP:O	3:DDD:1371:ARG:HG2	2.11	0.50
2:CCC:1081:PRO:HB2	2:CCC:1083:GLU:OE2	2.11	0.50
3:DDD:101:ARG:O	3:DDD:246:PRO:HG3	2.11	0.50
3:DDD:121:PRO:O	3:DDD:122:SER:CB	2.52	0.50
2:CCC:60:GLN:HG2	2:CCC:67:GLU:CB	2.41	0.50
2:CCC:216:THR:HG23	2:CCC:219:GLN:OE1	2.11	0.50
2:CCC:820:GLU:O	2:CCC:824:GLN:HG3	2.11	0.50
2:CCC:1081:PRO:HB2	2:CCC:1083:GLU:CD	2.36	0.50
2:CCC:1223:ARG:HD3	3:DDD:637:ALA:CA	2.38	0.50
2:CCC:1284:ALA:HB3	3:DDD:1361:THR:HB	1.93	0.50
10:CCC:1402:GTP:O1A	10:CCC:1402:GTP:H4'	2.11	0.50
3:DDD:359:PRO:O	3:DDD:625:MET:HE3	2.11	0.50
3:DDD:823:THR:HB	3:DDD:824:PRO:HD2	1.92	0.50
3:DDD:1270:GLY:HA2	3:DDD:1298:VAL:O	2.11	0.50
2:CCC:13:LYS:NZ	2:CCC:1151:LEU:HB3	2.27	0.50
2:CCC:302:ILE:CG2	2:CCC:309:LEU:HD23	2.41	0.50
2:CCC:1028:LYS:O	2:CCC:1032:LYS:HG2	2.11	0.50
1:AAA:195:ARG:HD2	1:AAA:198:LEU:HD23	1.93	0.50
1:BBB:83:LEU:HG	3:DDD:526:VAL:HG12	1.94	0.50
2:CCC:512:SER:O	2:CCC:512:SER:OG	2.30	0.50
2:CCC:1210:ILE:HG22	2:CCC:1211:ARG:N	2.26	0.50
3:DDD:820:ILE:HG13	3:DDD:884:SER:HB3	1.94	0.50
3:DDD:925:GLU:HB3	3:DDD:926:PRO:HD3	1.94	0.50
1:AAA:190:ALA:O	1:AAA:192:VAL:N	2.45	0.50
1:BBB:29:GLU:CB	1:BBB:30:PRO:HA	2.42	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:CCC:799:ASN:HA	2:CCC:1231:TYR:HA	1.93	0.50
3:DDD:1249:ASN:OD1	3:DDD:1250:ASP:N	2.44	0.50
3:DDD:295:GLU:OE1	5:FFF:121:GLU:HG2	2.12	0.50
3:DDD:512:TYR:O	3:DDD:545:HIS:CE1	2.65	0.50
5:FFF:80:ALA:O	5:FFF:84:LEU:HG	2.11	0.50
6:111:47:DC:H5"	6:111:47:DC:H6	1.77	0.50
2:CCC:890:LYS:HD2	2:CCC:914:LYS:HE2	1.94	0.50
5:FFF:144:THR:O	5:FFF:147:THR:OG1	2.29	0.50
2:CCC:151:ARG:CZ	2:CCC:177:ILE:HD11	2.41	0.49
2:CCC:292:ILE:HG21	2:CCC:322:LEU:HD11	1.94	0.49
2:CCC:477:GLU:HG3	2:CCC:478:ARG:N	2.26	0.49
2:CCC:661:VAL:CG1	2:CCC:665:ALA:HB3	2.42	0.49
3:DDD:510:LEU:HD12	3:DDD:601:ILE:CD1	2.42	0.49
1:AAA:11:PRO:O	1:BBB:230:ALA:CB	2.59	0.49
2:CCC:1292:THR:CG2	2:CCC:1293:VAL:N	2.75	0.49
3:DDD:744:ARG:NH2	3:DDD:775:SER:HB2	2.26	0.49
5:FFF:292:GLY:HA2	5:FFF:297:LEU:N	2.27	0.49
2:CCC:677:ASN:OD1	3:DDD:779:ALA:HB1	2.12	0.49
2:CCC:1243:MET:HG3	3:DDD:372:MET:CE	2.42	0.49
3:DDD:848:VAL:HG12	3:DDD:848:VAL:O	2.11	0.49
1:AAA:55:ALA:HB1	1:AAA:175:ALA:HB1	1.93	0.49
1:AAA:135:ASP:OD1	1:AAA:137:ASN:N	2.37	0.49
2:CCC:521:LEU:HD13	2:CCC:667:LEU:CD1	2.43	0.49
2:CCC:661:VAL:HG12	2:CCC:662:SER:O	2.12	0.49
3:DDD:647:PRO:HG3	3:DDD:697:MET:HB2	1.94	0.49
3:DDD:885:VAL:O	3:DDD:1258:ARG:HD2	2.11	0.49
3:DDD:1037:PHE:CZ	3:DDD:1059:LEU:CD1	2.96	0.49
3:DDD:1082:ASP:OD1	3:DDD:1084:GLN:N	2.45	0.49
3:DDD:1111:ASP:OD1	3:DDD:1112:GLY:N	2.45	0.49
2:CCC:66:SER:HB2	2:CCC:479:LEU:HD22	1.94	0.49
2:CCC:1289:GLU:HG3	2:CCC:1315:MET:HE2	1.94	0.49
3:DDD:198:CYS:SG	3:DDD:224:LEU:HB3	2.52	0.49
3:DDD:333:GLY:O	3:DDD:336:GLY:N	2.37	0.49
3:DDD:803:VAL:HG21	3:DDD:1309:ILE:HA	1.94	0.49
3:DDD:1052:GLU:HG2	3:DDD:1053:LEU:H	1.77	0.49
1:BBB:92:VAL:O	1:BBB:148:ARG:NH2	2.46	0.49
2:CCC:89:GLY:HA2	2:CCC:140:GLY:HA3	1.95	0.49
2:CCC:800:MET:HE3	2:CCC:827:ARG:NH1	2.28	0.49
2:CCC:870:ILE:HD12	2:CCC:1050:VAL:HG11	1.94	0.49
2:CCC:1105:SER:CB	3:DDD:731:ARG:HG3	2.43	0.49
2:CCC:1259:LEU:HD11	5:FFF:239:ALA:HB2	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:68:TYR:CE1	3:DDD:93:THR:HA	2.48	0.49
5:FFF:93:ARG:O	5:FFF:97:SER:OG	2.26	0.49
1:AAA:135:ASP:OD1	1:AAA:135:ASP:C	2.56	0.49
2:CCC:344:GLY:HA3	2:CCC:346:TYR:CE2	2.47	0.49
2:CCC:842:ASP:HB3	2:CCC:1047:LEU:HD21	1.95	0.49
3:DDD:399:LYS:HE3	5:FFF:329:LEU:HD21	1.93	0.49
6:111:38:DT:H2"	6:111:39:DA:C8	2.48	0.49
2:CCC:447:HIS:CE1	2:CCC:553:THR:HG21	2.47	0.49
10:CCC:1402:GTP:N2	3:DDD:427:PRO:HD3	2.28	0.49
3:DDD:279:LEU:O	3:DDD:283:LEU:HG	2.12	0.49
2:CCC:1327:LEU:O	2:CCC:1331:ARG:HG3	2.13	0.49
3:DDD:807:LEU:HD22	3:DDD:1255:VAL:HG13	1.95	0.49
3:DDD:1156:LEU:CD1	3:DDD:1224:ARG:NH2	2.76	0.49
5:FFF:192:GLU:HG3	5:FFF:193:PRO:CD	2.34	0.49
1:AAA:86:LYS:HZ1	1:AAA:174:ASP:CG	2.21	0.48
2:CCC:555:TYR:CD1	2:CCC:637:ARG:CZ	2.96	0.48
2:CCC:1077:SER:HA	3:DDD:356:THR:CG2	2.43	0.48
3:DDD:452:LEU:HD22	3:DDD:502:PRO:N	2.28	0.48
2:CCC:550:VAL:HG13	2:CCC:554:HIS:ND1	2.28	0.48
1:AAA:92:VAL:O	1:AAA:148:ARG:NH2	2.46	0.48
1:AAA:195:ARG:HD2	1:AAA:198:LEU:CD2	2.43	0.48
1:BBB:86:LYS:HE2	1:BBB:174:ASP:N	2.29	0.48
2:CCC:448:LEU:HD21	2:CCC:554:HIS:HD2	1.78	0.48
2:CCC:1287:LEU:HD23	3:DDD:1357:ILE:CD1	2.42	0.48
3:DDD:295:GLU:CD	5:FFF:121:GLU:HG2	2.39	0.48
3:DDD:514:THR:HG21	3:DDD:596:LEU:HB2	1.93	0.48
3:DDD:572:THR:OG1	3:DDD:576:ARG:CD	2.61	0.48
3:DDD:622:ASP:HB3	3:DDD:626:TYR:HE2	1.78	0.48
5:FFF:182:ALA:CB	5:FFF:193:PRO:HG3	2.42	0.48
1:AAA:25:LYS:HG2	1:AAA:204:GLU:HG2	1.94	0.48
1:AAA:86:LYS:HD3	1:AAA:174:ASP:HB2	1.95	0.48
1:AAA:222:THR:OG1	1:BBB:233:ASP:HB2	2.14	0.48
4:EEE:13:ILE:HD12	4:EEE:19:LEU:HA	1.94	0.48
2:CCC:550:VAL:O	3:DDD:777:HIS:CE1	2.67	0.48
3:DDD:378:LYS:N	3:DDD:379:PRO:CD	2.77	0.48
3:DDD:421:VAL:CG1	3:DDD:468:VAL:HG13	2.43	0.48
3:DDD:1330:ARG:NH2	7:222:9:DT:O3'	2.47	0.48
5:FFF:144:THR:HG22	6:111:39:DA:C8	2.48	0.48
2:CCC:720:ARG:HD3	2:CCC:736:VAL:HG11	1.96	0.48
3:DDD:44:ILE:HG22	3:DDD:51:PRO:HA	1.95	0.48
3:DDD:478:LEU:HG	4:EEE:47:THR:HG23	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:679:TYR:CE1	3:DDD:754:ILE:O	2.64	0.48
1:BBB:83:LEU:HD11	3:DDD:526:VAL:O	2.14	0.48
2:CCC:228:VAL:HG22	2:CCC:245:ARG:NH1	2.29	0.48
2:CCC:297:VAL:HG22	2:CCC:315:MET:O	2.14	0.48
2:CCC:847:PRO:HB3	2:CCC:1047:LEU:HD11	1.95	0.48
3:DDD:108:ALA:HB3	3:DDD:279:LEU:HD23	1.96	0.48
3:DDD:759:ILE:HG23	3:DDD:771:GLN:CG	2.43	0.48
3:DDD:923:ILE:HD12	3:DDD:1256:ILE:HD12	1.95	0.48
3:DDD:1163:VAL:HG11	3:DDD:1175:LEU:HD11	1.94	0.48
5:FFF:78:TYR:OH	5:FFF:82:ARG:NH1	2.47	0.48
5:FFF:204:LYS:HB3	5:FFF:205:PRO:HD2	1.96	0.48
1:BBB:86:LYS:HE2	1:BBB:174:ASP:HB2	1.94	0.48
2:CCC:453:ILE:HD11	2:CCC:530:ILE:HD13	1.96	0.48
2:CCC:871:VAL:CG2	2:CCC:883:LEU:HA	2.43	0.48
5:FFF:79:PHE:O	5:FFF:90:SER:OG	2.27	0.48
5:FFF:122:GLU:HG2	5:FFF:157:ALA:CB	2.44	0.48
5:FFF:270:GLN:OE1	5:FFF:312:ARG:HD2	2.14	0.48
1:AAA:55:ALA:CB	1:AAA:175:ALA:HB1	2.44	0.48
1:BBB:174:ASP:OD2	3:DDD:525:MET:HE2	2.12	0.48
2:CCC:369:MET:HG2	2:CCC:370:MET:HG2	1.96	0.48
2:CCC:524:ILE:HD12	2:CCC:708:VAL:HG13	1.95	0.48
2:CCC:839:VAL:HG13	2:CCC:1046:VAL:HG13	1.95	0.48
2:CCC:892:GLU:OE2	2:CCC:892:GLU:HA	2.13	0.48
5:FFF:176:ASN:ND2	7:222:27:DA:OP2	2.47	0.48
2:CCC:1293:VAL:HG12	2:CCC:1300:GLY:C	2.39	0.48
2:CCC:550:VAL:HG11	2:CCC:560:PRO:HB3	1.96	0.47
3:DDD:555:TYR:O	3:DDD:586:GLY:HA2	2.14	0.47
3:DDD:649:LYS:O	3:DDD:649:LYS:HG3	2.14	0.47
3:DDD:1029:THR:CG2	3:DDD:1121:LEU:HD11	2.43	0.47
3:DDD:1041:ILE:CG2	3:DDD:1044:GLN:HG3	2.44	0.47
1:AAA:29:GLU:CB	1:AAA:30:PRO:HA	2.43	0.47
1:BBB:86:LYS:HE2	1:BBB:173:VAL:HG12	1.96	0.47
2:CCC:53:PHE:HB3	2:CCC:70:TYR:CD2	2.49	0.47
2:CCC:543:ALA:HB3	2:CCC:548:ARG:HH21	1.78	0.47
2:CCC:797:GLY:O	2:CCC:1231:TYR:OH	2.32	0.47
3:DDD:519:ASN:HA	3:DDD:523:GLU:CG	2.43	0.47
3:DDD:582:ILE:HG23	3:DDD:623:GLN:HB3	1.96	0.47
3:DDD:820:ILE:HG12	3:DDD:1227:HIS:HD2	1.80	0.47
3:DDD:1079:LYS:HE3	3:DDD:1087:ASP:OD1	2.13	0.47
5:FFF:109:TYR:OH	5:FFF:155:GLU:HG2	2.08	0.47
2:CCC:200:ARG:CZ	6:111:50:DT:C4	2.98	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:CCC:1161:LEU:HD12	2:CCC:1164:PHE:CE2	2.50	0.47
3:DDD:516:ASP:OD2	3:DDD:547:ARG:HG2	2.14	0.47
5:FFF:169:ILE:HD13	6:111:33:DT:H72	1.97	0.47
1:AAA:102:LEU:HB2	1:AAA:115:ILE:HG12	1.96	0.47
2:CCC:263:VAL:HG22	2:CCC:269:ILE:CD1	2.44	0.47
2:CCC:448:LEU:CG	2:CCC:553:THR:OG1	2.58	0.47
2:CCC:850:ILE:HG22	2:CCC:850:ILE:O	2.14	0.47
2:CCC:870:ILE:HG21	2:CCC:944:ARG:HE	1.79	0.47
3:DDD:614:LEU:CD2	4:EEE:5:THR:CG2	2.83	0.47
3:DDD:805:GLN:HG2	3:DDD:806:ASP:N	2.28	0.47
3:DDD:1308:GLY:O	3:DDD:1310:THR:N	2.48	0.47
5:FFF:65:ILE:HG12	5:FFF:99:LEU:HD13	1.97	0.47
2:CCC:20:GLN:O	2:CCC:20:GLN:HG3	2.14	0.47
2:CCC:893:THR:O	2:CCC:893:THR:HG22	2.14	0.47
2:CCC:1109:ILE:HG22	2:CCC:1113:LEU:HD12	1.97	0.47
3:DDD:114:ILE:HG23	3:DDD:115:TRP:N	2.28	0.47
3:DDD:161:THR:N	3:DDD:164:GLN:HB2	2.30	0.47
3:DDD:608:CYS:SG	3:DDD:612:LEU:HD12	2.54	0.47
1:BBB:160:HIS:CD2	1:BBB:160:HIS:C	2.93	0.47
2:CCC:473:ARG:O	2:CCC:477:GLU:HB3	2.15	0.47
3:DDD:529:GLY:HA2	3:DDD:551:ARG:O	2.14	0.47
5:FFF:163:ARG:HH11	5:FFF:163:ARG:CG	2.28	0.47
2:CCC:268:ARG:HH21	3:DDD:1048:ARG:CZ	2.27	0.47
2:CCC:459:MET:HE1	2:CCC:511:LEU:HD12	1.97	0.47
2:CCC:1251:TYR:HE2	5:FFF:246:PRO:CD	2.27	0.47
3:DDD:262:THR:O	5:FFF:222:VAL:HG12	2.15	0.47
3:DDD:518:VAL:CG2	3:DDD:547:ARG:NH2	2.77	0.47
3:DDD:705:THR:OG1	3:DDD:718:SER:HA	2.15	0.47
3:DDD:1029:THR:CG2	3:DDD:1121:LEU:CG	2.92	0.47
4:EEE:17:PHE:O	4:EEE:21:LEU:HG	2.14	0.47
2:CCC:985:GLU:HB2	2:CCC:989:LEU:HG	1.96	0.47
2:CCC:1081:PRO:CB	2:CCC:1083:GLU:OE2	2.63	0.47
3:DDD:519:ASN:HA	3:DDD:523:GLU:HB2	1.97	0.47
3:DDD:1174:ARG:O	3:DDD:1176:VAL:HG23	2.15	0.47
6:111:31:DT:C2'	6:111:32:DA:OP2	2.60	0.47
1:AAA:42:ALA:HA	1:BBB:38:THR:HG23	1.96	0.47
3:DDD:519:ASN:HA	3:DDD:523:GLU:OE2	2.14	0.47
1:BBB:64:VAL:CG1	1:BBB:78:ILE:HD13	2.45	0.47
2:CCC:165:HIS:HB3	2:CCC:167:SER:HB3	1.97	0.47
2:CCC:1117:LEU:HD13	2:CCC:1195:ILE:HG12	1.97	0.47
3:DDD:205:LEU:HD22	3:DDD:214:ARG:HG2	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:503:SER:HB3	3:DDD:598:LYS:CD	2.42	0.47
3:DDD:530:PRO:HD3	3:DDD:552:ILE:CD1	2.45	0.47
3:DDD:686:TRP:HB2	3:DDD:746:LEU:HD21	1.96	0.47
3:DDD:839:VAL:HG12	3:DDD:864:LEU:HD12	1.95	0.47
3:DDD:965:SER:HB2	3:DDD:975:ILE:HA	1.97	0.47
2:CCC:44:GLU:HG3	2:CCC:45:GLY:H	1.79	0.46
2:CCC:49:LEU:HD23	2:CCC:464:PHE:CD2	2.50	0.46
2:CCC:1119:MET:HB2	2:CCC:1228:GLY:HA2	1.96	0.46
2:CCC:1214:ASP:OD1	2:CCC:1215:GLY:N	2.48	0.46
3:DDD:506:VAL:HG22	3:DDD:629:PHE:CE1	2.50	0.46
3:DDD:686:TRP:CB	3:DDD:746:LEU:HD21	2.45	0.46
3:DDD:821:MET:HB3	3:DDD:821:MET:HE2	1.66	0.46
3:DDD:1064:SER:HA	3:DDD:1067:ARG:HB3	1.97	0.46
2:CCC:221:LEU:HD21	2:CCC:351:LEU:CD1	2.46	0.46
2:CCC:479:LEU:HD21	2:CCC:492:MET:HE1	1.97	0.46
2:CCC:804:PHE:O	3:DDD:638:SER:HB3	2.14	0.46
3:DDD:209:ASN:HB2	3:DDD:214:ARG:HG3	1.97	0.46
3:DDD:737:ILE:HA	3:DDD:740:LEU:HB2	1.97	0.46
3:DDD:822:MET:HE2	3:DDD:882:VAL:CG2	2.45	0.46
3:DDD:1238:GLN:O	3:DDD:1242:ARG:HB2	2.15	0.46
5:FFF:267:ASN:HB2	5:FFF:270:GLN:HB2	1.96	0.46
2:CCC:15:PHE:O	2:CCC:17:LYS:HE3	2.15	0.46
2:CCC:594:VAL:HG22	2:CCC:599:VAL:HG22	1.96	0.46
2:CCC:673:HIS:ND1	3:DDD:763:PHE:O	2.42	0.46
10:CCC:1402:GTP:O1A	10:CCC:1402:GTP:C4'	2.63	0.46
3:DDD:192:MET:HE2	3:DDD:194:LEU:HD23	1.97	0.46
3:DDD:382:TYR:OH	3:DDD:398:LYS:HG2	2.16	0.46
3:DDD:759:ILE:HG21	3:DDD:767:LEU:HD22	1.97	0.46
3:DDD:1158:GLU:HA	3:DDD:1223:LEU:HD22	1.97	0.46
2:CCC:93:SER:OG	2:CCC:126:GLU:HB3	2.15	0.46
2:CCC:598:VAL:HG13	2:CCC:627:GLY:HA2	1.96	0.46
2:CCC:615:VAL:HA	2:CCC:638:SER:HB3	1.98	0.46
2:CCC:1087:TYR:HD2	2:CCC:1091:GLY:HA2	1.80	0.46
3:DDD:784:ALA:O	3:DDD:788:LEU:HG	2.15	0.46
1:AAA:86:LYS:CE	1:AAA:174:ASP:HB2	2.46	0.46
1:BBB:67:GLU:CB	1:BBB:171:LEU:HD22	2.43	0.46
1:BBB:163:GLU:O	1:BBB:163:GLU:HG3	2.15	0.46
2:CCC:263:VAL:HG12	2:CCC:264:GLU:O	2.15	0.46
2:CCC:551:HIS:CE1	2:CCC:553:THR:HG23	2.51	0.46
3:DDD:115:TRP:O	3:DDD:119:SER:HB3	2.16	0.46
3:DDD:151:MET:SD	3:DDD:151:MET:N	2.89	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:1060:VAL:HG22	3:DDD:1106:ILE:HG12	1.97	0.46
5:FFF:178:TYR:HE1	5:FFF:209:VAL:HG22	1.81	0.46
2:CCC:569:ILE:O	2:CCC:569:ILE:HG23	2.15	0.46
2:CCC:1099:ASN:OD1	2:CCC:1100:PRO:HD2	2.15	0.46
3:DDD:58:CYS:SG	3:DDD:60:ARG:N	2.89	0.46
3:DDD:644:MET:HB2	3:DDD:764:ARG:HD2	1.98	0.46
3:DDD:803:VAL:HG22	3:DDD:1313:SER:OG	2.16	0.46
3:DDD:846:GLU:OE2	3:DDD:881:LYS:NZ	2.43	0.46
3:DDD:1262:ARG:CZ	3:DDD:1316:THR:HG22	2.46	0.46
5:FFF:170:HIS:CD2	5:FFF:170:HIS:H	2.32	0.46
5:FFF:287:THR:O	5:FFF:291:VAL:HG23	2.15	0.46
2:CCC:150:HIS:CE1	2:CCC:452:ARG:HD3	2.51	0.46
2:CCC:292:ILE:CB	2:CCC:322:LEU:HD11	2.45	0.46
3:DDD:161:THR:H	3:DDD:164:GLN:HB2	1.80	0.46
3:DDD:174:ASP:N	3:DDD:174:ASP:OD1	2.49	0.46
3:DDD:197:GLU:OE1	3:DDD:220:ARG:NH2	2.48	0.46
3:DDD:347:VAL:HG12	3:DDD:348:ASP:O	2.16	0.46
2:CCC:1296:ASP:CB	2:CCC:1321:GLU:H	2.28	0.46
3:DDD:768:ASN:OD1	3:DDD:771:GLN:CG	2.64	0.46
2:CCC:155:VAL:CG2	2:CCC:405:PHE:CD2	2.99	0.46
3:DDD:647:PRO:HG3	3:DDD:697:MET:CB	2.46	0.46
3:DDD:795:TYR:CE2	3:DDD:799:ARG:NE	2.83	0.46
3:DDD:822:MET:HE1	3:DDD:842:ARG:HD3	1.96	0.46
2:CCC:366:ILE:O	2:CCC:369:MET:HG2	2.16	0.46
2:CCC:448:LEU:HD21	2:CCC:554:HIS:CD2	2.50	0.46
2:CCC:516:ASP:O	2:CCC:522:SER:OG	2.24	0.46
3:DDD:584:PRO:HD3	3:DDD:620:PHE:CD1	2.51	0.46
2:CCC:592:ARG:NH1	2:CCC:653:MET:HE1	2.31	0.45
2:CCC:720:ARG:HB2	2:CCC:749:ASP:OD2	2.17	0.45
2:CCC:975:ILE:HG23	2:CCC:1011:LEU:CD1	2.46	0.45
2:CCC:1296:ASP:HB3	2:CCC:1321:GLU:H	1.81	0.45
3:DDD:513:MET:SD	3:DDD:631:TYR:CD1	3.08	0.45
2:CCC:205:PRO:O	2:CCC:208:ILE:HG22	2.17	0.45
2:CCC:1030:GLU:HG3	2:CCC:1034:ARG:CZ	2.46	0.45
2:CCC:1088:ASP:HB3	2:CCC:1090:ASN:N	2.27	0.45
3:DDD:570:LYS:HE3	3:DDD:589:TYR:HB3	1.99	0.45
3:DDD:654:ILE:O	3:DDD:658:GLU:HB2	2.16	0.45
3:DDD:819:GLY:HA3	3:DDD:881:LYS:HG2	1.97	0.45
7:222:20:DG:H2"	7:222:21:DG:H5'	1.97	0.45
1:AAA:22:THR:OG1	1:AAA:207:THR:O	2.19	0.45
3:DDD:1029:THR:HG22	3:DDD:1121:LEU:CD1	2.46	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:111:56:DG:C2	7:222:8:DG:C2	3.04	0.45
2:CCC:1116:HIS:HD2	3:DDD:641:ILE:CG1	2.14	0.45
5:FFF:170:HIS:CD2	6:111:31:DT:C6	3.04	0.45
7:222:25:DA:H2"	7:222:26:DT:H5"	1.97	0.45
2:CCC:49:LEU:HD22	2:CCC:464:PHE:CE2	2.51	0.45
2:CCC:903:ARG:HH21	2:CCC:909:LYS:HD3	1.82	0.45
2:CCC:1251:TYR:HE2	5:FFF:246:PRO:HD3	1.81	0.45
3:DDD:528:THR:HG23	3:DDD:532:GLU:OE1	2.16	0.45
2:CCC:297:VAL:HG13	2:CCC:317:LEU:CG	2.47	0.45
2:CCC:848:GLU:OE1	2:CCC:886:LYS:HD3	2.17	0.45
3:DDD:733:SER:O	3:DDD:737:ILE:HD12	2.16	0.45
3:DDD:825:VAL:HG12	3:DDD:832:LYS:HB3	1.98	0.45
1:AAA:44:ARG:HH21	2:CCC:1215:GLY:HA2	1.82	0.45
2:CCC:206:ALA:O	2:CCC:209:ILE:HG22	2.17	0.45
2:CCC:409:LEU:HD13	2:CCC:427:ASP:HB3	1.99	0.45
2:CCC:978:VAL:O	2:CCC:981:ALA:HB3	2.17	0.45
3:DDD:930:LEU:HD11	3:DDD:1246:VAL:HG21	1.96	0.45
3:DDD:1186:TYR:CZ	3:DDD:1188:GLU:OE2	2.70	0.45
6:111:30:DG:C5	6:111:31:DT:C4	3.05	0.45
2:CCC:448:LEU:CD1	2:CCC:553:THR:C	2.90	0.45
2:CCC:668:ILE:HG12	2:CCC:1069:ARG:O	2.17	0.45
2:CCC:801:ARG:HG3	2:CCC:1229:TYR:CE1	2.52	0.45
2:CCC:801:ARG:HG3	2:CCC:1229:TYR:CZ	2.51	0.45
2:CCC:1107:MET:HE1	3:DDD:739:GLN:HB2	1.99	0.45
3:DDD:305:ALA:CB	3:DDD:316:ILE:HD12	2.46	0.45
3:DDD:359:PRO:CB	3:DDD:629:PHE:CE2	3.00	0.45
3:DDD:809:VAL:HG22	3:DDD:915:ILE:HD11	1.98	0.45
2:CCC:255:ILE:HG23	2:CCC:285:ILE:HD13	1.99	0.45
2:CCC:560:PRO:O	3:DDD:780:ARG:NH2	2.50	0.45
2:CCC:681:MET:HE2	2:CCC:1073:LYS:HZ1	1.82	0.45
2:CCC:857:VAL:HG11	2:CCC:862:LEU:HD21	1.98	0.45
2:CCC:1296:ASP:O	2:CCC:1297:ASP:C	2.59	0.45
2:CCC:1325:VAL:HG11	3:DDD:337:ARG:HE	1.82	0.45
3:DDD:1106:ILE:HG22	3:DDD:1106:ILE:O	2.16	0.45
5:FFF:176:ASN:HD22	7:222:27:DA:P	2.38	0.45
6:111:49:DG:C8	6:111:49:DG:H5"	2.52	0.45
1:AAA:47:LEU:HD13	1:AAA:205:MET:HE2	1.99	0.45
2:CCC:800:MET:SD	2:CCC:828:PHE:HE2	2.39	0.45
3:DDD:342:LEU:HD22	3:DDD:1352:ILE:O	2.16	0.45
3:DDD:647:PRO:CG	3:DDD:697:MET:HB2	2.46	0.45
3:DDD:744:ARG:HH21	3:DDD:775:SER:CB	2.29	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:747:MET:HE2	3:DDD:747:MET:HB3	1.85	0.45
3:DDD:816:THR:HG22	3:DDD:818:GLU:H	1.81	0.45
3:DDD:960:LEU:HB3	3:DDD:963:VAL:HG11	1.99	0.45
3:DDD:978:ARG:NH1	3:DDD:1025:MET:CE	2.80	0.45
5:FFF:78:TYR:C	5:FFF:78:TYR:CD2	2.95	0.45
5:FFF:138:ARG:HG2	5:FFF:140:PHE:HD2	1.82	0.45
2:CCC:496:LYS:HB3	7:222:24:DT:OP1	2.17	0.44
2:CCC:1321:GLU:O	2:CCC:1325:VAL:HG23	2.17	0.44
3:DDD:780:ARG:HE	3:DDD:780:ARG:HB2	1.59	0.44
4:EEE:60:ASN:HB3	4:EEE:63:ILE:HD12	1.99	0.44
2:CCC:720:ARG:HB3	2:CCC:736:VAL:HG13	1.98	0.44
2:CCC:898:GLU:OE1	2:CCC:898:GLU:N	2.49	0.44
2:CCC:944:ARG:O	2:CCC:947:GLU:HG2	2.18	0.44
3:DDD:510:LEU:HD12	3:DDD:601:ILE:HD11	2.00	0.44
3:DDD:552:ILE:CG2	3:DDD:580:TRP:NE1	2.80	0.44
3:DDD:1263:LYS:CG	3:DDD:1307:LEU:HD11	2.47	0.44
3:DDD:1357:ILE:H	3:DDD:1357:ILE:HG13	1.50	0.44
1:BBB:165:GLU:O	1:BBB:165:GLU:HG3	2.15	0.44
2:CCC:196:VAL:CG2	2:CCC:206:ALA:HA	2.32	0.44
2:CCC:478:ARG:NH1	2:CCC:491:ASP:O	2.51	0.44
2:CCC:871:VAL:HG23	2:CCC:883:LEU:HA	2.00	0.44
3:DDD:667:GLN:O	3:DDD:670:SER:OG	2.24	0.44
3:DDD:795:TYR:CE2	3:DDD:799:ARG:CZ	3.00	0.44
3:DDD:886:VAL:CG1	3:DDD:1226:VAL:CG1	2.95	0.44
3:DDD:1330:ARG:NH2	7:222:10:DC:P	2.90	0.44
1:BBB:31:LEU:CD1	1:BBB:201:LEU:HB2	2.47	0.44
2:CCC:156:PHE:HE1	2:CCC:450:ASN:HB3	1.82	0.44
2:CCC:444:ASP:HB3	2:CCC:447:HIS:HB2	1.99	0.44
2:CCC:670:PHE:CD2	2:CCC:1113:LEU:HB3	2.52	0.44
3:DDD:260:PHE:O	5:FFF:219:ILE:HG23	2.16	0.44
3:DDD:423:LEU:HB3	3:DDD:466:MET:CE	2.47	0.44
3:DDD:452:LEU:CD2	3:DDD:502:PRO:CA	2.95	0.44
3:DDD:1196:LEU:HD22	3:DDD:1210:ILE:HG22	1.99	0.44
2:CCC:104:ILE:HD13	2:CCC:484:LEU:HB3	2.00	0.44
2:CCC:1131:MET:HG2	2:CCC:1136:GLN:OE1	2.18	0.44
2:CCC:1274:GLU:HG2	3:DDD:424:ASN:ND2	2.32	0.44
3:DDD:518:VAL:O	3:DDD:520:ALA:N	2.50	0.44
3:DDD:518:VAL:CB	3:DDD:707:ILE:HG21	2.47	0.44
3:DDD:849:LEU:HB3	3:DDD:857:LEU:H	1.83	0.44
3:DDD:872:LEU:CD2	3:DDD:877:VAL:HG21	2.47	0.44
3:DDD:1082:ASP:OD1	3:DDD:1082:ASP:C	2.59	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:CCC:676:ALA:HA	3:DDD:772:TYR:OH	2.17	0.44
2:CCC:901:LEU:CD1	5:FFF:310:LEU:HD21	2.48	0.44
3:DDD:290:ILE:H	3:DDD:290:ILE:HD12	1.82	0.44
3:DDD:925:GLU:OE1	3:DDD:926:PRO:N	2.50	0.44
2:CCC:90:VAL:HG12	2:CCC:91:THR:N	2.32	0.44
2:CCC:599:VAL:HG21	2:CCC:623:LEU:CD2	2.47	0.44
2:CCC:816:ILE:HD11	2:CCC:1074:GLY:HA3	1.99	0.44
3:DDD:161:THR:N	3:DDD:164:GLN:OE1	2.44	0.44
3:DDD:248:ASP:OD1	3:DDD:248:ASP:N	2.49	0.44
3:DDD:377:PHE:O	3:DDD:381:ILE:HG13	2.18	0.44
3:DDD:702:GLN:HG3	3:DDD:723:TYR:OH	2.17	0.44
5:FFF:87:ASP:OD1	5:FFF:88:VAL:N	2.50	0.44
5:FFF:170:HIS:NE2	6:111:31:DT:C5	2.85	0.44
1:AAA:91:ARG:HG3	1:AAA:210:THR:HA	2.00	0.44
3:DDD:130:MET:HE2	3:DDD:135:ILE:HG13	2.00	0.44
3:DDD:744:ARG:HD3	3:DDD:767:LEU:CD2	2.47	0.44
3:DDD:949:SER:HB3	3:DDD:1019:ASN:HD22	1.83	0.44
2:CCC:496:LYS:N	2:CCC:497:PRO:CD	2.80	0.44
2:CCC:854:ILE:HD11	2:CCC:885:GLY:HA3	1.99	0.44
3:DDD:387:LEU:HD12	3:DDD:387:LEU:HA	1.93	0.44
3:DDD:925:GLU:HB3	3:DDD:926:PRO:CD	2.48	0.44
1:AAA:86:LYS:HE3	1:AAA:173:VAL:HG12	1.99	0.43
2:CCC:189:ASP:OD1	2:CCC:190:PRO:N	2.51	0.43
2:CCC:540:ARG:NH1	2:CCC:540:ARG:HB2	2.33	0.43
2:CCC:868:SER:OG	2:CCC:944:ARG:CB	2.66	0.43
2:CCC:887:VAL:HB	2:CCC:913:VAL:HG11	1.96	0.43
2:CCC:901:LEU:HD11	5:FFF:310:LEU:HD21	2.00	0.43
2:CCC:906:PHE:C	2:CCC:908:GLU:H	2.26	0.43
3:DDD:664:ILE:HG21	3:DDD:681:LYS:HD3	2.00	0.43
1:BBB:65:LEU:O	1:BBB:169:GLY:HA2	2.18	0.43
2:CCC:60:GLN:HG2	2:CCC:67:GLU:HB2	2.01	0.43
2:CCC:277:LEU:CD1	2:CCC:282:VAL:HG21	2.47	0.43
2:CCC:751:TYR:CD2	2:CCC:751:TYR:N	2.86	0.43
3:DDD:464:ASP:OD2	8:333:16:G:O2'	2.36	0.43
3:DDD:517:CYS:SG	3:DDD:518:VAL:N	2.91	0.43
5:FFF:190:ASP:OD1	5:FFF:191:HIS:N	2.51	0.43
6:111:34:DG:C2	7:222:30:DA:C2	3.06	0.43
7:222:22:DA:H2"	7:222:23:DT:C5'	2.48	0.43
2:CCC:202:ARG:NH1	7:222:7:DC:OP1	2.51	0.43
2:CCC:208:ILE:HD11	2:CCC:365:GLU:HB3	2.00	0.43
2:CCC:560:PRO:CB	3:DDD:776:THR:HG21	2.43	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:CCC:734:ILE:HG22	2:CCC:749:ASP:HB2	2.00	0.43
2:CCC:1281:TYR:OH	3:DDD:431:ARG:O	2.36	0.43
3:DDD:262:THR:C	5:FFF:222:VAL:HG12	2.43	0.43
3:DDD:332:LYS:O	3:DDD:333:GLY:O	2.37	0.43
2:CCC:518:ASN:OD1	2:CCC:1236:ASN:ND2	2.51	0.43
2:CCC:963:GLU:O	2:CCC:967:LEU:HB2	2.18	0.43
2:CCC:1077:SER:HA	3:DDD:356:THR:HG21	2.00	0.43
2:CCC:1128:ILE:HD11	2:CCC:1145:ILE:HG12	2.00	0.43
3:DDD:119:SER:O	3:DDD:122:SER:N	2.51	0.43
7:222:31:DT:C2	7:222:32:DA:C8	3.06	0.43
1:AAA:64:VAL:CG1	1:AAA:78:ILE:HD13	2.49	0.43
2:CCC:618:GLN:HE22	3:DDD:769:VAL:HB	1.83	0.43
2:CCC:1230:MET:SD	2:CCC:1232:MET:HE3	2.59	0.43
3:DDD:832:LYS:HG3	3:DDD:1242:ARG:HD3	2.01	0.43
1:AAA:159:ILE:O	1:AAA:159:ILE:HG23	2.17	0.43
2:CCC:57:PHE:CE1	2:CCC:59:ILE:HD12	2.53	0.43
2:CCC:838:CYS:SG	2:CCC:886:LYS:HE2	2.59	0.43
2:CCC:1101:LEU:HD13	3:DDD:504:GLN:OE1	2.18	0.43
2:CCC:1129:ASN:CA	2:CCC:1177:ARG:HG3	2.49	0.43
2:CCC:1212:LEU:HD23	2:CCC:1212:LEU:HA	1.86	0.43
3:DDD:360:TYR:OH	3:DDD:448:GLN:OE1	2.29	0.43
3:DDD:452:LEU:HB3	3:DDD:500:ILE:HG23	2.00	0.43
1:BBB:195:ARG:HD2	1:BBB:198:LEU:CD2	2.49	0.43
2:CCC:189:ASP:OD1	2:CCC:189:ASP:C	2.61	0.43
2:CCC:245:ARG:O	2:CCC:246:LEU:C	2.62	0.43
3:DDD:45:ASN:HB2	3:DDD:52:GLU:OE1	2.19	0.43
3:DDD:740:LEU:O	3:DDD:764:ARG:HB2	2.18	0.43
4:EEE:39:VAL:HG13	4:EEE:40:PRO:HD2	2.01	0.43
1:AAA:86:LYS:NZ	1:AAA:174:ASP:CG	2.76	0.43
2:CCC:155:VAL:HG23	2:CCC:405:PHE:CD2	2.53	0.43
2:CCC:292:ILE:HG21	2:CCC:322:LEU:HD21	2.00	0.43
2:CCC:840:SER:HB3	2:CCC:850:ILE:HD11	2.01	0.43
2:CCC:1296:ASP:OD2	2:CCC:1322:SER:OG	2.31	0.43
3:DDD:234:PRO:O	3:DDD:237:MET:HG3	2.19	0.43
3:DDD:705:THR:HB	3:DDD:716:GLN:O	2.18	0.43
3:DDD:1100:PHE:CZ	3:DDD:1192:LYS:HE2	2.53	0.43
5:FFF:208:ASP:O	5:FFF:212:MET:HG2	2.18	0.43
1:BBB:47:LEU:HD13	1:BBB:183:ILE:HD12	2.01	0.43
2:CCC:726:TYR:CZ	2:CCC:728:ASP:HB2	2.54	0.43
2:CCC:1291:LEU:CD1	3:DDD:1351:VAL:HG13	2.46	0.43
3:DDD:359:PRO:HB3	3:DDD:629:PHE:CZ	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:555:TYR:O	3:DDD:586:GLY:CA	2.67	0.43
3:DDD:665:GLN:O	3:DDD:668:PHE:HB3	2.19	0.43
3:DDD:783:LEU:HD12	3:DDD:783:LEU:HA	1.77	0.43
2:CCC:980:VAL:O	2:CCC:981:ALA:C	2.61	0.43
3:DDD:1041:ILE:HG21	3:DDD:1044:GLN:HG3	2.01	0.43
4:EEE:41:GLU:O	4:EEE:44:ASP:HB2	2.19	0.43
1:BBB:78:ILE:HA	1:BBB:81:ILE:HD12	2.00	0.42
1:BBB:205:MET:HE1	1:BBB:217:ILE:CG1	2.49	0.42
2:CCC:561:ILE:HG21	3:DDD:772:TYR:HE2	1.83	0.42
3:DDD:127:LEU:HD23	3:DDD:127:LEU:HA	1.86	0.42
3:DDD:380:PHE:HB3	3:DDD:415:VAL:HG11	2.01	0.42
5:FFF:241:GLU:C	5:FFF:243:GLU:N	2.77	0.42
7:222:7:DC:H1'	7:222:8:DG:H5'	2.00	0.42
2:CCC:106:GLU:OE1	2:CCC:109:ALA:HB3	2.18	0.42
3:DDD:1029:THR:CG2	3:DDD:1121:LEU:CD1	2.97	0.42
7:222:16:DC:N4	8:333:14:GTP:HN1	2.17	0.42
1:AAA:78:ILE:HA	1:AAA:81:ILE:HD12	2.01	0.42
2:CCC:1290:MET:SD	3:DDD:347:VAL:HG11	2.58	0.42
3:DDD:503:SER:HA	3:DDD:507:VAL:CG2	2.49	0.42
5:FFF:68:SER:HB2	5:FFF:69:PRO:HD2	2.01	0.42
2:CCC:257:ALA:O	2:CCC:258:ASN:CB	2.67	0.42
2:CCC:685:MET:HE2	2:CCC:685:MET:HB3	1.86	0.42
2:CCC:1085:MET:HE3	2:CCC:1085:MET:HB3	1.92	0.42
2:CCC:1262:LYS:N	7:222:17:DG:OP1	2.53	0.42
3:DDD:288:PRO:HG3	5:FFF:92:ARG:HG2	2.01	0.42
3:DDD:395:LYS:HD2	5:FFF:251:GLN:CD	2.44	0.42
3:DDD:664:ILE:HD13	3:DDD:681:LYS:HG2	2.01	0.42
1:AAA:41:ASN:ND2	2:CCC:1216:ARG:C	2.77	0.42
1:BBB:61:ILE:HG12	1:BBB:142:MET:HB3	2.01	0.42
2:CCC:582:ASN:OD1	2:CCC:585:GLY:N	2.51	0.42
2:CCC:1304:MET:HE1	3:DDD:472:LEU:CD1	2.50	0.42
3:DDD:58:CYS:SG	3:DDD:61:ILE:N	2.92	0.42
3:DDD:71:LEU:HB2	3:DDD:90:VAL:HG21	2.00	0.42
3:DDD:614:LEU:CG	4:EEE:5:THR:HG21	2.49	0.42
3:DDD:708:ASN:HA	3:DDD:713:GLU:HA	2.01	0.42
3:DDD:709:ARG:N	3:DDD:712:GLN:O	2.53	0.42
3:DDD:747:MET:SD	3:DDD:759:ILE:HD12	2.60	0.42
4:EEE:8:ASP:HB2	4:EEE:55:GLU:CG	2.49	0.42
5:FFF:163:ARG:CG	5:FFF:163:ARG:NH1	2.83	0.42
6:111:47:DC:C2'	6:111:48:DA:H5'	2.49	0.42
2:CCC:118:LYS:NZ	2:CCC:485:ASP:O	2.33	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:CCC:453:ILE:CD1	2:CCC:530:ILE:HD13	2.50	0.42
2:CCC:818:VAL:HG12	2:CCC:1096:ILE:HG12	2.01	0.42
3:DDD:889:ASP:OD1	3:DDD:1290:ARG:NH2	2.53	0.42
5:FFF:225:PRO:HA	5:FFF:233:ALA:HA	2.02	0.42
2:CCC:102:LEU:HD23	2:CCC:118:LYS:HD2	2.01	0.42
2:CCC:206:ALA:HB1	2:CCC:429:MET:HE3	2.01	0.42
2:CCC:207:THR:CG2	2:CCC:354:ASP:HB2	2.49	0.42
2:CCC:1160:ASP:O	2:CCC:1161:LEU:O	2.37	0.42
3:DDD:423:LEU:HB3	3:DDD:466:MET:HE2	2.00	0.42
3:DDD:709:ARG:O	3:DDD:709:ARG:HG3	2.20	0.42
3:DDD:1146:GLU:OE2	3:DDD:1309:ILE:CG2	2.67	0.42
1:AAA:45:ARG:NH1	2:CCC:1216:ARG:HA	2.34	0.42
1:AAA:50:SER:O	1:AAA:150:ARG:HD2	2.20	0.42
2:CCC:175:ARG:HD3	6:111:50:DT:H73	2.02	0.42
2:CCC:1192:GLU:HG3	3:DDD:641:ILE:HG21	2.02	0.42
6:111:49:DG:H2"	6:111:50:DT:C5'	2.50	0.42
1:AAA:12:ARG:HA	1:BBB:230:ALA:HB1	2.01	0.42
1:AAA:61:ILE:HG12	1:AAA:142:MET:HB3	2.02	0.42
2:CCC:576:SER:OG	2:CCC:577:VAL:N	2.52	0.42
2:CCC:800:MET:O	2:CCC:1229:TYR:HA	2.20	0.42
2:CCC:1119:MET:SD	2:CCC:1210:ILE:HD11	2.60	0.42
2:CCC:1329:GLU:OE2	3:DDD:330:MET:HE2	2.19	0.42
3:DDD:353:SER:HB3	3:DDD:372:MET:HE1	2.02	0.42
3:DDD:579:LEU:HB3	3:DDD:592:VAL:HG21	2.02	0.42
3:DDD:625:MET:HG2	3:DDD:629:PHE:CE2	2.54	0.42
3:DDD:825:VAL:HG12	3:DDD:825:VAL:O	2.19	0.42
2:CCC:242:VAL:HA	2:CCC:243:PRO:HD2	1.83	0.42
2:CCC:357:ASN:OD1	2:CCC:357:ASN:C	2.63	0.42
2:CCC:400:VAL:HG22	2:CCC:584:TYR:HB3	2.02	0.42
2:CCC:998:LEU:H	2:CCC:998:LEU:HG	1.67	0.42
2:CCC:1285:TYR:HD2	3:DDD:1361:THR:HG21	1.83	0.42
3:DDD:384:LYS:NZ	4:EEE:45:LYS:NZ	2.67	0.42
3:DDD:731:ARG:HA	3:DDD:731:ARG:HD3	1.84	0.42
3:DDD:1157:ALA:HB3	3:DDD:1208:ASP:H	1.84	0.42
3:DDD:1307:LEU:HB2	3:DDD:1312:ALA:HB2	2.01	0.42
4:EEE:66:VAL:HG12	4:EEE:70:GLN:NE2	2.35	0.42
6:111:46:DG:H4'	6:111:46:DG:OP2	2.19	0.42
1:AAA:30:PRO:HB2	1:AAA:198:LEU:CD1	2.49	0.41
2:CCC:684:ASN:CG	2:CCC:687:ARG:HH21	2.25	0.41
3:DDD:570:LYS:HE3	3:DDD:589:TYR:CD2	2.54	0.41
3:DDD:810:THR:OG1	3:DDD:893:GLY:HA3	2.19	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:CCC:277:LEU:HD12	2:CCC:277:LEU:HA	1.82	0.41
3:DDD:622:ASP:O	3:DDD:626:TYR:CD2	2.73	0.41
6:111:46:DG:O4'	6:111:46:DG:P	2.78	0.41
7:222:32:DA:C2'	7:222:33:DC:C5	3.02	0.41
2:CCC:216:THR:N	2:CCC:219:GLN:OE1	2.40	0.41
2:CCC:759:SER:OG	2:CCC:760:ASN:N	2.52	0.41
3:DDD:425:ARG:HD3	3:DDD:457:TYR:O	2.19	0.41
3:DDD:843:VAL:CG2	3:DDD:897:HIS:O	2.69	0.41
3:DDD:1031:VAL:HG11	3:DDD:1089:LEU:O	2.20	0.41
5:FFF:318:GLN:HA	5:FFF:323:ASN:HB2	2.02	0.41
1:AAA:233:ASP:O	1:AAA:235:ARG:N	2.53	0.41
2:CCC:16:GLY:C	2:CCC:17:LYS:HG3	2.45	0.41
2:CCC:832:HIS:CD2	2:CCC:1058:ARG:HD2	2.55	0.41
2:CCC:1247:SER:HB3	3:DDD:375:GLU:O	2.19	0.41
3:DDD:62:PHE:CD1	3:DDD:247:PRO:HD3	2.56	0.41
6:111:32:DA:N3	7:222:32:DA:C2	2.88	0.41
3:DDD:641:ILE:HD13	3:DDD:641:ILE:HA	1.78	0.41
3:DDD:930:LEU:CD1	3:DDD:1246:VAL:HG21	2.50	0.41
3:DDD:1040:MET:HE1	3:DDD:1078:LEU:HD21	2.02	0.41
5:FFF:266:LEU:HD21	5:FFF:316:ILE:HD12	2.02	0.41
1:BBB:102:LEU:HB2	1:BBB:115:ILE:HG12	2.02	0.41
2:CCC:119:GLU:O	2:CCC:119:GLU:HG3	2.20	0.41
2:CCC:989:LEU:HD22	2:CCC:1000:LEU:CD2	2.50	0.41
2:CCC:1109:ILE:HD13	2:CCC:1109:ILE:HA	1.91	0.41
3:DDD:110:PRO:O	3:DDD:182:ALA:HB3	2.20	0.41
2:CCC:1061:GLN:NE2	2:CCC:1240:ASP:OD1	2.53	0.41
2:CCC:1286:THR:O	2:CCC:1289:GLU:HB2	2.21	0.41
3:DDD:686:TRP:NE1	3:DDD:758:PRO:HD3	2.36	0.41
2:CCC:403:MET:HE3	2:CCC:404:LYS:N	2.36	0.41
2:CCC:871:VAL:HG23	2:CCC:883:LEU:O	2.20	0.41
2:CCC:1289:GLU:CG	2:CCC:1315:MET:HE2	2.50	0.41
3:DDD:113:HIS:CD2	3:DDD:115:TRP:HB2	2.56	0.41
3:DDD:799:ARG:HB3	3:DDD:1309:ILE:CG2	2.50	0.41
3:DDD:802:ASP:OD1	3:DDD:1348:LYS:HE3	2.21	0.41
5:FFF:98:ASN:HA	6:111:41:DT:O2	2.20	0.41
1:BBB:154:PRO:HD2	1:BBB:157:THR:HB	2.03	0.41
2:CCC:967:LEU:HD12	2:CCC:967:LEU:HA	1.83	0.41
2:CCC:1107:MET:HE2	2:CCC:1107:MET:HB3	1.96	0.41
2:CCC:1262:LYS:HG2	2:CCC:1263:ALA:N	2.36	0.41
2:CCC:1280:ALA:C	2:CCC:1281:TYR:O	2.64	0.41
3:DDD:513:MET:SD	3:DDD:631:TYR:HB2	2.59	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:622:ASP:HB3	3:DDD:626:TYR:CE2	2.55	0.41
3:DDD:809:VAL:CG2	3:DDD:915:ILE:CD1	2.98	0.41
3:DDD:1168:GLU:OE2	3:DDD:1173:ARG:NH1	2.54	0.41
5:FFF:100:ARG:NH1	6:111:42:DG:H5'	2.35	0.41
6:111:59:DG:O6	7:222:3:DT:C4	2.73	0.41
7:222:30:DA:C2'	7:222:31:DT:C6	2.97	0.41
2:CCC:149:LEU:HB2	2:CCC:530:ILE:CG2	2.50	0.41
2:CCC:160:ASP:HB3	2:CCC:163:LYS:HD3	2.02	0.41
2:CCC:1105:SER:HB2	10:CCC:1402:GTP:O2G	2.21	0.41
3:DDD:955:LYS:HG2	3:DDD:1011:VAL:O	2.21	0.41
3:DDD:1054:THR:OG1	3:DDD:1055:GLY:N	2.55	0.41
5:FFF:176:ASN:ND2	7:222:27:DA:P	2.94	0.41
5:FFF:313:LEU:HA	5:FFF:316:ILE:HD12	2.03	0.41
2:CCC:750:ILE:HG23	2:CCC:750:ILE:O	2.21	0.40
2:CCC:1134:GLN:O	2:CCC:1136:GLN:N	2.53	0.40
2:CCC:1328:LYS:HA	2:CCC:1328:LYS:HD3	1.90	0.40
3:DDD:530:PRO:HD3	3:DDD:552:ILE:HD13	2.03	0.40
3:DDD:886:VAL:HG12	3:DDD:1226:VAL:CG1	2.51	0.40
3:DDD:1169:THR:HB	3:DDD:1172:LYS:HB2	2.03	0.40
3:DDD:1180:VAL:HG23	3:DDD:1181:ASP:H	1.86	0.40
2:CCC:93:SER:HG	2:CCC:126:GLU:HB3	1.86	0.40
3:DDD:427:PRO:CG	3:DDD:429:LEU:HD21	2.51	0.40
3:DDD:513:MET:SD	3:DDD:631:TYR:CD2	3.13	0.40
3:DDD:1047:THR:HB	3:DDD:1062:LEU:HD11	2.02	0.40
5:FFF:104:LYS:HE2	6:111:43:DT:OP1	2.21	0.40
1:BBB:117:HIS:CD2	1:BBB:117:HIS:C	3.00	0.40
2:CCC:144:VAL:HB	2:CCC:526:HIS:CE1	2.57	0.40
2:CCC:152:SER:HA	2:CCC:153:PRO:HD3	1.67	0.40
2:CCC:160:ASP:OD1	2:CCC:160:ASP:N	2.55	0.40
2:CCC:479:LEU:HD23	2:CCC:479:LEU:HA	1.94	0.40
2:CCC:1234:LYS:HE3	2:CCC:1238:LEU:HD22	2.03	0.40
3:DDD:577:ALA:O	3:DDD:580:TRP:HB3	2.22	0.40
3:DDD:599:LYS:H	3:DDD:599:LYS:HG3	1.55	0.40
3:DDD:1090:ILE:O	3:DDD:1091:PRO:C	2.64	0.40
1:AAA:64:VAL:HG13	1:AAA:78:ILE:HD13	2.03	0.40
1:AAA:228:LEU:HD11	1:BBB:224:LEU:HG	2.02	0.40
1:BBB:101:THR:HG22	1:BBB:143:ARG:HG2	2.02	0.40
1:BBB:157:THR:O	1:BBB:157:THR:CG2	2.68	0.40
2:CCC:21:VAL:HG21	2:CCC:592:ARG:CZ	2.52	0.40
2:CCC:76:GLY:O	2:CCC:94:ALA:HB1	2.21	0.40
2:CCC:823:VAL:HG22	2:CCC:1060:ILE:CG2	2.51	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:CCC:1196:LYS:NZ	3:DDD:642:ASP:OD1	2.49	0.40
3:DDD:749:LYS:HB3	3:DDD:750:PRO:HD2	2.03	0.40
5:FFF:127:LEU:HD23	5:FFF:127:LEU:HA	1.83	0.40
2:CCC:237:LEU:HD11	2:CCC:292:ILE:HD12	2.04	0.40
2:CCC:1293:VAL:O	2:CCC:1301:ARG:HB3	2.22	0.40
3:DDD:58:CYS:SG	3:DDD:61:ILE:HG13	2.62	0.40
3:DDD:134:ASP:CG	3:DDD:159:ILE:CD1	2.91	0.40
3:DDD:490:ILE:HG12	3:DDD:500:ILE:HD12	2.03	0.40
3:DDD:625:MET:HE2	3:DDD:625:MET:HB3	1.87	0.40
3:DDD:770:LEU:HD12	3:DDD:770:LEU:HA	1.96	0.40
3:DDD:925:GLU:C	3:DDD:925:GLU:CD	2.90	0.40
3:DDD:1370:MET:O	3:DDD:1373:ARG:HB2	2.22	0.40

All (3) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:DDD:1174:ARG:NH2	7:222:32:DA:OP1[3_644]	1.88	0.32
3:DDD:210:SER:OG	6:111:28:DA:OP2[3_644]	1.89	0.31
5:FFF:67:TYR:O	5:FFF:299:ARG:NH2[3_644]	2.06	0.14

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	AAA	228/242 (94%)	211 (92%)	11 (5%)	6 (3%)	4 28
1	BBB	226/242 (93%)	207 (92%)	14 (6%)	5 (2%)	5 31
2	CCC	1339/1342 (100%)	1244 (93%)	68 (5%)	27 (2%)	6 32
3	DDD	1346/1407 (96%)	1231 (92%)	90 (7%)	25 (2%)	6 33
4	EEE	77/90 (86%)	73 (95%)	4 (5%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
5	FFF	275/336 (82%)	251 (91%)	20 (7%)	4 (2%)	8 37
All	All	3491/3659 (95%)	3217 (92%)	207 (6%)	67 (2%)	6 33

All (67) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	BBB	117	HIS
1	BBB	193	GLU
1	BBB	194	GLN
2	CCC	46	GLN
2	CCC	247	ARG
2	CCC	791	LEU
2	CCC	1162	SER
2	CCC	1281	TYR
3	DDD	53	ARG
3	DDD	336	GLY
3	DDD	519	ASN
1	AAA	168	ILE
1	AAA	191	ARG
1	AAA	234	LEU
1	BBB	119	GLY
2	CCC	258	ASN
2	CCC	625	GLU
2	CCC	730	SER
2	CCC	756	TYR
2	CCC	1161	LEU
3	DDD	122	SER
3	DDD	174	ASP
3	DDD	321	LYS
3	DDD	847	ASP
3	DDD	861	ASN
3	DDD	1053	LEU
3	DDD	1309	ILE
5	FFF	227	GLY
5	FFF	228	GLY
1	BBB	232	VAL
2	CCC	455	SER
2	CCC	981	ALA
2	CCC	1103	VAL
2	CCC	1135	GLN
3	DDD	635	SER
3	DDD	854	ALA

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Mol	Chain	Res	Type
3	DDD	1024	THR
3	DDD	1200	GLU
2	CCC	45	GLY
2	CCC	163	LYS
2	CCC	234	ASP
2	CCC	246	LEU
2	CCC	341	LEU
2	CCC	669	PRO
2	CCC	729	ALA
2	CCC	867	GLU
2	CCC	1004	ASP
2	CCC	1297	ASP
5	FFF	113	GLY
1	AAA	161	SER
1	AAA	210	THR
1	AAA	233	ASP
2	CCC	986	ALA
3	DDD	1091	PRO
3	DDD	1103	GLY
3	DDD	1132	LYS
3	DDD	1170	LYS
3	DDD	825	VAL
3	DDD	846	GLU
3	DDD	860	ARG
3	DDD	986	ASP
3	DDD	333	GLY
3	DDD	829	GLY
2	CCC	983	GLY
3	DDD	859	PRO
5	FFF	295	ILE
2	CCC	744	GLY

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.

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	AAA	198/208 (95%)	178 (90%)	20 (10%)	7 27
1	BBB	196/208 (94%)	182 (93%)	14 (7%)	13 40
2	CCC	1156/1157 (100%)	1067 (92%)	89 (8%)	12 37
3	DDD	1127/1168 (96%)	1051 (93%)	76 (7%)	15 41
4	EEE	67/74 (90%)	64 (96%)	3 (4%)	24 49
5	FFF	240/292 (82%)	226 (94%)	14 (6%)	18 44
All	All	2984/3107 (96%)	2768 (93%)	216 (7%)	13 39

All (216) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	AAA	18	GLN
1	AAA	28	LEU
1	AAA	70	THR
1	AAA	77	ASP
1	AAA	131	CYS
1	AAA	135	ASP
1	AAA	137	ASN
1	AAA	157	THR
1	AAA	159	ILE
1	AAA	160	HIS
1	AAA	166	ARG
1	AAA	173	VAL
1	AAA	176	CYS
1	AAA	187	VAL
1	AAA	191	ARG
1	AAA	194	GLN
1	AAA	198	LEU
1	AAA	208	ASN
1	AAA	233	ASP
1	AAA	235	ARG
1	BBB	28	LEU
1	BBB	33	ARG
1	BBB	70	THR
1	BBB	77	ASP
1	BBB	105	SER
1	BBB	131	CYS
1	BBB	137	ASN

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Mol	Chain	Res	Type
1	BBB	159	ILE
1	BBB	173	VAL
1	BBB	176	CYS
1	BBB	187	VAL
1	BBB	191	ARG
1	BBB	194	GLN
1	BBB	198	LEU
2	CCC	23	ASP
2	CCC	30	ILE
2	CCC	46	GLN
2	CCC	69	GLN
2	CCC	85	CYS
2	CCC	115	LYS
2	CCC	126	GLU
2	CCC	160	ASP
2	CCC	166	SER
2	CCC	167	SER
2	CCC	173	ASN
2	CCC	184	LEU
2	CCC	185	ASP
2	CCC	189	ASP
2	CCC	200	ARG
2	CCC	209	ILE
2	CCC	234	ASP
2	CCC	241	LEU
2	CCC	244	GLU
2	CCC	256	GLU
2	CCC	264	GLU
2	CCC	275	ARG
2	CCC	290	GLU
2	CCC	304	GLU
2	CCC	316	GLU
2	CCC	332	ARG
2	CCC	335	THR
2	CCC	382	GLU
2	CCC	393	ASP
2	CCC	398	SER
2	CCC	403	MET
2	CCC	404	LYS
2	CCC	413	GLU
2	CCC	470	ARG
2	CCC	472	GLU

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Mol	Chain	Res	Type
2	CCC	477	GLU
2	CCC	502	VAL
2	CCC	525	THR
2	CCC	529	ARG
2	CCC	539	THR
2	CCC	574	SER
2	CCC	576	SER
2	CCC	592	ARG
2	CCC	601	ASP
2	CCC	618	GLN
2	CCC	620	ASN
2	CCC	635	THR
2	CCC	648	ASP
2	CCC	678	ARG
2	CCC	685	MET
2	CCC	694	ARG
2	CCC	730	SER
2	CCC	739	ASP
2	CCC	757	THR
2	CCC	758	ARG
2	CCC	759	SER
2	CCC	777	VAL
2	CCC	788	SER
2	CCC	789	THR
2	CCC	799	ASN
2	CCC	800	MET
2	CCC	801	ARG
2	CCC	802	VAL
2	CCC	808	ASN
2	CCC	815	SER
2	CCC	817	LEU
2	CCC	831	ILE
2	CCC	866	ASP
2	CCC	876	GLU
2	CCC	935	THR
2	CCC	942	ASP
2	CCC	995	ASP
2	CCC	998	LEU
2	CCC	1073	LYS
2	CCC	1088	ASP
2	CCC	1113	LEU
2	CCC	1143	GLU

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Mol	Chain	Res	Type
2	CCC	1150	ASP
2	CCC	1154	ASP
2	CCC	1174	GLU
2	CCC	1223	ARG
2	CCC	1248	THR
2	CCC	1262	LYS
2	CCC	1269	ARG
2	CCC	1286	THR
2	CCC	1292	THR
2	CCC	1293	VAL
2	CCC	1296	ASP
2	CCC	1319	MET
3	DDD	34	SER
3	DDD	52	GLU
3	DDD	60	ARG
3	DDD	67	ASP
3	DDD	70	CYS
3	DDD	116	PHE
3	DDD	120	LEU
3	DDD	132	LEU
3	DDD	143	SER
3	DDD	167	ASP
3	DDD	176	PHE
3	DDD	210	SER
3	DDD	223	LEU
3	DDD	234	PRO
3	DDD	237	MET
3	DDD	256	ASP
3	DDD	319	SER
3	DDD	337	ARG
3	DDD	339	ARG
3	DDD	345	LYS
3	DDD	443	GLU
3	DDD	464	ASP
3	DDD	479	GLU
3	DDD	515	ARG
3	DDD	543	SER
3	DDD	548	VAL
3	DDD	579	LEU
3	DDD	590	SER
3	DDD	591	ILE
3	DDD	599	LYS

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Mol	Chain	Res	Type
3	DDD	604	MET
3	DDD	610	ARG
3	DDD	619	ILE
3	DDD	627	THR
3	DDD	639	VAL
3	DDD	648	GLU
3	DDD	704	GLU
3	DDD	708	ASN
3	DDD	715	LYS
3	DDD	717	VAL
3	DDD	736	GLN
3	DDD	747	MET
3	DDD	751	ASP
3	DDD	769	VAL
3	DDD	786	THR
3	DDD	790	THR
3	DDD	792	ASN
3	DDD	793	SER
3	DDD	812	ASP
3	DDD	830	ASP
3	DDD	835	LEU
3	DDD	848	VAL
3	DDD	849	LEU
3	DDD	859	PRO
3	DDD	861	ASN
3	DDD	889	ASP
3	DDD	911	LYS
3	DDD	957	SER
3	DDD	961	SER
3	DDD	969	SER
3	DDD	970	SER
3	DDD	1021	ASP
3	DDD	1023	HIS
3	DDD	1025	MET
3	DDD	1032	SER
3	DDD	1051	ASP
3	DDD	1058	SER
3	DDD	1064	SER
3	DDD	1073	ASP
3	DDD	1159	ILE
3	DDD	1160	SER
3	DDD	1200	GLU

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Mol	Chain	Res	Type
3	DDD	1283	SER
3	DDD	1303	SER
3	DDD	1330	ARG
3	DDD	1345	ARG
4	EEE	8	ASP
4	EEE	46	THR
4	EEE	55	GLU
5	FFF	107	ARG
5	FFF	109	TYR
5	FFF	122	GLU
5	FFF	127	LEU
5	FFF	156	ARG
5	FFF	163	ARG
5	FFF	166	ARG
5	FFF	229	ASP
5	FFF	244	ASN
5	FFF	254	ASP
5	FFF	271	ARG
5	FFF	290	ASP
5	FFF	299	ARG
5	FFF	325	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
8	333	1/3 (33%)	1 (100%)	0

All (1) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
8	333	16	G

There are no RNA pucker outliers to report.

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)

Of 5 ligands modelled in this entry, 4 are monoatomic - leaving 1 for Mogul analysis.

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	$\#\|Z\| > 2$
10	GTP	CCC	1402	9	33,34,34	1.19	3 (9%)	50,54,54	1.79	13 (26%)

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
10	GTP	CCC	1402	9	-	3/22/38/38	0/3/3/3

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	CCC	1402	GTP	PB-O3B	3.30	1.63	1.59
10	CCC	1402	GTP	C4-N9	-2.82	1.30	1.38
10	CCC	1402	GTP	C5-C4	2.71	1.46	1.38

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
10	CCC	1402	GTP	C6-C5-N7	4.59	138.64	130.29
10	CCC	1402	GTP	C2-N3-C4	4.08	119.32	112.30
10	CCC	1402	GTP	C8-N9-C4	3.34	112.30	106.03
10	CCC	1402	GTP	C5-C4-N3	-3.28	123.16	128.39
10	CCC	1402	GTP	C6-C5-C4	-3.19	114.04	118.83
10	CCC	1402	GTP	N9-C4-N3	3.07	132.09	125.95

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
10	CCC	1402	GTP	N9-C8-N7	-2.76	108.28	113.40
10	CCC	1402	GTP	N2-C2-N1	2.76	122.58	116.76
10	CCC	1402	GTP	O6-C6-C5	-2.75	119.27	126.53
10	CCC	1402	GTP	C1'-N9-C4	-2.58	118.87	126.49
10	CCC	1402	GTP	N2-C2-N3	-2.49	114.81	119.67
10	CCC	1402	GTP	C4-C5-N7	-2.11	107.32	110.67
10	CCC	1402	GTP	O2A-PA-O3A	2.05	112.82	107.27

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
10	CCC	1402	GTP	C5'-O5'-PA-O3A
10	CCC	1402	GTP	C5'-O5'-PA-O2A
10	CCC	1402	GTP	C4'-C5'-O5'-PA

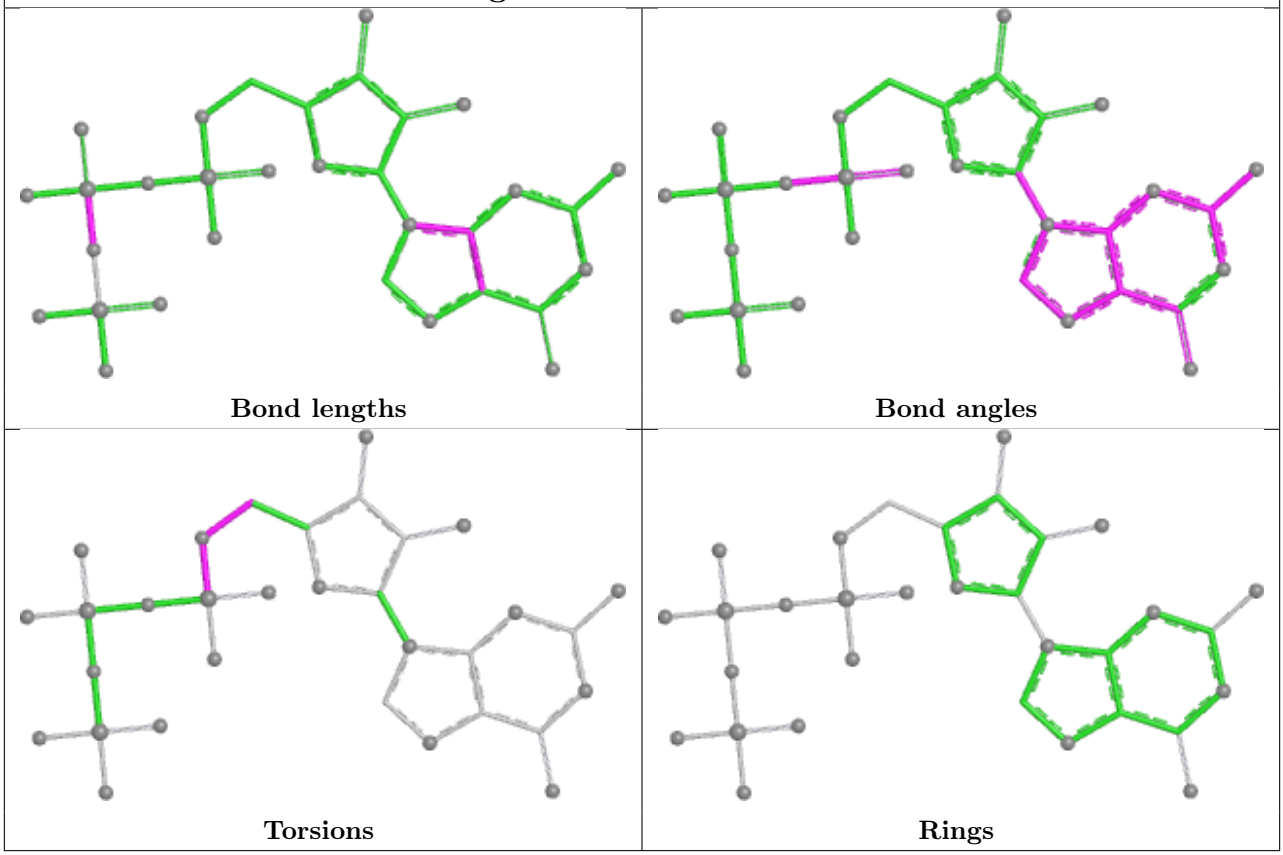
There are no ring outliers.

1 monomer is involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
10	CCC	1402	GTP	7	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 GTP CCC 1402



5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	AAA	230/242 (95%)	-0.96	0 100 100	226, 314, 364, 413	0
1	BBB	228/242 (94%)	-0.85	0 100 100	225, 304, 376, 418	0
2	CCC	1341/1342 (99%)	-0.96	1 (0%) 92 87	142, 264, 377, 490	0
3	DDD	1350/1407 (95%)	-0.94	2 (0%) 92 87	159, 274, 397, 472	0
4	EEE	79/90 (87%)	-1.05	0 100 100	206, 300, 449, 524	0
5	FFF	277/336 (82%)	-0.94	0 100 100	207, 306, 397, 435	0
6	111	32/50 (64%)	-0.88	0 100 100	241, 310, 392, 431	0
7	222	35/50 (70%)	-0.75	0 100 100	224, 303, 435, 475	0
8	333	2/3 (66%)	-1.49	0 100 100	261, 261, 261, 291	0
All	All	3574/3762 (95%)	-0.94	3 (0%) 92 87	142, 283, 392, 524	0

All (3) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	DDD	1332	LEU	2.3
2	CCC	127	ILE	2.2
3	DDD	1145	PHE	2.1

6.2 Non-standard residues in protein, DNA, RNA chains

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

6.3 Carbohydrates

There are no oligosaccharides in this entry.

6.4 Ligands

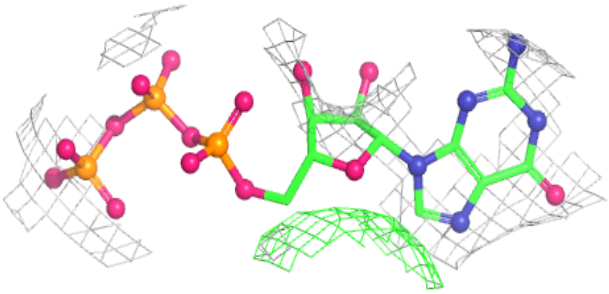
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

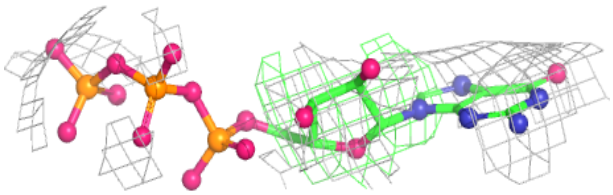
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
10	GTP	CCC	1402	32/32	0.79	0.07	180,256,340,342	0
9	MG	CCC	1401	1/1	0.97	0.03	309,309,309,309	0
9	MG	333	101	1/1	0.99	0.01	154,154,154,154	0
11	ZN	DDD	1501	1/1	0.99	0.05	436,436,436,436	0
11	ZN	DDD	1502	1/1	0.99	0.02	351,351,351,351	0

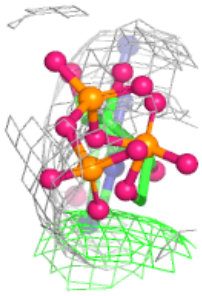
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around GTP CCC 1402:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)







6.5 Other polymers

There are no such residues in this entry.