Full wwPDB X-ray Structure Validation Report (i)

Sep 4, 2023 – 04:47 PM EDT

PDB ID	:	3TV7
Title	:	Human Rho-associated protein kinase 1 (ROCK 1) in COMPLEX WITH RKI1342
Authors	:	Martin, M.P.; Zhu, J.-Y.; Schonbrunn, E.
Deposited on	:	2011-09-19
Resolution	:	2.75 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:

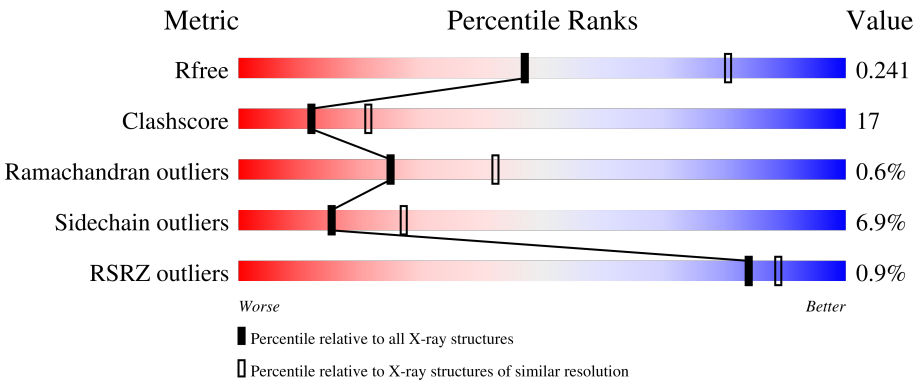
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35

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 2.75 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}	130704	1235 (2.78-2.74)
Clashscore	141614	1277 (2.78-2.74)
Ramachandran outliers	138981	1257 (2.78-2.74)
Sidechain outliers	138945	1257 (2.78-2.74)
RSRZ outliers	127900	1207 (2.78-2.74)

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	A	410	% 65% 28% • •
1	B	410	% 65% 28% • •
1	C	410	64% 29% • •
1	D	410	% 60% 33% • •

2 Entry composition (i)

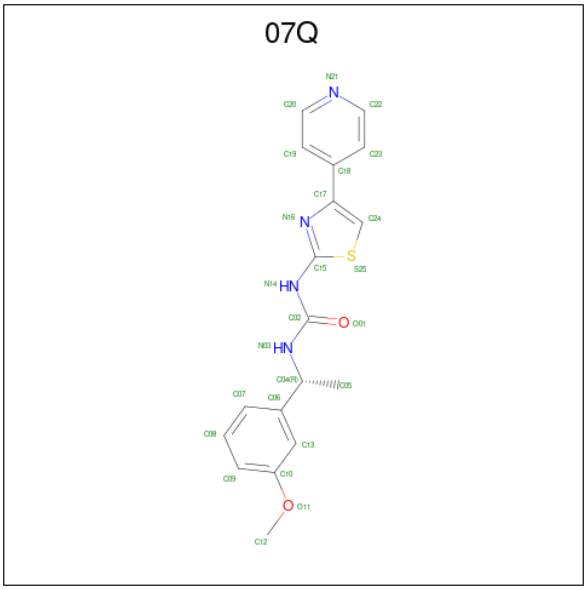
There are 4 unique types of molecules in this entry. The entry contains 13102 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Rho-associated protein kinase 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	394	3202	2045	530	606	21	0	0	0
1	B	397	3228	2062	533	612	21	0	0	0
1	C	394	3202	2045	530	606	21	0	0	0
1	D	397	3228	2062	533	612	21	0	0	0

- Molecule 2 is 1-[(1R)-1-(3-methoxyphenyl)ethyl]-3-(4-pyridin-4-yl-1,3-thiazol-2-yl)urea (three-letter code: 07Q) (formula: $C_{18}H_{18}N_4O_2S$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
2	A	1	25	18	4	2	1	0	0
2	B	1	25	18	4	2	1	0	0

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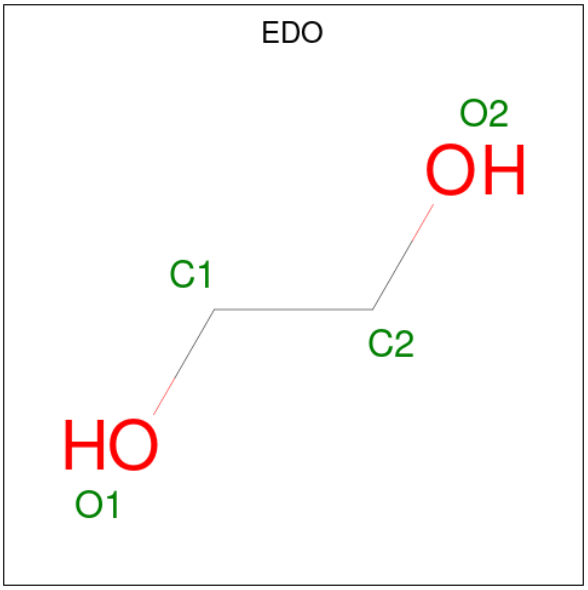
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
2	C	1	25	18	4	2	1	0	0
			Total	C	N	O	S		
2	D	1	25	18	4	2	1	0	0

- Molecule 3 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: $C_2H_6O_2$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	O				
3	A	1	4	2	2			0	0
			Total	C	O				
3	C	1	4	2	2			0	0
			Total	C	O				
3	D	1	4	2	2			0	0

- Molecule 4 is water.

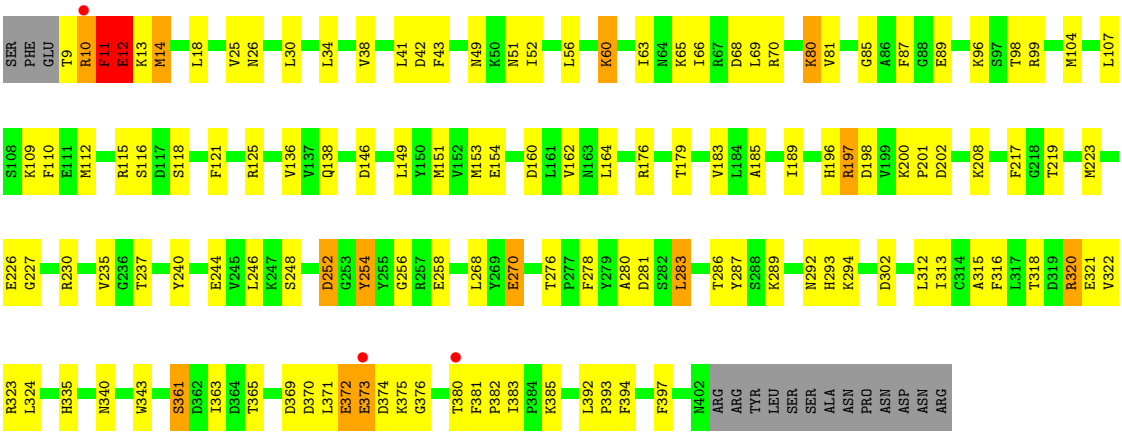
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
4	A	27	27	27	0	0
			Total	O		
4	B	33	33	33	0	0
			Total	O		
4	C	36	36	36	0	0
			Total	O		
4	D	34	34	34	0	0

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.

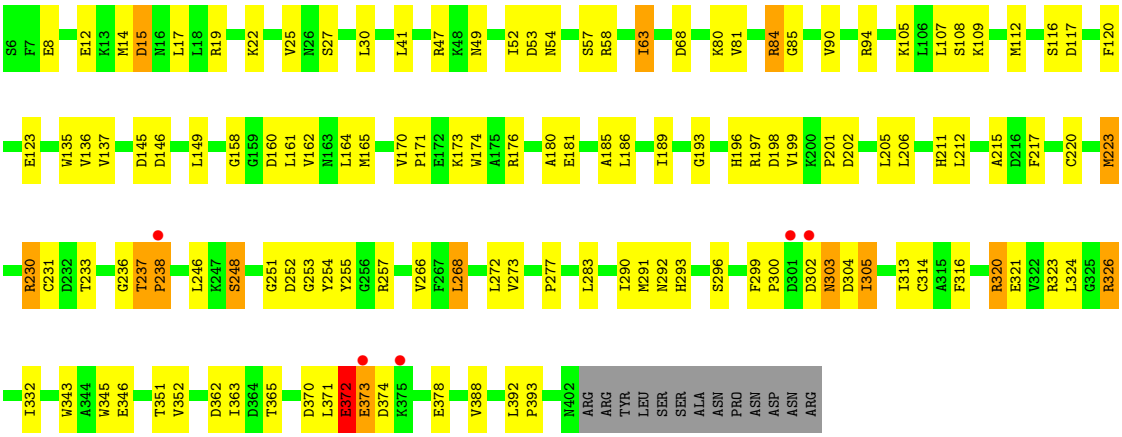
• Molecule 1: Rho-associated protein kinase 1

Chain A:



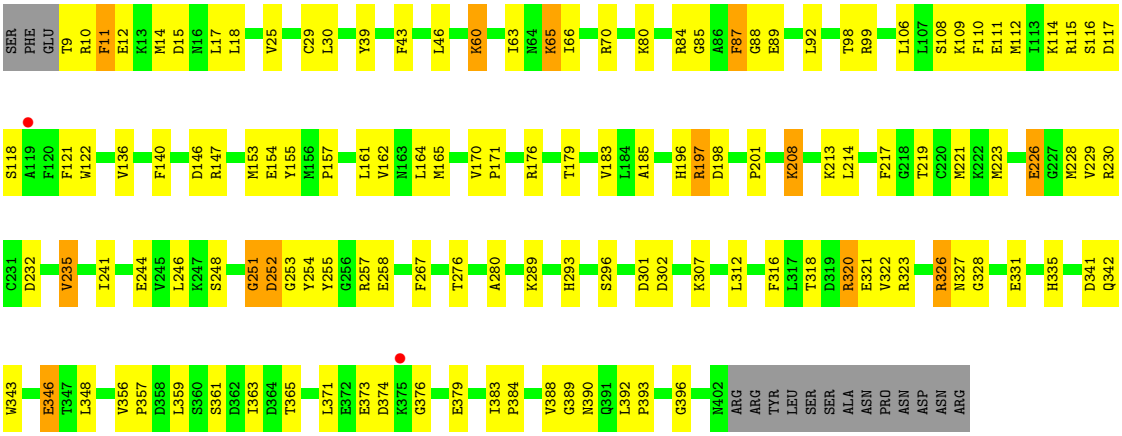
• Molecule 1: Rho-associated protein kinase 1

Chain B:



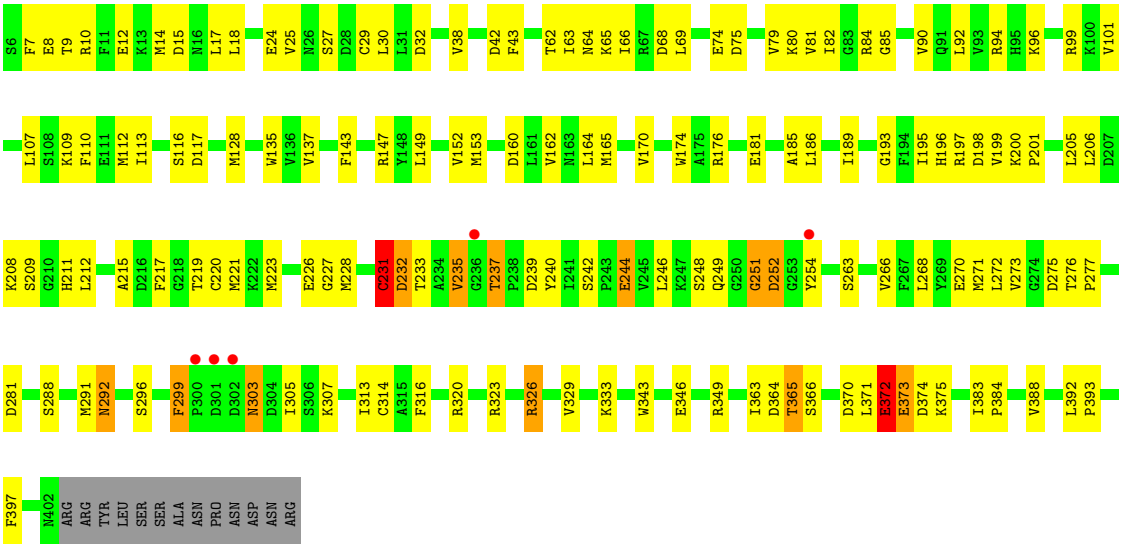
• Molecule 1: Rho-associated protein kinase 1

Chain C:



- Molecule 1: Rho-associated protein kinase 1

Chain D:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	151.01Å 150.92Å 185.57Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.83 – 2.75 19.83 – 2.75	Depositor EDS
% Data completeness (in resolution range)	99.9 (19.83-2.75) 99.7 (19.83-2.75)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	5.73 (at 2.75Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.7_650)	Depositor
R, R_{free}	0.205 , 0.253 0.196 , 0.241	Depositor DCC
R_{free} test set	1101 reflections (2.00%)	wwPDB-VP
Wilson B-factor (Å^2)	46.0	Xtriage
Anisotropy	0.327	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 17.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.46$, $< L^2 > = 0.28$	Xtriage
Estimated twinning fraction	0.479 for -k,-h,-l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	13102	wwPDB-VP
Average B, all atoms (Å^2)	50.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.58% 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 (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: EDO, 07Q

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\|>5$	RMSZ	$\#\|Z\|>5$
1	A	0.55	0/3278	0.64	2/4429 (0.0%)
1	B	0.51	0/3305	0.61	0/4465
1	C	0.55	0/3278	0.64	1/4429 (0.0%)
1	D	0.51	0/3305	0.61	0/4465
All	All	0.53	0/13166	0.63	3/17788 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	5
1	B	0	1
1	C	0	4
1	D	0	5
All	All	0	15

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	11	PHE	N-CA-CB	7.09	123.36	110.60
1	A	283	LEU	CA-CB-CG	5.87	128.80	115.30
1	C	253	GLY	N-CA-C	5.21	126.13	113.10

There are no chirality outliers.

All (15) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	10	ARG	Peptide
1	A	11	PHE	Peptide
1	A	235	VAL	Peptide
1	A	252	ASP	Peptide
1	A	302	ASP	Peptide
1	B	303	ASN	Peptide
1	C	235	VAL	Peptide
1	C	251	GLY	Peptide
1	C	252	ASP	Peptide
1	C	302	ASP	Peptide
1	D	232	ASP	Peptide
1	D	251	GLY	Peptide
1	D	252	ASP	Peptide
1	D	299	PHE	Peptide
1	D	303	ASN	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	A	3202	0	3105	117	0
1	B	3228	0	3125	106	0
1	C	3202	0	3105	116	0
1	D	3228	0	3125	121	0
2	A	25	0	18	2	0
2	B	25	0	18	1	0
2	C	25	0	18	8	0
2	D	25	0	18	6	0
3	A	4	0	6	0	0
3	C	4	0	6	0	0
3	D	4	0	6	1	0
4	A	27	0	0	2	0
4	B	33	0	0	3	0
4	C	36	0	0	1	0
4	D	34	0	0	3	0
All	All	13102	0	12550	438	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 17.

All (438) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:9:THR:HG22	1:C:11:PHE:CD1	1.31	1.64
1:C:9:THR:CG2	1:C:11:PHE:CD1	1.95	1.46
1:C:9:THR:HG21	1:C:11:PHE:CE1	1.69	1.26
1:A:283:LEU:HD13	1:A:287:TYR:CE2	1.79	1.17
1:D:198:ASP:HB3	1:D:219:THR:HG21	1.24	1.13
1:A:200:LYS:HD3	1:A:237:THR:HG21	1.35	1.08
1:C:9:THR:CG2	1:C:11:PHE:CE1	2.30	1.07
1:A:283:LEU:CD1	1:A:287:TYR:CE2	2.40	1.04
1:B:197:ARG:NH2	1:B:233:THR:OG1	1.89	1.03
1:A:10:ARG:HA	1:A:11:PHE:CD1	1.92	1.02
1:C:9:THR:CG2	1:C:11:PHE:HD1	1.51	1.02
1:A:283:LEU:HD13	1:A:287:TYR:CZ	1.98	0.98
1:C:153:MET:CE	2:C:3:07Q:H18	1.94	0.96
1:A:200:LYS:CD	1:A:237:THR:HG21	1.98	0.94
1:C:153:MET:HE2	2:C:3:07Q:H18	1.49	0.93
1:D:25:VAL:O	1:D:25:VAL:HG12	1.71	0.89
1:A:66:ILE:HG23	1:B:14:MET:HE3	1.56	0.86
1:B:324:LEU:HG	1:B:332:ILE:HD13	1.55	0.86
1:C:9:THR:HG21	1:C:11:PHE:HE1	1.37	0.85
1:C:388:VAL:HG23	1:C:390:ASN:H	1.41	0.85
1:C:276:THR:HB	4:C:417:HOH:O	1.78	0.84
1:D:316:PHE:O	1:D:323:ARG:HD2	1.78	0.82
1:D:232:ASP:O	1:D:233:THR:HG23	1.79	0.80
1:B:372:GLU:H	1:B:372:GLU:CD	1.85	0.79
1:A:374:ASP:OD1	1:A:375:LYS:N	2.16	0.79
1:A:244:GLU:HG2	1:A:320:ARG:HD2	1.64	0.78
1:D:94:ARG:HD3	1:D:99:ARG:HD3	1.66	0.78
1:B:372:GLU:HG2	1:B:373:GLU:H	1.49	0.77
1:D:272:LEU:HD13	1:D:305:ILE:HD12	1.65	0.77
1:D:372:GLU:HG2	1:D:373:GLU:H	1.50	0.75
1:B:326:ARG:HG3	4:B:437:HOH:O	1.85	0.75
1:D:197:ARG:NH1	1:D:233:THR:OG1	2.20	0.75
1:D:237:THR:HG22	1:D:239:ASP:H	1.52	0.75
1:D:153:MET:CE	2:D:4:07Q:H18	2.17	0.74
1:A:372:GLU:HG2	1:A:373:GLU:H	1.52	0.74
1:D:79:VAL:HG11	1:D:363:ILE:HG23	1.71	0.73
1:D:25:VAL:HG13	1:D:30:LEU:HD21	1.71	0.72
1:C:60:LYS:O	1:C:63:ILE:HG22	1.89	0.72
1:D:25:VAL:O	1:D:25:VAL:CG1	2.38	0.71
1:B:231:CYS:SG	1:B:233:THR:HG23	2.30	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:300:PRO:HB2	1:B:302:ASP:H	1.57	0.70
1:C:153:MET:HE2	2:C:3:07Q:C24	2.22	0.69
1:A:80:LYS:HG3	1:A:365:THR:HG21	1.73	0.69
1:C:226:GLU:O	1:C:226:GLU:HG3	1.91	0.68
1:A:200:LYS:HD3	1:A:237:THR:CG2	2.21	0.67
1:C:230:ARG:HB2	1:C:254:TYR:CE1	2.28	0.67
1:C:153:MET:HE1	2:C:3:07Q:H18	1.74	0.67
1:C:321:GLU:H	1:C:321:GLU:CD	1.98	0.67
1:A:361:SER:OG	1:A:363:ILE:HG22	1.95	0.67
1:B:199:VAL:HG23	4:B:416:HOH:O	1.95	0.66
1:C:66:ILE:HG23	1:D:14:MET:HE3	1.77	0.65
1:A:283:LEU:CD1	1:A:287:TYR:HE2	2.06	0.65
1:B:323:ARG:O	1:B:326:ARG:HD2	1.96	0.65
1:B:197:ARG:CZ	1:B:233:THR:OG1	2.44	0.64
1:C:196:HIS:O	1:C:197:ARG:HG2	1.98	0.64
1:A:10:ARG:CA	1:A:11:PHE:CD1	2.78	0.64
1:A:136:VAL:HG13	1:A:217:PHE:CZ	2.33	0.63
1:C:9:THR:HG22	1:C:11:PHE:HD1	0.95	0.63
1:B:316:PHE:O	1:B:323:ARG:HD2	1.99	0.63
1:D:162:VAL:HG23	1:D:201:PRO:HB2	1.80	0.63
1:D:373:GLU:HB3	1:D:375:LYS:HG3	1.80	0.63
1:C:10:ARG:NH2	1:D:75:ASP:OD2	2.31	0.63
1:C:388:VAL:HG23	1:C:389:GLY:N	2.14	0.62
1:A:12:GLU:C	1:A:14:MET:H	2.03	0.62
1:D:196:HIS:HA	1:D:220:CYS:SG	2.40	0.62
1:C:84:ARG:HD3	1:C:89:GLU:HG2	1.82	0.62
1:A:112:MET:HE1	1:A:121:PHE:CD2	2.36	0.61
1:A:96:LYS:HA	1:A:99:ARG:HH21	1.65	0.61
1:C:157:PRO:HB2	1:C:359:LEU:HD11	1.82	0.61
1:C:374:ASP:HB3	1:C:376:GLY:H	1.64	0.61
1:A:12:GLU:HG2	1:A:13:LYS:N	2.14	0.61
1:C:316:PHE:O	1:C:323:ARG:HD2	2.01	0.61
1:C:9:THR:HG22	1:C:11:PHE:CG	2.23	0.61
1:D:384:PRO:HB3	1:D:388:VAL:HG23	1.83	0.60
1:D:107:LEU:HB2	1:D:149:LEU:HB2	1.82	0.60
1:A:12:GLU:O	1:A:13:LYS:HB3	2.00	0.60
1:A:112:MET:O	1:A:116:SER:O	2.19	0.60
1:B:324:LEU:HG	1:B:332:ILE:CD1	2.27	0.60
1:C:208:LYS:O	1:C:357:PRO:HD2	2.00	0.60
1:C:361:SER:OG	1:C:363:ILE:HG22	2.01	0.60
1:A:316:PHE:O	1:A:323:ARG:HD2	2.00	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:303:ASN:ND2	1:B:305:ILE:HG23	2.17	0.60
1:D:242:SER:HB2	1:D:244:GLU:OE1	2.02	0.60
1:A:109:LYS:HG2	1:A:394:PHE:CE1	2.37	0.59
1:C:388:VAL:HG23	1:C:389:GLY:H	1.67	0.59
1:A:196:HIS:O	1:A:197:ARG:HG2	2.02	0.59
1:A:268:LEU:HD23	1:A:313:ILE:HG13	1.82	0.59
1:B:363:ILE:O	1:B:363:ILE:HG22	2.03	0.59
1:C:80:LYS:NZ	1:C:371:LEU:H	1.99	0.59
1:C:230:ARG:HB2	1:C:254:TYR:HE1	1.68	0.59
1:B:108:SER:O	1:B:112:MET:HG3	2.03	0.58
1:B:162:VAL:HG23	1:B:201:PRO:HB2	1.85	0.58
1:B:346:GLU:CD	1:B:346:GLU:H	2.05	0.58
1:B:365:THR:CG2	1:B:365:THR:O	2.51	0.58
1:D:85:GLY:HA3	2:D:4:07Q:C13	2.34	0.58
1:A:320:ARG:HG2	1:A:321:GLU:OE2	2.03	0.58
1:C:11:PHE:CD2	1:C:11:PHE:N	2.72	0.58
1:D:80:LYS:HE2	1:D:365:THR:HG21	1.85	0.58
1:D:197:ARG:HH21	1:D:221:MET:HG2	1.68	0.58
1:B:230:ARG:NH2	1:B:251:GLY:HA2	2.19	0.58
1:B:230:ARG:HD3	1:B:253:GLY:O	2.04	0.58
1:C:136:VAL:HG13	1:C:217:PHE:CZ	2.39	0.58
1:C:65:LYS:HD3	1:C:65:LYS:N	2.18	0.57
1:B:135:TRP:HB3	1:B:185:ALA:HB2	1.85	0.57
1:C:10:ARG:N	1:C:11:PHE:HA	2.19	0.57
1:C:66:ILE:HD12	1:D:14:MET:CE	2.34	0.57
1:D:112:MET:O	1:D:116:SER:O	2.22	0.57
1:A:38:VAL:HG21	1:A:63:ILE:HG13	1.86	0.57
1:D:165:MET:HE3	1:D:271:MET:HA	1.87	0.57
1:A:381:PHE:HD1	1:A:382:PRO:HD2	1.70	0.57
1:B:112:MET:O	1:B:116:SER:O	2.22	0.57
1:C:98:THR:O	1:C:99:ARG:HB2	2.04	0.57
1:D:232:ASP:O	1:D:233:THR:CG2	2.51	0.56
1:C:230:ARG:HE	1:C:254:TYR:HE1	1.52	0.56
1:A:321:GLU:H	1:A:321:GLU:CD	2.08	0.56
1:B:246:LEU:HB2	1:B:291:MET:CE	2.36	0.56
1:C:153:MET:CE	2:C:3:07Q:C24	2.79	0.56
1:A:98:THR:O	1:A:99:ARG:HB2	2.05	0.56
1:A:278:PHE:O	1:A:286:THR:HG23	2.05	0.56
1:B:255:TYR:HA	1:B:320:ARG:NH2	2.20	0.56
1:C:176:ARG:HG2	1:C:343:TRP:HZ2	1.71	0.56
1:A:230:ARG:HA	1:A:254:TYR:HB2	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:351:THR:HG22	1:B:352:VAL:O	2.07	0.55
1:C:226:GLU:HG2	1:C:228:MET:HG3	1.87	0.55
1:A:70:ARG:HG3	1:B:14:MET:CE	2.36	0.55
1:D:160:ASP:OD2	1:D:162:VAL:HB	2.06	0.55
1:C:25:VAL:HG21	1:D:66:ILE:HD11	1.87	0.55
1:B:372:GLU:CD	1:B:372:GLU:N	2.58	0.55
1:B:176:ARG:HG2	1:B:343:TRP:HZ2	1.71	0.55
1:A:12:GLU:CG	1:A:13:LYS:N	2.69	0.55
1:B:116:SER:OG	1:B:117:ASP:N	2.40	0.55
1:C:10:ARG:HG2	1:D:69:LEU:O	2.06	0.54
1:D:235:VAL:HG23	1:D:235:VAL:O	2.06	0.54
1:A:154:GLU:O	2:A:1:07Q:H16	2.06	0.54
1:A:196:HIS:C	1:A:197:ARG:HG2	2.27	0.54
1:B:197:ARG:NH1	1:B:233:THR:OG1	2.40	0.54
1:B:246:LEU:HB2	1:B:291:MET:HE1	1.89	0.54
1:B:81:VAL:O	1:B:371:LEU:HB2	2.06	0.54
1:D:372:GLU:CD	1:D:372:GLU:H	2.10	0.54
1:A:9:THR:N	1:A:11:PHE:CD2	2.75	0.54
1:C:280:ALA:HB2	1:C:289:LYS:HE3	1.89	0.54
1:A:12:GLU:O	1:A:14:MET:HG2	2.08	0.54
1:B:161:LEU:O	1:B:165:MET:HG3	2.06	0.54
1:B:25:VAL:CG1	1:B:30:LEU:HD21	2.38	0.54
1:C:164:LEU:C	1:C:164:LEU:HD23	2.27	0.54
1:A:10:ARG:HA	1:A:11:PHE:CE1	2.41	0.53
1:D:85:GLY:HA3	2:D:4:07Q:C06	2.38	0.53
1:D:372:GLU:HG2	1:D:373:GLU:N	2.22	0.53
1:B:136:VAL:HG13	1:B:217:PHE:CZ	2.44	0.53
1:A:270:GLU:HG3	1:A:276:THR:HG22	1.90	0.53
1:A:280:ALA:HB2	1:A:289:LYS:HE3	1.91	0.53
1:A:392:LEU:N	1:A:393:PRO:HD2	2.24	0.53
1:D:223:MET:HB3	1:D:227:GLY:HA2	1.90	0.53
1:B:196:HIS:HA	1:B:220:CYS:SG	2.48	0.53
1:D:74:GLU:O	1:D:96:LYS:HE2	2.09	0.53
1:C:255:TYR:HA	1:C:320:ARG:HH12	1.73	0.53
1:B:170:VAL:HG13	1:B:174:TRP:HB2	1.90	0.53
1:D:235:VAL:O	1:D:235:VAL:CG2	2.56	0.53
1:B:25:VAL:HG13	1:B:30:LEU:HD21	1.90	0.52
1:A:10:ARG:N	1:A:11:PHE:CG	2.77	0.52
1:C:25:VAL:HG21	1:D:66:ILE:CD1	2.40	0.52
1:C:318:THR:HG21	1:C:322:VAL:HG23	1.92	0.52
1:D:268:LEU:HG	1:D:313:ILE:HD11	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:283:LEU:HD12	1:A:287:TYR:CE2	2.43	0.52
1:B:268:LEU:HD13	1:B:313:ILE:HG13	1.92	0.52
1:A:12:GLU:CD	1:A:13:LYS:H	2.12	0.52
1:B:365:THR:O	1:B:365:THR:HG22	2.09	0.52
1:C:230:ARG:NE	1:C:254:TYR:HE1	2.08	0.52
1:B:255:TYR:HA	1:B:320:ARG:HH21	1.75	0.52
1:D:38:VAL:HG21	1:D:63:ILE:HG13	1.92	0.52
1:D:189:ILE:HD11	1:D:217:PHE:CE1	2.45	0.52
1:D:346:GLU:CD	1:D:346:GLU:H	2.14	0.52
1:A:112:MET:HE1	1:A:121:PHE:CE2	2.45	0.51
1:B:238:PRO:O	1:B:290:ILE:HD11	2.09	0.51
1:C:384:PRO:HB3	1:C:388:VAL:HG13	1.92	0.51
1:C:318:THR:CG2	1:C:322:VAL:HG23	2.40	0.51
1:C:392:LEU:N	1:C:393:PRO:HD2	2.26	0.51
1:D:219:THR:HG22	4:D:428:HOH:O	2.09	0.51
1:D:268:LEU:HD23	1:D:313:ILE:HG13	1.92	0.51
1:D:272:LEU:CD1	1:D:305:ILE:HD12	2.39	0.51
1:D:372:GLU:CG	1:D:373:GLU:H	2.22	0.51
1:B:85:GLY:HA3	2:B:2:07Q:C13	2.41	0.51
1:C:162:VAL:HG23	1:C:201:PRO:HB2	1.93	0.51
1:C:18:LEU:HD21	1:D:27:SER:OG	2.11	0.51
1:A:18:LEU:HD21	1:B:27:SER:OG	2.11	0.51
1:B:158:GLY:HA3	1:B:206:LEU:HB2	1.93	0.51
1:D:149:LEU:HD22	1:D:397:PHE:CD1	2.46	0.51
1:D:153:MET:HE1	2:D:4:07Q:H18	1.93	0.50
1:B:246:LEU:HD12	1:B:291:MET:HE3	1.92	0.50
1:B:320:ARG:HG2	1:B:321:GLU:N	2.24	0.50
1:C:179:THR:O	1:C:183:VAL:HG23	2.11	0.50
1:D:363:ILE:O	1:D:363:ILE:HG22	2.11	0.50
1:D:372:GLU:O	1:D:373:GLU:HB2	2.11	0.50
1:B:47:ARG:HD2	1:B:53:ASP:OD1	2.11	0.50
1:B:246:LEU:HD12	1:B:291:MET:CE	2.41	0.50
1:C:11:PHE:HD2	1:C:12:GLU:H	1.59	0.50
1:D:206:LEU:HA	1:D:211:HIS:O	2.12	0.50
1:A:80:LYS:CG	1:A:365:THR:HG21	2.42	0.49
1:A:200:LYS:CE	1:A:237:THR:HG21	2.41	0.49
1:C:196:HIS:C	1:C:197:ARG:HG2	2.31	0.49
1:A:10:ARG:CA	1:A:11:PHE:CG	2.94	0.49
1:A:200:LYS:NZ	1:A:237:THR:HG21	2.27	0.49
1:B:107:LEU:HB2	1:B:149:LEU:HB2	1.94	0.49
1:A:10:ARG:HA	1:A:11:PHE:CG	2.44	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:81:VAL:O	1:A:371:LEU:HB2	2.12	0.49
1:B:54:ASN:O	1:B:58:ARG:HG3	2.13	0.49
1:D:288:SER:O	1:D:292:ASN:HB2	2.11	0.49
1:A:66:ILE:HD12	1:B:14:MET:CE	2.43	0.49
1:D:244:GLU:HG2	1:D:320:ARG:HD3	1.95	0.49
1:D:231:CYS:SG	1:D:249:GLN:NE2	2.84	0.49
1:B:392:LEU:N	1:B:393:PRO:CD	2.75	0.49
1:C:66:ILE:HD12	1:D:14:MET:SD	2.53	0.49
1:D:228:MET:CE	1:D:254:TYR:HD1	2.25	0.49
1:B:94:ARG:NH2	1:B:363:ILE:HD11	2.28	0.48
1:C:341:ASP:HB2	1:C:342:GLN:HE22	1.78	0.48
1:C:342:GLN:N	1:C:342:GLN:CD	2.66	0.48
1:A:318:THR:CG2	1:A:322:VAL:HG23	2.43	0.48
1:A:43:PHE:CD1	1:A:383:ILE:HG23	2.48	0.48
1:C:118:SER:O	1:C:121:PHE:CE2	2.66	0.48
1:D:193:GLY:HA2	1:D:223:MET:HE3	1.96	0.48
1:A:70:ARG:HD3	4:A:419:HOH:O	2.14	0.48
1:A:248:SER:HA	1:A:252:ASP:HB2	1.94	0.48
1:B:316:PHE:O	1:B:323:ARG:CD	2.62	0.48
1:D:370:ASP:O	1:D:371:LEU:HD23	2.14	0.48
1:B:230:ARG:HB2	1:B:254:TYR:HD1	1.78	0.48
1:C:312:LEU:HD13	1:C:335:HIS:CG	2.49	0.48
1:B:193:GLY:O	1:B:223:MET:HG3	2.13	0.48
1:C:88:GLY:HA3	1:C:106:LEU:O	2.13	0.48
1:D:246:LEU:HD12	1:D:291:MET:HE3	1.95	0.48
1:C:70:ARG:HG3	1:D:14:MET:CE	2.44	0.48
1:D:137:VAL:HG21	1:D:215:ALA:HB2	1.96	0.48
1:A:60:LYS:HE2	1:A:60:LYS:HB3	1.44	0.47
1:A:185:ALA:O	1:A:189:ILE:HD13	2.14	0.47
1:D:94:ARG:NH2	1:D:363:ILE:HD11	2.29	0.47
1:C:10:ARG:H	1:C:11:PHE:HA	1.79	0.47
1:A:162:VAL:HG23	1:A:201:PRO:HB2	1.95	0.47
1:A:372:GLU:CD	1:A:372:GLU:H	2.17	0.47
1:C:161:LEU:HB3	1:C:165:MET:CE	2.43	0.47
1:A:66:ILE:HD12	1:B:14:MET:SD	2.54	0.47
1:A:164:LEU:C	1:A:164:LEU:HD23	2.34	0.47
1:B:206:LEU:HA	1:B:211:HIS:O	2.13	0.47
1:B:343:TRP:HB3	1:B:351:THR:OG1	2.15	0.47
1:B:372:GLU:CG	1:B:373:GLU:H	2.24	0.47
1:C:293:HIS:HA	1:C:296:SER:OG	2.14	0.47
1:D:109:LYS:HA	1:D:112:MET:HE3	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:276:THR:HG23	1:D:277:PRO:HD2	1.95	0.47
1:D:170:VAL:HG13	1:D:174:TRP:HB2	1.96	0.47
1:A:12:GLU:CG	1:A:13:LYS:H	2.27	0.47
1:A:18:LEU:HD11	1:A:30:LEU:CD1	2.44	0.47
1:A:318:THR:HG21	1:A:322:VAL:HG23	1.95	0.47
1:B:273:VAL:HG12	1:B:273:VAL:O	2.15	0.47
1:C:110:PHE:HE2	1:C:379:GLU:CD	2.17	0.47
1:C:112:MET:O	1:C:116:SER:O	2.32	0.47
1:A:118:SER:O	1:A:121:PHE:CE2	2.68	0.47
1:B:135:TRP:HB3	1:B:185:ALA:CB	2.44	0.47
1:B:266:VAL:HG13	1:B:277:PRO:HD2	1.97	0.47
1:D:240:TYR:OH	1:D:270:GLU:OE1	2.31	0.47
1:A:12:GLU:C	1:A:14:MET:N	2.67	0.47
1:A:197:ARG:NH1	1:A:197:ARG:HG3	2.29	0.47
1:A:70:ARG:HG3	1:B:14:MET:HE3	1.97	0.46
4:B:432:HOH:O	1:D:383:ILE:HD12	2.14	0.46
1:C:43:PHE:HB2	1:C:46:LEU:HD13	1.97	0.46
1:A:223:MET:HB3	1:A:227:GLY:HA2	1.96	0.46
1:C:14:MET:CE	1:C:14:MET:HA	2.45	0.46
1:D:195:ILE:HG13	1:D:223:MET:HG3	1.97	0.46
1:C:109:LYS:HB2	1:C:147:ARG:O	2.16	0.46
1:D:228:MET:HE3	1:D:254:TYR:HD1	1.81	0.46
1:B:41:LEU:HD22	1:B:52:ILE:HD13	1.98	0.46
1:C:85:GLY:HA3	2:C:3:07Q:C13	2.45	0.46
1:D:329:VAL:O	1:D:333:LYS:HG3	2.16	0.46
1:B:135:TRP:CZ3	1:B:181:GLU:HB3	2.51	0.46
1:C:346:GLU:CD	1:C:346:GLU:H	2.19	0.46
1:A:162:VAL:CG2	1:A:201:PRO:HB2	2.46	0.46
1:A:381:PHE:CD1	1:A:382:PRO:HD2	2.51	0.46
1:D:10:ARG:HH22	3:D:2:EDO:H21	1.81	0.46
1:A:80:LYS:HB3	1:A:80:LYS:HE2	1.35	0.45
1:C:85:GLY:C	1:C:87:PHE:H	2.19	0.45
1:D:266:VAL:HG13	1:D:277:PRO:HD2	1.98	0.45
1:B:197:ARG:NH1	1:B:231:CYS:HB3	2.32	0.45
1:B:299:PHE:HE1	1:B:314:CYS:SG	2.39	0.45
1:A:160:ASP:OD1	1:A:162:VAL:HB	2.17	0.45
1:A:374:ASP:C	1:A:376:GLY:H	2.19	0.45
1:A:200:LYS:NZ	1:A:237:THR:CG2	2.80	0.45
1:A:372:GLU:CD	1:A:372:GLU:N	2.69	0.45
1:B:323:ARG:HG3	1:B:324:LEU:N	2.32	0.45
1:A:138:GLN:H	1:A:154:GLU:HG2	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:15:ASP:HB3	1:B:19:ARG:NH2	2.31	0.45
1:D:196:HIS:O	1:D:219:THR:HG23	2.17	0.45
1:D:198:ASP:CB	1:D:219:THR:HG21	2.18	0.45
1:D:199:VAL:HG23	4:D:416:HOH:O	2.17	0.45
1:B:186:LEU:HA	1:B:186:LEU:HD23	1.63	0.45
1:C:30:LEU:HB3	1:D:30:LEU:HB3	1.99	0.45
1:D:128:MET:HE1	1:D:153:MET:SD	2.57	0.45
1:D:135:TRP:HB3	1:D:185:ALA:HB2	1.98	0.45
1:A:70:ARG:HG3	1:B:14:MET:HE2	1.99	0.45
1:A:256:GLY:H	1:A:320:ARG:HH12	1.64	0.45
1:B:197:ARG:NH2	1:B:233:THR:HG1	2.06	0.45
1:B:137:VAL:HG21	1:B:215:ALA:HB2	1.99	0.45
1:C:39:TYR:CE1	1:C:146:ASP:HB3	2.52	0.45
1:C:341:ASP:HB2	1:C:342:GLN:NE2	2.32	0.45
1:A:49:ASN:OD1	1:A:51:ASN:HB2	2.18	0.44
1:C:185:ALA:HB1	1:C:214:LEU:HD12	1.99	0.44
1:A:41:LEU:HD22	1:A:52:ILE:HD13	1.98	0.44
1:A:85:GLY:C	1:A:87:PHE:H	2.21	0.44
1:C:154:GLU:O	2:C:3:07Q:H16	2.17	0.44
1:C:165:MET:HE1	1:C:267:PHE:HE1	1.83	0.44
1:C:241:ILE:HD13	1:C:246:LEU:HG	1.98	0.44
1:C:312:LEU:HD13	1:C:335:HIS:CD2	2.52	0.44
1:A:363:ILE:O	1:A:363:ILE:HG23	2.16	0.44
1:B:205:LEU:O	1:B:212:LEU:HA	2.17	0.44
1:C:223:MET:HE3	1:C:257:ARG:HH11	1.83	0.44
1:D:90:VAL:HG23	2:D:4:07Q:H6	2.00	0.44
1:D:208:LYS:HB3	1:D:208:LYS:HE2	1.76	0.44
1:D:249:GLN:C	1:D:251:GLY:H	2.21	0.44
1:A:312:LEU:HD13	1:A:335:HIS:CG	2.53	0.44
1:A:392:LEU:N	1:A:393:PRO:CD	2.81	0.44
1:B:180:ALA:HB1	1:B:345:TRP:CZ3	2.53	0.44
1:D:135:TRP:CZ3	1:D:181:GLU:HB3	2.53	0.44
1:D:200:LYS:HB2	1:D:200:LYS:HE3	1.69	0.44
1:B:230:ARG:HB2	1:B:254:TYR:CD1	2.53	0.44
1:D:7:PHE:CD2	1:D:8:GLU:O	2.70	0.44
1:C:170:VAL:HA	1:C:171:PRO:HD3	1.88	0.44
1:C:164:LEU:HD23	1:C:164:LEU:O	2.18	0.43
1:D:9:THR:H	1:D:12:GLU:HB2	1.82	0.43
1:D:128:MET:HE2	1:D:153:MET:HG2	2.00	0.43
1:D:392:LEU:N	1:D:393:PRO:CD	2.81	0.43
1:C:326:ARG:HD3	1:C:327:ASN:OD1	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:10:ARG:N	1:A:11:PHE:CD2	2.74	0.43
1:B:8:GLU:HA	1:B:12:GLU:OE1	2.18	0.43
1:C:46:LEU:HD12	1:C:46:LEU:N	2.33	0.43
1:D:196:HIS:O	1:D:196:HIS:HD2	2.01	0.43
1:B:373:GLU:OE2	1:B:373:GLU:HA	2.17	0.43
1:C:121:PHE:HE1	1:C:122:TRP:CE2	2.35	0.43
1:A:197:ARG:NH1	1:A:219:THR:O	2.52	0.43
1:C:388:VAL:CG2	1:C:389:GLY:N	2.80	0.43
1:D:273:VAL:HG12	1:D:273:VAL:O	2.18	0.43
1:A:370:ASP:HA	4:A:437:HOH:O	2.19	0.43
1:C:221:MET:CE	1:C:229:VAL:HB	2.49	0.43
1:D:186:LEU:HD23	1:D:186:LEU:HA	1.49	0.43
1:D:372:GLU:CD	1:D:372:GLU:N	2.72	0.43
1:A:18:LEU:HD11	1:A:30:LEU:HD11	1.99	0.43
1:A:201:PRO:HD3	1:A:240:TYR:CZ	2.54	0.43
1:C:197:ARG:HG3	1:C:219:THR:HG22	2.01	0.43
1:C:356:VAL:HA	1:C:357:PRO:HD3	1.89	0.43
1:D:153:MET:SD	2:D:4:07Q:H18	2.58	0.43
1:D:303:ASN:HB3	1:D:305:ILE:HG23	2.01	0.43
1:B:160:ASP:OD2	1:B:162:VAL:HB	2.18	0.43
1:D:364:ASP:OD1	1:D:366:SER:HB3	2.19	0.43
1:B:293:HIS:HA	1:B:296:SER:OG	2.18	0.42
1:B:299:PHE:HB3	1:B:300:PRO:HD2	2.00	0.42
1:D:323:ARG:O	1:D:326:ARG:HD2	2.18	0.42
1:D:365:THR:O	1:D:365:THR:HG23	2.19	0.42
1:A:42:ASP:O	1:A:43:PHE:CG	2.73	0.42
1:C:85:GLY:HA3	2:C:3:07Q:C06	2.49	0.42
1:C:112:MET:HG2	1:C:117:ASP:O	2.19	0.42
1:D:29:CYS:O	1:D:32:ASP:HB2	2.20	0.42
1:A:179:THR:O	1:A:183:VAL:HG23	2.19	0.42
1:B:196:HIS:CE1	1:B:198:ASP:O	2.73	0.42
1:D:18:LEU:HD23	1:D:18:LEU:HA	1.80	0.42
1:C:383:ILE:HA	1:C:384:PRO:HD3	1.86	0.42
1:D:135:TRP:HB3	1:D:185:ALA:CB	2.50	0.42
1:B:170:VAL:HA	1:B:171:PRO:HD3	1.82	0.42
1:B:236:GLY:O	1:B:237:THR:OG1	2.37	0.42
1:C:140:PHE:CE1	1:C:154:GLU:HB3	2.54	0.42
1:D:110:PHE:HB3	4:D:417:HOH:O	2.19	0.42
1:D:200:LYS:HG2	1:D:240:TYR:CD2	2.54	0.42
1:B:292:ASN:HB3	1:B:296:SER:HB3	2.01	0.42
1:D:109:LYS:O	1:D:113:ILE:HG12	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:372:GLU:HG2	1:A:373:GLU:N	2.27	0.42
1:B:272:LEU:HD13	1:B:305:ILE:HD13	2.01	0.42
1:D:42:ASP:O	1:D:43:PHE:CG	2.73	0.42
1:A:56:LEU:O	1:A:60:LYS:HB2	2.19	0.42
1:A:146:ASP:OD1	1:A:146:ASP:N	2.52	0.42
1:C:92:LEU:HD13	1:C:155:TYR:CE1	2.55	0.42
1:C:98:THR:O	1:C:99:ARG:CB	2.67	0.42
1:D:176:ARG:HG2	1:D:343:TRP:HZ2	1.85	0.42
1:B:90:VAL:HG22	1:B:105:LYS:HG3	2.02	0.42
1:C:85:GLY:O	1:C:87:PHE:N	2.49	0.42
1:A:85:GLY:HA3	2:A:1:07Q:C13	2.49	0.41
1:B:362:ASP:OD1	1:B:363:ILE:HG12	2.20	0.41
1:A:69:LEU:HB2	1:B:14:MET:HE1	2.02	0.41
1:A:112:MET:CE	1:A:121:PHE:CE2	3.03	0.41
1:A:176:ARG:HG2	1:A:343:TRP:HZ2	1.86	0.41
1:C:219:THR:HG21	1:C:235:VAL:HB	2.02	0.41
1:C:232:ASP:CG	1:C:251:GLY:HA2	2.40	0.41
1:C:343:TRP:CD2	1:C:348:LEU:HD13	2.55	0.41
1:D:189:ILE:HD11	1:D:217:PHE:HE1	1.83	0.41
1:A:65:LYS:HD3	1:B:17:LEU:HD11	2.01	0.41
1:C:328:GLY:O	1:C:331:GLU:HG2	2.20	0.41
1:D:81:VAL:HG12	1:D:371:LEU:HD12	2.01	0.41
1:D:205:LEU:O	1:D:212:LEU:HA	2.19	0.41
1:B:49:ASN:CG	1:B:52:ILE:HG13	2.41	0.41
1:B:248:SER:HB2	1:B:253:GLY:O	2.20	0.41
1:C:60:LYS:O	1:C:63:ILE:CG2	2.63	0.41
1:C:111:GLU:OE1	1:C:114:LYS:HE3	2.20	0.41
1:C:244:GLU:OE2	1:C:323:ARG:NH2	2.54	0.41
1:A:110:PHE:HE1	1:A:380:THR:O	2.04	0.41
1:B:80:LYS:HE3	1:B:80:LYS:HB2	1.68	0.41
1:B:109:LYS:HD2	1:B:146:ASP:O	2.21	0.41
1:B:123:GLU:H	1:B:123:GLU:CD	2.24	0.41
1:A:107:LEU:HB2	1:A:149:LEU:HB2	2.01	0.41
1:C:244:GLU:CD	1:C:323:ARG:HH22	2.23	0.41
1:D:92:LEU:HD11	1:D:101:VAL:CG1	2.50	0.41
1:D:226:GLU:CD	1:D:226:GLU:H	2.20	0.41
1:A:18:LEU:HA	1:A:26:ASN:HA	2.03	0.41
1:A:30:LEU:HB3	1:B:30:LEU:HB3	2.03	0.41
1:A:34:LEU:HD23	1:A:63:ILE:HD11	2.03	0.41
1:A:104:MET:HA	1:A:151:MET:O	2.20	0.41
1:A:244:GLU:CD	1:A:323:ARG:HH22	2.24	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:63:ILE:HD12	1:B:63:ILE:HA	1.83	0.41
1:C:66:ILE:HD12	1:D:14:MET:HE1	2.03	0.41
1:C:248:SER:HA	1:C:252:ASP:HB2	2.03	0.41
1:D:299:PHE:HE1	1:D:314:CYS:SG	2.44	0.41
1:D:346:GLU:CD	1:D:346:GLU:N	2.74	0.41
1:A:125:ARG:HD2	1:A:397:PHE:O	2.21	0.41
1:B:84:ARG:HE	1:B:371:LEU:HD12	1.85	0.41
1:C:9:THR:HG23	1:C:11:PHE:HD1	1.65	0.41
1:C:70:ARG:HG3	1:D:14:MET:HE2	2.02	0.41
1:C:108:SER:O	1:C:112:MET:CE	2.69	0.41
1:A:14:MET:O	1:A:18:LEU:HB2	2.21	0.40
1:B:120:PHE:CD1	1:B:120:PHE:C	2.94	0.40
1:B:372:GLU:HG2	1:B:373:GLU:N	2.27	0.40
1:D:17:LEU:HD23	1:D:17:LEU:HA	1.85	0.40
1:D:199:VAL:HB	1:D:263:SER:CB	2.51	0.40
1:A:292:ASN:O	1:A:293:HIS:C	2.59	0.40
1:B:300:PRO:HB2	1:B:302:ASP:N	2.29	0.40
1:A:312:LEU:HD13	1:A:335:HIS:CD2	2.56	0.40
1:B:109:LYS:NZ	1:B:145:ASP:O	2.42	0.40
1:D:371:LEU:HD23	1:D:371:LEU:HA	1.76	0.40
1:A:197:ARG:HG3	1:A:197:ARG:HH11	1.87	0.40
1:A:315:ALA:HB1	1:A:324:LEU:HB2	2.04	0.40
1:B:189:ILE:HD11	1:B:217:PHE:CE1	2.57	0.40
1:C:29:CYS:SG	1:C:396:GLY:HA2	2.61	0.40
1:C:84:ARG:HD3	1:C:89:GLU:CG	2.51	0.40
1:C:146:ASP:OD1	1:C:146:ASP:N	2.53	0.40
1:D:143:PHE:HE1	1:D:152:VAL:CG2	2.35	0.40
1:D:162:VAL:CG2	1:D:201:PRO:HB2	2.50	0.40
1:D:248:SER:HA	1:D:252:ASP:CB	2.51	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	392/410 (96%)	368 (94%)	22 (6%)	2 (0%)	29	47
1	B	395/410 (96%)	377 (95%)	15 (4%)	3 (1%)	19	34
1	C	392/410 (96%)	375 (96%)	16 (4%)	1 (0%)	41	60
1	D	395/410 (96%)	374 (95%)	18 (5%)	3 (1%)	19	34
All	All	1574/1640 (96%)	1494 (95%)	71 (4%)	9 (1%)	25	42

All (9) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	198	ASP
1	C	198	ASP
1	B	372	GLU
1	B	237	THR
1	A	12	GLU
1	D	231	CYS
1	D	237	THR
1	D	372	GLU
1	B	238	PRO

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	350/365 (96%)	324 (93%)	26 (7%)	13	24
1	B	353/365 (97%)	327 (93%)	26 (7%)	13	24
1	C	350/365 (96%)	331 (95%)	19 (5%)	22	38
1	D	353/365 (97%)	327 (93%)	26 (7%)	13	24
All	All	1406/1460 (96%)	1309 (93%)	97 (7%)	15	27

All (97) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	12	GLU
1	A	14	MET

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Mol	Chain	Res	Type
1	A	25	VAL
1	A	60	LYS
1	A	68	ASP
1	A	80	LYS
1	A	89	GLU
1	A	115	ARG
1	A	153	MET
1	A	197	ARG
1	A	202	ASP
1	A	208	LYS
1	A	226	GLU
1	A	246	LEU
1	A	254	TYR
1	A	258	GLU
1	A	270	GLU
1	A	281	ASP
1	A	294	LYS
1	A	320	ARG
1	A	340	ASN
1	A	361	SER
1	A	369	ASP
1	A	372	GLU
1	A	373	GLU
1	A	385	LYS
1	B	15	ASP
1	B	22	LYS
1	B	57	SER
1	B	63	ILE
1	B	68	ASP
1	B	84	ARG
1	B	164	LEU
1	B	173	LYS
1	B	202	ASP
1	B	223	MET
1	B	230	ARG
1	B	248	SER
1	B	252	ASP
1	B	257	ARG
1	B	268	LEU
1	B	283	LEU
1	B	304	ASP
1	B	305	ILE

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Mol	Chain	Res	Type
1	B	320	ARG
1	B	326	ARG
1	B	370	ASP
1	B	372	GLU
1	B	373	GLU
1	B	374	ASP
1	B	378	GLU
1	B	388	VAL
1	C	11	PHE
1	C	15	ASP
1	C	17	LEU
1	C	60	LYS
1	C	65	LYS
1	C	87	PHE
1	C	115	ARG
1	C	197	ARG
1	C	208	LYS
1	C	213	LYS
1	C	226	GLU
1	C	258	GLU
1	C	301	ASP
1	C	307	LYS
1	C	320	ARG
1	C	326	ARG
1	C	346	GLU
1	C	365	THR
1	C	373	GLU
1	D	15	ASP
1	D	24	GLU
1	D	62	THR
1	D	64	ASN
1	D	65	LYS
1	D	68	ASP
1	D	82	ILE
1	D	84	ARG
1	D	117	ASP
1	D	147	ARG
1	D	164	LEU
1	D	209	SER
1	D	231	CYS
1	D	235	VAL
1	D	244	GLU

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Mol	Chain	Res	Type
1	D	275	ASP
1	D	281	ASP
1	D	292	ASN
1	D	296	SER
1	D	307	LYS
1	D	326	ARG
1	D	349	ARG
1	D	365	THR
1	D	372	GLU
1	D	373	GLU
1	D	374	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	249	GLN
1	D	196	HIS
1	D	249	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

7 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	07Q	A	1	-	24,27,27	2.59	6 (25%)	28,36,36	1.43	5 (17%)
3	EDO	D	2	-	3,3,3	0.61	0	2,2,2	0.10	0
2	07Q	B	2	-	24,27,27	2.51	6 (25%)	28,36,36	1.53	3 (10%)
2	07Q	C	3	-	24,27,27	2.58	6 (25%)	28,36,36	1.50	4 (14%)
3	EDO	C	416	-	3,3,3	0.61	0	2,2,2	0.10	0
2	07Q	D	4	-	24,27,27	2.43	6 (25%)	28,36,36	1.51	7 (25%)
3	EDO	A	416	-	3,3,3	0.54	0	2,2,2	0.20	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	07Q	A	1	-	-	7/16/18/18	0/3/3/3
3	EDO	D	2	-	-	1/1/1/1	-
2	07Q	B	2	-	-	5/16/18/18	0/3/3/3
2	07Q	C	3	-	-	7/16/18/18	0/3/3/3
3	EDO	C	416	-	-	1/1/1/1	-
2	07Q	D	4	-	-	9/16/18/18	0/3/3/3
3	EDO	A	416	-	-	1/1/1/1	-

All (24) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	1	07Q	C15-N14	6.60	1.48	1.36
2	C	3	07Q	C15-N14	6.34	1.47	1.36
2	B	2	07Q	C15-N14	5.79	1.46	1.36
2	C	3	07Q	C02-N03	5.52	1.47	1.35
2	A	1	07Q	C02-N14	5.38	1.48	1.37
2	D	4	07Q	C02-N03	5.37	1.47	1.35
2	B	2	07Q	C02-N03	5.35	1.47	1.35
2	D	4	07Q	C15-N14	5.33	1.46	1.36
2	C	3	07Q	C02-N14	5.32	1.48	1.37
2	A	1	07Q	C02-N03	5.31	1.47	1.35
2	B	2	07Q	C02-N14	5.30	1.48	1.37
2	D	4	07Q	C02-N14	5.10	1.48	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	4	07Q	C24-S25	-4.48	1.63	1.70
2	B	2	07Q	C24-S25	-4.41	1.63	1.70
2	A	1	07Q	C17-N16	4.29	1.50	1.37
2	B	2	07Q	C17-N16	4.27	1.50	1.37
2	C	3	07Q	C17-N16	4.23	1.50	1.37
2	D	4	07Q	C17-N16	4.14	1.50	1.37
2	C	3	07Q	C24-S25	-4.07	1.64	1.70
2	A	1	07Q	C24-S25	-3.95	1.64	1.70
2	C	3	07Q	C18-C17	2.43	1.52	1.48
2	A	1	07Q	C18-C17	2.28	1.52	1.48
2	D	4	07Q	C13-C10	2.10	1.42	1.38
2	B	2	07Q	C18-C17	2.02	1.52	1.48

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	2	07Q	N14-C02-N03	4.63	120.22	113.76
2	A	1	07Q	N14-C02-N03	4.21	119.65	113.76
2	C	3	07Q	N14-C02-N03	4.07	119.45	113.76
2	D	4	07Q	N14-C02-N03	3.65	118.86	113.76
2	C	3	07Q	C18-C17-N16	3.40	126.50	120.78
2	B	2	07Q	C24-C17-C18	-2.99	125.28	129.44
2	D	4	07Q	C24-C17-C18	-2.91	125.39	129.44
2	C	3	07Q	C24-C17-C18	-2.75	125.62	129.44
2	B	2	07Q	C18-C17-N16	2.69	125.30	120.78
2	A	1	07Q	C18-C17-N16	2.56	125.09	120.78
2	D	4	07Q	C18-C17-N16	2.46	124.92	120.78
2	A	1	07Q	C24-C17-C18	-2.43	126.06	129.44
2	D	4	07Q	C05-C04-N03	2.30	113.10	109.05
2	D	4	07Q	C22-N21-C20	2.20	122.02	116.85
2	D	4	07Q	C19-C20-N21	-2.18	119.82	123.62
2	A	1	07Q	C19-C20-N21	-2.05	120.05	123.62
2	A	1	07Q	C22-N21-C20	2.04	121.64	116.85
2	D	4	07Q	O01-C02-N14	-2.03	120.20	123.62
2	C	3	07Q	C23-C22-N21	-2.02	120.09	123.62

There are no chirality outliers.

All (31) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	1	07Q	O01-C02-N03-C04
2	A	1	07Q	N14-C02-N03-C04

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Mol	Chain	Res	Type	Atoms
2	B	2	07Q	O01-C02-N03-C04
2	B	2	07Q	N14-C02-N03-C04
2	B	2	07Q	C06-C04-N03-C02
2	C	3	07Q	O01-C02-N03-C04
2	C	3	07Q	N14-C02-N03-C04
2	D	4	07Q	O01-C02-N03-C04
2	D	4	07Q	N14-C02-N03-C04
2	D	4	07Q	O01-C02-N14-C15
2	D	4	07Q	N03-C02-N14-C15
2	C	3	07Q	C13-C10-O11-C12
2	C	3	07Q	C09-C10-O11-C12
2	A	1	07Q	C09-C10-O11-C12
2	A	1	07Q	C13-C10-O11-C12
2	D	4	07Q	C05-C04-N03-C02
3	C	416	EDO	O1-C1-C2-O2
3	D	2	EDO	O1-C1-C2-O2
2	D	4	07Q	C13-C10-O11-C12
2	D	4	07Q	C09-C10-O11-C12
3	A	416	EDO	O1-C1-C2-O2
2	A	1	07Q	C05-C04-N03-C02
2	C	3	07Q	C06-C04-N03-C02
2	D	4	07Q	C05-C04-C06-C07
2	C	3	07Q	C05-C04-C06-C13
2	A	1	07Q	C05-C04-C06-C07
2	B	2	07Q	C05-C04-C06-C07
2	C	3	07Q	C05-C04-C06-C07
2	B	2	07Q	C05-C04-C06-C13
2	D	4	07Q	C05-C04-C06-C13
2	A	1	07Q	C05-C04-C06-C13

There are no ring outliers.

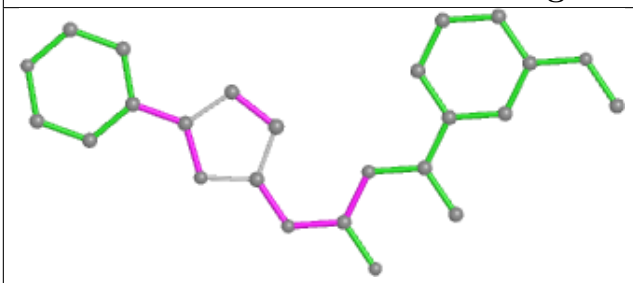
5 monomers are involved in 18 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1	07Q	2	0
3	D	2	EDO	1	0
2	B	2	07Q	1	0
2	C	3	07Q	8	0
2	D	4	07Q	6	0

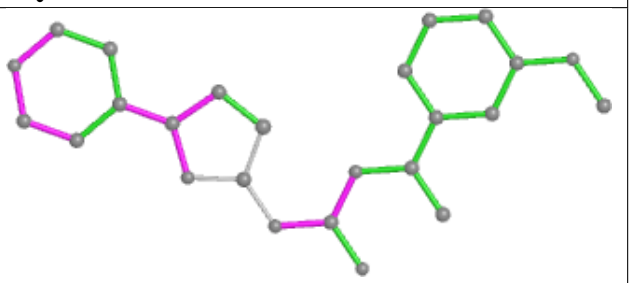
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In

addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less 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.

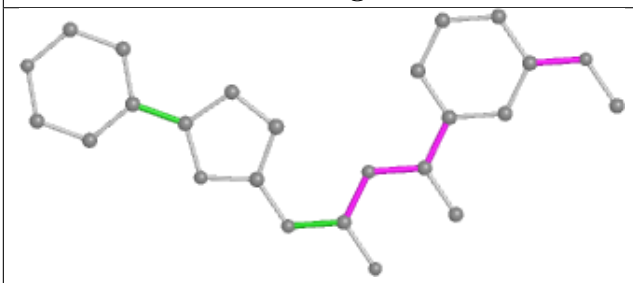
Ligand 07Q A 1



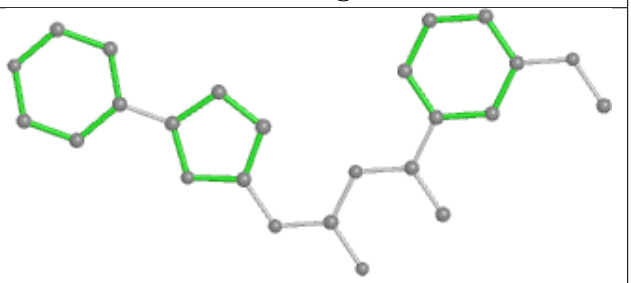
Bond lengths



Bond angles

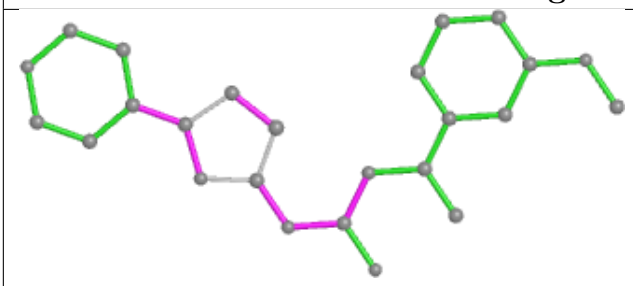


Torsions

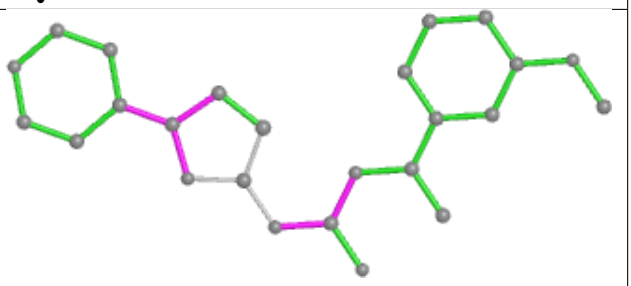


Rings

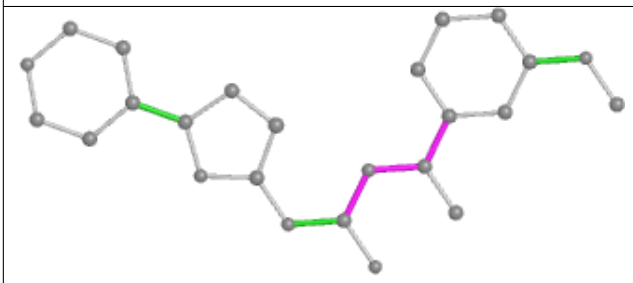
Ligand 07Q B 2



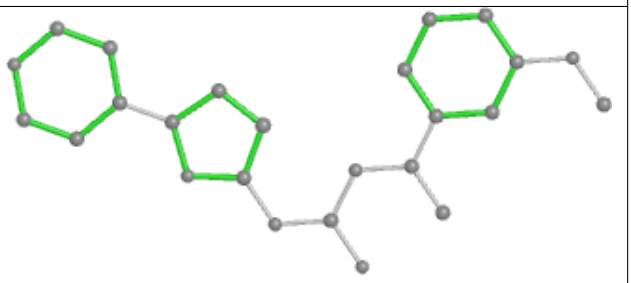
Bond lengths



Bond angles

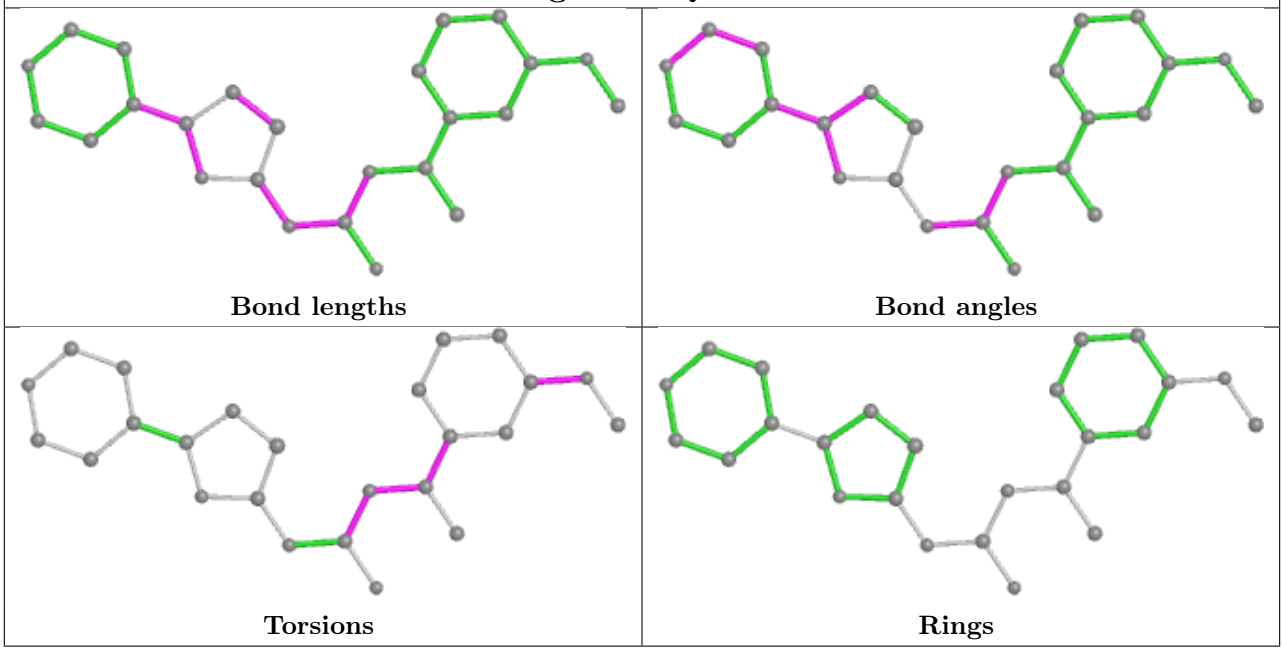


Torsions

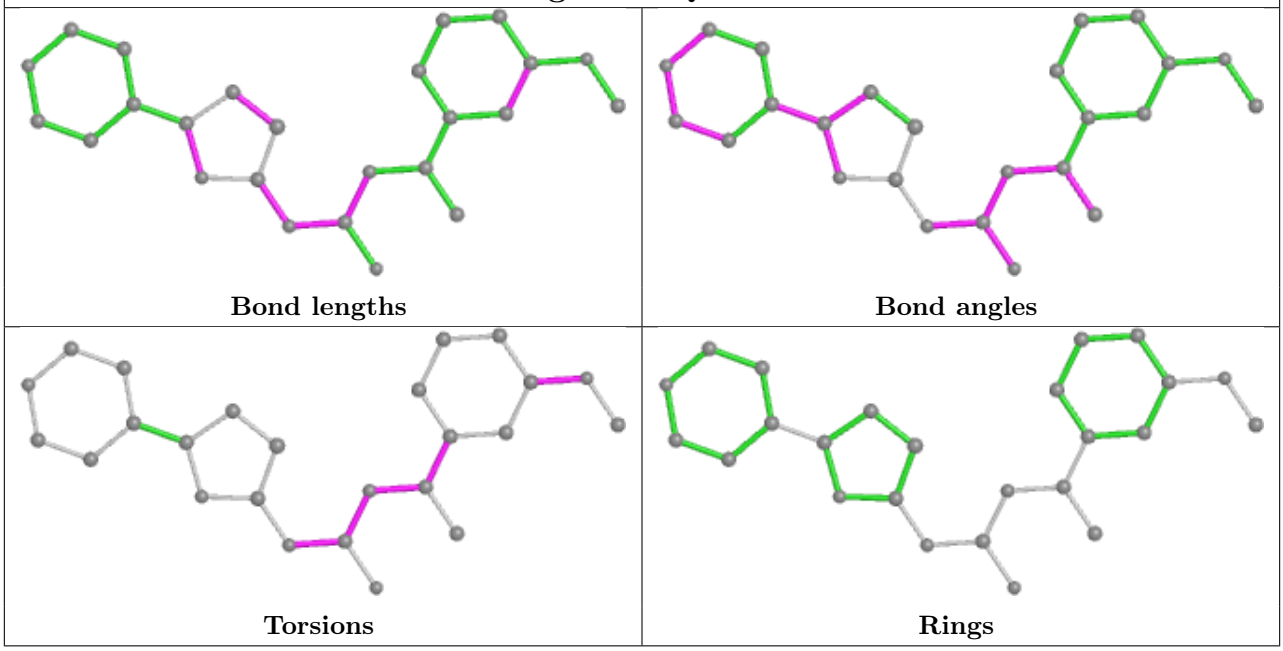


Rings

Ligand 07Q C 3



Ligand 07Q D 4



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data (i)

6.1 Protein, DNA and RNA chains (i)

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, 95th 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	A	394/410 (96%)	-0.14	3 (0%)	86	90	26, 43, 81, 121	0
1	B	397/410 (96%)	-0.09	5 (1%)	77	84	28, 49, 80, 104	0
1	C	394/410 (96%)	-0.13	2 (0%)	91	94	27, 43, 78, 118	0
1	D	397/410 (96%)	-0.13	5 (1%)	77	84	27, 50, 78, 104	0
All	All	1582/1640 (96%)	-0.12	15 (0%)	84	89	26, 47, 80, 121	0

All (15) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	301	ASP	5.7
1	D	302	ASP	5.4
1	B	302	ASP	5.3
1	D	301	ASP	5.1
1	C	375	LYS	4.5
1	A	373	GLU	3.3
1	A	10	ARG	3.2
1	C	119	ALA	2.5
1	D	300	PRO	2.5
1	B	373	GLU	2.4
1	A	380	THR	2.3
1	D	236	GLY	2.2
1	B	238	PRO	2.2
1	B	375	LYS	2.0
1	D	254	TYR	2.0

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

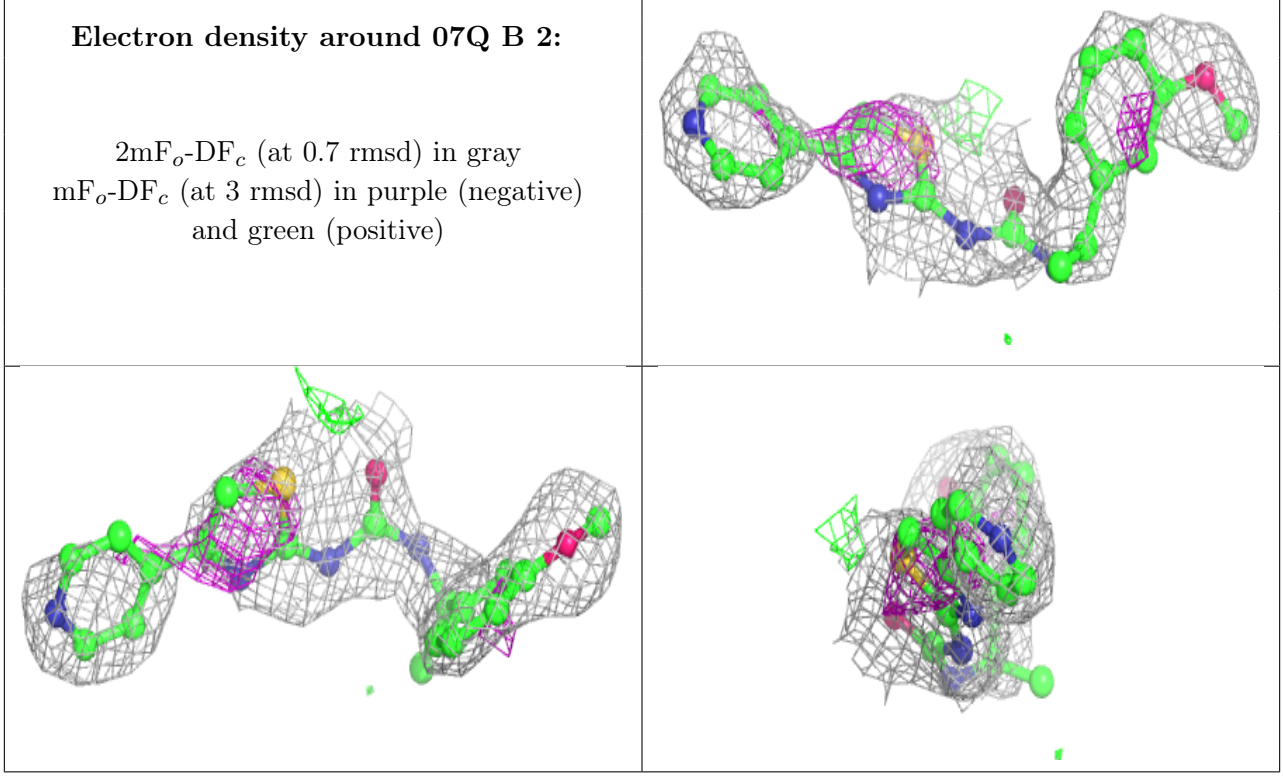
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	07Q	B	2	25/25	0.83	0.34	54,71,79,89	0
3	EDO	A	416	4/4	0.83	0.15	52,54,57,60	0
3	EDO	C	416	4/4	0.83	0.16	55,56,61,63	0
2	07Q	D	4	25/25	0.91	0.31	49,72,81,88	0
2	07Q	A	1	25/25	0.91	0.26	45,67,78,82	0
2	07Q	C	3	25/25	0.91	0.29	50,66,73,83	0
3	EDO	D	2	4/4	0.94	0.22	49,50,50,55	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.

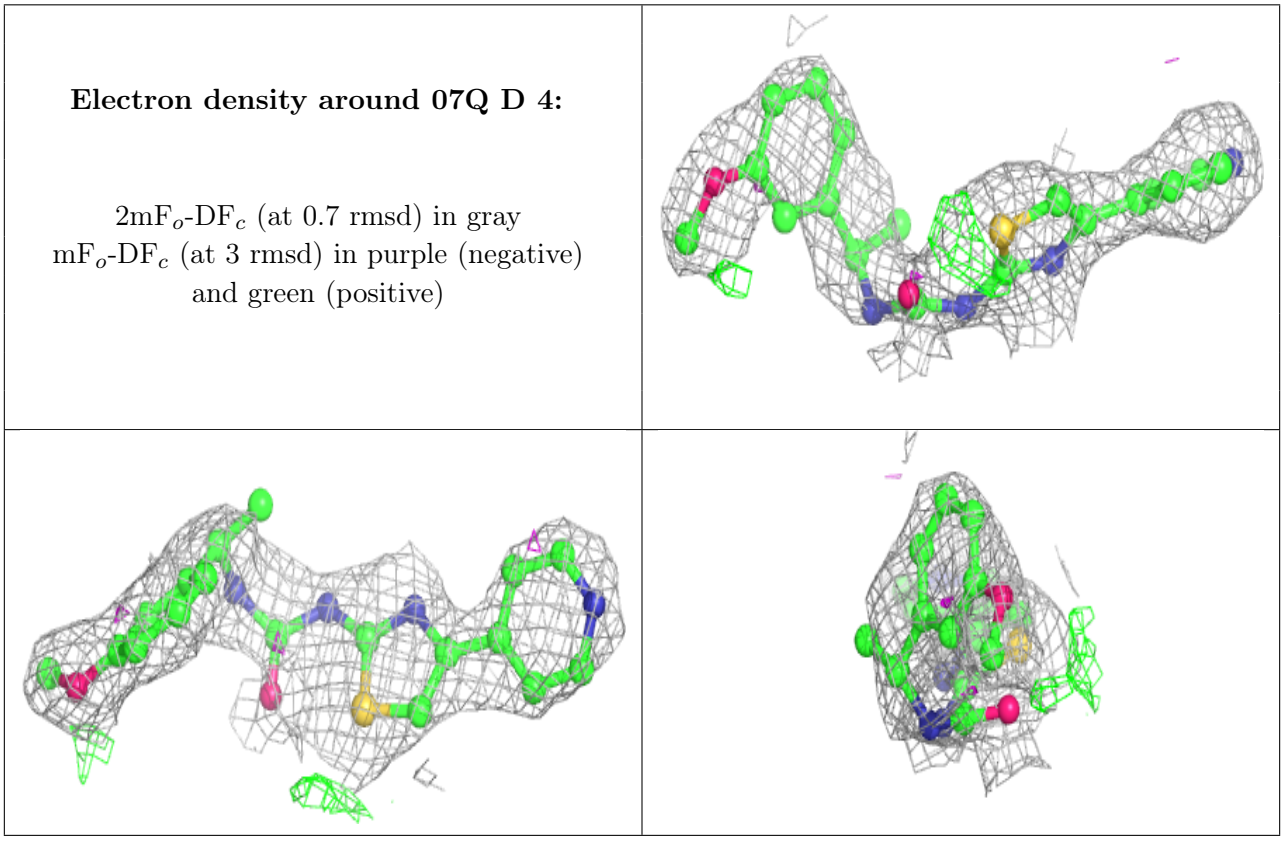
Electron density around 07Q B 2:

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



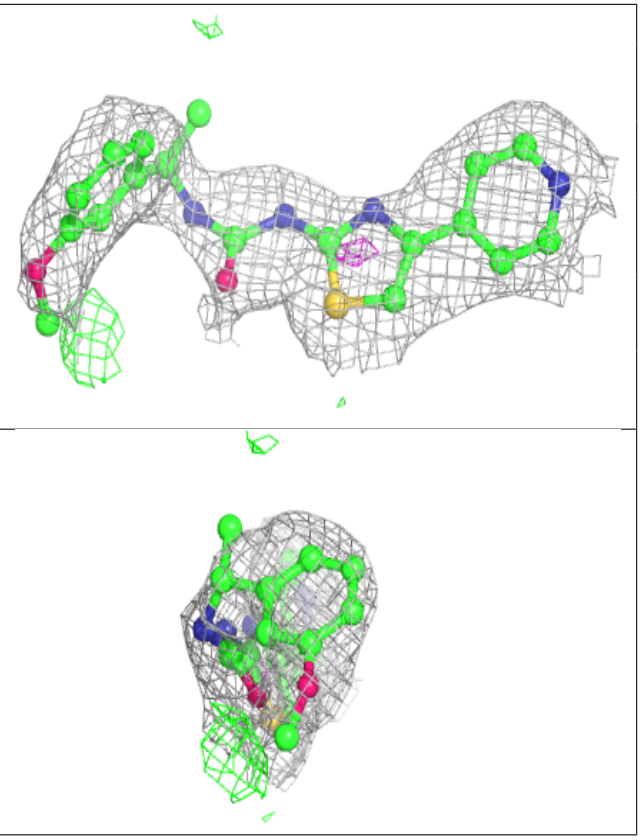
Electron density around 07Q D 4:

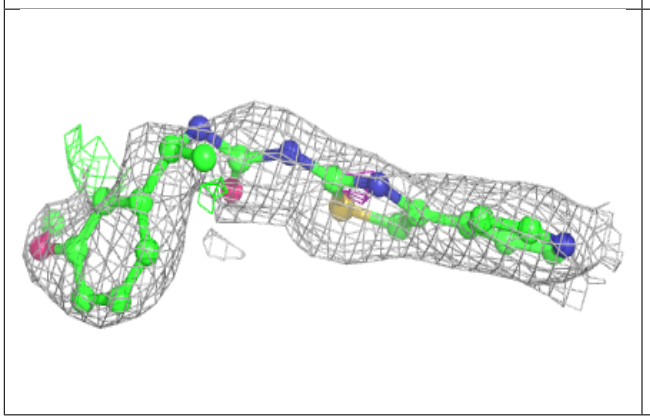
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around 07Q A 1:

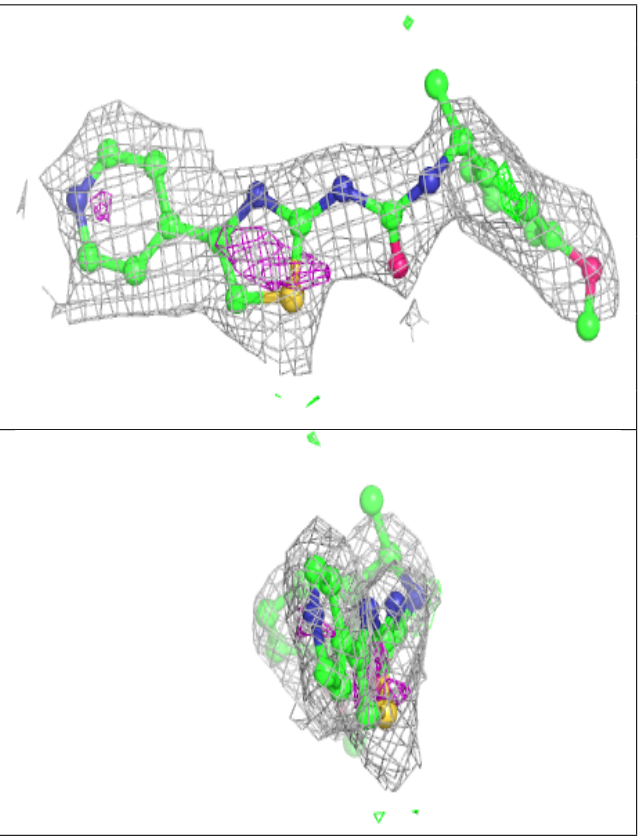
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

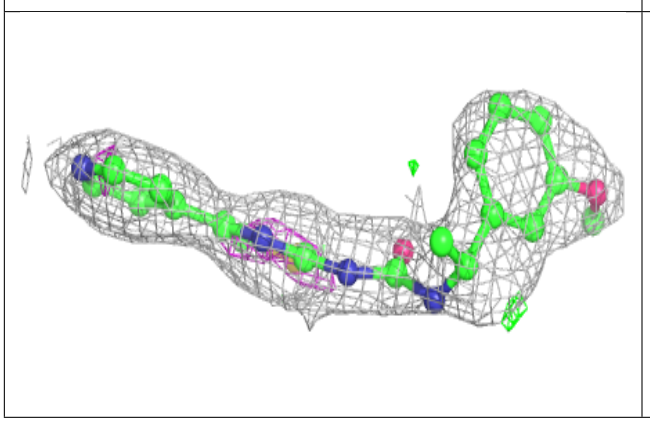




Electron density around 07Q C 3:

$2mF_o$-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 (i)

There are no such residues in this entry.