



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 09:17 AM UTC

PDB ID : 6V37 / pdb_00006v37
Title : K2P2.1(TREK-1)I110D:RuR:ML335 bound channel structure
Authors : Pope, L.; Lolicato, M.; Minor, D.L.
Deposited on : 2019-11-25
Resolution : 2.80 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

The following versions of software and data (see [references ⓘ](#)) 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

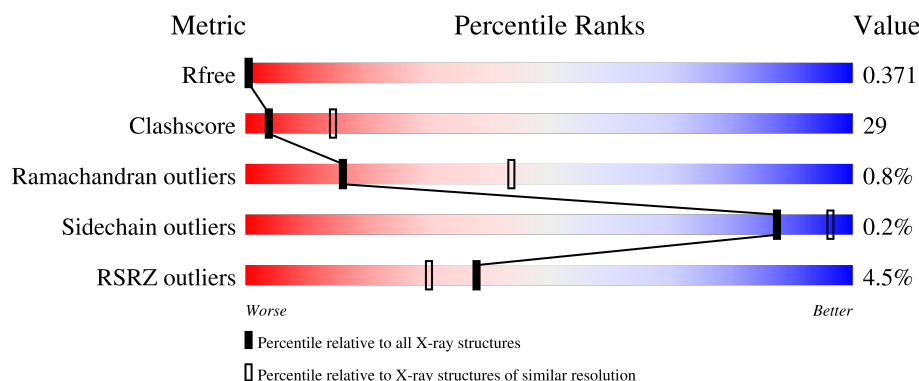
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.80 Å.

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



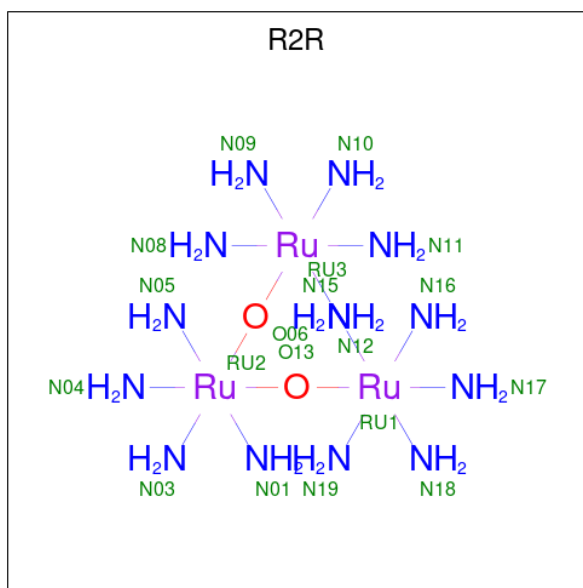
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	3866 (2.80-2.80)
Clashscore	190562	4276 (2.80-2.80)
Ramachandran outliers	187476	4196 (2.80-2.80)
Sidechain outliers	187428	4198 (2.80-2.80)
RSRZ outliers	180081	3869 (2.80-2.80)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	312	
1	B	312	

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 2 is ruthenium(6+) azanide pentaamino(oxido)ruthenium (1/4/2) (CCD ID: R2R) (formula: $\text{H}_{28}\text{N}_{14}\text{O}_2\text{Ru}_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	N	O	Ru	0	0
			19	14	2	3		

- Molecule 3 is CADMIUM ION (CCD ID: CD) (formula: Cd).

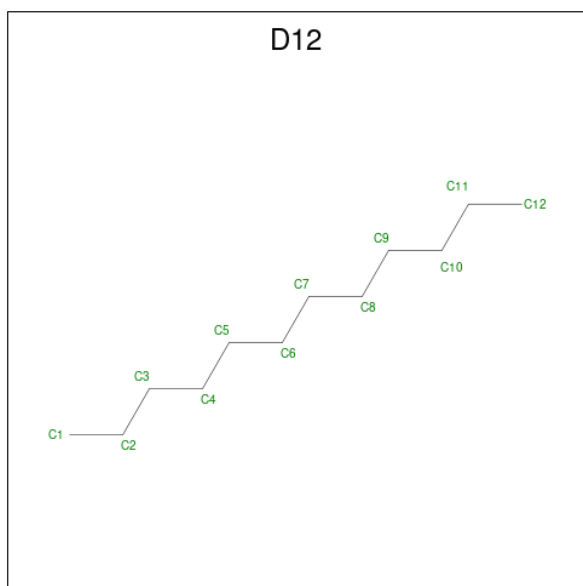
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total Cd 1 1	0	0



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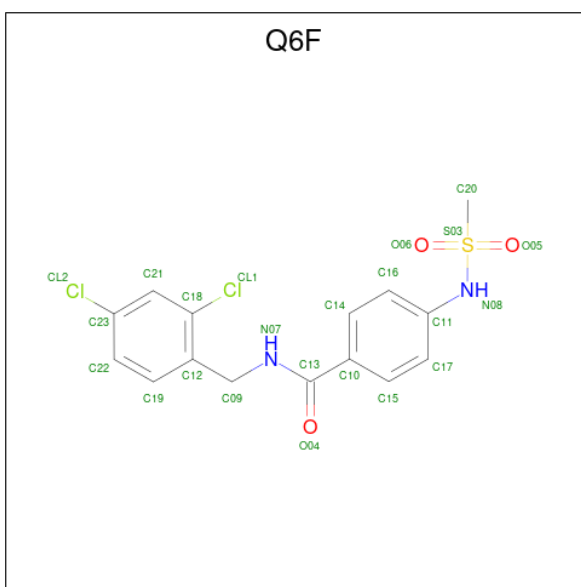
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	B	2	Total	Cd	0	0
			2	2		

- Molecule 4 is DODECANE (CCD ID: D12) (formula: $C_{12}H_{26}$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C		0	0
			12	12			
4	A	1	Total	C		0	0
			12	12			
4	A	1	Total	C	H	0	0
			38	12	26		
4	B	1	Total	C		0	0
			12	12			

- Molecule 5 is N-[(2,4-dichlorophenyl)methyl]-4-[(methylsulfonyl)amino]benzamide (CCD ID: Q6F) (formula: $C_{15}H_{14}Cl_2N_2O_3S$).

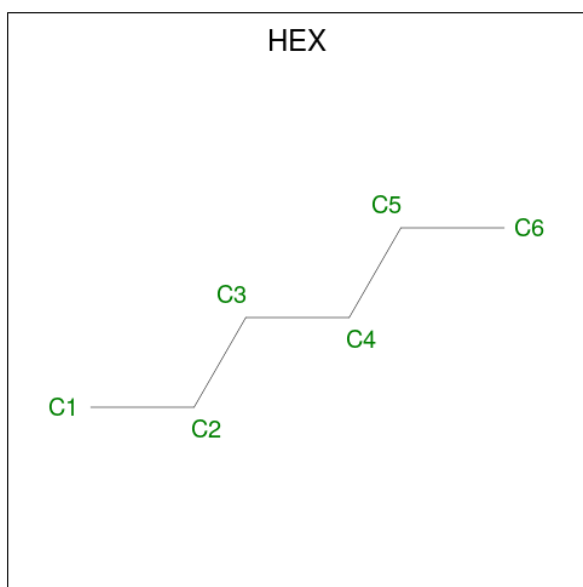


Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
5	A	1	Total	C	Cl	N	O	S	0	0
			23	15	2	2	3	1		
5	B	1	Total	C	Cl	N	O	S	0	0
			23	15	2	2	3	1		

- Molecule 6 is POTASSIUM ION (CCD ID: K) (formula: K).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	4	Total	K	0	0
			4	4		
6	B	1	Total	K	0	0
			1	1		

- Molecule 7 is HEXANE (CCD ID: HEX) (formula: C₆H₁₄).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	B	1	Total	C	H	0	0
			20	6	14		

- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	1	Total	O	0	0
			1	1		
8	B	1	Total	O	0	0
			1	1		

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.

- Chain A:
-
- | Amino Acid | Count |
|------------|-------|
| Met | 1 |
| Ser | 1 |
| Phe | 1 |
| Ser | 1 |
| Ser | 1 |
| Lys | 1 |
| Pro | 1 |
| Thr | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| Ser | 1 |
| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| Ser | 1 |
| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| Ser | 1 |
| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| Ser | 1 |
| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| Ser | 1 |
| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| Ser | 1 |
| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| Ser | 1 |
| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| Ser | 1 |
| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| Ser | 1 |
| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| Ser | 1 |
| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| Ser | 1 |
| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| Ser | 1 |
| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
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| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| Ser | 1 |
| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| Ser | 1 |
| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| Ser | 1 |
| Ala | 1 |
| Ile | 1 |
| Asn | 1 |
| Val | 1 |
| Leu | 1 |
| Ala | 1 |
| Ser | 1 |
| Arg | 1 |
| Val | 1 |
| Glu | 1 |
| Ser | 1 |
| Asn | 1 |
| Asp | 1 |
| S | |

- Chain B:
-
- 42% 45% 13%
- MET
SER
PHE
SER
SER
LYS
PRO
THR
VAL
LEU
ALA
SER
ARG
GLU
VAL
ASP
S37
A38
N40
V41
M42
K43
W44
K45
T46
T49
I50
V53
V54
V55
L56
I59
I60
G61
A62
T63
V64
P65
K66
Q70
P71
Q72
E73
I74
S75
T78
T79
I82
Q83
R84
S87
- L88
R89
H91
P92
C93
V94
S95
D96
Q97
E98
L99
D100
E101
L102
I103
Q104
Q105
I106
V107
A108
A109
D110
N111
A112
G113
I114
I115
P116
LEU
GLY
ALA
SER
SER
ASN
GLN
V124
L129
F133
F134
F135
A136
V139
I140
F145
G146
N147
I148
S149
P150
R151
K156
I160
T163
- Y162
A163
L164
L165
G166
I167
P168
L173
L174
A175
G176
V177
L181
G186
K187
G188
I189
A190
K191
V192
E193
D194
T195
F196
I197
K198
E265
V199
ASN
VAL
VAL
SER
Q203
I206
R207
I208
I209
S210
T211
I212
I213
L216
F217
G218
C219
V220
F222
V223
A224
L225
P226
A227
V228
K231
H232
- I233
W236
D240
A241
I242
Y243
F244
V245
V246
I247
T248
L249
T250
T251
I252
G253
F254
G255
V258
A259
G260
G261
S262
D263
I264
E265
V266
L267
D268
F269
Y270
K271
P272
V273
V274
W277
I278
L279
V280
G281
L282
A283
Y284
F285
V288
M291
D294
W295
R297
V298
I299
A300
- K301
K302
T303
K304
E305
A314
W317
THR
ALA
ASN
VAL
THR
SER
ASN
SER
SER
LEU
GLU
VAL
LEU
PHE
GLN

4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	67.02Å 118.73Å 129.04Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	14.99 – 2.80 14.99 – 2.80	Depositor EDS
% Data completeness (in resolution range)	96.4 (14.99-2.80) 99.0 (14.99-2.80)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.20 (at 2.81Å)	Xtriage
Refinement program	PHENIX 1.17.1 _3660	Depositor
R, R_{free}	0.272 , 0.317 0.298 , 0.371	Depositor DCC
R_{free} test set	1195 reflections (4.60%)	wwPDB-VP
Wilson B-factor (Å ²)	118.1	Xtriage
Anisotropy	0.181	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.27 , 103.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	4349	wwPDB-VP
Average B, all atoms (Å ²)	145.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.54% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ 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: HEX, D12, CD, K, Q6F, R2R

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	0.13	0/2110	0.38	0/2867
1	B	0.12	0/2176	0.36	1/2958 (0.0%)
All	All	0.13	0/4286	0.37	1/5825 (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	1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
1	B	266	TYR	N-CA-C	5.20	116.99	110.91

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	262	SER	Peptide

5.2 Too-close contacts

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	2060	0	2094	124	0
1	B	2120	0	2174	150	0
2	A	19	0	0	4	0
3	A	1	0	0	0	0
3	B	2	0	0	0	0
4	A	36	26	78	0	0
4	B	12	0	26	4	0
5	A	23	0	0	3	0
5	B	23	0	0	3	0
6	A	4	0	0	0	0
6	B	1	0	0	0	0
7	B	6	14	14	0	0
8	A	1	0	0	0	0
8	B	1	0	0	0	0
All	All	4309	40	4386	249	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 29.

All (249) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:114:ILE:HD12	1:B:116:PRO:HD3	1.30	1.14
1:B:109:ALA:HB1	1:B:114:ILE:HG12	1.33	1.10
1:B:250:THR:O	1:B:251:THR:HG22	1.73	0.89
1:A:110:ASP:OD2	2:A:401:R2R:N01	2.07	0.88
1:B:245:VAL:HG13	1:B:277:TRP:HZ2	1.42	0.84
1:A:88:LEU:HD11	1:A:99:LEU:HD13	1.60	0.82
1:A:89:ARG:O	1:A:92:PRO:HD3	1.80	0.81
1:B:41:VAL:HG12	1:B:45:LYS:HE3	1.60	0.81
1:A:80:ILE:CD1	1:B:114:ILE:HG21	2.10	0.81
1:A:91:HIS:NE2	1:B:95:SER:HB3	1.98	0.79
1:A:187:LYS:C	1:A:191:LYS:HE3	2.08	0.78
1:A:106:ILE:HD13	1:B:106:ILE:HD11	1.65	0.76
1:A:133:PHE:HA	1:B:62:ALA:HB2	1.69	0.75
1:B:37:SER:HA	1:B:40:ASN:ND2	2.03	0.74
1:B:40:ASN:HA	1:B:43:LYS:HE3	1.69	0.74
1:A:84:ARG:NH2	1:B:116:PRO:HB2	2.03	0.74
1:A:185:PHE:O	1:A:189:ILE:HG12	1.89	0.72
1:A:135:PHE:CZ	1:A:150:PRO:HD3	2.23	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:156:LYS:NZ	1:B:240:ASP:OD1	2.23	0.71
1:B:109:ALA:HB1	1:B:114:ILE:CG1	2.18	0.71
1:A:266:TYR:O	1:A:267:LEU:HD12	1.90	0.71
1:A:189:ILE:HG13	1:A:190:ALA:H	1.56	0.70
1:A:189:ILE:HG13	1:A:190:ALA:N	2.06	0.70
1:A:152:THR:HG22	1:A:154:GLY:H	1.57	0.70
1:B:194:ASP:HA	1:B:197:ILE:HG22	1.75	0.69
1:A:191:LYS:HE2	1:A:191:LYS:H	1.57	0.69
1:B:231:LYS:HG3	1:B:236:TRP:O	1.92	0.69
1:B:111:ASN:HB3	1:B:151:ARG:NH2	2.08	0.68
1:A:106:ILE:HG21	1:B:106:ILE:HD11	1.77	0.67
1:A:80:ILE:HD13	1:B:114:ILE:HG21	1.75	0.67
1:B:84:ARG:CG	1:B:88:LEU:HD13	2.24	0.67
1:A:41:VAL:C	1:A:43:LYS:H	2.03	0.67
1:B:194:ASP:O	1:B:197:ILE:HG22	1.94	0.66
1:A:103:ILE:HG21	1:B:116:PRO:HG2	1.77	0.65
1:B:84:ARG:HG2	1:B:88:LEU:HD13	1.79	0.65
1:A:75:SER:O	1:A:79:THR:HG23	1.97	0.65
1:B:41:VAL:CG1	1:B:45:LYS:HE3	2.27	0.64
1:B:210:SER:O	1:B:213:ILE:HG22	1.96	0.64
1:A:106:ILE:HG21	1:B:106:ILE:CD1	2.26	0.64
1:B:59:ILE:O	1:B:63:THR:HG23	1.98	0.64
1:A:191:LYS:H	1:A:191:LYS:CE	2.12	0.63
1:B:45:LYS:O	1:B:49:THR:HG23	1.98	0.63
1:B:222:PHE:CE1	1:B:280:VAL:HG12	2.33	0.63
1:A:260:GLY:HA3	5:A:406:Q6F:C14	2.29	0.63
1:B:167:ILE:HB	1:B:168:PRO:HD3	1.80	0.63
1:B:109:ALA:CB	1:B:114:ILE:HG12	2.21	0.62
1:A:249:LEU:HB2	1:A:285:PHE:CE2	2.34	0.62
1:A:129:LEU:HD23	1:B:66:LYS:NZ	2.14	0.62
1:A:250:THR:O	1:A:251:THR:OG1	2.18	0.62
1:B:188:GLY:HA2	1:B:191:LYS:HZ3	1.64	0.61
1:B:249:LEU:HB2	1:B:285:PHE:CE2	2.35	0.61
1:B:218:GLY:HA3	1:B:284:TYR:CZ	2.35	0.61
1:A:220:VAL:HA	1:A:224:ALA:HB3	1.83	0.60
1:B:37:SER:HA	1:B:40:ASN:HD22	1.66	0.60
1:A:84:ARG:NH2	1:B:116:PRO:O	2.33	0.60
1:B:114:ILE:CD1	1:B:116:PRO:HD3	2.20	0.60
1:A:190:ALA:H	1:A:191:LYS:HZ3	1.50	0.60
1:A:107:VAL:O	1:A:110:ASP:HB3	2.02	0.59
1:B:49:THR:O	1:B:53:VAL:HG23	2.02	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:88:LEU:HG	1:B:96:ASP:OD1	2.03	0.58
1:B:110:ASP:O	1:B:113:GLY:N	2.30	0.58
1:B:147:ASN:OD1	1:B:148:ILE:N	2.36	0.58
1:A:47:VAL:HG22	1:B:176:GLY:HA3	1.85	0.58
1:A:186:GLY:O	1:A:191:LYS:NZ	2.33	0.58
1:A:190:ALA:N	1:A:191:LYS:HZ3	2.01	0.58
1:A:284:TYR:O	1:A:288:VAL:HG23	2.03	0.58
1:A:134:PHE:CE1	1:A:138:THR:HG23	2.39	0.58
1:B:198:LYS:HE3	1:B:199:TRP:CH2	2.38	0.58
1:A:303:THR:O	1:A:307:VAL:HG23	2.03	0.58
1:B:213:ILE:HD11	1:B:217:PHE:CE2	2.38	0.58
1:A:141:THR:O	1:A:142:THR:OG1	2.22	0.58
1:B:224:ALA:O	1:B:228:VAL:HG23	2.03	0.57
1:A:91:HIS:CD2	1:B:95:SER:HB3	2.38	0.57
1:B:188:GLY:HA2	1:B:191:LYS:NZ	2.19	0.57
1:A:147:ASN:OD1	1:A:148:ILE:N	2.38	0.57
1:B:84:ARG:NH2	1:B:100:ASP:OD1	2.37	0.57
1:B:98:GLU:HA	1:B:101:GLU:HG2	1.85	0.57
1:B:206:ILE:HA	1:B:209:ILE:HD13	1.87	0.57
1:A:87:PHE:CD2	1:A:99:LEU:HD12	2.39	0.57
1:A:190:ALA:HA	1:A:193:GLU:CG	2.35	0.56
1:A:138:THR:HB	1:A:144:GLY:HA2	1.86	0.56
1:B:60:ILE:O	1:B:64:VAL:HG23	2.06	0.55
1:B:135:PHE:CZ	1:B:150:PRO:HD3	2.41	0.55
1:A:258:VAL:HG12	1:A:260:GLY:H	1.71	0.55
1:B:260:GLY:HA3	5:B:904:Q6F:C14	2.36	0.55
1:A:302:LYS:O	1:A:305:GLU:HG2	2.07	0.55
1:B:41:VAL:O	1:B:45:LYS:HG3	2.07	0.55
1:A:179:ASP:O	1:A:183:THR:HG23	2.06	0.55
1:B:314:ALA:HB3	1:B:317:TRP:C	2.32	0.54
1:B:84:ARG:HG3	1:B:88:LEU:HD13	1.89	0.54
1:B:194:ASP:HA	1:B:197:ILE:CG2	2.37	0.54
1:B:213:ILE:HD11	1:B:217:PHE:HE2	1.71	0.54
1:B:216:LEU:O	1:B:220:VAL:HG23	2.08	0.54
1:A:62:ALA:HB2	1:B:133:PHE:HA	1.90	0.54
1:B:84:ARG:HG3	1:B:88:LEU:CD1	2.38	0.54
1:B:148:ILE:HG13	1:B:148:ILE:O	2.08	0.54
1:B:93:CYS:O	1:B:95:SER:N	2.40	0.54
1:B:111:ASN:HB3	1:B:151:ARG:HH22	1.71	0.54
1:A:131:SER:HA	5:A:406:Q6F:C17	2.37	0.54
1:A:135:PHE:O	1:A:139:VAL:HG23	2.08	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:135:PHE:HZ	1:A:150:PRO:HD3	1.69	0.53
1:B:245:VAL:HG13	1:B:277:TRP:CZ2	2.33	0.53
1:A:218:GLY:HA3	1:A:284:TYR:CZ	2.43	0.53
1:B:243:TYR:O	1:B:247:ILE:HG12	2.09	0.53
1:A:229:ILE:CG2	1:A:233:ILE:HD12	2.38	0.53
1:B:39:ILE:HD12	1:B:40:ASN:N	2.24	0.53
1:B:174:LEU:HD11	1:B:283:ALA:N	2.24	0.53
1:A:100:ASP:O	1:A:104:GLN:HG3	2.08	0.53
1:B:194:ASP:CA	1:B:197:ILE:HG22	2.39	0.52
1:A:240:ASP:OD1	1:B:156:LYS:NZ	2.42	0.52
1:B:56:LEU:HD21	1:B:60:ILE:HD11	1.91	0.52
1:B:98:GLU:O	1:B:101:GLU:HB2	2.10	0.52
1:B:195:THR:O	1:B:198:LYS:HE2	2.10	0.52
1:B:186:GLY:HA2	1:B:189:ILE:HG22	1.90	0.52
1:A:134:PHE:HE1	1:A:138:THR:CG2	2.23	0.52
1:A:266:TYR:C	1:A:267:LEU:HD12	2.34	0.52
1:A:190:ALA:HA	1:A:193:GLU:HG3	1.91	0.52
1:B:302:LYS:O	1:B:305:GLU:HG2	2.09	0.52
1:A:42:MET:O	1:A:44:TRP:HE3	1.92	0.52
1:A:292:ILE:O	1:A:296:LEU:HG	2.10	0.52
1:A:106:ILE:HD13	1:B:106:ILE:CD1	2.37	0.51
1:A:274:VAL:O	1:A:277:TRP:HB3	2.11	0.51
1:B:106:ILE:O	1:B:110:ASP:N	2.43	0.51
1:A:249:LEU:HD22	1:A:281:GLY:C	2.35	0.51
1:A:259:ALA:HB3	5:A:406:Q6F:CL1	2.47	0.51
1:A:267:LEU:O	1:A:268:ASP:OD1	2.28	0.51
1:A:254:PHE:HD1	1:B:146:GLY:HA2	1.76	0.50
1:B:218:GLY:HA3	1:B:284:TYR:OH	2.10	0.50
1:A:188:GLY:O	1:A:192:VAL:HG22	2.12	0.50
1:A:191:LYS:N	1:A:191:LYS:HD3	2.27	0.50
1:A:299:ILE:O	1:A:303:THR:HG23	2.11	0.50
1:B:110:ASP:C	1:B:113:GLY:H	2.17	0.50
1:A:88:LEU:CD1	1:A:99:LEU:HD13	2.38	0.49
1:A:134:PHE:CE1	1:A:138:THR:CG2	2.95	0.49
2:A:401:R2R:N01	2:A:401:R2R:N19	2.60	0.49
1:A:134:PHE:HA	1:A:275:TRP:CH2	2.47	0.49
1:B:189:ILE:HG13	1:B:193:GLU:CD	2.37	0.49
1:A:129:LEU:HD23	1:B:66:LYS:HZ2	1.77	0.49
1:B:296:LEU:O	1:B:300:ALA:N	2.41	0.49
1:B:249:LEU:HD22	1:B:281:GLY:C	2.37	0.49
1:B:56:LEU:CD2	4:B:903:D12:H31	2.43	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:173:LEU:O	1:B:177:VAL:HG23	2.12	0.49
1:B:181:LEU:HD22	1:B:280:VAL:HG13	1.95	0.48
1:B:84:ARG:O	1:B:88:LEU:HD13	2.12	0.48
1:B:100:ASP:O	1:B:104:GLN:HG3	2.13	0.48
1:A:181:LEU:HD22	1:A:280:VAL:HG13	1.95	0.48
1:A:70:GLN:N	1:A:71:PRO:CD	2.77	0.48
1:B:298:VAL:O	1:B:302:LYS:HG2	2.14	0.48
1:B:194:ASP:C	1:B:197:ILE:HG22	2.39	0.48
1:A:247:ILE:HD12	1:A:254:PHE:CE2	2.49	0.48
1:A:313:HIS:O	1:A:317:TRP:N	2.42	0.48
1:A:58:LEU:HD21	1:B:140:ILE:CD1	2.43	0.48
1:A:87:PHE:HD2	1:A:99:LEU:HD12	1.79	0.48
1:B:299:ILE:O	1:B:303:THR:HG23	2.13	0.48
1:A:180:GLN:OE1	1:B:43:LYS:NZ	2.47	0.48
1:A:142:THR:HA	1:B:252:ILE:HG12	1.94	0.47
1:A:261:GLY:O	1:A:262:SER:OG	2.26	0.47
1:B:213:ILE:HG13	1:B:217:PHE:CD2	2.49	0.47
2:A:401:R2R:N10	2:A:401:R2R:N05	2.61	0.47
1:B:98:GLU:HA	1:B:101:GLU:CG	2.44	0.47
1:B:149:SER:HB2	1:B:150:PRO:HD2	1.96	0.47
1:B:249:LEU:HB2	1:B:285:PHE:CD2	2.50	0.47
1:A:42:MET:O	1:A:44:TRP:CE3	2.68	0.47
1:B:209:ILE:HD12	1:B:209:ILE:H	1.78	0.47
1:B:70:GLN:N	1:B:71:PRO:CD	2.78	0.47
1:B:250:THR:O	1:B:251:THR:CG2	2.55	0.47
1:A:147:ASN:ND2	1:A:258:VAL:HG21	2.30	0.47
1:A:43:LYS:HD2	1:A:43:LYS:O	2.14	0.46
1:A:140:ILE:HG22	1:A:166:GLY:HA3	1.95	0.46
2:A:401:R2R:N05	2:A:401:R2R:N12	2.64	0.46
1:A:130:GLY:O	1:A:133:PHE:HB3	2.15	0.46
1:A:191:LYS:N	1:A:191:LYS:CD	2.78	0.46
1:A:222:PHE:CE1	1:A:280:VAL:HG12	2.51	0.46
1:B:56:LEU:HD22	4:B:903:D12:H31	1.98	0.46
1:B:221:LEU:O	1:B:226:PRO:HD3	2.16	0.46
1:A:195:THR:O	1:A:196:PHE:HB2	2.15	0.46
1:B:269:PHE:C	1:B:272:PRO:HD2	2.41	0.46
4:B:903:D12:H42	4:B:903:D12:H72	1.47	0.46
1:A:44:TRP:NE1	1:A:46:THR:OG1	2.49	0.45
1:A:221:LEU:O	1:A:226:PRO:HD3	2.15	0.45
1:B:225:LEU:N	1:B:226:PRO:HD2	2.31	0.45
1:A:173:LEU:HD22	1:B:54:VAL:HG21	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:107:VAL:O	1:B:110:ASP:HB3	2.16	0.45
1:B:197:ILE:O	1:B:197:ILE:HG13	2.17	0.45
1:B:262:SER:OG	1:B:264:ILE:HG12	2.17	0.45
1:B:261:GLY:HA2	5:B:904:Q6F:C20	2.46	0.45
1:A:180:GLN:HG2	1:B:44:TRP:CZ3	2.52	0.45
1:A:43:LYS:HD2	1:A:43:LYS:C	2.42	0.45
1:B:145:PHE:HD1	1:B:255:GLY:HA2	1.82	0.45
1:B:40:ASN:CA	1:B:43:LYS:HE3	2.44	0.45
1:A:306:ALA:O	1:A:309:GLU:HB3	2.16	0.44
1:B:213:ILE:HG13	1:B:217:PHE:HD2	1.82	0.44
1:A:127:TRP:O	1:B:66:LYS:HG3	2.17	0.44
1:A:134:PHE:HA	1:A:275:TRP:HH2	1.82	0.44
1:A:220:VAL:HA	1:A:224:ALA:CB	2.47	0.44
1:B:114:ILE:O	1:B:116:PRO:HD3	2.18	0.44
1:B:46:THR:O	1:B:50:ILE:HG13	2.17	0.44
1:A:246:VAL:O	1:A:250:THR:HG23	2.18	0.44
1:B:233:ILE:HD13	1:B:270:TYR:CD1	2.52	0.44
1:A:209:ILE:HD12	1:A:209:ILE:H	1.83	0.44
1:B:50:ILE:O	1:B:54:VAL:HG23	2.18	0.44
1:A:249:LEU:HB2	1:A:285:PHE:CD2	2.53	0.43
1:B:270:TYR:O	1:B:274:VAL:HG23	2.18	0.43
1:B:160:ILE:O	1:B:164:LEU:HG	2.17	0.43
1:B:288:VAL:HA	1:B:291:MET:HE3	2.00	0.43
1:A:208:ILE:O	1:A:212:ILE:HG13	2.17	0.43
1:A:99:LEU:HD23	1:A:99:LEU:C	2.44	0.43
1:B:79:THR:HA	1:B:82:ILE:HD12	1.99	0.43
4:B:903:D12:H62	4:B:903:D12:H92	1.45	0.43
1:B:208:ILE:O	1:B:212:ILE:HG13	2.19	0.43
1:A:160:ILE:HG23	1:B:246:VAL:HG11	1.99	0.43
1:A:41:VAL:C	1:A:43:LYS:N	2.70	0.43
1:A:91:HIS:C	1:A:93:CYS:H	2.26	0.43
1:B:104:GLN:HA	1:B:107:VAL:HG12	2.00	0.43
1:A:79:THR:O	1:A:83:GLN:HG3	2.18	0.43
1:B:75:SER:O	1:B:79:THR:HG23	2.18	0.43
1:B:196:PHE:CD2	1:B:209:ILE:HG21	2.54	0.42
1:A:216:LEU:O	1:A:220:VAL:HG23	2.19	0.42
1:A:58:LEU:HD21	1:B:140:ILE:HD11	2.00	0.42
1:B:39:ILE:HD12	1:B:39:ILE:C	2.44	0.42
1:B:140:ILE:HG22	1:B:166:GLY:HA3	2.01	0.42
1:B:222:PHE:CE1	1:B:280:VAL:CG1	3.02	0.42
1:A:91:HIS:C	1:A:93:CYS:N	2.78	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:187:LYS:CA	1:A:191:LYS:HE3	2.49	0.42
1:B:88:LEU:O	1:B:92:PRO:HB3	2.19	0.42
1:B:258:VAL:HG12	1:B:260:GLY:H	1.83	0.42
1:B:89:ARG:O	1:B:92:PRO:HD3	2.19	0.42
1:A:249:LEU:CB	1:A:285:PHE:CD2	3.02	0.42
1:A:277:TRP:CE3	1:A:278:ILE:HG13	2.55	0.42
1:B:78:THR:O	1:B:82:ILE:HG13	2.19	0.41
1:A:207:ARG:O	1:A:211:THR:HG23	2.21	0.41
1:B:249:LEU:CB	1:B:285:PHE:CD2	3.03	0.41
1:B:103:ILE:HA	1:B:106:ILE:HG12	2.03	0.41
1:B:241:ALA:O	1:B:245:VAL:HG23	2.20	0.41
1:B:271:LYS:HB2	1:B:272:PRO:HD3	2.02	0.41
1:A:254:PHE:HZ	1:B:139:VAL:HG22	1.85	0.41
1:B:136:ALA:HB1	1:B:162:TYR:CE2	2.55	0.41
1:A:126:HIS:N	1:B:73:GLU:OE2	2.54	0.41
1:A:186:GLY:C	1:A:191:LYS:NZ	2.78	0.41
1:B:266:TYR:O	1:B:267:LEU:C	2.64	0.41
1:A:126:HIS:HB2	1:B:73:GLU:OE2	2.21	0.41
1:A:268:ASP:OD1	1:A:268:ASP:C	2.64	0.41
1:B:114:ILE:HD12	1:B:114:ILE:C	2.45	0.41
1:B:278:ILE:CD1	5:B:904:Q6F:C21	2.99	0.41
1:A:99:LEU:O	1:A:103:ILE:HG12	2.21	0.41
1:A:229:ILE:HG23	1:A:233:ILE:HD12	2.03	0.41
1:A:191:LYS:HE2	1:A:191:LYS:HB2	1.78	0.41
1:B:222:PHE:HE1	1:B:280:VAL:CG1	2.34	0.40
1:A:189:ILE:O	1:A:193:GLU:CG	2.70	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	257/312 (82%)	237 (92%)	17 (7%)	3 (1%)	10	34
1	B	266/312 (85%)	247 (93%)	18 (7%)	1 (0%)	30	60
All	All	523/624 (84%)	484 (92%)	35 (7%)	4 (1%)	16	44

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	42	MET
1	A	44	TRP
1	A	43	LYS
1	B	264	ILE

5.3.2 Protein sidechains ⓘ

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	215/260 (83%)	214 (100%)	1 (0%)	81	93
1	B	221/260 (85%)	221 (100%)	0	100	100
All	All	436/520 (84%)	435 (100%)	1 (0%)	87	96

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	134	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	313	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 16 ligands modelled in this entry, 8 are monoatomic - leaving 8 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$
4	D12	A	403	-	11,11,11	0.32	0	10,10,10	0.80	0
2	R2R	A	401	-	14,18,18	19.51	14 (100%)	-		
4	D12	A	404	-	11,11,11	0.31	0	10,10,10	0.82	0
7	HEX	B	901	-	5,5,5	0.33	0	4,4,4	0.60	0
5	Q6F	B	904	-	24,24,24	2.07	5 (20%)	34,34,34	3.31	13 (38%)
4	D12	B	903	-	11,11,11	0.31	0	10,10,10	0.85	0
5	Q6F	A	406	-	24,24,24	2.06	6 (25%)	34,34,34	3.32	15 (44%)
4	D12	A	405	-	11,11,11	0.30	0	10,10,10	0.84	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
4	D12	A	403	-	-	5/9/9/9	-
4	D12	A	404	-	-	2/9/9/9	-
7	HEX	B	901	-	-	0/3/3/3	-
5	Q6F	B	904	-	-	1/14/14/14	0/2/2/2
4	D12	B	903	-	-	5/9/9/9	-
5	Q6F	A	406	-	-	1/14/14/14	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	D12	A	405	-	-	2/9/9/9	-

All (25) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	401	R2R	RU2-N01	-23.79	1.79	2.11
2	A	401	R2R	RU2-N04	-23.24	1.80	2.11
2	A	401	R2R	RU2-N05	-23.17	1.80	2.11
2	A	401	R2R	RU2-N03	-22.99	1.80	2.11
2	A	401	R2R	RU1-N19	-17.95	1.80	2.10
2	A	401	R2R	RU3-N12	-17.82	1.80	2.10
2	A	401	R2R	RU1-N16	-17.78	1.80	2.10
2	A	401	R2R	RU3-N10	-17.76	1.80	2.10
2	A	401	R2R	RU3-N11	-17.76	1.80	2.10
2	A	401	R2R	RU3-N09	-17.73	1.80	2.10
2	A	401	R2R	RU1-N15	-17.73	1.80	2.10
2	A	401	R2R	RU1-N17	-17.72	1.80	2.10
2	A	401	R2R	RU1-N18	-17.71	1.80	2.10
2	A	401	R2R	RU3-N08	-17.68	1.80	2.10
5	B	904	Q6F	S03-N08	6.10	1.71	1.63
5	A	406	Q6F	S03-N08	5.99	1.71	1.63
5	B	904	Q6F	C13-N07	5.53	1.46	1.33
5	A	406	Q6F	C13-N07	5.47	1.45	1.33
5	B	904	Q6F	C20-S03	2.79	1.81	1.75
5	A	406	Q6F	C20-S03	2.76	1.81	1.75
5	A	406	Q6F	C18-CL1	2.26	1.79	1.73
5	A	406	Q6F	O05-S03	2.20	1.47	1.43
5	B	904	Q6F	C23-CL2	2.17	1.79	1.74
5	B	904	Q6F	O05-S03	2.08	1.46	1.43
5	A	406	Q6F	C23-CL2	2.04	1.79	1.74

All (28) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	406	Q6F	O06-S03-O05	-13.65	100.58	118.87
5	B	904	Q6F	O06-S03-O05	-13.54	100.71	118.87
5	A	406	Q6F	C17-C11-N08	6.55	133.82	120.02
5	A	406	Q6F	C16-C11-N08	-6.52	106.29	120.02
5	B	904	Q6F	C17-C11-N08	6.48	133.67	120.02
5	B	904	Q6F	C16-C11-N08	-6.41	106.52	120.02
5	A	406	Q6F	C21-C18-C12	-3.58	119.29	122.41
5	B	904	Q6F	C22-C23-CL2	3.55	124.60	119.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	406	Q6F	C20-S03-N08	3.42	110.42	106.56
5	B	904	Q6F	C12-C09-N07	-3.31	106.47	113.15
5	A	406	Q6F	C12-C09-N07	-3.29	106.51	113.15
5	B	904	Q6F	C21-C18-C12	-3.23	119.59	122.41
5	B	904	Q6F	C20-S03-N08	3.18	110.14	106.56
5	B	904	Q6F	C21-C23-CL2	-3.14	115.23	119.17
5	A	406	Q6F	C22-C23-CL2	3.14	123.98	119.36
5	B	904	Q6F	C19-C12-C18	2.85	121.40	116.91
5	A	406	Q6F	C09-C12-C19	-2.70	115.01	120.98
5	A	406	Q6F	C19-C12-C18	2.68	121.13	116.91
5	A	406	Q6F	C21-C23-CL2	-2.60	115.90	119.17
5	B	904	Q6F	C09-C12-C19	-2.59	115.26	120.98
5	B	904	Q6F	O06-S03-N08	2.28	111.66	107.10
5	A	406	Q6F	O06-S03-N08	2.12	111.34	107.10
5	B	904	Q6F	O05-S03-N08	2.12	111.33	107.10
5	A	406	Q6F	C09-C12-C18	2.10	123.84	121.08
5	A	406	Q6F	O05-S03-C20	2.10	111.58	108.26
5	A	406	Q6F	O05-S03-N08	2.04	111.17	107.10
5	B	904	Q6F	O05-S03-C20	2.03	111.47	108.26
5	A	406	Q6F	O06-S03-C20	2.01	111.44	108.26

There are no chirality outliers.

All (16) torsion outliers are listed below:

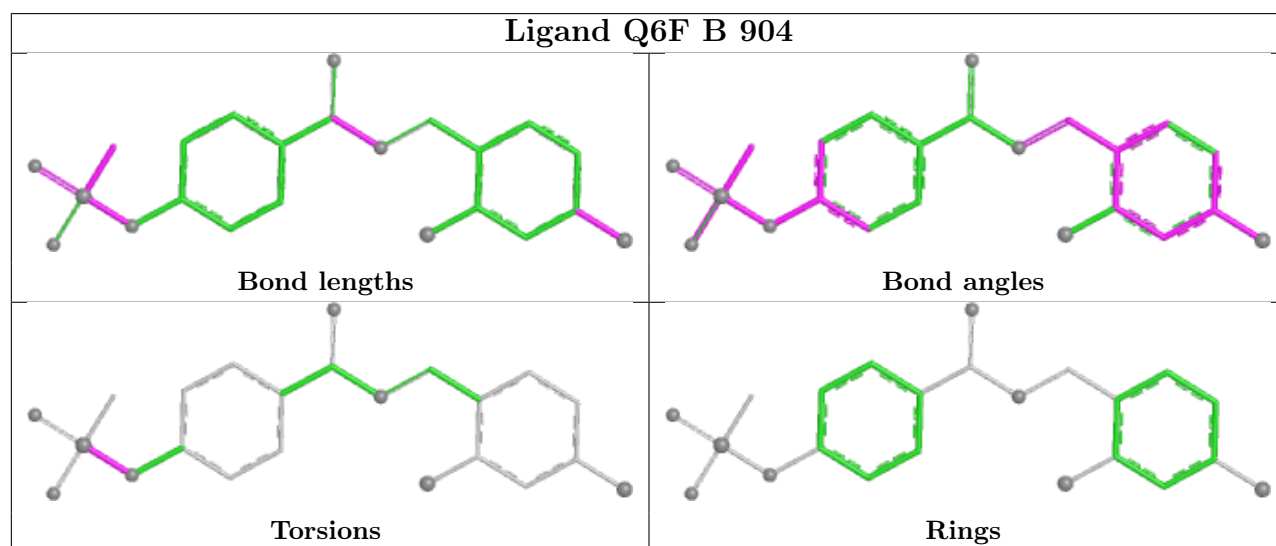
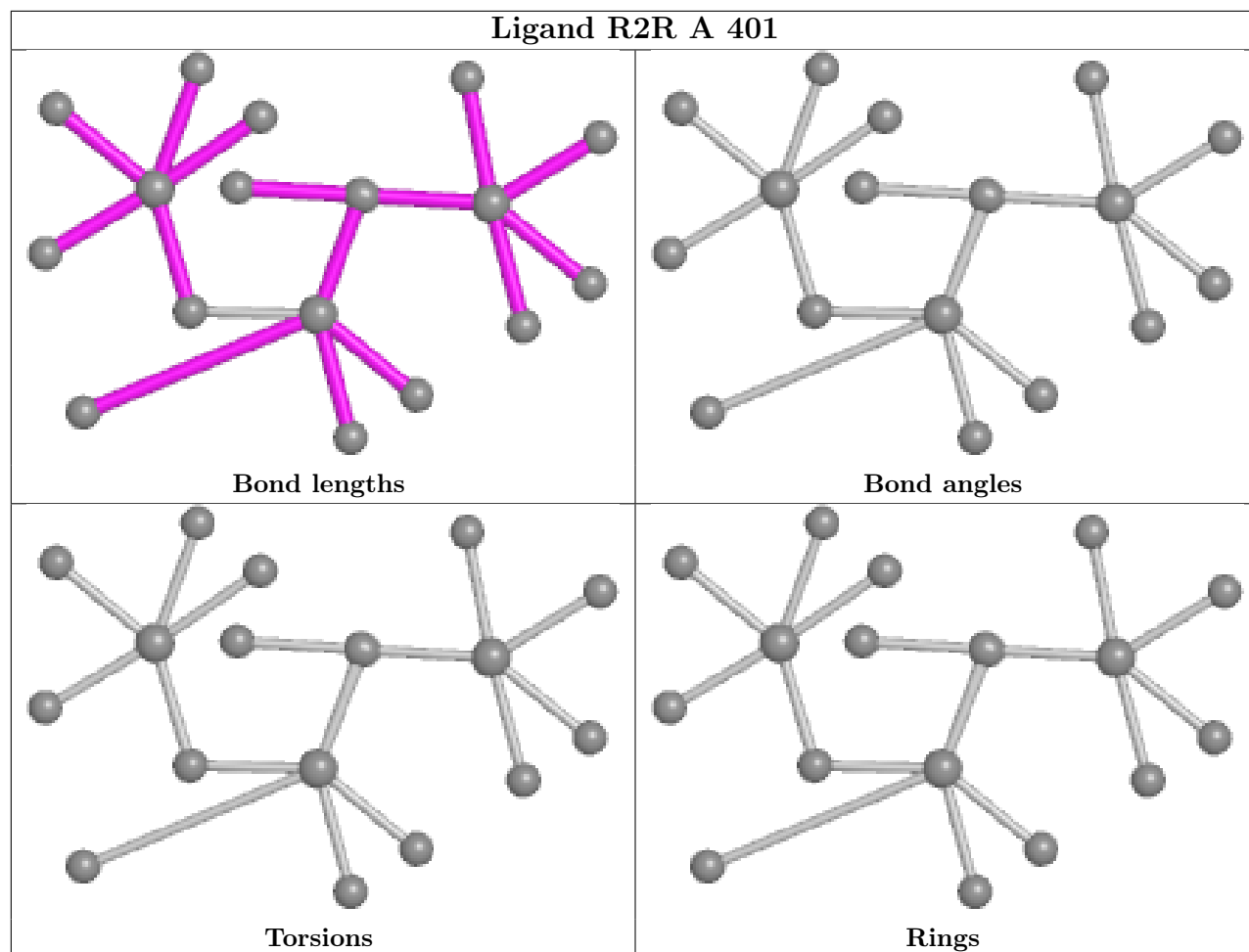
Mol	Chain	Res	Type	Atoms
4	B	903	D12	C4-C5-C6-C7
4	B	903	D12	C6-C7-C8-C9
4	A	403	D12	C4-C5-C6-C7
4	B	903	D12	C7-C8-C9-C10
4	B	903	D12	C3-C4-C5-C6
4	B	903	D12	C2-C3-C4-C5
4	A	405	D12	C4-C5-C6-C7
4	A	403	D12	C1-C2-C3-C4
4	A	403	D12	C5-C6-C7-C8
4	A	405	D12	C3-C4-C5-C6
4	A	403	D12	C2-C3-C4-C5
5	A	406	Q6F	C11-N08-S03-O05
5	B	904	Q6F	C11-N08-S03-O05
4	A	404	D12	C2-C3-C4-C5
4	A	403	D12	C3-C4-C5-C6
4	A	404	D12	C6-C7-C8-C9

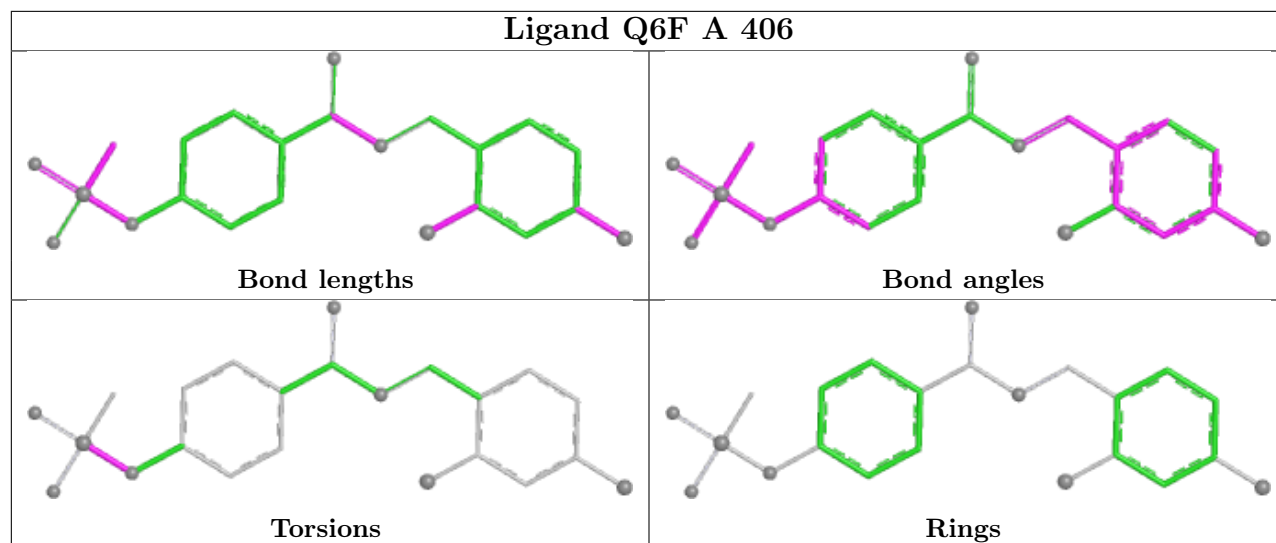
There are no ring outliers.

4 monomers are involved in 14 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	401	R2R	4	0
5	B	904	Q6F	3	0
4	B	903	D12	4	0
5	A	406	Q6F	3	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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	263/312 (84%)	0.18	9 (3%)	48	39	88, 137, 202, 230	0
1	B	271/312 (86%)	0.23	15 (5%)	30	23	67, 136, 213, 238	1 (0%)
All	All	534/624 (85%)	0.20	24 (4%)	38	30	67, 137, 209, 238	1 (0%)

All (24) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	266	TYR	3.6
1	B	87	PHE	3.2
1	B	192	VAL	3.0
1	B	261	GLY	3.0
1	A	48	SER	2.9
1	B	94	VAL	2.8
1	B	195	THR	2.7
1	A	255	GLY	2.7
1	A	190	ALA	2.6
1	B	129	LEU	2.6
1	A	127	TRP	2.6
1	A	112	ALA	2.6
1	B	95	SER	2.5
1	B	254	PHE	2.3
1	B	294	ASP	2.3
1	B	196	PHE	2.2
1	A	296	LEU	2.2
1	B	90	ALA	2.1
1	B	110	ASP	2.1
1	A	148	ILE	2.1
1	B	107	VAL	2.1
1	B	113	GLY	2.1
1	A	129	LEU	2.0
1	A	238	ALA	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 oligosaccharides in this entry.

6.4 Ligands [i](#)

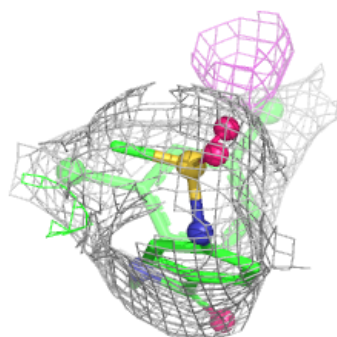
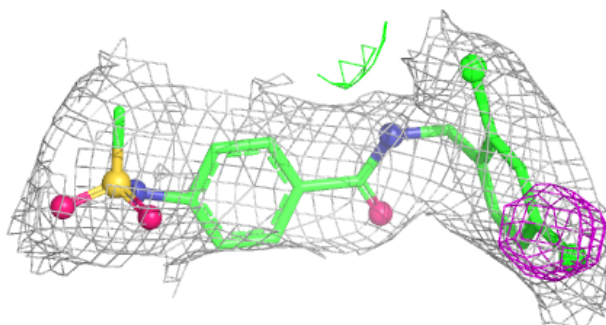
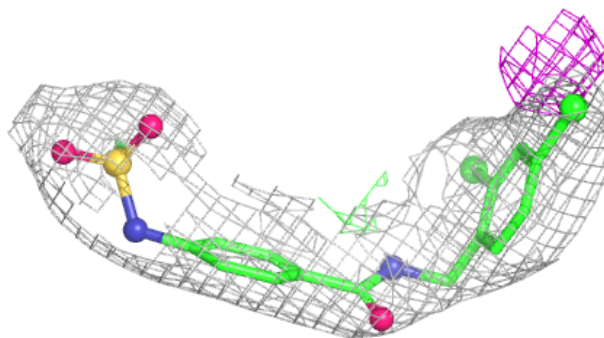
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
7	HEX	B	901	6/6	0.74	0.12	127,160,182,182	0
3	CD	B	906	1/1	0.79	0.05	360,360,360,360	0
4	D12	A	405	12/12	0.82	0.07	111,170,190,192	0
5	Q6F	A	406	23/23	0.83	0.11	118,128,150,160	0
4	D12	B	903	12/12	0.86	0.14	96,116,133,136	0
4	D12	A	403	12/12	0.87	0.10	99,127,145,152	0
5	Q6F	B	904	23/23	0.88	0.11	105,131,151,152	0
6	K	A	407	1/1	0.90	0.11	128,128,128,128	0
3	CD	A	402	1/1	0.93	0.15	329,329,329,329	0
4	D12	A	404	12/12	0.93	0.09	111,139,147,148	0
2	R2R	A	401	19/19	0.94	0.08	208,228,244,244	0
6	K	A	410	1/1	0.95	0.09	107,107,107,107	0
6	K	A	409	1/1	0.95	0.06	127,127,127,127	0
6	K	B	905	1/1	0.96	0.03	106,106,106,106	0
3	CD	B	902	1/1	0.97	0.04	172,172,172,172	0
6	K	A	408	1/1	0.98	0.03	106,106,106,106	0

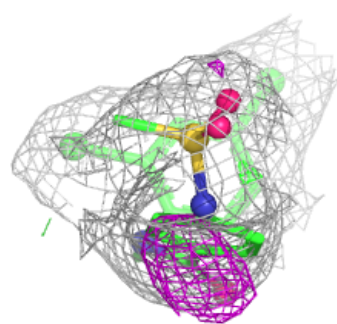
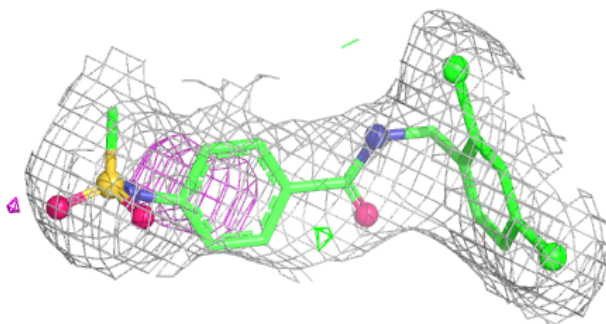
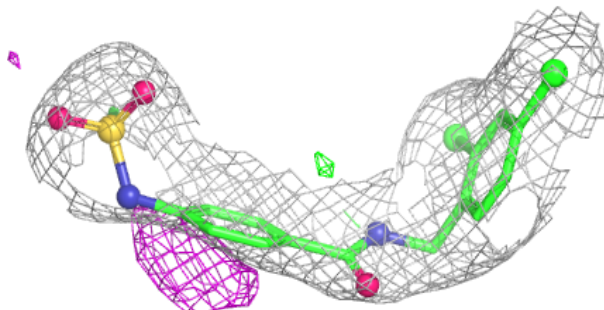
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around Q6F A 406:

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

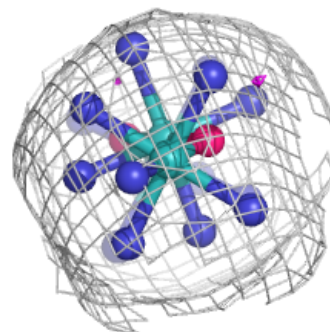
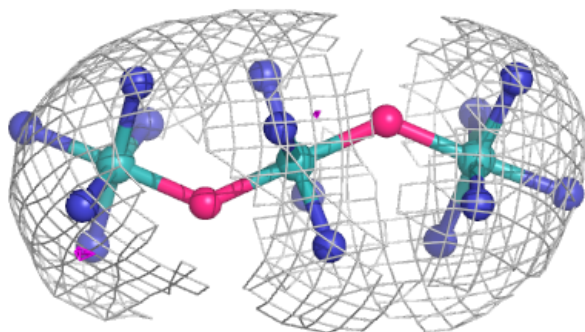
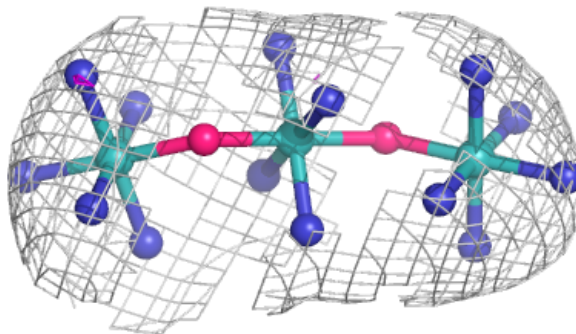
**Electron density around Q6F B 904:**

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



Electron density around R2R A 401:

$2mF_o-DF_c$ (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.