Full wwPDB EM Validation Report

Mar 31, 2026 – 12:12 AM EDT

PDB ID	:	9OLX / pdb_00009olx
EMDB ID	:	EMD-70601
Title	:	Structure of a constitutively open human TRPC3 mutant in the inhibited state
Authors	:	Bell, B.; Baker, M.L.; Cordero-Morales, J.F.
Deposited on	:	2025-05-13
Resolution	:	3.30 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

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

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

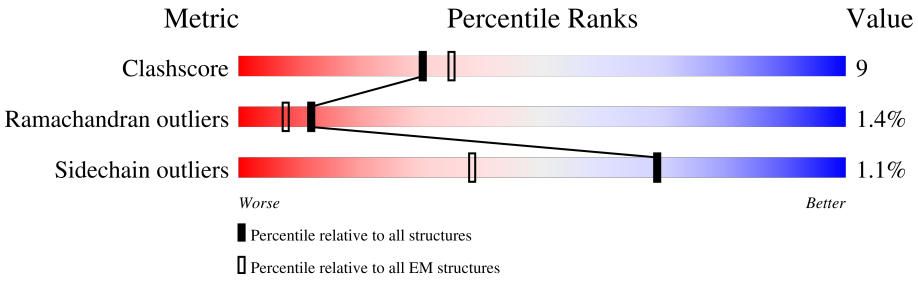
EMDB validation analysis	:	FAILED
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	NOT EXECUTED
MapQ	:	FAILED
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.48.1

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.30 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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

Mol	Chain	Length	Quality of chain
1	A	820	71% 18% • 9%
1	B	820	70% 18% • 9%
1	C	820	71% 17% • 9%
1	D	820	71% 18% • 9%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	UNL	A	903	-	-	X	-
2	UNL	B	902	-	-	X	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	UNL	B	903	-	-	X	-
2	UNL	C	902	-	-	X	-
2	UNL	C	903	-	-	X	-
2	UNL	D	901	-	-	X	-
2	UNL	D	904	-	-	X	-

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 24592 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Short transient receptor potential channel 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	745	Total	C	N	O	S	0	0
			5990	3890	970	1097	33		
1	B	745	Total	C	N	O	S	0	0
			5990	3890	970	1097	33		
1	C	745	Total	C	N	O	S	0	0
			5990	3890	970	1097	33		
1	D	745	Total	C	N	O	S	0	0
			5990	3890	970	1097	33		

There are 156 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	573	ALA	THR	engineered mutation	UNP Q13507
A	?	-	LEU	deletion	UNP Q13507
A	?	-	ASN	deletion	UNP Q13507
A	?	-	LEU	deletion	UNP Q13507
A	?	-	PHE	deletion	UNP Q13507
A	?	-	THR	deletion	UNP Q13507
A	?	-	GLN	deletion	UNP Q13507
A	?	-	SER	deletion	UNP Q13507
A	?	-	ASN	deletion	UNP Q13507
A	?	-	SER	deletion	UNP Q13507
A	?	-	ARG	deletion	UNP Q13507
A	?	-	VAL	deletion	UNP Q13507
A	?	-	PHE	deletion	UNP Q13507
A	?	-	GLU	deletion	UNP Q13507
A	?	-	SER	deletion	UNP Q13507
A	?	-	HIS	deletion	UNP Q13507
A	?	-	SER	deletion	UNP Q13507
A	?	-	PHE	deletion	UNP Q13507
A	?	-	ASN	deletion	UNP Q13507
A	?	-	SER	deletion	UNP Q13507
A	?	-	ILE	deletion	UNP Q13507
A	?	-	LEU	deletion	UNP Q13507

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Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	ASN	deletion	UNP Q13507
A	?	-	GLN	deletion	UNP Q13507
A	?	-	PRO	deletion	UNP Q13507
A	?	-	THR	deletion	UNP Q13507
A	?	-	ARG	deletion	UNP Q13507
A	?	-	TYR	deletion	UNP Q13507
A	?	-	GLN	deletion	UNP Q13507
A	839	ILE	-	expression tag	UNP Q13507
A	840	SER	-	expression tag	UNP Q13507
A	841	SER	-	expression tag	UNP Q13507
A	842	LEU	-	expression tag	UNP Q13507
A	843	ARG	-	expression tag	UNP Q13507
A	844	TYR	-	expression tag	UNP Q13507
A	845	GLU	-	expression tag	UNP Q13507
A	846	LEU	-	expression tag	UNP Q13507
A	847	LEU	-	expression tag	UNP Q13507
A	848	GLU	-	expression tag	UNP Q13507
B	573	ALA	THR	engineered mutation	UNP Q13507
B	?	-	LEU	deletion	UNP Q13507
B	?	-	ASN	deletion	UNP Q13507
B	?	-	LEU	deletion	UNP Q13507
B	?	-	PHE	deletion	UNP Q13507
B	?	-	THR	deletion	UNP Q13507
B	?	-	GLN	deletion	UNP Q13507
B	?	-	SER	deletion	UNP Q13507
B	?	-	ASN	deletion	UNP Q13507
B	?	-	SER	deletion	UNP Q13507
B	?	-	ARG	deletion	UNP Q13507
B	?	-	VAL	deletion	UNP Q13507
B	?	-	PHE	deletion	UNP Q13507
B	?	-	GLU	deletion	UNP Q13507
B	?	-	SER	deletion	UNP Q13507
B	?	-	HIS	deletion	UNP Q13507
B	?	-	SER	deletion	UNP Q13507
B	?	-	PHE	deletion	UNP Q13507
B	?	-	ASN	deletion	UNP Q13507
B	?	-	SER	deletion	UNP Q13507
B	?	-	ILE	deletion	UNP Q13507
B	?	-	LEU	deletion	UNP Q13507
B	?	-	ASN	deletion	UNP Q13507
B	?	-	GLN	deletion	UNP Q13507
B	?	-	PRO	deletion	UNP Q13507

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Chain	Residue	Modelled	Actual	Comment	Reference
B	?	-	THR	deletion	UNP Q13507
B	?	-	ARG	deletion	UNP Q13507
B	?	-	TYR	deletion	UNP Q13507
B	?	-	GLN	deletion	UNP Q13507
B	839	ILE	-	expression tag	UNP Q13507
B	840	SER	-	expression tag	UNP Q13507
B	841	SER	-	expression tag	UNP Q13507
B	842	LEU	-	expression tag	UNP Q13507
B	843	ARG	-	expression tag	UNP Q13507
B	844	TYR	-	expression tag	UNP Q13507
B	845	GLU	-	expression tag	UNP Q13507
B	846	LEU	-	expression tag	UNP Q13507
B	847	LEU	-	expression tag	UNP Q13507
B	848	GLU	-	expression tag	UNP Q13507
C	573	ALA	THR	engineered mutation	UNP Q13507
C	?	-	LEU	deletion	UNP Q13507
C	?	-	ASN	deletion	UNP Q13507
C	?	-	LEU	deletion	UNP Q13507
C	?	-	PHE	deletion	UNP Q13507
C	?	-	THR	deletion	UNP Q13507
C	?	-	GLN	deletion	UNP Q13507
C	?	-	SER	deletion	UNP Q13507
C	?	-	ASN	deletion	UNP Q13507
C	?	-	SER	deletion	UNP Q13507
C	?	-	ARG	deletion	UNP Q13507
C	?	-	VAL	deletion	UNP Q13507
C	?	-	PHE	deletion	UNP Q13507
C	?	-	GLU	deletion	UNP Q13507
C	?	-	SER	deletion	UNP Q13507
C	?	-	HIS	deletion	UNP Q13507
C	?	-	SER	deletion	UNP Q13507
C	?	-	PHE	deletion	UNP Q13507
C	?	-	ASN	deletion	UNP Q13507
C	?	-	SER	deletion	UNP Q13507
C	?	-	ILE	deletion	UNP Q13507
C	?	-	LEU	deletion	UNP Q13507
C	?	-	ASN	deletion	UNP Q13507
C	?	-	GLN	deletion	UNP Q13507
C	?	-	PRO	deletion	UNP Q13507
C	?	-	THR	deletion	UNP Q13507
C	?	-	ARG	deletion	UNP Q13507
C	?	-	TYR	deletion	UNP Q13507

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Chain	Residue	Modelled	Actual	Comment	Reference
C	?	-	GLN	deletion	UNP Q13507
C	839	ILE	-	expression tag	UNP Q13507
C	840	SER	-	expression tag	UNP Q13507
C	841	SER	-	expression tag	UNP Q13507
C	842	LEU	-	expression tag	UNP Q13507
C	843	ARG	-	expression tag	UNP Q13507
C	844	TYR	-	expression tag	UNP Q13507
C	845	GLU	-	expression tag	UNP Q13507
C	846	LEU	-	expression tag	UNP Q13507
C	847	LEU	-	expression tag	UNP Q13507
C	848	GLU	-	expression tag	UNP Q13507
D	573	ALA	THR	engineered mutation	UNP Q13507
D	?	-	LEU	deletion	UNP Q13507
D	?	-	ASN	deletion	UNP Q13507
D	?	-	LEU	deletion	UNP Q13507
D	?	-	PHE	deletion	UNP Q13507
D	?	-	THR	deletion	UNP Q13507
D	?	-	GLN	deletion	UNP Q13507
D	?	-	SER	deletion	UNP Q13507
D	?	-	ASN	deletion	UNP Q13507
D	?	-	SER	deletion	UNP Q13507
D	?	-	ARG	deletion	UNP Q13507
D	?	-	VAL	deletion	UNP Q13507
D	?	-	PHE	deletion	UNP Q13507
D	?	-	GLU	deletion	UNP Q13507
D	?	-	SER	deletion	UNP Q13507
D	?	-	HIS	deletion	UNP Q13507
D	?	-	SER	deletion	UNP Q13507
D	?	-	PHE	deletion	UNP Q13507
D	?	-	ASN	deletion	UNP Q13507
D	?	-	SER	deletion	UNP Q13507
D	?	-	ILE	deletion	UNP Q13507
D	?	-	LEU	deletion	UNP Q13507
D	?	-	ASN	deletion	UNP Q13507
D	?	-	GLN	deletion	UNP Q13507
D	?	-	PRO	deletion	UNP Q13507
D	?	-	THR	deletion	UNP Q13507
D	?	-	ARG	deletion	UNP Q13507
D	?	-	TYR	deletion	UNP Q13507
D	?	-	GLN	deletion	UNP Q13507
D	839	ILE	-	expression tag	UNP Q13507
D	840	SER	-	expression tag	UNP Q13507

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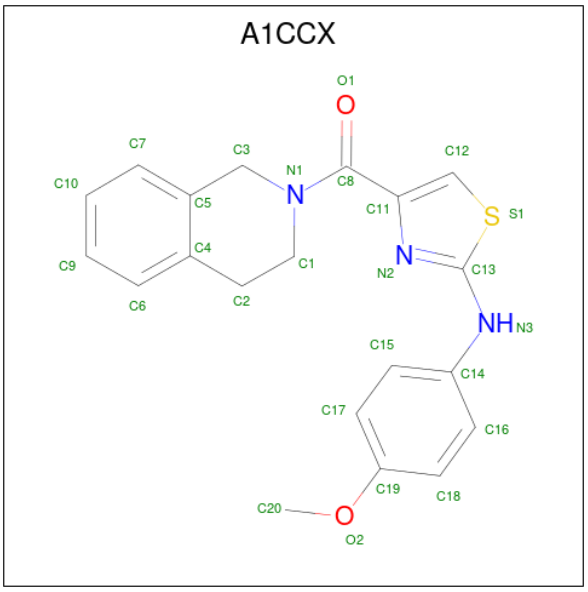
Chain	Residue	Modelled	Actual	Comment	Reference
D	841	SER	-	expression tag	UNP Q13507
D	842	LEU	-	expression tag	UNP Q13507
D	843	ARG	-	expression tag	UNP Q13507
D	844	TYR	-	expression tag	UNP Q13507
D	845	GLU	-	expression tag	UNP Q13507
D	846	LEU	-	expression tag	UNP Q13507
D	847	LEU	-	expression tag	UNP Q13507
D	848	GLU	-	expression tag	UNP Q13507

- Molecule 2 is UNKNOWN LIGAND (CCD ID: UNL) (formula:) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms					AltConf
2	A	3	Total	C	N	O	P	0
			132	102	3	24	3	
2	B	3	Total	C	N	O	P	0
			132	102	3	24	3	
2	C	3	Total	C	N	O	P	0
			132	102	3	24	3	
2	D	3	Total	C	N	O	P	0
			132	102	3	24	3	

- Molecule 3 is (3,4-dihydroisoquinolin-2(1H)-yl)[2-(4-methoxyanilino)-1,3-thiazol-4-yl]methanone (CCD ID: A1CCX) (formula: $C_{20}H_{19}N_3O_2S$).



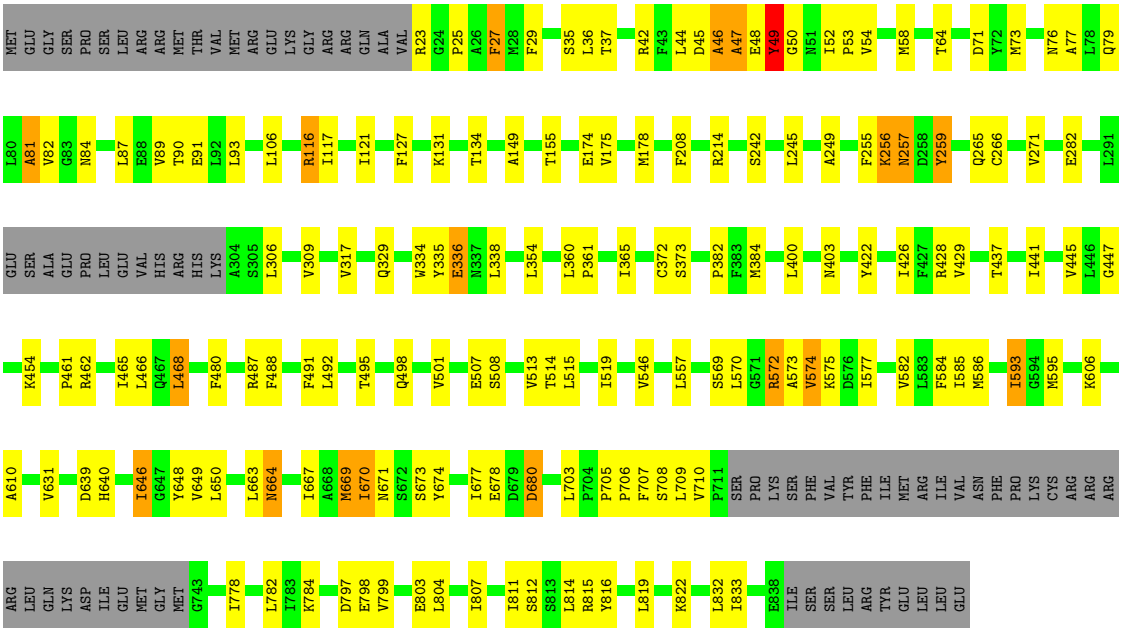
Mol	Chain	Residues	Atoms					AltConf
3	A	1	Total	C	N	O	S	0
			26	20	3	2	1	
3	B	1	Total	C	N	O	S	0
			26	20	3	2	1	
3	C	1	Total	C	N	O	S	0
			26	20	3	2	1	
3	D	1	Total	C	N	O	S	0
			26	20	3	2	1	

3 Residue-property plots (i)

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

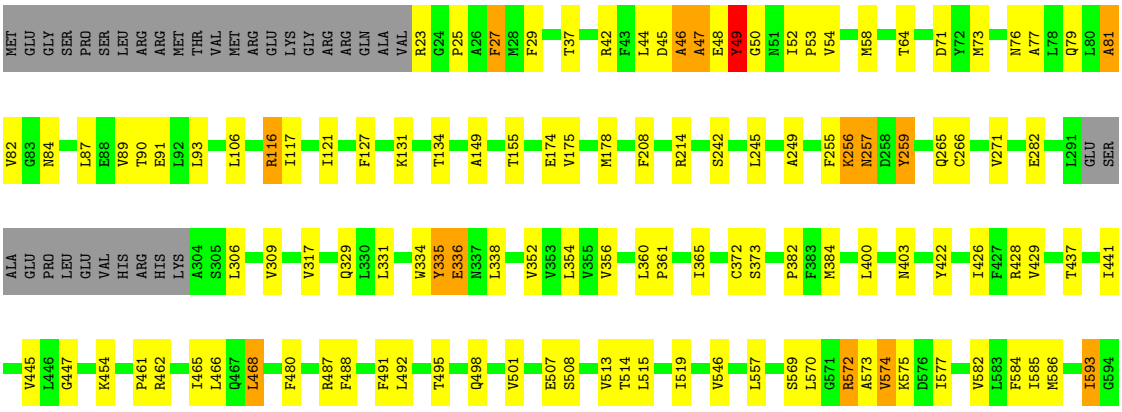
• Molecule 1: Short transient receptor potential channel 3

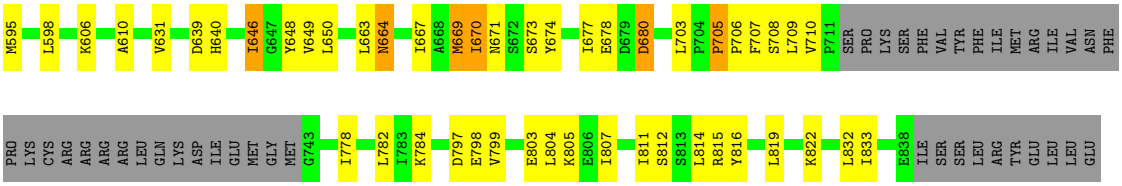
Chain A:



• Molecule 1: Short transient receptor potential channel 3

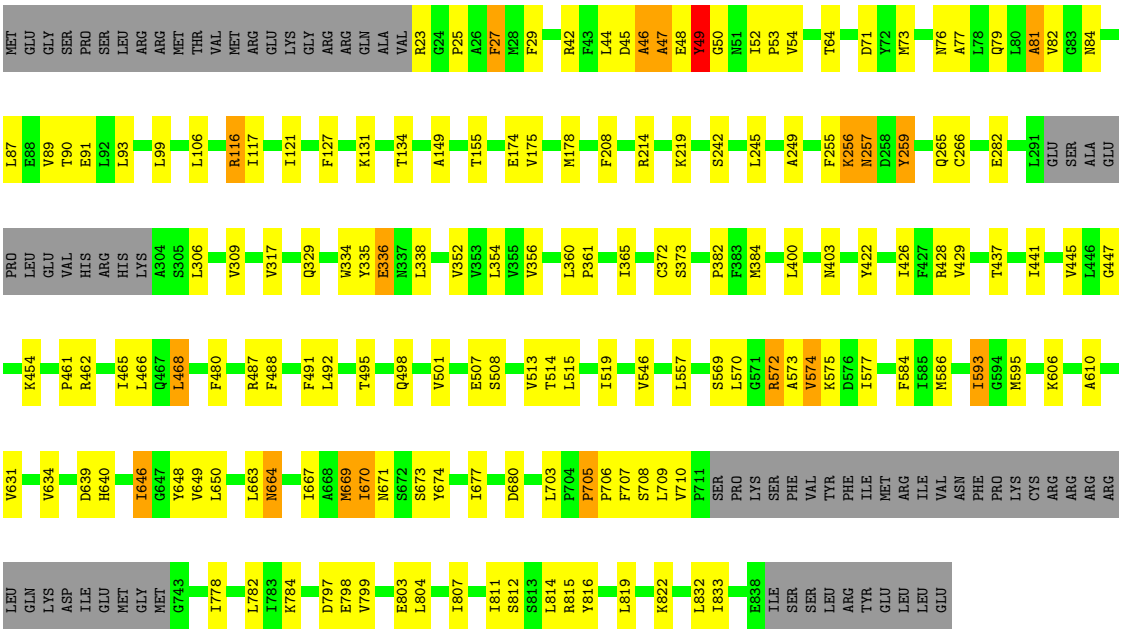
Chain B:





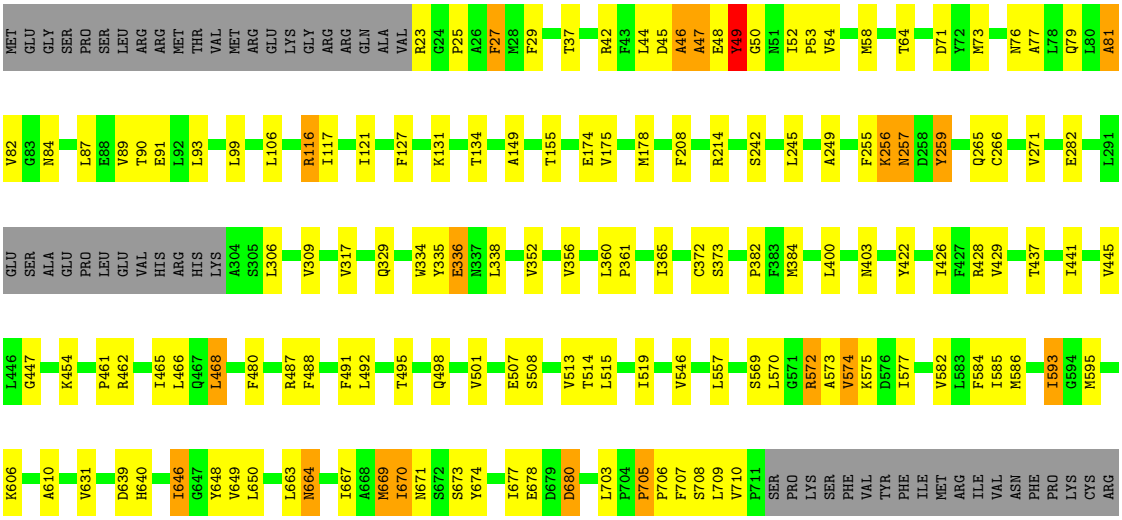
• Molecule 1: Short transient receptor potential channel 3

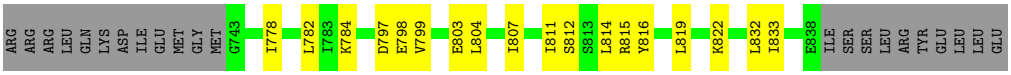
Chain C:



• Molecule 1: Short transient receptor potential channel 3

Chain D:




ARG
ARG
ARG
LEU
GLN
LYS
ASP
ILE
GLU
MET
GLY
MET
G743
I778
L782
I783
K784
D797
E798
V799
E803
L804
I807
I811
S812
S813
L814
R815
Y816
L819
K822
L832
I833
E838
ILE
SER
SER
LEU
ARG
TYR
GLU
LEU
LEU
GLU

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C4	Depositor
Number of particles used	15296	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	130000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: UNL, A1CCX

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	0.75	7/6121 (0.1%)	1.13	32/8284 (0.4%)
1	B	0.75	7/6121 (0.1%)	1.13	33/8284 (0.4%)
1	C	0.75	7/6121 (0.1%)	1.12	32/8284 (0.4%)
1	D	0.75	7/6121 (0.1%)	1.13	32/8284 (0.4%)
All	All	0.75	28/24484 (0.1%)	1.13	129/33136 (0.4%)

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	7
1	B	0	7
1	C	0	7
1	D	0	7
All	All	0	28

All (28) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	461	PRO	N-CD	13.90	1.67	1.47
1	A	461	PRO	N-CD	13.88	1.67	1.47
1	B	461	PRO	N-CD	13.88	1.67	1.47
1	D	461	PRO	N-CD	13.88	1.67	1.47
1	A	25	PRO	N-CD	10.34	1.62	1.47
1	B	25	PRO	N-CD	10.34	1.62	1.47
1	D	25	PRO	N-CD	10.34	1.62	1.47
1	C	25	PRO	N-CD	10.33	1.62	1.47
1	A	573	ALA	C-O	8.70	1.35	1.24
1	B	573	ALA	C-O	8.70	1.35	1.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	573	ALA	C-O	8.70	1.35	1.24
1	D	573	ALA	C-O	8.70	1.35	1.24
1	B	640	HIS	C-O	7.67	1.34	1.23
1	C	640	HIS	C-O	7.67	1.34	1.23
1	A	640	HIS	C-O	7.62	1.34	1.23
1	D	640	HIS	C-O	7.61	1.34	1.23
1	B	569	SER	C-O	6.13	1.31	1.24
1	C	569	SER	C-O	6.13	1.31	1.24
1	A	569	SER	C-O	6.13	1.31	1.24
1	D	569	SER	C-O	6.13	1.31	1.24
1	A	259	TYR	C-O	-5.86	1.17	1.24
1	C	259	TYR	C-O	-5.86	1.17	1.24
1	D	259	TYR	C-O	-5.86	1.17	1.24
1	B	259	TYR	C-O	-5.79	1.17	1.24
1	C	91	GLU	C-O	5.41	1.30	1.24
1	A	91	GLU	C-O	5.39	1.30	1.24
1	B	91	GLU	C-O	5.39	1.30	1.24
1	D	91	GLU	C-O	5.31	1.30	1.24

All (129) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	336	GLU	N-CA-CB	17.18	139.52	110.49
1	B	336	GLU	N-CA-CB	17.16	139.50	110.49
1	A	336	GLU	N-CA-CB	17.16	139.49	110.49
1	C	336	GLU	N-CA-CB	17.14	139.46	110.49
1	B	50	GLY	N-CA-C	14.22	134.24	113.48
1	D	49	TYR	N-CA-CB	-10.31	93.06	110.49
1	A	49	TYR	N-CA-CB	-10.30	93.09	110.49
1	B	49	TYR	N-CA-CB	-10.30	93.09	110.49
1	C	49	TYR	N-CA-CB	-10.29	93.10	110.49
1	D	50	GLY	N-CA-C	8.90	134.29	113.18
1	A	50	GLY	N-CA-C	8.89	134.26	113.18
1	C	50	GLY	N-CA-C	8.88	134.24	113.18
1	D	84	ASN	N-CA-C	-8.07	97.44	110.20
1	A	84	ASN	N-CA-C	-8.06	97.47	110.20
1	B	84	ASN	N-CA-C	-8.06	97.47	110.20
1	C	84	ASN	N-CA-C	-8.06	97.47	110.20
1	B	27	PHE	CA-CB-CG	7.38	121.18	113.80
1	C	27	PHE	CA-CB-CG	7.37	121.17	113.80
1	A	27	PHE	CA-CB-CG	7.34	121.14	113.80
1	D	27	PHE	CA-CB-CG	7.33	121.13	113.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	574	VAL	CA-C-O	-7.05	113.62	120.95
1	B	574	VAL	CA-C-O	-7.05	113.62	120.95
1	D	574	VAL	CA-C-O	-7.05	113.62	120.95
1	D	208	PHE	CA-CB-CG	7.04	120.84	113.80
1	A	208	PHE	CA-CB-CG	7.03	120.83	113.80
1	B	208	PHE	CA-CB-CG	7.03	120.83	113.80
1	C	208	PHE	CA-CB-CG	7.03	120.83	113.80
1	C	574	VAL	CA-C-O	-7.03	113.64	120.95
1	A	89	VAL	N-CA-C	-6.75	103.94	110.42
1	D	89	VAL	N-CA-C	-6.75	103.94	110.42
1	B	89	VAL	N-CA-C	-6.75	103.94	110.42
1	C	89	VAL	N-CA-C	-6.74	103.95	110.42
1	A	49	TYR	N-CA-C	6.63	124.93	110.80
1	B	49	TYR	N-CA-C	6.63	124.93	110.80
1	D	49	TYR	N-CA-C	6.63	124.92	110.80
1	C	49	TYR	N-CA-C	6.62	124.90	110.80
1	A	584	PHE	CA-CB-CG	6.51	120.31	113.80
1	D	584	PHE	CA-CB-CG	6.51	120.31	113.80
1	B	584	PHE	CA-CB-CG	6.50	120.31	113.80
1	C	584	PHE	CA-CB-CG	6.50	120.31	113.80
1	A	680	ASP	N-CA-C	-6.47	104.86	112.89
1	B	680	ASP	N-CA-C	-6.47	104.86	112.89
1	D	680	ASP	N-CA-C	-6.47	104.86	112.89
1	C	680	ASP	N-CA-C	-6.45	104.90	112.89
1	B	259	TYR	CB-CA-C	6.09	120.89	110.79
1	C	259	TYR	CB-CA-C	6.08	120.88	110.79
1	A	71	ASP	CA-CB-CG	6.06	118.66	112.60
1	D	71	ASP	CA-CB-CG	6.06	118.66	112.60
1	A	259	TYR	CB-CA-C	6.06	120.85	110.79
1	C	71	ASP	CA-CB-CG	6.06	118.66	112.60
1	D	259	TYR	CB-CA-C	6.06	120.85	110.79
1	C	480	PHE	CA-C-O	-6.05	114.46	120.82
1	B	71	ASP	CA-CB-CG	6.03	118.63	112.60
1	A	480	PHE	CA-C-O	-6.00	114.51	120.82
1	B	480	PHE	CA-C-O	-6.00	114.51	120.82
1	D	480	PHE	CA-C-O	-6.00	114.51	120.82
1	C	329	GLN	CB-CA-C	-5.99	100.85	110.79
1	A	329	GLN	CB-CA-C	-5.97	100.88	110.79
1	D	329	GLN	CB-CA-C	-5.97	100.88	110.79
1	B	329	GLN	CB-CA-C	-5.96	100.90	110.79
1	B	705	PRO	N-CA-C	5.91	117.90	110.70
1	A	705	PRO	N-CA-C	5.89	117.88	110.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	705	PRO	N-CA-C	5.88	117.88	110.70
1	C	705	PRO	N-CA-C	5.87	117.86	110.70
1	B	422	TYR	CB-CA-C	5.84	116.80	108.68
1	D	422	TYR	CB-CA-C	5.84	116.79	108.68
1	A	422	TYR	CB-CA-C	5.83	116.78	108.68
1	C	422	TYR	CB-CA-C	5.81	116.75	108.68
1	C	646	ILE	N-CA-C	-5.80	104.70	110.62
1	A	646	ILE	N-CA-C	-5.80	104.71	110.62
1	B	646	ILE	N-CA-C	-5.80	104.71	110.62
1	D	646	ILE	N-CA-C	-5.80	104.71	110.62
1	D	365	ILE	CA-C-O	-5.78	115.04	121.17
1	A	365	ILE	CA-C-O	-5.75	115.08	121.17
1	B	365	ILE	CA-C-O	-5.75	115.08	121.17
1	C	365	ILE	CA-C-O	-5.75	115.08	121.17
1	C	574	VAL	N-CA-C	5.67	116.40	110.62
1	B	265	GLN	CB-CA-C	-5.65	101.07	110.68
1	A	265	GLN	CB-CA-C	-5.65	101.07	110.68
1	D	265	GLN	CB-CA-C	-5.65	101.07	110.68
1	A	574	VAL	N-CA-C	5.65	116.38	110.62
1	B	574	VAL	N-CA-C	5.65	116.38	110.62
1	C	265	GLN	CB-CA-C	-5.64	101.09	110.68
1	D	574	VAL	N-CA-C	5.62	116.35	110.62
1	D	336	GLU	N-CA-C	-5.48	99.13	110.80
1	A	336	GLU	N-CA-C	-5.47	99.16	110.80
1	C	336	GLU	N-CA-C	-5.46	99.16	110.80
1	B	336	GLU	N-CA-C	-5.45	99.18	110.80
1	B	259	TYR	CA-C-O	-5.39	114.83	120.55
1	A	259	TYR	CA-C-O	-5.38	114.84	120.55
1	C	259	TYR	CA-C-O	-5.38	114.84	120.55
1	D	259	TYR	CA-C-O	-5.38	114.84	120.55
1	B	90	THR	CA-C-O	-5.34	115.19	120.90
1	A	90	THR	CA-C-O	-5.32	115.21	120.90
1	D	90	THR	CA-C-O	-5.31	115.22	120.90
1	D	784	LYS	CA-C-O	-5.30	115.44	121.00
1	C	90	THR	CA-C-O	-5.29	115.24	120.90
1	A	784	LYS	CA-C-O	-5.28	115.45	121.00
1	B	784	LYS	CA-C-O	-5.28	115.45	121.00
1	B	81	ALA	CA-C-O	-5.25	115.05	121.67
1	C	784	LYS	CA-C-O	-5.24	115.50	121.00
1	D	81	ALA	CA-C-O	-5.23	115.08	121.67
1	A	81	ALA	CA-C-O	-5.22	115.09	121.67
1	C	81	ALA	CA-C-O	-5.21	115.11	121.67

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	778	ILE	N-CA-C	-5.19	105.33	110.62
1	B	778	ILE	N-CA-C	-5.19	105.33	110.62
1	D	778	ILE	N-CA-C	-5.19	105.33	110.62
1	C	778	ILE	N-CA-C	-5.18	105.34	110.62
1	B	259	TYR	N-CA-C	-5.16	105.66	111.28
1	D	79	GLN	N-CA-C	-5.16	106.99	113.28
1	A	79	GLN	N-CA-C	-5.14	107.01	113.28
1	C	79	GLN	N-CA-C	-5.14	107.01	113.28
1	D	87	LEU	CA-C-O	-5.14	114.53	120.24
1	A	87	LEU	CA-C-O	-5.14	114.54	120.24
1	C	87	LEU	CA-C-O	-5.14	114.54	120.24
1	B	87	LEU	CA-C-O	-5.13	114.54	120.24
1	A	259	TYR	N-CA-C	-5.13	105.69	111.28
1	B	79	GLN	N-CA-C	-5.13	107.02	113.28
1	C	259	TYR	N-CA-C	-5.13	105.69	111.28
1	D	259	TYR	N-CA-C	-5.13	105.69	111.28
1	A	454	LYS	CA-C-O	-5.08	115.67	121.00
1	B	454	LYS	CA-C-O	-5.08	115.67	121.00
1	D	454	LYS	CA-C-O	-5.08	115.67	121.00
1	C	454	LYS	CA-C-O	-5.03	115.72	121.00
1	B	265	GLN	N-CA-CB	5.02	117.59	110.06
1	C	265	GLN	N-CA-CB	5.01	117.58	110.06
1	B	335	TYR	CB-CA-C	5.01	120.39	110.42
1	A	265	GLN	N-CA-CB	5.01	117.57	110.06
1	D	265	GLN	N-CA-CB	5.01	117.57	110.06

There are no chirality outliers.

All (28) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	116	ARG	Sidechain
1	A	214	ARG	Sidechain
1	A	23	ARG	Sidechain
1	A	42	ARG	Sidechain
1	A	487	ARG	Sidechain
1	A	639	ASP	Mainchain
1	A	664	ASN	Mainchain
1	B	116	ARG	Sidechain
1	B	214	ARG	Sidechain
1	B	23	ARG	Sidechain
1	B	42	ARG	Sidechain
1	B	487	ARG	Sidechain

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Mol	Chain	Res	Type	Group
1	B	639	ASP	Mainchain
1	B	664	ASN	Mainchain
1	C	116	ARG	Sidechain
1	C	214	ARG	Sidechain
1	C	23	ARG	Sidechain
1	C	42	ARG	Sidechain
1	C	487	ARG	Sidechain
1	C	639	ASP	Mainchain
1	C	664	ASN	Mainchain
1	D	116	ARG	Sidechain
1	D	214	ARG	Sidechain
1	D	23	ARG	Sidechain
1	D	42	ARG	Sidechain
1	D	487	ARG	Sidechain
1	D	639	ASP	Mainchain
1	D	664	ASN	Mainchain

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	5990	0	6037	126	0
1	B	5990	0	6037	129	0
1	C	5990	0	6037	126	0
1	D	5990	0	6037	130	0
2	A	132	0	0	7	0
2	B	132	0	0	9	0
2	C	132	0	0	8	0
2	D	132	0	0	9	0
3	A	26	0	0	2	0
3	B	26	0	0	1	0
3	C	26	0	0	2	0
3	D	26	0	0	1	0
All	All	24592	0	24148	427	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 9.

All (427) 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:575:LYS:NZ	2:B:902:UNL:O31	1.63	1.31
1:C:575:LYS:NZ	2:C:902:UNL:O31	1.63	1.30
1:A:575:LYS:NZ	2:A:902:UNL:O31	1.63	1.27
1:D:575:LYS:NZ	2:D:904:UNL:O31	1.63	1.26
1:A:76:ASN:OD1	1:A:77:ALA:N	1.98	0.96
1:D:76:ASN:OD1	1:D:77:ALA:N	1.98	0.95
1:B:76:ASN:OD1	1:B:77:ALA:N	1.98	0.95
1:C:76:ASN:OD1	1:C:77:ALA:N	1.98	0.94
1:A:822:LYS:HZ3	1:B:822:LYS:HZ3	1.28	0.80
1:C:822:LYS:HD2	1:D:822:LYS:HE2	1.66	0.78
1:A:822:LYS:HE2	1:D:822:LYS:HD2	1.66	0.78
1:B:822:LYS:HD2	1:C:822:LYS:HE2	1.66	0.77
1:A:822:LYS:HZ3	1:D:822:LYS:HZ3	1.30	0.76
1:A:822:LYS:HD2	1:B:822:LYS:HE2	1.66	0.76
1:C:822:LYS:HZ3	1:D:822:LYS:HZ3	1.33	0.75
1:A:426:ILE:HD11	1:A:501:VAL:HG21	1.70	0.73
1:D:426:ILE:HD11	1:D:501:VAL:HG21	1.70	0.73
1:B:426:ILE:HD11	1:B:501:VAL:HG21	1.70	0.73
1:C:671:ASN:HB2	1:D:674:TYR:CE1	2.24	0.73
1:B:671:ASN:HB2	1:C:674:TYR:CE1	2.24	0.72
1:B:822:LYS:HZ3	1:C:822:LYS:HZ3	1.35	0.72
1:A:674:TYR:CE1	1:D:671:ASN:HB2	2.24	0.72
1:C:426:ILE:HD11	1:C:501:VAL:HG21	1.70	0.72
1:A:671:ASN:HB2	1:B:674:TYR:CE1	2.24	0.71
1:A:45:ASP:OD1	1:A:93:LEU:HD11	1.91	0.70
1:B:45:ASP:OD1	1:B:93:LEU:HD11	1.91	0.70
1:D:45:ASP:OD1	1:D:93:LEU:HD11	1.91	0.70
1:C:45:ASP:OD1	1:C:93:LEU:HD11	1.91	0.70
1:D:515:LEU:HD22	1:D:519:ILE:HG21	1.74	0.70
1:B:574:VAL:HG11	2:B:902:UNL:C36	2.22	0.70
1:C:515:LEU:HD22	1:C:519:ILE:HG21	1.74	0.70
1:A:574:VAL:HG11	2:A:902:UNL:C36	2.22	0.70
1:C:574:VAL:HG11	2:C:902:UNL:C36	2.22	0.70
1:D:574:VAL:HG11	2:D:904:UNL:C36	2.22	0.69
1:B:515:LEU:HD22	1:B:519:ILE:HG21	1.74	0.69
1:A:515:LEU:HD22	1:A:519:ILE:HG21	1.74	0.67
1:B:338:LEU:CD1	1:B:384:MET:HE3	2.25	0.67
1:B:282:GLU:HB3	1:B:782:LEU:HD11	1.77	0.67
1:C:338:LEU:CD1	1:C:384:MET:HE3	2.25	0.67
1:A:822:LYS:NZ	1:D:822:LYS:HZ3	1.94	0.66
1:D:282:GLU:HB3	1:D:782:LEU:HD11	1.77	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:338:LEU:CD1	1:A:384:MET:HE3	2.25	0.66
1:C:282:GLU:HB3	1:C:782:LEU:HD11	1.77	0.66
1:A:149:ALA:HA	1:A:155:THR:HG22	1.78	0.66
1:B:149:ALA:HA	1:B:155:THR:HG22	1.78	0.66
1:C:670:ILE:HD11	1:D:670:ILE:HD12	1.78	0.65
1:D:338:LEU:CD1	1:D:384:MET:HE3	2.25	0.65
1:C:822:LYS:HZ3	1:D:822:LYS:NZ	1.95	0.65
1:A:282:GLU:HB3	1:A:782:LEU:HD11	1.77	0.65
1:A:670:ILE:CD1	1:D:670:ILE:HD11	2.27	0.65
1:A:670:ILE:HD12	1:D:670:ILE:HD11	1.78	0.65
1:B:670:ILE:HD11	1:C:670:ILE:HD12	1.78	0.65
1:C:670:ILE:HD11	1:D:670:ILE:CD1	2.27	0.65
1:A:670:ILE:HD11	1:B:670:ILE:HD12	1.78	0.65
1:B:670:ILE:HD11	1:C:670:ILE:CD1	2.27	0.64
1:C:149:ALA:HA	1:C:155:THR:HG22	1.78	0.64
1:D:149:ALA:HA	1:D:155:THR:HG22	1.78	0.64
1:A:670:ILE:HD11	1:B:670:ILE:CD1	2.27	0.63
1:A:822:LYS:HZ3	1:B:822:LYS:NZ	1.96	0.63
1:A:822:LYS:CD	1:B:822:LYS:HE2	2.28	0.63
1:B:822:LYS:CD	1:C:822:LYS:HE2	2.29	0.63
1:A:822:LYS:HE2	1:D:822:LYS:CD	2.29	0.62
1:C:822:LYS:CD	1:D:822:LYS:HE2	2.29	0.62
1:C:82:VAL:HG13	1:C:117:ILE:HG21	1.83	0.61
1:A:82:VAL:HG13	1:A:117:ILE:HG21	1.83	0.61
1:A:804:LEU:HD22	1:B:799:VAL:HG21	1.84	0.60
1:D:82:VAL:HG13	1:D:117:ILE:HG21	1.83	0.60
1:B:804:LEU:HD22	1:C:799:VAL:HG21	1.84	0.59
1:C:338:LEU:HD11	1:C:384:MET:HE3	1.85	0.59
1:B:82:VAL:HG13	1:B:117:ILE:HG21	1.83	0.59
1:A:338:LEU:HD11	1:A:384:MET:HE3	1.85	0.59
1:A:822:LYS:NZ	1:B:822:LYS:NZ	2.51	0.59
1:B:822:LYS:HZ3	1:C:822:LYS:NZ	1.99	0.59
1:A:799:VAL:HG21	1:D:804:LEU:HD22	1.84	0.58
1:C:804:LEU:HD22	1:D:799:VAL:HG21	1.84	0.58
1:B:663:LEU:HD23	1:C:669:MET:HE3	1.85	0.57
1:B:822:LYS:NZ	1:C:822:LYS:NZ	2.51	0.57
1:C:822:LYS:NZ	1:D:822:LYS:NZ	2.51	0.57
1:A:669:MET:HE3	1:D:663:LEU:HD23	1.85	0.57
1:A:822:LYS:NZ	1:D:822:LYS:NZ	2.51	0.57
1:B:338:LEU:HD11	1:B:384:MET:HE3	1.85	0.57
1:C:663:LEU:HD23	1:D:669:MET:HE3	1.85	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:131:LYS:HG3	1:C:131:LYS:O	2.05	0.57
1:D:400:LEU:HD11	1:D:546:VAL:HG22	1.86	0.57
1:A:663:LEU:HD23	1:B:669:MET:HE3	1.85	0.57
1:A:400:LEU:HD11	1:A:546:VAL:HG22	1.86	0.57
1:D:338:LEU:HD11	1:D:384:MET:HE3	1.85	0.56
1:D:429:VAL:HG21	1:D:498:GLN:HB2	1.88	0.56
1:B:400:LEU:HD11	1:B:546:VAL:HG22	1.86	0.56
1:B:429:VAL:HG21	1:B:498:GLN:HB2	1.88	0.56
1:A:822:LYS:HE2	1:D:822:LYS:HG3	1.88	0.56
1:A:822:LYS:HG3	1:B:822:LYS:HE2	1.88	0.56
1:A:429:VAL:HG21	1:A:498:GLN:HB2	1.88	0.56
1:C:429:VAL:HG21	1:C:498:GLN:HB2	1.88	0.56
1:C:822:LYS:HG3	1:D:822:LYS:HE2	1.88	0.56
1:B:822:LYS:HG3	1:C:822:LYS:HE2	1.88	0.56
1:D:131:LYS:O	1:D:131:LYS:HG3	2.05	0.56
1:C:400:LEU:HD11	1:C:546:VAL:HG22	1.86	0.55
1:D:372:CYS:SG	1:D:373:SER:N	2.78	0.55
1:A:131:LYS:HG3	1:A:131:LYS:O	2.05	0.55
1:B:131:LYS:O	1:B:131:LYS:HG3	2.05	0.55
1:A:664:ASN:HA	1:A:667:ILE:HD12	1.89	0.55
1:A:586:MET:HE1	1:B:557:LEU:HD11	1.89	0.55
1:B:833:ILE:HD12	1:C:832:LEU:HB2	1.89	0.54
1:D:488:PHE:CE1	1:D:492:LEU:HD11	2.42	0.54
1:B:372:CYS:SG	1:B:373:SER:N	2.78	0.54
1:D:664:ASN:HA	1:D:667:ILE:HD12	1.89	0.54
1:B:488:PHE:CE1	1:B:492:LEU:HD11	2.42	0.54
2:C:903:UNL:C33	2:C:903:UNL:C2	2.85	0.54
1:C:833:ILE:HD12	1:D:832:LEU:HB2	1.89	0.54
1:A:833:ILE:HD12	1:B:832:LEU:HB2	1.89	0.54
2:B:903:UNL:C2	2:B:903:UNL:C33	2.85	0.54
1:A:557:LEU:HD11	1:D:586:MET:HE1	1.89	0.54
1:B:664:ASN:HA	1:B:667:ILE:HD12	1.89	0.54
1:C:64:THR:O	1:C:64:THR:HG23	2.08	0.54
1:A:64:THR:HG23	1:A:64:THR:O	2.08	0.53
1:A:174:GLU:HG3	1:A:178:MET:HE2	1.91	0.53
1:A:488:PHE:CE1	1:A:492:LEU:HD11	2.42	0.53
2:A:903:UNL:C33	2:A:903:UNL:C2	2.85	0.53
1:D:174:GLU:HG3	1:D:178:MET:HE2	1.91	0.53
1:A:832:LEU:HB2	1:D:833:ILE:HD12	1.89	0.53
1:C:488:PHE:CE1	1:C:492:LEU:HD11	2.42	0.53
2:D:901:UNL:C2	2:D:901:UNL:C33	2.85	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:64:THR:HG23	1:B:64:THR:O	2.08	0.53
1:C:372:CYS:SG	1:C:373:SER:N	2.78	0.53
1:D:709:LEU:HD12	1:D:710:VAL:HG13	1.91	0.53
1:C:586:MET:HE1	1:D:557:LEU:HD11	1.89	0.53
1:C:174:GLU:HG3	1:C:178:MET:HE2	1.91	0.53
1:B:174:GLU:HG3	1:B:178:MET:HE2	1.91	0.53
1:B:586:MET:HE1	1:C:557:LEU:HD11	1.89	0.53
1:C:664:ASN:HA	1:C:667:ILE:HD12	1.89	0.53
1:D:64:THR:HG23	1:D:64:THR:O	2.08	0.53
1:A:507:GLU:HG2	1:A:513:VAL:CG2	2.40	0.52
1:A:709:LEU:HD12	1:A:710:VAL:HG13	1.91	0.52
1:C:507:GLU:HG2	1:C:513:VAL:CG2	2.40	0.52
1:B:709:LEU:HD12	1:B:710:VAL:HG13	1.91	0.52
1:D:507:GLU:HG2	1:D:513:VAL:CG2	2.40	0.51
1:C:709:LEU:HD12	1:C:710:VAL:HG13	1.91	0.51
1:A:631:VAL:HG12	1:A:631:VAL:O	2.10	0.51
1:B:507:GLU:HG2	1:B:513:VAL:CG2	2.40	0.51
1:A:815:ARG:HA	1:B:814:LEU:HD21	1.93	0.51
1:B:631:VAL:HG12	1:B:631:VAL:O	2.10	0.51
1:C:703:LEU:HD13	1:C:707:PHE:HB2	1.93	0.51
1:A:804:LEU:HD23	1:B:803:GLU:HB3	1.93	0.51
1:B:804:LEU:HD23	1:C:803:GLU:HB3	1.93	0.51
1:C:631:VAL:HG12	1:C:631:VAL:O	2.10	0.50
1:D:631:VAL:HG12	1:D:631:VAL:O	2.10	0.50
1:D:703:LEU:HD13	1:D:707:PHE:HB2	1.93	0.50
1:A:814:LEU:HD21	1:D:815:ARG:HA	1.93	0.50
1:B:815:ARG:HA	1:C:814:LEU:HD21	1.93	0.50
1:C:815:ARG:HA	1:D:814:LEU:HD21	1.93	0.50
1:A:703:LEU:HD13	1:A:707:PHE:HB2	1.93	0.49
1:B:703:LEU:HD13	1:B:707:PHE:HB2	1.93	0.49
1:C:804:LEU:HD23	1:D:803:GLU:HB3	1.93	0.49
1:B:674:TYR:N	1:B:674:TYR:CD1	2.79	0.49
1:D:465:ILE:HG22	1:D:466:LEU:HG	1.94	0.49
1:A:803:GLU:HB3	1:D:804:LEU:HD23	1.93	0.49
1:B:465:ILE:HG22	1:B:466:LEU:HG	1.94	0.49
1:C:674:TYR:N	1:C:674:TYR:CD1	2.79	0.49
1:A:245:LEU:HD21	1:A:259:TYR:O	2.13	0.48
1:C:465:ILE:HG22	1:C:466:LEU:HG	1.94	0.48
1:D:245:LEU:HD21	1:D:259:TYR:O	2.13	0.48
1:A:465:ILE:HG22	1:A:466:LEU:HG	1.94	0.48
1:A:674:TYR:N	1:A:674:TYR:CD1	2.79	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:904:A1CCX:C16	2:D:904:UNL:C17	2.91	0.48
1:D:674:TYR:N	1:D:674:TYR:CD1	2.79	0.48
1:C:249:ALA:HB2	1:C:259:TYR:HB3	1.96	0.48
1:A:249:ALA:HB2	1:A:259:TYR:HB3	1.96	0.48
1:A:822:LYS:CG	1:B:822:LYS:HE2	2.44	0.48
3:A:904:A1CCX:C16	2:B:902:UNL:C17	2.91	0.48
1:D:131:LYS:HB2	1:D:134:THR:HG23	1.96	0.48
1:A:46:ALA:O	1:A:47:ALA:C	2.57	0.48
1:C:46:ALA:O	1:C:47:ALA:C	2.57	0.48
1:D:46:ALA:O	1:D:47:ALA:C	2.57	0.48
3:B:904:A1CCX:C16	2:C:902:UNL:C17	2.91	0.48
1:C:245:LEU:HD21	1:C:259:TYR:O	2.13	0.48
2:A:902:UNL:C17	3:D:902:A1CCX:C16	2.91	0.48
1:A:48:GLU:HG2	1:B:116:ARG:HD3	1.96	0.47
1:B:822:LYS:CG	1:C:822:LYS:HE2	2.44	0.47
1:B:48:GLU:HG2	1:C:116:ARG:HD3	1.97	0.47
1:B:245:LEU:HD21	1:B:259:TYR:O	2.13	0.47
1:A:131:LYS:HB2	1:A:134:THR:HG23	1.96	0.47
1:A:703:LEU:HD21	1:A:710:VAL:HG23	1.96	0.47
1:C:48:GLU:HG2	1:D:116:ARG:HD3	1.96	0.47
1:C:488:PHE:O	1:C:492:LEU:HD13	2.15	0.47
1:A:822:LYS:HE2	1:D:822:LYS:CG	2.44	0.47
1:B:131:LYS:HB2	1:B:134:THR:HG23	1.96	0.47
1:D:249:ALA:HB2	1:D:259:TYR:HB3	1.96	0.47
1:A:116:ARG:HD3	1:D:48:GLU:HG2	1.97	0.47
1:A:428:ARG:HA	1:A:428:ARG:HD2	1.66	0.47
1:C:822:LYS:CG	1:D:822:LYS:HE2	2.44	0.47
1:D:703:LEU:HD21	1:D:710:VAL:HG23	1.96	0.47
1:B:804:LEU:HD22	1:C:799:VAL:CG2	2.45	0.47
1:A:799:VAL:CG2	1:D:804:LEU:HD22	2.45	0.46
1:B:249:ALA:HB2	1:B:259:TYR:HB3	1.96	0.46
1:B:703:LEU:HD21	1:B:710:VAL:HG23	1.96	0.46
1:B:46:ALA:O	1:B:47:ALA:C	2.57	0.46
1:C:131:LYS:HB2	1:C:134:THR:HG23	1.96	0.46
1:D:488:PHE:O	1:D:492:LEU:HD13	2.15	0.46
1:A:372:CYS:SG	1:A:373:SER:N	2.78	0.46
1:D:99:LEU:HD12	1:D:99:LEU:HA	1.84	0.46
1:C:428:ARG:HA	1:C:428:ARG:HD2	1.66	0.46
1:B:488:PHE:O	1:B:492:LEU:HD13	2.15	0.46
1:C:703:LEU:HD21	1:C:710:VAL:HG23	1.96	0.46
1:C:491:PHE:O	1:C:495:THR:HG23	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:488:PHE:O	1:A:492:LEU:HD13	2.15	0.46
1:A:804:LEU:HD22	1:B:799:VAL:CG2	2.45	0.46
1:B:491:PHE:O	1:B:495:THR:HG23	2.16	0.45
1:A:491:PHE:O	1:A:495:THR:HG23	2.16	0.45
1:D:491:PHE:O	1:D:495:THR:HG23	2.16	0.45
1:A:798:GLU:OE2	1:D:798:GLU:OE1	2.34	0.45
1:A:249:ALA:HB2	1:A:259:TYR:CB	2.47	0.45
1:B:249:ALA:HB2	1:B:259:TYR:CB	2.47	0.45
1:B:428:ARG:HD2	1:B:428:ARG:HA	1.66	0.45
1:B:798:GLU:OE1	1:C:798:GLU:OE2	2.34	0.45
1:B:49:TYR:CD1	1:B:816:TYR:CZ	3.05	0.45
1:C:804:LEU:HD22	1:D:799:VAL:CG2	2.45	0.45
1:C:249:ALA:HB2	1:C:259:TYR:CB	2.47	0.45
1:A:646:ILE:HD13	2:A:903:UNL:C37	2.47	0.45
1:A:798:GLU:OE1	1:B:798:GLU:OE2	2.34	0.45
1:C:462:ARG:HD3	1:C:462:ARG:HA	1.75	0.44
1:C:798:GLU:OE1	1:D:798:GLU:OE2	2.34	0.44
1:B:49:TYR:CD1	1:B:812:SER:HB2	2.52	0.44
1:D:249:ALA:HB2	1:D:259:TYR:CB	2.47	0.44
1:A:106:LEU:HD22	1:A:127:PHE:CE2	2.53	0.44
1:D:256:LYS:O	1:D:257:ASN:C	2.61	0.44
1:D:428:ARG:HA	1:D:428:ARG:HD2	1.66	0.44
1:A:667:ILE:HG21	1:B:673:SER:CB	2.48	0.44
1:B:354:LEU:HD12	1:B:354:LEU:HA	1.81	0.44
1:D:106:LEU:HD22	1:D:127:PHE:CE2	2.53	0.44
1:A:49:TYR:CD1	1:A:812:SER:HB2	2.52	0.44
1:B:667:ILE:HG21	1:C:673:SER:CB	2.48	0.44
1:B:822:LYS:HA	1:B:822:LYS:HD3	1.86	0.44
1:C:106:LEU:HD22	1:C:127:PHE:CE2	2.53	0.44
1:C:256:LYS:O	1:C:257:ASN:C	2.61	0.44
1:C:670:ILE:HD11	1:D:670:ILE:HD13	2.00	0.44
1:B:462:ARG:HA	1:B:462:ARG:HD3	1.75	0.44
1:B:646:ILE:HD13	2:B:903:UNL:C37	2.47	0.44
1:D:646:ILE:HD13	2:D:901:UNL:C37	2.48	0.44
1:A:49:TYR:CD1	1:A:816:TYR:CZ	3.05	0.44
1:B:593:ILE:HD12	1:B:593:ILE:HA	1.80	0.44
1:C:46:ALA:HB2	1:C:81:ALA:HB2	2.00	0.44
1:C:49:TYR:CD1	1:C:812:SER:HB2	2.52	0.44
1:C:646:ILE:HD13	2:C:903:UNL:C37	2.48	0.44
1:C:667:ILE:HG21	1:D:673:SER:CB	2.48	0.44
1:D:822:LYS:HA	1:D:822:LYS:HD3	1.86	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:670:ILE:HD13	1:D:670:ILE:HD11	2.00	0.43
1:B:106:LEU:HD22	1:B:127:PHE:CE2	2.53	0.43
1:D:49:TYR:CD1	1:D:812:SER:HB2	2.52	0.43
1:A:447:GLY:HA3	1:A:708:SER:HB2	2.00	0.43
1:C:49:TYR:CD1	1:C:816:TYR:CZ	3.05	0.43
1:C:447:GLY:HA3	1:C:708:SER:HB2	2.01	0.43
1:C:822:LYS:HA	1:C:822:LYS:HD3	1.86	0.43
1:D:403:ASN:HD22	1:D:437:THR:HG22	1.83	0.43
1:A:256:LYS:O	1:A:257:ASN:C	2.61	0.43
1:B:403:ASN:HD22	1:B:437:THR:HG22	1.83	0.43
1:B:706:PRO:O	1:B:707:PHE:C	2.62	0.43
1:A:706:PRO:O	1:A:707:PHE:C	2.62	0.43
1:B:572:ARG:HH22	1:B:677:ILE:HD12	1.84	0.43
1:D:46:ALA:HB2	1:D:81:ALA:HB2	2.00	0.43
1:B:256:LYS:O	1:B:257:ASN:C	2.61	0.43
1:D:49:TYR:CD1	1:D:816:TYR:CZ	3.05	0.43
1:D:52:ILE:N	1:D:53:PRO:CD	2.82	0.43
1:A:673:SER:CB	1:D:667:ILE:HG21	2.48	0.43
1:B:447:GLY:HA3	1:B:708:SER:HB2	2.00	0.43
1:C:52:ILE:N	1:C:53:PRO:CD	2.82	0.43
1:C:593:ILE:HD12	1:C:593:ILE:HA	1.79	0.43
1:D:572:ARG:HH22	1:D:677:ILE:HD12	1.84	0.43
1:A:175:VAL:HA	1:A:178:MET:HE3	2.00	0.43
1:B:46:ALA:HB2	1:B:81:ALA:HB2	2.00	0.43
1:A:670:ILE:HD11	1:B:670:ILE:HD13	2.00	0.43
1:C:175:VAL:HA	1:C:178:MET:HE3	2.00	0.43
1:C:403:ASN:HD22	1:C:437:THR:HG22	1.83	0.43
1:D:447:GLY:HA3	1:D:708:SER:HB2	2.01	0.43
1:A:514:THR:HG23	1:A:514:THR:O	2.19	0.43
1:A:593:ILE:HD12	1:A:593:ILE:HA	1.80	0.43
1:C:664:ASN:HB3	1:D:570:LEU:HD22	2.01	0.43
1:D:507:GLU:HG3	1:D:508:SER:H	1.84	0.43
1:C:49:TYR:HB3	1:C:816:TYR:CE2	2.54	0.43
1:C:242:SER:HB2	1:C:266:CYS:HB2	2.01	0.43
1:C:572:ARG:HH22	1:C:677:ILE:HD12	1.84	0.43
1:D:49:TYR:HB3	1:D:816:TYR:CE2	2.54	0.43
1:A:572:ARG:HH22	1:A:677:ILE:HD12	1.84	0.42
1:C:44:LEU:HD22	1:C:54:VAL:CG1	2.49	0.42
1:A:27:PHE:CZ	1:A:73:MET:HE2	2.54	0.42
1:A:403:ASN:HD22	1:A:437:THR:HG22	1.83	0.42
1:A:488:PHE:HE1	1:A:492:LEU:HD11	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:52:ILE:N	1:B:53:PRO:CD	2.82	0.42
1:B:664:ASN:HB3	1:C:570:LEU:HD22	2.01	0.42
1:C:27:PHE:CZ	1:C:73:MET:HE2	2.54	0.42
1:D:175:VAL:HA	1:D:178:MET:HE3	2.00	0.42
1:D:400:LEU:HD21	1:D:546:VAL:HG13	2.01	0.42
1:D:574:VAL:HG21	2:D:904:UNL:C37	2.49	0.42
1:A:46:ALA:HB2	1:A:81:ALA:HB2	2.00	0.42
1:A:49:TYR:HB3	1:A:816:TYR:CE2	2.54	0.42
1:A:317:VAL:O	1:A:317:VAL:HG13	2.20	0.42
1:B:175:VAL:HA	1:B:178:MET:HE3	2.00	0.42
1:B:306:LEU:HD23	1:B:309:VAL:HG21	2.02	0.42
1:C:574:VAL:HG21	2:C:902:UNL:C37	2.49	0.42
1:D:606:LYS:HE3	1:D:610:ALA:HB3	2.01	0.42
1:B:49:TYR:HB3	1:B:816:TYR:CE2	2.54	0.42
1:B:492:LEU:HD12	1:B:492:LEU:N	2.34	0.42
1:D:44:LEU:HD22	1:D:54:VAL:CG1	2.49	0.42
1:A:462:ARG:HA	1:A:462:ARG:HD3	1.75	0.42
1:A:507:GLU:HG3	1:A:508:SER:H	1.84	0.42
1:C:649:VAL:HG21	2:C:903:UNL:C38	2.50	0.42
1:C:706:PRO:O	1:C:707:PHE:C	2.62	0.42
1:D:317:VAL:HG13	1:D:317:VAL:O	2.20	0.42
1:D:492:LEU:N	1:D:492:LEU:HD12	2.34	0.42
1:A:242:SER:HB2	1:A:266:CYS:HB2	2.01	0.42
1:B:582:VAL:HA	1:B:585:ILE:HG12	2.02	0.42
1:C:317:VAL:HG13	1:C:317:VAL:O	2.20	0.42
1:D:338:LEU:HD12	1:D:384:MET:HE3	2.02	0.42
1:A:52:ILE:N	1:A:53:PRO:CD	2.82	0.42
1:A:400:LEU:HD21	1:A:546:VAL:HG13	2.01	0.42
1:A:582:VAL:HA	1:A:585:ILE:HG12	2.02	0.42
1:B:44:LEU:HD22	1:B:54:VAL:CG1	2.49	0.42
1:B:331:LEU:HD23	1:B:331:LEU:HA	1.94	0.42
1:B:649:VAL:HG21	2:B:903:UNL:C38	2.50	0.42
1:C:514:THR:O	1:C:514:THR:HG23	2.19	0.42
1:D:27:PHE:CZ	1:D:73:MET:HE2	2.54	0.42
1:D:242:SER:HB2	1:D:266:CYS:HB2	2.01	0.42
1:A:106:LEU:HD13	1:A:121:ILE:HB	2.01	0.42
1:A:570:LEU:HD22	1:D:664:ASN:HB3	2.01	0.42
1:A:577:ILE:HG12	1:A:669:MET:HE2	2.02	0.42
1:A:664:ASN:HB3	1:B:570:LEU:HD22	2.01	0.42
1:B:242:SER:HB2	1:B:266:CYS:HB2	2.01	0.42
1:B:514:THR:HG23	1:B:514:THR:O	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:574:VAL:HG21	2:B:902:UNL:C37	2.49	0.42
1:C:488:PHE:HE1	1:C:492:LEU:HD11	1.84	0.42
1:D:106:LEU:HD13	1:D:121:ILE:HB	2.01	0.42
1:D:514:THR:HG23	1:D:514:THR:O	2.19	0.42
1:A:606:LYS:HE3	1:A:610:ALA:HB3	2.01	0.42
1:B:488:PHE:HE1	1:B:492:LEU:HD11	1.85	0.42
1:C:306:LEU:HD23	1:C:309:VAL:HG21	2.02	0.42
1:C:400:LEU:HD21	1:C:546:VAL:HG13	2.01	0.42
1:C:507:GLU:HG3	1:C:508:SER:H	1.84	0.42
1:A:574:VAL:HG21	2:A:902:UNL:C37	2.50	0.42
1:A:649:VAL:HG21	2:A:903:UNL:C38	2.50	0.42
1:B:106:LEU:HD13	1:B:121:ILE:HB	2.01	0.42
1:B:507:GLU:HG3	1:B:508:SER:H	1.84	0.42
1:C:807:ILE:O	1:C:811:ILE:HG12	2.20	0.42
1:A:44:LEU:HD22	1:A:54:VAL:CG1	2.49	0.41
1:B:27:PHE:CZ	1:B:73:MET:HE2	2.54	0.41
1:C:99:LEU:HD12	1:C:99:LEU:HA	1.84	0.41
1:B:255:PHE:O	1:B:256:LYS:C	2.63	0.41
1:B:317:VAL:HG13	1:B:317:VAL:O	2.20	0.41
1:C:360:LEU:HB3	1:C:361:PRO:HD3	2.03	0.41
1:D:649:VAL:HG21	2:D:901:UNL:C38	2.50	0.41
1:A:306:LEU:HD23	1:A:309:VAL:HG21	2.02	0.41
1:A:814:LEU:HD23	1:A:814:LEU:HA	1.96	0.41
1:C:219:LYS:HE3	1:C:219:LYS:HB2	1.64	0.41
1:A:574:VAL:HA	1:A:577:ILE:HD12	2.02	0.41
1:A:678:GLU:C	1:A:680:ASP:N	2.77	0.41
1:B:606:LYS:HE3	1:B:610:ALA:HB3	2.01	0.41
1:C:577:ILE:HG12	1:C:669:MET:HE2	2.02	0.41
1:D:255:PHE:O	1:D:256:LYS:C	2.63	0.41
1:D:593:ILE:HD12	1:D:593:ILE:HA	1.80	0.41
1:D:706:PRO:O	1:D:707:PHE:C	2.62	0.41
1:A:255:PHE:O	1:A:256:LYS:C	2.63	0.41
1:A:360:LEU:HB3	1:A:361:PRO:HD3	2.03	0.41
1:B:360:LEU:HB3	1:B:361:PRO:HD3	2.03	0.41
1:B:805:LYS:HE3	1:B:805:LYS:HB3	1.91	0.41
1:C:334:TRP:CE3	1:C:382:PRO:HB2	2.56	0.41
1:D:306:LEU:HD23	1:D:309:VAL:HG21	2.02	0.41
1:A:35:SER:O	1:A:36:LEU:C	2.63	0.41
1:B:807:ILE:O	1:B:811:ILE:HG12	2.20	0.41
1:C:492:LEU:HD12	1:C:492:LEU:N	2.34	0.41
1:D:334:TRP:CE3	1:D:382:PRO:HB2	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:354:LEU:HD12	1:A:354:LEU:HA	1.81	0.41
1:A:492:LEU:N	1:A:492:LEU:HD12	2.34	0.41
1:C:575:LYS:HZ3	2:C:902:UNL:C33	2.33	0.41
1:A:674:TYR:OH	1:D:670:ILE:HG13	2.21	0.41
1:A:833:ILE:HD12	1:B:832:LEU:HD13	2.02	0.41
1:B:37:THR:O	1:B:58:MET:HE1	2.21	0.41
1:B:400:LEU:HD21	1:B:546:VAL:HG13	2.01	0.41
1:B:441:ILE:O	1:B:445:VAL:HG23	2.21	0.41
1:B:678:GLU:C	1:B:680:ASP:N	2.78	0.41
1:C:441:ILE:O	1:C:445:VAL:HG23	2.21	0.41
1:D:360:LEU:HB3	1:D:361:PRO:HD3	2.03	0.41
1:D:677:ILE:O	1:D:677:ILE:HG23	2.21	0.41
1:A:37:THR:O	1:A:58:MET:HE1	2.21	0.41
1:A:441:ILE:O	1:A:445:VAL:HG23	2.21	0.41
1:B:352:VAL:O	1:B:356:VAL:HG23	2.21	0.41
1:B:574:VAL:HA	1:B:577:ILE:HD12	2.02	0.41
1:B:577:ILE:HG12	1:B:669:MET:HE2	2.02	0.41
1:B:595:MET:HE1	1:B:650:LEU:HB3	2.03	0.41
1:C:255:PHE:O	1:C:256:LYS:C	2.63	0.41
1:C:352:VAL:O	1:C:356:VAL:HG23	2.21	0.41
1:C:606:LYS:HE3	1:C:610:ALA:HB3	2.01	0.41
1:D:37:THR:O	1:D:58:MET:HE1	2.21	0.41
1:D:574:VAL:HA	1:D:577:ILE:HD12	2.02	0.41
1:D:582:VAL:HA	1:D:585:ILE:HG12	2.02	0.41
1:D:814:LEU:HD23	1:D:814:LEU:HA	1.96	0.41
1:A:832:LEU:HD13	1:D:833:ILE:HD12	2.02	0.41
1:C:634:VAL:O	1:C:634:VAL:HG12	2.21	0.41
1:D:577:ILE:HG12	1:D:669:MET:HE2	2.02	0.41
1:D:678:GLU:C	1:D:680:ASP:N	2.78	0.41
1:A:334:TRP:CE3	1:A:382:PRO:HB2	2.56	0.40
1:A:595:MET:HE1	1:A:650:LEU:HB3	2.03	0.40
1:A:670:ILE:HG13	1:B:674:TYR:OH	2.21	0.40
1:A:807:ILE:O	1:A:811:ILE:HG12	2.20	0.40
1:C:705:PRO:N	1:C:706:PRO:HD2	2.36	0.40
1:C:833:ILE:HD12	1:D:832:LEU:HD13	2.02	0.40
1:D:271:VAL:HG12	1:D:271:VAL:O	2.21	0.40
1:B:833:ILE:HD12	1:C:832:LEU:HD13	2.02	0.40
1:C:106:LEU:HD13	1:C:121:ILE:HB	2.01	0.40
1:D:441:ILE:O	1:D:445:VAL:HG23	2.21	0.40
1:D:807:ILE:O	1:D:811:ILE:HG12	2.20	0.40
1:A:271:VAL:O	1:A:271:VAL:HG12	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:271:VAL:O	1:B:271:VAL:HG12	2.21	0.40
1:C:677:ILE:HG23	1:C:677:ILE:O	2.21	0.40
1:D:352:VAL:O	1:D:356:VAL:HG23	2.21	0.40
1:D:705:PRO:N	1:D:706:PRO:HD2	2.36	0.40
1:B:334:TRP:CE3	1:B:382:PRO:HB2	2.56	0.40
1:C:354:LEU:HD12	1:C:354:LEU:HA	1.81	0.40
1:C:595:MET:HE1	1:C:650:LEU:HB3	2.03	0.40
3:C:904:A1CCX:C10	2:D:903:UNL:C47	3.00	0.40
1:D:462:ARG:HA	1:D:462:ARG:HD3	1.75	0.40
1:D:574:VAL:CG1	2:D:904:UNL:C36	2.97	0.40
1:D:595:MET:HE1	1:D:650:LEU:HB3	2.03	0.40
3:A:904:A1CCX:C10	2:B:901:UNL:C47	3.00	0.40
1:B:598:LEU:HD12	1:B:598:LEU:HA	1.96	0.40
1:B:670:ILE:HG13	1:C:674:TYR:OH	2.21	0.40
1:B:705:PRO:N	1:B:706:PRO:HD2	2.36	0.40
2:B:903:UNL:C31	2:B:903:UNL:O3P	2.70	0.40
1:C:663:LEU:CD2	1:D:669:MET:HE3	2.52	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	739/820 (90%)	684 (93%)	45 (6%)	10 (1%)	9 34
1	B	739/820 (90%)	684 (93%)	45 (6%)	10 (1%)	9 34
1	C	739/820 (90%)	684 (93%)	45 (6%)	10 (1%)	9 34
1	D	739/820 (90%)	684 (93%)	45 (6%)	10 (1%)	9 34
All	All	2956/3280 (90%)	2736 (93%)	180 (6%)	40 (1%)	12 34

All (40) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	46	ALA
1	A	256	LYS
1	A	336	GLU
1	B	46	ALA
1	B	256	LYS
1	B	336	GLU
1	C	46	ALA
1	C	256	LYS
1	C	336	GLU
1	D	46	ALA
1	D	256	LYS
1	D	336	GLU
1	A	335	TYR
1	A	468	LEU
1	B	335	TYR
1	B	468	LEU
1	C	335	TYR
1	C	468	LEU
1	D	335	TYR
1	D	468	LEU
1	A	49	TYR
1	B	49	TYR
1	C	49	TYR
1	D	49	TYR
1	A	257	ASN
1	A	648	TYR
1	A	797	ASP
1	B	257	ASN
1	B	648	TYR
1	B	797	ASP
1	C	257	ASN
1	C	648	TYR
1	C	797	ASP
1	D	257	ASN
1	D	648	TYR
1	D	797	ASP
1	A	47	ALA
1	B	47	ALA
1	C	47	ALA
1	D	47	ALA

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	656/726 (90%)	649 (99%)	7 (1%)	70 82
1	B	656/726 (90%)	649 (99%)	7 (1%)	70 82
1	C	656/726 (90%)	649 (99%)	7 (1%)	70 82
1	D	656/726 (90%)	649 (99%)	7 (1%)	70 82
All	All	2624/2904 (90%)	2596 (99%)	28 (1%)	69 82

All (28) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	29	PHE
1	A	468	LEU
1	A	572	ARG
1	A	593	ILE
1	A	669	MET
1	A	670	ILE
1	A	819	LEU
1	B	29	PHE
1	B	468	LEU
1	B	572	ARG
1	B	593	ILE
1	B	669	MET
1	B	670	ILE
1	B	819	LEU
1	C	29	PHE
1	C	468	LEU
1	C	572	ARG
1	C	593	ILE
1	C	669	MET
1	C	670	ILE
1	C	819	LEU
1	D	29	PHE
1	D	468	LEU
1	D	572	ARG

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Mol	Chain	Res	Type
1	D	593	ILE
1	D	669	MET
1	D	670	ILE
1	D	819	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	403	ASN
1	A	671	ASN
1	B	403	ASN
1	B	470	ASN
1	B	671	ASN
1	C	403	ASN
1	C	470	ASN
1	C	671	ASN
1	D	403	ASN
1	D	470	ASN
1	D	671	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 16 ligands modelled in this entry, 12 are unknown - leaving 4 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	$\#\|Z\| > 2$
3	A1CCX	A	904	-	26,29,29	4.89	20 (76%)	32,40,40	3.65	11 (34%)
3	A1CCX	B	904	-	26,29,29	4.88	20 (76%)	32,40,40	3.64	11 (34%)
3	A1CCX	C	904	-	26,29,29	4.88	20 (76%)	32,40,40	3.65	11 (34%)
3	A1CCX	D	902	-	26,29,29	4.88	20 (76%)	32,40,40	3.66	11 (34%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	A1CCX	A	904	-	-	0/8/23/23	0/4/4/4
3	A1CCX	B	904	-	-	0/8/23/23	0/4/4/4
3	A1CCX	C	904	-	-	0/8/23/23	0/4/4/4
3	A1CCX	D	902	-	-	0/8/23/23	0/4/4/4

All (80) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	904	A1CCX	C16-C14	8.68	1.53	1.39
3	C	904	A1CCX	C16-C14	8.68	1.53	1.39
3	D	902	A1CCX	C16-C14	8.68	1.53	1.39
3	A	904	A1CCX	C16-C14	8.66	1.53	1.39
3	A	904	A1CCX	C1-N1	-8.64	1.31	1.47
3	B	904	A1CCX	C1-N1	-8.63	1.31	1.47
3	D	902	A1CCX	C1-N1	-8.62	1.31	1.47
3	C	904	A1CCX	C1-N1	-8.61	1.31	1.47
3	D	902	A1CCX	C17-C15	8.19	1.52	1.38
3	A	904	A1CCX	C17-C15	8.17	1.52	1.38
3	C	904	A1CCX	C17-C15	8.17	1.52	1.38
3	B	904	A1CCX	C17-C15	8.12	1.51	1.38
3	B	904	A1CCX	C10-C9	7.12	1.53	1.38
3	C	904	A1CCX	C10-C9	7.10	1.53	1.38
3	A	904	A1CCX	C10-C9	7.08	1.53	1.38
3	D	902	A1CCX	C10-C9	7.08	1.53	1.38
3	A	904	A1CCX	C7-C5	6.60	1.50	1.39
3	B	904	A1CCX	C7-C5	6.60	1.50	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	904	A1CCX	C7-C5	6.59	1.50	1.39
3	D	902	A1CCX	C7-C5	6.58	1.50	1.39
3	A	904	A1CCX	C3-C5	6.31	1.65	1.51
3	C	904	A1CCX	C3-C5	6.31	1.65	1.51
3	D	902	A1CCX	C3-C5	6.31	1.65	1.51
3	B	904	A1CCX	C3-C5	6.28	1.65	1.51
3	A	904	A1CCX	C6-C4	5.90	1.49	1.39
3	B	904	A1CCX	C6-C4	5.90	1.49	1.39
3	A	904	A1CCX	C18-C19	5.89	1.49	1.38
3	B	904	A1CCX	C18-C19	5.89	1.49	1.38
3	C	904	A1CCX	C18-C19	5.89	1.49	1.38
3	D	902	A1CCX	C18-C19	5.89	1.49	1.38
3	C	904	A1CCX	C6-C4	5.87	1.49	1.39
3	D	902	A1CCX	C6-C4	5.83	1.49	1.39
3	D	902	A1CCX	C1-C2	-5.46	1.41	1.51
3	A	904	A1CCX	C1-C2	-5.44	1.41	1.51
3	B	904	A1CCX	C1-C2	-5.44	1.41	1.51
3	C	904	A1CCX	C1-C2	-5.41	1.41	1.51
3	B	904	A1CCX	C18-C16	-5.18	1.30	1.38
3	C	904	A1CCX	C18-C16	-5.18	1.30	1.38
3	A	904	A1CCX	C18-C16	-5.12	1.30	1.38
3	D	902	A1CCX	C18-C16	-5.12	1.30	1.38
3	A	904	A1CCX	C15-C14	-4.88	1.31	1.39
3	C	904	A1CCX	C15-C14	-4.88	1.31	1.39
3	B	904	A1CCX	C15-C14	-4.84	1.31	1.39
3	D	902	A1CCX	C15-C14	-4.81	1.31	1.39
3	D	902	A1CCX	C13-N3	4.65	1.45	1.36
3	C	904	A1CCX	C13-N3	4.65	1.45	1.36
3	A	904	A1CCX	C13-N3	4.63	1.44	1.36
3	B	904	A1CCX	C13-N3	4.63	1.44	1.36
3	C	904	A1CCX	C9-C6	-4.25	1.31	1.38
3	B	904	A1CCX	C9-C6	-4.24	1.31	1.38
3	A	904	A1CCX	C9-C6	-4.22	1.31	1.38
3	D	902	A1CCX	C9-C6	-4.18	1.31	1.38
3	A	904	A1CCX	C8-N1	4.18	1.43	1.34
3	B	904	A1CCX	C8-N1	4.18	1.43	1.34
3	C	904	A1CCX	C8-N1	4.16	1.43	1.34
3	D	902	A1CCX	C8-N1	4.16	1.43	1.34
3	A	904	A1CCX	C17-C19	-3.64	1.31	1.38
3	B	904	A1CCX	C17-C19	-3.64	1.31	1.38
3	C	904	A1CCX	C17-C19	-3.64	1.31	1.38
3	D	902	A1CCX	C17-C19	-3.64	1.31	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	904	A1CCX	C3-N1	-3.44	1.41	1.46
3	B	904	A1CCX	C3-N1	-3.44	1.41	1.46
3	C	904	A1CCX	C3-N1	-3.43	1.41	1.46
3	D	902	A1CCX	C3-N1	-3.43	1.41	1.46
3	A	904	A1CCX	C10-C7	-3.38	1.33	1.38
3	B	904	A1CCX	C10-C7	-3.35	1.33	1.38
3	D	902	A1CCX	C10-C7	-3.32	1.33	1.38
3	C	904	A1CCX	C10-C7	-3.29	1.33	1.38
3	A	904	A1CCX	O1-C8	-3.27	1.15	1.22
3	D	902	A1CCX	O1-C8	-3.27	1.15	1.22
3	B	904	A1CCX	O1-C8	-3.23	1.15	1.22
3	C	904	A1CCX	O1-C8	-3.23	1.15	1.22
3	A	904	A1CCX	C14-N3	2.49	1.46	1.40
3	B	904	A1CCX	C14-N3	2.49	1.46	1.40
3	C	904	A1CCX	C14-N3	2.49	1.46	1.40
3	D	902	A1CCX	C14-N3	2.45	1.46	1.40
3	A	904	A1CCX	C11-C8	-2.16	1.47	1.50
3	D	902	A1CCX	C11-C8	-2.16	1.47	1.50
3	B	904	A1CCX	C11-C8	-2.14	1.47	1.50
3	C	904	A1CCX	C11-C8	-2.14	1.47	1.50

All (44) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	D	902	A1CCX	C2-C1-N1	15.34	125.85	110.03
3	A	904	A1CCX	C2-C1-N1	15.28	125.78	110.03
3	C	904	A1CCX	C2-C1-N1	15.25	125.75	110.03
3	B	904	A1CCX	C2-C1-N1	15.19	125.69	110.03
3	B	904	A1CCX	C5-C3-N1	7.69	123.19	111.56
3	C	904	A1CCX	C5-C3-N1	7.68	123.19	111.56
3	D	902	A1CCX	C5-C3-N1	7.68	123.19	111.56
3	A	904	A1CCX	C5-C3-N1	7.67	123.17	111.56
3	B	904	A1CCX	C1-C2-C4	5.63	121.06	111.34
3	C	904	A1CCX	C1-C2-C4	5.62	121.04	111.34
3	D	902	A1CCX	C1-C2-C4	5.61	121.03	111.34
3	A	904	A1CCX	C1-C2-C4	5.60	121.01	111.34
3	B	904	A1CCX	O1-C8-C11	-4.17	111.38	118.90
3	C	904	A1CCX	O1-C8-C11	-4.17	111.38	118.90
3	A	904	A1CCX	O1-C8-C11	-4.15	111.41	118.90
3	D	902	A1CCX	O1-C8-C11	-4.15	111.41	118.90
3	B	904	A1CCX	C11-C8-N1	4.06	129.18	119.59
3	A	904	A1CCX	C11-C8-N1	4.05	129.17	119.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	C	904	A1CCX	C11-C8-N1	4.05	129.17	119.59
3	D	902	A1CCX	C11-C8-N1	4.05	129.16	119.59
3	D	902	A1CCX	C2-C4-C5	-3.47	113.36	120.77
3	A	904	A1CCX	C2-C4-C5	-3.46	113.38	120.77
3	B	904	A1CCX	C2-C4-C5	-3.44	113.43	120.77
3	C	904	A1CCX	C2-C4-C5	-3.44	113.43	120.77
3	A	904	A1CCX	C14-N3-C13	-2.75	122.63	129.42
3	B	904	A1CCX	C14-N3-C13	-2.75	122.63	129.42
3	D	902	A1CCX	C14-N3-C13	-2.74	122.65	129.42
3	C	904	A1CCX	C14-N3-C13	-2.73	122.67	129.42
3	B	904	A1CCX	C3-C5-C7	2.32	126.18	119.86
3	D	902	A1CCX	C3-C5-C7	2.32	126.16	119.86
3	A	904	A1CCX	C3-C5-C7	2.31	126.15	119.86
3	C	904	A1CCX	C3-C5-C7	2.31	126.13	119.86
3	C	904	A1CCX	C2-C4-C6	2.24	125.72	121.05
3	D	902	A1CCX	C2-C4-C6	2.24	125.72	121.05
3	A	904	A1CCX	C2-C4-C6	2.24	125.72	121.05
3	B	904	A1CCX	C2-C4-C6	2.23	125.72	121.05
3	C	904	A1CCX	C3-N1-C8	2.22	128.64	121.53
3	D	902	A1CCX	C3-N1-C8	2.22	128.64	121.53
3	A	904	A1CCX	C3-N1-C8	2.21	128.62	121.53
3	B	904	A1CCX	C3-N1-C8	2.21	128.62	121.53
3	A	904	A1CCX	O1-C8-N1	-2.03	119.15	122.35
3	D	902	A1CCX	O1-C8-N1	-2.03	119.16	122.35
3	B	904	A1CCX	O1-C8-N1	-2.02	119.17	122.35
3	C	904	A1CCX	O1-C8-N1	-2.02	119.17	122.35

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

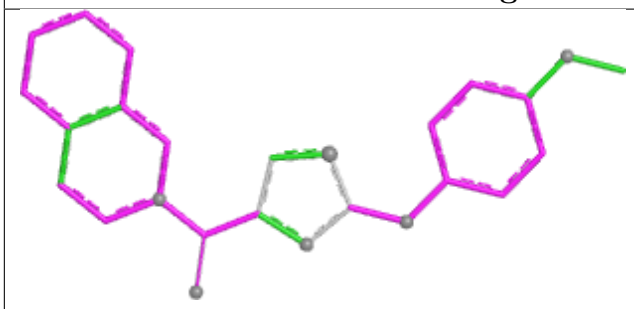
4 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	904	A1CCX	2	0
3	B	904	A1CCX	1	0
3	C	904	A1CCX	2	0
3	D	902	A1CCX	1	0

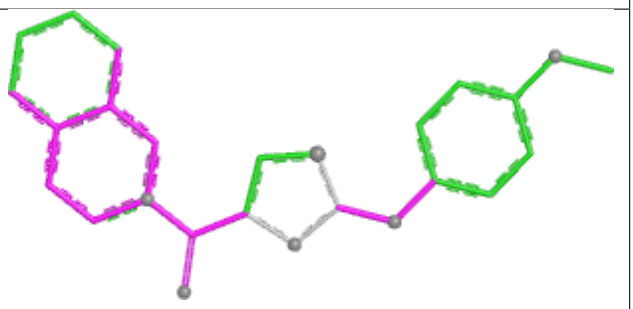
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will

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.

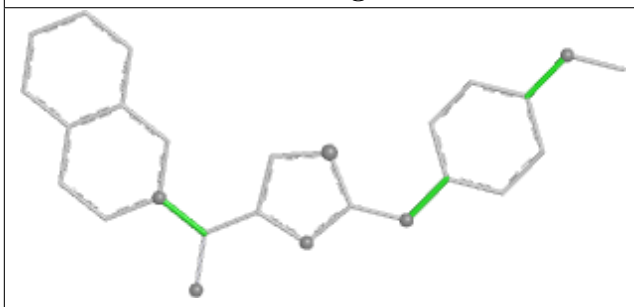
Ligand A1CCX A 904



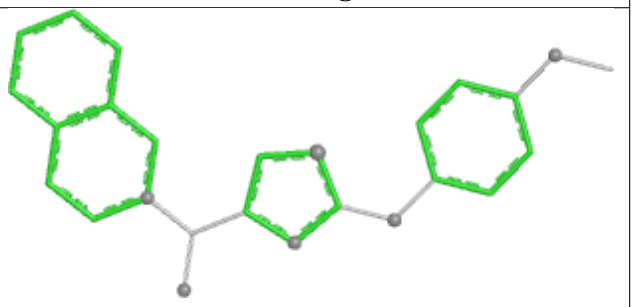
Bond lengths



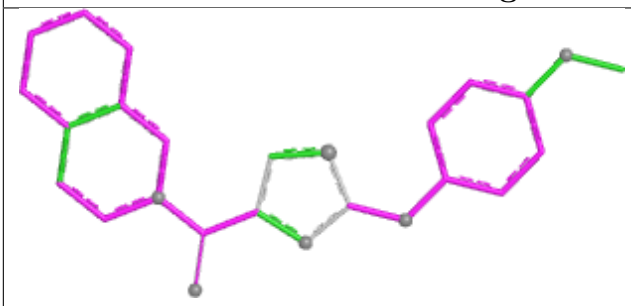
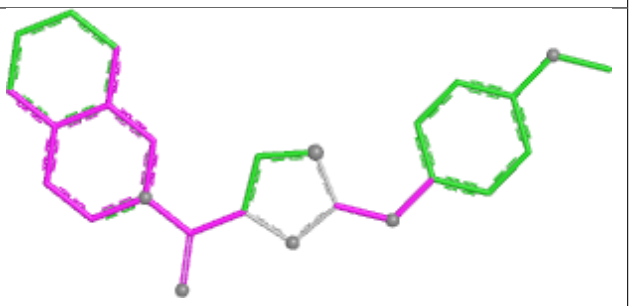
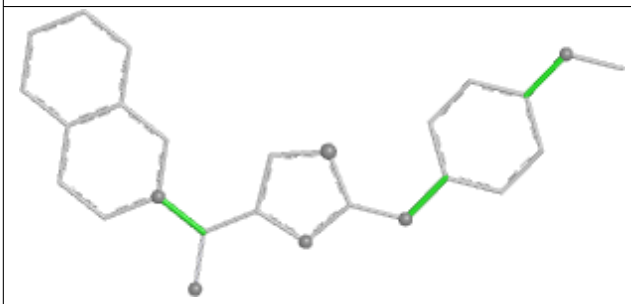
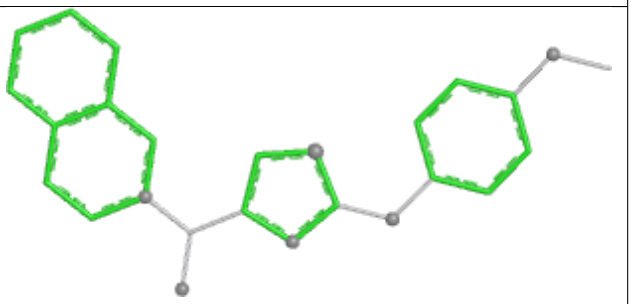
Bond angles

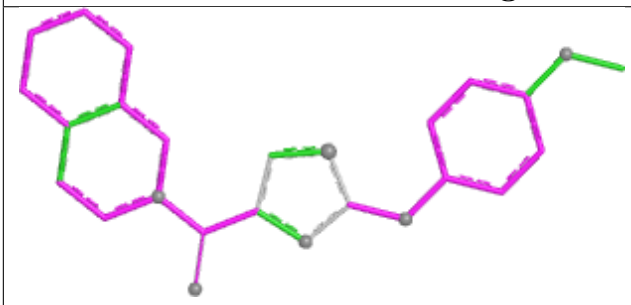
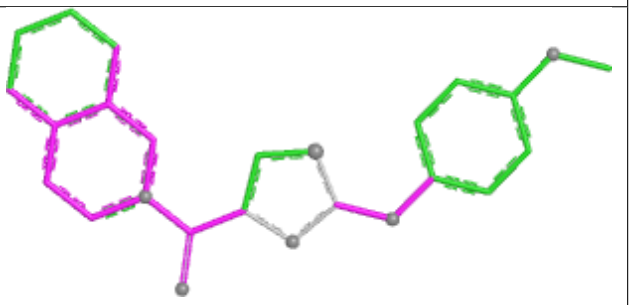
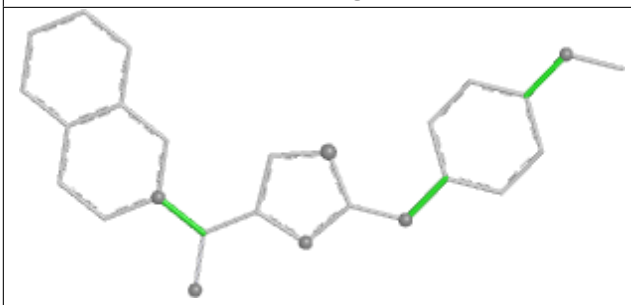
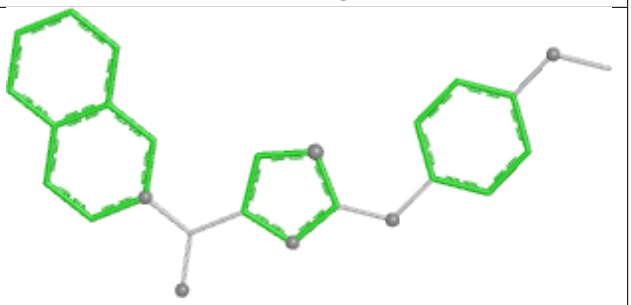


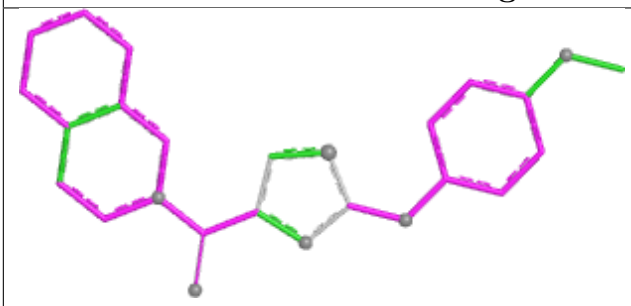
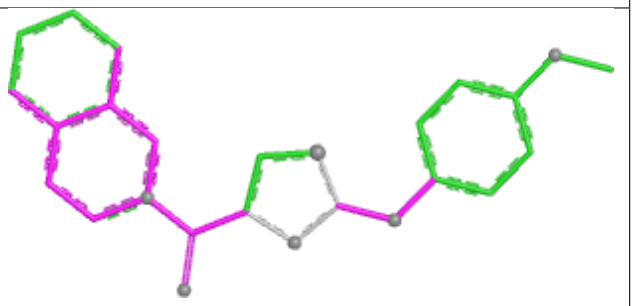
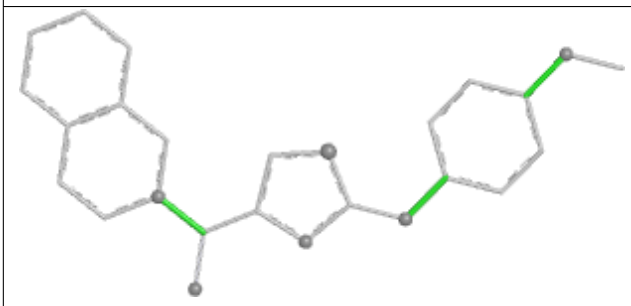
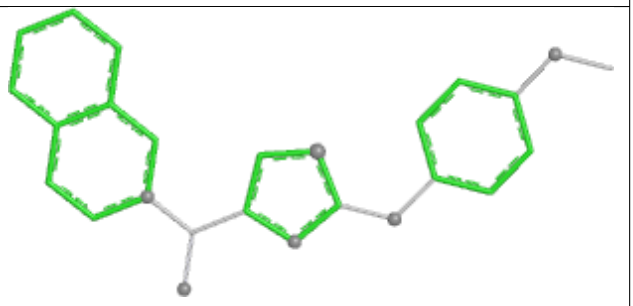
Torsions



Rings

Ligand A1CCX B 904	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand A1CCX C 904	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand A1CCX D 902	
 Bond lengths	 Bond angles
 Torsions	 Rings

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.