



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 10, 2026 – 12:54 AM UTC

PDB ID : 8R97 / pdb_00008r97
Title : Crystal structure of the cryorhodopsin CryoR2 at pH 4.6, type B crystals, non-illuminated state
Authors : Kovalev, K.; Lamm, G.H.U.; Marin, E.
Deposited on : 2023-11-30
Resolution : 3.00 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

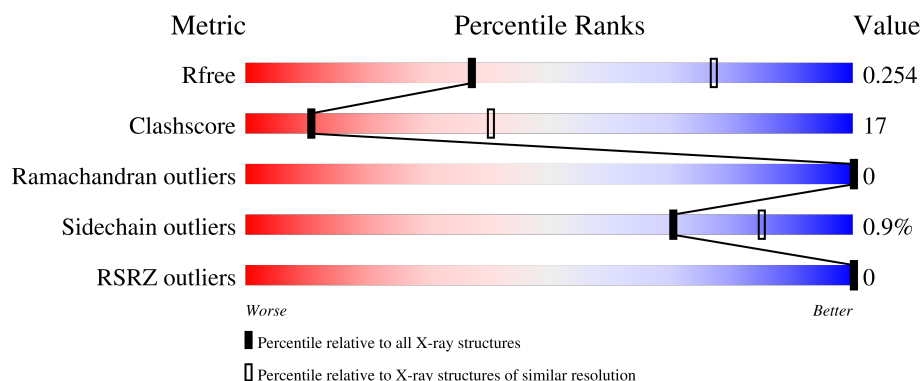
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.00 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	2672 (3.00-3.00)
Clashscore	190562	2977 (3.00-3.00)
Ramachandran outliers	187476	2877 (3.00-3.00)
Sidechain outliers	187428	2880 (3.00-3.00)
RSRZ outliers	180081	2671 (3.00-3.00)

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	327	 66% 21% 12%
1	B	327	 63% 25% 12%
1	C	327	 62% 25% 12%
1	D	327	 61% 26% 12%
1	E	327	 61% 26% 13%

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Mol	Chain	Length	Quality of chain
1	F	327	 62%25%12%
1	G	327	 65%23%12%
1	H	327	 60%27%12%
1	I	327	 63%25%11%
1	K	327	 62%25%13%

2 Entry composition

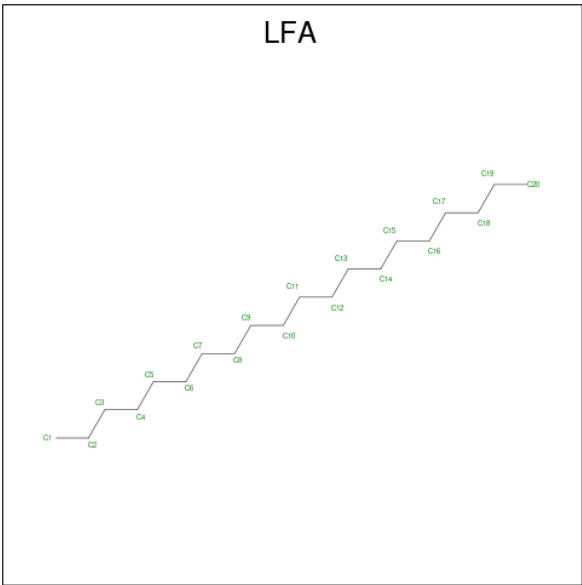
There are 5 unique types of molecules in this entry. The entry contains 21953 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called cryorhodopsin CryoR2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	287	Total	C	N	O	S	0	0	0
			2146	1411	346	383	6			
1	B	288	Total	C	N	O	S	0	0	0
			2152	1413	349	384	6			
1	C	287	Total	C	N	O	S	0	0	0
			2138	1408	344	380	6			
1	D	288	Total	C	N	O	S	0	0	0
			2137	1407	342	382	6			
1	E	286	Total	C	N	O	S	0	0	0
			2132	1402	342	382	6			
1	H	287	Total	C	N	O	S	0	0	0
			2131	1402	344	379	6			
1	G	288	Total	C	N	O	S	0	0	0
			2149	1412	347	384	6			
1	F	287	Total	C	N	O	S	0	0	0
			2153	1413	351	383	6			
1	I	290	Total	C	N	O	S	0	0	0
			2138	1408	339	385	6			
1	K	286	Total	C	N	O	S	0	0	0
			2132	1402	342	382	6			

- Molecule 2 is EICOSANE (CCD ID: LFA) (formula: C₂₀H₄₂).



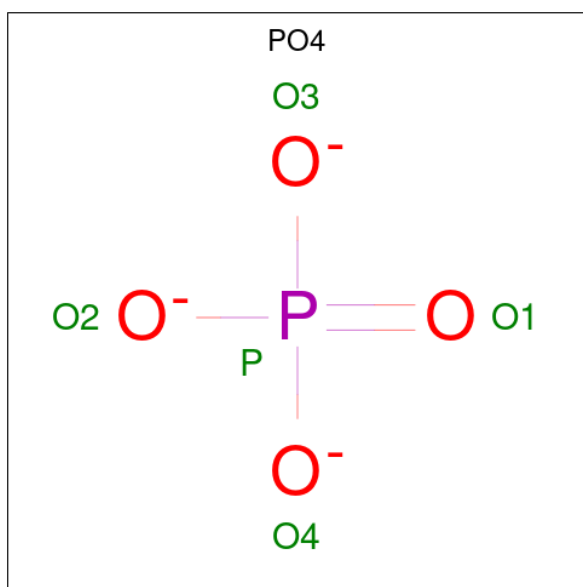
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C 11 11	0	0
2	A	1	Total C 7 7	0	0
2	A	1	Total C 10 10	0	0
2	A	1	Total C 7 7	0	0
2	B	1	Total C 7 7	0	0
2	B	1	Total C 11 11	0	0
2	B	1	Total C 12 12	0	0
2	B	1	Total C 8 8	0	0
2	C	1	Total C 6 6	0	0
2	C	1	Total C 6 6	0	0
2	D	1	Total C 10 10	0	0
2	D	1	Total C 9 9	0	0
2	E	1	Total C 11 11	0	0
2	E	1	Total C 12 12	0	0

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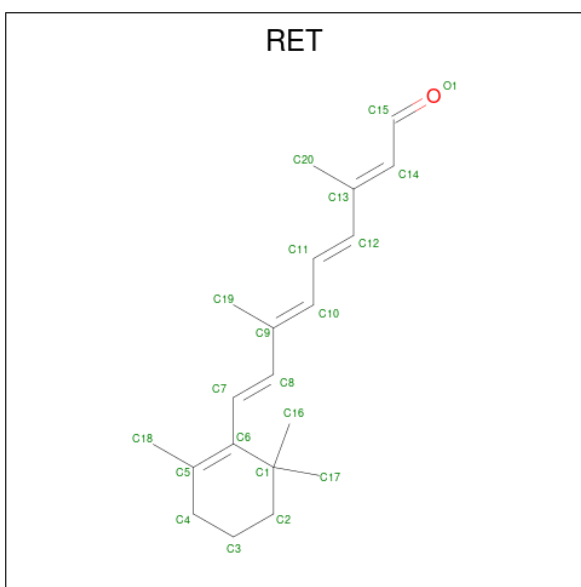
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	H	1	Total C 6 6	0	0
2	H	1	Total C 6 6	0	0
2	G	1	Total C 11 11	0	0
2	G	1	Total C 7 7	0	0
2	G	1	Total C 10 10	0	0
2	G	1	Total C 7 7	0	0
2	F	1	Total C 8 8	0	0
2	F	1	Total C 7 7	0	0
2	F	1	Total C 11 11	0	0
2	F	1	Total C 12 12	0	0
2	I	1	Total C 10 10	0	0
2	K	1	Total C 11 11	0	0
2	K	1	Total C 12 12	0	0
2	K	1	Total C 10 10	0	0

- Molecule 3 is PHOSPHATE ION (CCD ID: PO4) (formula: O₄P).



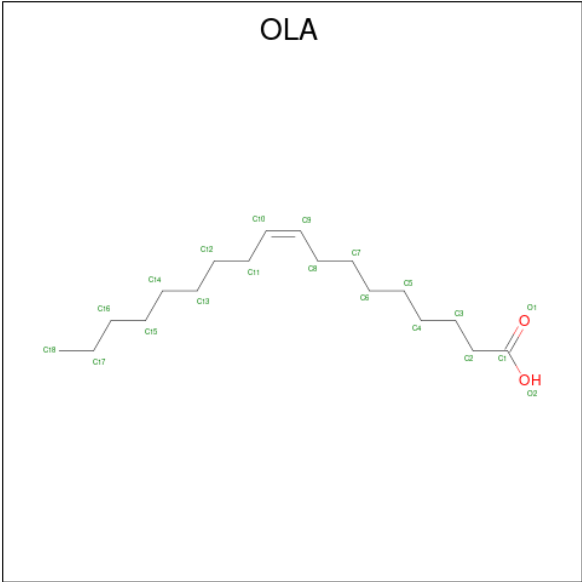
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	O	P	0	0
			5	4	1		
3	B	1	Total	O	P	0	0
			5	4	1		
3	C	1	Total	O	P	0	0
			5	4	1		
3	D	1	Total	O	P	0	0
			5	4	1		
3	E	1	Total	O	P	0	0
			5	4	1		
3	H	1	Total	O	P	0	0
			5	4	1		
3	G	1	Total	O	P	0	0
			5	4	1		
3	F	1	Total	O	P	0	0
			5	4	1		
3	I	1	Total	O	P	0	0
			5	4	1		
3	K	1	Total	O	P	0	0
			5	4	1		

- Molecule 4 is RETINAL (CCD ID: RET) (formula: C₂₀H₂₈O) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C 20 20	0	0
4	B	1	Total C 20 20	0	0
4	C	1	Total C 20 20	0	0
4	D	1	Total C 20 20	0	0
4	E	1	Total C 20 20	0	0
4	H	1	Total C 20 20	0	0
4	G	1	Total C 20 20	0	0
4	F	1	Total C 20 20	0	0
4	I	1	Total C 20 20	0	0
4	K	1	Total C 20 20	0	0

- Molecule 5 is OLEIC ACID (CCD ID: OLA) (formula: $C_{18}H_{34}O_2$).



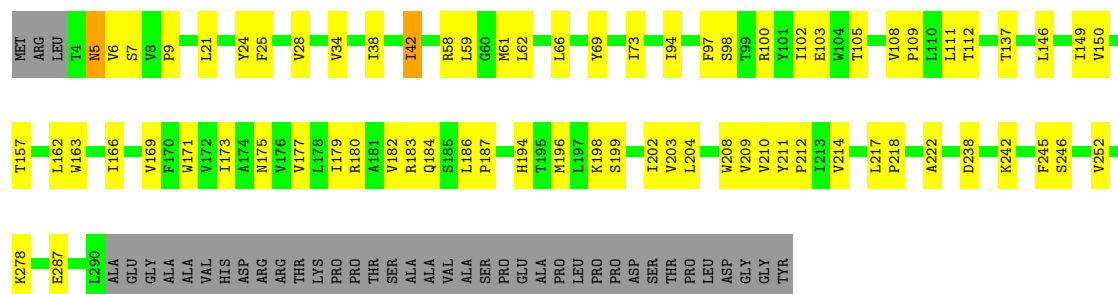
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	D	1	Total	C	O	0	0
			20	18	2		
5	I	1	Total	C	O	0	0
			20	18	2		

3 Residue-property plots

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

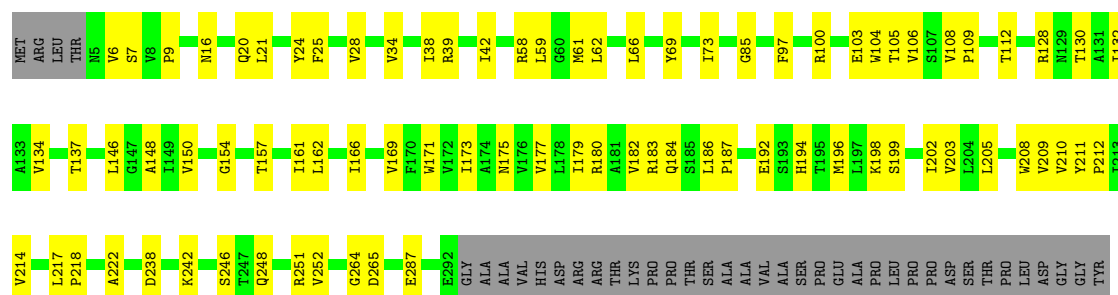
• Molecule 1: cryorhodopsin CryoR2

Chain A: 



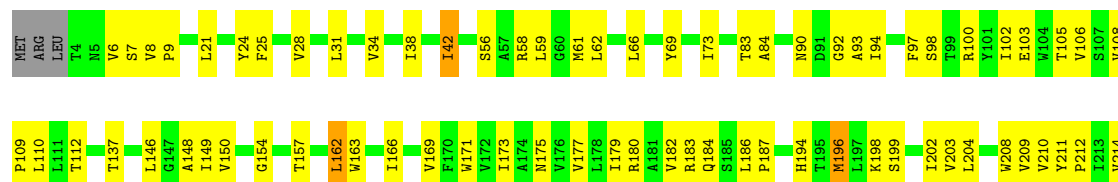
• Molecule 1: cryorhodopsin CryoR2

Chain B: 



• Molecule 1: cryorhodopsin CryoR2

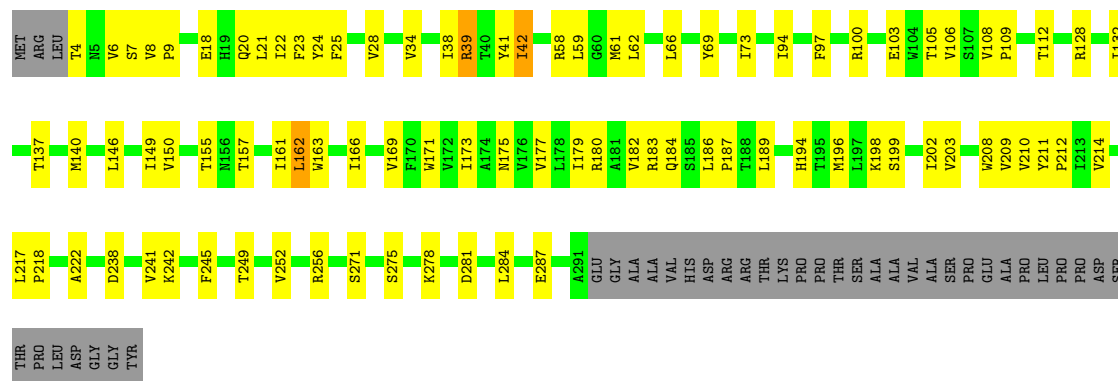
Chain C: 





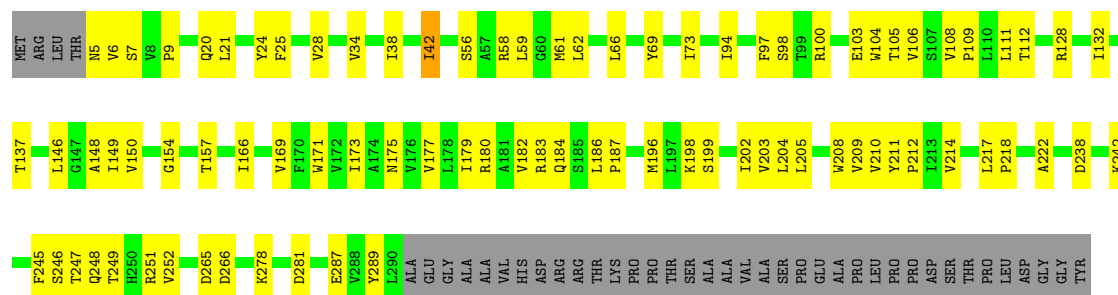
• Molecule 1: cryorhodopsin CryoR2

Chain D: 61% 26% 12%



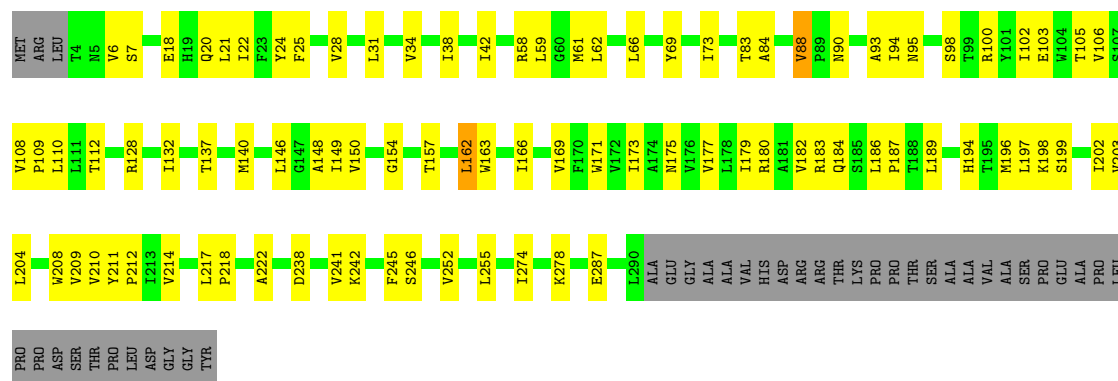
• Molecule 1: cryorhodopsin CryoR2

Chain E: 61% 26% 13%



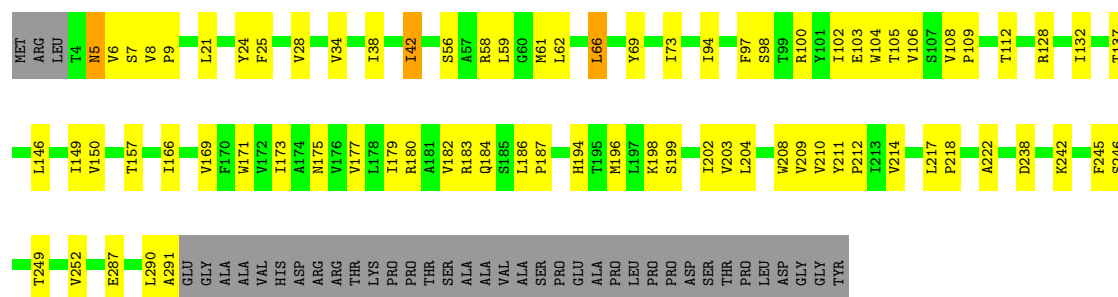
• Molecule 1: cryorhodopsin CryoR2

Chain H: 60% 27% 12%



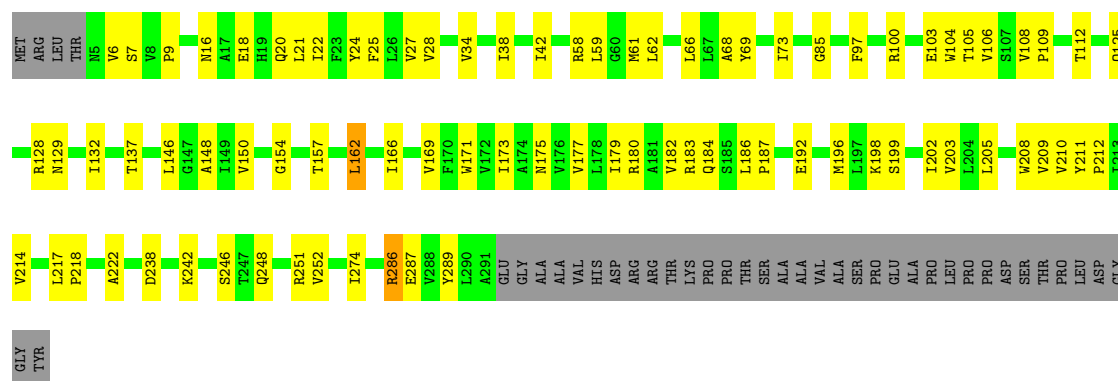
• Molecule 1: cryorhodopsin CryoR2

Chain G:  65% 23% 12%



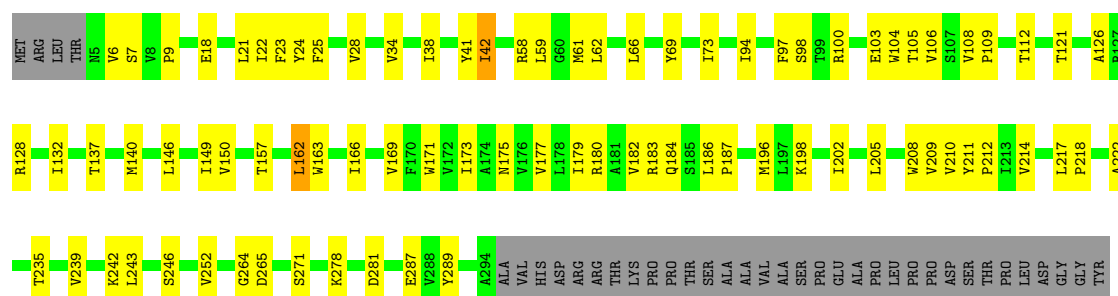
• Molecule 1: cryorhodopsin CryoR2

Chain F:  62% 25% 12%



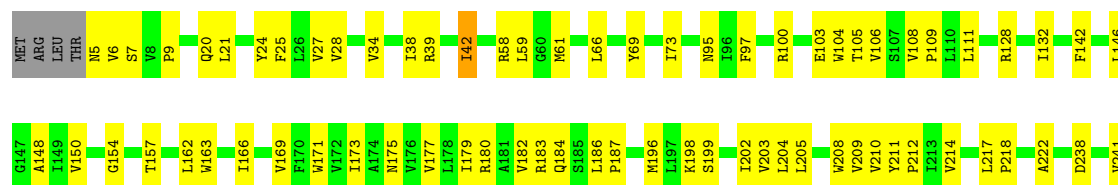
• Molecule 1: cryorhodopsin CryoR2

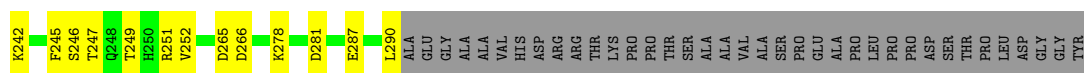
Chain I:  63% 25% 11%



• Molecule 1: cryorhodopsin CryoR2

Chain K:  62% 25% 13%





4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	149.76Å 84.98Å 296.40Å 90.00° 96.83° 90.00°	Depositor
Resolution (Å)	20.00 – 3.00 20.00 – 3.00	Depositor EDS
% Data completeness (in resolution range)	86.6 (20.00-3.00) 86.6 (20.00-3.00)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.43 (at 2.98Å)	Xtriage
Refinement program	REFMAC 5.8.0267	Depositor
R, R_{free}	0.266 , 0.301 (Not available) , 0.254	Depositor DCC
R_{free} test set	3192 reflections (4.30%)	wwPDB-VP
Wilson B-factor (Å ²)	89.2	Xtriage
Anisotropy	0.101	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.29 , 44.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.28$	Xtriage
Estimated twinning fraction	0.000 for $1/2^*h-3/2^*k,-1/2^*h-1/2^*k,-1/2^*h+1/2^*k-l$ 0.000 for $1/2^*h+3/2^*k,1/2^*h-1/2^*k,-1/2^*h-1/2^*k-l$	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	21953	wwPDB-VP
Average B, all atoms (Å ²)	90.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 43.57 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 1.7304e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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: LFA, PO4, RET, OLA

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	1.01	0/2194	1.65	0/3013
1	B	1.00	0/2200	1.66	0/3022
1	C	1.02	0/2186	1.66	0/3003
1	D	1.01	0/2185	1.66	0/3004
1	E	1.00	0/2179	1.65	0/2994
1	F	1.00	0/2201	1.66	0/3022
1	G	1.01	0/2197	1.64	0/3018
1	H	1.02	0/2178	1.66	0/2992
1	I	1.01	0/2185	1.66	0/3004
1	K	1.01	0/2179	1.66	0/2994
All	All	1.01	0/21884	1.66	0/30066

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

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	2146	0	2186	69	0
1	B	2152	0	2192	75	0
1	C	2138	0	2176	79	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	D	2137	0	2171	81	0
1	E	2132	0	2171	77	0
1	F	2153	0	2201	74	0
1	G	2149	0	2187	69	0
1	H	2131	0	2169	85	0
1	I	2138	0	2164	73	0
1	K	2132	0	2171	71	0
2	A	35	0	66	1	0
2	B	38	0	72	2	0
2	C	12	0	22	0	0
2	D	19	0	33	1	0
2	E	23	0	44	1	0
2	F	38	0	72	2	0
2	G	35	0	66	1	0
2	H	12	0	22	1	0
2	I	10	0	19	0	0
2	K	33	0	60	1	0
3	A	5	0	0	0	0
3	B	5	0	0	0	0
3	C	5	0	0	0	0
3	D	5	0	0	1	0
3	E	5	0	0	0	0
3	F	5	0	0	1	0
3	G	5	0	0	0	0
3	H	5	0	0	1	0
3	I	5	0	0	0	0
3	K	5	0	0	0	0
4	A	20	0	27	6	0
4	B	20	0	27	7	0
4	C	20	0	27	5	0
4	D	20	0	27	5	0
4	E	20	0	27	6	0
4	F	20	0	27	7	0
4	G	20	0	27	6	0
4	H	20	0	27	6	0
4	I	20	0	27	6	0
4	K	20	0	27	6	0
5	D	20	0	33	1	0
5	I	20	0	33	2	0
All	All	21953	0	22600	741	0

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

All (741) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:31:LEU:O	1:C:34:VAL:HG12	1.60	1.01
1:H:31:LEU:O	1:H:34:VAL:HG12	1.58	0.99
1:E:5:ASN:HB2	1:E:157:THR:OG1	1.64	0.96
1:D:39:ARG:HG2	1:E:56:SER:HB2	1.49	0.94
1:K:5:ASN:HB2	1:K:157:THR:OG1	1.70	0.91
1:E:58:ARG:HD2	1:E:246:SER:HB2	1.51	0.91
1:H:196:MET:HE2	1:H:196:MET:HA	1.53	0.90
1:E:289:TYR:HB2	1:F:289:TYR:HE2	1.35	0.89
4:C:404:RET:H171	4:C:404:RET:H8	1.56	0.88
1:I:58:ARG:HD2	1:I:246:SER:HB2	1.58	0.86
1:I:278:LYS:HD3	1:I:281:ASP:OD1	1.75	0.85
1:D:196:MET:HE2	1:D:196:MET:HA	1.59	0.83
1:I:287:GLU:HG3	1:K:287:GLU:OE2	1.79	0.82
1:E:58:ARG:O	1:E:61:MET:HG3	1.80	0.82
1:I:7:SER:HB3	1:I:222:ALA:HB2	1.62	0.81
1:E:61:MET:HE1	1:E:242:LYS:HD3	1.64	0.80
4:H:404:RET:H8	4:H:404:RET:H171	1.64	0.79
1:G:59:LEU:CD2	1:K:42:ILE:HD11	2.15	0.77
1:K:58:ARG:O	1:K:61:MET:HG3	1.85	0.76
4:K:405:RET:H171	4:K:405:RET:H8	1.66	0.75
1:K:61:MET:HE1	1:K:242:LYS:HD3	1.68	0.75
4:G:406:RET:H171	4:G:406:RET:H8	1.69	0.74
4:E:404:RET:H171	4:E:404:RET:H8	1.70	0.74
1:F:61:MET:HG3	1:F:62:LEU:N	2.02	0.74
1:G:61:MET:HG3	1:G:62:LEU:N	2.03	0.73
1:B:61:MET:HG3	1:B:62:LEU:N	2.02	0.73
1:D:61:MET:HG3	1:D:62:LEU:N	2.03	0.73
4:A:406:RET:H8	4:A:406:RET:H171	1.68	0.73
1:C:61:MET:HG3	1:C:62:LEU:N	2.03	0.73
1:I:61:MET:HG3	1:I:62:LEU:N	2.02	0.73
1:G:6:VAL:CG2	1:G:157:THR:HA	2.18	0.73
4:I:404:RET:H171	4:I:404:RET:H8	1.70	0.73
1:A:61:MET:HG3	1:A:62:LEU:N	2.03	0.73
4:F:406:RET:H8	4:F:406:RET:H171	1.71	0.73
1:H:61:MET:HG3	1:H:62:LEU:N	2.03	0.72
1:A:59:LEU:CD2	1:E:42:ILE:HD11	2.19	0.72
1:D:278:LYS:HD3	1:D:281:ASP:OD1	1.89	0.71
1:B:42:ILE:HD11	1:C:59:LEU:CD2	2.20	0.71
1:H:59:LEU:CD2	1:F:42:ILE:HD11	2.20	0.70
1:B:7:SER:HB3	1:B:222:ALA:HB2	1.72	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B:406:RET:H171	4:B:406:RET:H8	1.72	0.69
1:C:42:ILE:HD11	1:D:59:LEU:CD2	2.23	0.68
4:D:405:RET:H171	4:D:405:RET:H8	1.73	0.68
1:H:42:ILE:HD11	1:I:59:LEU:CD2	2.22	0.68
1:H:287:GLU:HG3	1:I:287:GLU:OE2	1.94	0.68
1:B:6:VAL:CG2	1:B:157:THR:HA	2.24	0.68
1:F:7:SER:HB3	1:F:222:ALA:HB2	1.74	0.68
1:F:6:VAL:CG2	1:F:157:THR:HA	2.24	0.67
1:K:7:SER:HB3	1:K:222:ALA:HB2	1.76	0.67
1:B:209:VAL:O	1:B:212:PRO:HD2	1.95	0.67
1:K:209:VAL:O	1:K:212:PRO:HD2	1.95	0.67
1:H:209:VAL:O	1:H:212:PRO:HD2	1.95	0.67
1:A:6:VAL:CG2	1:A:157:THR:HA	2.24	0.67
1:A:209:VAL:O	1:A:212:PRO:HD2	1.95	0.67
1:C:209:VAL:O	1:C:212:PRO:HD2	1.95	0.67
1:I:58:ARG:CD	1:I:246:SER:HB2	2.25	0.66
1:D:209:VAL:O	1:D:212:PRO:HD2	1.95	0.66
1:G:196:MET:HB3	1:G:252:VAL:HG22	1.78	0.66
1:H:186:LEU:HB3	1:H:194:HIS:CE1	2.30	0.66
1:F:209:VAL:O	1:F:212:PRO:HD2	1.95	0.66
1:K:58:ARG:HD3	1:K:246:SER:HB2	1.77	0.66
1:E:7:SER:HB3	1:E:222:ALA:HB2	1.76	0.66
1:E:209:VAL:O	1:E:212:PRO:HD2	1.96	0.66
1:G:209:VAL:O	1:G:212:PRO:HD2	1.95	0.65
1:C:196:MET:HB3	1:C:252:VAL:HG22	1.77	0.65
1:A:196:MET:HB3	1:A:252:VAL:HG22	1.78	0.65
1:H:7:SER:HB3	1:H:222:ALA:HB2	1.78	0.65
1:G:59:LEU:HD23	1:K:42:ILE:HD11	1.79	0.65
1:G:59:LEU:HD22	1:K:42:ILE:HD11	1.78	0.65
1:I:209:VAL:O	1:I:212:PRO:HD2	1.97	0.65
1:E:196:MET:HE2	1:E:251:ARG:HB2	1.79	0.64
1:D:6:VAL:CG2	1:D:157:THR:HA	2.27	0.64
1:I:42:ILE:HD11	1:K:59:LEU:HD22	1.79	0.64
1:K:61:MET:HE3	1:K:111:LEU:HD21	1.79	0.64
1:D:42:ILE:HD11	1:E:59:LEU:CD2	2.28	0.64
1:H:6:VAL:CG2	1:H:157:THR:HA	2.27	0.64
1:K:196:MET:HE2	1:K:251:ARG:HB2	1.78	0.64
1:G:204:LEU:HB2	1:G:245:PHE:CD1	2.33	0.63
1:I:175:ASN:HD22	1:I:205:LEU:HD22	1.63	0.63
1:D:287:GLU:HG3	1:E:287:GLU:OE2	1.98	0.62
1:G:6:VAL:HG23	1:G:157:THR:HA	1.80	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:61:MET:HE1	1:B:242:LYS:HD3	1.81	0.62
1:A:59:LEU:HD22	1:E:42:ILE:HD11	1.80	0.62
1:C:42:ILE:HD11	1:D:59:LEU:HD22	1.83	0.61
1:C:7:SER:HB3	1:C:222:ALA:HB2	1.82	0.61
1:E:61:MET:HE3	1:E:111:LEU:HD21	1.82	0.61
1:A:7:SER:HB3	1:A:222:ALA:HB2	1.82	0.61
1:A:204:LEU:HB2	1:A:245:PHE:CD1	2.36	0.61
1:H:112:THR:HG21	1:H:137:THR:HG21	1.83	0.61
1:K:211:TYR:HB2	1:K:212:PRO:HD3	1.83	0.61
4:C:404:RET:H171	4:C:404:RET:C8	2.31	0.60
1:H:59:LEU:HD22	1:F:42:ILE:HD11	1.82	0.60
1:E:6:VAL:CG2	1:E:157:THR:HA	2.31	0.60
1:E:108:VAL:HB	1:E:109:PRO:HD3	1.83	0.60
1:G:7:SER:HB3	1:G:222:ALA:HB2	1.82	0.60
1:I:196:MET:HE2	1:I:196:MET:HA	1.82	0.60
1:B:42:ILE:HD11	1:C:59:LEU:HD22	1.82	0.60
1:K:108:VAL:HB	1:K:109:PRO:HD3	1.84	0.60
1:I:6:VAL:CG2	1:I:157:THR:HA	2.32	0.60
1:H:196:MET:HA	1:H:196:MET:CE	2.31	0.60
1:G:211:TYR:HB2	1:G:212:PRO:HD3	1.84	0.60
1:B:196:MET:HB3	1:B:252:VAL:HG22	1.84	0.60
1:B:42:ILE:HD11	1:C:59:LEU:HD23	1.84	0.59
1:C:112:THR:HG21	1:C:137:THR:HG21	1.84	0.59
1:K:6:VAL:CG2	1:K:157:THR:HA	2.31	0.59
1:F:61:MET:HE1	1:F:242:LYS:HD3	1.84	0.59
1:I:108:VAL:HB	1:I:109:PRO:HD3	1.84	0.59
1:E:211:TYR:HB2	1:E:212:PRO:HD3	1.84	0.59
1:K:186:LEU:HB2	1:K:187:PRO:HD3	1.83	0.59
1:C:6:VAL:CG2	1:C:157:THR:HA	2.33	0.59
1:B:108:VAL:HB	1:B:109:PRO:HD3	1.85	0.59
1:G:182:VAL:O	1:G:186:LEU:HG	2.03	0.59
1:A:42:ILE:HD11	1:B:59:LEU:CD2	2.32	0.59
1:C:211:TYR:HB2	1:C:212:PRO:HD3	1.85	0.59
1:I:182:VAL:O	1:I:186:LEU:HG	2.02	0.59
1:C:58:ARG:NE	1:C:246:SER:HB2	2.18	0.58
1:A:211:TYR:HB2	1:A:212:PRO:HD3	1.85	0.58
1:D:182:VAL:O	1:D:186:LEU:HG	2.03	0.58
1:H:59:LEU:HD23	1:F:42:ILE:HD11	1.85	0.58
1:I:175:ASN:O	1:I:179:ILE:HG13	2.03	0.58
1:A:59:LEU:HD23	1:E:42:ILE:HD11	1.85	0.58
1:A:182:VAL:O	1:A:186:LEU:HG	2.02	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:186:LEU:HB3	1:C:194:HIS:CE1	2.38	0.58
1:E:182:VAL:O	1:E:186:LEU:HG	2.03	0.58
1:C:182:VAL:O	1:C:186:LEU:HG	2.03	0.58
1:F:108:VAL:HB	1:F:109:PRO:HD3	1.85	0.58
1:B:211:TYR:HB2	1:B:212:PRO:HD3	1.86	0.58
1:I:137:THR:HA	1:I:140:MET:HE2	1.85	0.58
1:D:42:ILE:HD11	1:E:59:LEU:HD22	1.86	0.58
1:H:211:TYR:HB2	1:H:212:PRO:HD3	1.86	0.58
1:F:146:LEU:HA	1:F:150:VAL:HB	1.86	0.58
1:E:175:ASN:O	1:E:179:ILE:HG13	2.03	0.57
1:H:108:VAL:HB	1:H:109:PRO:HD3	1.86	0.57
1:A:108:VAL:HB	1:A:109:PRO:HD3	1.87	0.57
1:I:211:TYR:HB2	1:I:212:PRO:HD3	1.86	0.57
1:F:211:TYR:HB2	1:F:212:PRO:HD3	1.86	0.57
1:C:108:VAL:HB	1:C:109:PRO:HD3	1.87	0.57
1:D:186:LEU:HB3	1:D:194:HIS:CE1	2.40	0.57
1:H:42:ILE:HD11	1:I:59:LEU:HD22	1.86	0.57
1:H:42:ILE:HD11	1:I:59:LEU:HD23	1.85	0.57
1:D:112:THR:HG21	1:D:137:THR:HG21	1.86	0.57
1:G:112:THR:HG21	1:G:137:THR:HG21	1.86	0.57
1:I:186:LEU:HB2	1:I:187:PRO:HD3	1.87	0.57
1:K:182:VAL:O	1:K:186:LEU:HG	2.04	0.57
1:B:105:THR:O	1:B:109:PRO:HG2	2.04	0.57
1:B:180:ARG:O	1:B:184:GLN:HG3	2.05	0.57
1:B:182:VAL:O	1:B:186:LEU:HG	2.05	0.57
1:D:105:THR:O	1:D:109:PRO:HG2	2.05	0.57
1:G:103:GLU:OE1	1:G:242:LYS:HE3	2.03	0.57
1:D:108:VAL:HB	1:D:109:PRO:HD3	1.86	0.57
1:E:180:ARG:O	1:E:184:GLN:HG3	2.05	0.57
1:D:175:ASN:O	1:D:179:ILE:HG13	2.05	0.57
1:A:105:THR:O	1:A:109:PRO:HG2	2.05	0.56
1:C:287:GLU:HG3	1:D:287:GLU:OE2	2.04	0.56
1:G:105:THR:O	1:G:109:PRO:HG2	2.04	0.56
1:K:66:LEU:C	1:K:66:LEU:HD23	2.30	0.56
1:K:175:ASN:O	1:K:179:ILE:HG13	2.04	0.56
1:G:56:SER:HB2	1:K:39:ARG:HD3	1.87	0.56
1:G:175:ASN:O	1:G:179:ILE:HG13	2.05	0.56
1:A:5:ASN:HD22	1:A:6:VAL:H	1.53	0.56
1:B:175:ASN:O	1:B:179:ILE:HG13	2.05	0.56
1:D:211:TYR:HB2	1:D:212:PRO:HD3	1.87	0.56
1:H:175:ASN:O	1:H:179:ILE:HG13	2.05	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:182:VAL:O	1:H:186:LEU:HG	2.05	0.56
4:H:404:RET:H171	4:H:404:RET:C8	2.35	0.56
1:F:175:ASN:O	1:F:179:ILE:HG13	2.04	0.56
1:D:61:MET:HE1	1:D:242:LYS:HD3	1.87	0.56
1:D:186:LEU:HB2	1:D:187:PRO:HD3	1.87	0.56
1:G:42:ILE:HD11	1:F:59:LEU:CD2	2.36	0.56
4:D:405:RET:H8	4:D:405:RET:H161	1.87	0.56
4:F:406:RET:H8	4:F:406:RET:H161	1.86	0.56
1:I:103:GLU:OE1	1:I:242:LYS:HE3	2.06	0.56
4:K:405:RET:H171	4:K:405:RET:C8	2.36	0.56
1:H:171:TRP:HE1	1:H:208:TRP:HE3	1.54	0.56
1:C:112:THR:CG2	1:C:137:THR:HG21	2.35	0.56
1:D:180:ARG:O	1:D:184:GLN:HG3	2.05	0.56
1:E:105:THR:O	1:E:109:PRO:HG2	2.06	0.56
1:F:182:VAL:O	1:F:186:LEU:HG	2.06	0.56
1:E:66:LEU:HD23	1:E:66:LEU:C	2.31	0.56
1:C:66:LEU:C	1:C:66:LEU:HD23	2.30	0.56
1:H:66:LEU:C	1:H:66:LEU:HD23	2.31	0.56
1:I:42:ILE:HD11	1:K:59:LEU:CD2	2.36	0.56
1:I:66:LEU:C	1:I:66:LEU:HD23	2.31	0.56
1:E:58:ARG:CD	1:E:246:SER:HB2	2.31	0.55
1:G:290:LEU:O	1:G:291:ALA:C	2.48	0.55
1:I:105:THR:O	1:I:109:PRO:HG2	2.06	0.55
1:C:105:THR:O	1:C:109:PRO:HG2	2.05	0.55
1:C:175:ASN:O	1:C:179:ILE:HG13	2.06	0.55
1:F:196:MET:HB3	1:F:252:VAL:HG22	1.89	0.55
1:I:278:LYS:NZ	1:K:265:ASP:O	2.40	0.55
1:G:108:VAL:HB	1:G:109:PRO:HD3	1.88	0.55
1:F:66:LEU:C	1:F:66:LEU:HD23	2.31	0.55
4:I:404:RET:H171	4:I:404:RET:C8	2.36	0.55
1:A:66:LEU:C	1:A:66:LEU:HD23	2.31	0.55
1:A:175:ASN:O	1:A:179:ILE:HG13	2.06	0.55
1:A:180:ARG:O	1:A:184:GLN:HG3	2.07	0.55
1:B:6:VAL:HG23	1:B:157:THR:HA	1.87	0.55
1:B:66:LEU:C	1:B:66:LEU:HD23	2.32	0.55
1:H:105:THR:O	1:H:109:PRO:HG2	2.06	0.55
1:K:105:THR:O	1:K:109:PRO:HG2	2.07	0.55
1:D:6:VAL:HG23	1:D:157:THR:HA	1.89	0.55
1:D:66:LEU:C	1:D:66:LEU:HD23	2.31	0.55
1:H:146:LEU:HA	1:H:150:VAL:HB	1.87	0.55
1:F:105:THR:O	1:F:109:PRO:HG2	2.06	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:278:LYS:NZ	1:E:265:ASP:O	2.40	0.55
1:G:287:GLU:HG3	1:F:287:GLU:OE2	2.07	0.55
1:B:61:MET:CE	1:B:242:LYS:HD3	2.36	0.55
1:A:186:LEU:HB2	1:A:187:PRO:HD3	1.89	0.55
4:B:406:RET:H8	4:B:406:RET:H161	1.87	0.55
1:H:186:LEU:HB2	1:H:187:PRO:HD3	1.88	0.55
1:G:180:ARG:O	1:G:184:GLN:HG3	2.08	0.54
1:A:146:LEU:HA	1:A:150:VAL:HB	1.87	0.54
1:C:42:ILE:HD11	1:D:59:LEU:HD23	1.90	0.54
4:F:406:RET:H171	4:F:406:RET:C8	2.38	0.54
1:I:61:MET:HG3	1:I:62:LEU:H	1.72	0.54
1:B:192:GLU:H	1:B:192:GLU:CD	2.16	0.54
1:A:6:VAL:HG23	1:A:157:THR:HA	1.88	0.54
1:A:204:LEU:HD21	1:A:208:TRP:CZ2	2.43	0.54
1:H:58:ARG:NE	1:H:246:SER:HB2	2.22	0.54
1:A:61:MET:HG3	1:A:62:LEU:H	1.72	0.54
1:B:61:MET:HG3	1:B:62:LEU:H	1.72	0.54
1:C:108:VAL:HG22	4:C:404:RET:H202	1.88	0.54
1:D:61:MET:HG3	1:D:62:LEU:H	1.72	0.54
1:G:61:MET:HG3	1:G:62:LEU:H	1.73	0.54
1:G:175:ASN:N	1:G:175:ASN:HD22	2.05	0.54
4:G:406:RET:H171	4:G:406:RET:C8	2.37	0.54
1:G:66:LEU:C	1:G:66:LEU:HD23	2.32	0.54
1:E:196:MET:HB3	1:E:252:VAL:HG22	1.90	0.53
1:K:171:TRP:HE1	1:K:208:TRP:HE3	1.56	0.53
1:E:171:TRP:HE1	1:E:208:TRP:HE3	1.55	0.53
1:E:175:ASN:HD22	1:E:205:LEU:HD22	1.73	0.53
1:E:204:LEU:HD21	1:E:208:TRP:CZ2	2.43	0.53
1:F:61:MET:HG3	1:F:62:LEU:H	1.72	0.53
1:I:6:VAL:HG21	1:I:157:THR:HA	1.90	0.53
2:B:403:LFA:H72	1:C:110:LEU:HD21	1.90	0.53
1:G:5:ASN:HD22	1:G:6:VAL:H	1.56	0.53
4:G:406:RET:H8	4:G:406:RET:H161	1.91	0.53
1:F:6:VAL:HG23	1:F:157:THR:HA	1.89	0.53
1:A:112:THR:HG21	1:A:137:THR:HG21	1.89	0.53
1:F:175:ASN:HD22	1:F:205:LEU:HD22	1.74	0.53
1:I:180:ARG:O	1:I:184:GLN:HG3	2.08	0.53
1:D:7:SER:HB3	1:D:222:ALA:HB2	1.91	0.53
1:H:61:MET:HG3	1:H:62:LEU:H	1.73	0.53
1:F:61:MET:CE	1:F:242:LYS:HD3	2.38	0.53
1:F:112:THR:HG21	1:F:137:THR:HG21	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:405:RET:H171	4:D:405:RET:C8	2.39	0.53
1:E:289:TYR:HB2	1:F:289:TYR:CE2	2.28	0.53
1:B:171:TRP:HE1	1:B:208:TRP:HE3	1.55	0.53
1:D:146:LEU:HA	1:D:150:VAL:HB	1.90	0.53
1:H:61:MET:HE1	1:H:242:LYS:HB3	1.90	0.53
4:I:404:RET:H8	4:I:404:RET:H161	1.90	0.53
1:C:204:LEU:HD21	1:C:208:TRP:CZ2	2.44	0.52
1:B:112:THR:HG21	1:B:137:THR:HG21	1.90	0.52
1:C:61:MET:HG3	1:C:62:LEU:H	1.74	0.52
1:G:58:ARG:CD	1:G:246:SER:HB3	2.39	0.52
4:A:406:RET:H171	4:A:406:RET:C8	2.38	0.52
1:F:180:ARG:O	1:F:184:GLN:HG3	2.09	0.52
1:A:102:ILE:HG23	1:E:28:VAL:HG23	1.91	0.52
4:E:404:RET:H8	4:E:404:RET:H161	1.90	0.52
1:D:24:TYR:O	1:D:28:VAL:HG23	2.10	0.52
1:H:24:TYR:O	1:H:28:VAL:HG23	2.09	0.52
1:H:94:ILE:HD11	1:H:149:ILE:HG23	1.91	0.52
1:K:180:ARG:O	1:K:184:GLN:HG3	2.10	0.52
1:K:196:MET:HB3	1:K:252:VAL:HG22	1.92	0.52
1:F:192:GLU:CD	1:F:192:GLU:H	2.17	0.52
2:B:404:LFA:H22	1:D:41:TYR:OH	2.09	0.52
1:G:146:LEU:HA	1:G:150:VAL:HB	1.90	0.52
1:K:204:LEU:HD21	1:K:208:TRP:CZ2	2.45	0.52
1:C:183:ARG:O	1:C:187:PRO:HD3	2.10	0.51
1:H:98:SER:CB	1:F:20:GLN:HE21	2.21	0.51
1:I:24:TYR:O	1:I:28:VAL:HG23	2.10	0.51
4:B:406:RET:H161	4:B:406:RET:C8	2.41	0.51
1:F:24:TYR:O	1:F:28:VAL:HG23	2.10	0.51
1:H:83:THR:O	1:H:84:ALA:HB3	2.10	0.51
1:B:146:LEU:HA	1:B:150:VAL:HB	1.91	0.51
1:K:175:ASN:HD22	1:K:205:LEU:HD22	1.75	0.51
1:G:171:TRP:HE1	1:G:208:TRP:HE3	1.58	0.51
1:B:24:TYR:O	1:B:28:VAL:HG23	2.11	0.51
4:B:406:RET:H171	4:B:406:RET:C8	2.39	0.51
4:E:404:RET:H171	4:E:404:RET:C8	2.37	0.51
1:D:175:ASN:N	1:D:175:ASN:HD22	2.09	0.51
1:H:209:VAL:C	1:H:212:PRO:HD2	2.36	0.51
1:B:175:ASN:HD22	1:B:205:LEU:HD22	1.75	0.51
1:C:180:ARG:O	1:C:184:GLN:HG3	2.11	0.51
1:G:24:TYR:O	1:G:28:VAL:HG23	2.11	0.51
1:G:209:VAL:C	1:G:212:PRO:HD2	2.36	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:146:LEU:HA	1:I:150:VAL:HB	1.92	0.51
1:A:24:TYR:O	1:A:28:VAL:HG23	2.11	0.50
1:A:217:LEU:N	1:A:218:PRO:CD	2.74	0.50
1:C:171:TRP:HE1	1:C:208:TRP:HE3	1.59	0.50
1:D:217:LEU:N	1:D:218:PRO:CD	2.73	0.50
1:E:186:LEU:HB2	1:E:187:PRO:HD3	1.92	0.50
1:C:148:ALA:O	1:C:154:GLY:HA3	2.11	0.50
1:D:209:VAL:C	1:D:212:PRO:HD2	2.36	0.50
1:E:278:LYS:HE2	1:E:281:ASP:OD2	2.10	0.50
1:H:6:VAL:HG23	1:H:157:THR:HA	1.94	0.50
1:H:217:LEU:N	1:H:218:PRO:CD	2.75	0.50
4:F:406:RET:H161	4:F:406:RET:C8	2.41	0.50
1:C:24:TYR:O	1:C:28:VAL:HG23	2.11	0.50
1:H:180:ARG:O	1:H:184:GLN:HG3	2.11	0.50
1:F:209:VAL:C	1:F:212:PRO:HD2	2.37	0.50
1:I:171:TRP:HE1	1:I:208:TRP:HE3	1.60	0.50
1:K:209:VAL:C	1:K:212:PRO:HD2	2.37	0.50
1:B:217:LEU:N	1:B:218:PRO:CD	2.75	0.50
1:C:209:VAL:C	1:C:212:PRO:HD2	2.36	0.50
1:E:217:LEU:N	1:E:218:PRO:CD	2.74	0.50
1:H:112:THR:CG2	1:H:137:THR:HG21	2.41	0.50
1:G:58:ARG:HD2	1:G:246:SER:HB3	1.94	0.50
1:I:209:VAL:C	1:I:212:PRO:HD2	2.37	0.50
1:B:183:ARG:O	1:B:187:PRO:HD3	2.12	0.50
1:H:183:ARG:O	1:H:187:PRO:HD3	2.12	0.50
1:G:6:VAL:HG23	1:G:157:THR:CA	2.42	0.50
1:F:171:TRP:HE1	1:F:208:TRP:HE3	1.58	0.50
1:K:61:MET:HE1	1:K:242:LYS:CD	2.41	0.50
1:A:199:SER:O	1:A:203:VAL:HG23	2.12	0.50
1:E:209:VAL:C	1:E:212:PRO:HD2	2.37	0.50
1:K:217:LEU:N	1:K:218:PRO:CD	2.74	0.50
1:C:217:LEU:N	1:C:218:PRO:CD	2.75	0.50
1:H:137:THR:HA	1:H:140:MET:HE2	1.94	0.50
1:G:186:LEU:HB2	1:G:187:PRO:HD3	1.92	0.50
1:G:199:SER:O	1:G:203:VAL:HG23	2.12	0.50
1:G:217:LEU:N	1:G:218:PRO:CD	2.74	0.50
1:F:217:LEU:N	1:F:218:PRO:CD	2.75	0.50
1:K:24:TYR:O	1:K:28:VAL:HG23	2.11	0.50
1:D:23:PHE:CE1	5:D:401:OLA:H31	2.46	0.50
1:H:196:MET:HB3	1:H:252:VAL:HG22	1.94	0.50
1:K:148:ALA:O	1:K:154:GLY:HA3	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:98:SER:HB2	1:E:20:GLN:HE21	1.77	0.49
1:B:209:VAL:C	1:B:212:PRO:HD2	2.36	0.49
1:G:112:THR:CG2	1:G:137:THR:HG21	2.41	0.49
1:I:7:SER:CB	1:I:222:ALA:HB2	2.38	0.49
1:I:264:GLY:O	1:K:290:LEU:HD22	2.12	0.49
1:D:61:MET:CE	1:D:242:LYS:HD3	2.42	0.49
1:I:217:LEU:N	1:I:218:PRO:CD	2.75	0.49
1:A:171:TRP:HE1	1:A:208:TRP:HE3	1.58	0.49
4:A:406:RET:H8	4:A:406:RET:H161	1.93	0.49
1:B:208:TRP:O	1:B:212:PRO:HD3	2.12	0.49
1:E:128:ARG:O	1:E:132:ILE:HG13	2.13	0.49
1:B:173:ILE:O	1:B:177:VAL:HG23	2.13	0.49
1:C:58:ARG:HE	1:C:246:SER:HB2	1.75	0.49
1:E:24:TYR:O	1:E:28:VAL:HG23	2.12	0.49
1:E:146:LEU:HA	1:E:150:VAL:HB	1.93	0.49
1:C:199:SER:O	1:C:203:VAL:HG23	2.13	0.49
1:E:183:ARG:O	1:E:187:PRO:HD3	2.12	0.49
1:H:103:GLU:OE1	1:H:242:LYS:HE3	2.13	0.49
2:F:401:LFA:H22	1:I:41:TYR:OH	2.13	0.49
1:A:209:VAL:C	1:A:212:PRO:HD2	2.36	0.49
4:D:405:RET:H161	4:D:405:RET:C8	2.42	0.49
4:E:404:RET:H161	4:E:404:RET:C8	2.43	0.49
1:H:148:ALA:O	1:H:154:GLY:HA3	2.12	0.49
1:G:66:LEU:C	1:G:66:LEU:CD2	2.86	0.49
1:I:9:PRO:HB2	1:I:97:PHE:CZ	2.48	0.49
4:K:405:RET:H8	4:K:405:RET:H161	1.94	0.49
1:I:66:LEU:C	1:I:66:LEU:CD2	2.86	0.49
1:K:208:TRP:O	1:K:212:PRO:HD3	2.13	0.49
1:H:199:SER:O	1:H:203:VAL:HG23	2.13	0.49
1:A:66:LEU:C	1:A:66:LEU:CD2	2.86	0.49
1:B:199:SER:O	1:B:203:VAL:HG23	2.13	0.49
1:C:146:LEU:HA	1:C:150:VAL:HB	1.93	0.49
1:H:7:SER:CB	1:H:222:ALA:HB2	2.43	0.49
1:K:66:LEU:C	1:K:66:LEU:CD2	2.86	0.49
1:C:66:LEU:C	1:C:66:LEU:CD2	2.86	0.49
1:C:289:TYR:HE2	1:I:289:TYR:HB2	1.78	0.49
1:H:58:ARG:HE	1:H:246:SER:HB2	1.78	0.49
1:F:128:ARG:O	1:F:132:ILE:HG13	2.13	0.49
1:D:66:LEU:C	1:D:66:LEU:CD2	2.86	0.48
1:F:199:SER:O	1:F:203:VAL:HG23	2.12	0.48
1:A:238:ASP:O	1:A:242:LYS:HG3	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:66:LEU:C	1:B:66:LEU:CD2	2.86	0.48
1:C:173:ILE:O	1:C:177:VAL:HG23	2.13	0.48
1:E:66:LEU:C	1:E:66:LEU:CD2	2.86	0.48
1:H:210:VAL:O	1:H:214:VAL:HG23	2.13	0.48
1:F:196:MET:HE2	1:F:251:ARG:CB	2.43	0.48
1:C:103:GLU:OE1	1:C:242:LYS:HE3	2.12	0.48
1:H:66:LEU:C	1:H:66:LEU:CD2	2.86	0.48
1:K:173:ILE:O	1:K:177:VAL:HG23	2.13	0.48
1:C:186:LEU:HB2	1:C:187:PRO:HD3	1.95	0.48
1:A:183:ARG:O	1:A:187:PRO:HD3	2.14	0.48
1:D:173:ILE:O	1:D:177:VAL:HG23	2.13	0.48
1:F:66:LEU:C	1:F:66:LEU:CD2	2.86	0.48
1:D:4:THR:HG23	1:D:155:THR:O	2.14	0.48
1:E:173:ILE:O	1:E:177:VAL:HG23	2.13	0.48
1:E:199:SER:O	1:E:203:VAL:HG23	2.13	0.48
1:H:238:ASP:O	1:H:242:LYS:HG3	2.14	0.48
1:G:210:VAL:O	1:G:214:VAL:HG23	2.14	0.48
1:F:183:ARG:O	1:F:187:PRO:HD3	2.13	0.48
1:I:173:ILE:O	1:I:177:VAL:HG23	2.13	0.48
4:K:405:RET:C8	4:K:405:RET:H161	2.44	0.48
1:A:198:LYS:O	1:A:202:ILE:HG13	2.14	0.48
1:F:208:TRP:O	1:F:212:PRO:HD3	2.13	0.48
1:C:210:VAL:O	1:C:214:VAL:HG23	2.14	0.48
1:H:173:ILE:O	1:H:177:VAL:HG23	2.14	0.48
1:K:183:ARG:O	1:K:187:PRO:HD3	2.14	0.48
1:D:9:PRO:HB2	1:D:97:PHE:CZ	2.49	0.48
1:D:94:ILE:HD11	1:D:149:ILE:HG23	1.96	0.48
1:E:208:TRP:O	1:E:212:PRO:HD3	2.13	0.48
1:F:210:VAL:O	1:F:214:VAL:HG23	2.14	0.48
1:I:112:THR:HG21	1:I:137:THR:HG21	1.95	0.48
1:A:42:ILE:HD11	1:B:59:LEU:HD23	1.95	0.47
1:D:196:MET:HA	1:D:196:MET:CE	2.36	0.47
1:D:198:LYS:O	1:D:202:ILE:HG13	2.14	0.47
1:G:198:LYS:O	1:G:202:ILE:HG13	2.14	0.47
1:F:173:ILE:O	1:F:177:VAL:HG23	2.14	0.47
1:I:183:ARG:O	1:I:187:PRO:HD3	2.14	0.47
1:K:199:SER:O	1:K:203:VAL:HG23	2.13	0.47
1:A:42:ILE:HD11	1:B:59:LEU:HD22	1.95	0.47
1:B:186:LEU:HB3	1:B:194:HIS:CE1	2.49	0.47
1:D:171:TRP:HE1	1:D:208:TRP:HE3	1.62	0.47
1:I:121:THR:HB	1:I:126:ALA:HB2	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:6:VAL:HG23	1:B:157:THR:CA	2.44	0.47
4:I:404:RET:C8	4:I:404:RET:H161	2.45	0.47
1:K:278:LYS:HE2	1:K:281:ASP:OD2	2.14	0.47
1:G:173:ILE:O	1:G:177:VAL:HG23	2.14	0.47
1:F:198:LYS:O	1:F:202:ILE:HG13	2.15	0.47
1:I:208:TRP:O	1:I:212:PRO:HD3	2.14	0.47
1:K:146:LEU:HA	1:K:150:VAL:HB	1.96	0.47
1:A:173:ILE:O	1:A:177:VAL:HG23	2.15	0.47
1:D:183:ARG:O	1:D:187:PRO:HD3	2.15	0.47
1:C:83:THR:O	1:C:84:ALA:HB3	2.15	0.47
1:F:112:THR:CG2	1:F:137:THR:HG21	2.45	0.47
1:A:9:PRO:HB2	1:A:97:PHE:CZ	2.50	0.47
1:A:278:LYS:NZ	1:B:265:ASP:O	2.48	0.47
1:K:61:MET:HE2	1:K:61:MET:HB2	1.82	0.47
1:B:186:LEU:HB2	1:B:187:PRO:HD3	1.96	0.47
1:B:210:VAL:O	1:B:214:VAL:HG23	2.14	0.47
1:D:34:VAL:O	1:D:38:ILE:HG13	2.15	0.47
1:H:90:ASN:OD1	1:H:93:ALA:N	2.48	0.47
1:H:204:LEU:HB2	1:H:245:PHE:CD1	2.50	0.47
1:G:94:ILE:HD11	1:G:149:ILE:HG23	1.96	0.47
1:K:198:LYS:O	1:K:202:ILE:HG13	2.15	0.47
1:B:198:LYS:O	1:B:202:ILE:HG13	2.15	0.47
1:E:34:VAL:O	1:E:38:ILE:HG13	2.15	0.47
1:E:61:MET:HE1	1:E:242:LYS:CD	2.40	0.47
1:G:287:GLU:OE2	1:K:287:GLU:HG3	2.15	0.47
4:A:406:RET:C8	4:A:406:RET:H161	2.45	0.47
1:C:6:VAL:HG23	1:C:157:THR:OG1	2.15	0.47
1:E:148:ALA:O	1:E:154:GLY:HA3	2.14	0.47
1:F:9:PRO:HB2	1:F:97:PHE:CZ	2.49	0.47
1:B:16:ASN:ND2	1:B:85:GLY:HA2	2.31	0.46
1:B:148:ALA:O	1:B:154:GLY:HA3	2.14	0.46
1:C:61:MET:HE1	1:C:242:LYS:HB3	1.97	0.46
1:E:100:ARG:O	1:E:103:GLU:HB3	2.16	0.46
1:H:208:TRP:O	1:H:212:PRO:HD3	2.16	0.46
1:G:42:ILE:HD11	1:F:59:LEU:HD22	1.97	0.46
1:G:102:ILE:HG21	1:K:27:VAL:CG1	2.45	0.46
1:I:6:VAL:HG23	1:I:157:THR:HG23	1.97	0.46
1:A:186:LEU:HB3	1:A:194:HIS:ND1	2.30	0.46
1:A:210:VAL:O	1:A:214:VAL:HG23	2.15	0.46
1:C:208:TRP:O	1:C:212:PRO:HD3	2.15	0.46
1:D:208:TRP:O	1:D:212:PRO:HD3	2.14	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:34:VAL:O	1:I:38:ILE:HG13	2.15	0.46
1:A:7:SER:CB	1:A:222:ALA:HB2	2.45	0.46
1:D:42:ILE:HD11	1:E:59:LEU:HD23	1.97	0.46
1:D:128:ARG:O	1:D:132:ILE:HG13	2.15	0.46
1:G:104:TRP:CD1	4:G:406:RET:H14	2.49	0.46
1:G:183:ARG:O	1:G:187:PRO:HD3	2.15	0.46
4:G:406:RET:C8	4:G:406:RET:H161	2.44	0.46
1:B:9:PRO:HB2	1:B:97:PHE:CZ	2.51	0.46
1:B:196:MET:HE2	1:B:251:ARG:CB	2.45	0.46
1:C:198:LYS:O	1:C:202:ILE:HG13	2.15	0.46
1:H:198:LYS:O	1:H:202:ILE:HG13	2.15	0.46
1:G:100:ARG:O	1:G:103:GLU:HB3	2.15	0.46
1:F:34:VAL:O	1:F:38:ILE:HG13	2.15	0.46
1:K:162:LEU:HD23	1:K:163:TRP:N	2.30	0.46
1:A:100:ARG:O	1:A:103:GLU:HB3	2.15	0.46
1:D:189:LEU:HD22	1:D:256:ARG:HD3	1.98	0.46
1:E:210:VAL:O	1:E:214:VAL:HG23	2.16	0.46
1:F:100:ARG:O	1:F:103:GLU:HB3	2.15	0.46
1:B:104:TRP:CD1	4:B:406:RET:H14	2.51	0.46
1:H:110:LEU:HD21	2:F:404:LFA:H72	1.97	0.46
1:D:100:ARG:O	1:D:103:GLU:HB3	2.16	0.46
1:E:9:PRO:HB2	1:E:97:PHE:CZ	2.51	0.46
1:I:271:SER:OG	1:K:266:ASP:OD1	2.29	0.46
1:C:34:VAL:O	1:C:38:ILE:HG13	2.16	0.46
1:G:9:PRO:HB2	1:G:97:PHE:CZ	2.51	0.46
1:I:210:VAL:O	1:I:214:VAL:HG23	2.16	0.46
1:C:100:ARG:O	1:C:103:GLU:HB3	2.16	0.46
1:H:100:ARG:O	1:H:103:GLU:HB3	2.16	0.46
1:K:238:ASP:O	1:K:242:LYS:HG3	2.15	0.46
1:A:69:TYR:O	1:A:73:ILE:HG13	2.16	0.46
1:A:94:ILE:HD11	1:A:149:ILE:HG23	1.98	0.46
1:B:264:GLY:O	1:C:290:LEU:HD22	2.16	0.46
1:E:198:LYS:O	1:E:202:ILE:HG13	2.16	0.46
1:K:34:VAL:O	1:K:38:ILE:HG13	2.15	0.46
1:B:100:ARG:O	1:B:103:GLU:HB3	2.16	0.45
1:E:112:THR:HG21	1:E:137:THR:HG21	1.97	0.45
1:A:34:VAL:O	1:A:38:ILE:HG13	2.16	0.45
1:C:238:ASP:O	1:C:242:LYS:HG3	2.15	0.45
1:D:210:VAL:O	1:D:214:VAL:HG23	2.15	0.45
1:E:166:ILE:O	1:E:169:VAL:HB	2.17	0.45
1:G:34:VAL:O	1:G:38:ILE:HG13	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:20:GLN:HE21	1:C:98:SER:CB	2.28	0.45
1:D:61:MET:HE1	1:D:242:LYS:CG	2.46	0.45
1:D:166:ILE:O	1:D:169:VAL:HB	2.17	0.45
1:D:275:SER:N	3:D:404:PO4:O3	2.41	0.45
1:H:171:TRP:NE1	1:H:175:ASN:HD21	2.14	0.45
1:K:210:VAL:O	1:K:214:VAL:HG23	2.17	0.45
1:F:6:VAL:HG23	1:F:157:THR:CA	2.47	0.45
1:K:100:ARG:O	1:K:103:GLU:HB3	2.16	0.45
1:A:208:TRP:O	1:A:212:PRO:HD3	2.17	0.45
1:B:34:VAL:O	1:B:38:ILE:HG13	2.16	0.45
1:D:287:GLU:HG3	1:E:287:GLU:CD	2.41	0.45
1:E:94:ILE:HD11	1:E:149:ILE:HG23	1.98	0.45
1:H:189:LEU:HD11	1:H:197:LEU:HD22	1.99	0.45
1:G:61:MET:HE3	1:G:61:MET:HB2	1.86	0.45
1:B:186:LEU:HB3	1:B:194:HIS:ND1	2.30	0.45
1:I:100:ARG:O	1:I:103:GLU:HB3	2.16	0.45
4:I:404:RET:H11	4:I:404:RET:H191	1.88	0.45
1:A:61:MET:HE1	1:A:242:LYS:CG	2.47	0.45
1:A:287:GLU:HG3	1:B:287:GLU:OE2	2.16	0.45
1:C:90:ASN:CG	1:C:92:GLY:H	2.24	0.45
1:D:4:THR:HG22	1:D:4:THR:O	2.17	0.45
1:E:238:ASP:O	1:E:242:LYS:HG3	2.17	0.45
1:H:34:VAL:O	1:H:38:ILE:HG13	2.16	0.45
1:I:196:MET:HB3	1:I:252:VAL:HG22	1.99	0.45
1:I:214:VAL:HA	1:I:217:LEU:HG	1.99	0.45
1:C:7:SER:CB	1:C:222:ALA:HB2	2.45	0.45
1:H:69:TYR:O	1:H:73:ILE:HG13	2.17	0.45
1:F:238:ASP:O	1:F:242:LYS:HG3	2.17	0.45
1:I:198:LYS:O	1:I:202:ILE:HG13	2.16	0.45
1:A:103:GLU:OE1	1:A:242:LYS:HE3	2.17	0.44
1:C:171:TRP:NE1	1:C:175:ASN:HD21	2.15	0.44
1:G:61:MET:HE1	1:G:242:LYS:CG	2.47	0.44
1:F:16:ASN:ND2	1:F:85:GLY:HA2	2.32	0.44
1:I:166:ILE:O	1:I:169:VAL:HB	2.16	0.44
1:K:6:VAL:HG23	1:K:157:THR:HA	1.99	0.44
1:B:69:TYR:O	1:B:73:ILE:HG13	2.18	0.44
1:H:278:LYS:NZ	1:I:265:ASP:O	2.50	0.44
1:G:7:SER:CB	1:G:222:ALA:HB2	2.45	0.44
1:B:61:MET:HE3	1:B:61:MET:HB2	1.92	0.44
1:B:112:THR:CG2	1:B:137:THR:HG21	2.47	0.44
1:D:238:ASP:O	1:D:242:LYS:HG3	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:9:PRO:HB2	1:K:97:PHE:CZ	2.51	0.44
1:G:128:ARG:O	1:G:132:ILE:HG13	2.17	0.44
1:K:128:ARG:O	1:K:132:ILE:HG13	2.18	0.44
1:C:61:MET:HE1	1:C:242:LYS:CG	2.47	0.44
1:A:112:THR:CG2	1:A:137:THR:HG21	2.47	0.44
1:B:128:ARG:O	1:B:132:ILE:HG13	2.18	0.44
1:D:199:SER:O	1:D:203:VAL:HG23	2.18	0.44
1:G:56:SER:CB	1:K:39:ARG:HD3	2.47	0.44
1:F:274:ILE:HA	3:F:405:PO4:O1	2.17	0.44
1:I:69:TYR:O	1:I:73:ILE:HG13	2.18	0.44
1:I:23:PHE:CE2	5:I:401:OLA:H31	2.52	0.44
1:A:61:MET:HE1	1:A:242:LYS:HD3	1.99	0.44
1:B:238:ASP:O	1:B:242:LYS:HG3	2.18	0.44
1:C:94:ILE:HD11	1:C:149:ILE:HG23	1.98	0.44
1:C:241:VAL:O	1:C:245:PHE:HB3	2.17	0.44
1:D:69:TYR:O	1:D:73:ILE:HG13	2.18	0.44
1:D:112:THR:CG2	1:D:137:THR:HG21	2.47	0.44
1:K:166:ILE:O	1:K:169:VAL:HB	2.18	0.44
1:A:61:MET:CE	1:A:242:LYS:HD3	2.48	0.43
1:A:102:ILE:HG23	1:E:28:VAL:CG2	2.48	0.43
1:E:6:VAL:HG23	1:E:157:THR:HA	1.99	0.43
1:H:61:MET:HE1	1:H:242:LYS:CG	2.48	0.43
1:H:128:ARG:O	1:H:132:ILE:HG13	2.18	0.43
1:H:255:LEU:HD23	1:H:255:LEU:HA	1.84	0.43
1:G:69:TYR:O	1:G:73:ILE:HG13	2.18	0.43
1:A:166:ILE:O	1:A:169:VAL:HB	2.18	0.43
1:D:214:VAL:HA	1:D:217:LEU:HG	2.00	0.43
1:H:166:ILE:O	1:H:169:VAL:HB	2.19	0.43
1:H:274:ILE:HA	3:H:403:PO4:O1	2.18	0.43
1:F:61:MET:HE1	1:F:242:LYS:CG	2.48	0.43
4:K:405:RET:H11	4:K:405:RET:H191	1.90	0.43
1:D:137:THR:HA	1:D:140:MET:HE2	2.01	0.43
1:H:83:THR:CG2	1:H:88:VAL:HB	2.48	0.43
1:G:98:SER:HB2	1:K:20:GLN:HE21	1.84	0.43
1:G:208:TRP:O	1:G:212:PRO:HD3	2.18	0.43
1:A:162:LEU:HD23	1:A:163:TRP:N	2.34	0.43
1:B:58:ARG:CD	1:B:246:SER:HB2	2.49	0.43
1:D:20:GLN:HE21	1:E:98:SER:CB	2.32	0.43
1:F:69:TYR:O	1:F:73:ILE:HG13	2.18	0.43
1:G:6:VAL:HG21	1:G:157:THR:HA	1.98	0.43
1:F:196:MET:HE1	1:F:248:GLN:OE1	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:94:ILE:HD11	1:I:149:ILE:HG23	2.01	0.43
1:I:128:ARG:O	1:I:132:ILE:HG13	2.18	0.43
1:C:69:TYR:O	1:C:73:ILE:HG13	2.19	0.43
1:F:148:ALA:O	1:F:154:GLY:HA3	2.18	0.43
1:E:69:TYR:O	1:E:73:ILE:HG13	2.19	0.43
1:H:241:VAL:O	1:H:245:PHE:HB3	2.18	0.43
1:I:169:VAL:O	1:I:173:ILE:HG13	2.19	0.43
1:K:69:TYR:O	1:K:73:ILE:HG13	2.19	0.43
1:D:271:SER:OG	1:E:266:ASP:OD1	2.35	0.43
1:H:95:ASN:HD22	2:H:401:LFA:C1	2.32	0.43
4:H:404:RET:H8	4:H:404:RET:H161	2.00	0.43
1:F:58:ARG:CD	1:F:246:SER:HB2	2.49	0.43
1:F:186:LEU:HB2	1:F:187:PRO:HD3	2.00	0.43
1:B:39:ARG:HG3	1:C:56:SER:HB2	2.01	0.42
1:E:208:TRP:O	1:E:212:PRO:CD	2.67	0.42
1:H:287:GLU:HG3	1:I:287:GLU:CD	2.44	0.42
1:G:42:ILE:HD11	1:F:59:LEU:HD23	2.01	0.42
1:G:166:ILE:O	1:G:169:VAL:HB	2.19	0.42
1:I:208:TRP:O	1:I:212:PRO:CD	2.67	0.42
1:B:21:LEU:O	1:B:25:PHE:HD2	2.01	0.42
1:C:90:ASN:OD1	1:C:93:ALA:N	2.52	0.42
1:E:104:TRP:CD1	4:E:404:RET:H14	2.55	0.42
1:F:286:ARG:H	1:F:286:ARG:HG3	1.58	0.42
1:I:61:MET:HE1	1:I:242:LYS:CG	2.49	0.42
1:A:58:ARG:HD2	1:A:246:SER:HB3	2.00	0.42
1:B:61:MET:HE1	1:B:242:LYS:CG	2.49	0.42
1:B:166:ILE:O	1:B:169:VAL:HB	2.19	0.42
1:C:166:ILE:O	1:C:169:VAL:HB	2.18	0.42
1:F:61:MET:HE3	1:F:61:MET:HB2	1.92	0.42
1:F:104:TRP:CD1	4:F:406:RET:H14	2.54	0.42
1:I:239:VAL:O	1:I:243:LEU:HB2	2.19	0.42
4:A:406:RET:H7	4:A:406:RET:H181	1.84	0.42
1:D:245:PHE:CZ	1:D:249:THR:HG21	2.54	0.42
4:D:405:RET:H7	4:D:405:RET:H181	1.84	0.42
1:E:169:VAL:O	1:E:173:ILE:HG13	2.19	0.42
1:H:61:MET:HE1	1:H:242:LYS:HD3	2.01	0.42
1:H:102:ILE:HG21	1:F:27:VAL:CG1	2.49	0.42
1:C:61:MET:HE1	1:C:242:LYS:HD3	2.01	0.42
1:D:169:VAL:O	1:D:173:ILE:HG13	2.19	0.42
1:H:163:TRP:CE3	1:H:166:ILE:HD12	2.54	0.42
1:E:247:THR:O	1:E:251:ARG:HG3	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:21:LEU:O	1:H:25:PHE:HD2	2.03	0.42
4:H:404:RET:C8	4:H:404:RET:H161	2.49	0.42
1:B:7:SER:CB	1:B:222:ALA:HB2	2.45	0.42
1:C:6:VAL:HG23	1:C:157:THR:HA	2.01	0.42
1:C:9:PRO:HB2	1:C:97:PHE:CZ	2.54	0.42
1:D:163:TRP:CE3	1:D:166:ILE:HD12	2.55	0.42
1:A:61:MET:SD	1:A:111:LEU:HD21	2.60	0.42
1:D:196:MET:HB3	1:D:252:VAL:HG22	2.02	0.42
1:E:21:LEU:O	1:E:25:PHE:HD2	2.03	0.42
1:H:61:MET:HE1	1:H:242:LYS:CB	2.50	0.42
1:I:18:GLU:O	1:I:22:ILE:HG13	2.20	0.42
1:A:58:ARG:CD	1:A:246:SER:HB3	2.49	0.42
4:A:406:RET:H11	4:A:406:RET:H191	1.90	0.42
1:B:130:THR:O	1:B:134:VAL:HG23	2.20	0.42
2:D:402:LFA:H61	2:D:403:LFA:H52	2.02	0.42
4:H:404:RET:H11	4:H:404:RET:H191	1.90	0.42
1:F:21:LEU:O	1:F:25:PHE:HD2	2.03	0.42
4:C:404:RET:H7	4:C:404:RET:H181	1.89	0.41
1:H:6:VAL:HG23	1:H:157:THR:OG1	2.20	0.41
4:H:404:RET:H181	4:H:404:RET:H7	1.87	0.41
1:F:58:ARG:O	1:F:61:MET:CG	2.68	0.41
1:K:214:VAL:HA	1:K:217:LEU:HG	2.02	0.41
1:A:169:VAL:O	1:A:173:ILE:HG13	2.20	0.41
1:B:106:VAL:C	1:B:109:PRO:HD2	2.45	0.41
1:C:255:LEU:HA	1:C:255:LEU:HD23	1.85	0.41
4:C:404:RET:H11	4:C:404:RET:H191	1.90	0.41
1:D:157:THR:O	1:D:161:ILE:HG13	2.20	0.41
1:H:169:VAL:O	1:H:173:ILE:HG13	2.20	0.41
2:G:404:LFA:H203	2:K:402:LFA:H102	2.02	0.41
1:I:69:TYR:HE1	1:I:235:THR:HG23	1.84	0.41
1:K:106:VAL:C	1:K:109:PRO:HD2	2.45	0.41
1:A:214:VAL:HA	1:A:217:LEU:HG	2.02	0.41
1:B:214:VAL:HA	1:B:217:LEU:HG	2.02	0.41
1:D:284:LEU:O	1:E:287:GLU:HA	2.20	0.41
1:H:58:ARG:O	1:H:61:MET:CG	2.68	0.41
1:G:214:VAL:HA	1:G:217:LEU:HG	2.03	0.41
1:I:58:ARG:O	1:I:61:MET:CG	2.68	0.41
1:I:104:TRP:CD1	4:I:404:RET:H14	2.54	0.41
1:K:7:SER:CB	1:K:222:ALA:HB2	2.48	0.41
1:K:208:TRP:O	1:K:212:PRO:CD	2.68	0.41
1:K:245:PHE:CZ	1:K:249:THR:HG21	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:98:SER:CB	1:E:20:GLN:HE21	2.32	0.41
1:D:21:LEU:O	1:D:25:PHE:HD2	2.03	0.41
1:D:61:MET:HE3	1:D:61:MET:HB2	1.95	0.41
1:E:214:VAL:HA	1:E:217:LEU:HG	2.02	0.41
1:F:106:VAL:C	1:F:109:PRO:HD2	2.45	0.41
1:F:162:LEU:C	1:F:162:LEU:CD2	2.93	0.41
1:F:166:ILE:O	1:F:169:VAL:HB	2.21	0.41
1:F:208:TRP:O	1:F:212:PRO:CD	2.68	0.41
1:K:247:THR:O	1:K:251:ARG:HG3	2.21	0.41
1:B:208:TRP:O	1:B:212:PRO:CD	2.68	0.41
1:C:58:ARG:O	1:C:61:MET:CG	2.68	0.41
1:E:245:PHE:CZ	1:E:249:THR:HG21	2.55	0.41
1:G:245:PHE:CZ	1:G:249:THR:HG21	2.56	0.41
1:C:58:ARG:CD	1:C:246:SER:HB2	2.50	0.41
1:I:21:LEU:O	1:I:25:PHE:HD2	2.03	0.41
1:K:142:PHE:CE1	1:K:146:LEU:HD11	2.56	0.41
1:A:21:LEU:O	1:A:25:PHE:HD2	2.04	0.41
1:B:287:GLU:HG3	1:C:287:GLU:OE2	2.20	0.41
4:B:406:RET:H11	4:B:406:RET:H191	1.91	0.41
4:B:406:RET:H7	4:B:406:RET:H181	1.87	0.41
1:D:6:VAL:HG21	1:D:157:THR:HA	2.01	0.41
1:E:61:MET:HG3	1:E:62:LEU:H	1.86	0.41
4:G:406:RET:H11	4:G:406:RET:H191	1.93	0.41
1:A:6:VAL:HG23	1:A:157:THR:CA	2.49	0.41
1:C:106:VAL:C	1:C:109:PRO:HD2	2.46	0.41
1:H:214:VAL:HA	1:H:217:LEU:HG	2.03	0.41
1:G:169:VAL:O	1:G:173:ILE:HG13	2.21	0.41
1:A:58:ARG:O	1:A:61:MET:CG	2.69	0.41
2:A:404:LFA:H203	2:E:402:LFA:H102	2.02	0.41
1:C:162:LEU:C	1:C:162:LEU:CD2	2.94	0.41
1:D:241:VAL:O	1:D:245:PHE:HB3	2.21	0.41
1:E:106:VAL:C	1:E:109:PRO:HD2	2.45	0.41
1:H:162:LEU:C	1:H:162:LEU:CD2	2.93	0.41
1:G:8:VAL:HA	1:G:9:PRO:HD3	1.90	0.41
1:G:21:LEU:O	1:G:25:PHE:HD2	2.04	0.41
1:F:169:VAL:O	1:F:173:ILE:HG13	2.21	0.41
1:F:214:VAL:HA	1:F:217:LEU:HG	2.03	0.41
1:I:106:VAL:C	1:I:109:PRO:HD2	2.46	0.41
5:I:401:OLA:H41	1:K:95:ASN:ND2	2.36	0.41
1:K:21:LEU:O	1:K:25:PHE:HD2	2.04	0.41
1:K:104:TRP:CD1	4:K:405:RET:H14	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:169:VAL:O	1:K:173:ILE:HG13	2.20	0.41
1:A:149:ILE:HG22	1:E:20:GLN:HG2	2.03	0.41
1:B:196:MET:HE1	1:B:248:GLN:OE1	2.21	0.41
1:C:21:LEU:O	1:C:25:PHE:HD2	2.04	0.41
1:H:18:GLU:O	1:H:22:ILE:HG13	2.21	0.41
1:H:106:VAL:C	1:H:109:PRO:HD2	2.45	0.41
1:F:18:GLU:O	1:F:22:ILE:HG13	2.21	0.41
1:B:169:VAL:O	1:B:173:ILE:HG13	2.20	0.40
1:C:163:TRP:CE3	1:C:166:ILE:HD12	2.56	0.40
1:D:18:GLU:O	1:D:22:ILE:HG13	2.21	0.40
1:D:58:ARG:O	1:D:61:MET:CG	2.69	0.40
1:H:61:MET:CE	1:H:242:LYS:HD3	2.51	0.40
1:H:171:TRP:CD1	1:H:175:ASN:HD21	2.39	0.40
1:A:163:TRP:CE3	1:A:166:ILE:HD12	2.56	0.40
1:B:28:VAL:HG23	1:C:102:ILE:HG23	2.03	0.40
1:B:58:ARG:O	1:B:61:MET:CG	2.69	0.40
1:B:157:THR:O	1:B:161:ILE:HG13	2.22	0.40
1:C:8:VAL:HA	1:C:9:PRO:HD3	1.90	0.40
1:E:61:MET:HG3	1:E:62:LEU:N	2.36	0.40
1:E:196:MET:HE1	1:E:248:GLN:OE1	2.21	0.40
1:G:58:ARG:O	1:G:61:MET:CG	2.69	0.40
1:I:162:LEU:CD2	1:I:162:LEU:C	2.94	0.40
1:A:61:MET:HE3	1:A:61:MET:HB2	1.86	0.40
1:C:169:VAL:O	1:C:173:ILE:HG13	2.21	0.40
1:C:208:TRP:O	1:C:212:PRO:CD	2.69	0.40
1:C:214:VAL:HA	1:C:217:LEU:HG	2.03	0.40
1:D:8:VAL:HA	1:D:9:PRO:HD3	1.89	0.40
1:D:217:LEU:N	1:D:218:PRO:HD2	2.36	0.40
1:H:20:GLN:HE21	1:I:98:SER:CB	2.34	0.40
1:H:83:THR:HG21	1:H:88:VAL:HG23	2.04	0.40
1:F:68:ALA:HB1	1:F:103:GLU:HB2	2.03	0.40
1:I:163:TRP:CE3	1:I:166:ILE:HD12	2.55	0.40
1:K:241:VAL:O	1:K:245:PHE:HB3	2.21	0.40
1:D:162:LEU:C	1:D:162:LEU:CD2	2.95	0.40
1:G:106:VAL:C	1:G:109:PRO:HD2	2.46	0.40
1:F:61:MET:HE1	1:F:242:LYS:CD	2.51	0.40
4:F:406:RET:H11	4:F:406:RET:H191	1.88	0.40
4:F:406:RET:H7	4:F:406:RET:H181	1.87	0.40
1:B:7:SER:HB3	1:B:222:ALA:CB	2.46	0.40
1:B:61:MET:HE1	1:B:242:LYS:CD	2.49	0.40
1:D:106:VAL:C	1:D:109:PRO:HD2	2.46	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:E:404:RET:H181	4:E:404:RET:H7	1.87	0.40
1:G:238:ASP:O	1:G:242:LYS:HG3	2.21	0.40
1:F:7:SER:CB	1:F:222:ALA:HB2	2.47	0.40
1:F:125:GLN:O	1:F:129:ASN:CG	2.65	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	285/327 (87%)	271 (95%)	14 (5%)	0	100	100
1	B	286/327 (88%)	269 (94%)	17 (6%)	0	100	100
1	C	285/327 (87%)	269 (94%)	16 (6%)	0	100	100
1	D	286/327 (88%)	272 (95%)	14 (5%)	0	100	100
1	E	284/327 (87%)	268 (94%)	16 (6%)	0	100	100
1	F	285/327 (87%)	270 (95%)	15 (5%)	0	100	100
1	G	286/327 (88%)	273 (96%)	13 (4%)	0	100	100
1	H	285/327 (87%)	270 (95%)	15 (5%)	0	100	100
1	I	288/327 (88%)	274 (95%)	14 (5%)	0	100	100
1	K	284/327 (87%)	267 (94%)	17 (6%)	0	100	100
All	All	2854/3270 (87%)	2703 (95%)	151 (5%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

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

resolution.

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	223/261 (85%)	221 (99%)	2 (1%)	70	85
1	B	224/261 (86%)	223 (100%)	1 (0%)	84	90
1	C	221/261 (85%)	218 (99%)	3 (1%)	59	80
1	D	221/261 (85%)	218 (99%)	3 (1%)	59	80
1	E	222/261 (85%)	221 (100%)	1 (0%)	81	89
1	F	225/261 (86%)	223 (99%)	2 (1%)	70	85
1	G	223/261 (85%)	219 (98%)	4 (2%)	51	77
1	H	220/261 (84%)	218 (99%)	2 (1%)	70	85
1	I	219/261 (84%)	217 (99%)	2 (1%)	70	85
1	K	222/261 (85%)	221 (100%)	1 (0%)	81	89
All	All	2220/2610 (85%)	2199 (99%)	21 (1%)	70	85

All (21) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	5	ASN
1	A	42	ILE
1	B	162	LEU
1	C	42	ILE
1	C	162	LEU
1	C	196	MET
1	D	39	ARG
1	D	42	ILE
1	D	162	LEU
1	E	42	ILE
1	H	88	VAL
1	H	162	LEU
1	G	5	ASN
1	G	42	ILE
1	G	66	LEU
1	G	194	HIS
1	F	162	LEU
1	F	286	ARG
1	I	42	ILE
1	I	162	LEU

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Mol	Chain	Res	Type
1	K	42	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	5	ASN
1	A	175	ASN
1	B	19	HIS
1	B	20	GLN
1	B	175	ASN
1	D	175	ASN
1	E	20	GLN
1	E	175	ASN
1	H	20	GLN
1	G	5	ASN
1	G	20	GLN
1	G	175	ASN
1	F	20	GLN
1	F	175	ASN
1	I	19	HIS
1	I	175	ASN
1	K	19	HIS
1	K	20	GLN
1	K	175	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

50 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# $ Z > 2$	Counts	RMSZ	# $ Z > 2$
2	LFA	A	403	-	9,9,19	0.09	0	8,8,18	0.09	0
4	RET	G	406	1	20,20,21	1.46	3 (15%)	27,27,28	1.00	2 (7%)
2	LFA	A	402	-	6,6,19	0.14	0	5,5,18	0.13	0
4	RET	B	406	1	20,20,21	1.51	4 (20%)	27,27,28	0.99	2 (7%)
2	LFA	B	404	-	7,7,19	0.10	0	6,6,18	0.08	0
2	LFA	D	403	-	8,8,19	0.09	0	7,7,18	0.12	0
4	RET	F	406	1	20,20,21	1.56	4 (20%)	27,27,28	1.01	2 (7%)
5	OLA	D	401	-	19,19,19	0.53	0	19,19,19	0.47	0
3	PO4	C	403	-	4,4,4	0.71	0	6,6,6	0.47	0
2	LFA	F	402	-	6,6,19	0.13	0	5,5,18	0.11	0
2	LFA	E	402	-	11,11,19	0.10	0	10,10,18	0.11	0
2	LFA	B	403	-	11,11,19	0.10	0	10,10,18	0.07	0
2	LFA	F	403	-	10,10,19	0.11	0	9,9,18	0.09	0
2	LFA	F	404	-	11,11,19	0.09	0	10,10,18	0.07	0
2	LFA	K	402	-	11,11,19	0.10	0	10,10,18	0.11	0
2	LFA	E	401	-	10,10,19	0.11	0	9,9,18	0.09	0
4	RET	C	404	1	20,20,21	1.51	3 (15%)	27,27,28	1.00	1 (3%)
2	LFA	A	401	-	10,10,19	0.09	0	9,9,18	0.10	0
2	LFA	I	402	-	9,9,19	0.10	0	8,8,18	0.08	0
2	LFA	C	402	-	5,5,19	0.13	0	4,4,18	0.12	0
4	RET	D	405	1	20,20,21	1.57	3 (15%)	27,27,28	1.04	2 (7%)
4	RET	H	404	1	20,20,21	1.47	3 (15%)	27,27,28	1.07	2 (7%)
2	LFA	G	403	-	9,9,19	0.09	0	8,8,18	0.07	0
3	PO4	G	405	-	4,4,4	0.70	0	6,6,6	0.45	0
3	PO4	F	405	-	4,4,4	0.66	0	6,6,6	0.47	0
2	LFA	A	404	-	6,6,19	0.12	0	5,5,18	0.11	0
4	RET	A	406	1	20,20,21	1.53	3 (15%)	27,27,28	1.03	2 (7%)
2	LFA	B	401	-	6,6,19	0.14	0	5,5,18	0.09	0
2	LFA	D	402	-	9,9,19	0.09	0	8,8,18	0.10	0
2	LFA	K	401	-	10,10,19	0.10	0	9,9,18	0.09	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	OLA	I	401	-	19,19,19	0.53	0	19,19,19	0.46	0
2	LFA	B	402	-	10,10,19	0.11	0	9,9,18	0.10	0
4	RET	E	404	1	20,20,21	1.51	4 (20%)	27,27,28	1.00	1 (3%)
2	LFA	C	401	-	5,5,19	0.15	0	4,4,18	0.12	0
2	LFA	H	401	-	5,5,19	0.16	0	4,4,18	0.13	0
3	PO4	K	404	-	4,4,4	0.69	0	6,6,6	0.48	0
4	RET	K	405	1	20,20,21	1.57	3 (15%)	27,27,28	0.99	1 (3%)
2	LFA	G	402	-	6,6,19	0.13	0	5,5,18	0.11	0
2	LFA	G	404	-	6,6,19	0.10	0	5,5,18	0.09	0
2	LFA	K	403	-	9,9,19	0.07	0	8,8,18	0.10	0
3	PO4	A	405	-	4,4,4	0.69	0	6,6,6	0.47	0
3	PO4	I	403	-	4,4,4	0.69	0	6,6,6	0.47	0
3	PO4	B	405	-	4,4,4	0.72	0	6,6,6	0.46	0
3	PO4	H	403	-	4,4,4	0.68	0	6,6,6	0.46	0
2	LFA	H	402	-	5,5,19	0.16	0	4,4,18	0.13	0
4	RET	I	404	1	20,20,21	1.60	3 (15%)	27,27,28	1.07	2 (7%)
3	PO4	E	403	-	4,4,4	0.72	0	6,6,6	0.44	0
2	LFA	G	401	-	10,10,19	0.09	0	9,9,18	0.09	0
3	PO4	D	404	-	4,4,4	0.74	0	6,6,6	0.46	0
2	LFA	F	401	-	7,7,19	0.13	0	6,6,18	0.11	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	LFA	A	403	-	-	1/7/7/17	-
4	RET	G	406	1	-	0/13/30/31	0/1/1/1
2	LFA	A	402	-	-	0/4/4/17	-
4	RET	B	406	1	-	0/13/30/31	0/1/1/1
2	LFA	B	404	-	-	1/5/5/17	-
2	LFA	D	403	-	-	0/6/6/17	-
4	RET	F	406	1	-	0/13/30/31	0/1/1/1
5	OLA	D	401	-	-	4/17/17/17	-
2	LFA	F	402	-	-	0/4/4/17	-
2	LFA	E	402	-	-	1/9/9/17	-
2	LFA	B	403	-	-	8/9/9/17	-
2	LFA	F	403	-	-	3/8/8/17	-
2	LFA	F	404	-	-	8/9/9/17	-
2	LFA	K	402	-	-	1/9/9/17	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	LFA	E	401	-	-	2/8/8/17	-
4	RET	C	404	1	-	0/13/30/31	0/1/1/1
2	LFA	A	401	-	-	3/8/8/17	-
2	LFA	I	402	-	-	0/7/7/17	-
2	LFA	C	402	-	-	0/3/3/17	-
4	RET	D	405	1	-	0/13/30/31	0/1/1/1
4	RET	H	404	1	-	0/13/30/31	0/1/1/1
2	LFA	G	403	-	-	0/7/7/17	-
2	LFA	A	404	-	-	2/4/4/17	-
4	RET	A	406	1	-	0/13/30/31	0/1/1/1
2	LFA	B	401	-	-	0/4/4/17	-
2	LFA	D	402	-	-	0/7/7/17	-
2	LFA	K	401	-	-	0/8/8/17	-
5	OLA	I	401	-	-	8/17/17/17	-
2	LFA	B	402	-	-	4/8/8/17	-
4	RET	E	404	1	-	0/13/30/31	0/1/1/1
2	LFA	C	401	-	-	1/3/3/17	-
2	LFA	H	401	-	-	1/3/3/17	-
4	RET	K	405	1	-	0/13/30/31	0/1/1/1
2	LFA	G	402	-	-	0/4/4/17	-
2	LFA	G	404	-	-	0/4/4/17	-
2	LFA	K	403	-	-	0/7/7/17	-
2	LFA	H	402	-	-	0/3/3/17	-
4	RET	I	404	1	-	0/13/30/31	0/1/1/1
2	LFA	G	401	-	-	3/8/8/17	-
2	LFA	F	401	-	-	1/5/5/17	-

All (33) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	I	404	RET	C14-C13	4.46	1.36	1.33
4	D	405	RET	C14-C13	4.38	1.36	1.33
4	K	405	RET	C14-C13	4.22	1.36	1.33
4	A	406	RET	C14-C13	4.16	1.36	1.33
4	F	406	RET	C14-C13	4.12	1.36	1.33
4	C	404	RET	C14-C13	3.92	1.36	1.33
4	H	404	RET	C14-C13	3.83	1.36	1.33
4	B	406	RET	C14-C13	3.80	1.36	1.33
4	E	404	RET	C14-C13	3.62	1.36	1.33
4	G	406	RET	C14-C13	3.57	1.36	1.33
4	F	406	RET	C8-C9	-3.00	1.39	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	K	405	RET	C8-C9	-2.98	1.39	1.46
4	B	406	RET	C8-C9	-2.90	1.39	1.46
4	D	405	RET	C8-C9	-2.90	1.39	1.46
4	I	404	RET	C8-C9	-2.89	1.39	1.46
4	E	404	RET	C8-C9	-2.84	1.39	1.46
4	G	406	RET	C8-C9	-2.80	1.40	1.46
4	C	404	RET	C8-C9	-2.75	1.40	1.46
4	A	406	RET	C8-C9	-2.74	1.40	1.46
4	H	404	RET	C8-C9	-2.42	1.40	1.46
4	G	406	RET	C10-C9	2.36	1.41	1.35
4	H	404	RET	C10-C9	2.34	1.41	1.35
4	E	404	RET	C10-C9	2.34	1.41	1.35
4	C	404	RET	C10-C9	2.32	1.41	1.35
4	I	404	RET	C10-C9	2.31	1.41	1.35
4	K	405	RET	C10-C9	2.30	1.41	1.35
4	A	406	RET	C10-C9	2.28	1.41	1.35
4	E	404	RET	C20-C13	-2.25	1.46	1.50
4	B	406	RET	C10-C9	2.22	1.40	1.35
4	D	405	RET	C10-C9	2.19	1.40	1.35
4	F	406	RET	C10-C9	2.12	1.40	1.35
4	B	406	RET	C20-C13	-2.06	1.46	1.50
4	F	406	RET	C20-C13	-2.04	1.46	1.50

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	I	404	RET	C19-C9-C10	-3.55	117.07	122.82
4	D	405	RET	C19-C9-C10	-3.41	117.30	122.82
4	F	406	RET	C19-C9-C10	-3.38	117.34	122.82
4	E	404	RET	C19-C9-C10	-3.30	117.46	122.82
4	H	404	RET	C19-C9-C10	-3.30	117.47	122.82
4	B	406	RET	C19-C9-C10	-3.27	117.52	122.82
4	A	406	RET	C19-C9-C10	-3.21	117.62	122.82
4	K	405	RET	C19-C9-C10	-3.19	117.64	122.82
4	C	404	RET	C19-C9-C10	-3.11	117.78	122.82
4	G	406	RET	C19-C9-C10	-3.05	117.87	122.82
4	A	406	RET	C19-C9-C8	2.49	121.89	118.09
4	H	404	RET	C19-C9-C8	2.21	121.47	118.09
4	I	404	RET	C8-C9-C10	2.19	122.45	119.01
4	F	406	RET	C19-C9-C8	2.09	121.29	118.09
4	B	406	RET	C19-C9-C8	2.07	121.25	118.09
4	D	405	RET	C19-C9-C8	2.06	121.23	118.09

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	G	406	RET	C19-C9-C8	2.05	121.21	118.09

There are no chirality outliers.

All (52) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	404	LFA	C15-C16-C17-C18
2	F	403	LFA	C6-C7-C8-C9
2	B	403	LFA	C5-C6-C7-C8
2	B	402	LFA	C6-C7-C8-C9
5	I	401	OLA	C13-C14-C15-C16
2	B	403	LFA	C7-C8-C9-C10
2	F	403	LFA	C7-C8-C9-C10
2	F	404	LFA	C5-C6-C7-C8
2	B	402	LFA	C7-C8-C9-C10
5	I	401	OLA	C6-C7-C8-C9
2	F	404	LFA	C6-C7-C8-C9
2	B	403	LFA	C6-C7-C8-C9
2	G	401	LFA	C3-C4-C5-C6
2	F	404	LFA	C7-C8-C9-C10
2	A	401	LFA	C3-C4-C5-C6
2	B	403	LFA	C11-C10-C9-C8
5	I	401	OLA	C10-C11-C12-C13
2	B	404	LFA	C5-C6-C7-C8
2	F	404	LFA	C1-C2-C3-C4
2	F	404	LFA	C11-C10-C9-C8
2	B	403	LFA	C1-C2-C3-C4
5	I	401	OLA	C11-C12-C13-C14
2	B	403	LFA	C3-C4-C5-C6
2	F	401	LFA	C5-C6-C7-C8
5	D	401	OLA	C5-C6-C7-C8
2	F	403	LFA	C11-C10-C9-C8
5	D	401	OLA	C6-C7-C8-C9
2	H	401	LFA	C1-C2-C3-C4
2	B	403	LFA	C9-C10-C11-C12
5	I	401	OLA	C12-C13-C14-C15
2	F	404	LFA	C9-C10-C11-C12
2	A	401	LFA	C4-C5-C6-C7
2	E	401	LFA	C2-C3-C4-C5
2	C	401	LFA	C1-C2-C3-C4
2	G	401	LFA	C2-C3-C4-C5
2	B	402	LFA	C11-C10-C9-C8

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Mol	Chain	Res	Type	Atoms
2	E	402	LFA	C13-C14-C15-C16
2	A	401	LFA	C2-C3-C4-C5
5	I	401	OLA	O2-C1-C2-C3
2	F	404	LFA	C3-C4-C5-C6
5	I	401	OLA	O1-C1-C2-C3
2	B	403	LFA	C4-C5-C6-C7
5	D	401	OLA	O2-C1-C2-C3
2	K	402	LFA	C13-C14-C15-C16
2	A	404	LFA	C17-C18-C19-C20
2	G	401	LFA	C4-C5-C6-C7
5	D	401	OLA	O1-C1-C2-C3
2	F	404	LFA	C4-C5-C6-C7
5	I	401	OLA	C5-C6-C7-C8
2	B	402	LFA	C5-C6-C7-C8
2	A	403	LFA	C1-C2-C3-C4
2	E	401	LFA	C1-C2-C3-C4

There are no ring outliers.

26 monomers are involved in 74 short contacts:

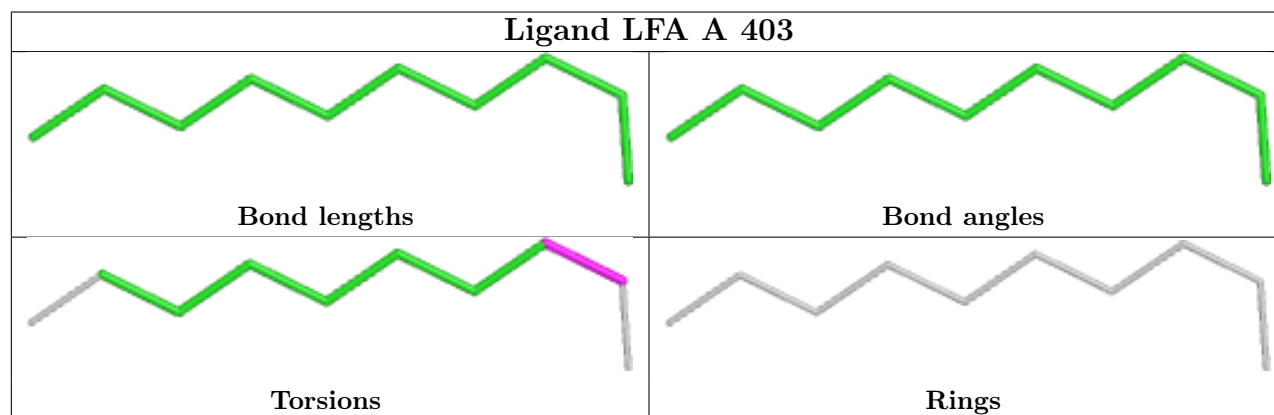
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	G	406	RET	6	0
4	B	406	RET	7	0
2	B	404	LFA	1	0
2	D	403	LFA	1	0
4	F	406	RET	7	0
5	D	401	OLA	1	0
2	E	402	LFA	1	0
2	B	403	LFA	1	0
2	F	404	LFA	1	0
2	K	402	LFA	1	0
4	C	404	RET	5	0
4	D	405	RET	5	0
4	H	404	RET	6	0
3	F	405	PO4	1	0
2	A	404	LFA	1	0
4	A	406	RET	6	0
2	D	402	LFA	1	0
5	I	401	OLA	2	0
4	E	404	RET	6	0
2	H	401	LFA	1	0
4	K	405	RET	6	0

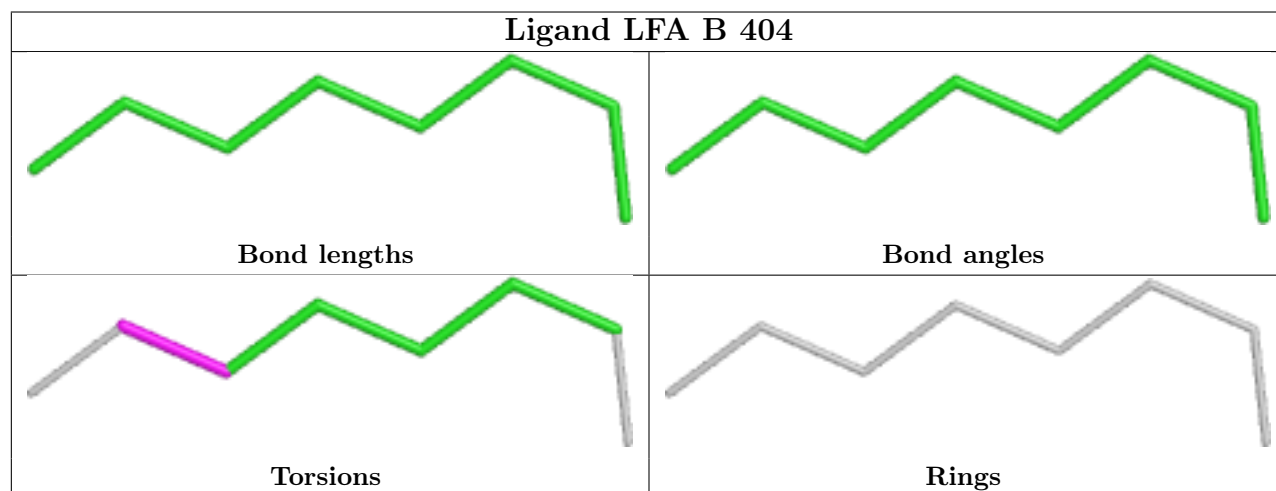
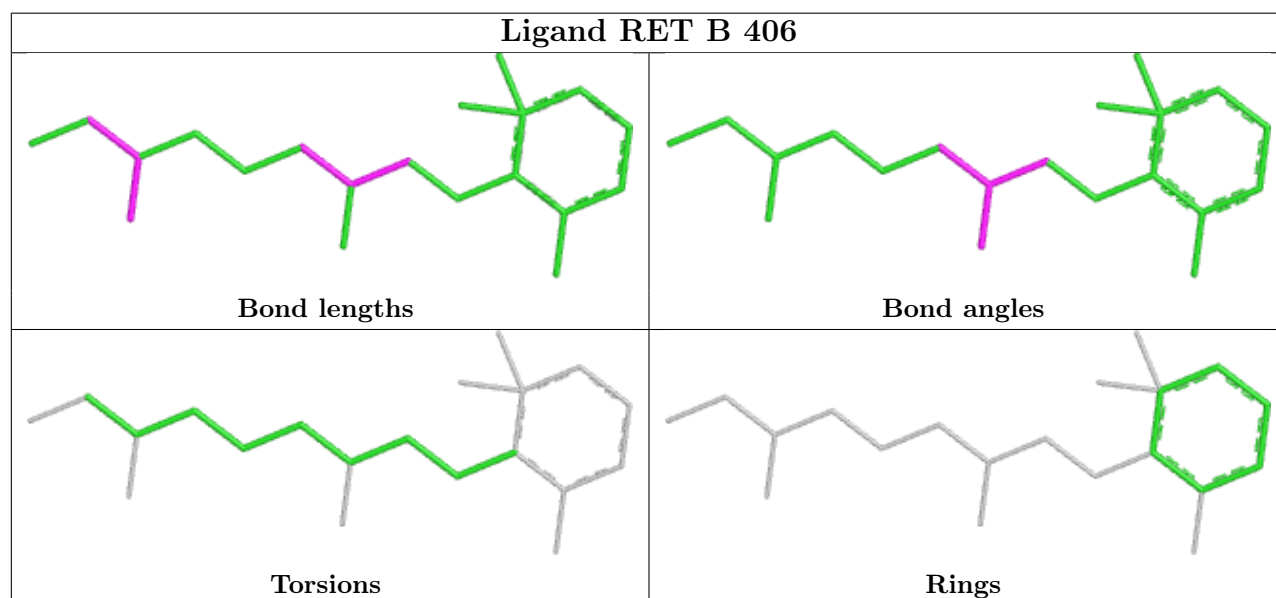
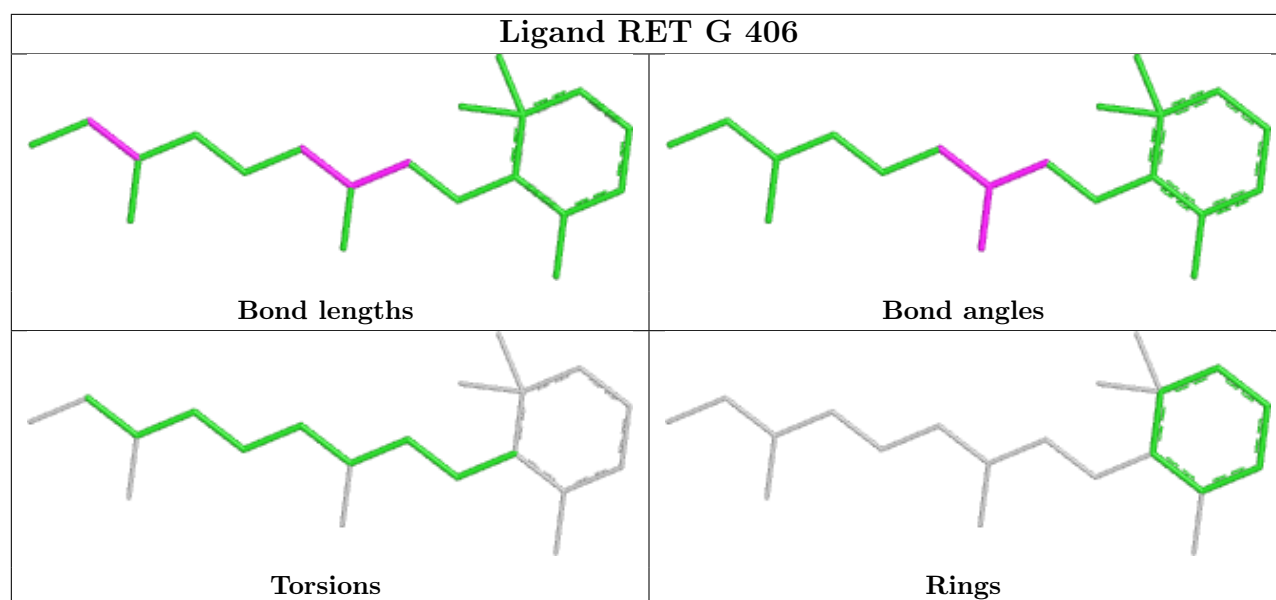
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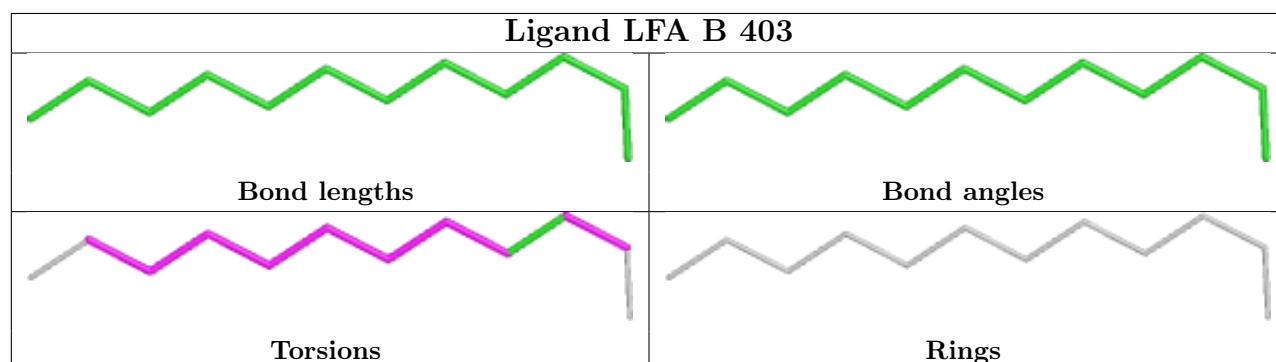
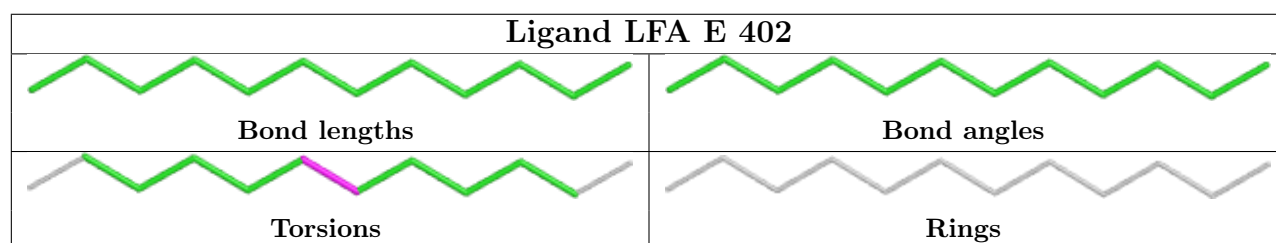
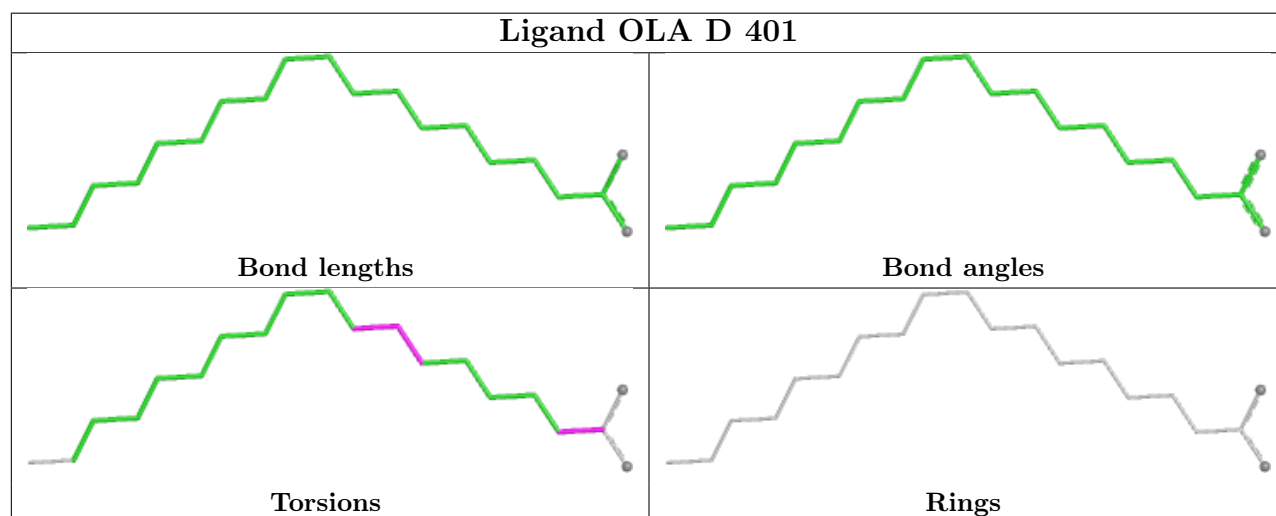
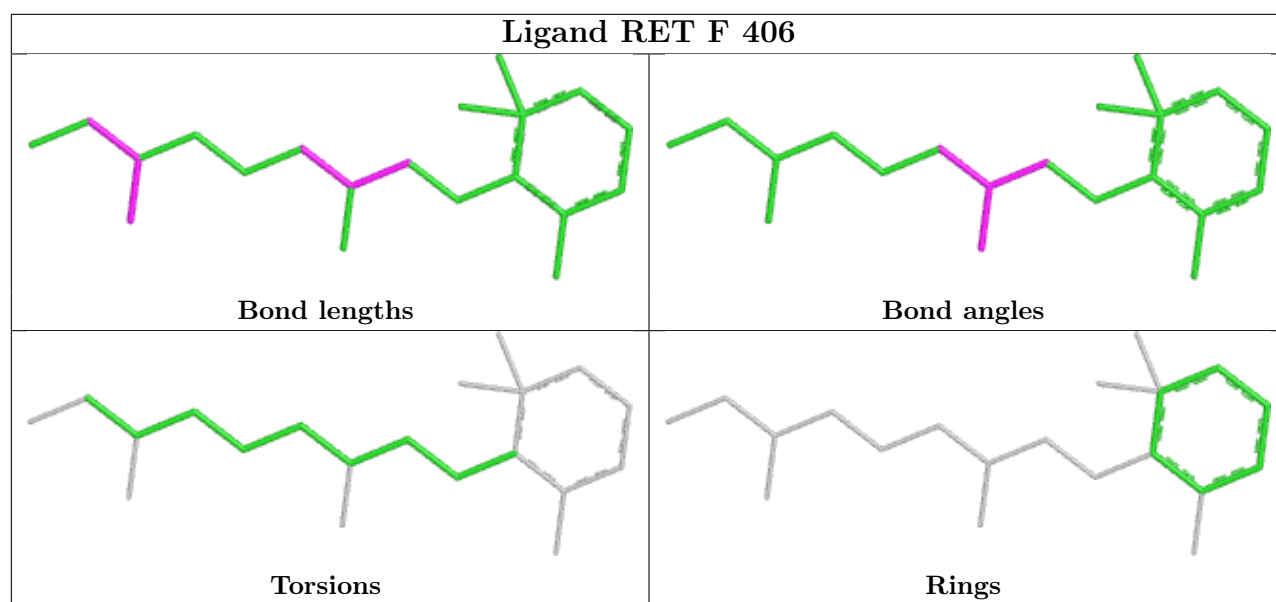
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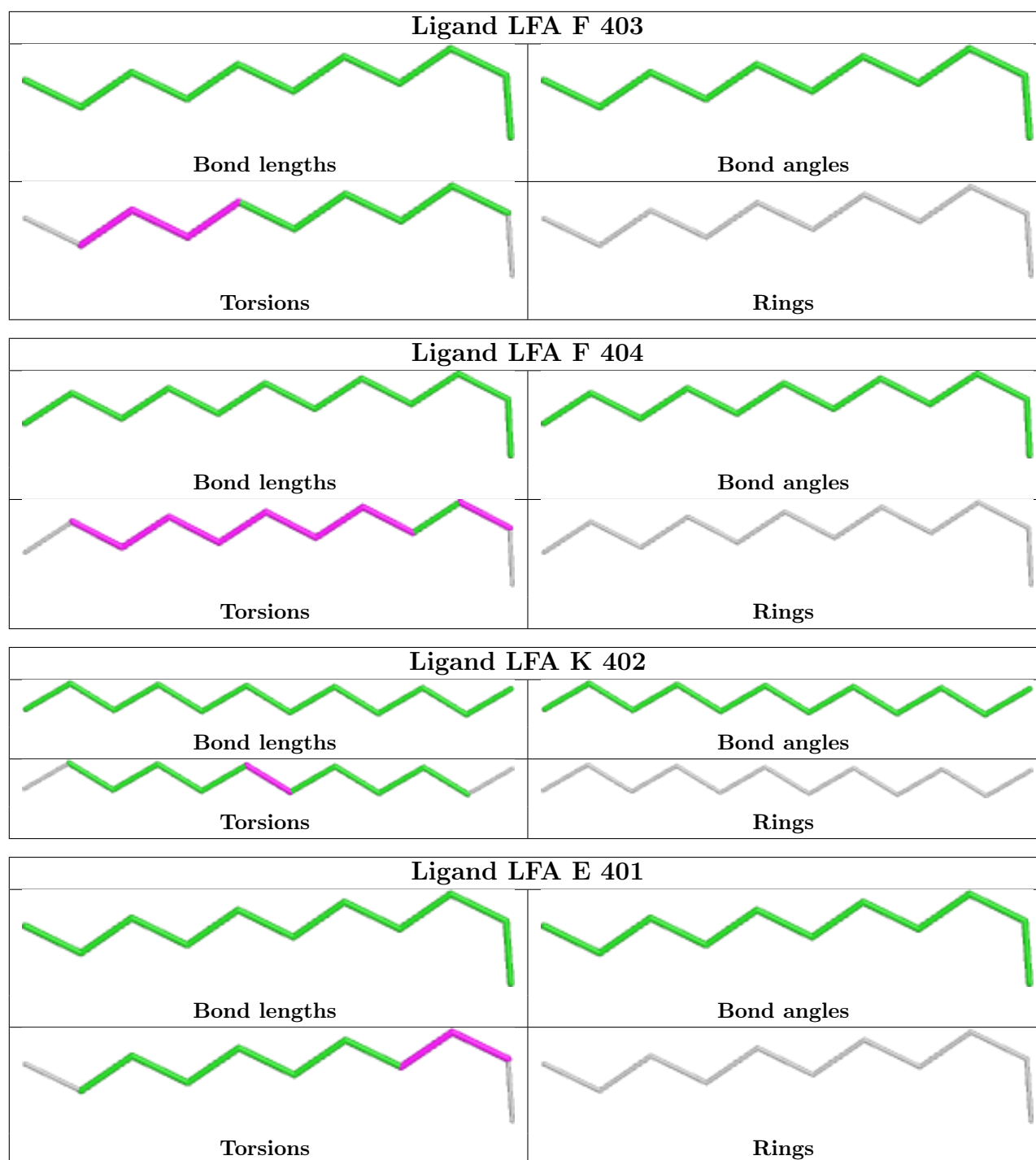
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	G	404	LFA	1	0
3	H	403	PO4	1	0
4	I	404	RET	6	0
3	D	404	PO4	1	0
2	F	401	LFA	1	0

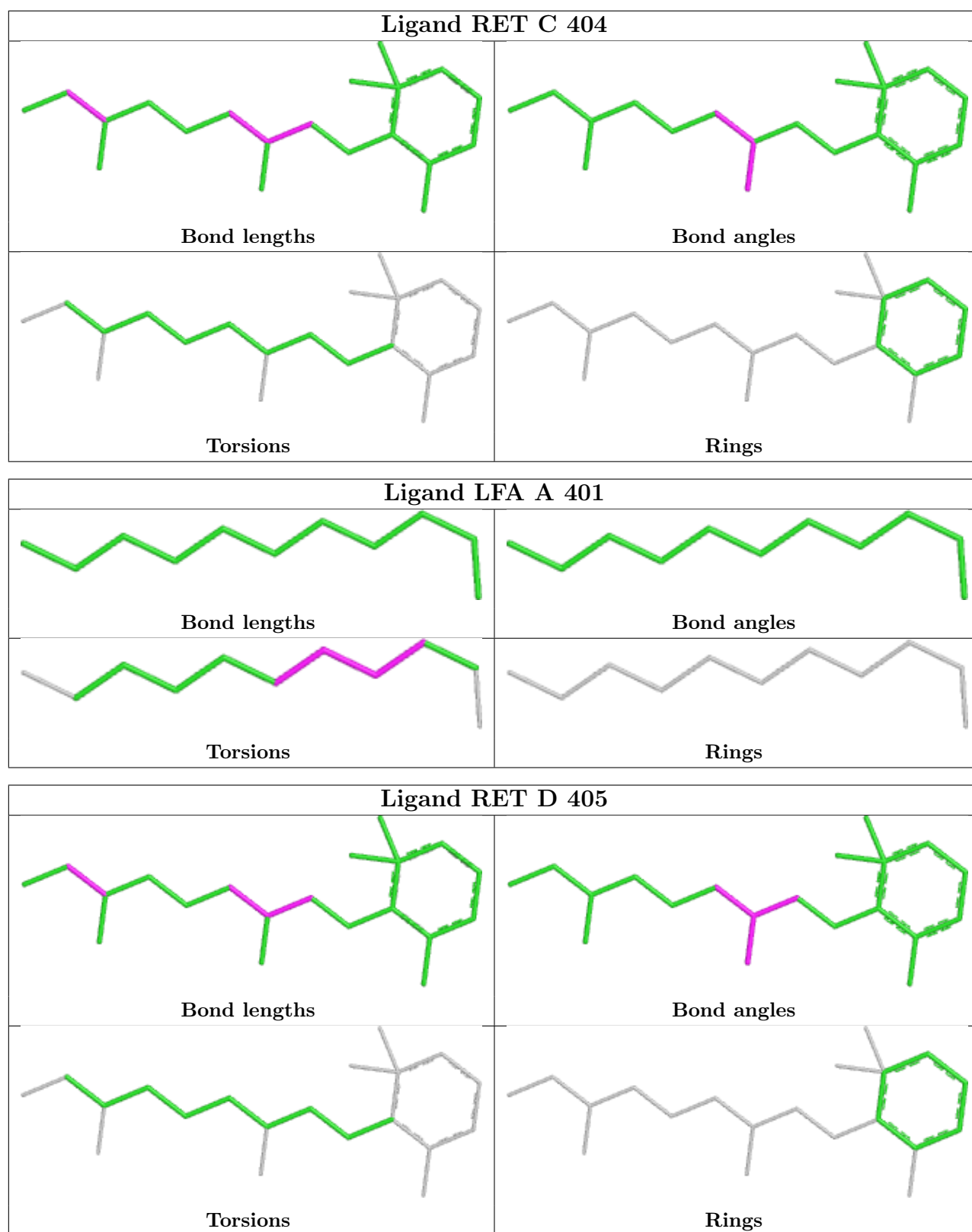
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

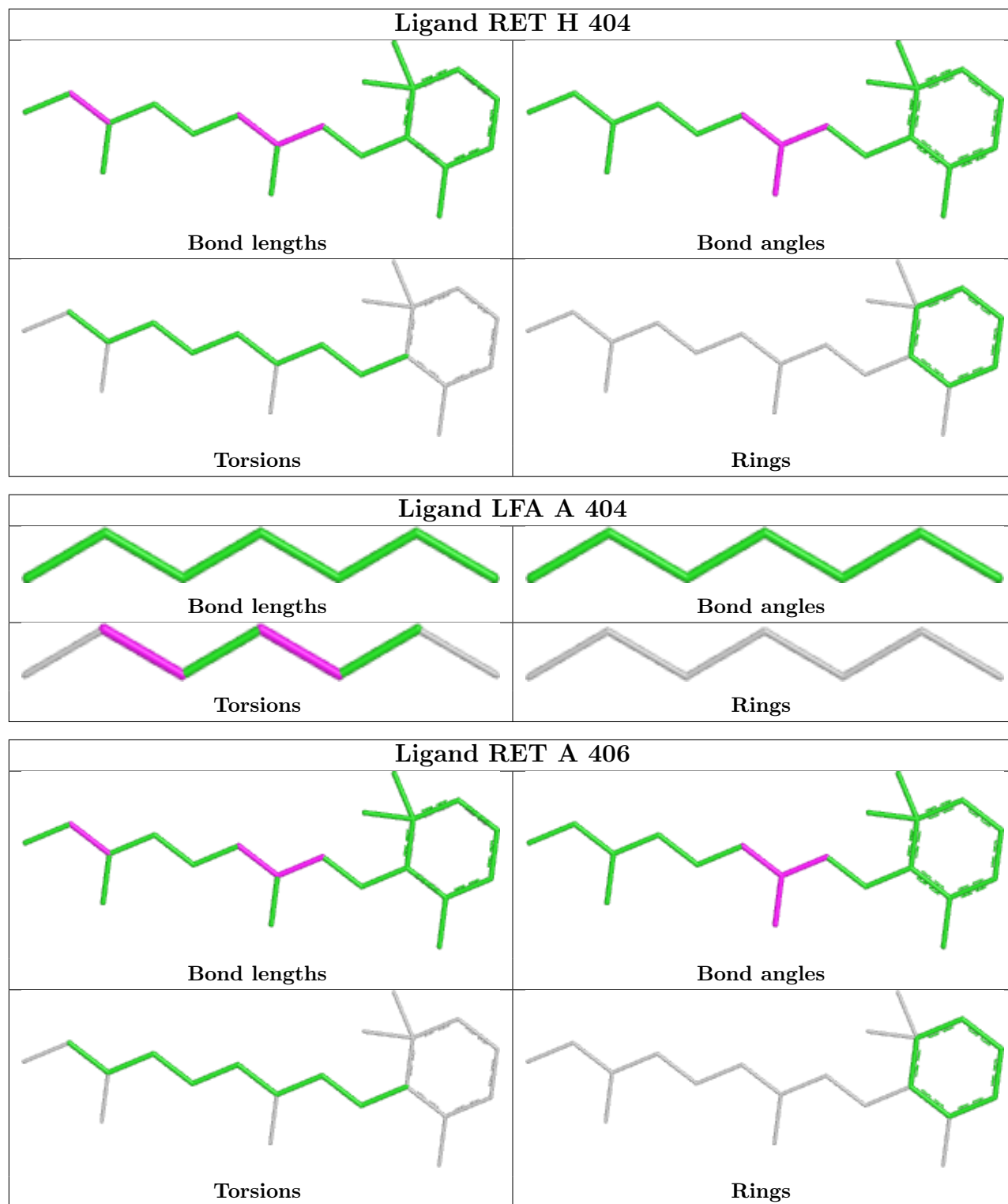


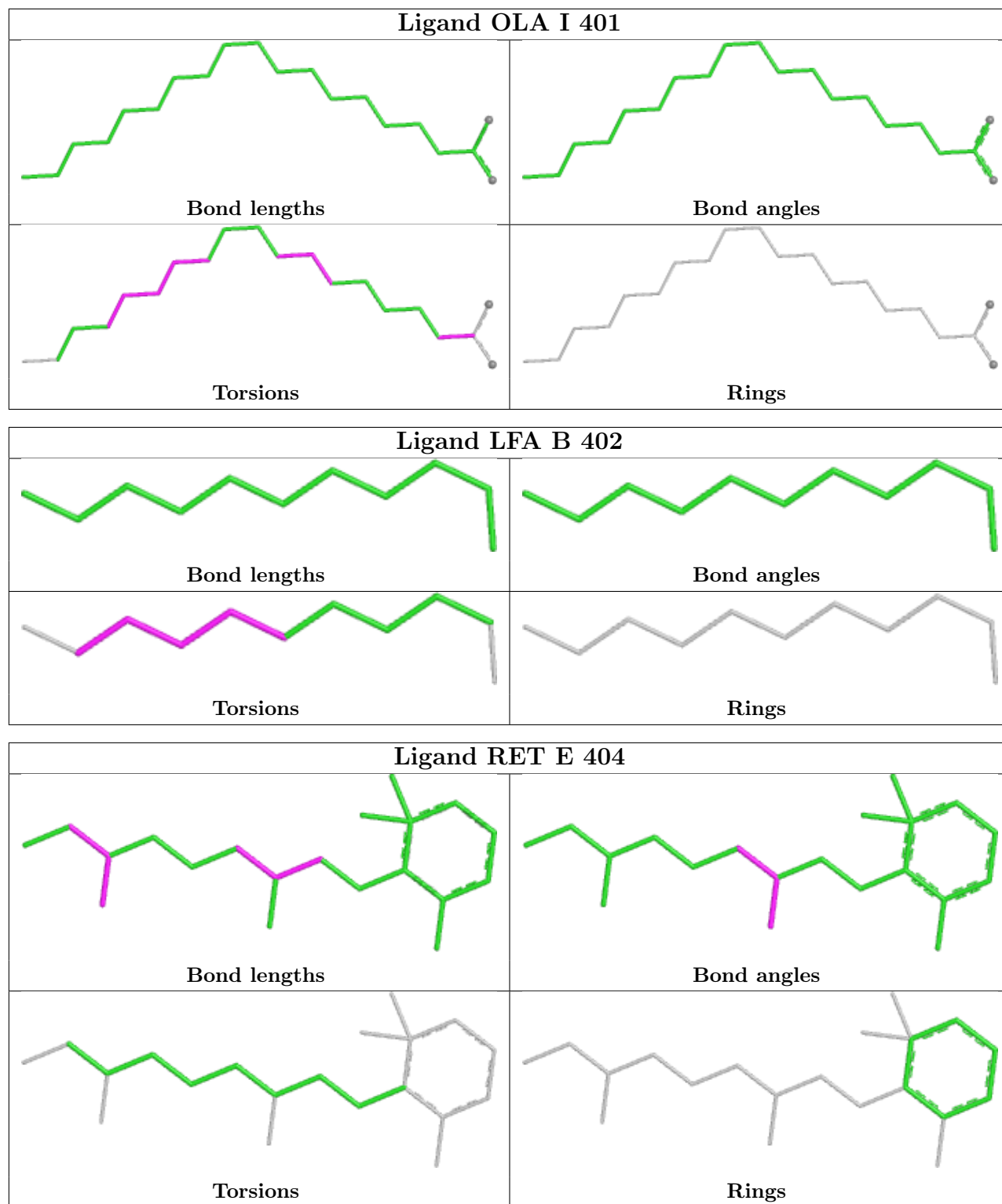


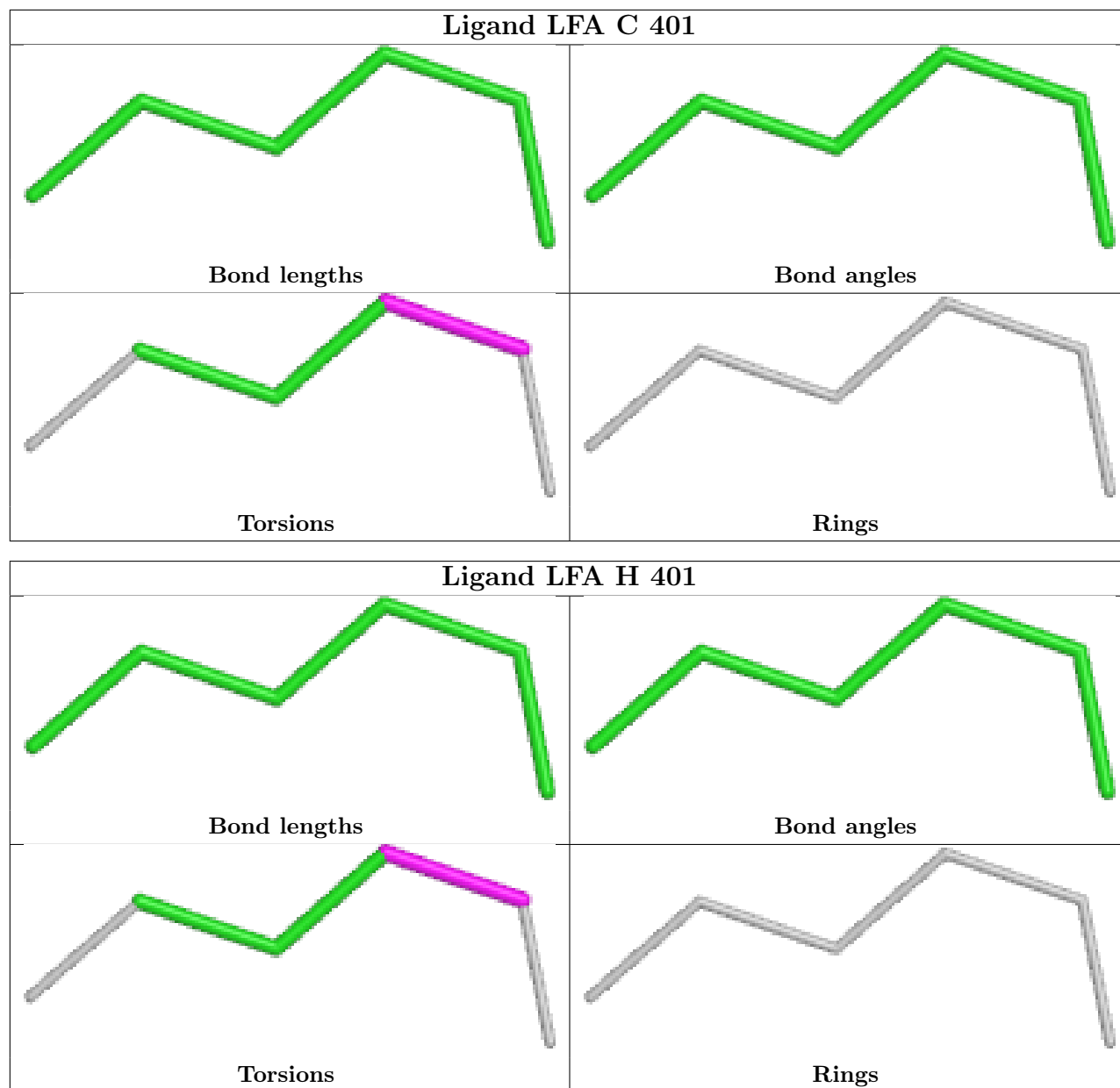


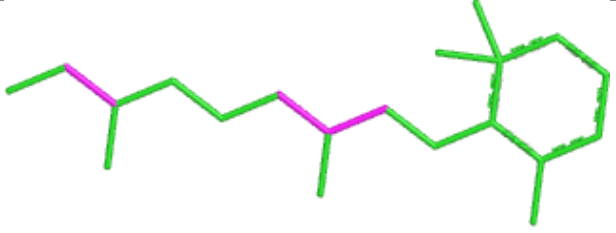
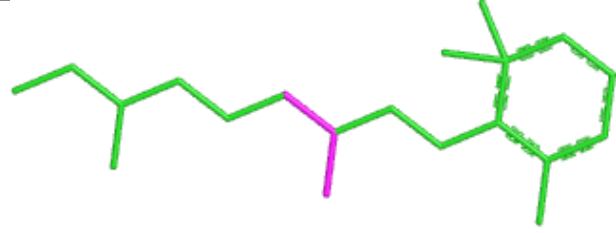
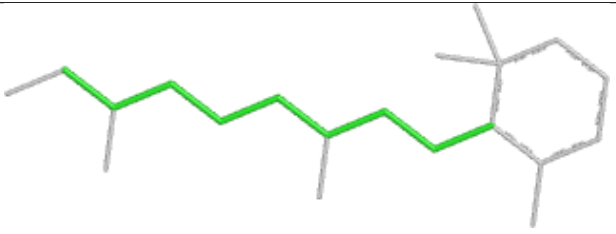
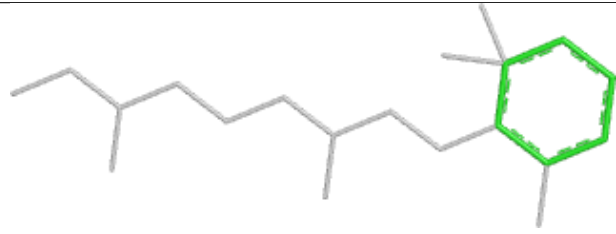


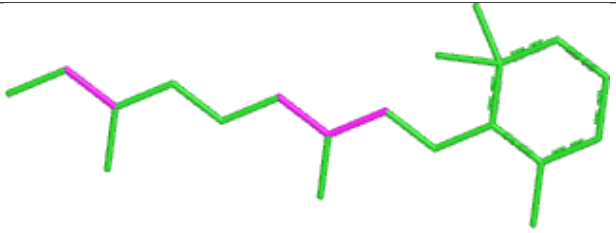
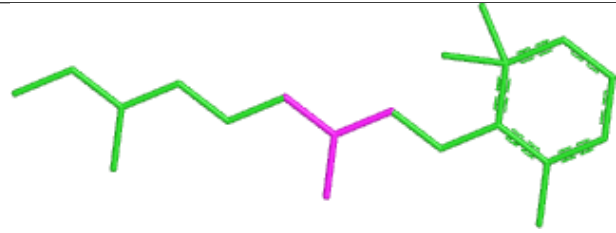
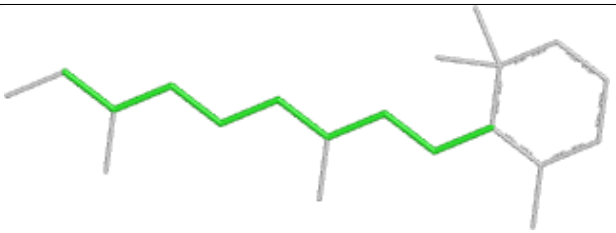
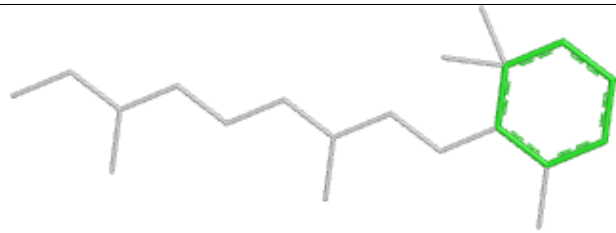


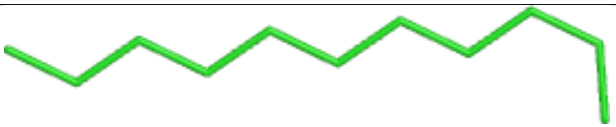
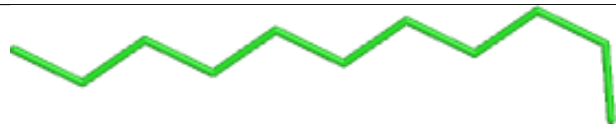
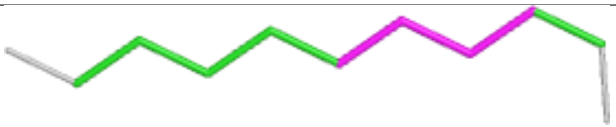
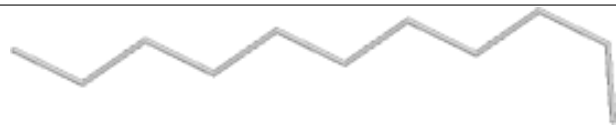


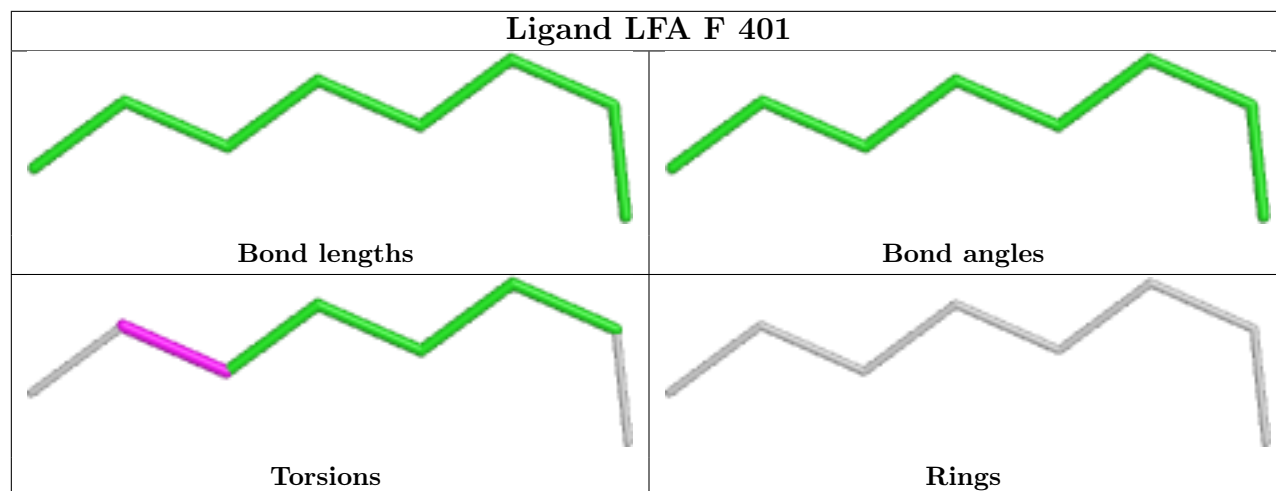




Ligand RET K 405	
	
Bond lengths	Bond angles
	
Torsions	Rings

Ligand RET I 404	
	
Bond lengths	Bond angles
	
Torsions	Rings

Ligand LFA G 401	
	
Bond lengths	Bond angles
	
Torsions	Rings



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	287/327 (87%)	-0.28	0 100 100	58, 85, 131, 174	0
1	B	288/327 (88%)	-0.38	0 100 100	50, 81, 119, 178	0
1	C	287/327 (87%)	-0.27	0 100 100	59, 91, 135, 185	0
1	D	288/327 (88%)	-0.28	0 100 100	56, 93, 130, 164	0
1	E	286/327 (87%)	-0.32	0 100 100	57, 85, 124, 173	0
1	F	287/327 (87%)	-0.38	0 100 100	56, 81, 120, 161	0
1	G	288/327 (88%)	-0.33	0 100 100	54, 86, 130, 157	0
1	H	287/327 (87%)	-0.33	0 100 100	59, 90, 130, 178	0
1	I	290/327 (88%)	-0.30	0 100 100	54, 92, 128, 157	0
1	K	286/327 (87%)	-0.35	0 100 100	52, 86, 122, 158	0
All	All	2874/3270 (87%)	-0.32	0 100 100	50, 87, 129, 185	0

There are no RSRZ outliers to report.

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(Å ²)	Q<0.9
2	LFA	F	401	8/20	0.44	0.26	55,65,82,84	0
2	LFA	F	403	11/20	0.58	0.17	58,83,97,97	0
2	LFA	G	402	7/20	0.61	0.12	60,72,85,90	0
2	LFA	B	404	8/20	0.64	0.26	56,73,89,94	0
3	PO4	A	405	5/5	0.66	0.10	107,137,151,157	0
3	PO4	G	405	5/5	0.67	0.11	97,113,131,142	0
2	LFA	A	402	7/20	0.69	0.14	53,73,98,103	0
2	LFA	H	401	6/20	0.71	0.20	68,90,99,99	0
5	OLA	I	401	20/20	0.72	0.18	71,105,119,122	0
2	LFA	C	401	6/20	0.73	0.20	72,93,103,106	0
2	LFA	D	403	9/20	0.75	0.11	68,93,105,114	0
2	LFA	G	404	7/20	0.76	0.10	69,105,110,110	0
2	LFA	B	402	11/20	0.76	0.14	67,84,94,96	0
2	LFA	K	403	10/20	0.77	0.10	78,103,121,124	0
2	LFA	H	402	6/20	0.77	0.09	49,57,58,61	0
2	LFA	B	401	7/20	0.79	0.16	55,82,91,97	0
3	PO4	E	403	5/5	0.79	0.09	114,122,138,139	0
2	LFA	E	402	12/20	0.80	0.10	77,85,100,107	0
2	LFA	D	402	10/20	0.80	0.08	66,90,91,94	0
2	LFA	F	402	7/20	0.80	0.17	63,95,101,110	0
3	PO4	I	403	5/5	0.81	0.06	113,126,135,137	0
5	OLA	D	401	20/20	0.81	0.15	80,109,120,126	0
3	PO4	H	403	5/5	0.81	0.08	133,135,142,168	0
2	LFA	A	404	7/20	0.82	0.09	63,82,98,101	0
2	LFA	C	402	6/20	0.82	0.09	53,61,70,71	0
3	PO4	C	403	5/5	0.83	0.07	110,113,133,139	0
3	PO4	D	404	5/5	0.85	0.06	115,119,123,125	0
3	PO4	B	405	5/5	0.86	0.08	97,101,111,122	0
2	LFA	A	403	10/20	0.86	0.14	74,84,95,100	0
3	PO4	F	405	5/5	0.86	0.07	89,105,115,125	0
2	LFA	G	403	10/20	0.87	0.13	67,86,99,99	0
2	LFA	K	402	12/20	0.87	0.08	85,88,93,99	0
3	PO4	K	404	5/5	0.88	0.08	114,122,128,130	0
2	LFA	I	402	10/20	0.88	0.07	58,83,101,102	0
2	LFA	F	404	12/20	0.88	0.22	75,94,107,107	0
2	LFA	A	401	11/20	0.90	0.13	66,95,116,118	0
2	LFA	K	401	11/20	0.90	0.09	60,70,80,84	0
2	LFA	G	401	11/20	0.90	0.18	50,76,111,111	0
2	LFA	E	401	11/20	0.90	0.09	53,58,62,63	0
4	RET	G	406	20/21	0.92	0.19	73,91,120,122	0
4	RET	I	404	20/21	0.92	0.17	89,114,132,134	0

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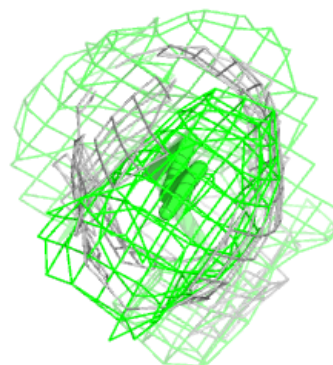
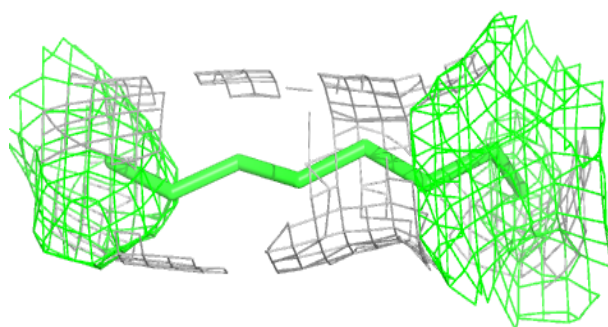
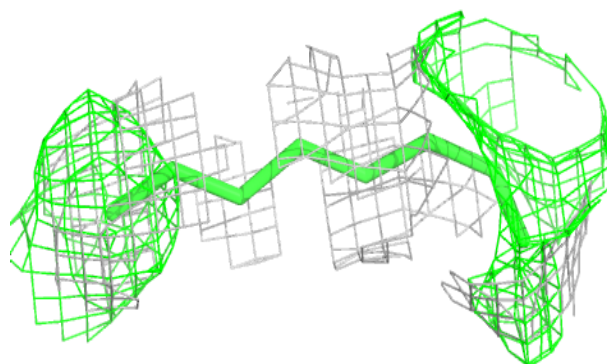
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
4	RET	D	405	20/21	0.93	0.18	86,101,118,126	0
4	RET	H	404	20/21	0.93	0.15	80,91,105,106	0
2	LFA	B	403	12/20	0.94	0.14	60,87,96,100	0
4	RET	A	406	20/21	0.94	0.15	76,92,103,103	0
4	RET	C	404	20/21	0.94	0.15	76,91,110,114	0
4	RET	B	406	20/21	0.95	0.13	70,87,97,99	0
4	RET	K	405	20/21	0.95	0.14	80,95,112,114	0
4	RET	E	404	20/21	0.95	0.12	79,88,101,102	0
4	RET	F	406	20/21	0.95	0.11	59,73,87,96	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.

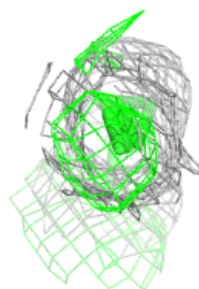
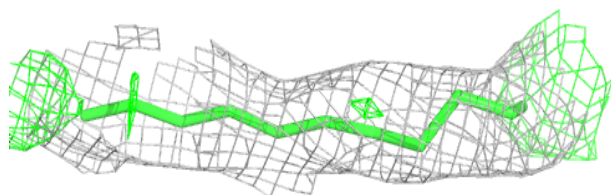
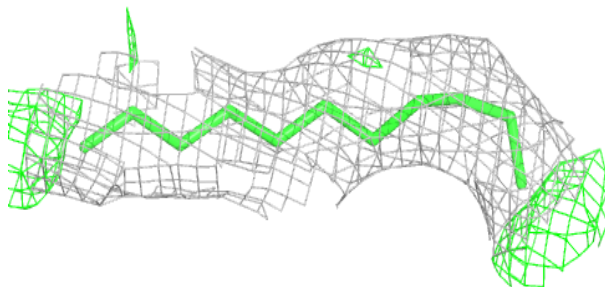
Electron density around LFA F 401:

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

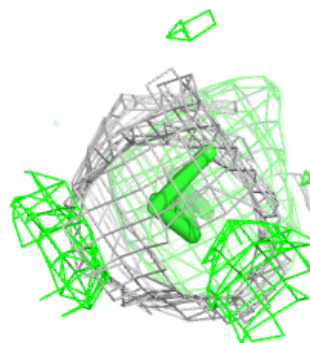
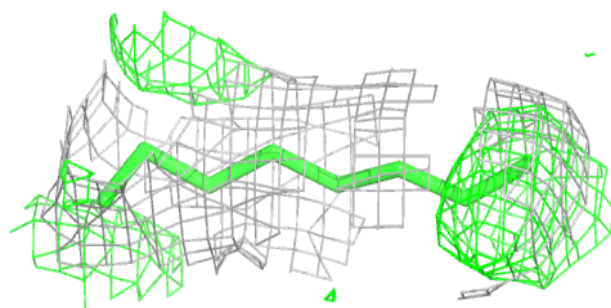
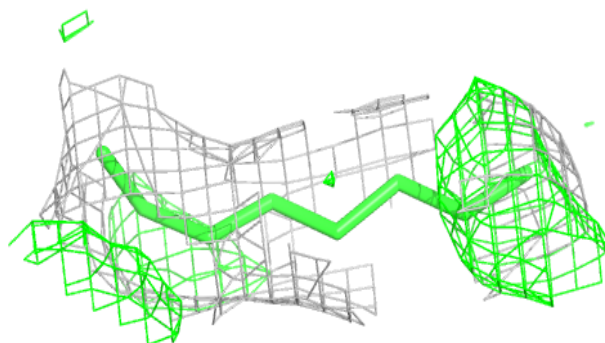


Electron density around LFA F 403:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

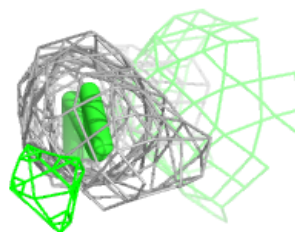
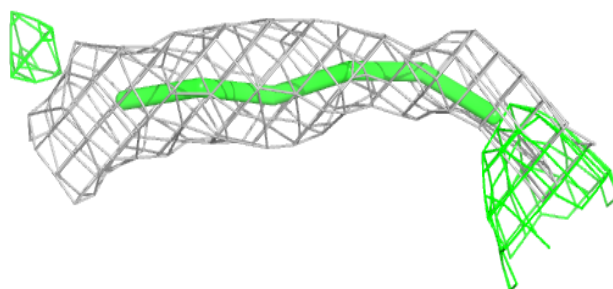
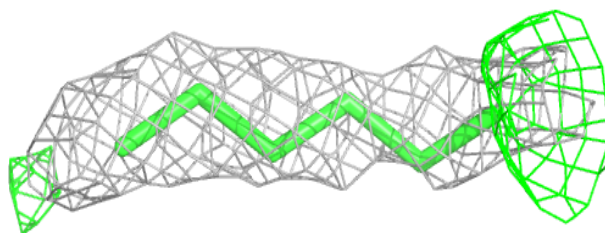
**Electron density around LFA B 404:**

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and green (positive)

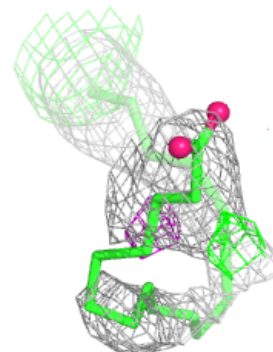
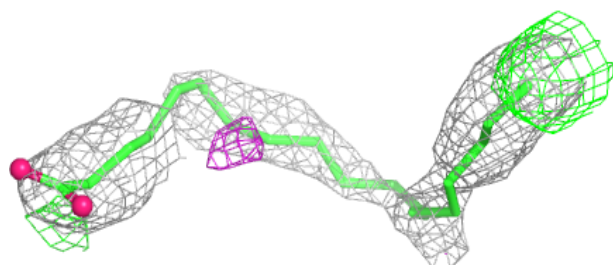
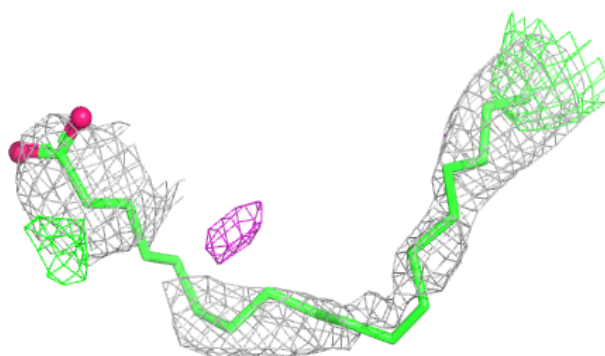


Electron density around LFA H 401:

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and green (positive)

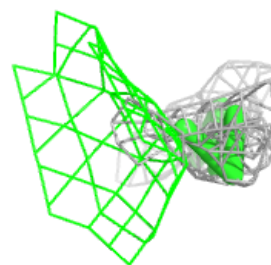
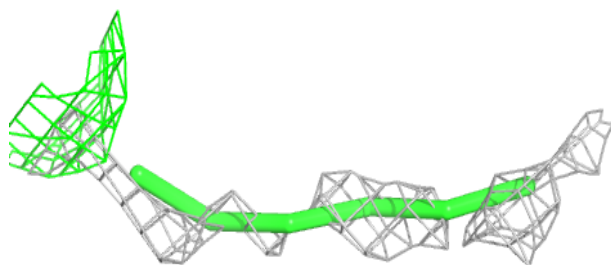
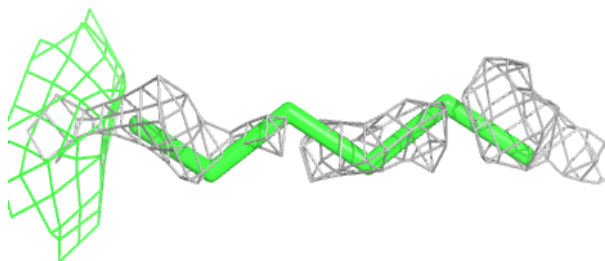
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and green (positive)

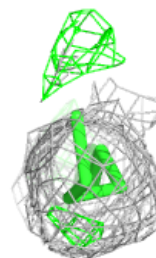
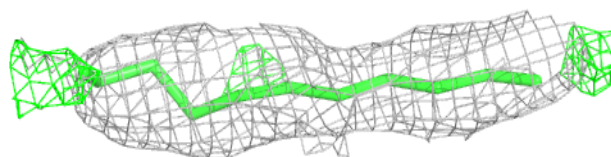
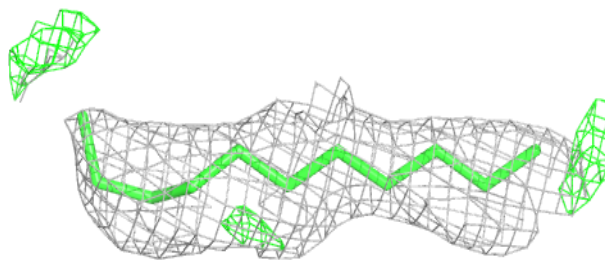


Electron density around LFA C 401:

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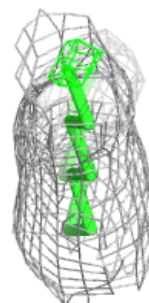
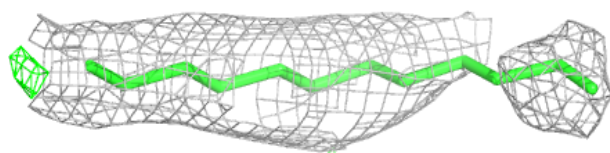
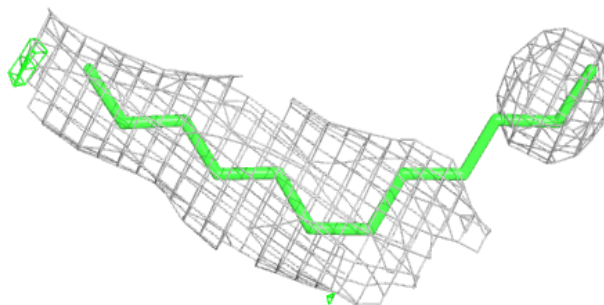
**Electron density around LFA B 402:**

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

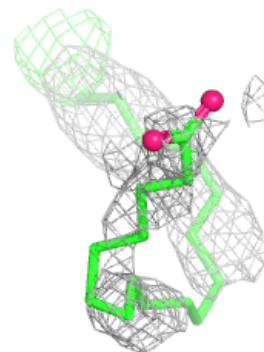
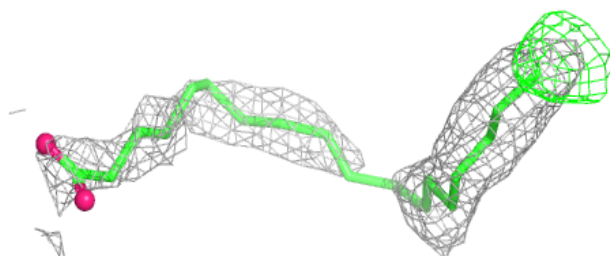
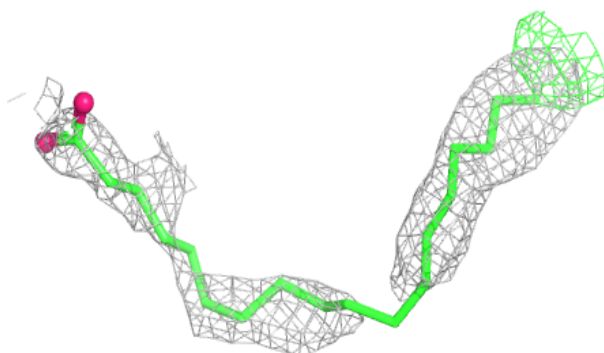


Electron density around LFA E 402:

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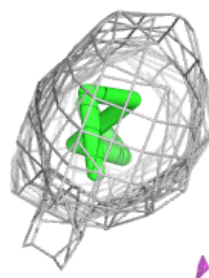
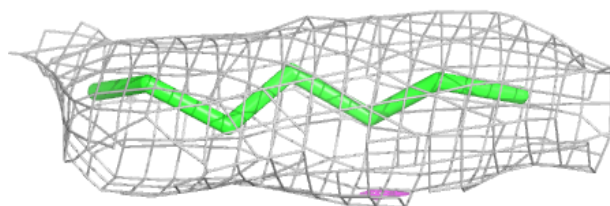
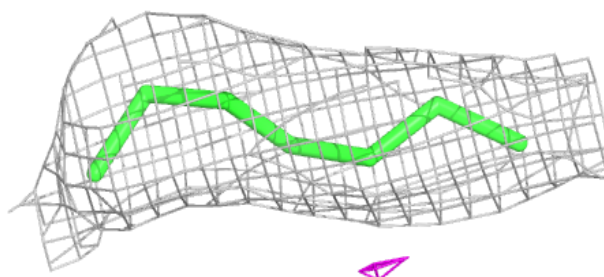
**Electron density around OLA D 401:**

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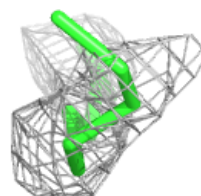
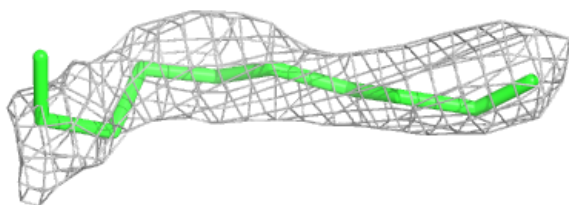
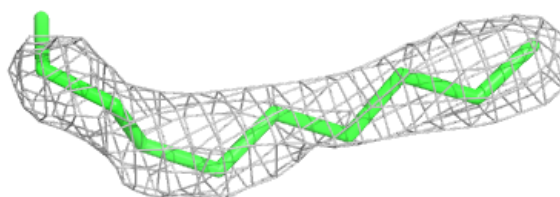


Electron density around LFA A 404:

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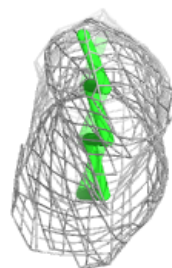
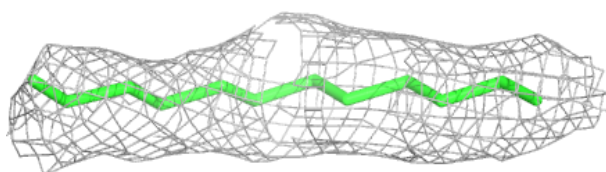
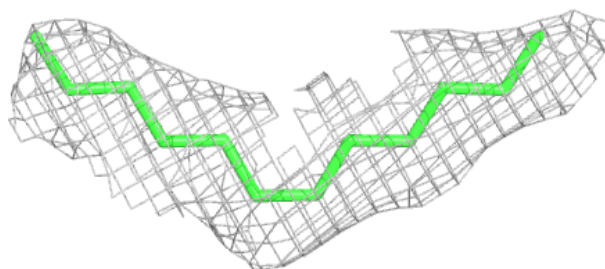
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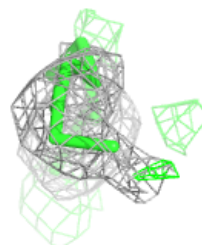
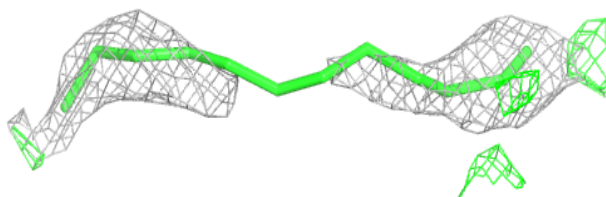
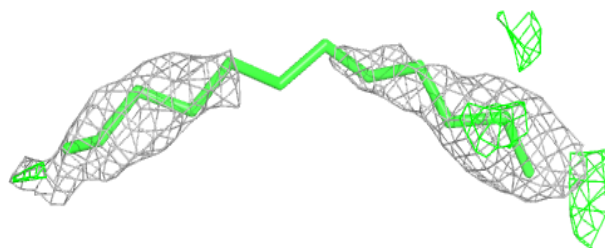


Electron density around LFA K 402:

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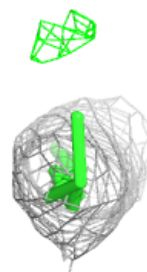
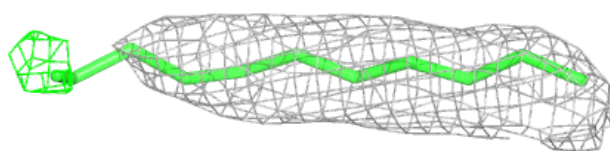
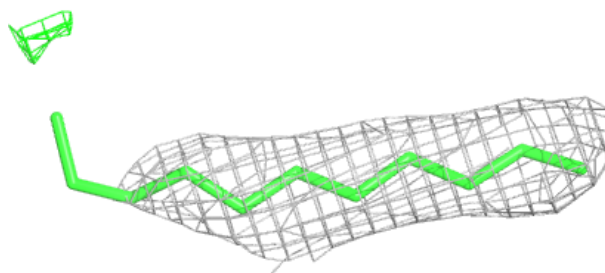
**Electron density around LFA F 404:**

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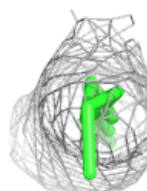
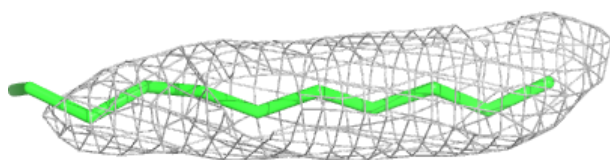
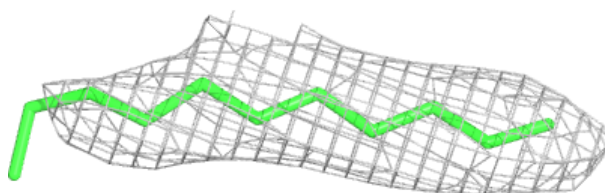


Electron density around LFA A 401:

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and green (positive)

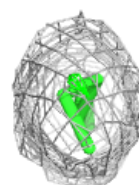
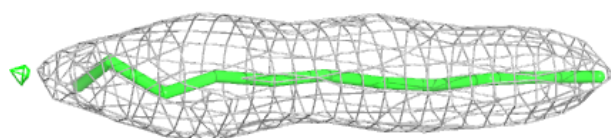
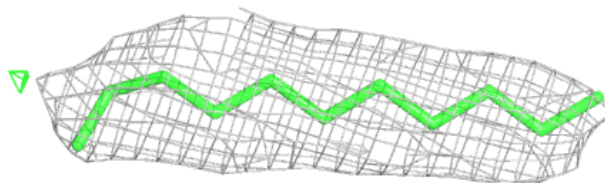
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and green (positive)

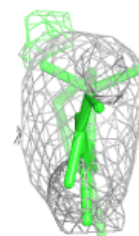
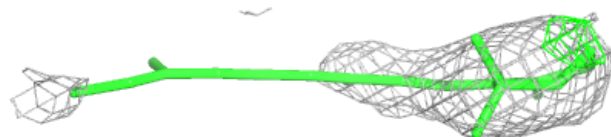
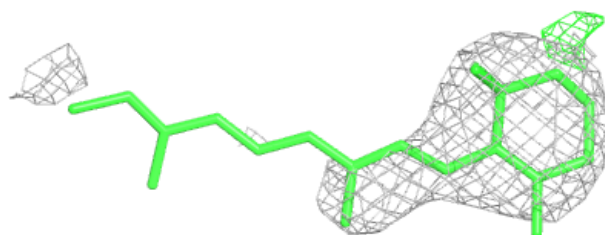


Electron density around LFA E 401:

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

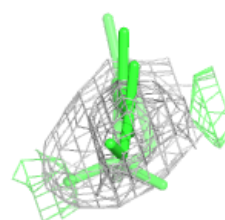
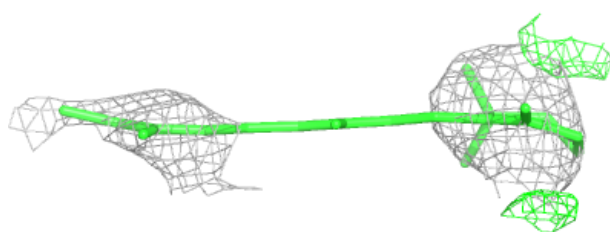
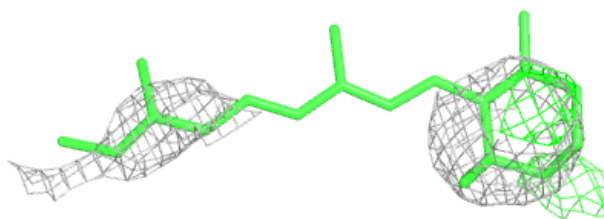
**Electron density around RET G 406:**

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

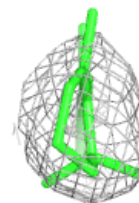
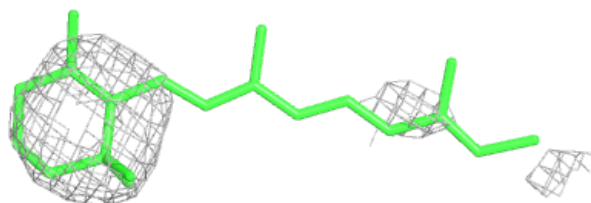


Electron density around RET I 404:

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

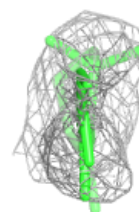
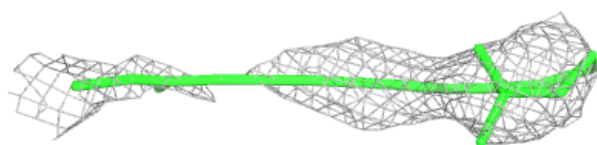
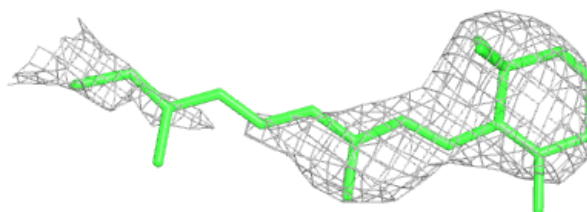
**Electron density around RET D 405:**

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

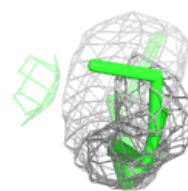
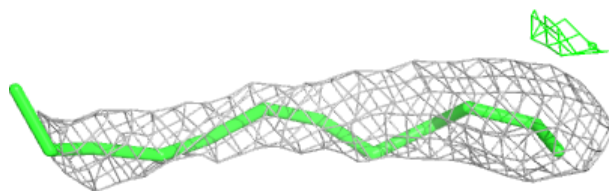
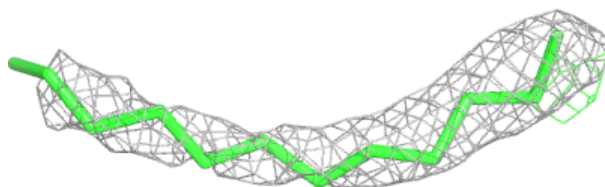


Electron density around RET H 404:

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

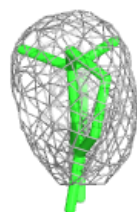
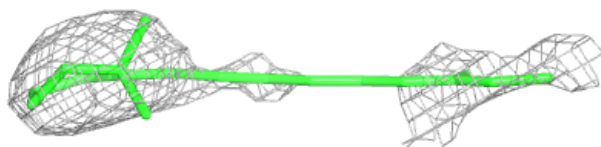
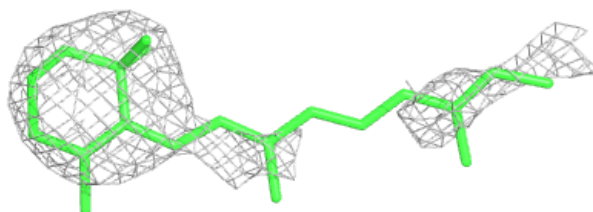
**Electron density around LFA B 403:**

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

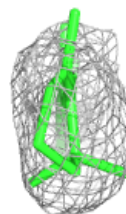
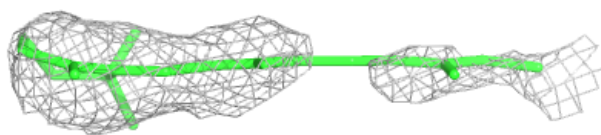
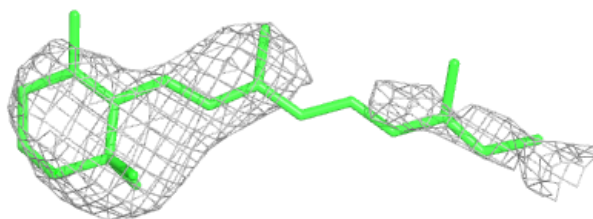


Electron density around RET A 406:

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

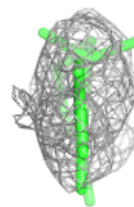
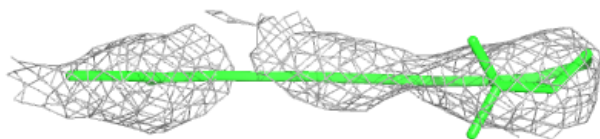
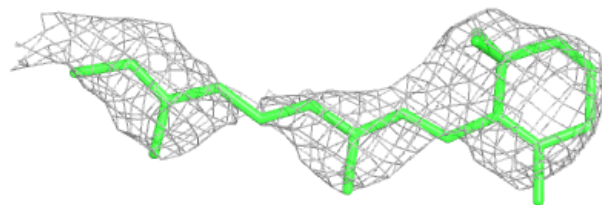
**Electron density around RET C 404:**

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

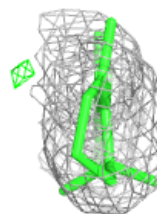
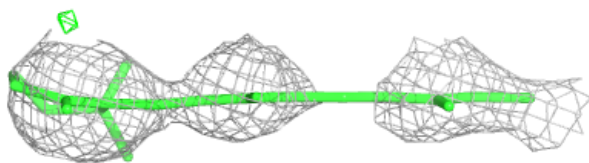
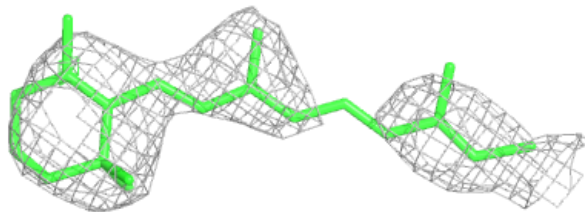


Electron density around RET B 406:

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

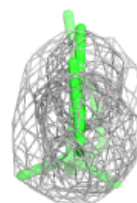
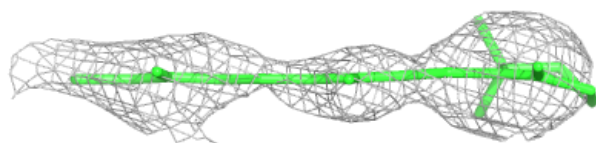
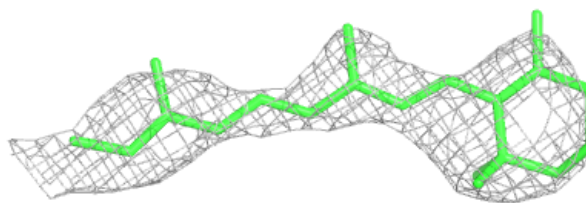
**Electron density around RET K 405:**

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

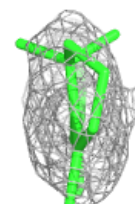
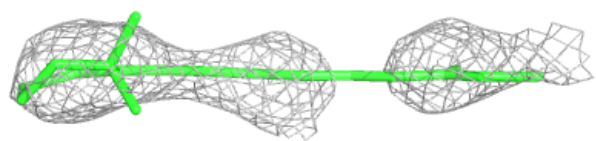
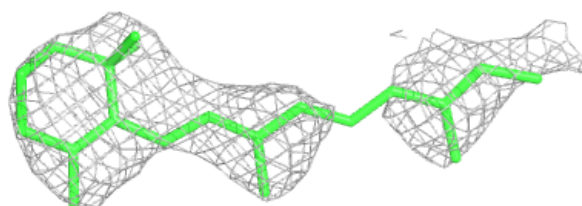


Electron density around RET E 404:

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

**Electron density around RET F 406:**

$2mF_o-DF_c$ (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.