Full wwPDB X-ray Structure Validation Report ⓘ

Jun 12, 2024 – 06:34 PM EDT

PDB ID	:	3WC9
Title	:	The complex structure of HsSQS wtih ligand, FSPP
Authors	:	Shang, N.; Li, Q.; Ko, T.P.; Chan, H.C.; Huang, C.H.; Ren, F.; Zheng, Y.; Zhu, Z.; Chen, C.C.; Guo, R.T.
Deposited on	:	2013-05-26
Resolution	:	2.82 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:

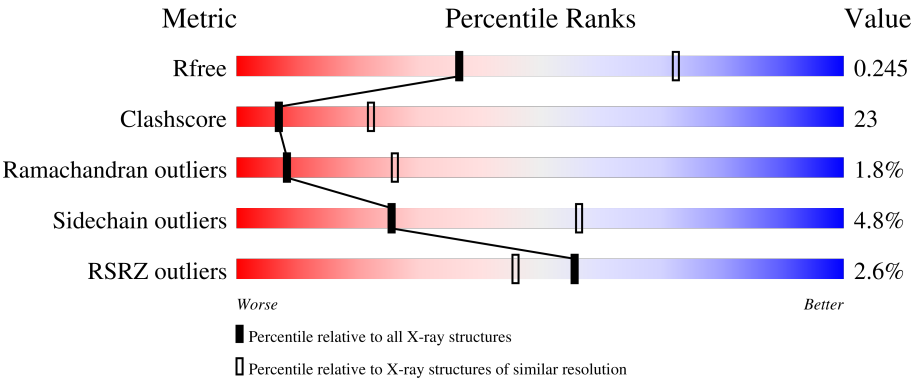
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	2.36.2
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.82 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3617 (2.84-2.80)
Clashscore	141614	4060 (2.84-2.80)
Ramachandran outliers	138981	3978 (2.84-2.80)
Sidechain outliers	138945	3980 (2.84-2.80)
RSRZ outliers	127900	3552 (2.84-2.80)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	360	63% 28% 8%
1	B	360	56% 34% 7%
1	C	360	57% 33% 7%
1	D	360	55% 34% 7%
1	E	360	52% 37% 7%

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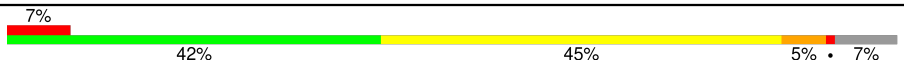
Mol	Chain	Length	Quality of chain
1	F	360	

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	FPS	D	402	-	-	-	X

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 17168 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 Squalene synthase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	333	Total	C	N	O	S	0	0	0
			2687	1712	456	501	18			
1	B	334	Total	C	N	O	S	0	0	0
			2696	1717	458	503	18			
1	C	334	Total	C	N	O	S	0	0	0
			2696	1717	458	503	18			
1	D	334	Total	C	N	O	S	0	0	0
			2696	1717	458	503	18			
1	E	334	Total	C	N	O	S	0	0	0
			2696	1717	458	503	18			
1	F	334	Total	C	N	O	S	0	0	0
			2696	1717	458	503	18			

There are 144 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	11	MET	-	expression tag	UNP P37268
A	12	GLY	-	expression tag	UNP P37268
A	13	SER	-	expression tag	UNP P37268
A	14	SER	-	expression tag	UNP P37268
A	15	HIS	-	expression tag	UNP P37268
A	16	HIS	-	expression tag	UNP P37268
A	17	HIS	-	expression tag	UNP P37268
A	18	HIS	-	expression tag	UNP P37268
A	19	HIS	-	expression tag	UNP P37268
A	20	HIS	-	expression tag	UNP P37268
A	21	SER	-	expression tag	UNP P37268
A	22	SER	-	expression tag	UNP P37268
A	23	GLY	-	expression tag	UNP P37268
A	24	LEU	-	expression tag	UNP P37268
A	25	VAL	-	expression tag	UNP P37268
A	26	PRO	-	expression tag	UNP P37268
A	27	ARG	-	expression tag	UNP P37268

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Chain	Residue	Modelled	Actual	Comment	Reference
A	28	GLY	-	expression tag	UNP P37268
A	29	SER	-	expression tag	UNP P37268
A	30	HIS	-	expression tag	UNP P37268
A	248	LEU	LYS	engineered mutation	UNP P37268
A	315	LEU	LYS	engineered mutation	UNP P37268
A	318	LEU	LYS	engineered mutation	UNP P37268
A	353	ASN	ASP	SEE REMARK 999	UNP P37268
B	11	MET	-	expression tag	UNP P37268
B	12	GLY	-	expression tag	UNP P37268
B	13	SER	-	expression tag	UNP P37268
B	14	SER	-	expression tag	UNP P37268
B	15	HIS	-	expression tag	UNP P37268
B	16	HIS	-	expression tag	UNP P37268
B	17	HIS	-	expression tag	UNP P37268
B	18	HIS	-	expression tag	UNP P37268
B	19	HIS	-	expression tag	UNP P37268
B	20	HIS	-	expression tag	UNP P37268
B	21	SER	-	expression tag	UNP P37268
B	22	SER	-	expression tag	UNP P37268
B	23	GLY	-	expression tag	UNP P37268
B	24	LEU	-	expression tag	UNP P37268
B	25	VAL	-	expression tag	UNP P37268
B	26	PRO	-	expression tag	UNP P37268
B	27	ARG	-	expression tag	UNP P37268
B	28	GLY	-	expression tag	UNP P37268
B	29	SER	-	expression tag	UNP P37268
B	30	HIS	-	expression tag	UNP P37268
B	248	LEU	LYS	engineered mutation	UNP P37268
B	315	LEU	LYS	engineered mutation	UNP P37268
B	318	LEU	LYS	engineered mutation	UNP P37268
B	353	ASN	ASP	SEE REMARK 999	UNP P37268
C	11	MET	-	expression tag	UNP P37268
C	12	GLY	-	expression tag	UNP P37268
C	13	SER	-	expression tag	UNP P37268
C	14	SER	-	expression tag	UNP P37268
C	15	HIS	-	expression tag	UNP P37268
C	16	HIS	-	expression tag	UNP P37268
C	17	HIS	-	expression tag	UNP P37268
C	18	HIS	-	expression tag	UNP P37268
C	19	HIS	-	expression tag	UNP P37268
C	20	HIS	-	expression tag	UNP P37268
C	21	SER	-	expression tag	UNP P37268

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Chain	Residue	Modelled	Actual	Comment	Reference
C	22	SER	-	expression tag	UNP P37268
C	23	GLY	-	expression tag	UNP P37268
C	24	LEU	-	expression tag	UNP P37268
C	25	VAL	-	expression tag	UNP P37268
C	26	PRO	-	expression tag	UNP P37268
C	27	ARG	-	expression tag	UNP P37268
C	28	GLY	-	expression tag	UNP P37268
C	29	SER	-	expression tag	UNP P37268
C	30	HIS	-	expression tag	UNP P37268
C	248	LEU	LYS	engineered mutation	UNP P37268
C	315	LEU	LYS	engineered mutation	UNP P37268
C	318	LEU	LYS	engineered mutation	UNP P37268
C	353	ASN	ASP	SEE REMARK 999	UNP P37268
D	11	MET	-	expression tag	UNP P37268
D	12	GLY	-	expression tag	UNP P37268
D	13	SER	-	expression tag	UNP P37268
D	14	SER	-	expression tag	UNP P37268
D	15	HIS	-	expression tag	UNP P37268
D	16	HIS	-	expression tag	UNP P37268
D	17	HIS	-	expression tag	UNP P37268
D	18	HIS	-	expression tag	UNP P37268
D	19	HIS	-	expression tag	UNP P37268
D	20	HIS	-	expression tag	UNP P37268
D	21	SER	-	expression tag	UNP P37268
D	22	SER	-	expression tag	UNP P37268
D	23	GLY	-	expression tag	UNP P37268
D	24	LEU	-	expression tag	UNP P37268
D	25	VAL	-	expression tag	UNP P37268
D	26	PRO	-	expression tag	UNP P37268
D	27	ARG	-	expression tag	UNP P37268
D	28	GLY	-	expression tag	UNP P37268
D	29	SER	-	expression tag	UNP P37268
D	30	HIS	-	expression tag	UNP P37268
D	248	LEU	LYS	engineered mutation	UNP P37268
D	315	LEU	LYS	engineered mutation	UNP P37268
D	318	LEU	LYS	engineered mutation	UNP P37268
D	353	ASN	ASP	SEE REMARK 999	UNP P37268
E	11	MET	-	expression tag	UNP P37268
E	12	GLY	-	expression tag	UNP P37268
E	13	SER	-	expression tag	UNP P37268
E	14	SER	-	expression tag	UNP P37268
E	15	HIS	-	expression tag	UNP P37268

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Chain	Residue	Modelled	Actual	Comment	Reference
E	16	HIS	-	expression tag	UNP P37268
E	17	HIS	-	expression tag	UNP P37268
E	18	HIS	-	expression tag	UNP P37268
E	19	HIS	-	expression tag	UNP P37268
E	20	HIS	-	expression tag	UNP P37268
E	21	SER	-	expression tag	UNP P37268
E	22	SER	-	expression tag	UNP P37268
E	23	GLY	-	expression tag	UNP P37268
E	24	LEU	-	expression tag	UNP P37268
E	25	VAL	-	expression tag	UNP P37268
E	26	PRO	-	expression tag	UNP P37268
E	27	ARG	-	expression tag	UNP P37268
E	28	GLY	-	expression tag	UNP P37268
E	29	SER	-	expression tag	UNP P37268
E	30	HIS	-	expression tag	UNP P37268
E	248	LEU	LYS	engineered mutation	UNP P37268
E	315	LEU	LYS	engineered mutation	UNP P37268
E	318	LEU	LYS	engineered mutation	UNP P37268
E	353	ASN	ASP	SEE REMARK 999	UNP P37268
F	11	MET	-	expression tag	UNP P37268
F	12	GLY	-	expression tag	UNP P37268
F	13	SER	-	expression tag	UNP P37268
F	14	SER	-	expression tag	UNP P37268
F	15	HIS	-	expression tag	UNP P37268
F	16	HIS	-	expression tag	UNP P37268
F	17	HIS	-	expression tag	UNP P37268
F	18	HIS	-	expression tag	UNP P37268
F	19	HIS	-	expression tag	UNP P37268
F	20	HIS	-	expression tag	UNP P37268
F	21	SER	-	expression tag	UNP P37268
F	22	SER	-	expression tag	UNP P37268
F	23	GLY	-	expression tag	UNP P37268
F	24	LEU	-	expression tag	UNP P37268
F	25	VAL	-	expression tag	UNP P37268
F	26	PRO	-	expression tag	UNP P37268
F	27	ARG	-	expression tag	UNP P37268
F	28	GLY	-	expression tag	UNP P37268
F	29	SER	-	expression tag	UNP P37268
F	30	HIS	-	expression tag	UNP P37268
F	248	LEU	LYS	engineered mutation	UNP P37268
F	315	LEU	LYS	engineered mutation	UNP P37268
F	318	LEU	LYS	engineered mutation	UNP P37268

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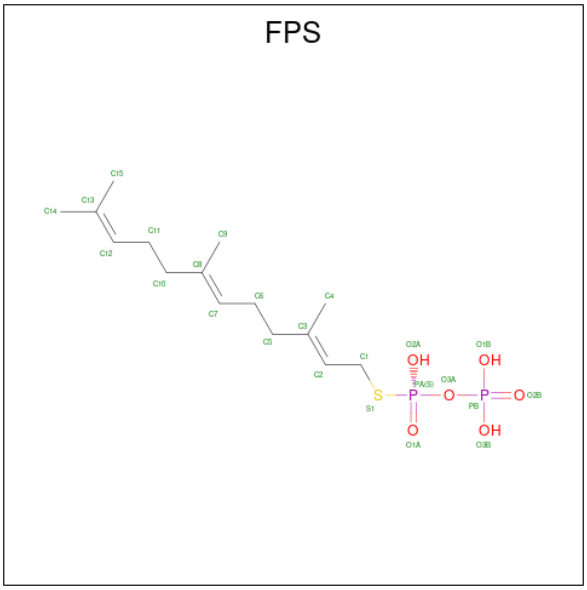
Chain	Residue	Modelled	Actual	Comment	Reference
F	353	ASN	ASP	SEE REMARK 999	UNP P37268

- Molecule 2 is S-[(2E,6E)-3,7,11-TRIMETHYLDODECA-2,6,10-TRIENYL] TRIHYDROGEN THIODIPHOSPHATE (three-letter code: FPS) (formula: $C_{15}H_{28}O_6P_2S$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	O	P	S	0	0
			24	15	6	2	1		
2	B	1	Total	C	O	P	S	0	0
			24	15	6	2	1		
2	C	1	Total	C	O	P	S	0	0
			24	15	6	2	1		
2	D	1	Total	C	O	P	S	0	0
			24	15	6	2	1		
2	D	1	Total	C	O	P	S	0	0
			24	15	6	2	1		
2	E	1	Total	C	O	P	S	0	0
			24	15	6	2	1		
2	F	1	Total	C	O	P	S	0	0
			24	15	6	2	1		

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	179	Total	O	0	0
			179	179		

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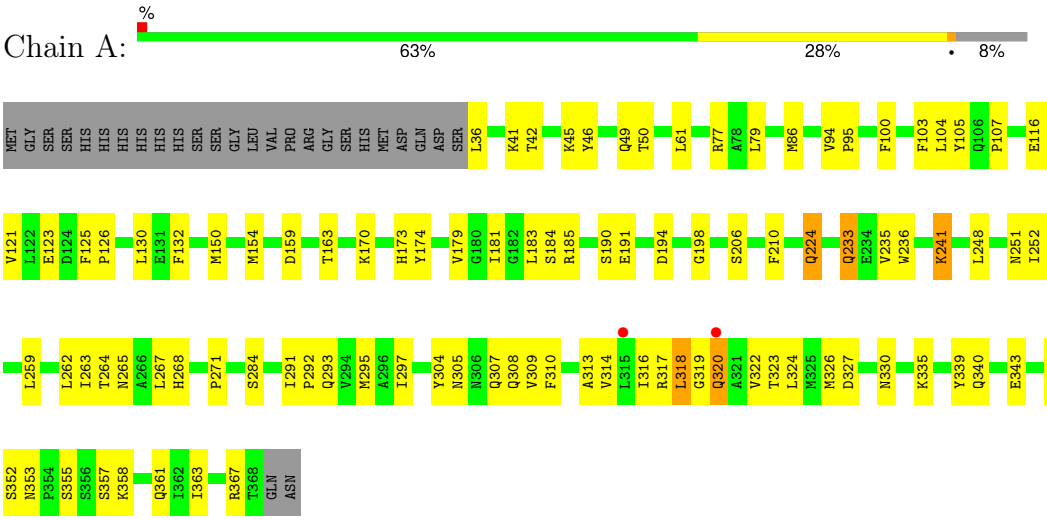
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	B	179	Total O 179 179	0	0
3	C	153	Total O 153 153	0	0
3	D	114	Total O 114 114	0	0
3	E	111	Total O 111 111	0	0
3	F	97	Total O 97 97	0	0

3 Residue-property plots (i)

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

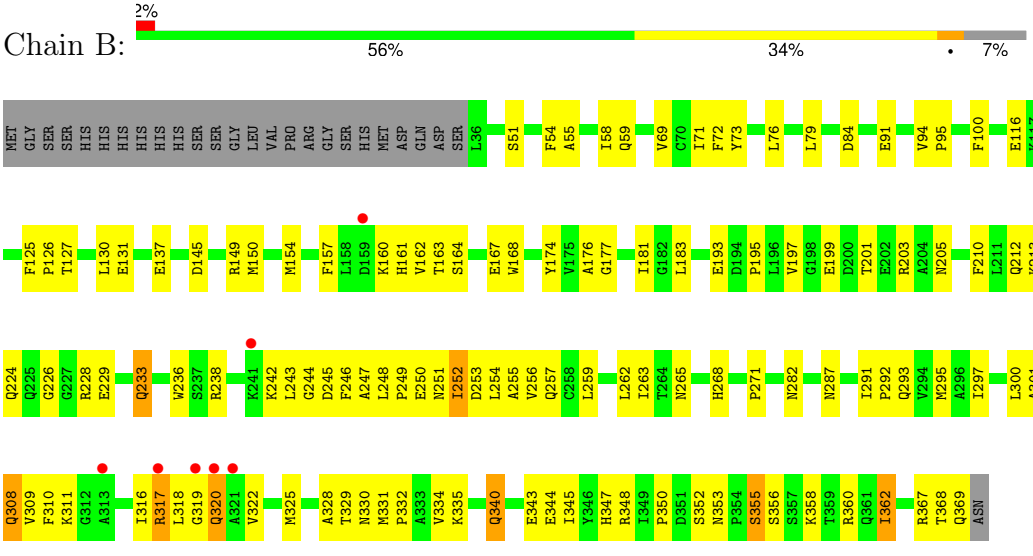
• Molecule 1: Squalene synthase

Chain A:



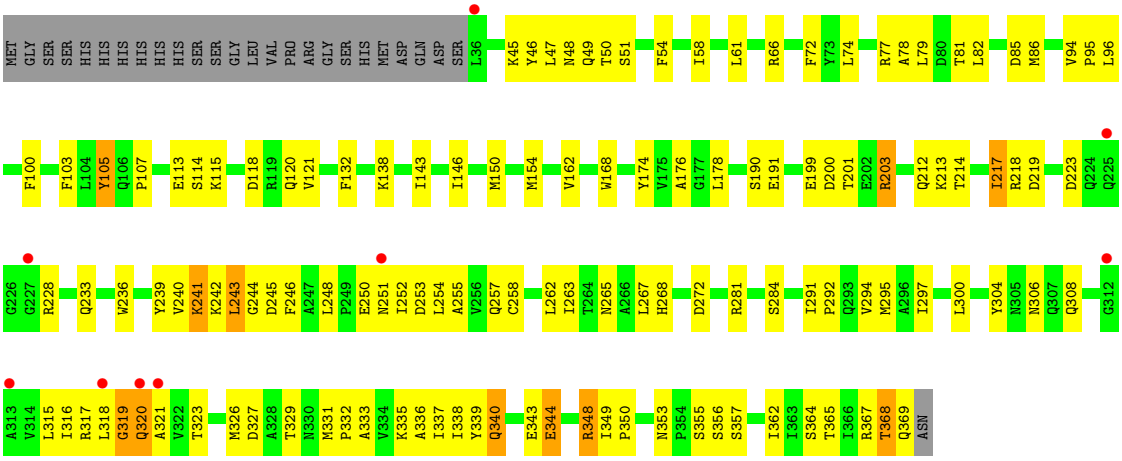
• Molecule 1: Squalene synthase

Chain B:



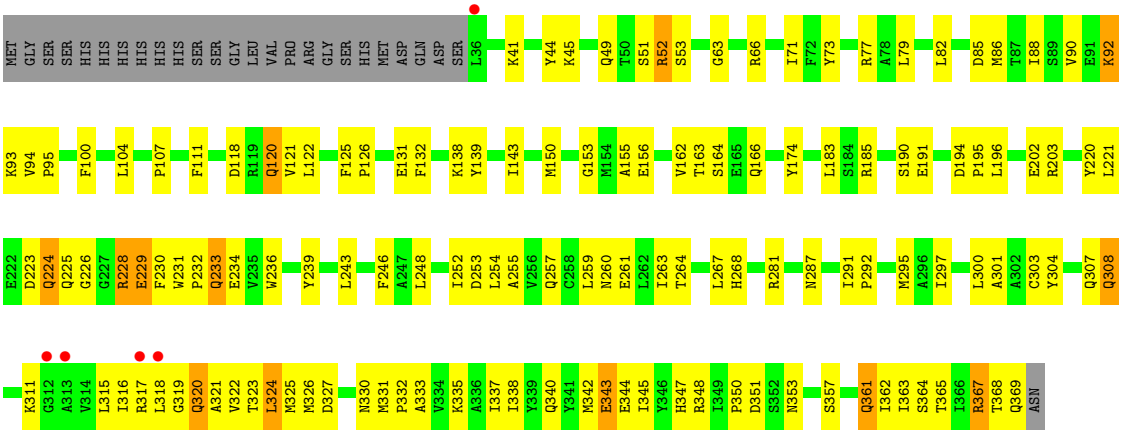
• Molecule 1: Squalene synthase

Chain C:



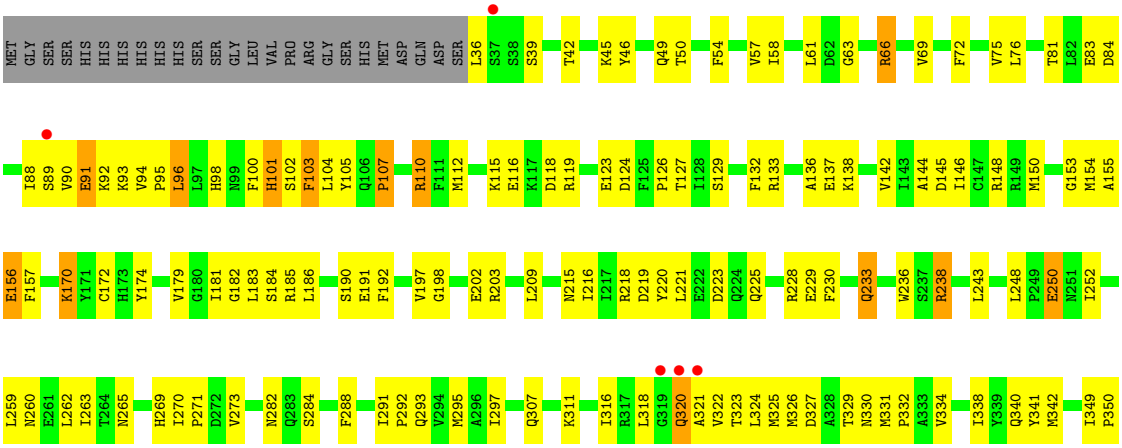
• Molecule 1: Squalene synthase

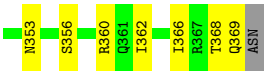
Chain D:



• Molecule 1: Squalene synthase

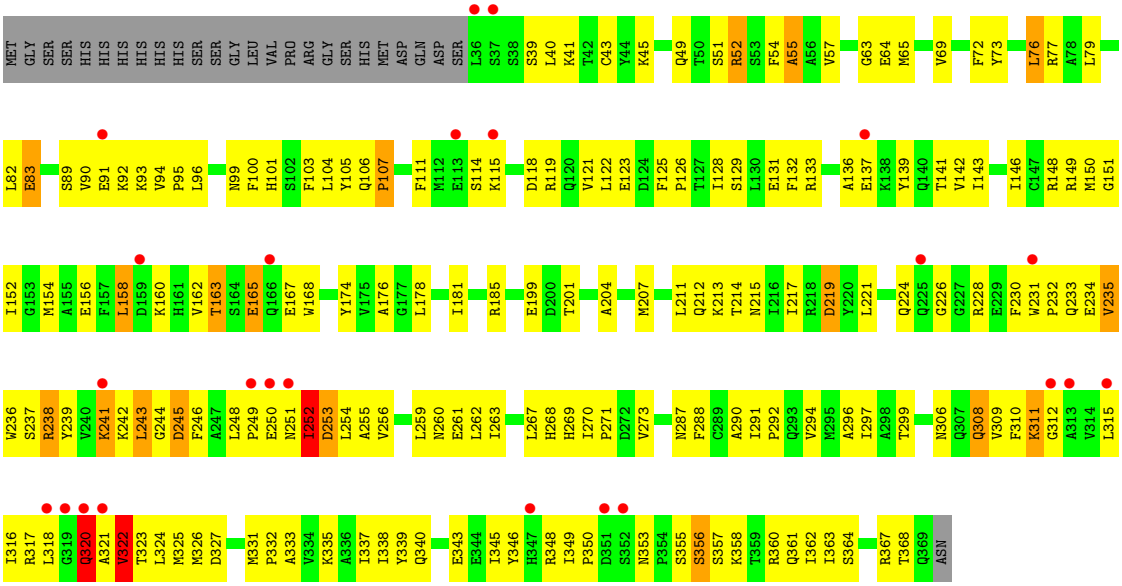
Chain E:





• Molecule 1: Squalene synthase

Chain F:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	85.19Å 153.33Å 90.99Å 90.00° 91.84° 90.00°	Depositor
Resolution (Å)	25.00 – 2.82 25.08 – 2.82	Depositor EDS
% Data completeness (in resolution range)	(Not available) (25.00-2.82) 95.0 (25.08-2.82)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	5.44 (at 2.84Å)	Xtriage
Refinement program	CNS 1.2	Depositor
R, R_{free}	0.184 , 0.248 0.182 , 0.245	Depositor DCC
R_{free} test set	2688 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å^2)	33.3	Xtriage
Anisotropy	1.015	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 62.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.036 for h,-k,-l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	17168	wwPDB-VP
Average B, all atoms (Å^2)	42.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.14% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

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

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	0.39	0/2742	0.60	0/3712
1	B	0.38	0/2751	0.60	0/3724
1	C	0.38	0/2751	0.59	0/3724
1	D	0.36	0/2751	0.56	0/3724
1	E	0.34	0/2751	0.57	1/3724 (0.0%)
1	F	0.33	0/2751	0.57	0/3724
All	All	0.36	0/16497	0.58	1/22332 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	E	103	PHE	N-CA-C	-5.34	96.59	111.00

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	2687	0	2668	84	0
1	B	2696	0	2676	120	0
1	C	2696	0	2676	109	0
1	D	2696	0	2676	131	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	2696	0	2676	153	0
1	F	2696	0	2676	192	0
2	A	24	0	25	0	0
2	B	24	0	25	1	0
2	C	24	0	25	0	0
2	D	48	0	50	4	0
2	E	24	0	25	0	0
2	F	24	0	25	0	0
3	A	179	0	0	4	0
3	B	179	0	0	2	0
3	C	153	0	0	2	0
3	D	114	0	0	2	0
3	E	111	0	0	1	0
3	F	97	0	0	1	0
All	All	17168	0	16223	749	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 23.

All (749) 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:F:291:ILE:HB	1:F:292:PRO:HD3	1.50	0.91
1:A:116:GLU:O	1:A:119:ARG:HG2	1.73	0.89
1:F:93:LYS:HD2	1:F:158:LEU:HD11	1.52	0.89
1:E:356:SER:HB2	1:E:360:ARG:HH12	1.38	0.87
1:B:51:SER:HB2	1:B:73:TYR:CZ	2.10	0.86
1:A:318:LEU:HD23	1:A:319:GLY:H	1.40	0.86
1:D:94:VAL:HB	1:D:95:PRO:HD3	1.58	0.85
1:B:318:LEU:HD23	1:B:319:GLY:H	1.38	0.84
1:A:50:THR:HB	1:A:77:ARG:HD3	1.60	0.83
1:E:90:VAL:O	1:E:94:VAL:HG23	1.80	0.81
1:E:39:SER:HB2	1:E:127:THR:HG23	1.60	0.81
1:F:233:GLN:HG2	1:F:234:GLU:H	1.46	0.81
1:F:311:LYS:HE2	1:F:311:LYS:N	1.96	0.81
1:D:263:ILE:HG23	1:D:300:LEU:HD22	1.61	0.80
1:E:101:HIS:ND1	1:E:148:ARG:HG3	1.96	0.80
1:F:357:SER:O	1:F:361:GLN:HG3	1.81	0.80
1:D:268:HIS:HA	1:D:362:ILE:HD11	1.62	0.80
1:E:252:ILE:HD11	1:E:307:GLN:HB3	1.63	0.80
1:B:318:LEU:HD23	1:B:319:GLY:N	1.98	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:290:ALA:O	1:F:294:VAL:HG23	1.80	0.79
1:D:163:THR:HA	1:D:233:GLN:NE2	1.97	0.79
1:B:150:MET:HG3	1:B:174:TYR:O	1.83	0.79
1:B:238:ARG:HB2	1:B:238:ARG:NH1	1.98	0.78
1:F:248:LEU:HD22	1:F:251:ASN:ND2	1.98	0.78
1:E:260:ASN:HD22	1:E:353:ASN:ND2	1.80	0.77
1:F:248:LEU:HD21	1:F:250:GLU:HG2	1.65	0.77
1:D:73:TYR:CD2	2:D:402:FPS:H143	2.19	0.77
1:E:172:CYS:HB2	1:E:209:LEU:HD22	1.66	0.77
1:E:185:ARG:HH11	1:E:185:ARG:HG3	1.51	0.76
1:E:228:ARG:HD2	1:E:230:PHE:CE2	2.21	0.75
1:E:172:CYS:CB	1:E:209:LEU:HD22	2.15	0.75
1:A:318:LEU:CD2	1:A:319:GLY:H	2.00	0.75
1:B:291:ILE:HB	1:B:292:PRO:HD3	1.68	0.74
1:F:356:SER:HB3	1:F:360:ARG:HH12	1.51	0.74
1:A:317:ARG:HH21	1:A:317:ARG:HB2	1.51	0.74
1:E:233:GLN:HA	1:E:236:TRP:NE1	2.02	0.74
1:B:322:VAL:HG13	1:C:291:ILE:HG21	1.70	0.73
1:F:150:MET:HG3	1:F:174:TYR:O	1.89	0.73
1:C:94:VAL:HB	1:C:95:PRO:HD3	1.69	0.73
1:C:218:ARG:HD2	1:C:219:ASP:OD1	1.89	0.73
1:B:325:MET:HG2	1:C:295:MET:HE2	1.69	0.72
1:A:317:ARG:HB2	1:A:317:ARG:NH2	2.05	0.72
1:D:51:SER:HB2	1:D:73:TYR:CZ	2.24	0.72
1:D:229:GLU:HG3	1:D:243:LEU:HD23	1.70	0.72
1:A:41:LYS:HG3	1:C:368:THR:HG21	1.72	0.72
1:E:81:THR:HG21	1:E:118:ASP:O	1.90	0.72
1:A:248:LEU:HB2	1:A:251:ASN:ND2	2.05	0.71
1:B:254:LEU:HD12	1:B:254:LEU:H	1.55	0.71
1:E:228:ARG:HD2	1:E:230:PHE:HE2	1.55	0.70
1:D:71:ILE:HD11	1:D:131:GLU:HB3	1.71	0.70
1:E:92:LYS:O	1:E:96:LEU:HD12	1.91	0.70
1:D:323:THR:HG23	1:D:337:ILE:HG12	1.71	0.70
1:F:299:THR:HA	1:F:316:ILE:HD12	1.74	0.70
1:B:353:ASN:ND2	1:B:355:SER:H	1.90	0.70
1:F:333:ALA:O	1:F:337:ILE:HG13	1.91	0.70
1:D:320:GLN:NE2	1:D:340:GLN:HE22	1.90	0.69
1:F:248:LEU:O	1:F:251:ASN:HB2	1.91	0.69
1:D:263:ILE:O	1:D:267:LEU:HG	1.91	0.69
1:B:238:ARG:HB2	1:B:238:ARG:HH11	1.57	0.69
1:F:111:PHE:CD2	1:F:114:SER:HB2	2.27	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:356:SER:HB3	1:F:360:ARG:NH1	2.07	0.69
1:A:293:GLN:O	1:A:297:ILE:HG12	1.93	0.69
1:D:150:MET:HG3	1:D:174:TYR:O	1.93	0.69
1:F:233:GLN:HG2	1:F:234:GLU:N	2.07	0.69
1:F:235:VAL:HG12	1:F:238:ARG:HH21	1.58	0.69
1:D:45:LYS:O	1:D:49:GLN:HG3	1.92	0.69
1:F:82:LEU:HD13	1:F:96:LEU:HD22	1.73	0.69
1:F:245:ASP:O	1:F:248:LEU:HB3	1.91	0.68
1:B:325:MET:CG	1:C:295:MET:HE2	2.23	0.68
1:F:118:ASP:O	1:F:121:VAL:HG22	1.94	0.68
1:F:232:PRO:O	1:F:235:VAL:HG23	1.93	0.68
1:B:238:ARG:HH11	1:B:238:ARG:CB	2.07	0.68
1:E:190:SER:O	1:E:191:GLU:HB2	1.93	0.68
1:F:168:TRP:HB2	1:F:232:PRO:HB3	1.74	0.68
1:D:254:LEU:HA	1:D:257:GLN:HE21	1.59	0.68
1:F:233:GLN:O	1:F:234:GLU:HB3	1.94	0.67
1:F:236:TRP:CE2	1:F:243:LEU:HD22	2.30	0.67
1:E:324:LEU:HD11	1:F:318:LEU:HD21	1.75	0.67
1:F:239:TYR:O	1:F:254:LEU:HD13	1.95	0.67
1:A:100:PHE:HA	1:A:103:PHE:CD2	2.30	0.67
1:B:325:MET:HG2	1:C:295:MET:CE	2.23	0.67
1:D:239:TYR:O	1:D:254:LEU:HD13	1.94	0.67
1:E:320:GLN:O	1:E:324:LEU:HB2	1.95	0.66
1:C:248:LEU:HB2	1:C:251:ASN:HD22	1.59	0.66
1:D:183:LEU:HD11	2:D:402:FPS:H153	1.78	0.66
1:D:268:HIS:HA	1:D:362:ILE:CD1	2.25	0.66
1:E:115:LYS:NZ	1:E:119:ARG:NH1	2.43	0.66
1:E:115:LYS:NZ	1:E:119:ARG:HH12	1.93	0.66
1:A:327:ASP:OD1	1:C:327:ASP:HB3	1.96	0.66
1:A:318:LEU:CG	1:A:319:GLY:H	2.09	0.66
1:C:245:ASP:HA	1:C:248:LEU:HD13	1.77	0.66
1:F:162:VAL:HG21	1:F:230:PHE:O	1.95	0.66
1:E:46:TYR:O	1:E:50:THR:HG23	1.96	0.66
1:C:82:LEU:HD22	1:C:96:LEU:HD13	1.77	0.65
1:F:343:GLU:OE1	1:F:367:ARG:NH2	2.29	0.65
1:F:233:GLN:HA	1:F:236:TRP:CD1	2.31	0.65
1:C:291:ILE:HB	1:C:292:PRO:HD3	1.76	0.65
1:E:356:SER:HB2	1:E:360:ARG:NH1	2.11	0.65
1:C:254:LEU:HA	1:C:257:GLN:HE21	1.61	0.65
1:F:111:PHE:HD2	1:F:114:SER:HB2	1.61	0.65
1:B:226:GLY:HA3	1:B:228:ARG:NH1	2.11	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:331:MET:HB3	1:E:332:PRO:HD3	1.79	0.65
1:D:163:THR:O	1:D:234:GLU:HB2	1.97	0.64
1:B:310:PHE:O	1:B:311:LYS:HG3	1.98	0.64
1:D:319:GLY:O	1:D:323:THR:HB	1.97	0.64
1:D:185:ARG:HD2	3:D:567:HOH:O	1.98	0.64
1:D:252:ILE:HD11	1:D:307:GLN:HB3	1.79	0.64
1:C:45:LYS:O	1:C:49:GLN:HG3	1.98	0.63
1:E:282:ASN:OD1	1:E:284:SER:HB3	1.98	0.63
1:E:291:ILE:HB	1:E:292:PRO:HD3	1.78	0.63
1:F:320:GLN:NE2	1:F:340:GLN:HE22	1.96	0.63
1:A:320:GLN:O	1:A:324:LEU:HD13	1.98	0.63
1:F:315:LEU:O	1:F:315:LEU:HD12	1.97	0.63
1:E:101:HIS:CE1	1:E:148:ARG:HG3	2.33	0.63
1:B:72:PHE:CZ	1:B:76:LEU:HD11	2.34	0.63
1:D:322:VAL:HB	1:D:340:GLN:NE2	2.14	0.63
1:F:72:PHE:CZ	1:F:76:LEU:HD21	2.33	0.63
1:F:348:ARG:O	1:F:350:PRO:HD3	1.98	0.63
1:C:316:ILE:HD12	1:C:316:ILE:N	2.14	0.62
1:D:73:TYR:HD2	2:D:402:FPS:H143	1.63	0.62
1:B:226:GLY:HA3	1:B:228:ARG:HH12	1.64	0.62
1:D:295:MET:HE1	1:F:324:LEU:HD11	1.81	0.62
1:B:356:SER:O	1:B:360:ARG:HG3	1.99	0.62
1:D:318:LEU:HG	1:D:319:GLY:N	2.14	0.62
1:F:306:ASN:O	1:F:309:VAL:HG23	2.00	0.62
1:A:319:GLY:HA3	1:A:323:THR:HB	1.81	0.62
1:B:145:ASP:O	1:B:149:ARG:HG3	1.98	0.62
1:E:320:GLN:HG3	1:E:321:ALA:N	2.14	0.62
1:B:348:ARG:O	1:B:350:PRO:HD3	2.00	0.62
1:E:215:ASN:N	1:E:215:ASN:HD22	1.98	0.62
1:A:308:GLN:HB3	1:A:314:VAL:HG22	1.80	0.62
1:A:317:ARG:HH21	1:A:317:ARG:CB	2.12	0.62
1:F:94:VAL:HB	1:F:95:PRO:HD3	1.82	0.62
1:C:213:LYS:O	1:C:217:ILE:HG12	2.01	0.61
1:F:252:ILE:HG23	1:F:253:ASP:H	1.64	0.61
1:C:348:ARG:HB3	1:C:348:ARG:HH11	1.64	0.61
1:B:353:ASN:HD22	1:B:355:SER:H	1.49	0.61
1:D:344:GLU:O	1:D:348:ARG:HG3	2.01	0.61
1:E:94:VAL:HG12	1:E:98:HIS:HE1	1.66	0.61
1:F:324:LEU:HD12	1:F:325:MET:N	2.16	0.61
1:F:320:GLN:HG3	1:F:321:ALA:N	2.14	0.61
1:E:316:ILE:HG13	1:E:316:ILE:O	2.01	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:150:MET:O	1:C:154:MET:HG3	2.00	0.61
1:C:254:LEU:HD23	1:C:257:GLN:NE2	2.16	0.61
1:F:52:ARG:H	1:F:52:ARG:HD3	1.66	0.61
1:F:252:ILE:HD13	1:F:252:ILE:C	2.22	0.60
1:F:261:GLU:HB3	1:F:355:SER:OG	2.02	0.60
1:C:331:MET:HB3	1:C:332:PRO:HD3	1.84	0.60
1:B:259:LEU:HD21	1:B:309:VAL:HG21	1.84	0.60
1:D:223:ASP:HA	1:D:228:ARG:HH12	1.65	0.60
1:D:325:MET:HG2	1:E:295:MET:HE1	1.83	0.60
1:A:263:ILE:O	1:A:267:LEU:HG	2.02	0.60
1:E:72:PHE:CZ	1:E:76:LEU:HD11	2.36	0.60
1:D:233:GLN:HA	1:D:236:TRP:CD1	2.37	0.60
1:F:291:ILE:HB	1:F:292:PRO:CD	2.28	0.60
1:D:322:VAL:HB	1:D:340:GLN:HE22	1.67	0.59
1:A:184:SER:HB3	1:A:198:GLY:HA2	1.84	0.59
1:B:259:LEU:O	1:B:263:ILE:HG13	2.02	0.59
1:E:126:PRO:HA	1:E:129:SER:OG	2.02	0.59
1:F:100:PHE:HA	1:F:103:PHE:CD2	2.37	0.59
1:F:178:LEU:HD12	1:F:181:ILE:HD12	1.84	0.59
1:C:54:PHE:O	1:C:58:ILE:HG13	2.02	0.59
1:E:223:ASP:HB3	1:E:228:ARG:HG3	1.85	0.59
1:B:71:ILE:HD11	1:B:131:GLU:HB3	1.84	0.59
1:F:260:ASN:ND2	1:F:353:ASN:ND2	2.50	0.59
1:C:233:GLN:HA	1:C:236:TRP:NE1	2.17	0.59
1:D:118:ASP:O	1:D:121:VAL:HG22	2.02	0.59
1:A:350:PRO:HG2	1:A:353:ASN:HB2	1.85	0.59
1:B:320:GLN:OE1	1:B:340:GLN:HG2	2.03	0.59
1:C:114:SER:O	1:C:115:LYS:HD3	2.03	0.59
1:C:174:TYR:HA	1:C:178:LEU:HD12	1.85	0.59
1:A:259:LEU:HD21	1:A:309:VAL:HG21	1.85	0.59
1:B:271:PRO:HB3	1:B:369:GLN:OE1	2.02	0.59
1:F:165:GLU:OE2	1:F:235:VAL:HG11	2.03	0.59
1:D:324:LEU:HD22	1:E:318:LEU:HD11	1.83	0.59
1:F:213:LYS:O	1:F:217:ILE:HG13	2.03	0.59
1:D:304:TYR:CD2	1:D:345:ILE:HG23	2.38	0.58
1:D:348:ARG:O	1:D:350:PRO:HD3	2.03	0.58
1:F:104:LEU:HD13	1:F:132:PHE:CE1	2.38	0.58
1:F:111:PHE:HB3	1:F:122:LEU:HB3	1.84	0.58
1:A:319:GLY:HA3	1:A:323:THR:CG2	2.33	0.58
1:F:346:TYR:HA	1:F:349:ILE:CD1	2.33	0.58
1:F:243:LEU:HD23	1:F:243:LEU:H	1.69	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:181:ILE:HG23	1:B:201:THR:HG22	1.85	0.58
1:F:323:THR:OG1	1:F:337:ILE:HG12	2.02	0.58
1:D:260:ASN:HD22	1:D:353:ASN:ND2	2.01	0.58
1:E:61:LEU:HA	1:E:284:SER:OG	2.04	0.58
1:F:90:VAL:O	1:F:94:VAL:HG23	2.03	0.58
1:C:50:THR:HG22	1:C:118:ASP:OD1	2.03	0.58
1:E:94:VAL:N	1:E:95:PRO:HD2	2.19	0.58
1:C:246:PHE:CD1	1:C:255:ALA:HA	2.39	0.58
1:F:52:ARG:HH21	1:F:52:ARG:HG3	1.68	0.58
1:D:322:VAL:C	1:D:324:LEU:H	2.05	0.57
1:F:105:TYR:HA	1:F:133:ARG:NH1	2.20	0.57
1:E:100:PHE:C	1:E:102:SER:H	2.06	0.57
1:A:318:LEU:HD23	1:A:319:GLY:N	2.15	0.57
1:A:343:GLU:OE1	1:A:367:ARG:NH2	2.37	0.57
1:B:137:GLU:HB2	3:D:508:HOH:O	2.04	0.57
1:F:255:ALA:HB1	1:F:310:PHE:CE2	2.39	0.57
1:B:150:MET:O	1:B:154:MET:HG3	2.04	0.57
1:B:355:SER:HB3	1:B:358:LYS:HD2	1.86	0.57
1:C:79:LEU:HA	1:C:82:LEU:HD12	1.85	0.57
1:F:79:LEU:HB2	1:F:100:PHE:CE2	2.40	0.57
1:A:104:LEU:HD13	1:A:132:PHE:CZ	2.40	0.57
1:B:254:LEU:HD12	1:B:254:LEU:N	2.18	0.57
1:D:297:ILE:HD12	1:D:338:ILE:HG12	1.85	0.57
1:F:256:VAL:O	1:F:259:LEU:HB3	2.03	0.57
1:E:150:MET:HG3	1:E:174:TYR:O	2.05	0.57
1:F:73:TYR:HA	1:F:76:LEU:HD12	1.86	0.57
1:C:344:GLU:O	1:C:348:ARG:HG3	2.05	0.56
1:D:90:VAL:O	1:D:94:VAL:HG23	2.05	0.56
1:B:308:GLN:HA	1:B:308:GLN:OE1	2.04	0.56
1:C:118:ASP:O	1:C:121:VAL:HG22	2.05	0.56
1:C:203:ARG:HD2	1:C:272:ASP:OD1	2.05	0.56
1:E:320:GLN:HG2	1:E:340:GLN:OE1	2.04	0.56
1:D:295:MET:CE	1:F:324:LEU:HD11	2.35	0.56
1:E:115:LYS:HZ2	1:E:119:ARG:HH12	1.53	0.56
1:E:320:GLN:HG3	1:E:322:VAL:H	1.71	0.56
1:F:92:LYS:C	1:F:95:PRO:HD2	2.25	0.56
1:F:233:GLN:HA	1:F:236:TRP:NE1	2.20	0.56
1:F:246:PHE:CD1	1:F:255:ALA:HA	2.40	0.56
1:F:252:ILE:O	1:F:255:ALA:HB3	2.06	0.56
1:C:317:ARG:HH21	1:C:317:ARG:HG3	1.70	0.56
1:A:248:LEU:HB2	1:A:251:ASN:HD22	1.68	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:260:ASN:ND2	1:E:353:ASN:ND2	2.53	0.56
1:F:114:SER:O	1:F:119:ARG:HD2	2.06	0.56
1:C:297:ILE:HD12	1:C:338:ILE:HG12	1.88	0.56
1:F:103:PHE:HD1	1:F:106:GLN:NE2	2.02	0.56
1:F:163:THR:OG1	1:F:167:GLU:HG3	2.06	0.56
1:F:72:PHE:O	1:F:76:LEU:HG	2.06	0.55
1:F:269:HIS:O	1:F:273:VAL:HG23	2.05	0.55
1:E:362:ILE:O	1:E:366:ILE:HG13	2.06	0.55
1:F:150:MET:O	1:F:154:MET:HG3	2.06	0.55
1:A:357:SER:O	1:A:361:GLN:HB2	2.07	0.55
1:D:41:LYS:HD3	1:F:364:SER:OG	2.07	0.55
1:D:221:LEU:O	1:D:225:GLN:HG3	2.07	0.55
1:F:168:TRP:CE3	1:F:232:PRO:HG3	2.41	0.55
1:B:118:ASP:O	1:B:121:VAL:HG22	2.06	0.55
1:F:235:VAL:HG12	1:F:238:ARG:NH2	2.21	0.55
1:C:214:THR:HG23	1:C:300:LEU:CD2	2.36	0.55
1:D:343:GLU:OE1	1:D:367:ARG:NH2	2.40	0.55
1:F:104:LEU:O	1:F:133:ARG:NH1	2.40	0.55
1:F:320:GLN:CG	1:F:321:ALA:N	2.69	0.55
1:E:104:LEU:O	1:E:133:ARG:NH1	2.40	0.55
1:D:301:ALA:HA	1:D:345:ILE:HD11	1.88	0.55
1:E:94:VAL:HG12	1:E:98:HIS:CE1	2.42	0.55
1:E:271:PRO:HB3	1:E:369:GLN:OE1	2.06	0.55
1:E:297:ILE:HD12	1:E:338:ILE:HG12	1.89	0.55
1:E:115:LYS:HZ3	1:E:119:ARG:NH1	2.05	0.55
1:E:170:LYS:HD2	1:E:174:TYR:HE2	1.72	0.55
1:F:252:ILE:HD13	1:F:253:ASP:N	2.22	0.55
1:B:250:GLU:O	1:B:250:GLU:HG2	2.07	0.55
1:E:218:ARG:HD2	1:E:219:ASP:OD1	2.06	0.54
1:E:236:TRP:CE2	1:E:243:LEU:HB2	2.42	0.54
1:B:233:GLN:HA	1:B:236:TRP:CD1	2.42	0.54
1:E:105:TYR:O	1:E:107:PRO:HD3	2.06	0.54
1:E:229:GLU:HB3	1:E:243:LEU:HD23	1.89	0.54
1:E:262:LEU:O	1:E:265:ASN:HB3	2.07	0.54
1:F:232:PRO:O	1:F:236:TRP:HD1	1.90	0.54
1:D:71:ILE:CD1	1:D:131:GLU:HB3	2.37	0.54
1:E:221:LEU:O	1:E:225:GLN:HG3	2.07	0.54
1:B:157:PHE:HA	1:B:160:LYS:HG2	1.89	0.54
1:C:162:VAL:HG11	1:C:168:TRP:HA	1.89	0.54
1:E:172:CYS:HB3	1:E:209:LEU:HD22	1.87	0.54
1:F:105:TYR:O	1:F:107:PRO:HD3	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:319:GLY:HA3	1:A:323:THR:CB	2.37	0.54
1:B:176:ALA:CB	1:B:212:GLN:HB2	2.37	0.54
1:D:323:THR:HG22	1:D:323:THR:O	2.08	0.54
1:A:42:THR:HG22	1:A:46:TYR:CE2	2.43	0.54
1:B:125:PHE:N	1:B:126:PRO:CD	2.71	0.54
1:E:156:GLU:O	1:E:156:GLU:HG2	2.07	0.54
1:D:315:LEU:HD12	1:D:315:LEU:N	2.23	0.54
1:E:95:PRO:HG2	1:E:96:LEU:H	1.72	0.54
1:F:73:TYR:HA	1:F:76:LEU:CD1	2.37	0.54
1:F:236:TRP:CZ2	1:F:243:LEU:HD22	2.43	0.54
1:B:256:VAL:HG13	1:B:305:ASN:HA	1.89	0.54
1:B:193:GLU:HB3	1:B:197:VAL:HG21	1.90	0.54
1:C:318:LEU:HD12	1:C:318:LEU:N	2.22	0.54
1:D:308:GLN:NE2	1:D:311:LYS:HB2	2.23	0.53
1:E:45:LYS:O	1:E:49:GLN:HB2	2.08	0.53
1:A:105:TYR:O	1:A:107:PRO:HD3	2.08	0.53
1:A:241:LYS:HB2	1:A:241:LYS:NZ	2.23	0.53
1:C:246:PHE:CE1	1:C:255:ALA:HA	2.44	0.53
1:F:115:LYS:NZ	1:F:115:LYS:HB3	2.23	0.53
1:F:148:ARG:HG2	1:F:148:ARG:HH21	1.73	0.53
1:F:320:GLN:HB3	1:F:340:GLN:OE1	2.08	0.53
1:B:176:ALA:HB2	1:B:212:GLN:HB2	1.90	0.53
1:E:216:ILE:HG23	1:E:230:PHE:HB2	1.90	0.53
1:F:142:VAL:O	1:F:146:ILE:HG12	2.09	0.53
1:F:156:GLU:O	1:F:160:LYS:HE2	2.09	0.53
1:B:94:VAL:HB	1:B:95:PRO:HD3	1.91	0.53
1:C:113:GLU:O	1:C:115:LYS:HE2	2.08	0.53
1:D:260:ASN:HD22	1:D:353:ASN:HD22	1.56	0.53
1:C:242:LYS:HG2	1:C:245:ASP:CG	2.29	0.53
1:A:363:ILE:O	1:A:367:ARG:HG2	2.08	0.53
1:C:336:ALA:O	1:C:340:GLN:HB2	2.09	0.53
1:B:320:GLN:HB2	1:B:340:GLN:CD	2.29	0.53
1:D:51:SER:HB2	1:D:73:TYR:OH	2.09	0.53
1:E:293:GLN:O	1:E:297:ILE:HG13	2.09	0.53
1:D:51:SER:C	1:D:53:SER:H	2.11	0.52
1:D:323:THR:HA	1:D:326:MET:HG2	1.91	0.52
1:B:51:SER:HB2	1:B:73:TYR:OH	2.08	0.52
1:B:195:PRO:HG3	3:B:532:HOH:O	2.08	0.52
1:D:291:ILE:HB	1:D:292:PRO:HD3	1.91	0.52
1:D:347:HIS:O	1:D:348:ARG:HG2	2.09	0.52
1:F:242:LYS:O	1:F:244:GLY:N	2.37	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:238:ARG:NH1	1:B:238:ARG:CB	2.70	0.52
1:D:94:VAL:HB	1:D:95:PRO:CD	2.35	0.52
1:E:320:GLN:CG	1:E:321:ALA:H	2.23	0.52
1:E:321:ALA:HA	1:E:324:LEU:HB3	1.90	0.52
1:F:231:TRP:HB2	1:F:243:LEU:HD12	1.90	0.52
1:F:322:VAL:HG12	1:F:323:THR:N	2.25	0.52
1:E:170:LYS:HD2	1:E:174:TYR:CE2	2.44	0.52
1:F:252:ILE:HG23	1:F:253:ASP:N	2.24	0.52
1:F:267:LEU:HA	1:F:270:ILE:HD13	1.92	0.52
1:F:356:SER:O	1:F:358:LYS:N	2.41	0.52
1:A:179:VAL:O	1:A:183:LEU:HG	2.09	0.52
1:A:233:GLN:C	1:A:235:VAL:H	2.12	0.52
1:D:364:SER:HA	1:D:367:ARG:HD2	1.90	0.52
1:E:153:GLY:HA3	1:E:174:TYR:CG	2.45	0.52
1:E:330:ASN:O	1:E:334:VAL:HG23	2.10	0.52
1:C:343:GLU:OE2	1:C:367:ARG:NH2	2.41	0.52
1:E:110:ARG:CD	1:E:112:MET:HG2	2.39	0.52
1:F:242:LYS:C	1:F:244:GLY:H	2.14	0.52
1:D:90:VAL:C	1:D:92:LYS:H	2.14	0.51
1:D:259:LEU:HD21	1:D:303:CYS:O	2.09	0.51
1:D:343:GLU:CD	1:D:367:ARG:HH21	2.14	0.51
1:F:259:LEU:HD21	1:F:309:VAL:HG21	1.91	0.51
1:A:252:ILE:HD11	1:A:307:GLN:HB3	1.91	0.51
1:D:320:GLN:OE1	1:D:321:ALA:N	2.38	0.51
1:C:323:THR:CG2	1:C:323:THR:O	2.58	0.51
1:E:356:SER:O	1:E:360:ARG:HG3	2.11	0.51
1:F:131:GLU:OE1	1:F:131:GLU:HA	2.10	0.51
1:F:132:PHE:C	1:F:132:PHE:CD2	2.83	0.51
1:B:220:TYR:CD2	1:B:221:LEU:N	2.79	0.51
1:C:239:TYR:O	1:C:254:LEU:HD13	2.11	0.51
1:E:307:GLN:HG3	3:E:517:HOH:O	2.10	0.51
1:E:338:ILE:O	1:E:342:MET:HG2	2.11	0.51
1:E:238:ARG:CB	1:E:238:ARG:HH11	2.23	0.51
1:C:348:ARG:HB3	1:C:348:ARG:NH1	2.26	0.51
1:E:269:HIS:O	1:E:273:VAL:HG23	2.09	0.51
1:B:255:ALA:HB1	1:B:310:PHE:CE2	2.46	0.51
1:E:190:SER:HG	1:E:192:PHE:HD2	1.57	0.51
1:E:332:PRO:HB2	1:F:287:ASN:ND2	2.26	0.51
1:F:93:LYS:CD	1:F:158:LEU:HD11	2.34	0.51
1:D:138:LYS:HE3	1:D:139:TYR:CZ	2.46	0.50
1:F:51:SER:HA	3:F:538:HOH:O	2.10	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:157:PHE:CE2	1:B:160:LYS:HE3	2.46	0.50
1:A:94:VAL:HB	1:A:95:PRO:HD3	1.94	0.50
1:B:317:ARG:O	1:B:317:ARG:HG2	2.12	0.50
1:D:326:MET:HE2	1:D:333:ALA:HA	1.93	0.50
1:F:52:ARG:HG3	1:F:52:ARG:NH2	2.26	0.50
1:F:362:ILE:HG23	1:F:363:ILE:N	2.27	0.50
1:E:144:ALA:O	1:E:146:ILE:N	2.44	0.50
1:F:309:VAL:HG12	1:F:309:VAL:O	2.11	0.50
1:E:182:GLY:O	1:E:186:LEU:HG	2.12	0.50
1:E:236:TRP:CD1	1:E:243:LEU:HD13	2.47	0.50
1:C:61:LEU:HA	1:C:284:SER:HB2	1.94	0.50
1:D:320:GLN:NE2	1:D:340:GLN:NE2	2.59	0.50
1:E:327:ASP:OD2	1:E:329:THR:HG23	2.12	0.50
1:F:241:LYS:HD2	1:F:241:LYS:N	2.26	0.50
1:B:293:GLN:O	1:B:297:ILE:HG13	2.11	0.50
1:D:163:THR:OG1	1:D:164:SER:N	2.45	0.50
1:D:223:ASP:HA	1:D:228:ARG:NH1	2.26	0.50
1:E:318:LEU:N	1:E:318:LEU:HD12	2.26	0.50
1:F:270:ILE:HB	1:F:271:PRO:HD3	1.94	0.50
1:B:251:ASN:O	1:B:254:LEU:N	2.44	0.50
1:C:320:GLN:HG3	1:C:321:ALA:N	2.27	0.49
1:D:85:ASP:HB3	1:D:88:ILE:HD12	1.94	0.49
1:E:116:GLU:O	1:E:119:ARG:HD3	2.11	0.49
1:E:325:MET:HE1	1:F:294:VAL:HG11	1.93	0.49
1:C:335:LYS:HB3	1:C:339:TYR:CE2	2.47	0.49
1:C:365:THR:O	1:C:369:GLN:HG3	2.12	0.49
1:E:144:ALA:C	1:E:146:ILE:H	2.16	0.49
1:F:57:VAL:HG23	1:F:288:PHE:HD1	1.77	0.49
1:F:245:ASP:HB3	1:F:251:ASN:HD21	1.76	0.49
1:A:291:ILE:CD1	1:C:326:MET:SD	3.00	0.49
1:A:319:GLY:HA3	1:A:323:THR:HG21	1.92	0.49
1:D:53:SER:HB3	2:D:401:FPS:O3B	2.13	0.49
1:D:287:ASN:HD22	1:F:332:PRO:HB2	1.77	0.49
1:D:94:VAL:HG13	1:D:155:ALA:HB1	1.94	0.49
1:F:79:LEU:HD13	1:F:100:PHE:CG	2.47	0.49
1:F:331:MET:O	1:F:335:LYS:HG3	2.12	0.49
1:C:323:THR:O	1:C:323:THR:HG22	2.11	0.49
1:E:185:ARG:HG3	1:E:185:ARG:NH1	2.24	0.49
1:F:207:MET:SD	1:F:273:VAL:HG13	2.53	0.49
1:F:242:LYS:HB2	1:F:245:ASP:OD1	2.13	0.49
1:E:323:THR:OG1	1:E:340:GLN:NE2	2.45	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:221:LEU:HD22	1:F:310:PHE:O	2.12	0.49
1:A:194:ASP:CG	1:D:281:ARG:HH21	2.14	0.49
1:A:291:ILE:HD11	1:C:326:MET:SD	2.53	0.49
1:B:236:TRP:HB2	1:B:246:PHE:HE2	1.78	0.49
1:B:331:MET:HB3	1:B:332:PRO:HD3	1.94	0.49
1:C:353:ASN:HD22	1:C:356:SER:N	2.11	0.49
1:E:220:TYR:CD2	1:E:221:LEU:N	2.81	0.49
1:C:316:ILE:N	1:C:316:ILE:CD1	2.75	0.49
1:D:194:ASP:CG	1:D:195:PRO:HD2	2.33	0.49
1:E:94:VAL:CG1	1:E:98:HIS:HE1	2.26	0.49
1:E:129:SER:O	1:E:132:PHE:HB3	2.12	0.49
1:F:260:ASN:HD22	1:F:353:ASN:ND2	2.10	0.49
1:A:190:SER:O	1:A:191:GLU:HB2	2.13	0.49
1:C:326:MET:HE2	1:C:333:ALA:CB	2.43	0.49
1:B:244:GLY:O	1:B:247:ALA:HB3	2.13	0.48
1:C:78:ALA:O	1:C:81:THR:N	2.46	0.48
1:D:233:GLN:HA	1:D:236:TRP:NE1	2.28	0.48
1:E:124:ASP:OD1	1:E:127:THR:HB	2.13	0.48
1:F:251:ASN:O	1:F:253:ASP:N	2.45	0.48
1:A:45:LYS:O	1:A:49:GLN:HG3	2.13	0.48
1:D:325:MET:HG2	1:E:295:MET:CE	2.42	0.48
1:F:125:PHE:O	1:F:128:ILE:N	2.46	0.48
1:A:259:LEU:O	1:A:263:ILE:HG13	2.12	0.48
1:B:213:LYS:HE2	1:B:265:ASN:OD1	2.12	0.48
1:A:210:PHE:CZ	1:A:297:ILE:HD13	2.48	0.48
1:A:233:GLN:HA	1:A:236:TRP:NE1	2.28	0.48
1:B:210:PHE:CZ	1:B:297:ILE:HG12	2.48	0.48
1:A:291:ILE:HD11	1:C:326:MET:CG	2.43	0.48
1:A:150:MET:HG3	1:A:174:TYR:O	2.14	0.48
1:A:335:LYS:HB3	1:A:339:TYR:CE2	2.47	0.48
1:A:348:ARG:O	1:A:350:PRO:HD3	2.13	0.48
1:C:241:LYS:NZ	1:C:241:LYS:HB3	2.28	0.48
1:C:253:ASP:O	1:C:257:GLN:HG3	2.13	0.48
1:C:317:ARG:HG3	1:C:317:ARG:NH2	2.28	0.48
1:C:368:THR:O	1:C:368:THR:OG1	2.32	0.48
1:D:51:SER:C	1:D:53:SER:N	2.65	0.48
1:F:65:MET:O	1:F:69:VAL:HG23	2.14	0.48
1:F:251:ASN:O	1:F:252:ILE:C	2.51	0.48
1:E:39:SER:O	1:E:42:THR:HB	2.14	0.48
1:E:248:LEU:HB3	1:E:250:GLU:HG3	1.96	0.48
1:A:130:LEU:HD12	1:A:130:LEU:O	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:252:ILE:CG2	1:B:307:GLN:HG2	2.43	0.48
1:F:72:PHE:CD1	1:F:143:ILE:HG23	2.49	0.48
1:F:259:LEU:O	1:F:263:ILE:HG13	2.14	0.48
1:A:268:HIS:O	1:A:271:PRO:HD2	2.14	0.48
1:B:183:LEU:HD12	2:B:401:FPS:H143	1.96	0.48
1:B:252:ILE:HD11	1:B:311:LYS:NZ	2.29	0.48
1:B:348:ARG:NH1	1:B:348:ARG:HB2	2.29	0.48
1:C:242:LYS:HG2	1:C:245:ASP:OD2	2.13	0.48
1:F:54:PHE:O	1:F:55:ALA:C	2.52	0.48
1:F:248:LEU:CD2	1:F:250:GLU:HG2	2.40	0.48
1:A:150:MET:O	1:A:154:MET:HG3	2.14	0.48
1:E:89:SER:OG	1:E:91:GLU:HG3	2.13	0.48
1:E:320:GLN:HG3	1:E:321:ALA:H	1.77	0.48
1:B:253:ASP:O	1:B:257:GLN:HG3	2.14	0.47
1:D:111:PHE:HB3	1:D:122:LEU:HB3	1.95	0.47
1:D:125:PHE:N	1:D:126:PRO:CD	2.77	0.47
1:D:229:GLU:HG3	1:D:243:LEU:CD2	2.42	0.47
1:E:297:ILE:CD1	1:E:338:ILE:HG12	2.44	0.47
1:F:322:VAL:CG1	1:F:323:THR:N	2.77	0.47
1:A:262:LEU:O	1:A:265:ASN:HB3	2.14	0.47
1:B:262:LEU:O	1:B:265:ASN:HB3	2.14	0.47
1:D:79:LEU:HB2	1:D:100:PHE:CE2	2.49	0.47
1:F:215:ASN:O	1:F:219:ASP:OD1	2.31	0.47
1:A:125:PHE:N	1:A:126:PRO:CD	2.77	0.47
1:B:177:GLY:HA3	1:B:205:ASN:OD1	2.14	0.47
1:E:270:ILE:HB	1:E:271:PRO:HD3	1.94	0.47
1:A:36:LEU:HB2	3:A:551:HOH:O	2.14	0.47
1:B:322:VAL:HB	1:B:340:GLN:OE1	2.14	0.47
1:D:202:GLU:OE1	1:D:202:GLU:HA	2.14	0.47
1:D:365:THR:HG22	1:D:369:GLN:OE1	2.14	0.47
1:C:47:LEU:O	1:C:51:SER:HB3	2.15	0.47
1:C:252:ILE:HG23	1:C:253:ASP:N	2.28	0.47
1:C:318:LEU:N	1:C:318:LEU:CD1	2.78	0.47
1:D:287:ASN:ND2	1:F:332:PRO:HB2	2.29	0.47
1:E:75:VAL:HG23	1:E:76:LEU:N	2.30	0.47
1:F:148:ARG:HG2	1:F:148:ARG:NH2	2.29	0.47
1:F:297:ILE:HD13	1:F:338:ILE:HG23	1.96	0.47
1:F:346:TYR:HA	1:F:349:ILE:HD11	1.95	0.47
1:E:36:LEU:N	1:E:36:LEU:HD23	2.30	0.47
1:E:119:ARG:O	1:E:123:GLU:HG3	2.15	0.47
1:E:156:GLU:O	1:E:156:GLU:CG	2.62	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:72:PHE:HD1	1:F:143:ILE:HG23	1.79	0.47
1:F:96:LEU:HD23	1:F:103:PHE:HE2	1.79	0.47
1:A:330:ASN:HD21	1:B:329:THR:HG21	1.79	0.47
1:E:291:ILE:O	1:E:295:MET:HG2	2.15	0.47
1:F:82:LEU:HG	1:F:122:LEU:HD21	1.97	0.47
1:B:316:ILE:HG22	1:B:316:ILE:O	2.13	0.47
1:B:355:SER:CB	1:B:358:LYS:HD2	2.44	0.47
1:D:318:LEU:CG	1:D:319:GLY:N	2.78	0.47
1:C:242:LYS:HE3	1:C:245:ASP:OD1	2.15	0.47
1:E:88:ILE:HB	1:E:93:LYS:HE3	1.96	0.47
1:A:326:MET:CE	1:B:287:ASN:ND2	2.78	0.46
1:B:320:GLN:HB2	1:B:340:GLN:NE2	2.31	0.46
1:D:343:GLU:OE2	1:D:367:ARG:NH2	2.38	0.46
1:F:248:LEU:HD21	1:F:250:GLU:CG	2.40	0.46
1:A:170:LYS:O	1:A:173:HIS:HB3	2.15	0.46
1:B:233:GLN:HA	1:B:236:TRP:NE1	2.31	0.46
1:C:72:PHE:HZ	1:C:146:ILE:HG21	1.79	0.46
1:C:353:ASN:O	1:C:356:SER:HB3	2.16	0.46
1:D:253:ASP:O	1:D:257:GLN:HB2	2.15	0.46
1:E:101:HIS:ND1	1:E:148:ARG:CG	2.73	0.46
1:C:333:ALA:O	1:C:337:ILE:HG13	2.16	0.46
1:D:323:THR:CG2	1:D:337:ILE:HG12	2.42	0.46
1:F:162:VAL:HG23	1:F:232:PRO:HA	1.97	0.46
1:F:323:THR:O	1:F:323:THR:HG23	2.16	0.46
1:A:308:GLN:HG2	1:A:313:ALA:O	2.16	0.46
1:B:58:ILE:HD13	1:B:69:VAL:HG12	1.97	0.46
1:F:92:LYS:O	1:F:95:PRO:HD2	2.16	0.46
3:A:590:HOH:O	1:D:196:LEU:HB2	2.15	0.46
1:D:320:GLN:CD	1:D:321:ALA:H	2.16	0.46
1:D:322:VAL:C	1:D:324:LEU:N	2.68	0.46
1:E:323:THR:CG2	1:E:323:THR:O	2.64	0.46
1:A:264:THR:HG21	1:A:358:LYS:HB3	1.97	0.46
1:D:325:MET:O	1:E:327:ASP:HB2	2.16	0.46
1:E:318:LEU:HA	1:E:341:TYR:OH	2.15	0.46
1:B:263:ILE:HG23	1:B:300:LEU:HD22	1.98	0.46
1:C:223:ASP:OD1	1:C:228:ARG:NH2	2.48	0.46
1:C:242:LYS:O	1:C:244:GLY:N	2.49	0.46
1:D:190:SER:O	1:D:191:GLU:HB2	2.15	0.46
1:D:343:GLU:CD	1:D:367:ARG:NH2	2.69	0.46
1:D:362:ILE:HG23	1:D:363:ILE:N	2.30	0.46
1:E:325:MET:O	1:F:327:ASP:HB2	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:256:VAL:HG13	1:A:305:ASN:HA	1.97	0.46
1:A:353:ASN:HD22	1:A:355:SER:H	1.64	0.46
1:B:367:ARG:O	1:C:66:ARG:NH1	2.49	0.46
1:D:153:GLY:O	1:D:156:GLU:HB3	2.16	0.46
1:F:89:SER:HB2	1:F:91:GLU:OE2	2.15	0.46
1:B:325:MET:HE2	1:C:294:VAL:HG12	1.98	0.45
1:C:150:MET:HG3	1:C:174:TYR:O	2.16	0.45
1:D:107:PRO:O	1:D:126:PRO:HB3	2.16	0.45
1:D:163:THR:HA	1:D:233:GLN:HE22	1.77	0.45
1:E:320:GLN:CG	1:E:321:ALA:N	2.75	0.45
1:F:201:THR:HA	1:F:204:ALA:HB3	1.98	0.45
1:E:58:ILE:HG23	1:E:69:VAL:HG12	1.98	0.45
1:E:197:VAL:HG12	1:E:198:GLY:N	2.30	0.45
1:F:199:GLU:O	1:F:201:THR:HG23	2.16	0.45
1:F:211:LEU:O	1:F:214:THR:HB	2.16	0.45
1:F:136:ALA:HB3	1:F:139:TYR:CD2	2.52	0.45
1:B:236:TRP:CZ3	1:B:243:LEU:N	2.85	0.45
1:D:268:HIS:CG	1:D:362:ILE:HD12	2.51	0.45
1:A:322:VAL:HG13	1:B:291:ILE:HG21	1.98	0.45
1:D:220:TYR:HB2	1:D:231:TRP:CZ2	2.51	0.45
1:D:330:ASN:HD21	1:E:329:THR:HG21	1.81	0.45
1:A:224:GLN:NE2	3:A:624:HOH:O	2.49	0.45
1:B:73:TYR:CD1	1:B:73:TYR:C	2.90	0.45
1:D:52:ARG:HG2	1:D:52:ARG:HH21	1.81	0.45
1:E:202:GLU:OE2	1:E:202:GLU:HA	2.17	0.45
1:C:190:SER:O	1:C:191:GLU:HB2	2.17	0.45
1:B:320:GLN:HB2	1:B:340:GLN:OE1	2.17	0.45
1:C:304:TYR:OH	1:C:349:ILE:HG12	2.17	0.45
1:E:144:ALA:C	1:E:146:ILE:N	2.70	0.45
1:F:350:PRO:HG2	1:F:353:ASN:HB2	1.97	0.45
1:B:162:VAL:CG1	1:B:168:TRP:HA	2.47	0.45
1:D:66:ARG:NH2	1:F:367:ARG:O	2.47	0.45
1:E:136:ALA:O	1:E:138:LYS:N	2.49	0.45
1:E:215:ASN:N	1:E:215:ASN:ND2	2.64	0.45
1:F:149:ARG:HH22	1:F:185:ARG:HH12	1.65	0.45
1:A:118:ASP:O	1:A:121:VAL:HG22	2.16	0.45
1:A:181:ILE:O	1:A:185:ARG:HG3	2.17	0.44
1:D:236:TRP:HE3	1:D:236:TRP:O	2.00	0.44
1:E:83:GLU:HB2	1:E:154:MET:CE	2.46	0.44
1:C:146:ILE:HG22	1:C:150:MET:HE3	1.97	0.44
1:D:44:TYR:CD2	1:F:368:THR:HG22	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:110:ARG:HD3	1:E:112:MET:HG2	2.00	0.44
1:E:155:ALA:C	1:E:157:PHE:H	2.20	0.44
1:F:262:LEU:HD23	1:F:262:LEU:HA	1.86	0.44
1:C:268:HIS:CD2	1:C:362:ILE:HD13	2.53	0.44
1:C:317:ARG:NH1	3:C:578:HOH:O	2.49	0.44
1:C:364:SER:O	1:C:368:THR:CG2	2.65	0.44
1:D:316:ILE:N	1:D:316:ILE:HD12	2.33	0.44
1:A:252:ILE:HG23	1:A:253:ASP:N	2.32	0.44
1:A:291:ILE:HB	1:A:292:PRO:HD3	1.98	0.44
1:B:157:PHE:CD2	1:B:160:LYS:HE3	2.52	0.44
1:B:210:PHE:HZ	1:B:297:ILE:HG12	1.83	0.44
1:B:348:ARG:HB2	1:B:348:ARG:HH11	1.83	0.44
1:C:319:GLY:O	1:C:320:GLN:C	2.56	0.44
1:E:236:TRP:CG	1:E:243:LEU:HD13	2.53	0.44
1:F:235:VAL:CG1	1:F:238:ARG:HH21	2.29	0.44
1:B:91:GLU:CD	1:B:91:GLU:H	2.20	0.44
1:F:125:PHE:HE2	1:F:129:SER:HB3	1.83	0.44
1:F:287:ASN:O	1:F:291:ILE:HG12	2.17	0.44
1:B:72:PHE:CE1	1:B:76:LEU:HD11	2.52	0.44
1:B:116:GLU:O	1:B:119:ARG:HD2	2.18	0.44
1:B:343:GLU:OE1	1:C:48:ASN:HB3	2.18	0.44
1:C:132:PHE:HE1	1:C:143:ILE:HB	1.82	0.44
1:C:316:ILE:CD1	1:C:316:ILE:H	2.31	0.44
1:E:233:GLN:HA	1:E:236:TRP:CD1	2.52	0.44
1:C:348:ARG:O	1:C:350:PRO:HD3	2.18	0.44
1:E:181:ILE:HG23	1:E:185:ARG:NH1	2.33	0.44
1:F:237:SER:C	1:F:239:TYR:H	2.21	0.44
1:A:323:THR:OG1	1:A:340:GLN:NE2	2.51	0.44
1:B:248:LEU:HA	1:B:249:PRO:HD3	1.85	0.44
1:C:46:TYR:CE1	1:C:120:GLN:HG2	2.52	0.44
1:C:254:LEU:HD23	1:C:257:GLN:HE21	1.83	0.44
1:D:162:VAL:HG12	1:D:232:PRO:HA	1.98	0.44
1:E:233:GLN:HA	1:E:236:TRP:CE2	2.52	0.44
1:D:120:GLN:OE1	1:D:120:GLN:HA	2.18	0.43
1:F:133:ARG:HG3	1:F:133:ARG:HH11	1.83	0.43
1:F:89:SER:OG	1:F:92:LYS:HB3	2.19	0.43
1:F:125:PHE:CE2	1:F:129:SER:HB3	2.52	0.43
1:F:296:ALA:O	1:F:299:THR:HB	2.18	0.43
1:F:310:PHE:C	1:F:311:LYS:HE2	2.38	0.43
1:B:256:VAL:CG1	1:B:305:ASN:HA	2.48	0.43
1:B:229:GLU:HG2	1:B:243:LEU:HD23	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:252:ILE:HA	1:B:255:ALA:HB3	2.00	0.43
1:B:255:ALA:HB1	1:B:310:PHE:CD2	2.53	0.43
1:B:292:PRO:O	1:B:295:MET:HB2	2.18	0.43
1:B:343:GLU:OE1	1:B:367:ARG:NH2	2.51	0.43
1:D:318:LEU:HG	1:D:319:GLY:H	1.81	0.43
1:E:368:THR:OG1	1:F:41:LYS:HA	2.17	0.43
1:F:260:ASN:O	1:F:263:ILE:N	2.50	0.43
1:C:262:LEU:O	1:C:265:ASN:HB3	2.18	0.43
1:D:150:MET:HE3	1:D:150:MET:HB2	1.91	0.43
1:D:320:GLN:OE1	1:D:322:VAL:N	2.52	0.43
1:F:39:SER:HB2	1:F:131:GLU:OE2	2.18	0.43
1:F:224:GLN:C	1:F:226:GLY:H	2.22	0.43
1:A:210:PHE:HZ	1:A:297:ILE:HD13	1.84	0.43
1:B:242:LYS:HB2	1:B:245:ASP:OD2	2.17	0.43
1:D:326:MET:CE	1:D:333:ALA:HA	2.48	0.43
1:C:105:TYR:O	1:C:107:PRO:HD3	2.18	0.43
1:C:248:LEU:HD23	1:C:250:GLU:OE1	2.19	0.43
1:E:88:ILE:HG22	1:E:93:LYS:HB2	2.00	0.43
1:E:150:MET:HG2	1:E:154:MET:SD	2.59	0.43
1:E:153:GLY:HA3	1:E:174:TYR:CD1	2.54	0.43
1:B:330:ASN:O	1:B:334:VAL:HG23	2.19	0.43
1:E:115:LYS:HG3	1:E:115:LYS:O	2.19	0.43
1:E:297:ILE:HD13	1:E:338:ILE:HG23	2.00	0.43
1:E:92:LYS:O	1:E:95:PRO:HG2	2.19	0.43
1:E:326:MET:CE	1:F:287:ASN:HB3	2.49	0.43
1:F:40:LEU:O	1:F:43:CYS:HB2	2.19	0.43
1:F:168:TRP:CH2	1:F:262:LEU:HD22	2.54	0.43
1:F:176:ALA:CB	1:F:212:GLN:HB2	2.48	0.43
1:F:320:GLN:HG3	1:F:321:ALA:H	1.82	0.43
1:D:252:ILE:O	1:D:255:ALA:HB3	2.19	0.42
1:D:332:PRO:O	1:D:335:LYS:HB2	2.18	0.42
1:E:184:SER:HB3	1:E:198:GLY:HA2	2.00	0.42
1:F:357:SER:O	1:F:361:GLN:N	2.46	0.42
1:D:51:SER:O	1:D:53:SER:N	2.52	0.42
1:E:259:LEU:HG	1:E:263:ILE:CD1	2.49	0.42
1:F:324:LEU:CD1	1:F:325:MET:HG2	2.49	0.42
1:F:331:MET:HB3	1:F:332:PRO:HD3	2.01	0.42
1:C:327:ASP:OD2	1:C:329:THR:OG1	2.29	0.42
1:E:93:LYS:C	1:E:95:PRO:HD2	2.39	0.42
1:E:295:MET:HE2	1:E:295:MET:HA	2.01	0.42
1:F:83:GLU:HG3	1:F:154:MET:HB3	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:55:ALA:O	1:B:59:GLN:HG3	2.18	0.42
1:C:100:PHE:HA	1:C:103:PHE:CD2	2.54	0.42
1:C:245:ASP:O	1:C:248:LEU:HB2	2.20	0.42
1:E:179:VAL:O	1:E:183:LEU:HG	2.19	0.42
1:F:101:HIS:CG	1:F:148:ARG:HG3	2.54	0.42
1:A:45:LYS:HG2	1:A:49:GLN:NE2	2.34	0.42
1:A:291:ILE:O	1:A:295:MET:HG2	2.20	0.42
1:A:304:TYR:O	1:A:348:ARG:NH2	2.53	0.42
1:C:248:LEU:HB2	1:C:251:ASN:ND2	2.29	0.42
1:D:164:SER:HA	1:D:234:GLU:HB2	2.01	0.42
1:A:318:LEU:HD21	3:C:612:HOH:O	2.19	0.42
1:C:214:THR:HG23	1:C:300:LEU:HD21	2.02	0.42
1:D:327:ASP:OD1	1:E:327:ASP:OD2	2.38	0.42
1:E:88:ILE:CG2	1:E:93:LYS:HB2	2.49	0.42
1:F:149:ARG:HB2	1:F:178:LEU:HD21	2.02	0.42
1:C:306:ASN:HD21	1:C:308:GLN:HB2	1.85	0.42
1:A:130:LEU:HD11	3:A:656:HOH:O	2.20	0.42
1:A:255:ALA:HB1	1:A:310:PHE:CE2	2.55	0.42
1:B:163:THR:OG1	1:B:164:SER:N	2.52	0.42
1:E:146:ILE:CD1	1:E:182:GLY:HA3	2.50	0.42
1:A:233:GLN:C	1:A:235:VAL:N	2.72	0.42
1:A:255:ALA:HB1	1:A:310:PHE:CZ	2.54	0.42
1:B:195:PRO:O	1:B:199:GLU:HG3	2.20	0.42
1:C:176:ALA:CB	1:C:212:GLN:HB2	2.50	0.42
1:D:104:LEU:HB3	1:D:132:PHE:CE2	2.55	0.42
1:E:142:VAL:HG13	1:E:185:ARG:HD3	2.01	0.42
1:A:353:ASN:ND2	1:A:355:SER:H	2.18	0.41
1:B:245:ASP:C	1:B:247:ALA:N	2.72	0.41
1:C:233:GLN:HG2	1:C:236:TRP:CZ2	2.55	0.41
1:D:248:LEU:HD12	1:D:248:LEU:N	2.34	0.41
1:F:72:PHE:CE1	1:F:76:LEU:HD21	2.54	0.41
1:F:77:ARG:O	1:F:77:ARG:HD3	2.20	0.41
1:F:345:ILE:O	1:F:349:ILE:HG13	2.20	0.41
1:C:74:LEU:O	1:C:77:ARG:HB3	2.20	0.41
1:C:239:TYR:CD2	1:C:258:CYS:HB2	2.55	0.41
1:D:261:GLU:O	1:D:264:THR:HB	2.21	0.41
1:C:66:ARG:HG2	1:C:66:ARG:HH21	1.86	0.41
1:D:368:THR:O	1:E:66:ARG:NH2	2.54	0.41
1:E:334:VAL:O	1:E:338:ILE:HG13	2.20	0.41
1:F:260:ASN:ND2	1:F:353:ASN:HD21	2.17	0.41
1:A:163:THR:HA	1:A:233:GLN:HB3	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:248:LEU:HB2	1:B:251:ASN:HD22	1.86	0.41
1:D:139:TYR:O	1:D:143:ILE:HG13	2.21	0.41
1:E:54:PHE:O	1:E:58:ILE:HG13	2.21	0.41
1:F:151:GLY:O	1:F:152:ILE:C	2.57	0.41
1:A:45:LYS:HE3	1:A:49:GLN:HE22	1.85	0.41
1:C:199:GLU:O	1:C:201:THR:N	2.54	0.41
1:C:240:VAL:HG13	1:C:246:PHE:CE1	2.55	0.41
1:E:223:ASP:OD1	1:E:228:ARG:NE	2.53	0.41
1:F:268:HIS:HA	1:F:362:ILE:HD11	2.03	0.41
1:A:318:LEU:CG	1:A:319:GLY:N	2.79	0.41
1:B:291:ILE:HD13	1:B:328:ALA:HB3	2.02	0.41
1:E:100:PHE:C	1:E:102:SER:N	2.71	0.41
1:E:115:LYS:HZ2	1:E:119:ARG:NH1	2.11	0.41
1:C:150:MET:HE3	1:C:150:MET:HB2	1.99	0.41
1:E:325:MET:CE	1:F:294:VAL:CG1	2.98	0.41
1:F:311:LYS:HE2	1:F:311:LYS:CA	2.50	0.41
1:F:322:VAL:C	1:F:324:LEU:H	2.23	0.41
1:B:224:GLN:C	1:B:226:GLY:H	2.23	0.41
1:B:245:ASP:O	1:B:248:LEU:N	2.53	0.41
1:F:125:PHE:C	1:F:125:PHE:CD2	2.94	0.41
1:A:326:MET:CE	1:B:287:ASN:HD22	2.34	0.41
1:B:127:THR:O	1:B:130:LEU:HB3	2.21	0.41
1:B:301:ALA:HA	1:B:345:ILE:HD11	2.03	0.41
1:B:316:ILE:HD12	1:B:316:ILE:N	2.36	0.41
1:B:340:GLN:HE21	1:B:340:GLN:HB3	1.59	0.41
1:B:344:GLU:HG2	1:B:348:ARG:HH22	1.86	0.41
1:C:263:ILE:O	1:C:267:LEU:HG	2.20	0.41
1:C:281:ARG:HD3	1:C:281:ARG:HA	1.84	0.41
1:D:77:ARG:HA	1:D:77:ARG:HD3	1.96	0.41
1:D:79:LEU:HD13	1:D:100:PHE:CG	2.55	0.41
1:D:246:PHE:CD1	1:D:255:ALA:HA	2.56	0.41
1:D:254:LEU:HD23	1:D:257:GLN:NE2	2.35	0.41
1:D:331:MET:HB3	1:D:332:PRO:HD3	2.03	0.41
1:D:369:GLN:HE21	1:D:369:GLN:HB2	1.66	0.41
1:E:295:MET:CE	1:E:295:MET:HA	2.51	0.41
1:F:233:GLN:O	1:F:234:GLU:CB	2.64	0.41
1:F:243:LEU:HD23	1:F:243:LEU:N	2.35	0.41
1:F:326:MET:CE	1:F:333:ALA:HA	2.51	0.41
1:A:61:LEU:HA	1:A:284:SER:HB2	2.02	0.41
1:C:318:LEU:O	1:C:320:GLN:N	2.53	0.41
1:D:224:GLN:C	1:D:226:GLY:H	2.23	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:324:LEU:HD13	1:E:324:LEU:O	2.20	0.41
1:B:79:LEU:HD13	1:B:100:PHE:CG	2.56	0.40
1:B:193:GLU:OE2	1:B:282:ASN:HB3	2.21	0.40
1:B:248:LEU:HD22	3:B:655:HOH:O	2.21	0.40
1:D:82:LEU:O	1:D:93:LYS:HE2	2.21	0.40
1:D:316:ILE:N	1:D:316:ILE:CD1	2.84	0.40
1:D:357:SER:O	1:D:361:GLN:HB2	2.20	0.40
1:E:124:ASP:OD1	1:E:124:ASP:O	2.39	0.40
1:E:349:ILE:HA	1:E:350:PRO:HD3	1.86	0.40
1:F:335:LYS:HB3	1:F:339:TYR:CE2	2.55	0.40
1:C:78:ALA:O	1:C:79:LEU:C	2.59	0.40
1:E:57:VAL:HB	1:E:288:PHE:HA	2.04	0.40
1:E:81:THR:HG22	1:E:81:THR:O	2.22	0.40
1:E:325:MET:CE	1:F:294:VAL:HG11	2.51	0.40
1:F:45:LYS:O	1:F:49:GLN:HB2	2.21	0.40
1:B:54:PHE:O	1:B:58:ILE:HG13	2.21	0.40
1:B:268:HIS:O	1:B:271:PRO:HD2	2.20	0.40
1:B:368:THR:HG22	1:B:368:THR:O	2.21	0.40
1:D:361:GLN:HE21	1:D:361:GLN:HB3	1.63	0.40
1:E:326:MET:HA	1:F:327:ASP:HB2	2.02	0.40
1:F:249:PRO:C	1:F:251:ASN:H	2.25	0.40
1:B:242:LYS:N	1:B:245:ASP:OD2	2.44	0.40
1:C:236:TRP:CE2	1:C:243:LEU:HB2	2.57	0.40
1:C:315:LEU:HD23	1:C:316:ILE:N	2.36	0.40
1:C:343:GLU:CD	1:C:367:ARG:HH21	2.23	0.40
1:D:228:ARG:HD2	1:D:230:PHE:HE2	1.86	0.40
1:F:243:LEU:H	1:F:243:LEU:CD2	2.32	0.40
1:A:79:LEU:HD13	1:A:100:PHE:CG	2.56	0.40
1:B:251:ASN:O	1:B:252:ILE:C	2.60	0.40
1:B:362:ILE:O	1:B:362:ILE:HD13	2.20	0.40
1:D:338:ILE:O	1:D:342:MET:HG2	2.21	0.40
1:F:125:PHE:N	1:F:126:PRO:CD	2.85	0.40
1:F:232:PRO:O	1:F:236:TRP:CD1	2.73	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	331/360 (92%)	308 (93%)	22 (7%)	1 (0%)	41 70
1	B	332/360 (92%)	301 (91%)	27 (8%)	4 (1%)	13 37
1	C	332/360 (92%)	297 (90%)	29 (9%)	6 (2%)	8 26
1	D	332/360 (92%)	297 (90%)	31 (9%)	4 (1%)	13 37
1	E	332/360 (92%)	293 (88%)	33 (10%)	6 (2%)	8 26
1	F	332/360 (92%)	278 (84%)	40 (12%)	14 (4%)	3 8
All	All	1991/2160 (92%)	1774 (89%)	182 (9%)	35 (2%)	8 26

All (35) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	320	GLN
1	B	320	GLN
1	C	320	GLN
1	D	317	ARG
1	E	320	GLN
1	F	55	ALA
1	F	252	ILE
1	C	243	LEU
1	C	319	GLY
1	D	308	GLN
1	E	63	GLY
1	E	137	GLU
1	E	145	ASP
1	E	156	GLU
1	F	163	THR
1	F	320	GLN
1	F	356	SER
1	C	85	ASP
1	D	63	GLY
1	F	64	GLU

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Mol	Chain	Res	Type
1	F	243	LEU
1	F	253	ASP
1	B	352	SER
1	C	200	ASP
1	F	63	GLY
1	F	238	ARG
1	F	308	GLN
1	B	252	ILE
1	E	107	PRO
1	F	312	GLY
1	B	220	TYR
1	D	92	LYS
1	C	217	ILE
1	F	107	PRO
1	F	322	VAL

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	296/320 (92%)	284 (96%)	12 (4%)	30	63
1	B	297/320 (93%)	283 (95%)	14 (5%)	26	57
1	C	297/320 (93%)	286 (96%)	11 (4%)	34	66
1	D	297/320 (93%)	282 (95%)	15 (5%)	24	54
1	E	297/320 (93%)	284 (96%)	13 (4%)	28	60
1	F	297/320 (93%)	277 (93%)	20 (7%)	16	41
All	All	1781/1920 (93%)	1696 (95%)	85 (5%)	25	56

All (85) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	86	MET
1	A	117	LYS
1	A	120	GLN

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Mol	Chain	Res	Type
1	A	123	GLU
1	A	159	ASP
1	A	206	SER
1	A	224	GLN
1	A	233	GLN
1	A	241	LYS
1	A	316	ILE
1	A	318	LEU
1	A	352	SER
1	B	84	ASP
1	B	119	ARG
1	B	120	GLN
1	B	161	HIS
1	B	167	GLU
1	B	203	ARG
1	B	233	GLN
1	B	308	GLN
1	B	317	ARG
1	B	335	LYS
1	B	340	GLN
1	B	347	HIS
1	B	355	SER
1	B	362	ILE
1	C	86	MET
1	C	105	TYR
1	C	138	LYS
1	C	203	ARG
1	C	241	LYS
1	C	340	GLN
1	C	344	GLU
1	C	348	ARG
1	C	355	SER
1	C	357	SER
1	C	368	THR
1	D	52	ARG
1	D	86	MET
1	D	120	GLN
1	D	166	GLN
1	D	203	ARG
1	D	224	GLN
1	D	228	ARG
1	D	229	GLU

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Mol	Chain	Res	Type
1	D	233	GLN
1	D	320	GLN
1	D	324	LEU
1	D	343	GLU
1	D	351	ASP
1	D	361	GLN
1	D	367	ARG
1	E	66	ARG
1	E	84	ASP
1	E	91	GLU
1	E	96	LEU
1	E	101	HIS
1	E	103	PHE
1	E	110	ARG
1	E	170	LYS
1	E	203	ARG
1	E	233	GLN
1	E	238	ARG
1	E	250	GLU
1	E	311	LYS
1	F	52	ARG
1	F	76	LEU
1	F	83	GLU
1	F	99	ASN
1	F	123	GLU
1	F	137	GLU
1	F	141	THR
1	F	158	LEU
1	F	165	GLU
1	F	219	ASP
1	F	228	ARG
1	F	235	VAL
1	F	241	LYS
1	F	245	ASP
1	F	252	ILE
1	F	308	GLN
1	F	311	LYS
1	F	317	ARG
1	F	320	GLN
1	F	322	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (49) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	49	GLN
1	A	224	GLN
1	A	225	GLN
1	A	233	GLN
1	A	257	GLN
1	A	283	GLN
1	A	340	GLN
1	A	361	GLN
1	B	120	GLN
1	B	215	ASN
1	B	225	GLN
1	B	233	GLN
1	B	251	ASN
1	B	257	GLN
1	B	340	GLN
1	C	98	HIS
1	C	134	ASN
1	C	225	GLN
1	C	251	ASN
1	C	257	GLN
1	C	260	ASN
1	C	353	ASN
1	D	215	ASN
1	D	224	GLN
1	D	233	GLN
1	D	257	GLN
1	D	308	GLN
1	D	340	GLN
1	D	361	GLN
1	D	369	GLN
1	E	106	GLN
1	E	215	ASN
1	E	233	GLN
1	E	257	GLN
1	E	340	GLN
1	E	353	ASN
1	F	48	ASN
1	F	59	GLN
1	F	99	ASN
1	F	134	ASN
1	F	233	GLN
1	F	251	ASN
1	F	257	GLN

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Mol	Chain	Res	Type
1	F	260	ASN
1	F	306	ASN
1	F	308	GLN
1	F	320	GLN
1	F	361	GLN
1	F	369	GLN

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 monosaccharides in this entry.

5.6 Ligand geometry

7 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	FPS	E	401	-	20,23,23	1.24	2 (10%)	24,31,31	1.67	6 (25%)
2	FPS	A	401	-	20,23,23	1.26	2 (10%)	24,31,31	1.71	6 (25%)
2	FPS	B	401	-	20,23,23	1.24	2 (10%)	24,31,31	1.70	6 (25%)
2	FPS	F	401	-	20,23,23	1.23	2 (10%)	24,31,31	1.71	6 (25%)
2	FPS	D	402	-	20,23,23	1.32	3 (15%)	24,31,31	1.74	5 (20%)
2	FPS	D	401	-	20,23,23	1.29	2 (10%)	24,31,31	1.76	6 (25%)
2	FPS	C	401	-	20,23,23	1.29	3 (15%)	24,31,31	1.65	5 (20%)

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	FPS	E	401	-	-	3/19/25/25	-
2	FPS	A	401	-	-	5/19/25/25	-
2	FPS	B	401	-	-	2/19/25/25	-
2	FPS	F	401	-	-	3/19/25/25	-
2	FPS	D	402	-	-	2/19/25/25	-
2	FPS	D	401	-	-	5/19/25/25	-
2	FPS	C	401	-	-	5/19/25/25	-

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	402	FPS	PA-O1A	3.50	1.54	1.46
2	A	401	FPS	PA-O1A	3.28	1.53	1.46
2	D	401	FPS	PA-O1A	3.24	1.53	1.46
2	B	401	FPS	PA-O1A	3.15	1.53	1.46
2	E	401	FPS	PA-O1A	3.15	1.53	1.46
2	C	401	FPS	PA-O1A	3.11	1.53	1.46
2	F	401	FPS	PA-O1A	3.03	1.53	1.46
2	D	402	FPS	PB-O2B	2.33	1.57	1.50
2	B	401	FPS	PB-O2B	2.30	1.57	1.50
2	E	401	FPS	PB-O2B	2.23	1.57	1.50
2	C	401	FPS	PB-O2B	2.17	1.57	1.50
2	A	401	FPS	PB-O2B	2.16	1.57	1.50
2	D	401	FPS	PB-O2B	2.15	1.57	1.50
2	F	401	FPS	PB-O2B	2.10	1.57	1.50
2	C	401	FPS	C2-C3	2.05	1.37	1.33
2	D	402	FPS	C2-C3	2.02	1.37	1.33

All (40) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	401	FPS	C9-C8-C10	4.09	122.32	115.23
2	D	402	FPS	C9-C8-C10	3.93	122.05	115.23
2	F	401	FPS	C9-C8-C10	3.80	121.83	115.23
2	D	401	FPS	C10-C8-C7	-3.79	112.66	121.17
2	A	401	FPS	C9-C8-C10	3.79	121.81	115.23
2	D	402	FPS	C10-C8-C7	-3.73	112.78	121.17

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	401	FPS	C9-C8-C10	3.67	121.61	115.23
2	B	401	FPS	C9-C8-C10	3.66	121.59	115.23
2	E	401	FPS	C9-C8-C10	3.65	121.57	115.23
2	B	401	FPS	C10-C8-C7	-3.65	112.98	121.17
2	A	401	FPS	C10-C8-C7	-3.55	113.20	121.17
2	F	401	FPS	C10-C8-C7	-3.50	113.32	121.17
2	E	401	FPS	C10-C8-C7	-3.44	113.44	121.17
2	C	401	FPS	C10-C8-C7	-3.36	113.63	121.17
2	D	402	FPS	O1B-PB-O3A	2.73	113.80	104.64
2	D	401	FPS	C5-C3-C2	-2.68	115.16	121.17
2	B	401	FPS	C4-C3-C5	2.66	119.84	115.23
2	D	402	FPS	C5-C3-C2	-2.64	115.25	121.17
2	D	402	FPS	C4-C3-C5	2.62	119.78	115.23
2	A	401	FPS	C5-C3-C2	-2.60	115.32	121.17
2	C	401	FPS	O1B-PB-O3A	2.58	113.29	104.64
2	E	401	FPS	C5-C3-C2	-2.58	115.38	121.17
2	D	401	FPS	C4-C3-C5	2.57	119.70	115.23
2	F	401	FPS	C4-C3-C5	2.56	119.67	115.23
2	C	401	FPS	C4-C3-C5	2.56	119.67	115.23
2	A	401	FPS	C4-C3-C5	2.53	119.61	115.23
2	E	401	FPS	C4-C3-C5	2.52	119.61	115.23
2	F	401	FPS	C5-C3-C2	-2.52	115.51	121.17
2	F	401	FPS	O1B-PB-O3A	2.50	113.03	104.64
2	B	401	FPS	C5-C3-C2	-2.50	115.56	121.17
2	D	401	FPS	O1B-PB-O3A	2.50	113.01	104.64
2	B	401	FPS	O1B-PB-O3A	2.46	112.90	104.64
2	C	401	FPS	C5-C3-C2	-2.44	115.68	121.17
2	A	401	FPS	O1B-PB-O3A	2.41	112.70	104.64
2	E	401	FPS	O1B-PB-O3A	2.35	112.50	104.64
2	A	401	FPS	C15-C13-C14	2.18	119.59	114.59
2	F	401	FPS	C15-C13-C14	2.15	119.53	114.59
2	D	401	FPS	C15-C13-C14	2.15	119.53	114.59
2	E	401	FPS	C15-C13-C14	2.13	119.49	114.59
2	B	401	FPS	C15-C13-C14	2.08	119.37	114.59

There are no chirality outliers.

All (25) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	401	FPS	PA-O3A-PB-O1B
2	C	401	FPS	PA-O3A-PB-O1B
2	D	401	FPS	PA-O3A-PB-O1B

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Mol	Chain	Res	Type	Atoms
2	D	402	FPS	PA-O3A-PB-O1B
2	A	401	FPS	C8-C10-C11-C12
2	E	401	FPS	PB-O3A-PA-O2A
2	D	401	FPS	C11-C10-C8-C9
2	A	401	FPS	PB-O3A-PA-O2A
2	D	402	FPS	PA-O3A-PB-O2B
2	F	401	FPS	PA-O3A-PB-O2B
2	A	401	FPS	C11-C10-C8-C9
2	C	401	FPS	C4-C3-C5-C6
2	F	401	FPS	C4-C3-C5-C6
2	C	401	FPS	C2-C3-C5-C6
2	D	401	FPS	C11-C10-C8-C7
2	B	401	FPS	PA-O3A-PB-O3B
2	C	401	FPS	PA-O3A-PB-O3B
2	D	401	FPS	PA-O3A-PB-O3B
2	E	401	FPS	C4-C3-C5-C6
2	C	401	FPS	PB-O3A-PA-O2A
2	F	401	FPS	PB-O3A-PA-O2A
2	D	401	FPS	PA-O3A-PB-O2B
2	E	401	FPS	PA-O3A-PB-O2B
2	A	401	FPS	C11-C10-C8-C7
2	A	401	FPS	PB-O3A-PA-O1A

There are no ring outliers.

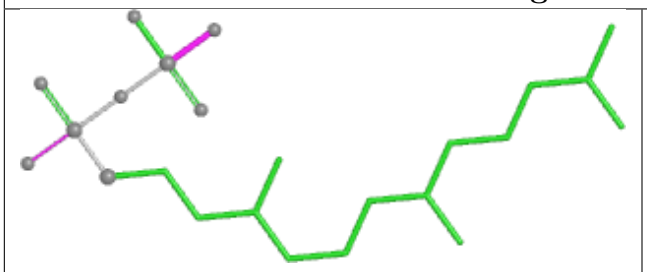
3 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	401	FPS	1	0
2	D	402	FPS	3	0
2	D	401	FPS	1	0

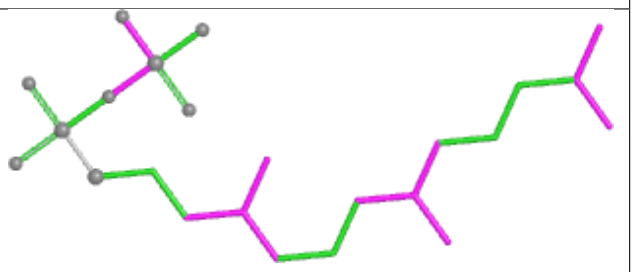
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

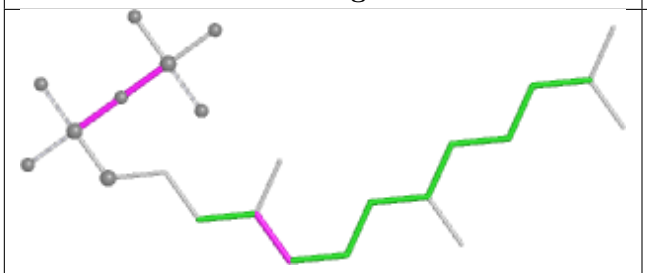
Ligand FPS E 401



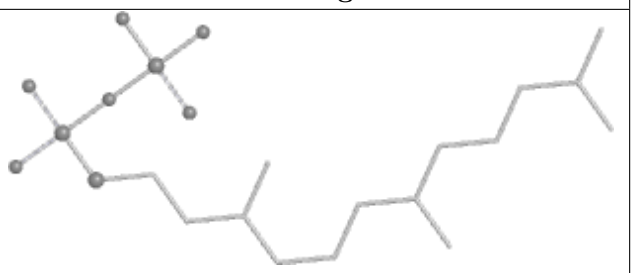
Bond lengths



Bond angles

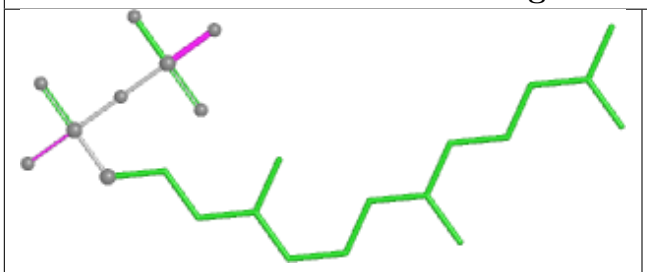


Torsions

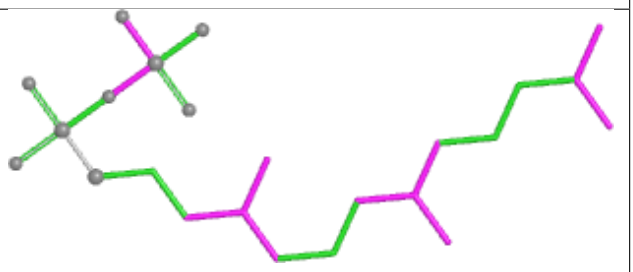


Rings

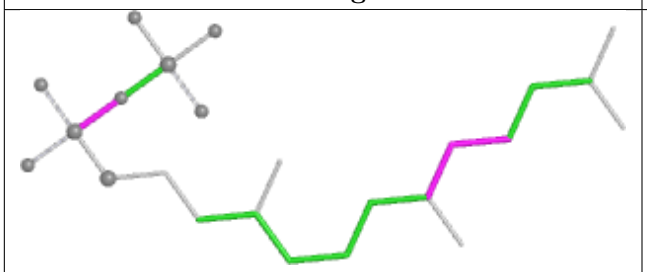
Ligand FPS A 401



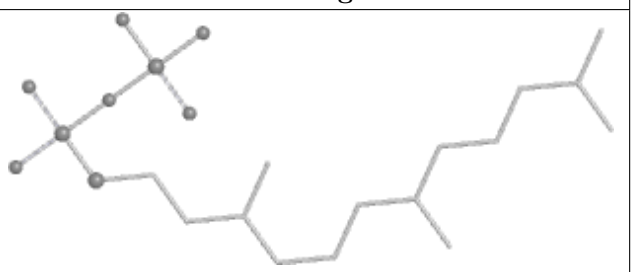
Bond lengths



Bond angles

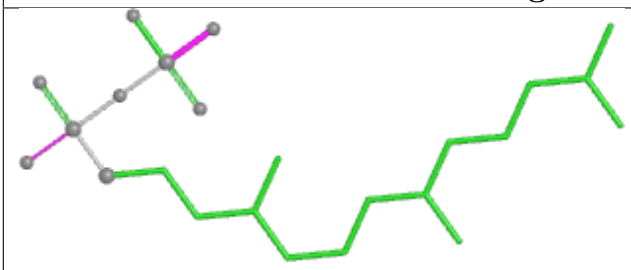


Torsions

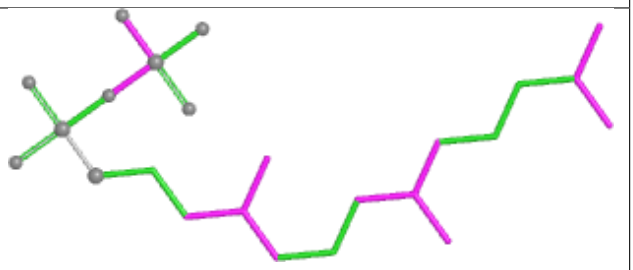


Rings

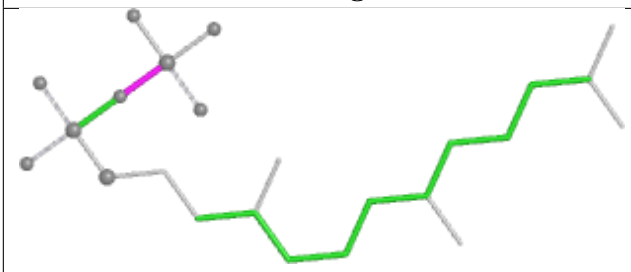
Ligand FPS B 401



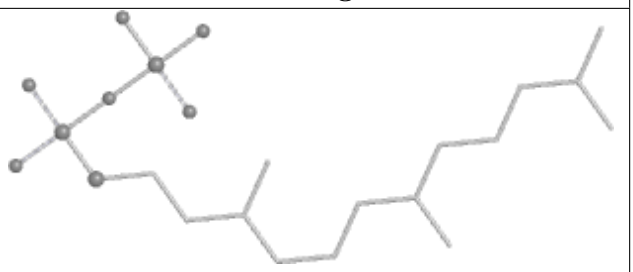
Bond lengths



Bond angles

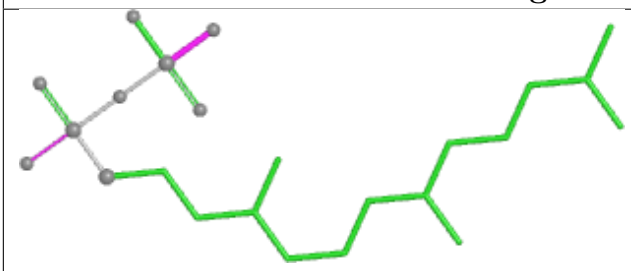


Torsions

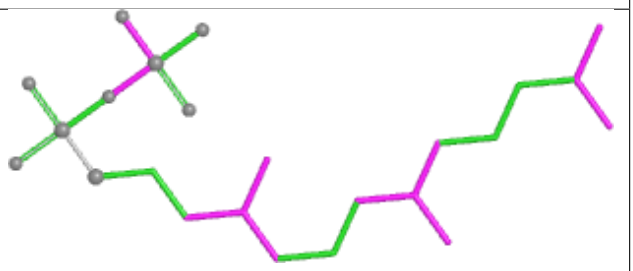


Rings

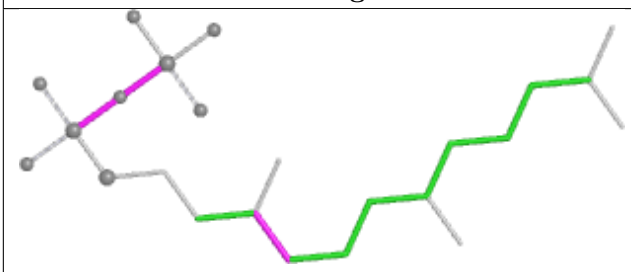
Ligand FPS F 401



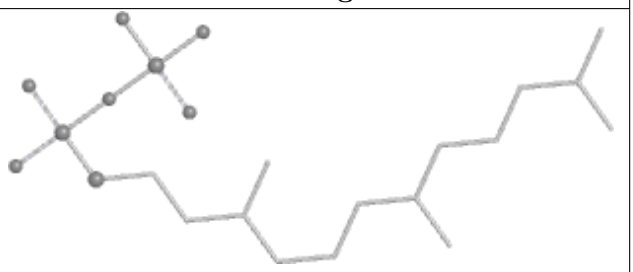
Bond lengths



Bond angles

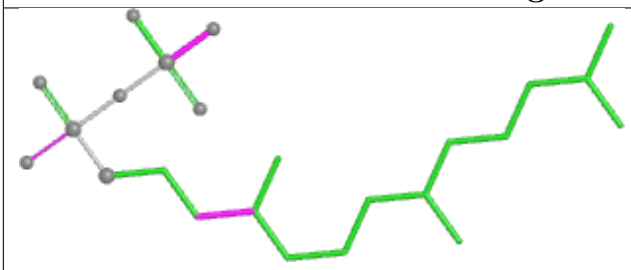


Torsions

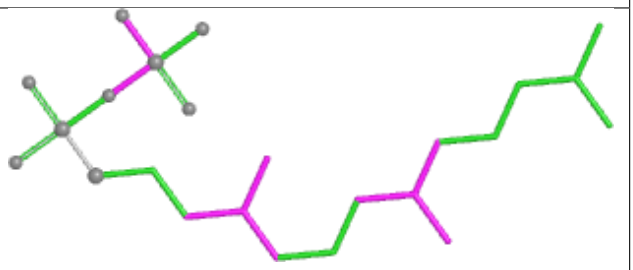


Rings

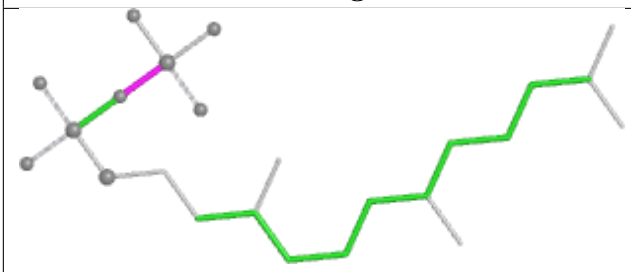
Ligand FPS D 402



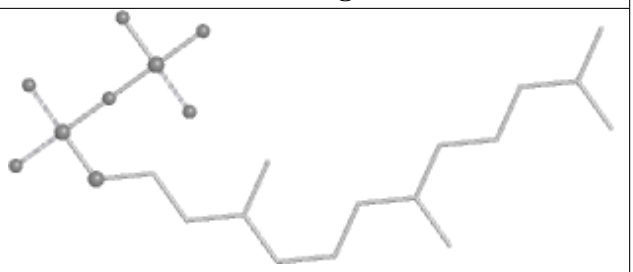
Bond lengths



Bond angles

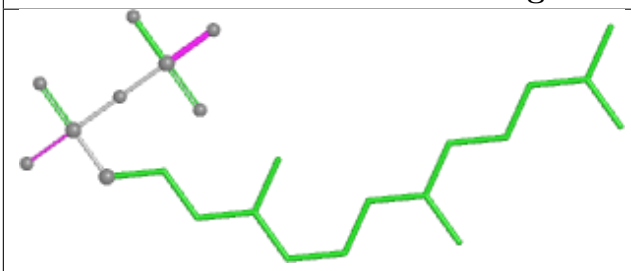


Torsions

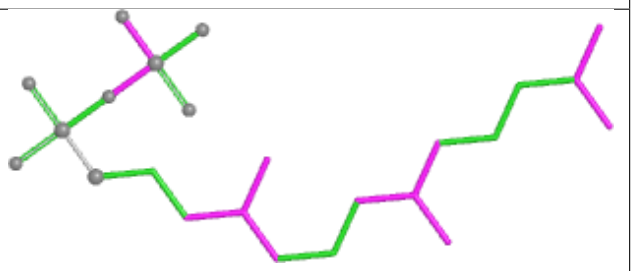


Rings

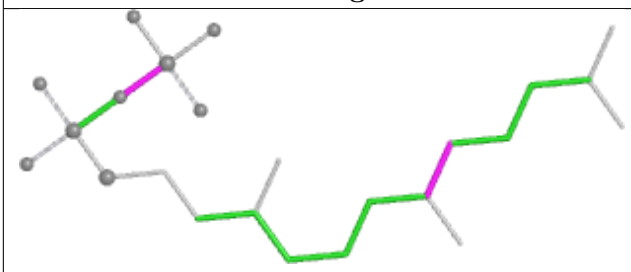
Ligand FPS D 401



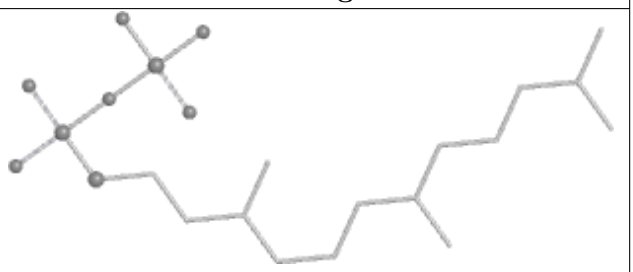
Bond lengths



Bond angles

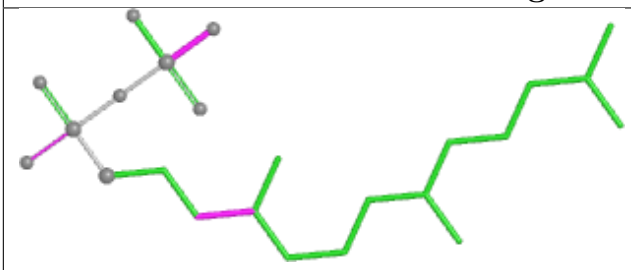


Torsions

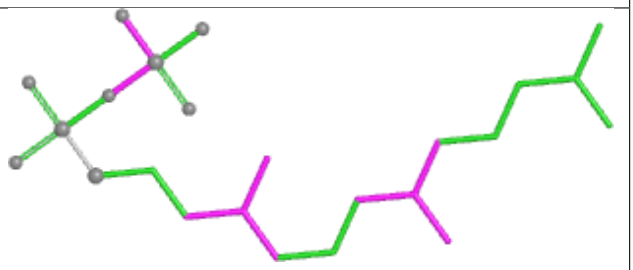


Rings

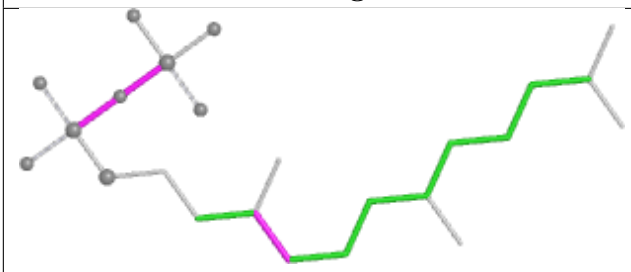
Ligand FPS C 401



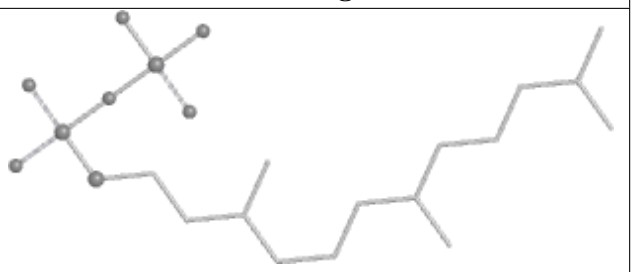
Bond lengths



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

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	333/360 (92%)	-0.55	2 (0%)	89	86	5, 26, 54, 93	0
1	B	334/360 (92%)	-0.43	7 (2%)	63	54	11, 29, 65, 99	0
1	C	334/360 (92%)	-0.38	9 (2%)	54	44	11, 31, 61, 97	0
1	D	334/360 (92%)	-0.26	5 (1%)	73	67	13, 39, 76, 101	0
1	E	334/360 (92%)	-0.10	5 (1%)	73	67	23, 47, 83, 94	0
1	F	334/360 (92%)	0.25	24 (7%)	15	9	23, 61, 101, 108	0
All	All	2003/2160 (92%)	-0.24	52 (2%)	56	46	5, 38, 87, 108	0

All (52) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	319	GLY	5.1
1	F	321	ALA	5.1
1	E	321	ALA	4.7
1	F	312	GLY	4.6
1	F	315	LEU	4.3
1	B	319	GLY	4.1
1	A	320	GLN	3.9
1	F	36	LEU	3.9
1	C	320	GLN	3.8
1	F	159	ASP	3.8
1	F	241	LYS	3.6
1	B	320	GLN	3.6
1	F	320	GLN	3.4
1	E	320	GLN	3.3
1	B	313	ALA	3.1
1	C	227	GLY	2.9
1	D	317	ARG	2.9
1	C	313	ALA	2.9
1	F	250	GLU	2.9

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Mol	Chain	Res	Type	RSRZ
1	B	317	ARG	2.8
1	D	36	LEU	2.8
1	B	241	LYS	2.7
1	F	251	ASN	2.7
1	F	313	ALA	2.7
1	F	225	GLN	2.6
1	A	315	LEU	2.6
1	C	225	GLN	2.6
1	C	36	LEU	2.6
1	C	321	ALA	2.5
1	D	312	GLY	2.5
1	E	319	GLY	2.5
1	F	351	ASP	2.4
1	E	37	SER	2.4
1	F	249	PRO	2.3
1	F	352	SER	2.3
1	F	347	HIS	2.3
1	D	313	ALA	2.3
1	C	312	GLY	2.3
1	C	318	LEU	2.3
1	E	89	SER	2.3
1	F	166	GLN	2.3
1	C	251	ASN	2.2
1	F	113	GLU	2.2
1	F	91	GLU	2.2
1	F	318	LEU	2.2
1	F	37	SER	2.2
1	F	137	GLU	2.1
1	B	159	ASP	2.1
1	B	321	ALA	2.1
1	F	115	LYS	2.1
1	F	231	TRP	2.1
1	D	318	LEU	2.0

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

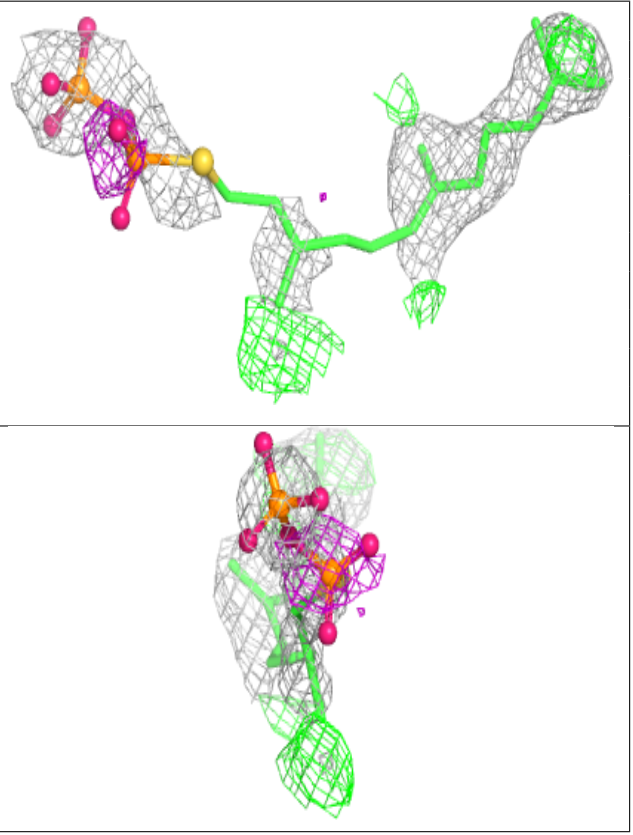
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	FPS	D	402	24/24	0.57	0.47	66,102,128,128	0
2	FPS	E	401	24/24	0.84	0.26	48,66,94,94	0
2	FPS	D	401	24/24	0.85	0.24	38,72,99,100	0
2	FPS	A	401	24/24	0.87	0.23	44,63,97,98	0
2	FPS	F	401	24/24	0.89	0.23	54,73,86,86	0
2	FPS	B	401	24/24	0.92	0.19	17,44,79,80	0
2	FPS	C	401	24/24	0.92	0.18	25,53,80,80	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 FPS D 402:

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



Electron density around FPS E 401:

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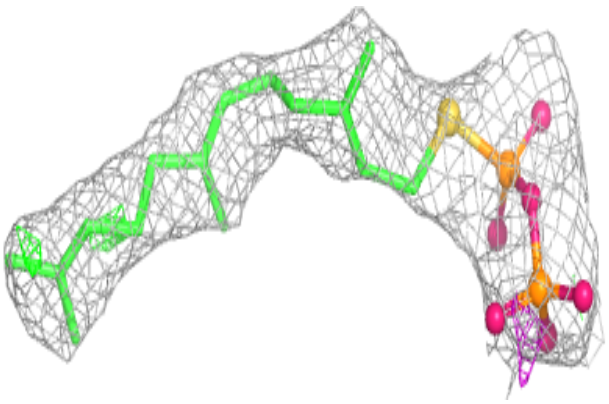
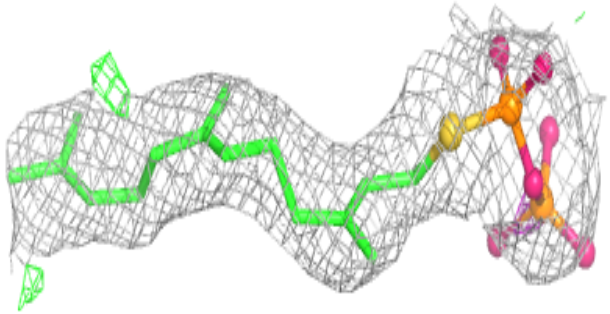
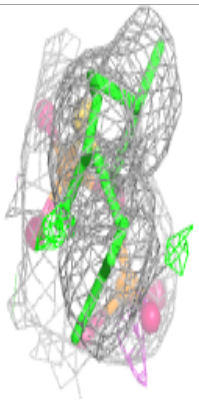
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

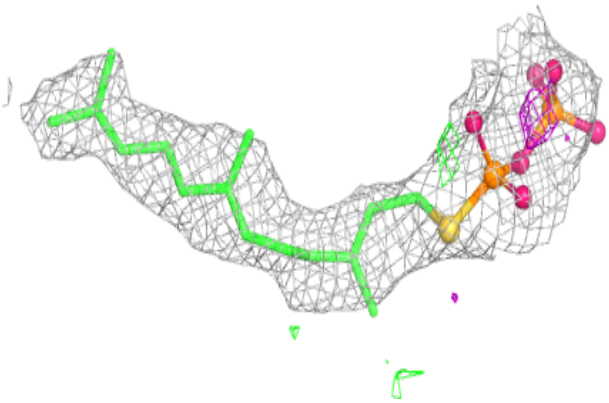


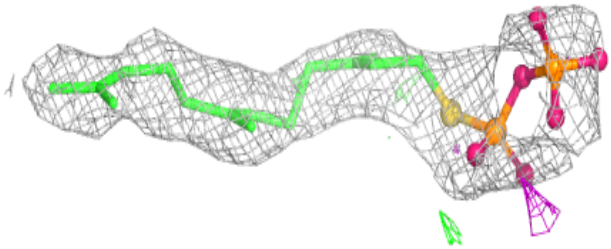


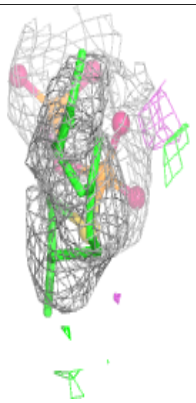


Electron density around FPS D 401:

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

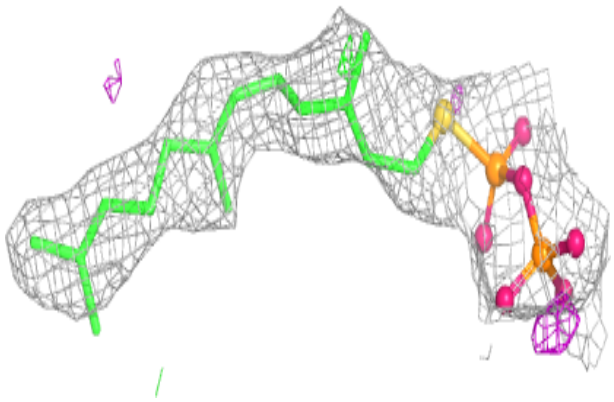


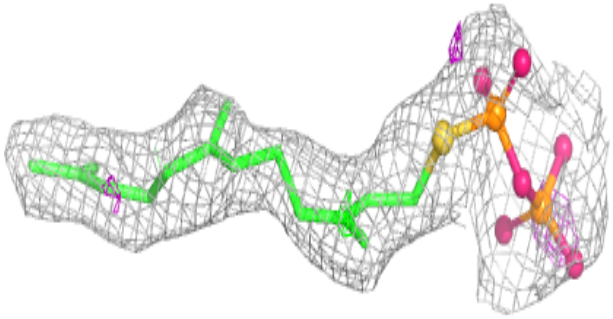


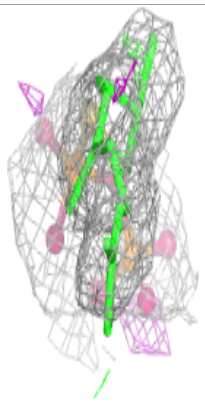


Electron density around FPS A 401:

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







Electron density around FPS F 401:

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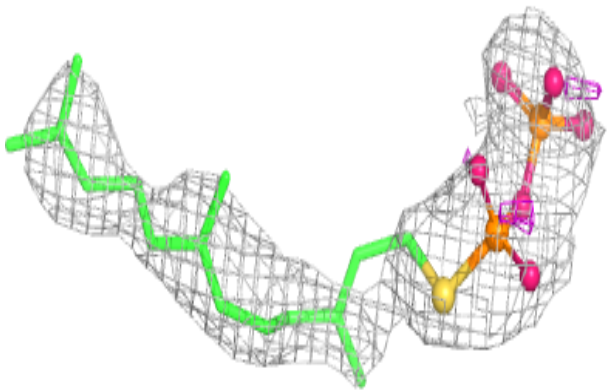
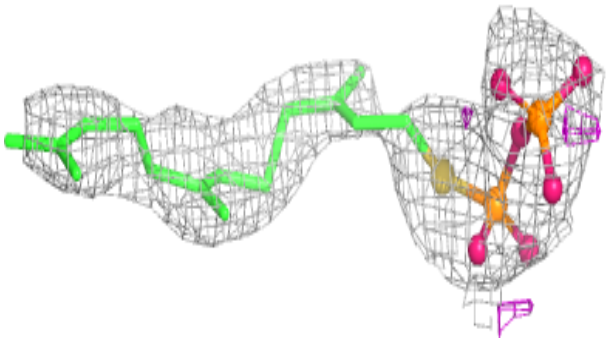
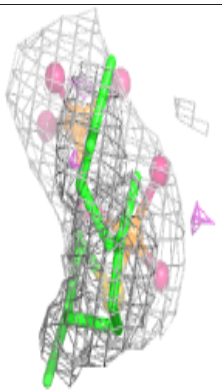
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

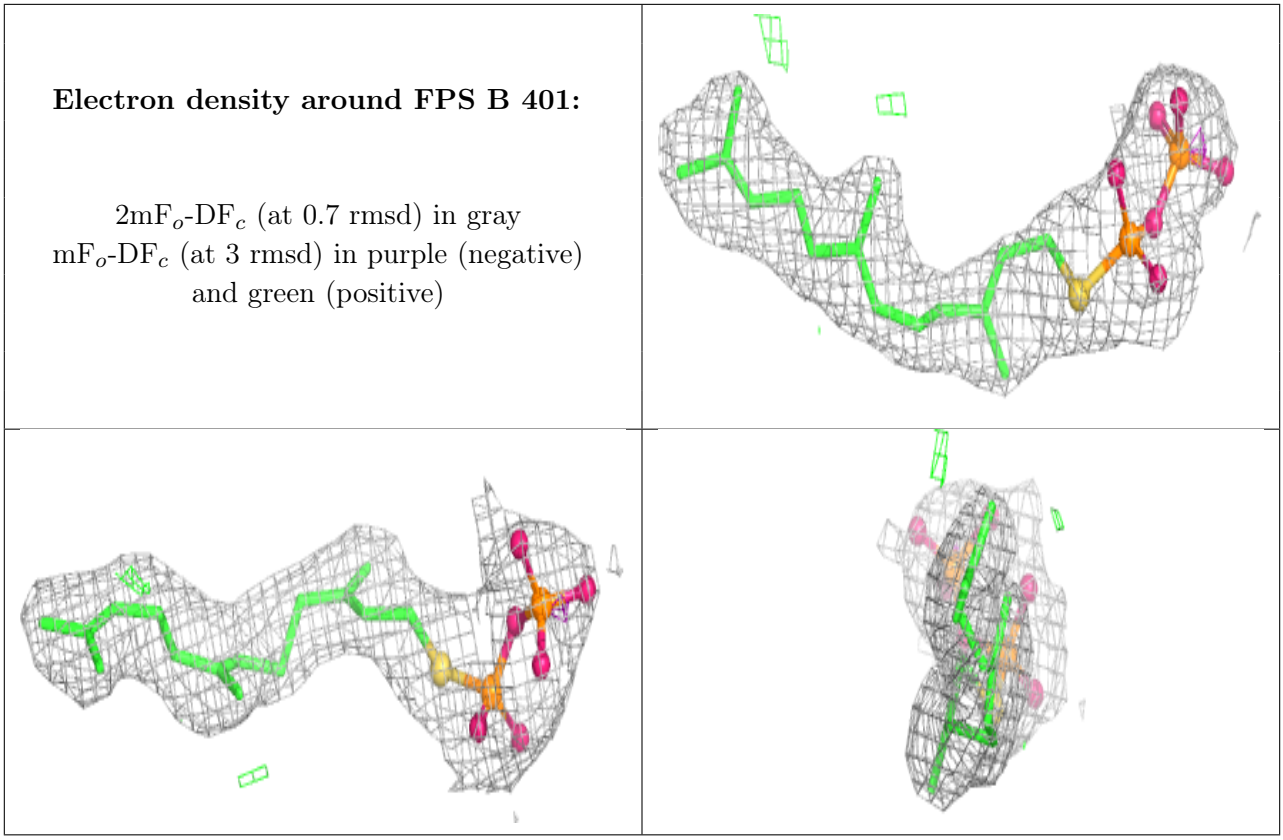






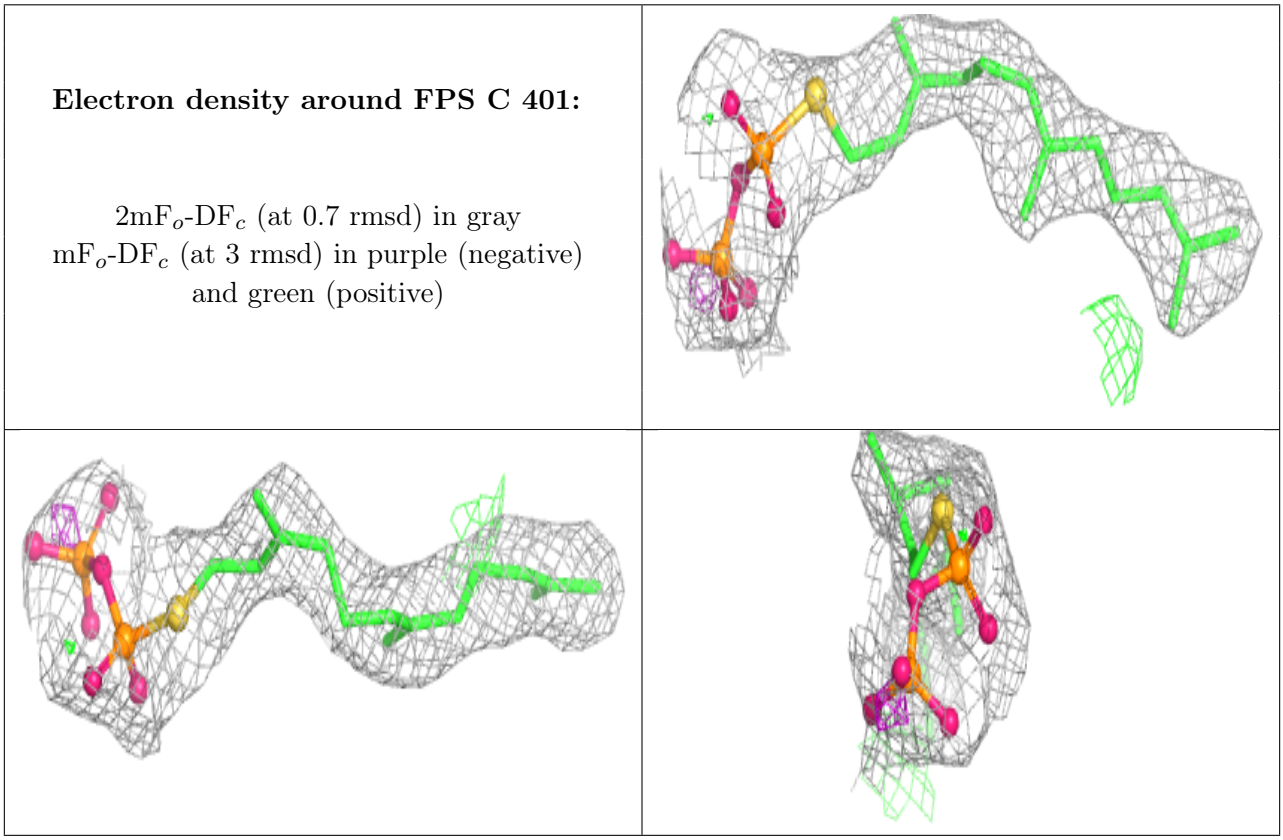
Electron density around FPS B 401:

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



Electron density around FPS C 401:

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



6.5 Other polymers (i)

There are no such residues in this entry.