W O R L D W I D E
wwPDB
P R O T E I N   D A T A   B A N K

Full wwPDB X-ray Structure Validation Report ⓘ

Aug 6, 2023 – 01:23 AM EDT

PDB ID	:	1JZR
Title	:	Ure2p in complex with glutathione
Authors	:	Bousset, L.; Belrhali, H.; Melki, R.; Morera, S.
Deposited on	:	2001-09-17
Resolution	:	2.90 Å(reported)

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

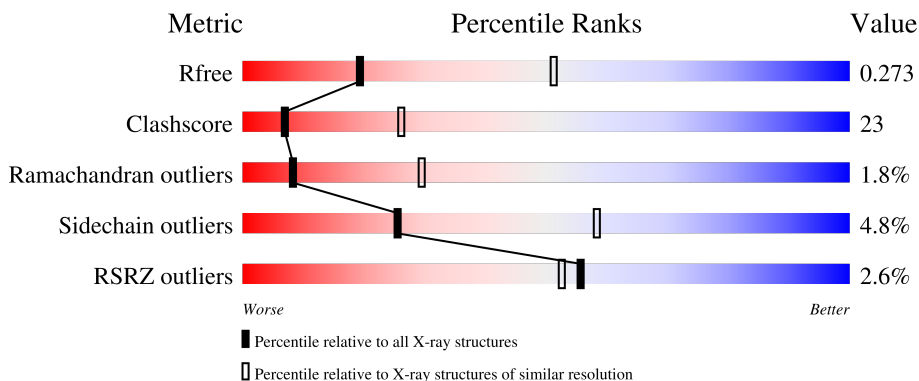|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh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

1   Overall quality at a glance ⓘ

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

The reported resolution of this entry is 2.90 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	Percentile Ranks	Value
Rfree		0.273
Clashscore		23
Ramachandran outliers		1.8%
Sidechain outliers		4.8%
RSRZ outliers		2.6%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1957 (2.90-2.90)
Clashscore	141614	2172 (2.90-2.90)
Ramachandran outliers	138981	2115 (2.90-2.90)
Sidechain outliers	138945	2117 (2.90-2.90)
RSRZ outliers	127900	1906 (2.90-2.90)

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.

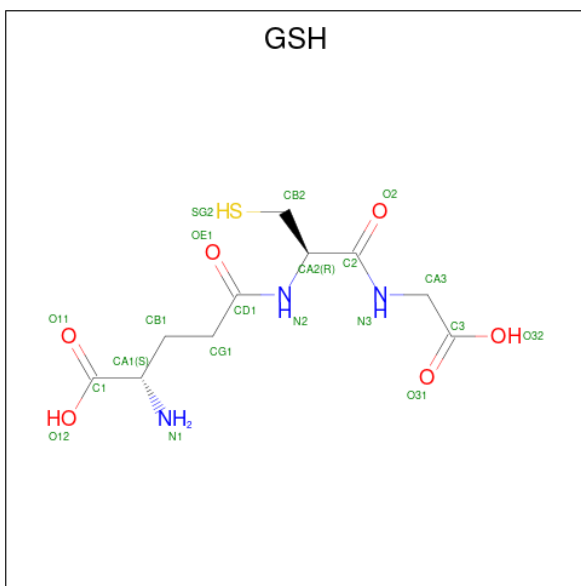| Mol	Chain	Length	Quality of chain
1	A	260	4% / 48% / 39% / • / 10%
1	B	260	4% / 51% / 38% / • / 7%
1	C	260	55% / 40% / • •
1	D	260	% / 62% / 35% / •

2 Entry composition ⓘ

There are 2 unique types of molecules in this entry. The entry contains 8097 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 URE2 PROTEIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	234	Total 1907	C 1236	N 329	O 336	S 6	0	0	0
1	B	242	Total 1981	C 1286	N 340	O 349	S 6	0	0	0
1	C	255	Total 2065	C 1333	N 355	O 370	S 7	0	0	0
1	D	259	Total 2104	C 1358	N 361	O 378	S 7	0	0	0

- Molecule 2 is GLUTATHIONE (three-letter code: GSH) (formula: $C_{10}H_{17}N_3O_6S$).

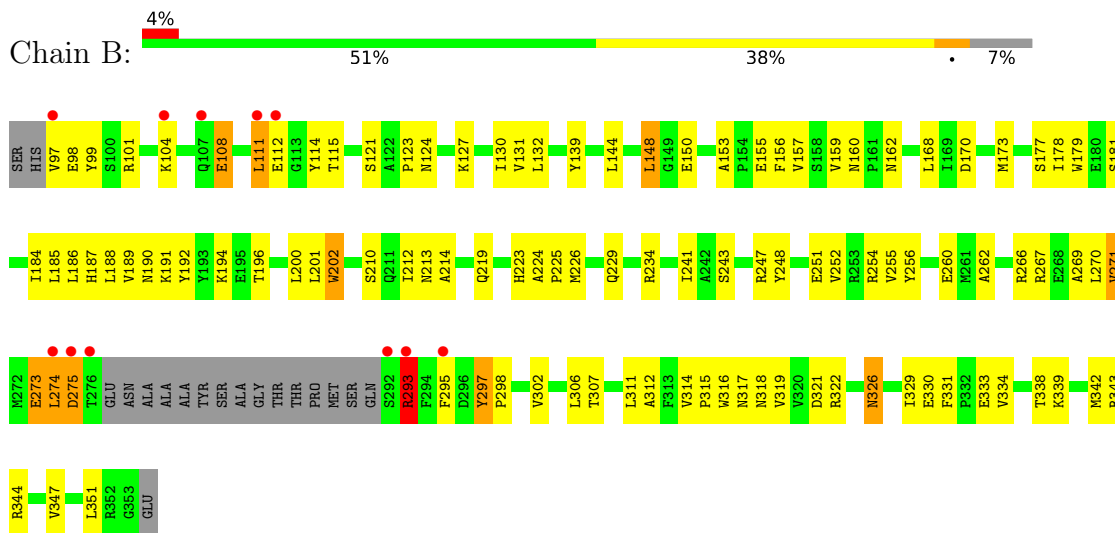| Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total 20	C 10	N 3	O 6	S 1	0	0
2	C	1	Total 20	C 10	N 3	O 6	S 1	0	0

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.
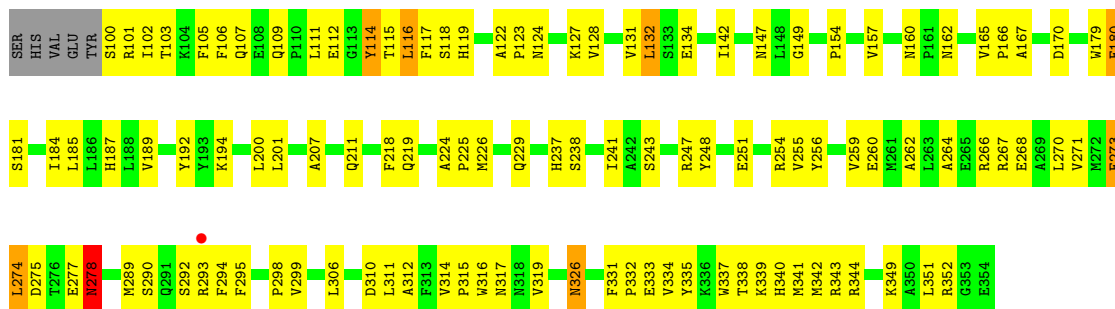
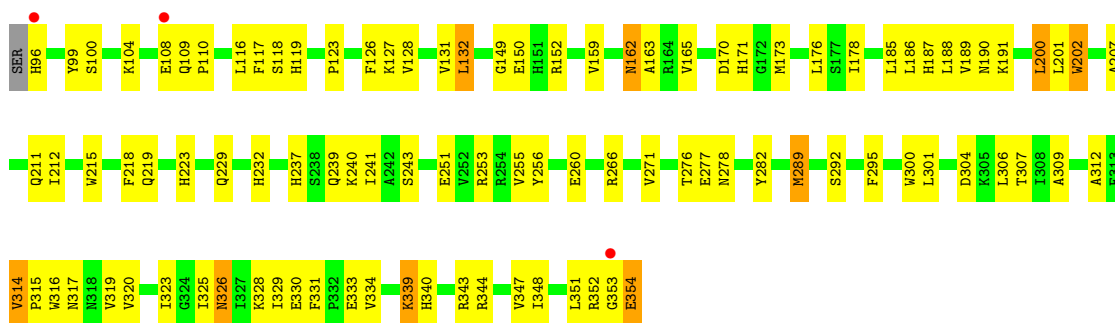• Molecule 1: URE2 PROTEIN

Chain A:

• Molecule 1: URE2 PROTEIN

Chain B:

• Molecule 1: URE2 PROTEIN

Chain C:

SER HIS VAL GLU TYR S100 R101 I102 T103 K104 F105 F106 Q107 E108 Q109 P110 L111 E112 G113 Y114 T115 L116 F117 S118 H119 A122 P123 N124 K127 V128 V131 L132 S133 E134 I142 N147 L148 G149 P154 V157 N160 P161 N162 V165 P166 A167 D170 W179 E180

S181 I184 L185 L186 H187 L188 V189 Y192 Y193 K194 L200 L201 A207 Q211 F218 Q219 A224 P225 M226 Q229 H237 S238 I241 S243 R247 Y248 E251 R254 V255 Y256 V259 E260 M261 A262 L263 A264 E265 R266 R267 E268 A269 L270 V271 M272 E273

L274 D275 T276 E277 N278 M289 S290 Q291 S292 R293 F294 F295 P298 V299 L306 D310 L311 A312 F313 V314 P315 W316 N317 N318 V319 N326 F331 P332 E333 V334 Y335 K336 W337 T338 K339 H340 M341 M342 R343 R344 K349 A350 L351 R352 G353 E354

• Molecule 1: URE2 PROTEIN

Chain D:

%

62%   35%   •

SER H96 Y99 S100 K104 E108 Q109 P110 L116 F117 S118 H119 P123 F126 K127 V128 V131 L132 G149 E150 H151 R152 V159 N162 A163 R164 V165 D170 H171 G172 M173 L176 S177 I178 L185 L186 H187 L188 V189 N190 K191 L200 L201 W202 A207

Q211 I212 W215 F218 Q219 H223 Q229 H232 H237 S238 Q239 K240 I241 A242 S243 E251 V252 R253 R254 V255 Y256 E260 R266 V271 T276 E277 N278 Y282 M289 S292 F295 W300 L301 D304 K305 L306 T307 I308 A309 A312 F313

V314 P315 W316 N317 N318 V319 V320 I323 G324 I325 N326 I327 K328 I329 E330 F331 P332 E333 V334 K339 H340 R343 R344 V347 I348 L351 R352 G353 E354

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	54.65Å 124.97Å 161.24Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 2.90 19.93 – 2.90	Depositor EDS
% Data completeness (in resolution range)	(Not available) (20.00-2.90) 99.5 (19.93-2.90)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.10	Depositor
$< I/\sigma(I) >$ [1]	7.97 (at 2.88Å)	Xtriage
Refinement program	CNS 1.0	Depositor
R, R_{free}	0.209 , 0.276 0.206 , 0.273	Depositor DCC
R_{free} test set	1212 reflections (4.84%)	wwPDB-VP
Wilson B-factor (Å^2)	24.6	Xtriage
Anisotropy	0.324	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 37.8	EDS
L-test for twinning[2]	$< \lvert L \rvert > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	8097	wwPDB-VP
Average B, all atoms (Å^2)	15.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 13.98% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< \lvert L \rvert >$, $< L^2 >$ 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: GSH

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	0.43	0/1960	0.63	0/2661
1	B	0.41	0/2037	0.63	0/2765
1	C	0.41	0/2123	0.63	0/2884
1	D	0.42	0/2164	0.61	0/2939
All	All	0.42	0/8284	0.62	0/11249

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	1907	0	1876	101	0
1	B	1981	0	1943	109	0
1	C	2065	0	2018	97	0
1	D	2104	0	2049	93	0
2	A	20	0	15	0	0
2	C	20	0	15	1	0
All	All	8097	0	7916	369	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 (369) 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:D:314:VAL:HG13	1:D:315:PRO:HD3	1.38	1.02
1:A:314:VAL:HG23	1:A:315:PRO:HD3	1.41	1.01
1:B:111:LEU:HD13	1:B:112:GLU:H	1.33	0.93
1:D:266:ARG:NH2	1:D:304:ASP:H	1.66	0.93
1:C:154:PRO:HA	1:C:157:VAL:HG12	1.50	0.92
1:D:266:ARG:HH22	1:D:304:ASP:H	1.09	0.91
1:C:101:ARG:HH11	1:C:101:ARG:HG3	1.40	0.85
1:A:270:LEU:O	1:A:273:GLU:HG2	1.74	0.85
1:A:198:ASN:HD22	1:A:199:PRO:HD2	1.41	0.85
1:D:127:LYS:HD2	1:D:312:ALA:HA	1.59	0.85
1:B:111:LEU:CD1	1:B:112:GLU:H	1.90	0.85
1:A:273:GLU:OE2	1:A:273:GLU:HA	1.79	0.82
1:A:254:ARG:HH12	1:B:162:ASN:ND2	1.78	0.82
1:A:196:THR:HG22	1:A:198:ASN:H	1.45	0.81
1:A:162:ASN:ND2	1:B:254:ARG:HH22	1.78	0.80
1:A:131:VAL:HG21	1:A:185:LEU:HD22	1.62	0.80
1:C:154:PRO:HA	1:C:157:VAL:CG1	2.12	0.80
1:B:97:VAL:N	1:C:293:ARG:HH22	1.79	0.80
1:A:171:HIS:HA	1:A:175:ASN:HD22	1.47	0.80
1:C:254:ARG:HH12	1:D:162:ASN:ND2	1.80	0.80
1:A:247:ARG:HH21	1:B:229:GLN:HE22	1.27	0.78
1:B:273:GLU:O	1:B:274:LEU:HB2	1.83	0.78
1:D:207:ALA:O	1:D:211:GLN:HG2	1.85	0.76
1:A:109:GLN:HG3	1:A:110:PRO:HD2	1.66	0.76
1:A:334:VAL:O	1:A:338:THR:HG22	1.84	0.76
1:C:179:TRP:O	1:C:180:GLU:HB2	1.86	0.76
1:A:119:HIS:HD2	1:A:121:SER:H	1.32	0.75
1:C:131:VAL:HG21	1:C:185:LEU:HD22	1.69	0.75
1:A:119:HIS:CD2	1:A:121:SER:H	2.04	0.74
1:B:156:PHE:O	1:B:159:VAL:HG12	1.89	0.73
1:C:314:VAL:HB	1:C:315:PRO:HD3	1.70	0.73
1:D:100:SER:O	1:D:104:LYS:HG2	1.89	0.72
1:A:162:ASN:ND2	1:B:254:ARG:NH2	2.37	0.71
1:B:224:ALA:HB3	1:B:225:PRO:HD3	1.72	0.71
1:A:162:ASN:HD21	1:B:254:ARG:HH22	1.38	0.70
1:C:271:VAL:HG11	1:C:289:MET:HG3	1.74	0.69
1:A:100:SER:HB3	1:A:103:THR:OG1	1.93	0.69
1:C:119:HIS:HB3	1:C:122:ALA:HB2	1.74	0.69
1:B:267:ARG:NH1	1:B:297:TYR:O	2.27	0.68
1:D:326:ASN:C	1:D:326:ASN:HD22	1.98	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:314:VAL:CG2	1:A:315:PRO:HD3	2.22	0.67
1:A:232:HIS:NE2	1:A:237:HIS:HD2	1.92	0.67
1:A:196:THR:HG22	1:A:198:ASN:N	2.09	0.67
1:B:101:ARG:HA	1:B:104:LYS:HD3	1.75	0.67
1:B:159:VAL:HG22	1:B:177:SER:OG	1.95	0.67
1:A:145:ASP:OD2	1:A:148:LEU:HG	1.94	0.67
1:A:247:ARG:HH21	1:B:229:GLN:NE2	1.93	0.67
1:A:347:VAL:O	1:A:351:LEU:HB2	1.94	0.66
1:A:212:ILE:HG23	1:A:309:ALA:HB2	1.78	0.66
1:C:267:ARG:HD2	1:C:333:GLU:OE1	1.96	0.66
1:D:282:TYR:HB3	1:D:289:MET:HE3	1.78	0.66
1:A:224:ALA:HB3	1:A:225:PRO:HD3	1.78	0.65
1:C:119:HIS:HB3	1:C:122:ALA:CB	2.26	0.65
1:C:127:LYS:HD2	1:C:312:ALA:HA	1.79	0.65
1:B:306:LEU:HD21	1:B:311:LEU:HG	1.77	0.65
1:D:256:TYR:OH	1:D:317:ASN:ND2	2.30	0.64
1:B:225:PRO:O	1:B:229:GLN:HG2	1.98	0.64
1:D:282:TYR:HB3	1:D:289:MET:CE	2.28	0.64
1:A:253:ARG:NH1	1:A:330:GLU:OE1	2.30	0.64
1:B:127:LYS:NZ	1:B:219:GLN:HE22	1.95	0.63
1:D:253:ARG:NH1	1:D:325:ILE:HG13	2.13	0.63
1:A:102:ILE:HG22	1:A:106:PHE:CZ	2.34	0.63
1:A:171:HIS:HA	1:A:175:ASN:ND2	2.12	0.63
1:D:232:HIS:NE2	1:D:237:HIS:HD2	1.95	0.63
1:D:289:MET:HB3	1:D:295:PHE:CE1	2.33	0.63
1:C:226:MET:CE	1:C:251:GLU:HG2	2.29	0.62
1:D:289:MET:O	1:D:292:SER:HB3	2.00	0.62
1:B:322:ARG:HG3	1:B:322:ARG:HH11	1.64	0.62
1:A:254:ARG:HH12	1:B:162:ASN:HD21	1.45	0.62
1:B:131:VAL:HG21	1:B:185:LEU:HD22	1.80	0.62
1:A:229:GLN:HE22	1:B:247:ARG:HH21	1.48	0.62
1:B:173:MET:SD	1:B:191:LYS:NZ	2.72	0.62
1:C:248:TYR:OH	1:D:229:GLN:NE2	2.32	0.61
1:B:248:TYR:O	1:B:252:VAL:HG23	2.00	0.61
1:D:316:TRP:HA	1:D:319:VAL:HG22	1.81	0.61
1:B:223:HIS:HE1	1:B:316:TRP:HB2	1.66	0.60
1:B:314:VAL:HG22	1:B:315:PRO:HD3	1.82	0.60
1:D:339:LYS:NZ	1:D:339:LYS:HA	2.16	0.60
1:B:184:ILE:O	1:B:188:LEU:HG	2.01	0.60
1:B:326:ASN:O	1:B:330:GLU:HG3	2.02	0.60
1:D:266:ARG:HH22	1:D:304:ASP:N	1.92	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:232:HIS:NE2	1:A:237:HIS:CD2	2.70	0.59
1:A:320:VAL:O	1:A:323:ILE:HG12	2.01	0.59
1:C:103:THR:O	1:C:107:GLN:HG2	2.01	0.59
1:B:97:VAL:HA	1:B:148:LEU:O	2.03	0.59
1:B:344:ARG:HB2	1:B:347:VAL:HG23	1.84	0.59
1:A:298:PRO:HB3	1:A:340:HIS:CE1	2.37	0.59
1:B:226:MET:HG3	1:B:251:GLU:HG2	1.83	0.59
1:B:108:GLU:O	1:B:108:GLU:HG3	2.03	0.59
1:C:181:SER:O	1:C:185:LEU:HG	2.02	0.59
1:B:314:VAL:CG2	1:B:315:PRO:HD3	2.33	0.58
1:B:226:MET:HG3	1:B:251:GLU:CG	2.33	0.58
1:C:273:GLU:O	1:C:275:ASP:N	2.36	0.58
1:C:128:VAL:HG12	1:C:132:LEU:HD22	1.86	0.58
1:C:266:ARG:HB2	1:C:299:VAL:CG1	2.34	0.58
1:D:260:GLU:OE1	1:D:331:PHE:HB3	2.03	0.58
1:A:189:VAL:HB	1:A:202:TRP:HB2	1.86	0.58
1:B:319:VAL:HA	1:B:322:ARG:NH1	2.19	0.58
1:B:339:LYS:O	1:B:343:ARG:HG3	2.03	0.58
1:B:124:ASN:ND2	1:B:316:TRP:HZ2	2.02	0.57
1:C:185:LEU:O	1:C:189:VAL:HG22	2.03	0.57
1:B:108:GLU:O	1:B:108:GLU:CG	2.51	0.57
1:B:127:LYS:HZ3	1:B:219:GLN:HE22	1.51	0.57
1:C:101:ARG:HG3	1:C:101:ARG:NH1	2.13	0.57
1:D:170:ASP:OD2	1:D:187:HIS:HE1	1.87	0.57
1:D:260:GLU:OE1	1:D:334:VAL:HG23	2.05	0.57
1:C:147:ASN:C	1:C:149:GLY:H	2.07	0.56
1:A:128:VAL:O	1:A:132:LEU:HB2	2.05	0.56
1:A:207:ALA:O	1:A:211:GLN:HG2	2.05	0.56
1:A:314:VAL:HG13	1:A:341:MET:CE	2.35	0.56
1:D:223:HIS:NE2	1:D:256:TYR:CE1	2.69	0.56
1:D:189:VAL:HB	1:D:202:TRP:HB2	1.88	0.56
1:A:109:GLN:HG2	1:A:175:ASN:OD1	2.06	0.56
1:A:348:ILE:C	1:A:350:ALA:H	2.08	0.56
1:C:123:PRO:HB2	1:C:316:TRP:CE2	2.41	0.56
1:C:311:LEU:HA	1:C:314:VAL:HG23	1.88	0.55
1:A:109:GLN:HG3	1:A:110:PRO:CD	2.34	0.55
1:C:107:GLN:HA	1:C:107:GLN:NE2	2.21	0.55
1:D:118:SER:OG	1:D:119:HIS:N	2.39	0.55
1:D:323:ILE:HG13	1:D:325:ILE:HD13	1.88	0.55
1:A:107:GLN:O	1:A:108:GLU:HB2	2.07	0.55
1:D:271:VAL:HG22	1:D:292:SER:OG	2.07	0.55

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Full wwPDB X-ray Structure Validation Report

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:178:ILE:N	1:A:178:ILE:HD12	2.23	0.54
1:C:226:MET:HE2	1:C:251:GLU:HG2	1.88	0.54
1:A:105:PHE:CZ	1:A:142:ILE:HD11	2.42	0.54
1:A:346:ALA:HA	1:A:349:LYS:HB3	1.89	0.54
1:C:102:ILE:O	1:C:106:PHE:HD1	1.91	0.54
1:A:119:HIS:HD2	1:A:121:SER:N	2.03	0.54
1:D:128:VAL:HG12	1:D:132:LEU:HD22	1.90	0.54
1:A:160:ASN:C	1:A:160:ASN:HD22	2.10	0.54
1:D:218:PHE:CZ	1:D:255:VAL:HG13	2.43	0.54
1:C:277:GLU:O	1:C:278:ASN:HB2	2.07	0.54
1:D:127:LYS:CD	1:D:312:ALA:HA	2.36	0.54
1:C:192:TYR:CE2	1:C:200:LEU:HD12	2.43	0.54
1:C:102:ILE:HD12	1:C:102:ILE:N	2.23	0.53
1:B:111:LEU:HD13	1:B:112:GLU:HG2	1.90	0.53
1:C:254:ARG:HH12	1:D:162:ASN:HD21	1.55	0.53
1:C:243:SER:OG	1:D:237:HIS:HE1	1.92	0.53
1:A:198:ASN:HD22	1:A:199:PRO:CD	2.18	0.53
1:B:234:ARG:HD2	1:B:234:ARG:O	2.08	0.53
1:C:247:ARG:CZ	1:D:232:HIS:CD2	2.92	0.53
1:B:322:ARG:HG3	1:B:322:ARG:NH1	2.24	0.53
1:B:192:TYR:CZ	1:B:196:THR:HG21	2.44	0.53
1:B:297:TYR:CD2	1:B:298:PRO:HD2	2.44	0.53
1:C:247:ARG:HG3	1:C:247:ARG:HH11	1.74	0.52
1:B:186:LEU:O	1:B:190:ASN:ND2	2.42	0.52
1:B:271:VAL:C	1:B:273:GLU:H	2.13	0.52
1:C:326:ASN:C	1:C:326:ASN:HD22	2.11	0.52
1:C:334:VAL:O	1:C:337:TRP:HB3	2.10	0.52
1:A:237:HIS:HE1	1:B:243:SER:OG	1.91	0.52
1:B:130:ILE:HD11	1:B:351:LEU:HD21	1.91	0.52
1:B:157:VAL:HG12	1:B:157:VAL:O	2.09	0.52
1:C:123:PRO:HB2	1:C:316:TRP:CZ2	2.44	0.52
1:D:354:GLU:N	1:D:354:GLU:CD	2.63	0.52
1:A:271:VAL:C	1:A:273:GLU:H	2.13	0.52
1:C:311:LEU:HD23	1:C:341:MET:SD	2.50	0.52
1:D:110:PRO:HD2	1:D:171:HIS:CE1	2.45	0.52
1:A:127:LYS:HG3	1:A:315:PRO:HG2	1.93	0.51
1:B:212:ILE:HG13	1:B:302:VAL:HG21	1.91	0.51
1:D:126:PHE:HB3	1:D:351:LEU:CD1	2.39	0.51
1:D:339:LYS:HA	1:D:339:LYS:HZ3	1.74	0.51
1:D:201:LEU:HA	1:D:307:THR:HA	1.92	0.51
1:D:178:ILE:N	1:D:178:ILE:HD12	2.26	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:338:THR:O	1:B:342:MET:HG2	2.10	0.51
1:A:160:ASN:HD21	1:A:162:ASN:HB3	1.75	0.51
1:D:116:LEU:HD23	1:D:117:PHE:N	2.26	0.51
1:A:256:TYR:HA	1:A:259:VAL:HG22	1.93	0.51
1:B:186:LEU:HD21	1:B:213:ASN:HD21	1.76	0.51
1:C:259:VAL:HG23	1:C:260:GLU:N	2.25	0.51
1:B:132:LEU:HD23	1:B:139:TYR:CG	2.46	0.50
1:A:316:TRP:O	1:A:319:VAL:HG12	2.12	0.50
1:C:226:MET:HE3	1:C:251:GLU:HG2	1.93	0.50
1:D:239:GLN:HG2	1:D:240:LYS:N	2.26	0.50
1:B:223:HIS:HE1	1:B:316:TRP:CB	2.24	0.50
1:D:126:PHE:CD2	1:D:351:LEU:HA	2.47	0.50
1:B:170:ASP:OD2	1:B:187:HIS:HE1	1.94	0.50
1:B:306:LEU:HD23	1:B:307:THR:N	2.27	0.50
1:D:126:PHE:HB3	1:D:351:LEU:HD11	1.94	0.49
1:D:314:VAL:CG1	1:D:315:PRO:HD3	2.26	0.49
1:B:97:VAL:N	1:C:293:ARG:NH2	2.54	0.49
1:B:251:GLU:OE2	1:B:251:GLU:HA	2.12	0.49
1:D:339:LYS:HA	1:D:339:LYS:CE	2.43	0.49
1:C:218:PHE:CZ	1:C:255:VAL:HG13	2.48	0.49
1:C:266:ARG:HB2	1:C:299:VAL:HG11	1.94	0.49
1:C:268:GLU:HG3	1:C:289:MET:SD	2.52	0.49
1:D:232:HIS:NE2	1:D:237:HIS:CD2	2.80	0.49
1:A:314:VAL:HG13	1:A:341:MET:HE3	1.95	0.49
1:B:213:ASN:O	1:B:214:ALA:C	2.51	0.49
1:C:292:SER:C	1:C:294:PHE:H	2.16	0.49
1:A:160:ASN:ND2	1:A:162:ASN:H	2.11	0.48
1:B:114:TYR:HB3	1:B:168:LEU:HD11	1.95	0.48
1:D:326:ASN:C	1:D:326:ASN:ND2	2.65	0.48
1:B:219:GLN:O	1:B:223:HIS:HB3	2.13	0.48
1:C:224:ALA:HB3	1:C:225:PRO:HD3	1.95	0.48
1:C:290:SER:HA	1:C:295:PHE:CD2	2.47	0.48
1:C:154:PRO:CA	1:C:157:VAL:HG12	2.33	0.48
1:A:262:ALA:HB1	1:A:266:ARG:NH2	2.28	0.48
1:C:147:ASN:C	1:C:149:GLY:N	2.66	0.48
1:A:254:ARG:HH22	1:B:162:ASN:HD21	1.60	0.48
1:B:192:TYR:O	1:B:196:THR:HG23	2.13	0.48
1:B:293:ARG:HH11	1:B:293:ARG:CG	2.27	0.48
1:D:185:LEU:O	1:D:189:VAL:HG22	2.13	0.48
1:D:253:ARG:HG2	1:D:253:ARG:HH11	1.78	0.48
1:A:127:LYS:HZ1	1:A:220:THR:HG22	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:205:ASP:O	1:A:209:GLN:HG3	2.14	0.48
1:B:108:GLU:O	1:B:108:GLU:OE1	2.30	0.48
1:D:352:ARG:HB2	1:D:354:GLU:OE1	2.14	0.48
1:C:256:TYR:OH	1:C:317:ASN:ND2	2.47	0.48
1:D:186:LEU:O	1:D:190:ASN:HB2	2.13	0.48
1:B:326:ASN:OD1	1:B:329:ILE:HD12	2.13	0.48
1:A:130:ILE:HG12	1:A:347:VAL:HA	1.95	0.47
1:B:192:TYR:CZ	1:B:200:LEU:HD12	2.49	0.47
1:A:162:ASN:HD21	1:B:254:ARG:NH2	2.04	0.47
1:C:207:ALA:O	1:C:211:GLN:HG2	2.13	0.47
1:A:215:TRP:CZ3	1:A:259:VAL:HG12	2.50	0.47
1:A:348:ILE:O	1:A:350:ALA:N	2.48	0.47
1:C:117:PHE:HB2	1:C:167:ALA:HB3	1.97	0.47
1:C:266:ARG:CB	1:C:299:VAL:HG13	2.44	0.47
1:C:118:SER:OG	1:C:119:HIS:N	2.47	0.47
1:D:253:ARG:NH1	1:D:330:GLU:OE1	2.48	0.47
1:A:200:LEU:O	1:A:201:LEU:HB2	2.15	0.47
1:A:266:ARG:HB3	1:A:299:VAL:HG13	1.96	0.47
1:B:144:LEU:HD22	1:B:150:GLU:HB3	1.96	0.47
1:B:251:GLU:O	1:B:255:VAL:HG13	2.14	0.47
1:C:170:ASP:OD2	1:C:187:HIS:HE1	1.98	0.47
1:C:211:GLN:NE2	1:D:176:LEU:HD11	2.30	0.47
1:C:270:LEU:HG	1:C:274:LEU:HD12	1.96	0.47
1:C:273:GLU:O	1:C:274:LEU:C	2.52	0.47
1:A:110:PRO:HD2	1:A:171:HIS:CE1	2.50	0.47
1:C:124:ASN:HB3	1:C:166:PRO:HD3	1.97	0.47
1:D:251:GLU:OE2	1:D:251:GLU:HA	2.14	0.47
1:B:267:ARG:O	1:B:271:VAL:HG23	2.15	0.47
1:A:349:LYS:HD3	1:A:349:LYS:O	2.15	0.47
1:D:131:VAL:HG21	1:D:185:LEU:HD22	1.96	0.47
1:D:271:VAL:HG11	1:D:289:MET:HE2	1.97	0.47
1:A:170:ASP:OD2	1:A:187:HIS:HE1	1.97	0.46
1:A:254:ARG:NH1	1:B:162:ASN:HD21	2.10	0.46
1:B:260:GLU:OE2	1:B:334:VAL:HG23	2.15	0.46
1:A:251:GLU:OE2	1:A:251:GLU:HA	2.15	0.46
1:A:319:VAL:CG2	1:A:322:ARG:HE	2.29	0.46
1:D:276:THR:C	1:D:278:ASN:H	2.19	0.46
1:D:348:ILE:O	1:D:352:ARG:HG3	2.16	0.46
1:A:160:ASN:C	1:A:160:ASN:ND2	2.68	0.46
1:B:329:ILE:HD11	1:C:112:GLU:CB	2.46	0.46
1:C:264:ALA:O	1:C:267:ARG:HB3	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:260:GLU:OE1	1:C:331:PHE:HB3	2.16	0.46
1:B:273:GLU:O	1:B:273:GLU:CD	2.54	0.46
1:D:326:ASN:ND2	1:D:329:ILE:H	2.14	0.46
1:D:352:ARG:HH11	1:D:352:ARG:HG2	1.81	0.46
1:A:102:ILE:HB	1:A:155:GLU:HG3	1.98	0.46
1:B:178:ILE:N	1:B:178:ILE:HD12	2.31	0.46
1:C:340:HIS:CE1	1:C:343:ARG:HH12	2.33	0.46
1:B:293:ARG:HH11	1:B:293:ARG:HG3	1.81	0.46
1:C:134:GLU:OE2	1:C:344:ARG:NH2	2.49	0.46
1:C:237:HIS:HE1	1:D:243:SER:OG	1.98	0.46
1:A:215:TRP:CE2	1:A:301:LEU:HD22	2.51	0.46
1:A:253:ARG:NH1	1:A:330:GLU:CD	2.70	0.45
1:A:256:TYR:OH	1:A:317:ASN:ND2	2.49	0.45
1:C:107:GLN:HA	1:C:107:GLN:HE21	1.81	0.45
1:C:194:LYS:O	1:C:194:LYS:HG2	2.16	0.45
1:C:314:VAL:HB	1:C:315:PRO:CD	2.44	0.45
1:C:201:LEU:HA	1:C:306:LEU:O	2.16	0.45
1:D:326:ASN:HD21	1:D:328:LYS:HB3	1.82	0.45
1:B:316:TRP:O	1:B:318:ASN:N	2.49	0.45
1:C:298:PRO:HG3	1:C:340:HIS:CE1	2.51	0.45
1:D:200:LEU:O	1:D:201:LEU:HB2	2.16	0.45
1:A:187:HIS:CD2	1:B:210:SER:OG	2.69	0.45
1:C:262:ALA:O	1:C:266:ARG:HG2	2.16	0.45
1:B:159:VAL:CG1	1:B:160:ASN:N	2.79	0.45
1:C:105:PHE:CZ	1:C:115:THR:HG21	2.52	0.45
1:A:348:ILE:C	1:A:350:ALA:N	2.70	0.45
1:B:234:ARG:NH1	1:C:349:LYS:HG3	2.32	0.45
1:B:269:ALA:O	1:B:273:GLU:HB2	2.17	0.45
1:A:262:ALA:O	1:A:266:ARG:HD3	2.17	0.45
1:C:100:SER:O	1:C:103:THR:N	2.50	0.45
1:A:229:GLN:NE2	1:B:247:ARG:HH21	2.14	0.44
1:B:234:ARG:HH12	1:C:349:LYS:HG3	1.82	0.44
1:B:316:TRP:C	1:B:318:ASN:H	2.20	0.44
1:B:201:LEU:HA	1:B:307:THR:HA	1.97	0.44
1:B:326:ASN:C	1:B:326:ASN:HD22	2.21	0.44
1:C:180:GLU:O	1:C:184:ILE:HG13	2.18	0.44
1:C:101:ARG:HG2	1:C:102:ILE:HD12	1.98	0.44
1:A:186:LEU:HD21	1:A:213:ASN:ND2	2.32	0.44
1:D:132:LEU:HD13	1:D:188:LEU:CD1	2.48	0.44
1:A:163:ALA:O	1:A:164:ARG:NH1	2.46	0.44
1:A:212:ILE:HG13	1:A:302:VAL:HG11	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:114:TYR:CD1	1:C:114:TYR:N	2.86	0.44
1:A:119:HIS:CD2	1:A:121:SER:N	2.78	0.44
1:C:106:PHE:HA	1:C:109:GLN:HG3	2.00	0.44
1:C:266:ARG:HB2	1:C:299:VAL:HG13	1.98	0.44
1:D:123:PRO:HB2	1:D:316:TRP:CE2	2.53	0.44
1:C:254:ARG:HH12	1:D:162:ASN:HD22	1.64	0.44
1:D:240:LYS:C	1:D:241:ILE:HG13	2.39	0.44
1:B:127:LYS:HE2	1:B:181:SER:HB2	2.00	0.43
1:A:314:VAL:HG23	1:A:315:PRO:CD	2.29	0.43
1:D:260:GLU:OE2	1:D:333:GLU:HB2	2.18	0.43
1:B:121:SER:O	1:B:123:PRO:HD3	2.17	0.43
1:A:202:TRP:CG	1:A:203:SER:N	2.84	0.43
1:A:273:GLU:OE2	1:A:273:GLU:CA	2.56	0.43
1:B:99:TYR:HB3	1:B:150:GLU:HA	1.99	0.43
1:A:192:TYR:O	1:A:196:THR:HB	2.17	0.43
1:A:241:ILE:HG21	1:B:241:ILE:HD13	2.01	0.43
1:C:229:GLN:HB2	1:C:248:TYR:CD2	2.54	0.43
1:D:202:TRP:HE3	1:D:202:TRP:HA	1.84	0.43
1:A:208:ASP:O	1:A:212:ILE:HG13	2.19	0.43
1:B:155:GLU:CD	1:B:155:GLU:H	2.21	0.43
1:D:99:TYR:HB3	1:D:150:GLU:HA	2.00	0.43
1:D:118:SER:HA	1:D:165:VAL:HB	2.00	0.43
1:D:173:MET:HG3	1:D:191:LYS:NZ	2.33	0.43
1:A:132:LEU:HD13	1:A:188:LEU:CD1	2.48	0.43
1:C:105:PHE:CD1	1:C:142:ILE:HD11	2.54	0.43
1:D:162:ASN:O	1:D:163:ALA:HB3	2.19	0.43
1:D:202:TRP:HA	1:D:202:TRP:CE3	2.54	0.43
1:D:237:HIS:C	1:D:239:GLN:H	2.22	0.42
1:B:159:VAL:HG13	1:B:160:ASN:N	2.33	0.42
1:B:262:ALA:O	1:B:266:ARG:HG2	2.19	0.42
1:C:229:GLN:HB2	1:C:248:TYR:CG	2.55	0.42
1:D:212:ILE:HG23	1:D:309:ALA:HB2	2.01	0.42
1:D:253:ARG:NH1	1:D:330:GLU:OE2	2.52	0.42
1:D:352:ARG:HG2	1:D:352:ARG:NH1	2.34	0.42
1:A:314:VAL:HG11	1:A:341:MET:CB	2.49	0.42
1:B:202:TRP:HA	1:B:202:TRP:CE3	2.54	0.42
1:B:252:VAL:O	1:B:256:TYR:HD1	2.03	0.42
1:C:192:TYR:CZ	1:C:200:LEU:HD12	2.53	0.42
1:A:223:HIS:O	1:A:227:ILE:HG13	2.20	0.42
1:B:127:LYS:HG3	1:B:312:ALA:HA	2.00	0.42
1:B:202:TRP:HA	1:B:202:TRP:HE3	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:189:VAL:HB	1:B:202:TRP:HB2	2.01	0.42
1:B:274:LEU:HD12	1:B:274:LEU:HA	1.90	0.42
1:C:247:ARG:HH21	1:D:229:GLN:HE22	1.66	0.42
1:D:170:ASP:HB3	1:D:176:LEU:HB3	2.01	0.42
1:C:160:ASN:HB2	1:C:179:TRP:HB3	2.01	0.42
1:A:351:LEU:C	1:A:353:GLY:H	2.23	0.41
1:B:267:ARG:NH2	1:B:333:GLU:OE1	2.53	0.41
1:B:293:ARG:CG	1:B:293:ARG:NH1	2.83	0.41
1:C:256:TYR:HA	1:C:259:VAL:HG22	2.02	0.41
1:D:223:HIS:HD2	1:D:255:VAL:CG1	2.33	0.41
1:D:340:HIS:HA	1:D:343:ARG:NH1	2.35	0.41
1:D:215:TRP:CD2	1:D:301:LEU:HD13	2.55	0.41
1:A:255:VAL:O	1:A:258:VAL:HB	2.20	0.41
1:C:310:ASP:HA	1:C:337:TRP:HZ2	1.85	0.41
1:C:339:LYS:HD3	1:C:339:LYS:HA	1.59	0.41
1:D:149:GLY:O	1:D:152:ARG:HB2	2.20	0.41
1:D:219:GLN:O	1:D:223:HIS:HB3	2.21	0.41
1:A:270:LEU:HD21	1:A:297:TYR:HB2	2.02	0.41
1:A:271:VAL:C	1:A:273:GLU:N	2.74	0.41
1:B:115:THR:O	1:B:168:LEU:HD12	2.21	0.41
1:B:339:LYS:HA	1:B:339:LYS:HD3	1.77	0.41
1:D:300:TRP:CZ3	1:D:306:LEU:HD13	2.55	0.41
1:C:241:ILE:CD1	1:D:241:ILE:HG21	2.50	0.41
1:C:165:VAL:HG23	2:C:356:GSH:HB23	2.02	0.41
1:D:344:ARG:HB2	1:D:347:VAL:HG23	2.03	0.41
1:A:101:ARG:O	1:A:101:ARG:HG2	2.21	0.41
1:A:260:GLU:OE2	1:A:333:GLU:HB2	2.20	0.41
1:A:270:LEU:O	1:A:272:MET:N	2.54	0.41
1:B:270:LEU:O	1:B:273:GLU:HB3	2.20	0.41
1:B:316:TRP:C	1:B:318:ASN:N	2.75	0.41
1:C:162:ASN:ND2	1:D:218:PHE:CE1	2.89	0.41
1:B:98:GLU:O	1:B:98:GLU:HG3	2.21	0.40
1:C:116:LEU:C	1:C:116:LEU:CD2	2.89	0.40
1:C:338:THR:O	1:C:342:MET:HG2	2.21	0.40
1:B:260:GLU:OE2	1:B:331:PHE:HB3	2.21	0.40
1:D:109:GLN:HE21	1:D:171:HIS:CE1	2.39	0.40
1:D:173:MET:CG	1:D:191:LYS:HZ2	2.34	0.40
1:C:332:PRO:O	1:C:335:TYR:HB3	2.21	0.40
1:A:118:SER:O	1:A:143:PHE:HA	2.21	0.40
1:B:153:ALA:HB1	1:B:155:GLU:OE2	2.22	0.40
1:D:132:LEU:HD13	1:D:188:LEU:HD13	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:316:TRP:O	1:D:320:VAL:HG13	2.21	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	230/260 (88%)	205 (89%)	19 (8%)	6 (3%)	5	20
1	B	238/260 (92%)	210 (88%)	23 (10%)	5 (2%)	7	26
1	C	253/260 (97%)	224 (88%)	25 (10%)	4 (2%)	9	32
1	D	257/260 (99%)	233 (91%)	21 (8%)	3 (1%)	13	40
All	All	978/1040 (94%)	872 (89%)	88 (9%)	18 (2%)	8	29

All (18) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	108	GLU
1	B	274	LEU
1	B	275	ASP
1	C	274	LEU
1	C	278	ASN
1	A	103	THR
1	A	238	SER
1	A	349	LYS
1	C	273	GLU
1	D	108	GLU
1	B	317	ASN
1	B	293	ARG
1	D	277	GLU
1	C	180	GLU

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Mol	Chain	Res	Type
1	A	271	VAL
1	B	271	VAL
1	A	332	PRO
1	D	353	GLY

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	202/223 (91%)	196 (97%)	6 (3%)	41	75
1	B	210/223 (94%)	197 (94%)	13 (6%)	18	47
1	C	218/223 (98%)	207 (95%)	11 (5%)	24	57
1	D	222/223 (100%)	211 (95%)	11 (5%)	24	57
All	All	852/892 (96%)	811 (95%)	41 (5%)	25	58

All (41) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	157	VAL
1	A	160	ASN
1	A	179	TRP
1	A	190	ASN
1	A	200	LEU
1	A	314	VAL
1	B	108	GLU
1	B	111	LEU
1	B	148	LEU
1	B	179	TRP
1	B	194	LYS
1	B	202	TRP
1	B	273	GLU
1	B	275	ASP
1	B	293	ARG
1	B	295	PHE
1	B	297	TYR

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Mol	Chain	Res	Type
1	B	321	ASP
1	B	326	ASN
1	C	111	LEU
1	C	114	TYR
1	C	116	LEU
1	C	132	LEU
1	C	219	GLN
1	C	238	SER
1	C	278	ASN
1	C	319	VAL
1	C	326	ASN
1	C	351	LEU
1	C	352	ARG
1	D	96	HIS
1	D	132	LEU
1	D	159	VAL
1	D	162	ASN
1	D	200	LEU
1	D	202	TRP
1	D	289	MET
1	D	314	VAL
1	D	326	ASN
1	D	339	LYS
1	D	354	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (53) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	119	HIS
1	A	147	ASN
1	A	160	ASN
1	A	162	ASN
1	A	175	ASN
1	A	187	HIS
1	A	198	ASN
1	A	209	GLN
1	A	211	GLN
1	A	213	ASN
1	A	219	GLN
1	A	229	GLN
1	A	237	HIS
1	A	317	ASN

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Mol	Chain	Res	Type
1	B	109	GLN
1	B	124	ASN
1	B	151	HIS
1	B	162	ASN
1	B	187	HIS
1	B	209	GLN
1	B	213	ASN
1	B	219	GLN
1	B	229	GLN
1	B	237	HIS
1	B	239	GLN
1	B	318	ASN
1	C	107	GLN
1	C	109	GLN
1	C	162	ASN
1	C	187	HIS
1	C	198	ASN
1	C	209	GLN
1	C	211	GLN
1	C	213	ASN
1	C	219	GLN
1	C	229	GLN
1	C	237	HIS
1	C	239	GLN
1	C	291	GLN
1	C	317	ASN
1	C	326	ASN
1	D	96	HIS
1	D	109	GLN
1	D	147	ASN
1	D	162	ASN
1	D	187	HIS
1	D	209	GLN
1	D	213	ASN
1	D	219	GLN
1	D	229	GLN
1	D	237	HIS
1	D	317	ASN
1	D	326	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 monosaccharides in this entry.

5.6 Ligand geometry ⓘ

2 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	GSH	A	355	-	18,19,19	1.09	0	23,24,24	0.89	1 (4%)
2	GSH	C	356	-	18,19,19	1.40	2 (11%)	23,24,24	0.79	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	GSH	A	355	-	-	2/24/24/24	-
2	GSH	C	356	-	-	1/24/24/24	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	356	GSH	CB2-CA2	2.92	1.56	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	356	GSH	CG1-CD1	2.20	1.55	1.51

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	355	GSH	CA2-CB2-SG2	-2.00	111.94	114.19

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	355	GSH	N1-CA1-CB1-CG1
2	C	356	GSH	N1-CA1-CB1-CG1
2	A	355	GSH	C1-CA1-CB1-CG1

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	356	GSH	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 GSH A 355

Bond lengths

Bond angles

Torsions

Rings

Ligand GSH C 356

Bond lengths

Bond angles

Torsions

Rings
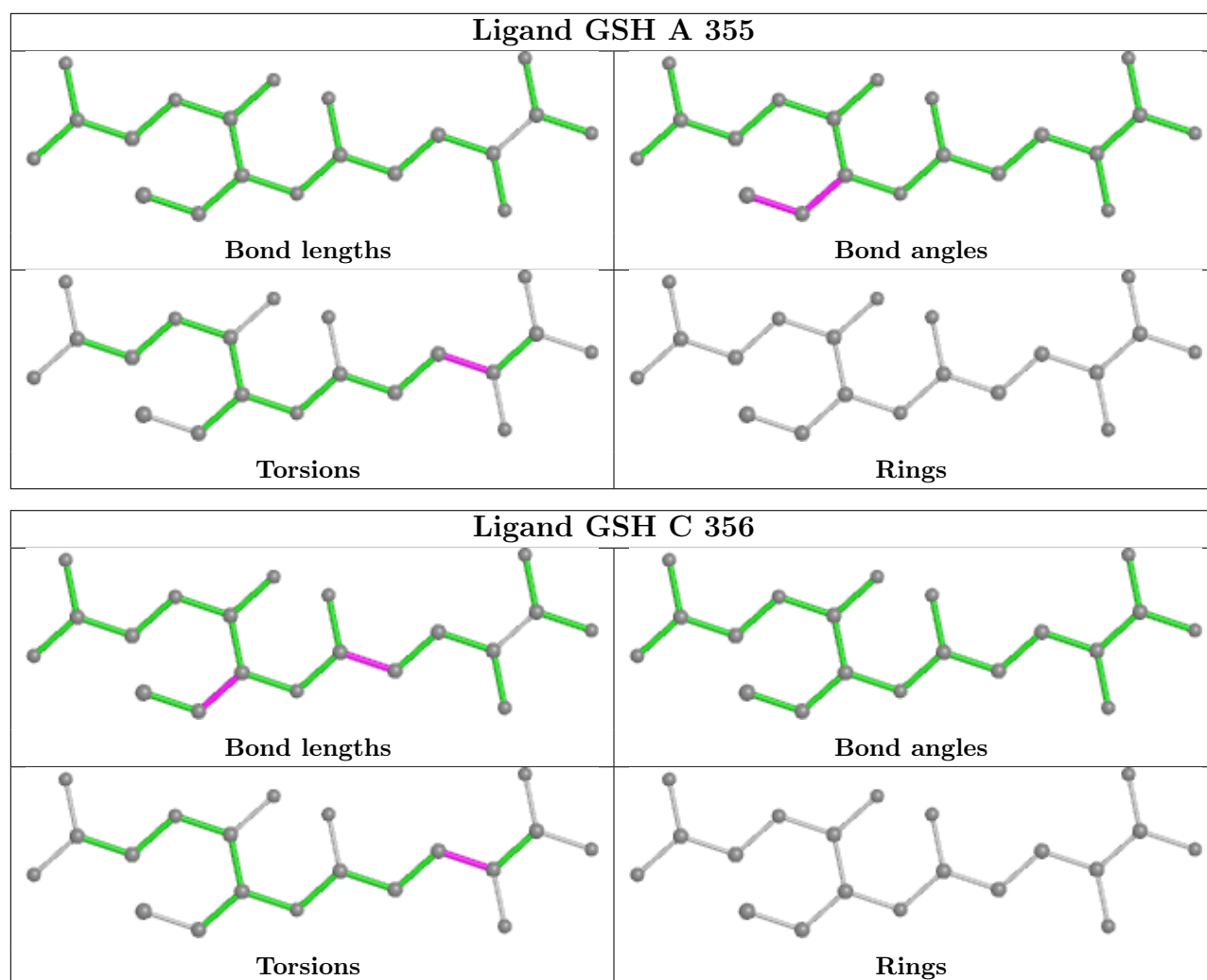
5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	234/260 (90%)	-0.27	11 (4%)	31	28	2, 12, 43, 64	0
1	B	242/260 (93%)	-0.17	11 (4%)	33	29	2, 15, 42, 53	0
1	C	255/260 (98%)	-0.43	1 (0%)	92	93	2, 10, 33, 41	0
1	D	259/260 (99%)	-0.39	3 (1%)	79	79	1, 11, 31, 50	0
All	All	990/1040 (95%)	-0.32	26 (2%)	56	52	1, 12, 36, 64	0

All (26) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	107	GLN	4.7
1	D	353	GLY	4.1
1	B	97	VAL	3.8
1	B	292	SER	3.6
1	A	108	GLU	3.4
1	B	293	ARG	3.3
1	A	106	PHE	3.2
1	B	295	PHE	3.1
1	A	103	THR	3.0
1	A	274	LEU	3.0
1	B	274	LEU	3.0
1	D	96	HIS	3.0
1	B	111	LEU	2.9
1	C	293	ARG	2.8
1	B	107	GLN	2.6
1	A	275	ASP	2.6
1	D	108	GLU	2.5
1	B	276	THR	2.5
1	A	100	SER	2.5
1	A	109	GLN	2.4
1	A	353	GLY	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	102	ILE	2.2
1	B	112	GLU	2.2
1	B	275	ASP	2.2
1	A	352	ARG	2.1
1	B	104	LYS	2.1

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

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

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

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.

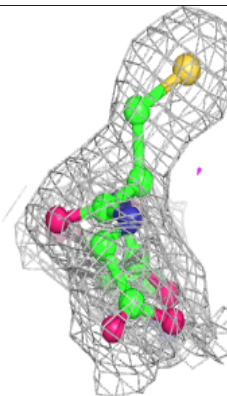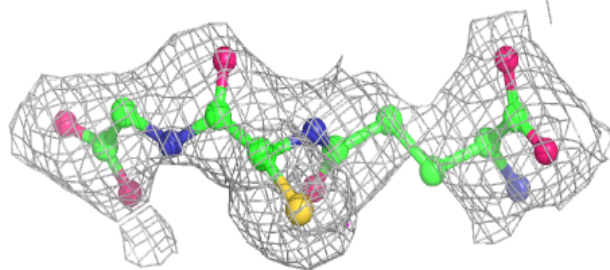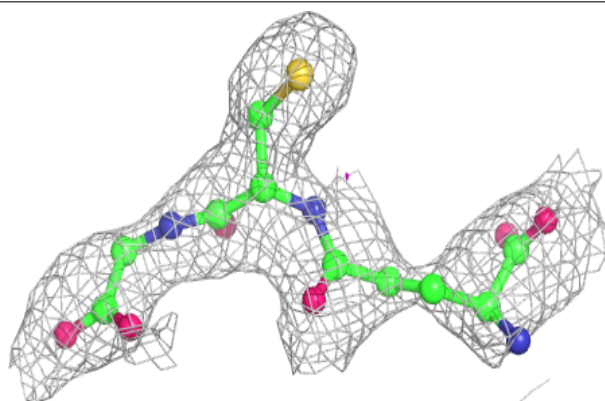| Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	GSH	A	355	20/20	0.94	0.16	16,22,26,30	0
2	GSH	C	356	20/20	0.94	0.17	11,15,23,24	0

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 GSH A 355:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
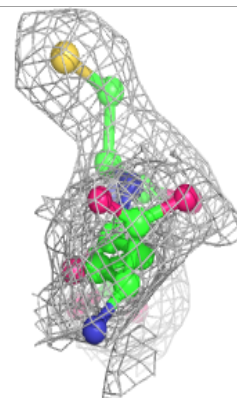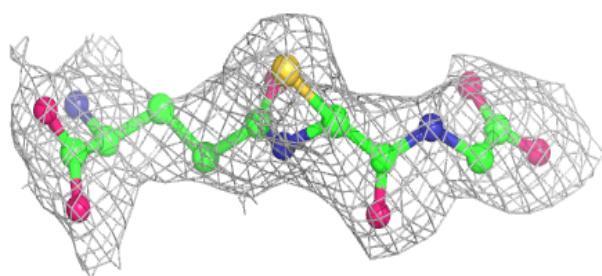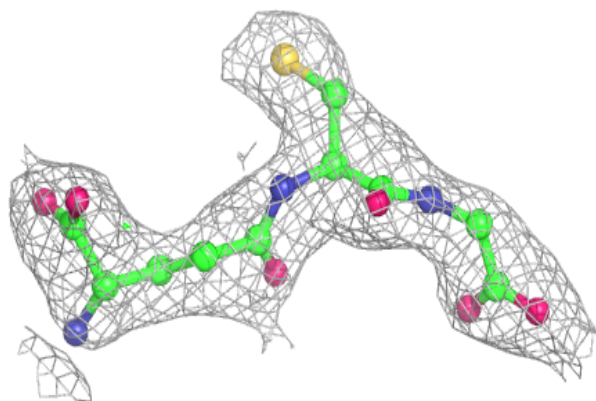
Electron density around GSH C 356:

$2mF_o$-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 ⓘ

There are no such residues in this entry.