



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 12:37 AM GMT

PDB ID : 2B52
Title : Human cyclin dependent kinase 2 (CDK2) complexed with DPH-042562
Authors : Muckelbauer, J.
Deposited on : 2005-09-27
Resolution : 1.88 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
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Mogul : 1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20026688
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac : 5.8.0135
CCP4 : 6.5.0
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk26865

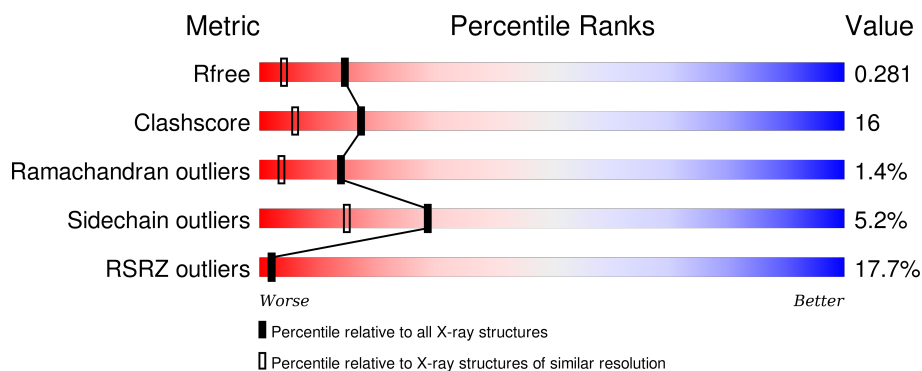
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.88 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} | 91344 | 6965 (1.90-1.86) |
| Clashscore | 102246 | 7778 (1.90-1.86) |
| Ramachandran outliers | 100387 | 7691 (1.90-1.86) |
| Sidechain outliers | 100360 | 7692 (1.90-1.86) |
| RSRZ outliers | 91569 | 6979 (1.90-1.86) |

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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1 | A | 298 | |

2 Entry composition [i](#)

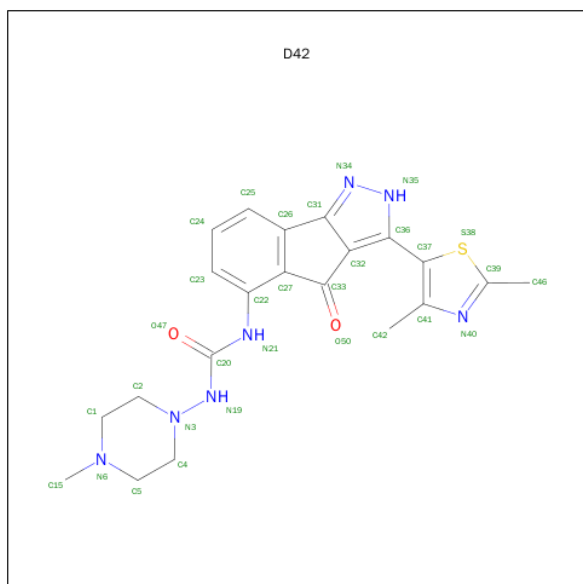
There are 3 unique types of molecules in this entry. The entry contains 2368 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Cell division protein kinase 2.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 1 | A | 283 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 2277 | 1482 | 387 | 400 | 8 | | | |

- Molecule 2 is 1-(3-(2,4-DIMETHYLTHIAZOL-5-YL)-4-OXO-2,4-DIHYDROINDENO[1,2-C]PYRAZOL-5-YL)-3-(4-METHYLPIPERAZIN-1-YL)UREA (three-letter code: D42) (formula: C₂₁H₂₃N₇O₂S).



| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---|---|---|---------|---------|
| 2 | A | 1 | Total | C | N | O | S | 0 | 0 |
| | | | 31 | 21 | 7 | 2 | 1 | | |

- Molecule 3 is water.

| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---------|---------|
| 3 | A | 60 | Total | O | 0 | 0 |
| | | | 60 | 60 | | |

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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 ($\text{RSRZ} > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

Chain A:

17% 62% 30% 5%

M1 E2 N3 K6 V7 E8 K9 I10 E12 G13 T14 Y15 G16 V17 Y18 Y19 K20 A21 R22 N23 K24 L25 T26 L32 K33 K34 I35 R36 LEU ASP TRR GLU T41 E42 G43 V44 P45 S46 T47 I49 R50 E51 L54 L55 K56 E57 H60 P61 N62 I63 V64 K65 L66 V69 I70 H71 T72 E73 N74 K75 L76 Y77 L78 V79 F80 L83 H84 Q85 D86 L87 K88 K89 F90 N91 L96 L103 Q110 H119 R122 H125 R126 D127 L128 K129 P130 Q131 N132 L133 L134 T137 L143 A144 D145 F146 G147 L148 A149 ARG PHE I63 GLY VAL PRO VAI R291 P292 V293 P294 R295 L296 R297 L298 ARG THR THR THR H161 E162 V163 V164 V167 L174 L175 K178 T182 R199 L202 P203 P204 D210 Q211 L212 F213 R214 L219 E224 V230 T231 S232 N233 Y236 F240 Q246 D247 F248 V251 S261 Q265 H268 K273 Q287 T290

4 Data and refinement statistics

| Property | Value | Source |
|---|---|------------------|
| Space group | P 21 21 21 | Depositor |
| Cell constants a, b, c, α , β , γ | 72.03Å 72.01Å 53.50Å 90.00° 90.00° 90.00° | Depositor |
| Resolution (Å) | 18.71 – 1.88 18.71 – 1.88 | Depositor EDS |
| % Data completeness (in resolution range) | 86.8 (18.71-1.88) 96.0 (18.71-1.88) | Depositor EDS |
| R_{merge} | 0.07 | Depositor |
| R_{sym} | (Not available) | Depositor |
| $\langle I/\sigma(I) \rangle$ ¹ | 2.61 (at 1.89Å) | Xtriage |
| Refinement program | CNX 2002 | Depositor |
| R, R_{free} | 0.219 , 0.275 0.228 , 0.281 | Depositor DCC |
| R_{free} test set | 1823 reflections (8.87%) | DCC |
| Wilson B-factor (Å ²) | 28.7 | Xtriage |
| Anisotropy | 0.431 | Xtriage |
| Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²) | 0.35 , 60.4 | EDS |
| Estimated twinning fraction | 0.021 for k,h,-l | Xtriage |
| L-test for twinning ² | $\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$ | Xtriage |
| Outliers | 0 of 23160 reflections | Xtriage |
| F_o, F_c correlation | 0.95 | EDS |
| Total number of atoms | 2368 | 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 5.37% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.375 respectively for untwinned datasets, and 0.333, 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: D42

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 | 0.37 | 0/2334 | 0.58 | 0/3162 |

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 | 2277 | 0 | 2329 | 75 | 0 |
| 2 | A | 31 | 0 | 23 | 3 | 0 |
| 3 | A | 60 | 0 | 0 | 4 | 0 |
| All | All | 2368 | 0 | 2352 | 75 | 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 16.

All (75) 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:A:1:MET:HE3 | 1:A:3:ASN:H | 1.34 | 0.92 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:64:VAL:HG21 | 1:A:134:LEU:HD12 | 1.65 | 0.78 |
| 1:A:210:ASP:O | 1:A:214:ARG:HG3 | 1.85 | 0.77 |
| 1:A:128:LEU:HD21 | 1:A:143:LEU:CD2 | 2.22 | 0.70 |
| 1:A:128:LEU:HD21 | 1:A:143:LEU:HD22 | 1.74 | 0.70 |
| 1:A:15:TYR:HB2 | 1:A:33:LYS:NZ | 2.09 | 0.67 |
| 1:A:56:LYS:NZ | 1:A:56:LYS:HB3 | 2.09 | 0.67 |
| 1:A:60:HIS:HD2 | 1:A:62:ASN:H | 1.42 | 0.64 |
| 1:A:60:HIS:CD2 | 1:A:62:ASN:H | 2.16 | 0.64 |
| 1:A:41:THR:OG1 | 1:A:75:LYS:HD2 | 1.97 | 0.64 |
| 1:A:145:ASP:OD2 | 2:A:299:D42:H22 | 2.00 | 0.61 |
| 1:A:64:VAL:HG21 | 1:A:144:ALA:HB2 | 1.82 | 0.60 |
| 1:A:261:SER:O | 1:A:265:GLN:HG3 | 2.01 | 0.60 |
| 1:A:43:GLY:HA2 | 1:A:74:ASN:HD22 | 1.65 | 0.60 |
| 1:A:131:GLN:NE2 | 1:A:131:GLN:H | 2.00 | 0.60 |
| 1:A:43:GLY:HA2 | 1:A:74:ASN:ND2 | 2.17 | 0.58 |
| 1:A:290:THR:O | 1:A:292:PRO:HD3 | 2.04 | 0.58 |
| 1:A:9:LYS:HG2 | 1:A:19:TYR:CE1 | 2.38 | 0.58 |
| 1:A:47:THR:O | 1:A:51:GLU:HG2 | 2.04 | 0.58 |
| 1:A:1:MET:HE3 | 1:A:3:ASN:N | 2.11 | 0.58 |
| 1:A:86:ASP:OD2 | 2:A:299:D42:H463 | 2.04 | 0.57 |
| 1:A:84:HIS:HB3 | 1:A:298:LEU:HD22 | 1.85 | 0.56 |
| 1:A:85:GLN:HE21 | 1:A:90:PHE:HB2 | 1.70 | 0.56 |
| 1:A:64:VAL:CG2 | 1:A:134:LEU:HD12 | 2.35 | 0.56 |
| 1:A:25:LEU:CD1 | 1:A:26:THR:HG23 | 2.37 | 0.55 |
| 1:A:16:GLY:HA2 | 1:A:36:ARG:HD2 | 1.88 | 0.55 |
| 1:A:86:ASP:OD1 | 1:A:88:LYS:HB3 | 2.07 | 0.54 |
| 1:A:1:MET:HG3 | 1:A:70:ILE:HD13 | 1.88 | 0.54 |
| 1:A:199:ARG:HD2 | 3:A:344:HOH:O | 2.07 | 0.54 |
| 1:A:87:LEU:O | 1:A:91:MET:HG3 | 2.08 | 0.53 |
| 1:A:175:LEU:HD21 | 1:A:212:LEU:HD21 | 1.91 | 0.53 |
| 1:A:247:ASP:O | 1:A:251:VAL:HG23 | 2.09 | 0.53 |
| 1:A:146:PHE:HB2 | 1:A:148:LEU:HD21 | 1.92 | 0.51 |
| 1:A:23:ASN:OD1 | 1:A:25:LEU:HG | 2.10 | 0.51 |
| 1:A:56:LYS:HB3 | 1:A:56:LYS:HZ2 | 1.75 | 0.51 |
| 1:A:103:LEU:HD11 | 1:A:294:PRO:HB3 | 1.93 | 0.51 |
| 1:A:178:LYS:HD3 | 1:A:178:LYS:H | 1.76 | 0.50 |
| 1:A:88:LYS:HE2 | 3:A:357:HOH:O | 2.11 | 0.50 |
| 1:A:122:ARG:HE | 1:A:122:ARG:HA | 1.76 | 0.50 |
| 1:A:129:LYS:HG2 | 1:A:132:ASN:ND2 | 2.27 | 0.49 |
| 1:A:297:ARG:NE | 1:A:297:ARG:HA | 2.27 | 0.49 |
| 1:A:15:TYR:HB2 | 1:A:33:LYS:HZ3 | 1.78 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:178:LYS:HD3 | 1:A:178:LYS:N | 2.28 | 0.49 |
| 1:A:15:TYR:HB2 | 1:A:33:LYS:HZ1 | 1.77 | 0.48 |
| 1:A:84:HIS:CD2 | 1:A:298:LEU:HD13 | 2.49 | 0.48 |
| 1:A:297:ARG:HA | 1:A:297:ARG:CZ | 2.44 | 0.47 |
| 1:A:230:VAL:O | 1:A:233:MET:HG2 | 2.14 | 0.47 |
| 1:A:162:GLU:O | 1:A:163:VAL:HG13 | 2.14 | 0.47 |
| 1:A:125:HIS:O | 1:A:126:ARG:HB2 | 2.14 | 0.47 |
| 1:A:62:ASN:ND2 | 1:A:110:GLN:HB3 | 2.29 | 0.47 |
| 1:A:273:LYS:HD2 | 3:A:322:HOH:O | 2.16 | 0.46 |
| 1:A:83:LEU:O | 2:A:299:D42:N35 | 2.43 | 0.46 |
| 1:A:12:GLU:HA | 1:A:17:VAL:HA | 1.97 | 0.45 |
| 1:A:294:PRO:HG2 | 1:A:296:LEU:HG | 1.99 | 0.45 |
| 1:A:64:VAL:CG2 | 1:A:144:ALA:HB2 | 2.44 | 0.45 |
| 1:A:34:LYS:HG3 | 1:A:77:TYR:CE1 | 2.53 | 0.44 |
| 1:A:69:VAL:HG13 | 1:A:69:VAL:O | 2.16 | 0.44 |
| 1:A:43:GLY:O | 1:A:44:VAL:HB | 2.18 | 0.43 |
| 1:A:9:LYS:HG2 | 1:A:19:TYR:CD1 | 2.53 | 0.43 |
| 1:A:231:THR:HA | 1:A:236:TYR:CD2 | 2.53 | 0.43 |
| 1:A:130:PRO:HB2 | 1:A:131:GLN:HE21 | 1.82 | 0.43 |
| 1:A:174:LEU:HD11 | 1:A:211:GLN:HG3 | 2.01 | 0.43 |
| 1:A:224:GLU:OE2 | 1:A:231:THR:HG23 | 2.19 | 0.43 |
| 1:A:119:HIS:CE1 | 1:A:182:THR:HB | 2.54 | 0.42 |
| 1:A:35:ILE:HD11 | 1:A:78:LEU:HD12 | 2.00 | 0.42 |
| 1:A:3:ASN:HB3 | 1:A:25:LEU:HD23 | 2.01 | 0.42 |
| 1:A:174:LEU:CB | 1:A:212:LEU:HD13 | 2.48 | 0.42 |
| 1:A:203:PHE:CZ | 1:A:219:LEU:HD21 | 2.54 | 0.42 |
| 1:A:230:VAL:HG13 | 1:A:231:THR:N | 2.35 | 0.41 |
| 1:A:66:LEU:HD13 | 1:A:80:PHE:CE1 | 2.56 | 0.41 |
| 1:A:167:TRP:CD1 | 1:A:204:PRO:HA | 2.55 | 0.41 |
| 1:A:46:SER:HA | 1:A:49:ILE:HG12 | 2.02 | 0.41 |
| 1:A:137:THR:HA | 1:A:296:LEU:HD12 | 2.03 | 0.40 |
| 1:A:1:MET:HB2 | 3:A:351:HOH:O | 2.21 | 0.40 |
| 1:A:7:VAL:HG21 | 1:A:22:ARG:HB2 | 2.03 | 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 | 277/298 (93%) | 258 (93%) | 15 (5%) | 4 (1%) | 14 4 |

All (4) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 162 | GLU |
| 1 | A | 163 | VAL |
| 1 | A | 6 | LYS |
| 1 | A | 44 | 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 | 250/263 (95%) | 237 (95%) | 13 (5%) | 29 15 |

All (13) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 1 | MET |
| 1 | A | 12 | GLU |
| 1 | A | 25 | LEU |
| 1 | A | 76 | LEU |
| 1 | A | 89 | LYS |
| 1 | A | 103 | LEU |
| 1 | A | 131 | GLN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 162 | GLU |
| 1 | A | 178 | LYS |
| 1 | A | 202 | LEU |
| 1 | A | 219 | LEU |
| 1 | A | 268 | HIS |
| 1 | A | 287 | GLN |

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 5 | GLN |
| 1 | A | 60 | HIS |
| 1 | A | 74 | ASN |
| 1 | A | 84 | HIS |
| 1 | A | 85 | GLN |
| 1 | A | 113 | GLN |
| 1 | A | 131 | GLN |
| 1 | A | 268 | HIS |

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 carbohydrates in this entry.

5.6 Ligand geometry ⓘ

1 ligand is 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 | D42 | A | 299 | - | 30,35,35 | 3.62 | 17 (56%) | 23,52,52 | 2.41 | 9 (39%) |

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 | D42 | A | 299 | - | - | 0/8/34/34 | 0/5/5/5 |

All (17) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 2 | A | 299 | D42 | C27-C33 | -2.48 | 1.46 | 1.49 |
| 2 | A | 299 | D42 | C32-C33 | -2.45 | 1.46 | 1.49 |
| 2 | A | 299 | D42 | C20-N21 | -2.05 | 1.33 | 1.37 |
| 2 | A | 299 | D42 | C39-S38 | 2.95 | 1.82 | 1.73 |
| 2 | A | 299 | D42 | C27-C22 | 3.06 | 1.47 | 1.41 |
| 2 | A | 299 | D42 | C37-C41 | 3.15 | 1.46 | 1.37 |
| 2 | A | 299 | D42 | C32-C31 | 3.33 | 1.45 | 1.41 |
| 2 | A | 299 | D42 | C31-N34 | 3.45 | 1.41 | 1.34 |
| 2 | A | 299 | D42 | C36-N35 | 3.46 | 1.41 | 1.34 |
| 2 | A | 299 | D42 | C32-C36 | 3.86 | 1.45 | 1.41 |
| 2 | A | 299 | D42 | C25-C26 | 4.18 | 1.47 | 1.39 |
| 2 | A | 299 | D42 | C26-C27 | 4.27 | 1.47 | 1.41 |
| 2 | A | 299 | D42 | C24-C23 | 4.38 | 1.47 | 1.38 |
| 2 | A | 299 | D42 | C24-C25 | 4.49 | 1.48 | 1.38 |
| 2 | A | 299 | D42 | C23-C22 | 5.10 | 1.48 | 1.39 |
| 2 | A | 299 | D42 | N35-N34 | 7.05 | 1.52 | 1.37 |
| 2 | A | 299 | D42 | N19-N3 | 11.62 | 1.51 | 1.41 |

All (9) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 2 | A | 299 | D42 | C27-C22-N21 | -4.07 | 112.13 | 118.72 |
| 2 | A | 299 | D42 | C27-C26-C31 | -3.79 | 105.03 | 108.58 |
| 2 | A | 299 | D42 | O50-C33-C27 | -3.06 | 124.75 | 127.63 |
| 2 | A | 299 | D42 | C32-C36-N35 | -2.63 | 104.28 | 108.41 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|------|-------------|----------|
| 2 | A | 299 | D42 | C4-C5-N6 | 2.08 | 112.99 | 110.79 |
| 2 | A | 299 | D42 | O50-C33-C32 | 2.52 | 130.00 | 127.63 |
| 2 | A | 299 | D42 | C32-C31-N34 | 3.11 | 113.28 | 108.41 |
| 2 | A | 299 | D42 | C5-N6-C1 | 4.26 | 115.12 | 109.53 |
| 2 | A | 299 | D42 | C15-N6-C5 | 5.33 | 118.93 | 110.63 |

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 3 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 2 | A | 299 | D42 | 3 | 0 |

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

| Mol | Chain | Analysed | <RSRZ> | #RSRZ>2 | OWAB(Å ²) | Q<0.9 |
|-----|-------|---------------|--------|--------------|-----------------------|-------|
| 1 | A | 283/298 (94%) | 1.00 | 50 (17%) 2 2 | 15, 38, 73, 87 | 0 |

All (50) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1 | A | 41 | THR | 7.6 |
| 1 | A | 15 | TYR | 7.2 |
| 1 | A | 44 | VAL | 7.0 |
| 1 | A | 36 | ARG | 6.8 |
| 1 | A | 25 | LEU | 5.9 |
| 1 | A | 161 | HIS | 5.9 |
| 1 | A | 163 | VAL | 5.8 |
| 1 | A | 14 | THR | 5.8 |
| 1 | A | 43 | GLY | 5.6 |
| 1 | A | 148 | LEU | 5.5 |
| 1 | A | 45 | PRO | 4.9 |
| 1 | A | 164 | VAL | 4.8 |
| 1 | A | 298 | LEU | 4.0 |
| 1 | A | 47 | THR | 4.0 |
| 1 | A | 96 | LEU | 4.0 |
| 1 | A | 42 | GLU | 3.9 |
| 1 | A | 54 | LEU | 3.8 |
| 1 | A | 12 | GLU | 3.8 |
| 1 | A | 73 | GLU | 3.7 |
| 1 | A | 46 | SER | 3.7 |
| 1 | A | 162 | GLU | 3.6 |
| 1 | A | 78 | LEU | 3.4 |
| 1 | A | 13 | GLY | 3.4 |
| 1 | A | 74 | ASN | 3.3 |
| 1 | A | 297 | ARG | 3.2 |
| 1 | A | 50 | ARG | 3.2 |
| 1 | A | 26 | THR | 3.1 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1 | A | 75 | LYS | 3.1 |
| 1 | A | 32 | LEU | 2.8 |
| 1 | A | 49 | ILE | 2.8 |
| 1 | A | 51 | GLU | 2.8 |
| 1 | A | 248 | PHE | 2.6 |
| 1 | A | 72 | THR | 2.5 |
| 1 | A | 57 | GLU | 2.5 |
| 1 | A | 293 | VAL | 2.5 |
| 1 | A | 19 | TYR | 2.4 |
| 1 | A | 287 | GLN | 2.4 |
| 1 | A | 295 | HIS | 2.4 |
| 1 | A | 21 | ALA | 2.4 |
| 1 | A | 240 | PHE | 2.3 |
| 1 | A | 77 | TYR | 2.3 |
| 1 | A | 146 | PHE | 2.3 |
| 1 | A | 246 | GLN | 2.2 |
| 1 | A | 1 | MET | 2.2 |
| 1 | A | 122 | ARG | 2.1 |
| 1 | A | 149 | ALA | 2.1 |
| 1 | A | 10 | ILE | 2.1 |
| 1 | A | 147 | GLY | 2.1 |
| 1 | A | 35 | ILE | 2.0 |
| 1 | A | 70 | ILE | 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 carbohydrates 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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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 | LLDF | B-factors(\AA^2) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|------|-----------------------------|-------|
| 2 | D42 | A | 299 | 31/31 | 0.75 | 0.20 | 0.20 | 42,47,56,56 | 0 |

6.5 Other polymers [i](#)

There are no such residues in this entry.