PDB ID : 1KZY
Title : Crystal Structure of the 53bp1 BRCT Region Complexed to Tumor Suppressor P53
Authors : Joo, W.S.; Jeffrey, P.D.; Cantor, S.B.; Finnin, M.S.; Livingston, D.M.; Pavletich, N.P.
Deposited on : 2002-02-08
Resolution : 2.50 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
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
Xtriage (Phenix) : NOT EXECUTED
EDS : NOT EXECUTED
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.11
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 2.50 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.

<table>
<thead>
<tr>
<th>Metric</th>
<th>Percentile Ranks</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clashscore</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>Ramachandran outliers</td>
<td></td>
<td>2.4%</td>
</tr>
<tr>
<td>Sidechain outliers</td>
<td></td>
<td>5.7%</td>
</tr>
</tbody>
</table>

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 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%.

Note EDS was not executed.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Length</th>
<th>Quality of chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>195</td>
<td>67% 31% 10%</td>
</tr>
<tr>
<td>1</td>
<td>B</td>
<td>195</td>
<td>66% 29% 5%</td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>259</td>
<td>56% 30% 10%</td>
</tr>
<tr>
<td>2</td>
<td>D</td>
<td>259</td>
<td>52% 31% 6% 10%</td>
</tr>
</tbody>
</table>
2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 6986 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 CELLULAR TUMOR ANTIGEN P53.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>ZeroOcc</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>195</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1530 942 282 290 16</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 2 is a protein called TUMOR SUPPRESSOR P53-BINDING PROTEIN 1.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>ZeroOcc</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>C</td>
<td>232</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1854 1184 320 339 11</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>ZeroOcc</th>
<th>AltConf</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>B</td>
<td>1</td>
<td>Zn</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>1</td>
<td>Zn</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

- Molecule 4 is water.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>ZeroOcc</th>
<th>AltConf</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>A</td>
<td>57</td>
<td>O</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>58</td>
<td>O</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>50</td>
<td>O</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>51</td>
<td>O</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
3 Residue-property plots

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

Note EDS was not executed.

• Molecule 1: CELLULAR TUMOR ANTIGEN P53

Chain A:

• Molecule 1: CELLULAR TUMOR ANTIGEN P53

Chain B:

• Molecule 2: TUMOR SUPPRESSOR P53-BINDING PROTEIN 1

Chain C:

• Molecule 2: TUMOR SUPPRESSOR P53-BINDING PROTEIN 1

Chain D:
<table>
<thead>
<tr>
<th>1A985</th>
<th>1I785</th>
<th>1A74A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1I905</td>
<td>1I786</td>
<td>1I74B</td>
</tr>
<tr>
<td>1I906</td>
<td>1I787</td>
<td>1I74C</td>
</tr>
<tr>
<td>1I907</td>
<td>1I788</td>
<td>1I74D</td>
</tr>
<tr>
<td>1I908</td>
<td>1I789</td>
<td>1I74E</td>
</tr>
<tr>
<td>1I909</td>
<td>1I790</td>
<td>1I74F</td>
</tr>
<tr>
<td>1I910</td>
<td>1I791</td>
<td>1I750</td>
</tr>
<tr>
<td>1I911</td>
<td>1I792</td>
<td>1I751</td>
</tr>
<tr>
<td>1I912</td>
<td>1I793</td>
<td>1I752</td>
</tr>
<tr>
<td>1I913</td>
<td>1I794</td>
<td>1I753</td>
</tr>
<tr>
<td>1I914</td>
<td>1I795</td>
<td>1I754</td>
</tr>
<tr>
<td>1I915</td>
<td>1I796</td>
<td>1I755</td>
</tr>
<tr>
<td>1I916</td>
<td>1I797</td>
<td>1I756</td>
</tr>
<tr>
<td>1I917</td>
<td>1I798</td>
<td>1I757</td>
</tr>
<tr>
<td>1I918</td>
<td>1I799</td>
<td>1I758</td>
</tr>
<tr>
<td>1I919</td>
<td>1I800</td>
<td>1I759</td>
</tr>
<tr>
<td>1I920</td>
<td>1I801</td>
<td>1I760</td>
</tr>
<tr>
<td>1I921</td>
<td>1I802</td>
<td>1I761</td>
</tr>
<tr>
<td>1I922</td>
<td>1I803</td>
<td>1I762</td>
</tr>
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<td>1I804</td>
<td>1I763</td>
</tr>
<tr>
<td>1I924</td>
<td>1I805</td>
<td>1I764</td>
</tr>
<tr>
<td>1I925</td>
<td>1I806</td>
<td>1I765</td>
</tr>
<tr>
<td>1I926</td>
<td>1I807</td>
<td>1I766</td>
</tr>
<tr>
<td>1I927</td>
<td>1I808</td>
<td>1I767</td>
</tr>
<tr>
<td>1I928</td>
<td>1I809</td>
<td>1I768</td>
</tr>
<tr>
<td>1I929</td>
<td>1I810</td>
<td>1I769</td>
</tr>
<tr>
<td>1I930</td>
<td>1I811</td>
<td>1I770</td>
</tr>
<tr>
<td>1I931</td>
<td>1I812</td>
<td>1I771</td>
</tr>
<tr>
<td>1I932</td>
<td>1I813</td>
<td>1I772</td>
</tr>
<tr>
<td>1I933</td>
<td>1I814</td>
<td>1I773</td>
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<tr>
<td>1I934</td>
<td>1I815</td>
<td>1I774</td>
</tr>
<tr>
<td>1I935</td>
<td>1I816</td>
<td>1I775</td>
</tr>
<tr>
<td>1I936</td>
<td>1I817</td>
<td>1I776</td>
</tr>
<tr>
<td>1I937</td>
<td>1I818</td>
<td>1I777</td>
</tr>
<tr>
<td>1I938</td>
<td>1I819</td>
<td>1I778</td>
</tr>
<tr>
<td>1I939</td>
<td>1I820</td>
<td>1I779</td>
</tr>
<tr>
<td>1I940</td>
<td>1I821</td>
<td>1I780</td>
</tr>
</tbody>
</table>

A1714
L1715
E1716
E1717
Q1718
R1719
G1720
P1721
L1722
P1723
L1724
N1725
G1731
L1736
T1737
T1740
THR
SER
ASP
LYS
LEU
ALA
SER
ARG
SER
LYS
LEU
PRO
ASP
GLY
PRO
THR
GLY
SER
SER
GLU
GLU
GLU
GLU
PHE
LEU
GLU
I1768
P1769
P1770
F1771
N1772
K1773
Q1774
Y1775
T1776
E1777
S1778
Q1779
L1780
R1781
Y1786
I1787
E1789
N1792
E1793
A1794
Q1795
C1796
C1802
L1803
L1804
I1805
A1806
D1807
Q1808
H1809
C1810
R1811
K1814
H1828
H1832
C1835
H1836
A1837
N1838
S1853
L1854
E1855
E1856
Q1857
R1858
I1859
R1865
N1871
V1874
L1875
Q1881
Q1882
N1883
F1884
L1885
E1886
E1890
T1894
62x612
A1898
K1901
Q1902
H1903
H1904
S1905
S1906
A1907
H1908
N1909
K1910
D1911
I1912
A1913
L1914
G1915
V1916
V1919
V1920
V1921
T1922
D1923
P1924
P1927
H1932
L1937
Q1938
V1941
V1942
S1943
Q1949
V1953
G1954
E1955
R1956
I1957
Q1961
H1962
P1963
K1964
Y1965
K1966
H1967
D1968
Y1969
V1970
S1971
H1972
4 Data and refinement statistics

Xtriage (Phenix) and EDS were not executed - this section is therefore incomplete.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space group</td>
<td>P 2 1 2 1 2 1</td>
<td>Depositor</td>
</tr>
<tr>
<td>Cell constants, a, b, c, α, β, γ</td>
<td>73.13Å 94.98Å 133.68Å 90.00° 90.00° 90.00°</td>
<td>Depositor</td>
</tr>
<tr>
<td>Resolution (Å)</td>
<td>15.00 - 2.50</td>
<td>Depositor</td>
</tr>
<tr>
<td>% Data completeness (in resolution range)</td>
<td>(Not available) (15.00-2.50)</td>
<td>Depositor</td>
</tr>
<tr>
<td>R&lt;sub&gt;merge&lt;/sub&gt;</td>
<td>(Not available)</td>
<td>Depositor</td>
</tr>
<tr>
<td>R&lt;sub&gt;sym&lt;/sub&gt;</td>
<td>(Not available)</td>
<td>Depositor</td>
</tr>
<tr>
<td>Refinement program</td>
<td>CNS</td>
<td>Depositor</td>
</tr>
<tr>
<td>R, R&lt;sub&gt;free&lt;/sub&gt;</td>
<td>0.216 , 0.256</td>
<td>Depositor</td>
</tr>
<tr>
<td>Estimated twinning fraction</td>
<td>No twinning to report.</td>
<td>Xtriage</td>
</tr>
<tr>
<td>Total number of atoms</td>
<td>6986</td>
<td>wwPDB-VP</td>
</tr>
<tr>
<td>Average B, all atoms (Å&lt;sup&gt;2&lt;/sup&gt;)</td>
<td>47.0</td>
<td>wwPDB-VP</td>
</tr>
</tbody>
</table>
5 Model quality

5.1 Standard geometry

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

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).

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Bond lengths</th>
<th>Bond angles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>RMSZ</td>
<td>#</td>
</tr>
<tr>
<td>1</td>
<td>A</td>
<td>0.63</td>
<td>0/1565</td>
</tr>
<tr>
<td>1</td>
<td>B</td>
<td>0.61</td>
<td>0/1565</td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>0.63</td>
<td>0/1901</td>
</tr>
<tr>
<td>2</td>
<td>D</td>
<td>0.65</td>
<td>0/1901</td>
</tr>
<tr>
<td>All</td>
<td>All</td>
<td>0.63</td>
<td>0/6932</td>
</tr>
</tbody>
</table>

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>#Chirality outliers</th>
<th>#Planarity outliers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

There are no bond length outliers.

All (5) bond angle outliers are listed below:

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Res</th>
<th>Type</th>
<th>Atoms</th>
<th>Z</th>
<th>Observed(°)</th>
<th>Ideal(°)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>B</td>
<td>188</td>
<td>LEU</td>
<td>CA-CB-CG</td>
<td>6.94</td>
<td>131.27</td>
<td>115.30</td>
</tr>
<tr>
<td>2</td>
<td>D</td>
<td>1723</td>
<td>PRO</td>
<td>N-CA-C</td>
<td>5.58</td>
<td>126.62</td>
<td>112.10</td>
</tr>
<tr>
<td>2</td>
<td>D</td>
<td>1722</td>
<td>LEU</td>
<td>N-CA-C</td>
<td>-5.24</td>
<td>96.84</td>
<td>111.00</td>
</tr>
<tr>
<td>2</td>
<td>D</td>
<td>1811</td>
<td>ARG</td>
<td>NE-CZ-NH2</td>
<td>-5.12</td>
<td>117.74</td>
<td>120.30</td>
</tr>
<tr>
<td>1</td>
<td>B</td>
<td>282</td>
<td>ARG</td>
<td>NE-CZ-NH2</td>
<td>-5.05</td>
<td>117.78</td>
<td>120.30</td>
</tr>
</tbody>
</table>

There are no chirality outliers.

All (1) planarity outliers are listed below:

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Res</th>
<th>Type</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>107</td>
<td>TYR</td>
<td>Sidechain</td>
</tr>
</tbody>
</table>
### 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.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Non-H</th>
<th>H(model)</th>
<th>H(added)</th>
<th>Clashes</th>
<th>Symm-Clashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>1530</td>
<td>0</td>
<td>1485</td>
<td>53</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>B</td>
<td>1530</td>
<td>0</td>
<td>1485</td>
<td>62</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>1854</td>
<td>0</td>
<td>1814</td>
<td>79</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>D</td>
<td>1854</td>
<td>0</td>
<td>1814</td>
<td>92</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>A</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>B</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>A</td>
<td>57</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>B</td>
<td>58</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>0</td>
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<td>4</td>
<td>C</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>D</td>
<td>51</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>All</td>
<td>All</td>
<td>6986</td>
<td>0</td>
<td>6598</td>
<td>281</td>
<td>0</td>
</tr>
</tbody>
</table>

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 21.

All (281) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

<table>
<thead>
<tr>
<th>Atom-1</th>
<th>Atom-2</th>
<th>Interatomic distance (Å)</th>
<th>Clash overlap (Å)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:D:1774:GLN:HA</td>
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<td>2:D:1814:LYS:HB2</td>
<td>2.49</td>
<td>0.42</td>
</tr>
<tr>
<td>2:D:1904:HIS:ND1</td>
<td>2:D:1907:ALA:HB3</td>
<td>2.34</td>
<td>0.42</td>
</tr>
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<td>2:D:1838:ASN:HD21</td>
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<td>0.42</td>
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<tr>
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<td>1:A:283:ARG:HG3</td>
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</tr>
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<td>1:A:201:LEU:CD1</td>
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<td>0.42</td>
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<tr>
<td>1:A:183:SER:C</td>
<td>1:A:185:SER:H</td>
<td>2.24</td>
<td>0.41</td>
</tr>
<tr>
<td>2:C:1809:HIS:CE1</td>
<td>2:C:1859:ILE:HD13</td>
<td>2.55</td>
<td>0.41</td>
</tr>
<tr>
<td>2:D:1718:GLN:HG3</td>
<td>2:D:1718:GLN:H</td>
<td>1.73</td>
<td>0.41</td>
</tr>
<tr>
<td>1:A:150:THR:HA</td>
<td>1:A:151:PRO:HD3</td>
<td>1.75</td>
<td>0.41</td>
</tr>
<tr>
<td>1:B:206:LEU:HB3</td>
<td>1:B:215:SER:OG</td>
<td>2.20</td>
<td>0.41</td>
</tr>
<tr>
<td>1:A:194:LEU:CD1</td>
<td>1:A:238:CYS:HB2</td>
<td>2.50</td>
<td>0.41</td>
</tr>
<tr>
<td>1:B:283:ARG:HH11</td>
<td>1:B:283:ARG:CB</td>
<td>2.33</td>
<td>0.41</td>
</tr>
<tr>
<td>2:C:1901:LYS:HZ3</td>
<td>2:C:1912:ILE:HG23</td>
<td>1.83</td>
<td>0.41</td>
</tr>
<tr>
<td>1:B:143:VAL:CG2</td>
<td>1:B:234:TYR:HD2</td>
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<td>0.41</td>
</tr>
<tr>
<td>1:A:103:TYR:HD2</td>
<td>1:A:266:GLY:HA2</td>
<td>1.86</td>
<td>0.41</td>
</tr>
<tr>
<td>1:B:140:THR:CG2</td>
<td>1:B:233:HIS:HD2</td>
<td>2.33</td>
<td>0.41</td>
</tr>
<tr>
<td>2:D:1779:GLN:HB3</td>
<td>2:D:1835:CYS:SG</td>
<td>2.60</td>
<td>0.41</td>
</tr>
<tr>
<td>1:B:240:SER:O</td>
<td>1:B:248:ARG:N</td>
<td>2.50</td>
<td>0.41</td>
</tr>
<tr>
<td>1:A:112:GLY:HA3</td>
<td>1:A:144:GLN:HB2</td>
<td>2.03</td>
<td>0.41</td>
</tr>
<tr>
<td>2:D:1725:ASN:CB</td>
<td>2:D:1838:ASN:ND2</td>
<td>2.82</td>
<td>0.41</td>
</tr>
<tr>
<td>2:D:1943:SER:HB3</td>
<td>2:D:1967:HIS:HA</td>
<td>2.02</td>
<td>0.41</td>
</tr>
<tr>
<td>2:D:1773:LYS:O</td>
<td>2:D:1773:LYS:CG</td>
<td>2.67</td>
<td>0.41</td>
</tr>
<tr>
<td>2:D:1828:HIS:HD2</td>
<td>2:D:1832:HIS:CE1</td>
<td>2.38</td>
<td>0.41</td>
</tr>
</tbody>
</table>

*Continued on next page...*
Continued from previous page...

<table>
<thead>
<tr>
<th>Atom-1</th>
<th>Atom-2</th>
<th>Interatomic distance (Å)</th>
<th>Clash overlap (Å)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:A:248:ARG:CZ</td>
<td>2:C:1849:PRO:HD3</td>
<td>2.51</td>
<td>0.41</td>
</tr>
<tr>
<td>1:A:287:GLU:O</td>
<td>1:A:289:LEU:N</td>
<td>2.54</td>
<td>0.41</td>
</tr>
<tr>
<td>2:C:1906:SER:O</td>
<td>2:C:1908:HIS:N</td>
<td>2.50</td>
<td>0.41</td>
</tr>
<tr>
<td>2:D:1779:GLN:HE22</td>
<td>2:D:1832:HIS:CD2</td>
<td>2.39</td>
<td>0.41</td>
</tr>
<tr>
<td>2:D:1882:GLN:O</td>
<td>2:D:1883:ASN:CB</td>
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<td>0.41</td>
</tr>
<tr>
<td>2:D:1904:HIS:O</td>
<td>2:D:1905:SER:C</td>
<td>2.60</td>
<td>0.41</td>
</tr>
<tr>
<td>1:B:123:THR:HG21</td>
<td>1:B:139:LYS:HD2</td>
<td>2.03</td>
<td>0.40</td>
</tr>
<tr>
<td>1:B:162:ILE:O</td>
<td>1:B:162:ILE:HG13</td>
<td>2.20</td>
<td>0.40</td>
</tr>
<tr>
<td>1:B:183:SER:C</td>
<td>1:B:185:SER:N</td>
<td>2.74</td>
<td>0.40</td>
</tr>
<tr>
<td>2:C:1733:ALA:HB1</td>
<td>2:C:1788:LEU:HG</td>
<td>2.03</td>
<td>0.40</td>
</tr>
<tr>
<td>2:C:1737:THR:CG2</td>
<td>2:C:1814:LYS:HD2</td>
<td>2.50</td>
<td>0.40</td>
</tr>
<tr>
<td>2:C:1774:GLN:HG2</td>
<td>4:C:165:HOH:O</td>
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</tr>
<tr>
<td>2:D:1920:VAL:HB</td>
<td>2:D:1941:VAL:HG22</td>
<td>2.02</td>
<td>0.40</td>
</tr>
</tbody>
</table>

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Analysed</th>
<th>Favoured</th>
<th>Allowed</th>
<th>Outliers</th>
<th>Percentiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>193/195 (99%)</td>
<td>180 (93%)</td>
<td>11 (6%)</td>
<td>2 (1%)</td>
<td>15</td>
</tr>
<tr>
<td>1</td>
<td>B</td>
<td>193/195 (99%)</td>
<td>175 (91%)</td>
<td>13 (7%)</td>
<td>5 (3%)</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>228/259 (88%)</td>
<td>206 (90%)</td>
<td>17 (8%)</td>
<td>5 (2%)</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>D</td>
<td>228/259 (88%)</td>
<td>204 (90%)</td>
<td>16 (7%)</td>
<td>8 (4%)</td>
<td>3</td>
</tr>
<tr>
<td>All</td>
<td>All</td>
<td>842/908 (93%)</td>
<td>765 (91%)</td>
<td>57 (7%)</td>
<td>20 (2%)</td>
<td>6</td>
</tr>
</tbody>
</table>

All (20) Ramachandran outliers are listed below:
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.

5.3.2 Protein sidechains

All (43) residues with a non-rotameric sidechain are listed below:

Continued on next page...
Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (34) such
sidechains are listed below:

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Res</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>104</td>
<td>GLN</td>
</tr>
<tr>
<td>1</td>
<td>A</td>
<td>131</td>
<td>ASN</td>
</tr>
<tr>
<td>1</td>
<td>A</td>
<td>233</td>
<td>HIS</td>
</tr>
<tr>
<td>1</td>
<td>A</td>
<td>235</td>
<td>ASN</td>
</tr>
<tr>
<td>1</td>
<td>A</td>
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<tr>
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<td>GLN</td>
</tr>
<tr>
<td>1</td>
<td>B</td>
<td>115</td>
<td>HIS</td>
</tr>
<tr>
<td>1</td>
<td>B</td>
<td>131</td>
<td>ASN</td>
</tr>
<tr>
<td>1</td>
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<td>ASN</td>
</tr>
<tr>
<td>1</td>
<td>B</td>
<td>263</td>
<td>ASN</td>
</tr>
<tr>
<td>1</td>
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<td>HIS</td>
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<td>2</td>
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<td>C</td>
<td>1871</td>
<td>ASN</td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>1903</td>
<td>HIS</td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>1908</td>
<td>HIS</td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>1961</td>
<td>GLN</td>
</tr>
<tr>
<td>2</td>
<td>C</td>
<td>1962</td>
<td>HIS</td>
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<tr>
<td>2</td>
<td>D</td>
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<td>GLN</td>
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</tr>
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<td>HIS</td>
</tr>
<tr>
<td>2</td>
<td>D</td>
<td>1961</td>
<td>GLN</td>
</tr>
<tr>
<td>2</td>
<td>D</td>
<td>1962</td>
<td>HIS</td>
</tr>
</tbody>
</table>

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

Of 2 ligands modelled in this entry, 2 are monoatomic - leaving 0 for Mogul analysis.
There are no bond length outliers.
There are no bond angle outliers.
There are no chirality outliers.
There are no torsion outliers.
There are no ring outliers.
No monomer is involved in short contacts.

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
EDS was not executed - this section is therefore empty.

6.2 Non-standard residues in protein, DNA, RNA chains
EDS was not executed - this section is therefore empty.

6.3 Carbohydrates
EDS was not executed - this section is therefore empty.

6.4 Ligands
EDS was not executed - this section is therefore empty.

6.5 Other polymers
EDS was not executed - this section is therefore empty.