Full wwPDB/EMDataBank EM Map/Model Validation Report

Jul 12, 2018 – 12:35 AM EDT

PDB ID : 3JAP
EMDB ID: : EMD-3048
Title : Structure of a partial yeast 48S preinitiation complex in closed conformation
Authors : Llacer, J.L.; Hussain, T.; Ramakrishnan, V.
Deposited on : 2015-06-18
Resolution : 4.90 Å(reported)
Based on PDB ID : 2D74, 3J81, 4U1C, 3CW2, 4U1D, 4U1E

This is a Full wwPDB/EMDataBank EM Map/Model Validation Report for a publicly released PDB/EMDB entry.

We welcome your comments at validation@mail.wwpdb.org
A user guide is available at https://www.wwpdb.org/validation/2017/EMValidationReportHelp with specific help available everywhere you see the  symbol.

MolProbity : 4.02b-467
Mogul : 1.7.3 (157068), CSD as539be (2018)
Percentile statistics : 20171227.v01 (using entries in the PDB archive December 27th 2017)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP) : rb-20031172
1 Overall quality at a glance

The following experimental techniques were used to determine the structure: 

**ELECTRON MICROSCOPY**

The reported resolution of this entry is 4.90 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.

![Graphic showing percentile ranks for various metrics]

<table>
<thead>
<tr>
<th>Metric</th>
<th>Whole archive (#Entries)</th>
<th>EM structures (#Entries)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clashscore</td>
<td>136327</td>
<td>1886</td>
</tr>
<tr>
<td>Ramachandran outliers</td>
<td>132723</td>
<td>1663</td>
</tr>
<tr>
<td>Sidechain outliers</td>
<td>132532</td>
<td>1531</td>
</tr>
<tr>
<td>RNA backbone</td>
<td>3747</td>
<td>458</td>
</tr>
</tbody>
</table>

The table below summarises the geometric issues observed across the polymeric chains. The red, orange, yellow and green segments on the 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 <5%.

<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>1</td>
<td>75</td>
<td>28% 45% 27%</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>1781</td>
<td>26% 51% 23%</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>25</td>
<td>52% 44%</td>
</tr>
<tr>
<td>4</td>
<td>A</td>
<td>254</td>
<td>59% 19% 18%</td>
</tr>
<tr>
<td>5</td>
<td>B</td>
<td>255</td>
<td>66% 20% 13%</td>
</tr>
<tr>
<td>6</td>
<td>C</td>
<td>259</td>
<td>59% 23% 16%</td>
</tr>
<tr>
<td>7</td>
<td>D</td>
<td>237</td>
<td>65% 24% 6%</td>
</tr>
<tr>
<td>8</td>
<td>E</td>
<td>261</td>
<td>70% 27%</td>
</tr>
</tbody>
</table>

Continued on next page...
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<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Length</th>
<th>Quality of chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>F</td>
<td>227</td>
<td>58% 28% 9%</td>
</tr>
<tr>
<td>10</td>
<td>G</td>
<td>236</td>
<td>74% 20%</td>
</tr>
<tr>
<td>11</td>
<td>H</td>
<td>190</td>
<td>65% 29%</td>
</tr>
<tr>
<td>12</td>
<td>I</td>
<td>201</td>
<td>71% 20% 6%</td>
</tr>
<tr>
<td>13</td>
<td>J</td>
<td>188</td>
<td>71% 23%</td>
</tr>
<tr>
<td>14</td>
<td>K</td>
<td>106</td>
<td>54% 28% 8% 9%</td>
</tr>
<tr>
<td>15</td>
<td>L</td>
<td>156</td>
<td>83% 14%</td>
</tr>
<tr>
<td>16</td>
<td>M</td>
<td>134</td>
<td>57% 25% 13%</td>
</tr>
<tr>
<td>17</td>
<td>N</td>
<td>151</td>
<td>69% 28%</td>
</tr>
<tr>
<td>18</td>
<td>O</td>
<td>137</td>
<td>62% 29%</td>
</tr>
<tr>
<td>19</td>
<td>P</td>
<td>142</td>
<td>57% 21% 18%</td>
</tr>
<tr>
<td>20</td>
<td>Q</td>
<td>143</td>
<td>66% 29%</td>
</tr>
<tr>
<td>21</td>
<td>R</td>
<td>136</td>
<td>65% 18% 12%</td>
</tr>
<tr>
<td>22</td>
<td>S</td>
<td>146</td>
<td>62% 32% 5%</td>
</tr>
<tr>
<td>23</td>
<td>T</td>
<td>144</td>
<td>70% 27%</td>
</tr>
<tr>
<td>24</td>
<td>U</td>
<td>117</td>
<td>64% 21% 9%</td>
</tr>
<tr>
<td>25</td>
<td>V</td>
<td>87</td>
<td>79% 16% 5%</td>
</tr>
<tr>
<td>26</td>
<td>W</td>
<td>130</td>
<td>74% 22%</td>
</tr>
<tr>
<td>27</td>
<td>X</td>
<td>145</td>
<td>63% 30% 6%</td>
</tr>
<tr>
<td>28</td>
<td>Y</td>
<td>135</td>
<td>77% 21%</td>
</tr>
<tr>
<td>29</td>
<td>Z</td>
<td>108</td>
<td>50% 14% 35%</td>
</tr>
<tr>
<td>30</td>
<td>a</td>
<td>119</td>
<td>70% 12% 18%</td>
</tr>
<tr>
<td>31</td>
<td>b</td>
<td>82</td>
<td>90% 9%</td>
</tr>
<tr>
<td>32</td>
<td>c</td>
<td>67</td>
<td>81% 10% 7%</td>
</tr>
<tr>
<td>33</td>
<td>d</td>
<td>56</td>
<td>79% 14% 5%</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Length</th>
<th>Quality of chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>e</td>
<td>63</td>
<td>71% 14% 14%</td>
</tr>
<tr>
<td>35</td>
<td>f</td>
<td>150</td>
<td>34% 11% 54%</td>
</tr>
<tr>
<td>36</td>
<td>g</td>
<td>326</td>
<td>84% 13% 13%</td>
</tr>
<tr>
<td>37</td>
<td>h</td>
<td>25</td>
<td>88% 12%</td>
</tr>
<tr>
<td>38</td>
<td>i</td>
<td>153</td>
<td>58% 14% 27%</td>
</tr>
<tr>
<td>39</td>
<td>j</td>
<td>304</td>
<td>67% 13% 18%</td>
</tr>
<tr>
<td>40</td>
<td>k</td>
<td>527</td>
<td>69% 6% 25%</td>
</tr>
<tr>
<td>41</td>
<td>l</td>
<td>285</td>
<td>38% 7% 55%</td>
</tr>
<tr>
<td>42</td>
<td>m</td>
<td>108</td>
<td>69% 13% 17%</td>
</tr>
<tr>
<td>43</td>
<td>o</td>
<td>588</td>
<td>85% 9% 6%</td>
</tr>
<tr>
<td>44</td>
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<td>347</td>
<td>93% 6% 6%</td>
</tr>
<tr>
<td>46</td>
<td>r</td>
<td>31</td>
<td>90% 10%</td>
</tr>
<tr>
<td>47</td>
<td>s</td>
<td>52</td>
<td>88% 12%</td>
</tr>
</tbody>
</table>
2 Entry composition

There are 51 unique types of molecules in this entry. The entry contains 98333 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 RNA chain called Met-tRNAi (U31:A39 variant).

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>75</td>
<td>Total C N O P</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1607 716 296 520 75</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 2 is a RNA chain called 18S rRNA.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>1780</td>
<td>Total C N O P</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>37797 16892 6658 12467 1780</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 3 is a RNA chain called mRNA.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
<td>14</td>
<td>Total C N O P</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>287 129 42 102 14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 4 is a protein called uS2.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>A</td>
<td>208</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1626 1040 286 298 2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 5 is a protein called eS1.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>B</td>
<td>222</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1769 1117 324 325 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 6 is a protein called uS5.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>C</td>
<td>217</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1629 1041 287 297 4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
- Molecule 7 is a protein called uS3.

<table>
<thead>
<tr>
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<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>D</td>
<td>223</td>
<td>Total C N O S</td>
<td>1744 1108 313 318 5</td>
<td>0</td>
</tr>
</tbody>
</table>

- Molecule 8 is a protein called eS4.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>E</td>
<td>260</td>
<td>Total C N O S</td>
<td>2078 1322 393 359 4</td>
<td>0</td>
</tr>
</tbody>
</table>

- Molecule 9 is a protein called uS7.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>F</td>
<td>206</td>
<td>Total C N O S</td>
<td>1609 1008 298 300 3</td>
<td>0</td>
</tr>
</tbody>
</table>

- Molecule 10 is a protein called eS6.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>G</td>
<td>226</td>
<td>Total C N O S</td>
<td>1812 1134 348 326 4</td>
<td>0</td>
</tr>
</tbody>
</table>

- Molecule 11 is a protein called eS7.

<table>
<thead>
<tr>
<th>Mol</th>
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<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>H</td>
<td>184</td>
<td>Total C N O</td>
<td>1483 950 270 263</td>
<td>0</td>
</tr>
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</table>

- Molecule 12 is a protein called eS8.

<table>
<thead>
<tr>
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<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>I</td>
<td>188</td>
<td>Total C N O S</td>
<td>1489 923 300 265 1</td>
<td>0</td>
</tr>
</tbody>
</table>

- Molecule 13 is a protein called uS4.

<table>
<thead>
<tr>
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<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>J</td>
<td>182</td>
<td>Total C N O S</td>
<td>1471 929 287 254 1</td>
<td>0</td>
</tr>
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</table>

- Molecule 14 is a protein called eS10.
<table>
<thead>
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<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>K</td>
<td>96</td>
<td>Total C N O S</td>
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<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>809 533 129 146 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 15 is a protein called uS17.

<table>
<thead>
<tr>
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<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>L</td>
<td>155</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1248 798 237 210 3</td>
<td></td>
<td></td>
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</tbody>
</table>

- Molecule 16 is a protein called eS12.

<table>
<thead>
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<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>M</td>
<td>117</td>
<td>Total C N O</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>885 553 161 171</td>
<td></td>
<td></td>
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</table>

- Molecule 17 is a protein called uS15.

<table>
<thead>
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<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>N</td>
<td>150</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
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<td></td>
<td></td>
<td>1187 756 223 206 2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 18 is a protein called uS11.

<table>
<thead>
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<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>O</td>
<td>127</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>942 578 188 173 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 19 is a protein called uS19.

<table>
<thead>
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<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>P</td>
<td>117</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>927 595 166 161 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 20 is a protein called uS9.

<table>
<thead>
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<th>Mol</th>
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<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Q</td>
<td>141</td>
<td>Total C N O</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1105 709 204 192</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 21 is a protein called eS17.
- Molecule 22 is a protein called uS13.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>R</td>
<td>120</td>
<td>Total C N O S</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>959 598 178 180 3</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

- Molecule 23 is a protein called eS19.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>S</td>
<td>145</td>
<td>Total C N O S</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1193 741 240 210 2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

- Molecule 24 is a protein called uS10.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>T</td>
<td>143</td>
<td>Total C N O S</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1110 693 210 207</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

- Molecule 25 is a protein called eS21.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>U</td>
<td>106</td>
<td>Total C N O S</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>845 540 152 152 1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

- Molecule 26 is a protein called uS8.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>V</td>
<td>87</td>
<td>Total C N O S</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>687 424 126 135 2</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

- Molecule 27 is a protein called uS12.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>W</td>
<td>129</td>
<td>Total C N O S</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1021 651 187 180 3</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

- Molecule 28 is a protein called eS24.
<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>Y</td>
<td>134</td>
<td>Total C N O</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1061 665 207 189</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 29 is a protein called eS25.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>Z</td>
<td>70</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>558 355 104 98 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 30 is a protein called eS26.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>a</td>
<td>98</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>779 480 165 129 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 31 is a protein called eS27.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>b</td>
<td>81</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>609 379 112 113 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 32 is a protein called eS28.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>c</td>
<td>62</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>487 301 97 88 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 33 is a protein called uS14.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>d</td>
<td>53</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>446 280 89 76 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 34 is a protein called eS30.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>e</td>
<td>54</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>433 271 88 73 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 35 is a protein called eS31.
Molecule 36 is a protein called RACK1.

Molecule 37 is a protein called eL41.

Molecule 38 is a protein called eIF1A.

Molecule 39 is a protein called eIF2 alpha.

Molecule 40 is a protein called eIF2 gamma.

Molecule 41 is a protein called eIF2 beta.

Molecule 42 is a protein called eIF1.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>f</td>
<td>69</td>
<td>Total C N O S 546 351 101 90 4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>36</td>
<td>g</td>
<td>318</td>
<td>Total C N O S 2466 1561 430 470 5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>37</td>
<td>h</td>
<td>25</td>
<td>Total C N O S 233 142 63 27 1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>38</td>
<td>i</td>
<td>111</td>
<td>Total C N O S 884 542 170 167 5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>39</td>
<td>j</td>
<td>249</td>
<td>Total C N O S 2006 1283 333 382 8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>40</td>
<td>k</td>
<td>396</td>
<td>Total C N O S 3034 1932 542 544 16</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>41</td>
<td>l</td>
<td>128</td>
<td>Total C N O S 1036 661 186 182 7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>42</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mol</td>
<td>Chain</td>
<td>Residues</td>
<td>Atoms</td>
<td>AltConf</td>
<td>Trace</td>
</tr>
<tr>
<td>-----</td>
<td>-------</td>
<td>----------</td>
<td>-----------</td>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td>42</td>
<td>m</td>
<td>90</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>716 452 132 128 4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 43 is a protein called eIF3a.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>43</td>
<td>o</td>
<td>550</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4189 2667 721 794 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 44 is a protein called eIF3c.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>p</td>
<td>634</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4899 3121 826 940 12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 45 is a protein called eIF3i.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
<th>Trace</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>q</td>
<td>342</td>
<td>Total C N O S</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2693 1711 443 530 9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 46 is a protein called eIF3b.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
</tr>
</thead>
<tbody>
<tr>
<td>46</td>
<td>r</td>
<td>31</td>
<td>Total C N O S</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>277 177 48 50 2</td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 47 is a protein called eIF3g.

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
</tr>
</thead>
<tbody>
<tr>
<td>47</td>
<td>s</td>
<td>52</td>
<td>Total C N O S</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>418 257 82 79</td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 48 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>2</td>
<td>80</td>
<td>Total Mg</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>80 80</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>k</td>
<td>1</td>
<td>Total Mg</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1 1</td>
<td></td>
</tr>
</tbody>
</table>

- Molecule 49 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>AltConf</th>
</tr>
</thead>
<tbody>
<tr>
<td>49</td>
<td>b</td>
<td>1</td>
<td>Total Zn 1 1</td>
<td>0</td>
</tr>
<tr>
<td>49</td>
<td>a</td>
<td>1</td>
<td>Total Zn 1 1</td>
<td>0</td>
</tr>
<tr>
<td>49</td>
<td>l</td>
<td>1</td>
<td>Total Zn 1 1</td>
<td>0</td>
</tr>
<tr>
<td>49</td>
<td>f</td>
<td>1</td>
<td>Total Zn 1 1</td>
<td>0</td>
</tr>
</tbody>
</table>

- Molecule 50 is METHIONINE (three-letter code: MET) (formula: C₅H₁₁NO₂S).

![Methionine Diagram]

- Molecule 51 is PHOSPHOMETHYLPHOSPHONIC ACID GUANYLATE ESTER (three-letter code: GCP) (formula: C₁₁H₁₈N₅O₁₃P₃).

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>k</td>
<td>1</td>
<td>Total C 8 N 5 O 1 S 1</td>
<td>0</td>
</tr>
</tbody>
</table>

- Molecule 51 is PHOSPHOMETHYLPHOSPHONIC ACID GUANYLATE ESTER (three-letter code: GCP) (formula: C₁₁H₁₈N₅O₁₃P₃).
<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Residues</th>
<th>Atoms</th>
<th>AltConf</th>
</tr>
</thead>
<tbody>
<tr>
<td>51</td>
<td>k</td>
<td>1</td>
<td>Total C N O P</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>32 11 5 13 3</td>
<td></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.

- Molecule 1: Met-tRNAi (U31:A39 variant)

Chain 1:

- Molecule 2: 18S rRNA

Chain 2:
• Molecule 3: mRNA

Chain 3: 52% 44%

• Molecule 4: uS2

Chain A: 59% 19% 18%

• Molecule 5: eS1

Chain B: 66% 20% 13%

• Molecule 6: uS5

Chain C: 59% 23% 16%
• Molecule 7: uS3

Chain D:

• Molecule 8: eS4

Chain E:

• Molecule 9: uS7

Chain F:

• Molecule 10: eS6

Chain G:

• Molecule 11: eS7

Chain H:
- Molecule 12: eS8

Chain I:

- Molecule 13: uS4

Chain J:

- Molecule 14: eS10

Chain K:

- Molecule 15: uS17

Chain L:

- Molecule 16: eS12

Chain M:
• Molecule 17: uS15

Chain N:

• Molecule 18: uS11

Chain O:

• Molecule 19: uS19

Chain P:

• Molecule 20: uS9

Chain Q:

• Molecule 21: eS17

Chain R:

• Molecule 22: uS13
• Molecule 28: eS24

Chain Y:

• Molecule 29: eS25

Chain Z:

• Molecule 30: eS26

Chain a:

• Molecule 31: eS27

Chain b:

• Molecule 32: eS28

Chain c:

• Molecule 33: uS14

Chain d:

• Molecule 34: eS30

Chain e:

• Molecule 35: eS31
Chain f:

Molecule 36: RACK1

Chain g:

Molecule 37: eL41

Chain h:

Molecule 38: eIF1A

Chain i:

Molecule 39: eIF2 alpha

Chain j:

Molecule 40: eIF2 gamma

Chain k:
• Molecule 41: eIF2 beta

Chain l:

• Molecule 42: eIF1

Chain m:

• Molecule 43: eIF3a

Chain o:

• Molecule 44: eIF3c

Chain p:
• Molecule 45: eIF3i

Chain q: 93% 6%

• Molecule 46: eIF3b

Chain r: 90% 10%

• Molecule 47: eIF3g

Chain s: 88% 12%
## 4 Experimental information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reconstruction method</td>
<td>SINGLE PARTICLE</td>
<td>Depositor</td>
</tr>
<tr>
<td>Imposed symmetry</td>
<td>POINT, C1</td>
<td>Depositor</td>
</tr>
<tr>
<td>Number of particles used</td>
<td>21401</td>
<td>Depositor</td>
</tr>
<tr>
<td>Resolution determination method</td>
<td>FSC 0.143 CUT-OFF</td>
<td>Depositor</td>
</tr>
<tr>
<td>CTF correction method</td>
<td>Each particle</td>
<td>Depositor</td>
</tr>
<tr>
<td>Microscope</td>
<td>FEI TITAN KRIOS</td>
<td>Depositor</td>
</tr>
<tr>
<td>Voltage (kV)</td>
<td>300</td>
<td>Depositor</td>
</tr>
<tr>
<td>Electron dose ((e^-/\text{Å}^2))</td>
<td>27</td>
<td>Depositor</td>
</tr>
<tr>
<td>Minimum defocus (nm)</td>
<td>1500</td>
<td>Depositor</td>
</tr>
<tr>
<td>Maximum defocus (nm)</td>
<td>4000</td>
<td>Depositor</td>
</tr>
<tr>
<td>Magnification</td>
<td>104478</td>
<td>Depositor</td>
</tr>
<tr>
<td>Image detector</td>
<td>FEI FALCON II (4k x 4k)</td>
<td>Depositor</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: GCP, ZN, MG.

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>1</td>
<td>0.38</td>
<td>1/1797 (0.1%)</td>
</tr>
<tr>
<td>10</td>
<td>G</td>
<td>0.41</td>
<td>0/1835</td>
</tr>
<tr>
<td>11</td>
<td>H</td>
<td>0.42</td>
<td>0/1507</td>
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### 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. 

[Image: Worldwide PDB]
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.

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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 9.

All (1306) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.
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## Interatomic distance and Clash overlap

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### Interatomic Distance and Clash Overlap

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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 PDB entries followed by that with respect to all EM entries.

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>
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<td>170 (82%)</td>
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<td>5</td>
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<td>185 (85%)</td>
<td>25 (12%)</td>
<td>8 (4%)</td>
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<tr>
<td>6</td>
<td>C</td>
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<td>186 (86%)</td>
<td>22 (10%)</td>
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<tr>
<td>7</td>
<td>D</td>
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<td>196 (89%)</td>
<td>16 (7%)</td>
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<tr>
<td>8</td>
<td>E</td>
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<td>225 (87%)</td>
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<tr>
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<td>F</td>
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<th>Percentiles</th>
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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 PDB entries followed by that with respect to all EM entries.

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

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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 87 ligands modelled in this entry, 85 are monoatomic - leaving 2 for Mogul analysis.

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).

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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.

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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

The following chains have linkage breaks:

<table>
<thead>
<tr>
<th>Mol</th>
<th>Chain</th>
<th>Number of breaks</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>p</td>
<td>7</td>
</tr>
<tr>
<td>43</td>
<td>o</td>
<td>7</td>
</tr>
</tbody>
</table>

All chain breaks are listed below:

<table>
<thead>
<tr>
<th>Model</th>
<th>Chain</th>
<th>Residue-1</th>
<th>Atom-1</th>
<th>Residue-2</th>
<th>Atom-2</th>
<th>Distance (Å)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>o</td>
<td>495:PRO</td>
<td>C</td>
<td>753:UNK</td>
<td>N</td>
<td>221.30</td>
</tr>
<tr>
<td>1</td>
<td>p</td>
<td>218:UNK</td>
<td>C</td>
<td>251:GLN</td>
<td>N</td>
<td>63.04</td>
</tr>
<tr>
<td>1</td>
<td>p</td>
<td>32:UNK</td>
<td>C</td>
<td>116:UNK</td>
<td>N</td>
<td>42.95</td>
</tr>
<tr>
<td>1</td>
<td>p</td>
<td>185:UNK</td>
<td>C</td>
<td>193:ARG</td>
<td>N</td>
<td>15.92</td>
</tr>
<tr>
<td>1</td>
<td>o</td>
<td>818:UNK</td>
<td>C</td>
<td>828:UNK</td>
<td>N</td>
<td>14.63</td>
</tr>
<tr>
<td>1</td>
<td>p</td>
<td>158:UNK</td>
<td>C</td>
<td>170:UNK</td>
<td>N</td>
<td>13.31</td>
</tr>
<tr>
<td>1</td>
<td>o</td>
<td>846:UNK</td>
<td>C</td>
<td>850:UNK</td>
<td>N</td>
<td>8.27</td>
</tr>
<tr>
<td>1</td>
<td>o</td>
<td>769:UNK</td>
<td>C</td>
<td>772:UNK</td>
<td>N</td>
<td>6.84</td>
</tr>
<tr>
<td>1</td>
<td>p</td>
<td>135:UNK</td>
<td>C</td>
<td>139:UNK</td>
<td>N</td>
<td>5.98</td>
</tr>
<tr>
<td>1</td>
<td>o</td>
<td>802:UNK</td>
<td>C</td>
<td>806:UNK</td>
<td>N</td>
<td>4.31</td>
</tr>
<tr>
<td>1</td>
<td>o</td>
<td>834:UNK</td>
<td>C</td>
<td>837:UNK</td>
<td>N</td>
<td>4.08</td>
</tr>
<tr>
<td>1</td>
<td>o</td>
<td>785:UNK</td>
<td>C</td>
<td>788:UNK</td>
<td>N</td>
<td>3.70</td>
</tr>
<tr>
<td>1</td>
<td>p</td>
<td>206:SER</td>
<td>C</td>
<td>211:UNK</td>
<td>N</td>
<td>3.67</td>
</tr>
<tr>
<td>1</td>
<td>p</td>
<td>148:UNK</td>
<td>C</td>
<td>150:UNK</td>
<td>N</td>
<td>3.24</td>
</tr>
</tbody>
</table>