|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Intermediate 5 (Complete vRNAP without D1/D12)**  **8C8H**  **EMD-16476** | **Complete vRNAP**    **8RQK**  **EMD-19442** | **Intermediate 3**    **9FPY**  **EMD-50639** | **Intermediate 4**    **9FQ6**  **EMD-50644** | **minimal vRNAP**    **9EX9**  **EMD-50033** |
|  |  |  |  |  |  |
| **Data collection and processing** |  |  |  |  |  |
| **Voltage (kV)** | 300 | 300 | 300 | 300 | 300 |
| **Total electron dose (e-/Å2)** | 70 | 78 | 40 | 40 | 40 |
|  |  |  |  |  |  |
| **Number of fractions** | 50 | 47 | - | - | - |
| **Exposure time (s)** | 40 | 71 | 3.42 | 3.42 | 3.42 |
| **Number of movies per hole** | 2 | 2 | 2 | 2 | 2 |
| **Number of movies in dataset** | 1036 | 4,836 | 1,600 | 32,000 | 1,600 |
| **Particles (automatically selected)** | 188,000 | 1,753,500 | 4,738,448 | 4,738,448 | 1,016,117 |
| **Particles (in final reconstruction)** | 21338 | 934,606 | 148,102 | 171,057 | 404,153 |
| **Pixel size (Å)** | 1.0635 | 1.0635 | 0.964 | 0.964 | 0.964 |
| **Defocus range (µm)** | -1.0 to -2.2 | -1.0 to -2.2 | -1.0 to -2.0 | -1.0 to -2.0 | -1.0 to -2.0 |
| **Detector** | Falcon III camera, integrating mode | Falcon III camera, integrating mode | Falcon IV camera, counting mode | Falcon IV camera, counting mode | Falcon IV camera, counting mode |
| **Map resolution (Å)** | 3.9 | 2.65 | 2.5 | 2.5 | 2.5 |
| **Map resolution range (Å)** | 3.4-21.2 | 2.35-13.8 | 2.2-40.8 | 2.2-40.6 | 2.13-40.1 |
| **Map sharpening B-factor (Å2)** | -99 | -85 | -15 | -15 | -65 |
| **Model composition** |  |  |  |  |  |
| **Non-hydrogen atoms** | 41296 | 52462 | 41025 | 51728 | 26970 |
| **Protein residues** | 4915 | 6266 | 4858 | 6178 | 3345 |
| **Nucleic acid residues** | 63 | 72 | 72 | 72 | 0 |
| **Ions** | Zn:4, Mg:1 | Zn:4, Mg:4 | Zn:4, Mg:1 | Zn:4, Mg:1 | Zn:4, Mg:1 |
| **Waters** | 0 | 9 | 0 | 0 | 0 |
| **Refinement (Phenix.real\_space\_refine)** |  |  |  |  |  |
| **Map CC (around atoms)** | 0.73 | 0.85 | 0.81 | 0.83 | 0.67 |
| **RMS deviations** |  |  |  |  |  |
| **Bond lengths (Å)** | 0.002 | 0.005 | 0.003 | 0.003 | 0.005 |
| **Bond angles (°)** | 0.56 | 0.50 | 0.52 | 0.52 | 0.51 |
| **Validation** |  |  |  |  |  |
| **All-atom clashscore** | 7.3 | 4.8 | 3.4 | 4.5 | 2.7 |
| **Rotamer outliers (%)** | 4.2 | 2.32 | 0.99 | 1.00 | 0.85 |
| **C-beta deviations** | 0 | 0 | 0 | 0 | 0 |
| **Ramachandran plot (%)** |  |  |  |  |  |
| **Outliers** | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Allowed** | 6.6 | 5.2 | 5.2 | 5.7 | 4.0 |
| **Favored** | 93.4 | 94.8 | 94.8 | 94.3 | 96.0 |