



Full wwPDB EM Validation Report ⓘ

Nov 20, 2022 – 03:34 pm GMT

PDB ID : 2WYY
EMDB ID : EMD-1663
Title : CRYOEM MODEL OF THE VESICULAR STOMATITIS VIRUS
Authors : Ge, P.; Tsao, J.; Green, T.J.; Luo, M.; Zhou, Z.H.
Deposited on : 2009-11-20
Resolution : 10.00 Å (reported)
Based on initial model : 2WYY

This is a Full wwPDB EM Validation Report for a publicly released PDB 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.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

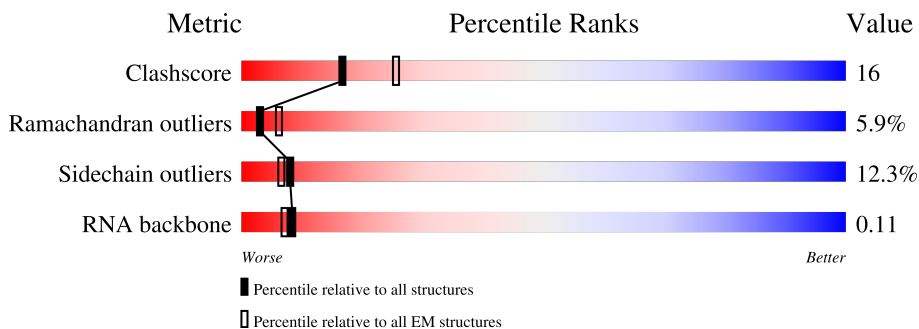
EMDB validation analysis : 0.0.1.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

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 10.00 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) | EM structures (#Entries) |
|-----------------------|--------------------------|--------------------------|
| Clashscore | 158937 | 4297 |
| Ramachandran outliers | 154571 | 4023 |
| Sidechain outliers | 154315 | 3826 |
| RNA backbone | 4643 | 859 |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1 | A | 422 | |
| 1 | C | 422 | |
| 1 | D | 422 | |
| 1 | F | 422 | |
| 1 | H | 422 | |
| 1 | I | 422 | |
| 1 | J | 422 | |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|---------------------------|
| 1 | K | 422 | <p>98% 68% 25% 5%</p> |
| 1 | L | 422 | <p>98% 68% 25% 6%</p> |
| 1 | M | 422 | <p>98% 67% 26% 6%</p> |
| 2 | R | 45 | <p>100% 36% 64%</p> |
| 2 | S | 45 | <p>100% 31% 67%</p> |

2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 34620 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 protein called NUCLEOPROTEIN.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|---------------|-----------|----------|----------|---------|---------|-------|
| | | | Total | C | N | O | S | | |
| 1 | A | 414 | Total 3282 | C 2093 | N 551 | O 620 | S 18 | 0 | 0 |
| 1 | C | 414 | Total 3282 | C 2093 | N 551 | O 620 | S 18 | 0 | 0 |
| 1 | D | 414 | Total 3282 | C 2093 | N 551 | O 620 | S 18 | 0 | 0 |
| 1 | F | 414 | Total 3282 | C 2093 | N 551 | O 620 | S 18 | 0 | 0 |
| 1 | H | 414 | Total 3282 | C 2093 | N 551 | O 620 | S 18 | 0 | 0 |
| 1 | I | 414 | Total 3282 | C 2093 | N 551 | O 620 | S 18 | 0 | 0 |
| 1 | J | 414 | Total 3282 | C 2093 | N 551 | O 620 | S 18 | 0 | 0 |
| 1 | K | 414 | Total 3282 | C 2093 | N 551 | O 620 | S 18 | 0 | 0 |
| 1 | L | 414 | Total 3282 | C 2093 | N 551 | O 620 | S 18 | 0 | 0 |
| 1 | M | 414 | Total 3282 | C 2093 | N 551 | O 620 | S 18 | 0 | 0 |

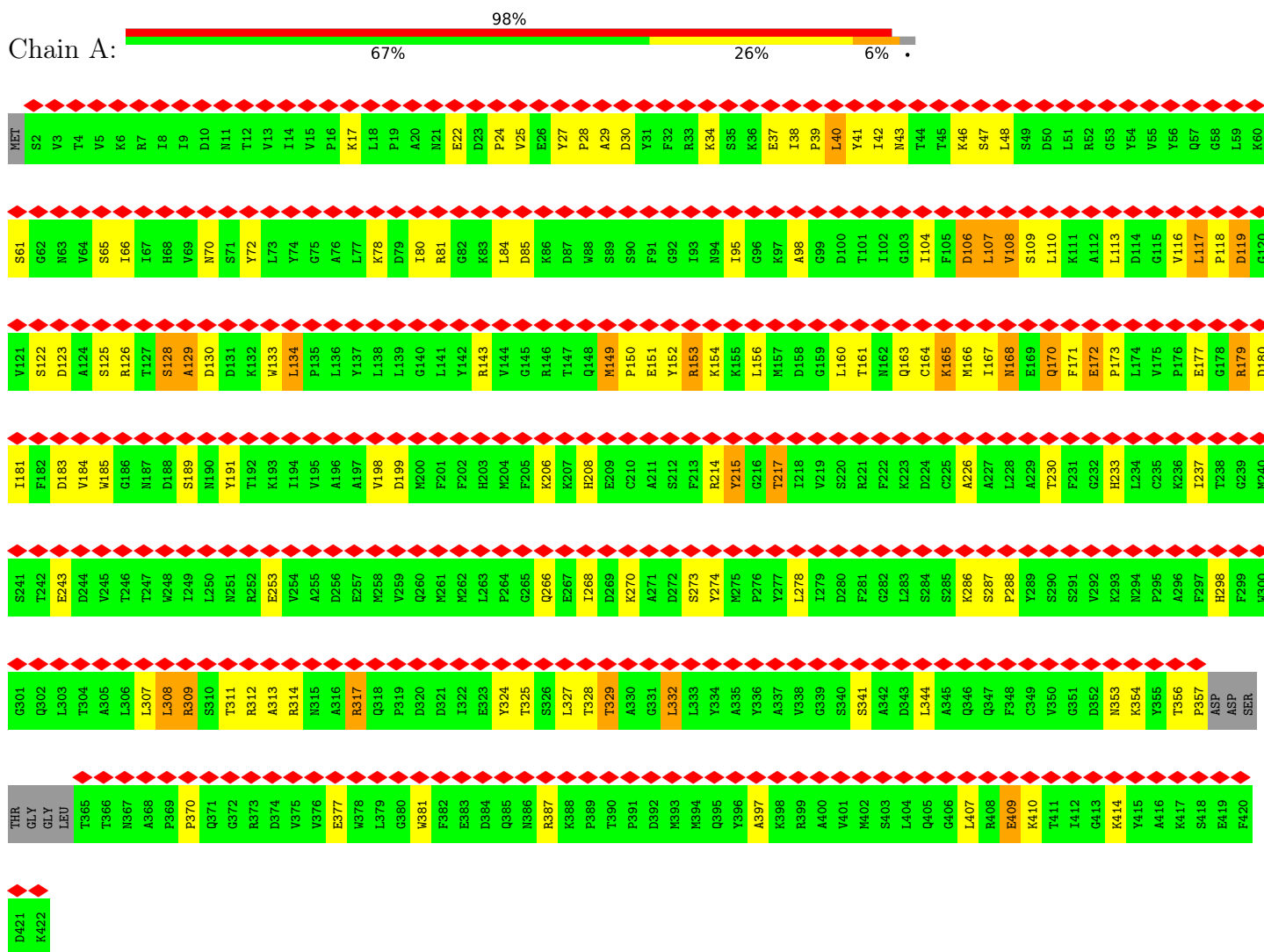
- Molecule 2 is a RNA chain called POLY-URIDINE.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|--------------|----------|---------|----------|---------|---------|-------|
| | | | Total | C | N | O | P | | |
| 2 | R | 45 | Total 900 | C 405 | N 90 | O 360 | P 45 | 0 | 0 |
| 2 | S | 45 | Total 900 | C 405 | N 90 | O 360 | P 45 | 0 | 0 |

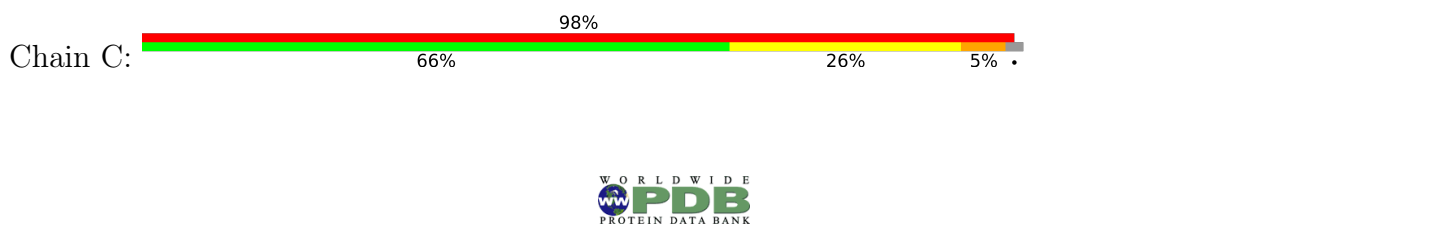
3 Residue-property plots [i](#)

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 atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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: NUCLEOPROTEIN



- Molecule 1: NUCLEOPROTEIN



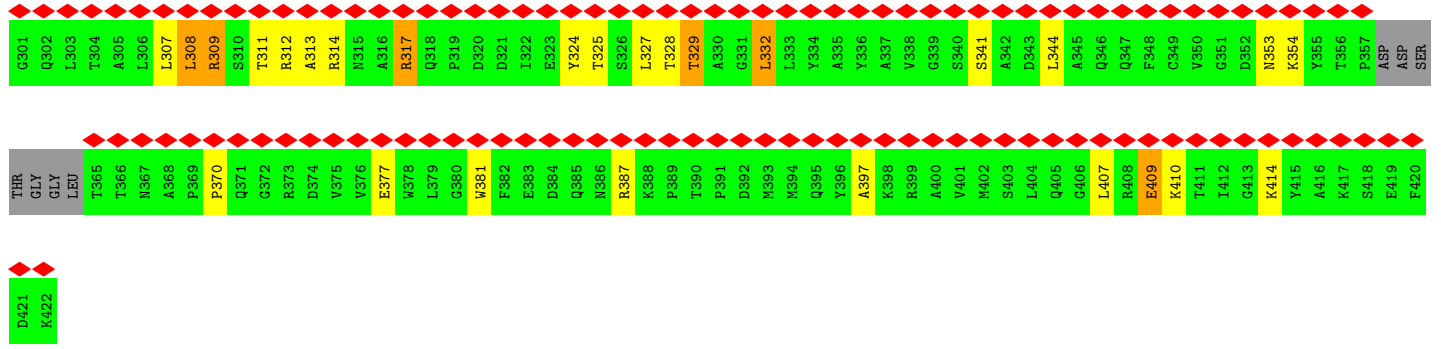
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| THR | GLY | GLY | LEU | T365 | T366 | M367 | T246 | T247 | M248 | L249 | L250 | M251 | R252 | E253 | V254 | A255 | D256 | E257 | M258 | V259 | Q260 | M261 | M262 | L263 | P264 | G265 | Q266 | E267 | L268 | D269 | K270 | A271 | D272 | S273 | M274 | M275 | P276 | Y277 | K278 | A279 | S280 | M281 | L282 | L283 | S284 | C285 | Q286 | S287 | P288 | Y289 | S290 | S291 | V292 | H293 | K294 | M295 | P296 | A297 | F298 | H299 | F300 |
| G301 | Q302 | L303 | T304 | A305 | L306 | L307 | L308 | R309 | S310 | T311 | R312 | A313 | R314 | N315 | V316 | A317 | R318 | Q319 | P320 | D321 | I322 | E323 | Y324 | L325 | T326 | L327 | L328 | L329 | T330 | R331 | C332 | A333 | G334 | L335 | Y336 | A337 | V338 | G339 | S340 | S341 | A342 | D343 | L344 | A345 | Q346 | Q347 | F348 | C349 | V350 | G351 | D352 | N353 | K354 | Y355 | T356 | P357 | ASP | ASP | SER | | |
| MET | S2 | V3 | T4 | V5 | K6 | R7 | I8 | I9 | D10 | M11 | T12 | V13 | I14 | V15 | P16 | K17 | L18 | P19 | A20 | M21 | E22 | D23 | P24 | V25 | E26 | Y27 | P28 | A29 | D30 | V31 | F32 | R33 | K34 | S35 | K36 | E37 | I38 | P39 | L40 | Y41 | I42 | M43 | T44 | T45 | K46 | S47 | L48 | S49 | D50 | L51 | R52 | G53 | V54 | V55 | V56 | Q57 | G58 | L59 | K60 | | |
| S61 | G62 | M63 | V64 | S65 | I66 | I67 | H68 | V69 | M70 | S71 | Y72 | L73 | V74 | G75 | A76 | L77 | K78 | D79 | I80 | R81 | G82 | K83 | L84 | D85 | E86 | Y87 | W88 | S89 | A90 | F91 | G92 | I93 | N94 | I95 | G96 | K97 | A98 | G99 | D100 | T101 | I102 | Q103 | I104 | F105 | M106 | L107 | V108 | S109 | Q110 | K111 | A112 | L113 | D114 | G115 | V116 | L117 | P118 | D119 | G120 | | |
| V121 | S122 | D123 | A124 | S125 | I126 | T127 | S128 | A129 | D130 | D131 | K132 | M133 | L134 | P135 | G136 | A137 | L138 | L139 | G140 | L141 | Y142 | R143 | V144 | G145 | R146 | T147 | Q148 | M149 | P150 | E151 | Y152 | R153 | K154 | K155 | L156 | M157 | D158 | G159 | L160 | T161 | M162 | Q163 | C164 | K165 | M166 | I167 | N168 | E169 | Q170 | F171 | E172 | P173 | L174 | V175 | P176 | E177 | G178 | R179 | D180 | | |
| I181 | F182 | D183 | V184 | M185 | G186 | M187 | D188 | S189 | M190 | Y191 | T192 | K193 | I194 | V195 | A196 | A197 | V198 | D199 | M200 | F201 | F202 | H203 | M204 | F205 | K206 | K207 | H208 | E209 | C210 | A211 | S212 | F213 | R214 | Y215 | G216 | T217 | I218 | V219 | S220 | R221 | F222 | K223 | D224 | C225 | A226 | A227 | L228 | A229 | T230 | F231 | G232 | H233 | L234 | C235 | K236 | I237 | T238 | G239 | M240 | | |
| S241 | T242 | E243 | D244 | V245 | T246 | T247 | W248 | I249 | L250 | M251 | R252 | E253 | V254 | A255 | D256 | E257 | M258 | V259 | Q260 | M261 | M262 | L263 | P264 | G265 | Q266 | E267 | L268 | D269 | K270 | A271 | D272 | S273 | Y274 | M275 | P276 | Y277 | L278 | I279 | D280 | F281 | G282 | L283 | S284 | S285 | K286 | S287 | P288 | Y289 | S290 | S291 | V292 | K293 | M294 | P295 | A296 | F297 | H298 | F299 | W300 | | |
| G301 | Q302 | L303 | T304 | A305 | L306 | L307 | L308 | R309 | S310 | T311 | R312 | A313 | R314 | N315 | V316 | A317 | R318 | Q319 | P320 | D321 | I322 | E323 | Y324 | L325 | T326 | L327 | L328 | L329 | T330 | R331 | C332 | A333 | G334 | L335 | Y336 | A337 | V338 | G339 | S340 | S341 | A342 | D343 | L344 | A345 | Q346 | Q347 | F348 | C349 | V350 | G351 | D352 | N353 | K354 | Y355 | T356 | P357 | ASP | ASP | SER | | |

D421
K422

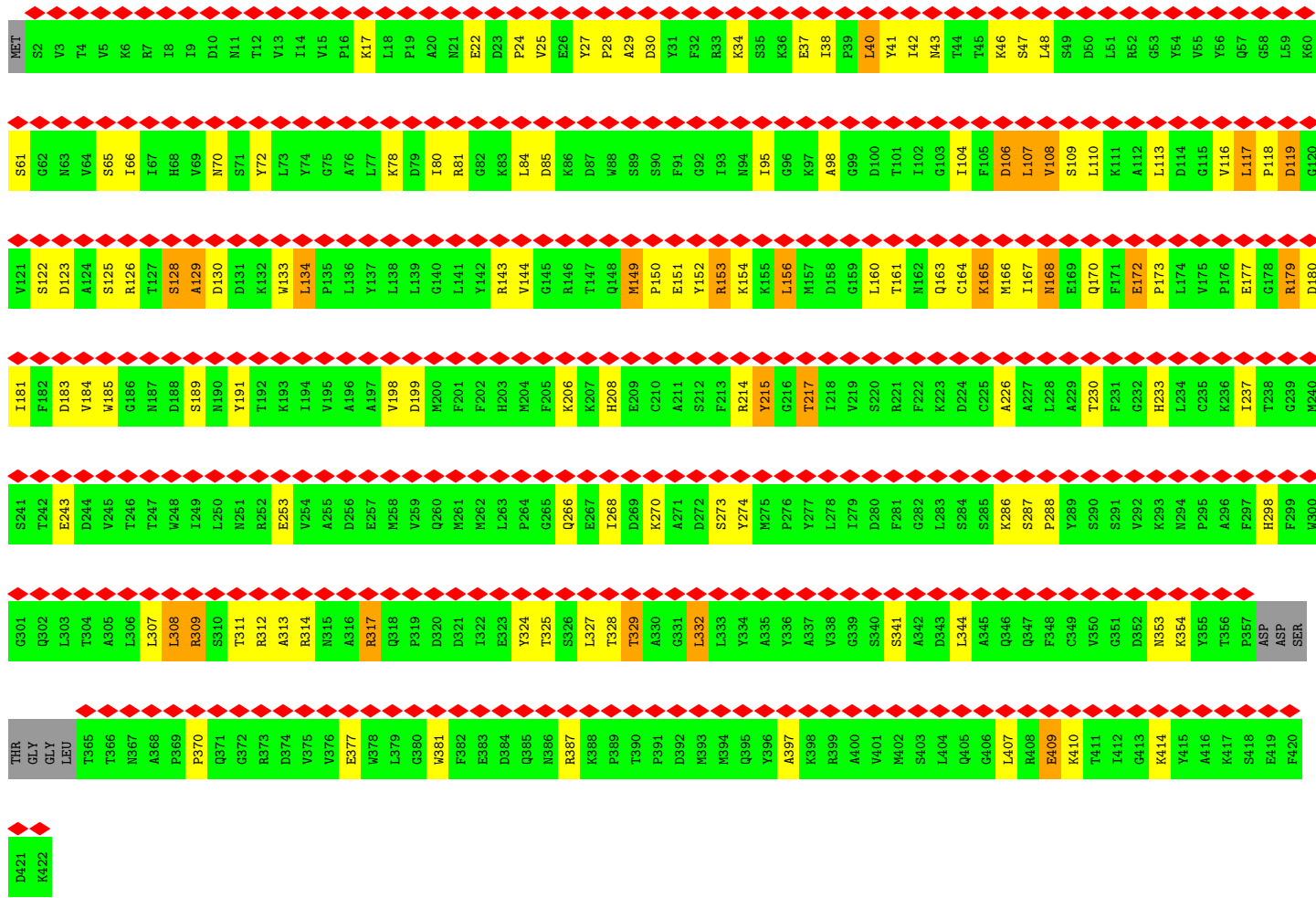
• Molecule 1: NUCLEOPROTEIN



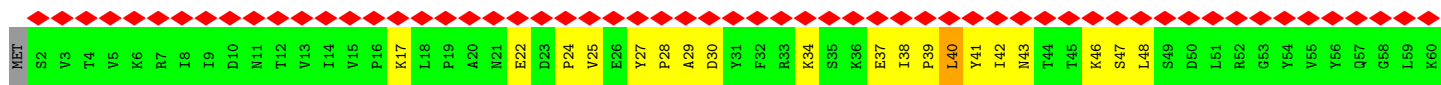
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MET | S2 | V3 | T4 | V5 | K6 | R7 | I8 | I9 | D10 | M11 | T12 | V13 | I14 | V15 | P16 | K17 | L18 | P19 | A20 | M21 | E22 | D23 | P24 | V25 | E26 | Y27 | P28 | A29 | D30 | V31 | F32 | R33 | K34 | S35 | K36 | E37 | I38 | P39 | L40 | Y41 | I42 | M43 | T44 | T45 | K46 | S47 | L48 | S49 | D50 | L51 | R52 | G53 | V54 | V55 | V56 | Q57 | G58 | L59 | K60 |
| S61 | G62 | M63 | V64 | S65 | I66 | I67 | H68 | V69 | M70 | S71 | Y72 | L73 | V74 | G75 | A76 | L77 | K78 | D79 | I80 | R81 | G82 | K83 | L84 | D85 | E86 | Y87 | W88 | S89 | A90 | F91 | G92 | I93 | N94 | I95 | G96 | K97 | A98 | G99 | D100 | T101 | I102 | Q103 | I104 | F105 | M106 | L107 | V108 | S109 | Q110 | K111 | A112 | L113 | D114 | G115 | V116 | L117 | P118 | D119 | G120 |
| V121 | S122 | D123 | A124 | S125 | I126 | T127 | S128 | A129 | D130 | D131 | K132 | M133 | L134 | P135 | G136 | A137 | L138 | L139 | G140 | L141 | Y142 | R143 | V144 | G145 | R146 | T147 | Q148 | M149 | P150 | E151 | Y152 | R153 | K154 | K155 | L156 | M157 | D158 | G159 | L160 | T161 | M162 | Q163 | C164 | K165 | M166 | I167 | N168 | E169 | Q170 | F171 | E172 | P173 | L174 | V175 | P176 | E177 | G178 | R179 | D180 |
| I181 | F182 | D183 | V184 | M185 | G186 | M187 | D188 | S189 | M190 | Y191 | T192 | K193 | I194 | V195 | A196 | A197 | V198 | D199 | M200 | F201 | F202 | H203 | M204 | F205 | K206 | K207 | H208 | E209 | C210 | A211 | S212 | F213 | R214 | Y215 | G216 | T217 | I218 | V219 | S220 | R221 | F222 | K223 | D224 | C225 | A226 | A227 | L228 | A229 | T230 | F231 | G232 | H233 | L234 | C235 | K236 | I237 | T238 | G239 | M240 |
| S241 | T242 | E243 | D244 | V245 | T246 | T247 | W248 | I249 | L250 | M251 | R252 | E253 | V254 | A255 | D256 | E257 | M258 | V259 | Q260 | M261 | M262 | L263 | P264 | G265 | Q266 | E267 | L268 | D269 | K270 | A271 | D272 | S273 | Y274 | M275 | P276 | Y277 | L278 | I279 | D280 | F281 | G282 | L283 | S284 | S285 | K286 | S287 | P288 | Y289 | S290 | S291 | V292 | K293 | M294 | P295 | A296 | F297 | H298 | F299 | W300 |



• Molecule 1: NUCLEOPROTEIN

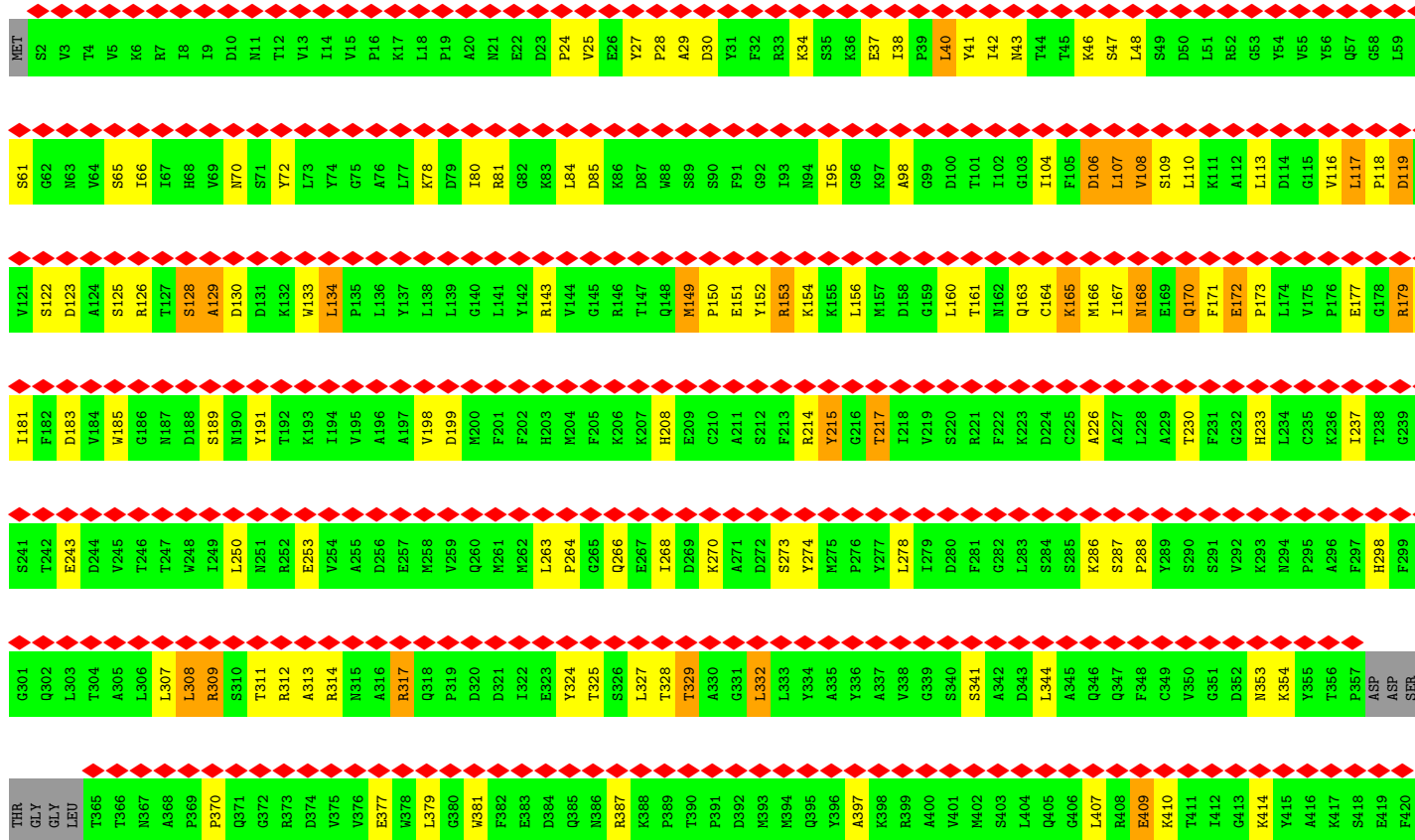


• Molecule 1: NUCLEOPROTEIN

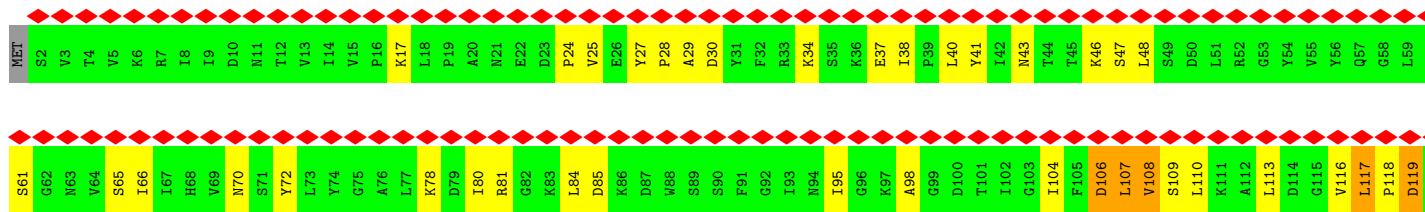




• Molecule 1: NUCLEOPROTEIN



• Molecule 1: NUCLEOPROTEIN





• Molecule 1: NUCLEOPROTEIN



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MET | S2 | V3 | T4 | V5 | K6 | R7 | I8 | I9 | D10 | M11 | T12 | V13 | I14 | V15 | P16 | K17 | L18 | P19 | A20 | E22 | D23 | P24 | V25 | E26 | Y27 | P28 | A29 | D30 | Y31 | F32 | R33 | K34 | S35 | K36 | E37 | I38 | F39 | L40 | Y41 | I42 | N43 | T44 | T45 | K46 | S47 | L48 | S49 | D50 | L51 | R52 | G53 | Y54 | V55 | Y56 | Q57 | G58 | L59 | K60 | |
| S61 | G62 | N63 | V64 | S65 | I66 | I67 | H68 | V69 | N70 | S71 | Y72 | L73 | Y74 | G75 | A76 | L77 | K78 | D79 | I80 | R81 | G82 | K83 | L84 | D85 | K86 | D87 | W88 | S89 | M90 | F91 | G92 | I93 | N94 | I95 | G96 | K97 | A98 | G99 | D100 | T101 | I102 | G103 | I104 | F105 | D106 | L107 | V108 | S109 | L110 | K111 | A112 | L113 | D114 | G115 | V116 | L117 | P118 | D119 | G120 |
| V121 | S122 | D123 | A124 | S125 | R126 | T127 | S128 | A129 | D130 | D131 | K132 | M133 | W134 | P135 | G136 | Y137 | L138 | L139 | G140 | L141 | Y142 | R143 | V144 | G145 | R146 | T147 | Q148 | M149 | S150 | E151 | Y152 | R153 | K154 | K155 | L156 | M157 | G158 | D159 | T160 | T161 | M162 | Q163 | C164 | K165 | M166 | I167 | M168 | E169 | Q170 | F171 | E172 | P173 | L174 | V175 | P176 | E177 | G178 | R179 | D180 |
| I181 | F182 | D183 | V184 | W185 | G186 | D188 | S189 | M190 | Y191 | T192 | K193 | I194 | V195 | A196 | A197 | V198 | D199 | M200 | F201 | F202 | H203 | M204 | F205 | K206 | K207 | H208 | E209 | C210 | A211 | S212 | F213 | R214 | Y215 | G216 | T217 | I218 | V219 | S220 | R221 | F222 | K223 | D224 | C225 | A226 | A227 | L228 | A229 | T230 | F231 | G232 | H233 | L234 | C235 | K236 | I237 | T238 | G239 | M240 | |
| S241 | T242 | E243 | D244 | A245 | T246 | T247 | W248 | L249 | L250 | N251 | R252 | E253 | V254 | A255 | D256 | E257 | M258 | V259 | Q260 | M261 | M262 | L263 | P264 | G265 | Q266 | E267 | I268 | D269 | K270 | A271 | D272 | S273 | Y274 | M275 | P276 | Y277 | L278 | I279 | D280 | F281 | G282 | L283 | S284 | S285 | K286 | S287 | P288 | Y289 | S290 | S291 | V292 | K293 | N294 | P295 | A296 | F297 | H298 | F299 | W300 |
| G301 | Q302 | L303 | T304 | A305 | L306 | L307 | L308 | R309 | S310 | T311 | R312 | A313 | R314 | N315 | A316 | R317 | Q318 | P319 | D320 | D321 | I322 | E323 | Y324 | T325 | S326 | L327 | T328 | T329 | A330 | G331 | L332 | L333 | Y334 | A335 | Y336 | A337 | V338 | G339 | S340 | S341 | A342 | D343 | L344 | A345 | Q346 | Q347 | F348 | C349 | V350 | G351 | D352 | N353 | K354 | Y355 | T356 | P357 | ASP | ASP | SER |
| THR | GLY | GLY | LEU | T365 | T366 | N367 | A368 | P369 | P370 | Q371 | G372 | R373 | D374 | V375 | V376 | E377 | W378 | L379 | G380 | W381 | F382 | E383 | D384 | Q385 | N386 | R387 | K388 | P389 | T390 | P391 | D392 | M393 | M394 | Q395 | Y396 | A397 | K398 | R399 | A400 | V401 | M402 | S403 | L404 | Q405 | G406 | L407 | R408 | E409 | K410 | T411 | I412 | G413 | K414 | Y415 | A416 | K417 | S418 | E419 | F420 |



• Molecule 2: POLY-URIDINE



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| U18 | U19 | U20 | U21 | U22 | U23 | U24 | U25 | U26 | U27 | U28 | U29 | U30 | U31 | U32 | U33 | U34 | U35 | U36 | U37 | U38 | U39 | U40 | U41 | U42 | U43 | U44 | U45 | U46 | U47 | U48 | U49 | U50 | U51 | U52 | U53 | U54 | U55 | U56 | U57 | U58 | U59 | U60 | U61 | U62 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

• Molecule 2: POLY-URIDINE



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| U18 | U19 | U20 | U21 | U22 | U23 | U24 | U25 | U26 | U27 | U28 | U29 | U30 | U31 | U32 | U33 | U34 | U35 | U36 | U37 | U38 | U39 | U40 | U41 | U42 | U43 | U44 | U45 | U46 | U47 | U48 | U49 | U50 | U51 | U52 | U53 | U54 | U55 | U56 | U57 | U58 | U59 | U60 | U61 | U62 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

4 Experimental information

| Property | Value | Source |
|------------------------------------|---|-----------|
| EM reconstruction method | HELICAL | Depositor |
| Imposed symmetry | HELICAL, twist=Not provided°, rise=Not provided Å, axial sym=Not provided | Depositor |
| Number of segments used | Not provided | |
| Resolution determination method | Not provided | |
| CTF correction method | Not provided | |
| Microscope | FEI POLARA 300 | Depositor |
| Voltage (kV) | 300 | Depositor |
| Electron dose ($e^-/\text{Å}^2$) | 20 | Depositor |
| Minimum defocus (nm) | 800 | Depositor |
| Maximum defocus (nm) | 2500 | Depositor |
| Magnification | 98000 | Depositor |
| Image detector | GENERIC TVIPS | Depositor |
| Maximum map value | 5.997 | Depositor |
| Minimum map value | -6.598 | Depositor |
| Average map value | 0.001 | Depositor |
| Map value standard deviation | 0.999 | Depositor |
| Recommended contour level | 1.0 | Depositor |
| Map size (Å) | 490.24, 490.24, 490.24 | wwPDB |
| Map dimensions | 320, 320, 320 | wwPDB |
| Map angles (°) | 90, 90, 90 | wwPDB |
| Pixel spacing (Å) | 1.532, 1.532, 1.532 | Depositor |

5 Model quality i

5.1 Standard geometry i

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 | 0.54 | 0/3357 | 0.63 | 0/4543 |
| 1 | C | 0.54 | 0/3357 | 0.63 | 0/4543 |
| 1 | D | 0.50 | 0/3357 | 0.61 | 0/4543 |
| 1 | F | 0.54 | 0/3357 | 0.63 | 0/4543 |
| 1 | H | 0.54 | 0/3357 | 0.63 | 0/4543 |
| 1 | I | 0.54 | 0/3357 | 0.63 | 0/4543 |
| 1 | J | 0.54 | 0/3357 | 0.63 | 0/4543 |
| 1 | K | 0.50 | 0/3357 | 0.61 | 0/4543 |
| 1 | L | 0.54 | 0/3357 | 0.63 | 0/4543 |
| 1 | M | 0.54 | 0/3357 | 0.63 | 0/4543 |
| 2 | R | 0.90 | 0/989 | 1.18 | 1/1526 (0.1%) |
| 2 | S | 0.90 | 0/989 | 1.18 | 1/1526 (0.1%) |
| All | All | 0.56 | 0/35548 | 0.67 | 2/48482 (0.0%) |

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.

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 1 | A | 0 | 1 |
| 1 | C | 0 | 1 |
| 1 | D | 0 | 1 |
| 1 | F | 0 | 1 |
| 1 | H | 0 | 1 |
| 1 | I | 0 | 1 |
| 1 | J | 0 | 1 |
| 1 | K | 0 | 1 |
| 1 | L | 0 | 1 |
| 1 | M | 0 | 1 |
| All | All | 0 | 10 |

There are no bond length outliers.

All (2) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|------|-------------|----------|
| 2 | R | 31 | U | C3'-C2'-C1' | 5.04 | 105.53 | 101.50 |
| 2 | S | 31 | U | C3'-C2'-C1' | 5.03 | 105.52 | 101.50 |

There are no chirality outliers.

All (10) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|---------|
| 1 | A | 106 | ASP | Peptide |
| 1 | C | 106 | ASP | Peptide |
| 1 | D | 106 | ASP | Peptide |
| 1 | F | 106 | ASP | Peptide |
| 1 | H | 106 | ASP | Peptide |
| 1 | I | 106 | ASP | Peptide |
| 1 | J | 106 | ASP | Peptide |
| 1 | K | 106 | ASP | Peptide |
| 1 | L | 106 | ASP | Peptide |
| 1 | M | 106 | ASP | Peptide |

5.2 Too-close contacts [i](#)

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 | 3282 | 0 | 3249 | 109 | 0 |
| 1 | C | 3282 | 0 | 3249 | 112 | 0 |
| 1 | D | 3282 | 0 | 3249 | 109 | 0 |
| 1 | F | 3282 | 0 | 3249 | 109 | 0 |
| 1 | H | 3282 | 0 | 3249 | 103 | 0 |
| 1 | I | 3282 | 0 | 3249 | 113 | 0 |
| 1 | J | 3282 | 0 | 3249 | 101 | 0 |
| 1 | K | 3282 | 0 | 3249 | 110 | 0 |
| 1 | L | 3282 | 0 | 3249 | 109 | 0 |
| 1 | M | 3282 | 0 | 3249 | 111 | 0 |
| 2 | R | 900 | 0 | 451 | 70 | 0 |
| 2 | S | 900 | 0 | 450 | 70 | 0 |
| All | All | 34620 | 0 | 33391 | 1058 | 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 (1058) 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:C:184:VAL:HG21 | 1:M:166:MET:CE | 1.39 | 1.51 |
| 1:L:166:MET:CE | 1:M:184:VAL:HG21 | 1.40 | 1.51 |
| 1:I:184:VAL:HG21 | 1:J:166:MET:CE | 1.40 | 1.51 |
| 1:D:166:MET:CE | 1:F:184:VAL:HG21 | 1.40 | 1.50 |
| 1:F:166:MET:CE | 1:H:184:VAL:HG21 | 1.40 | 1.50 |
| 1:A:166:MET:CE | 1:D:184:VAL:HG21 | 1.39 | 1.49 |
| 1:I:166:MET:CE | 1:K:184:VAL:HG21 | 1.39 | 1.49 |
| 1:K:166:MET:CE | 1:L:184:VAL:HG21 | 1.40 | 1.49 |
| 1:A:184:VAL:HG21 | 1:C:166:MET:CE | 1.40 | 1.48 |
| 1:I:109:SER:O | 1:I:110:LEU:HD23 | 1.31 | 1.30 |
| 1:D:109:SER:O | 1:D:110:LEU:HD23 | 1.31 | 1.30 |
| 1:M:109:SER:O | 1:M:110:LEU:HD23 | 1.32 | 1.30 |
| 1:K:109:SER:O | 1:K:110:LEU:HD23 | 1.31 | 1.29 |
| 1:C:109:SER:O | 1:C:110:LEU:HD23 | 1.32 | 1.27 |
| 1:F:109:SER:O | 1:F:110:LEU:HD23 | 1.31 | 1.27 |
| 1:H:109:SER:O | 1:H:110:LEU:HD23 | 1.32 | 1.25 |
| 1:L:109:SER:O | 1:L:110:LEU:HD23 | 1.31 | 1.25 |
| 1:A:109:SER:O | 1:A:110:LEU:HD23 | 1.31 | 1.25 |
| 1:J:109:SER:O | 1:J:110:LEU:HD23 | 1.32 | 1.24 |
| 1:H:107:LEU:HD23 | 1:H:107:LEU:N | 1.58 | 1.16 |
| 1:J:117:LEU:HB2 | 1:J:118:PRO:HD3 | 1.27 | 1.16 |
| 1:K:37:GLU:HB2 | 1:K:108:VAL:CG2 | 1.76 | 1.16 |
| 1:C:107:LEU:HD23 | 1:C:107:LEU:N | 1.58 | 1.15 |
| 1:I:107:LEU:N | 1:I:107:LEU:HD23 | 1.57 | 1.15 |
| 1:I:117:LEU:HB2 | 1:I:118:PRO:HD3 | 1.27 | 1.15 |
| 1:A:107:LEU:HD23 | 1:A:107:LEU:N | 1.57 | 1.15 |
| 1:H:37:GLU:HB2 | 1:H:108:VAL:CG2 | 1.76 | 1.15 |
| 1:J:107:LEU:N | 1:J:107:LEU:HD23 | 1.58 | 1.15 |
| 1:C:37:GLU:HB2 | 1:C:108:VAL:CG2 | 1.76 | 1.15 |
| 1:A:184:VAL:HG21 | 1:C:166:MET:HE2 | 1.21 | 1.14 |
| 1:C:117:LEU:HB2 | 1:C:118:PRO:HD3 | 1.27 | 1.14 |
| 1:A:166:MET:HE1 | 1:D:184:VAL:HG21 | 1.18 | 1.14 |
| 1:I:37:GLU:HB2 | 1:I:108:VAL:CG2 | 1.76 | 1.14 |
| 1:K:107:LEU:HD23 | 1:K:107:LEU:N | 1.57 | 1.14 |
| 1:L:117:LEU:HB2 | 1:L:118:PRO:HD3 | 1.28 | 1.14 |
| 1:A:37:GLU:HB2 | 1:A:108:VAL:CG2 | 1.76 | 1.14 |
| 1:C:184:VAL:HG21 | 1:M:166:MET:HE1 | 1.14 | 1.14 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:107:LEU:N | 1:D:107:LEU:HD23 | 1.57 | 1.14 |
| 1:M:37:GLU:HB2 | 1:M:108:VAL:CG2 | 1.76 | 1.14 |
| 1:F:37:GLU:HB2 | 1:F:108:VAL:CG2 | 1.77 | 1.13 |
| 1:J:37:GLU:HB2 | 1:J:108:VAL:CG2 | 1.76 | 1.13 |
| 1:L:107:LEU:N | 1:L:107:LEU:HD23 | 1.57 | 1.13 |
| 1:D:37:GLU:HB2 | 1:D:108:VAL:CG2 | 1.76 | 1.13 |
| 1:I:166:MET:HE1 | 1:K:184:VAL:HG21 | 1.22 | 1.13 |
| 1:K:117:LEU:HB2 | 1:K:118:PRO:HD3 | 1.28 | 1.12 |
| 1:L:37:GLU:HB2 | 1:L:108:VAL:CG2 | 1.77 | 1.12 |
| 1:A:166:MET:HE2 | 1:D:184:VAL:HG21 | 1.17 | 1.12 |
| 1:K:166:MET:HE1 | 1:L:184:VAL:HG21 | 1.20 | 1.12 |
| 1:F:107:LEU:HD23 | 1:F:107:LEU:N | 1.56 | 1.11 |
| 1:A:117:LEU:HB2 | 1:A:118:PRO:HD3 | 1.27 | 1.11 |
| 1:M:117:LEU:HB2 | 1:M:118:PRO:HD3 | 1.28 | 1.11 |
| 1:D:117:LEU:HB2 | 1:D:118:PRO:HD3 | 1.28 | 1.11 |
| 1:D:166:MET:HE1 | 1:F:184:VAL:HG21 | 1.32 | 1.11 |
| 1:K:166:MET:HE2 | 1:L:184:VAL:HG21 | 1.15 | 1.10 |
| 1:F:117:LEU:HB2 | 1:F:118:PRO:HD3 | 1.28 | 1.09 |
| 1:F:166:MET:HE1 | 1:H:184:VAL:HG21 | 1.27 | 1.09 |
| 1:I:166:MET:HE2 | 1:K:184:VAL:HG21 | 1.13 | 1.09 |
| 1:H:117:LEU:HB2 | 1:H:118:PRO:HD3 | 1.28 | 1.09 |
| 1:C:184:VAL:HG21 | 1:M:166:MET:HE2 | 1.21 | 1.09 |
| 1:L:166:MET:HE2 | 1:M:184:VAL:CG2 | 1.81 | 1.09 |
| 1:I:184:VAL:HG21 | 1:J:166:MET:HE1 | 1.21 | 1.09 |
| 1:I:184:VAL:HG21 | 1:J:166:MET:HE2 | 1.14 | 1.09 |
| 1:M:107:LEU:HD23 | 1:M:107:LEU:N | 1.58 | 1.09 |
| 1:D:166:MET:HE2 | 1:F:184:VAL:CG2 | 1.81 | 1.08 |
| 1:L:166:MET:HE1 | 1:M:184:VAL:HG21 | 1.31 | 1.08 |
| 1:C:37:GLU:HB2 | 1:C:108:VAL:HG21 | 1.34 | 1.08 |
| 1:A:184:VAL:HG21 | 1:C:166:MET:HE1 | 1.14 | 1.07 |
| 1:A:37:GLU:HB2 | 1:A:108:VAL:HG21 | 1.35 | 1.07 |
| 1:F:166:MET:HE2 | 1:H:184:VAL:CG2 | 1.84 | 1.07 |
| 1:M:37:GLU:HB2 | 1:M:108:VAL:HG21 | 1.34 | 1.06 |
| 1:I:166:MET:CE | 1:K:184:VAL:CG2 | 2.34 | 1.06 |
| 1:I:184:VAL:CG2 | 1:J:166:MET:CE | 2.34 | 1.06 |
| 1:C:184:VAL:CG2 | 1:M:166:MET:CE | 2.34 | 1.06 |
| 1:L:166:MET:CE | 1:M:184:VAL:CG2 | 2.34 | 1.06 |
| 1:A:184:VAL:CG2 | 1:C:166:MET:CE | 2.34 | 1.06 |
| 1:H:37:GLU:HB2 | 1:H:108:VAL:HG21 | 1.34 | 1.06 |
| 1:K:166:MET:CE | 1:L:184:VAL:CG2 | 2.34 | 1.06 |
| 1:A:166:MET:CE | 1:D:184:VAL:CG2 | 2.34 | 1.05 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:D:37:GLU:HB2 | 1:D:108:VAL:HG21 | 1.34 | 1.05 |
| 2:R:38:U:H3' | 2:R:39:U:H5'' | 1.38 | 1.05 |
| 2:R:47:U:H3' | 2:R:48:U:H5'' | 1.38 | 1.05 |
| 1:D:166:MET:CE | 1:F:184:VAL:CG2 | 2.34 | 1.05 |
| 1:F:166:MET:CE | 1:H:184:VAL:CG2 | 2.34 | 1.05 |
| 2:R:56:U:H3' | 2:R:57:U:H5'' | 1.38 | 1.05 |
| 2:S:47:U:H3' | 2:S:48:U:H5'' | 1.38 | 1.04 |
| 2:R:20:U:H3' | 2:R:21:U:H5'' | 1.39 | 1.04 |
| 2:R:29:U:H3' | 2:R:30:U:H5'' | 1.38 | 1.04 |
| 1:F:317:ARG:HE | 2:R:49:U:H2' | 1.20 | 1.04 |
| 1:J:37:GLU:HB2 | 1:J:108:VAL:HG21 | 1.34 | 1.04 |
| 2:S:56:U:H3' | 2:S:57:U:H5'' | 1.38 | 1.04 |
| 1:F:166:MET:HE2 | 1:H:184:VAL:HG21 | 1.08 | 1.04 |
| 2:S:29:U:H3' | 2:S:30:U:H5'' | 1.38 | 1.04 |
| 1:I:184:VAL:CG2 | 1:J:166:MET:HE2 | 1.88 | 1.03 |
| 2:S:38:U:H3' | 2:S:39:U:H5'' | 1.38 | 1.03 |
| 1:I:166:MET:HE2 | 1:K:184:VAL:CG2 | 1.88 | 1.03 |
| 1:L:317:ARG:HE | 2:S:49:U:H2' | 1.20 | 1.03 |
| 1:M:317:ARG:HE | 2:S:58:U:H2' | 1.21 | 1.02 |
| 1:L:37:GLU:HB2 | 1:L:108:VAL:HG21 | 1.36 | 1.02 |
| 1:C:317:ARG:HE | 2:R:22:U:H2' | 1.21 | 1.02 |
| 1:F:37:GLU:HB2 | 1:F:108:VAL:HG21 | 1.36 | 1.02 |
| 2:S:20:U:H3' | 2:S:21:U:H5'' | 1.39 | 1.02 |
| 1:I:106:ASP:C | 1:I:107:LEU:HD23 | 1.80 | 1.02 |
| 1:A:317:ARG:HE | 2:R:31:U:H2' | 1.21 | 1.01 |
| 1:I:317:ARG:HE | 2:S:31:U:H2' | 1.21 | 1.01 |
| 1:K:37:GLU:HB2 | 1:K:108:VAL:HG21 | 1.34 | 1.01 |
| 1:I:37:GLU:HB2 | 1:I:108:VAL:HG21 | 1.35 | 1.01 |
| 1:J:106:ASP:C | 1:J:107:LEU:HD23 | 1.80 | 1.01 |
| 1:L:166:MET:HE2 | 1:M:184:VAL:HG21 | 1.04 | 1.01 |
| 1:M:106:ASP:C | 1:M:107:LEU:HD23 | 1.80 | 1.01 |
| 1:C:106:ASP:C | 1:C:107:LEU:HD23 | 1.80 | 1.01 |
| 1:D:166:MET:HE2 | 1:F:184:VAL:HG21 | 1.04 | 1.01 |
| 1:D:317:ARG:HE | 2:R:40:U:H2' | 1.21 | 1.01 |
| 1:F:106:ASP:C | 1:F:107:LEU:HD23 | 1.80 | 1.01 |
| 1:J:317:ARG:HE | 2:S:22:U:H2' | 1.21 | 1.01 |
| 1:D:106:ASP:C | 1:D:107:LEU:HD23 | 1.80 | 1.00 |
| 1:L:106:ASP:C | 1:L:107:LEU:HD23 | 1.80 | 1.00 |
| 1:K:106:ASP:C | 1:K:107:LEU:HD23 | 1.80 | 1.00 |
| 1:H:106:ASP:C | 1:H:107:LEU:HD23 | 1.80 | 1.00 |
| 1:A:106:ASP:C | 1:A:107:LEU:HD23 | 1.80 | 1.00 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:H:317:ARG:HE | 2:R:58:U:H2' | 1.21 | 1.00 |
| 1:A:166:MET:HE2 | 1:D:184:VAL:CG2 | 1.91 | 0.99 |
| 1:K:166:MET:HE2 | 1:L:184:VAL:CG2 | 1.90 | 0.99 |
| 1:K:317:ARG:HE | 2:S:40:U:H2' | 1.21 | 0.98 |
| 1:A:184:VAL:CG2 | 1:C:166:MET:HE2 | 1.94 | 0.97 |
| 1:H:172:GLU:HB3 | 1:H:173:PRO:HD3 | 1.48 | 0.95 |
| 1:A:172:GLU:HB3 | 1:A:173:PRO:HD3 | 1.48 | 0.94 |
| 1:F:172:GLU:HB3 | 1:F:173:PRO:HD3 | 1.48 | 0.94 |
| 1:C:172:GLU:HB3 | 1:C:173:PRO:HD3 | 1.48 | 0.94 |
| 1:D:172:GLU:HB3 | 1:D:173:PRO:HD3 | 1.48 | 0.94 |
| 1:M:172:GLU:HB3 | 1:M:173:PRO:HD3 | 1.48 | 0.94 |
| 1:J:172:GLU:HB3 | 1:J:173:PRO:HD3 | 1.48 | 0.93 |
| 1:I:172:GLU:HB3 | 1:I:173:PRO:HD3 | 1.48 | 0.93 |
| 1:K:172:GLU:HB3 | 1:K:173:PRO:HD3 | 1.48 | 0.93 |
| 1:L:172:GLU:HB3 | 1:L:173:PRO:HD3 | 1.48 | 0.93 |
| 1:L:107:LEU:N | 1:L:107:LEU:CD2 | 2.32 | 0.93 |
| 1:K:107:LEU:N | 1:K:107:LEU:CD2 | 2.32 | 0.92 |
| 1:C:184:VAL:CG2 | 1:M:166:MET:HE2 | 1.94 | 0.92 |
| 1:I:107:LEU:N | 1:I:107:LEU:CD2 | 2.33 | 0.92 |
| 1:J:107:LEU:N | 1:J:107:LEU:CD2 | 2.33 | 0.91 |
| 1:K:37:GLU:HB2 | 1:K:108:VAL:HG22 | 1.55 | 0.88 |
| 1:M:37:GLU:HB2 | 1:M:108:VAL:HG22 | 1.55 | 0.88 |
| 1:I:37:GLU:HB2 | 1:I:108:VAL:HG22 | 1.55 | 0.88 |
| 1:L:109:SER:O | 1:L:110:LEU:CD2 | 2.21 | 0.88 |
| 1:H:107:LEU:N | 1:H:107:LEU:CD2 | 2.32 | 0.88 |
| 1:A:37:GLU:HB2 | 1:A:108:VAL:HG22 | 1.55 | 0.88 |
| 1:F:107:LEU:N | 1:F:107:LEU:CD2 | 2.32 | 0.87 |
| 1:D:107:LEU:N | 1:D:107:LEU:CD2 | 2.32 | 0.87 |
| 1:H:37:GLU:HB2 | 1:H:108:VAL:HG22 | 1.55 | 0.87 |
| 1:D:37:GLU:HB2 | 1:D:108:VAL:HG22 | 1.55 | 0.87 |
| 1:J:37:GLU:HB2 | 1:J:108:VAL:HG22 | 1.56 | 0.87 |
| 1:A:109:SER:O | 1:A:110:LEU:CD2 | 2.22 | 0.86 |
| 1:A:117:LEU:HB2 | 1:A:118:PRO:CD | 2.05 | 0.86 |
| 1:K:109:SER:O | 1:K:110:LEU:CD2 | 2.22 | 0.86 |
| 1:M:107:LEU:N | 1:M:107:LEU:CD2 | 2.32 | 0.86 |
| 1:A:107:LEU:N | 1:A:107:LEU:CD2 | 2.33 | 0.86 |
| 1:C:37:GLU:HB2 | 1:C:108:VAL:HG22 | 1.56 | 0.86 |
| 1:K:117:LEU:HB2 | 1:K:118:PRO:CD | 2.06 | 0.86 |
| 1:L:117:LEU:HB2 | 1:L:118:PRO:CD | 2.06 | 0.86 |
| 1:C:117:LEU:HB2 | 1:C:118:PRO:CD | 2.05 | 0.86 |
| 1:C:107:LEU:N | 1:C:107:LEU:CD2 | 2.33 | 0.86 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:37:GLU:HB2 | 1:F:108:VAL:HG22 | 1.56 | 0.86 |
| 1:I:117:LEU:HB2 | 1:I:118:PRO:CD | 2.06 | 0.86 |
| 1:J:117:LEU:HB2 | 1:J:118:PRO:CD | 2.05 | 0.86 |
| 1:D:117:LEU:HB2 | 1:D:118:PRO:CD | 2.06 | 0.85 |
| 1:H:109:SER:O | 1:H:110:LEU:CD2 | 2.22 | 0.85 |
| 1:L:37:GLU:HB2 | 1:L:108:VAL:HG22 | 1.56 | 0.85 |
| 1:K:107:LEU:HD13 | 1:K:274:TYR:OH | 1.77 | 0.85 |
| 1:C:107:LEU:HD13 | 1:C:274:TYR:OH | 1.77 | 0.85 |
| 1:M:117:LEU:HB2 | 1:M:118:PRO:CD | 2.06 | 0.85 |
| 1:F:107:LEU:HD13 | 1:F:274:TYR:OH | 1.77 | 0.85 |
| 1:H:117:LEU:HB2 | 1:H:118:PRO:CD | 2.06 | 0.85 |
| 1:D:107:LEU:HD13 | 1:D:274:TYR:OH | 1.77 | 0.85 |
| 1:F:117:LEU:HB2 | 1:F:118:PRO:CD | 2.06 | 0.85 |
| 1:C:109:SER:O | 1:C:110:LEU:CD2 | 2.22 | 0.84 |
| 1:I:109:SER:O | 1:I:110:LEU:CD2 | 2.22 | 0.84 |
| 1:D:109:SER:O | 1:D:110:LEU:CD2 | 2.22 | 0.84 |
| 1:I:107:LEU:HD13 | 1:I:274:TYR:OH | 1.77 | 0.84 |
| 1:M:107:LEU:HD13 | 1:M:274:TYR:OH | 1.77 | 0.84 |
| 1:F:109:SER:O | 1:F:110:LEU:CD2 | 2.21 | 0.84 |
| 1:J:107:LEU:HD13 | 1:J:274:TYR:OH | 1.77 | 0.84 |
| 1:L:107:LEU:HD13 | 1:L:274:TYR:OH | 1.77 | 0.84 |
| 1:C:184:VAL:CG2 | 1:M:166:MET:HE1 | 2.04 | 0.84 |
| 1:A:107:LEU:HD13 | 1:A:274:TYR:OH | 1.77 | 0.84 |
| 1:H:107:LEU:HD13 | 1:H:274:TYR:OH | 1.77 | 0.83 |
| 1:H:37:GLU:CB | 1:H:108:VAL:HG21 | 2.09 | 0.82 |
| 2:S:38:U:C3' | 2:S:39:U:H5'' | 2.08 | 0.82 |
| 1:J:37:GLU:CB | 1:J:108:VAL:HG21 | 2.08 | 0.82 |
| 1:D:37:GLU:CB | 1:D:108:VAL:HG21 | 2.09 | 0.82 |
| 1:M:109:SER:O | 1:M:110:LEU:CD2 | 2.22 | 0.82 |
| 2:S:20:U:C3' | 2:S:21:U:H5'' | 2.09 | 0.82 |
| 2:S:47:U:C3' | 2:S:48:U:H5'' | 2.08 | 0.82 |
| 1:C:37:GLU:CB | 1:C:108:VAL:HG21 | 2.08 | 0.82 |
| 2:R:38:U:C3' | 2:R:39:U:H5'' | 2.08 | 0.82 |
| 2:R:47:U:C3' | 2:R:48:U:H5'' | 2.08 | 0.82 |
| 2:S:56:U:C3' | 2:S:57:U:H5'' | 2.08 | 0.82 |
| 1:A:37:GLU:CB | 1:A:108:VAL:HG21 | 2.09 | 0.82 |
| 2:R:56:U:C3' | 2:R:57:U:H5'' | 2.08 | 0.82 |
| 1:F:37:GLU:CB | 1:F:108:VAL:HG21 | 2.09 | 0.82 |
| 2:R:29:U:C3' | 2:R:30:U:H5'' | 2.09 | 0.82 |
| 1:F:164:CYS:HA | 1:F:168:ASN:H | 1.45 | 0.81 |
| 1:I:37:GLU:CB | 1:I:108:VAL:HG21 | 2.09 | 0.81 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:37:GLU:CB | 1:K:108:VAL:HG21 | 2.09 | 0.81 |
| 1:M:37:GLU:CB | 1:M:108:VAL:HG21 | 2.09 | 0.81 |
| 2:R:20:U:C3' | 2:R:21:U:H5'' | 2.09 | 0.81 |
| 1:J:109:SER:O | 1:J:110:LEU:CD2 | 2.22 | 0.81 |
| 2:S:29:U:C3' | 2:S:30:U:H5'' | 2.09 | 0.81 |
| 1:L:37:GLU:CB | 1:L:108:VAL:HG21 | 2.09 | 0.81 |
| 1:L:164:CYS:HA | 1:L:168:ASN:H | 1.45 | 0.80 |
| 1:M:164:CYS:HA | 1:M:168:ASN:H | 1.46 | 0.80 |
| 1:H:164:CYS:HA | 1:H:168:ASN:H | 1.46 | 0.80 |
| 1:A:164:CYS:HA | 1:A:168:ASN:H | 1.47 | 0.80 |
| 1:K:164:CYS:HA | 1:K:168:ASN:H | 1.46 | 0.80 |
| 1:I:164:CYS:HA | 1:I:168:ASN:H | 1.47 | 0.79 |
| 1:A:184:VAL:CG2 | 1:C:166:MET:HE1 | 2.03 | 0.79 |
| 1:D:164:CYS:HA | 1:D:168:ASN:H | 1.46 | 0.79 |
| 1:J:164:CYS:HA | 1:J:168:ASN:H | 1.46 | 0.79 |
| 1:C:164:CYS:HA | 1:C:168:ASN:H | 1.46 | 0.78 |
| 1:A:166:MET:HE1 | 1:D:184:VAL:CG2 | 2.07 | 0.76 |
| 1:F:106:ASP:C | 1:F:107:LEU:CD2 | 2.54 | 0.76 |
| 1:H:106:ASP:C | 1:H:107:LEU:CD2 | 2.53 | 0.76 |
| 1:M:106:ASP:C | 1:M:107:LEU:CD2 | 2.53 | 0.75 |
| 1:I:106:ASP:C | 1:I:107:LEU:CD2 | 2.54 | 0.75 |
| 1:L:106:ASP:C | 1:L:107:LEU:CD2 | 2.54 | 0.75 |
| 1:K:106:ASP:C | 1:K:107:LEU:CD2 | 2.54 | 0.75 |
| 1:J:106:ASP:C | 1:J:107:LEU:CD2 | 2.54 | 0.75 |
| 1:C:106:ASP:C | 1:C:107:LEU:CD2 | 2.54 | 0.75 |
| 1:A:106:ASP:C | 1:A:107:LEU:CD2 | 2.54 | 0.75 |
| 1:D:106:ASP:C | 1:D:107:LEU:CD2 | 2.54 | 0.74 |
| 1:K:166:MET:HE1 | 1:L:184:VAL:CG2 | 2.09 | 0.74 |
| 1:I:166:MET:HE1 | 1:K:184:VAL:CG2 | 2.11 | 0.72 |
| 1:I:184:VAL:CG2 | 1:J:166:MET:HE1 | 2.10 | 0.71 |
| 1:M:317:ARG:HH21 | 2:S:59:U:H5' | 1.56 | 0.71 |
| 1:H:317:ARG:HH21 | 2:R:59:U:H5' | 1.56 | 0.71 |
| 1:D:214:ARG:HA | 1:D:217:THR:HG22 | 1.73 | 0.70 |
| 1:F:214:ARG:HA | 1:F:217:THR:HG22 | 1.73 | 0.70 |
| 1:H:214:ARG:HA | 1:H:217:THR:HG22 | 1.74 | 0.70 |
| 1:C:214:ARG:HA | 1:C:217:THR:HG22 | 1.73 | 0.70 |
| 1:F:317:ARG:HH21 | 2:R:50:U:H5' | 1.56 | 0.70 |
| 1:K:317:ARG:HH21 | 2:S:41:U:H5' | 1.57 | 0.70 |
| 1:L:214:ARG:HA | 1:L:217:THR:HG22 | 1.73 | 0.69 |
| 1:A:317:ARG:HH21 | 2:R:32:U:H5' | 1.58 | 0.69 |
| 1:D:317:ARG:HH21 | 2:R:41:U:H5' | 1.57 | 0.69 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:317:ARG:HH21 | 2:S:23:U:H5' | 1.57 | 0.69 |
| 1:M:214:ARG:HA | 1:M:217:THR:HG22 | 1.74 | 0.69 |
| 1:A:214:ARG:HA | 1:A:217:THR:HG22 | 1.74 | 0.69 |
| 1:K:214:ARG:HA | 1:K:217:THR:HG22 | 1.74 | 0.69 |
| 1:J:214:ARG:HA | 1:J:217:THR:HG22 | 1.73 | 0.69 |
| 1:C:317:ARG:HH21 | 2:R:23:U:H5' | 1.57 | 0.68 |
| 1:I:214:ARG:HA | 1:I:217:THR:HG22 | 1.74 | 0.68 |
| 2:R:48:U:H2' | 2:R:49:U:O4' | 1.94 | 0.68 |
| 1:L:317:ARG:HH21 | 2:S:50:U:H5' | 1.56 | 0.68 |
| 1:M:317:ARG:NH2 | 2:S:59:U:H5' | 2.09 | 0.68 |
| 2:S:30:U:H2' | 2:S:31:U:O4' | 1.94 | 0.68 |
| 1:I:317:ARG:HH21 | 2:S:32:U:H5' | 1.58 | 0.68 |
| 2:S:57:U:H2' | 2:S:58:U:O4' | 1.94 | 0.67 |
| 2:R:30:U:H2' | 2:R:31:U:O4' | 1.94 | 0.67 |
| 2:R:57:U:H2' | 2:R:58:U:O4' | 1.94 | 0.67 |
| 1:F:317:ARG:NH2 | 2:R:50:U:H5' | 2.10 | 0.67 |
| 1:J:317:ARG:NH2 | 2:S:23:U:H5' | 2.10 | 0.67 |
| 2:R:21:U:H2' | 2:R:22:U:O4' | 1.95 | 0.67 |
| 1:H:317:ARG:NH2 | 2:R:59:U:H5' | 2.09 | 0.67 |
| 2:S:39:U:H2' | 2:S:40:U:O4' | 1.94 | 0.67 |
| 1:L:317:ARG:NH2 | 2:S:50:U:H5' | 2.10 | 0.67 |
| 1:A:317:ARG:NH2 | 2:R:32:U:H5' | 2.10 | 0.67 |
| 2:S:21:U:H2' | 2:S:22:U:O4' | 1.95 | 0.67 |
| 2:S:48:U:H2' | 2:S:49:U:O4' | 1.94 | 0.67 |
| 2:R:39:U:H2' | 2:R:40:U:O4' | 1.94 | 0.67 |
| 1:K:317:ARG:NH2 | 2:S:41:U:H5' | 2.10 | 0.66 |
| 1:C:317:ARG:NH2 | 2:R:23:U:H5' | 2.10 | 0.66 |
| 1:I:317:ARG:NH2 | 2:S:32:U:H5' | 2.10 | 0.66 |
| 1:F:179:ARG:HA | 1:F:183:ASP:CG | 2.17 | 0.66 |
| 1:D:317:ARG:NH2 | 2:R:41:U:H5' | 2.10 | 0.66 |
| 1:H:179:ARG:HA | 1:H:183:ASP:CG | 2.17 | 0.66 |
| 1:M:179:ARG:HA | 1:M:183:ASP:CG | 2.17 | 0.66 |
| 1:C:179:ARG:HA | 1:C:183:ASP:CG | 2.17 | 0.65 |
| 1:L:179:ARG:HA | 1:L:183:ASP:CG | 2.16 | 0.65 |
| 1:I:179:ARG:HA | 1:I:183:ASP:CG | 2.17 | 0.65 |
| 1:J:179:ARG:HA | 1:J:183:ASP:CG | 2.17 | 0.65 |
| 1:D:179:ARG:HA | 1:D:183:ASP:CG | 2.17 | 0.65 |
| 1:K:179:ARG:HA | 1:K:183:ASP:CG | 2.17 | 0.64 |
| 1:A:179:ARG:HA | 1:A:183:ASP:CG | 2.17 | 0.64 |
| 1:F:29:ALA:H | 1:F:266:GLN:HE22 | 1.47 | 0.63 |
| 1:K:29:ALA:H | 1:K:266:GLN:HE22 | 1.47 | 0.63 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:H:325:THR:O | 1:H:329:THR:HG22 | 1.99 | 0.63 |
| 1:I:29:ALA:H | 1:I:266:GLN:HE22 | 1.46 | 0.63 |
| 1:H:28:PRO:HG2 | 1:H:266:GLN:HE21 | 1.64 | 0.62 |
| 1:M:325:THR:O | 1:M:329:THR:HG22 | 1.99 | 0.62 |
| 1:C:29:ALA:H | 1:C:266:GLN:HE22 | 1.47 | 0.62 |
| 1:F:166:MET:HE1 | 1:H:184:VAL:CG2 | 2.15 | 0.62 |
| 1:L:166:MET:HE1 | 1:M:184:VAL:CG2 | 2.19 | 0.62 |
| 1:M:29:ALA:H | 1:M:266:GLN:HE22 | 1.46 | 0.62 |
| 1:D:29:ALA:H | 1:D:266:GLN:HE22 | 1.47 | 0.62 |
| 1:A:28:PRO:HG2 | 1:A:266:GLN:HE21 | 1.64 | 0.62 |
| 1:A:29:ALA:H | 1:A:266:GLN:HE22 | 1.46 | 0.62 |
| 1:I:325:THR:O | 1:I:329:THR:HG22 | 1.99 | 0.62 |
| 1:J:28:PRO:HG2 | 1:J:266:GLN:HE21 | 1.64 | 0.62 |
| 1:L:28:PRO:HG2 | 1:L:266:GLN:HE21 | 1.64 | 0.62 |
| 1:F:325:THR:O | 1:F:329:THR:HG22 | 1.99 | 0.62 |
| 1:J:325:THR:O | 1:J:329:THR:HG22 | 2.00 | 0.62 |
| 1:L:29:ALA:H | 1:L:266:GLN:HE22 | 1.47 | 0.62 |
| 1:M:149:MET:O | 1:M:151:GLU:N | 2.33 | 0.62 |
| 1:C:149:MET:O | 1:C:151:GLU:N | 2.33 | 0.62 |
| 1:J:29:ALA:H | 1:J:266:GLN:HE22 | 1.47 | 0.62 |
| 1:C:325:THR:O | 1:C:329:THR:HG22 | 2.00 | 0.62 |
| 1:A:149:MET:O | 1:A:151:GLU:N | 2.33 | 0.62 |
| 1:D:28:PRO:HG2 | 1:D:266:GLN:HE21 | 1.64 | 0.62 |
| 1:K:28:PRO:HG2 | 1:K:266:GLN:HE21 | 1.64 | 0.62 |
| 1:D:149:MET:O | 1:D:151:GLU:N | 2.33 | 0.61 |
| 1:L:149:MET:O | 1:L:151:GLU:N | 2.33 | 0.61 |
| 1:A:325:THR:O | 1:A:329:THR:HG22 | 1.99 | 0.61 |
| 1:C:28:PRO:HG2 | 1:C:266:GLN:HE21 | 1.64 | 0.61 |
| 1:H:29:ALA:H | 1:H:266:GLN:HE22 | 1.46 | 0.61 |
| 1:L:325:THR:O | 1:L:329:THR:HG22 | 1.99 | 0.61 |
| 1:I:28:PRO:HG2 | 1:I:266:GLN:HE21 | 1.64 | 0.61 |
| 1:K:325:THR:O | 1:K:329:THR:HG22 | 2.00 | 0.61 |
| 1:M:28:PRO:HG2 | 1:M:266:GLN:HE21 | 1.64 | 0.61 |
| 1:I:172:GLU:HB3 | 1:I:173:PRO:CD | 2.27 | 0.61 |
| 1:F:28:PRO:HG2 | 1:F:266:GLN:HE21 | 1.64 | 0.61 |
| 1:F:149:MET:O | 1:F:151:GLU:N | 2.33 | 0.61 |
| 1:H:149:MET:O | 1:H:151:GLU:N | 2.33 | 0.61 |
| 1:K:149:MET:O | 1:K:151:GLU:N | 2.33 | 0.61 |
| 1:D:325:THR:O | 1:D:329:THR:HG22 | 2.00 | 0.61 |
| 1:J:149:MET:O | 1:J:151:GLU:N | 2.33 | 0.61 |
| 1:I:117:LEU:CB | 1:I:118:PRO:HD3 | 2.17 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:149:MET:O | 1:I:151:GLU:N | 2.33 | 0.60 |
| 1:A:298:HIS:NE2 | 1:A:317:ARG:NH1 | 2.50 | 0.59 |
| 1:K:268:ILE:HD11 | 1:L:17:LYS:HG3 | 1.84 | 0.59 |
| 1:I:230:THR:HG21 | 1:I:298:HIS:CE1 | 2.38 | 0.59 |
| 1:K:230:THR:HG21 | 1:K:298:HIS:CE1 | 2.38 | 0.59 |
| 1:D:268:ILE:HD11 | 1:F:17:LYS:HG3 | 1.84 | 0.59 |
| 1:C:184:VAL:HG11 | 1:M:166:MET:HE2 | 1.85 | 0.59 |
| 1:D:298:HIS:NE2 | 1:D:317:ARG:NH1 | 2.51 | 0.59 |
| 1:H:172:GLU:HB3 | 1:H:173:PRO:CD | 2.28 | 0.59 |
| 1:L:230:THR:HG21 | 1:L:298:HIS:CE1 | 2.38 | 0.59 |
| 1:I:17:LYS:HG3 | 1:J:268:ILE:HD11 | 1.85 | 0.59 |
| 1:F:298:HIS:NE2 | 1:F:317:ARG:NH1 | 2.50 | 0.58 |
| 1:I:268:ILE:HD11 | 1:K:17:LYS:HG3 | 1.84 | 0.58 |
| 1:M:298:HIS:NE2 | 1:M:317:ARG:NH1 | 2.51 | 0.58 |
| 1:F:230:THR:HG21 | 1:F:298:HIS:CE1 | 2.38 | 0.58 |
| 1:J:230:THR:HG21 | 1:J:298:HIS:CE1 | 2.38 | 0.58 |
| 1:M:230:THR:HG21 | 1:M:298:HIS:CE1 | 2.38 | 0.58 |
| 1:C:17:LYS:HG3 | 1:M:268:ILE:HD11 | 1.85 | 0.58 |
| 1:C:298:HIS:NE2 | 1:C:317:ARG:NH1 | 2.51 | 0.58 |
| 1:H:298:HIS:NE2 | 1:H:317:ARG:NH1 | 2.51 | 0.58 |
| 1:M:117:LEU:CB | 1:M:118:PRO:HD3 | 2.17 | 0.58 |
| 1:A:17:LYS:HG3 | 1:C:268:ILE:HD11 | 1.85 | 0.58 |
| 1:A:230:THR:HG21 | 1:A:298:HIS:CE1 | 2.37 | 0.58 |
| 1:A:268:ILE:HD11 | 1:D:17:LYS:HG3 | 1.84 | 0.58 |
| 1:D:230:THR:HG21 | 1:D:298:HIS:CE1 | 2.38 | 0.58 |
| 1:C:230:THR:HG21 | 1:C:298:HIS:CE1 | 2.38 | 0.58 |
| 1:K:172:GLU:HB3 | 1:K:173:PRO:CD | 2.28 | 0.58 |
| 1:L:268:ILE:HD11 | 1:M:17:LYS:HG3 | 1.85 | 0.58 |
| 1:I:298:HIS:NE2 | 1:I:317:ARG:NH1 | 2.50 | 0.58 |
| 1:A:184:VAL:HG11 | 1:C:166:MET:HE2 | 1.85 | 0.58 |
| 1:L:298:HIS:NE2 | 1:L:317:ARG:NH1 | 2.50 | 0.58 |
| 2:R:18:U:H5' | 2:S:62:U:O2' | 2.04 | 0.58 |
| 2:R:35:U:O2' | 2:R:36:U:H5' | 2.04 | 0.58 |
| 1:F:268:ILE:HD11 | 1:H:17:LYS:HG3 | 1.85 | 0.58 |
| 2:R:44:U:O2' | 2:R:45:U:H5' | 2.04 | 0.58 |
| 2:S:35:U:O2' | 2:S:36:U:H5' | 2.04 | 0.58 |
| 1:H:230:THR:HG21 | 1:H:298:HIS:CE1 | 2.38 | 0.57 |
| 1:J:298:HIS:NE2 | 1:J:317:ARG:NH1 | 2.51 | 0.57 |
| 1:C:172:GLU:HB3 | 1:C:173:PRO:CD | 2.28 | 0.57 |
| 1:H:106:ASP:O | 1:H:107:LEU:HD22 | 2.04 | 0.57 |
| 2:R:60:U:H6 | 2:R:60:U:H5' | 1.70 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:298:HIS:NE2 | 1:K:317:ARG:NH1 | 2.51 | 0.57 |
| 1:C:317:ARG:CZ | 1:C:317:ARG:H | 2.18 | 0.57 |
| 1:J:317:ARG:CZ | 1:J:317:ARG:H | 2.18 | 0.57 |
| 2:S:53:U:O2' | 2:S:54:U:H5' | 2.04 | 0.57 |
| 1:L:104:ILE:HD11 | 1:L:198:VAL:HG22 | 1.87 | 0.57 |
| 1:H:38:ILE:HD11 | 1:H:107:LEU:HD12 | 1.87 | 0.57 |
| 1:M:104:ILE:HD11 | 1:M:198:VAL:HG22 | 1.87 | 0.57 |
| 2:R:42:U:H5' | 2:R:42:U:H6 | 1.70 | 0.57 |
| 2:R:53:U:O2' | 2:R:54:U:H5' | 2.04 | 0.57 |
| 1:C:104:ILE:HD11 | 1:C:198:VAL:HG22 | 1.87 | 0.57 |
| 1:K:104:ILE:HD11 | 1:K:198:VAL:HG22 | 1.87 | 0.57 |
| 1:F:104:ILE:HD11 | 1:F:198:VAL:HG22 | 1.87 | 0.56 |
| 1:F:172:GLU:HB3 | 1:F:173:PRO:CD | 2.28 | 0.56 |
| 1:H:104:ILE:HD11 | 1:H:198:VAL:HG22 | 1.87 | 0.56 |
| 1:J:104:ILE:HD11 | 1:J:198:VAL:HG22 | 1.87 | 0.56 |
| 1:L:233:HIS:CE1 | 1:L:312:ARG:HD2 | 2.40 | 0.56 |
| 1:M:38:ILE:HD11 | 1:M:107:LEU:HD12 | 1.87 | 0.56 |
| 1:M:106:ASP:O | 1:M:107:LEU:HD22 | 2.04 | 0.56 |
| 1:C:233:HIS:CE1 | 1:C:312:ARG:HD2 | 2.40 | 0.56 |
| 1:D:117:LEU:CB | 1:D:118:PRO:HD3 | 2.18 | 0.56 |
| 1:F:38:ILE:HD11 | 1:F:107:LEU:HD12 | 1.87 | 0.56 |
| 2:S:26:U:O2' | 2:S:27:U:H5' | 2.05 | 0.56 |
| 1:A:38:ILE:HD11 | 1:A:107:LEU:HD12 | 1.88 | 0.56 |
| 1:D:104:ILE:HD11 | 1:D:198:VAL:HG22 | 1.87 | 0.56 |
| 1:D:233:HIS:CE1 | 1:D:312:ARG:HD2 | 2.40 | 0.56 |
| 1:F:37:GLU:OE2 | 1:F:108:VAL:HG11 | 2.05 | 0.56 |
| 1:F:106:ASP:O | 1:F:107:LEU:HD22 | 2.05 | 0.56 |
| 1:H:117:LEU:CB | 1:H:118:PRO:HD3 | 2.17 | 0.56 |
| 1:I:37:GLU:OE2 | 1:I:108:VAL:HG11 | 2.06 | 0.56 |
| 1:I:104:ILE:HD11 | 1:I:198:VAL:HG22 | 1.88 | 0.56 |
| 1:K:233:HIS:CE1 | 1:K:312:ARG:HD2 | 2.40 | 0.56 |
| 1:L:37:GLU:OE2 | 1:L:108:VAL:HG11 | 2.05 | 0.56 |
| 2:S:33:U:H5' | 2:S:33:U:H6 | 1.70 | 0.56 |
| 2:S:42:U:H6 | 2:S:42:U:H5' | 1.70 | 0.56 |
| 2:S:44:U:O2' | 2:S:45:U:H5' | 2.04 | 0.56 |
| 2:S:60:U:H5' | 2:S:60:U:H6 | 1.70 | 0.56 |
| 1:H:37:GLU:OE2 | 1:H:108:VAL:HG11 | 2.05 | 0.56 |
| 1:K:317:ARG:H | 1:K:317:ARG:CZ | 2.18 | 0.56 |
| 1:L:38:ILE:HD11 | 1:L:107:LEU:HD12 | 1.87 | 0.56 |
| 1:L:106:ASP:O | 1:L:107:LEU:HD22 | 2.05 | 0.56 |
| 1:L:317:ARG:CZ | 1:L:317:ARG:H | 2.19 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:37:GLU:OE2 | 1:A:108:VAL:HG11 | 2.06 | 0.56 |
| 1:A:104:ILE:HD11 | 1:A:198:VAL:HG22 | 1.88 | 0.56 |
| 1:D:38:ILE:HD11 | 1:D:107:LEU:HD12 | 1.87 | 0.56 |
| 1:F:317:ARG:H | 1:F:317:ARG:CZ | 2.19 | 0.56 |
| 1:M:37:GLU:OE2 | 1:M:108:VAL:HG11 | 2.05 | 0.56 |
| 1:M:317:ARG:NE | 2:S:58:U:H2' | 2.06 | 0.56 |
| 2:R:24:U:H6 | 2:R:24:U:H5' | 1.71 | 0.56 |
| 2:R:26:U:O2' | 2:R:27:U:H5' | 2.05 | 0.56 |
| 1:J:324:TYR:O | 1:J:328:THR:HG22 | 2.06 | 0.56 |
| 2:S:24:U:H6 | 2:S:24:U:H5' | 1.71 | 0.56 |
| 2:S:51:U:H6 | 2:S:51:U:H5' | 1.71 | 0.56 |
| 1:D:106:ASP:O | 1:D:107:LEU:HD22 | 2.05 | 0.56 |
| 1:H:233:HIS:CE1 | 1:H:312:ARG:HD2 | 2.41 | 0.56 |
| 1:H:317:ARG:CZ | 1:H:317:ARG:H | 2.18 | 0.56 |
| 1:K:106:ASP:O | 1:K:107:LEU:HD22 | 2.05 | 0.56 |
| 1:M:233:HIS:CE1 | 1:M:312:ARG:HD2 | 2.41 | 0.56 |
| 1:A:233:HIS:CE1 | 1:A:312:ARG:HD2 | 2.41 | 0.56 |
| 1:A:317:ARG:CZ | 1:A:317:ARG:H | 2.19 | 0.56 |
| 1:F:233:HIS:CE1 | 1:F:312:ARG:HD2 | 2.40 | 0.56 |
| 1:I:38:ILE:HD11 | 1:I:107:LEU:HD12 | 1.88 | 0.56 |
| 1:J:106:ASP:O | 1:J:107:LEU:HD22 | 2.05 | 0.56 |
| 1:J:233:HIS:CE1 | 1:J:312:ARG:HD2 | 2.40 | 0.56 |
| 1:K:38:ILE:HD11 | 1:K:107:LEU:HD12 | 1.87 | 0.56 |
| 1:D:37:GLU:OE2 | 1:D:108:VAL:HG11 | 2.06 | 0.56 |
| 1:F:118:PRO:O | 1:F:119:ASP:HB2 | 2.06 | 0.56 |
| 1:H:317:ARG:NE | 2:R:58:U:H2' | 2.06 | 0.56 |
| 1:C:317:ARG:NE | 2:R:22:U:H2' | 2.06 | 0.55 |
| 1:C:324:TYR:O | 1:C:328:THR:HG22 | 2.06 | 0.55 |
| 1:I:233:HIS:CE1 | 1:I:312:ARG:HD2 | 2.41 | 0.55 |
| 1:M:172:GLU:HB3 | 1:M:173:PRO:CD | 2.28 | 0.55 |
| 1:M:317:ARG:CZ | 1:M:317:ARG:H | 2.18 | 0.55 |
| 1:D:317:ARG:H | 1:D:317:ARG:CZ | 2.18 | 0.55 |
| 1:K:253:GLU:CD | 1:K:253:GLU:H | 2.10 | 0.55 |
| 2:R:33:U:H6 | 2:R:33:U:H5' | 1.70 | 0.55 |
| 1:I:317:ARG:CZ | 1:I:317:ARG:H | 2.19 | 0.55 |
| 1:M:118:PRO:O | 1:M:119:ASP:HB2 | 2.06 | 0.55 |
| 1:C:37:GLU:OE2 | 1:C:108:VAL:HG11 | 2.06 | 0.55 |
| 1:K:37:GLU:OE2 | 1:K:108:VAL:HG11 | 2.06 | 0.55 |
| 1:L:172:GLU:HB3 | 1:L:173:PRO:CD | 2.28 | 0.55 |
| 1:L:317:ARG:NE | 2:S:49:U:H2' | 2.05 | 0.55 |
| 2:R:51:U:H6 | 2:R:51:U:H5' | 1.71 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:166:MET:HE2 | 1:D:184:VAL:HG11 | 1.89 | 0.55 |
| 1:H:118:PRO:O | 1:H:119:ASP:HB2 | 2.06 | 0.55 |
| 1:J:106:ASP:O | 1:J:107:LEU:CD2 | 2.55 | 0.55 |
| 1:L:118:PRO:O | 1:L:119:ASP:HB2 | 2.06 | 0.55 |
| 1:J:37:GLU:OE2 | 1:J:108:VAL:HG11 | 2.06 | 0.55 |
| 1:K:106:ASP:O | 1:K:107:LEU:CD2 | 2.54 | 0.55 |
| 1:F:253:GLU:CD | 1:F:253:GLU:H | 2.10 | 0.55 |
| 1:F:324:TYR:O | 1:F:328:THR:HG22 | 2.06 | 0.55 |
| 1:I:106:ASP:O | 1:I:107:LEU:CD2 | 2.55 | 0.55 |
| 1:C:106:ASP:O | 1:C:107:LEU:HD22 | 2.05 | 0.55 |
| 1:C:184:VAL:HG11 | 1:M:166:MET:CE | 2.37 | 0.55 |
| 1:D:324:TYR:O | 1:D:328:THR:HG22 | 2.06 | 0.55 |
| 1:F:166:MET:CE | 1:H:184:VAL:HG11 | 2.37 | 0.55 |
| 1:I:324:TYR:O | 1:I:328:THR:HG22 | 2.06 | 0.55 |
| 1:L:253:GLU:CD | 1:L:253:GLU:H | 2.10 | 0.55 |
| 1:D:253:GLU:H | 1:D:253:GLU:CD | 2.10 | 0.55 |
| 1:A:324:TYR:O | 1:A:328:THR:HG22 | 2.06 | 0.55 |
| 1:C:38:ILE:HD11 | 1:C:107:LEU:HD12 | 1.88 | 0.55 |
| 1:D:118:PRO:O | 1:D:119:ASP:HB2 | 2.06 | 0.55 |
| 1:L:106:ASP:O | 1:L:107:LEU:CD2 | 2.55 | 0.55 |
| 1:L:166:MET:CE | 1:M:184:VAL:HG11 | 2.37 | 0.55 |
| 1:H:324:TYR:O | 1:H:328:THR:HG22 | 2.07 | 0.54 |
| 1:J:172:GLU:HB3 | 1:J:173:PRO:CD | 2.28 | 0.54 |
| 1:I:106:ASP:O | 1:I:107:LEU:HD22 | 2.06 | 0.54 |
| 1:M:106:ASP:O | 1:M:107:LEU:CD2 | 2.54 | 0.54 |
| 1:A:166:MET:CE | 1:D:184:VAL:HG11 | 2.38 | 0.54 |
| 1:J:118:PRO:O | 1:J:119:ASP:HB2 | 2.07 | 0.54 |
| 1:K:118:PRO:O | 1:K:119:ASP:HB2 | 2.06 | 0.54 |
| 1:L:324:TYR:O | 1:L:328:THR:HG22 | 2.06 | 0.54 |
| 1:A:106:ASP:O | 1:A:107:LEU:HD22 | 2.06 | 0.54 |
| 1:A:184:VAL:HG11 | 1:C:166:MET:CE | 2.38 | 0.54 |
| 1:D:172:GLU:HB3 | 1:D:173:PRO:CD | 2.28 | 0.54 |
| 1:H:106:ASP:O | 1:H:107:LEU:CD2 | 2.54 | 0.54 |
| 1:A:253:GLU:CD | 1:A:253:GLU:H | 2.10 | 0.54 |
| 1:C:253:GLU:CD | 1:C:253:GLU:H | 2.11 | 0.54 |
| 1:D:106:ASP:O | 1:D:107:LEU:CD2 | 2.54 | 0.54 |
| 1:I:166:MET:CE | 1:K:184:VAL:HG11 | 2.38 | 0.54 |
| 1:M:324:TYR:O | 1:M:328:THR:HG22 | 2.07 | 0.54 |
| 1:F:106:ASP:O | 1:F:107:LEU:CD2 | 2.55 | 0.54 |
| 1:F:226:ALA:O | 1:F:230:THR:HG23 | 2.07 | 0.54 |
| 1:I:118:PRO:O | 1:I:119:ASP:HB2 | 2.07 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:253:GLU:H | 1:I:253:GLU:CD | 2.10 | 0.54 |
| 1:J:253:GLU:CD | 1:J:253:GLU:H | 2.11 | 0.54 |
| 1:D:166:MET:CE | 1:F:184:VAL:HG11 | 2.38 | 0.54 |
| 1:K:324:TYR:O | 1:K:328:THR:HG22 | 2.06 | 0.54 |
| 1:M:253:GLU:CD | 1:M:253:GLU:H | 2.10 | 0.54 |
| 1:A:106:ASP:O | 1:A:107:LEU:CD2 | 2.55 | 0.54 |
| 1:C:106:ASP:O | 1:C:107:LEU:CD2 | 2.55 | 0.54 |
| 1:C:118:PRO:O | 1:C:119:ASP:HB2 | 2.07 | 0.54 |
| 1:I:184:VAL:HG11 | 1:J:166:MET:CE | 2.38 | 0.54 |
| 1:J:38:ILE:HD11 | 1:J:107:LEU:HD12 | 1.88 | 0.54 |
| 1:H:253:GLU:CD | 1:H:253:GLU:H | 2.10 | 0.54 |
| 1:J:172:GLU:CB | 1:J:173:PRO:HD3 | 2.32 | 0.54 |
| 1:K:166:MET:CE | 1:L:184:VAL:HG11 | 2.38 | 0.54 |
| 1:K:226:ALA:O | 1:K:230:THR:HG23 | 2.08 | 0.54 |
| 1:J:317:ARG:NH1 | 1:J:317:ARG:H | 2.06 | 0.53 |
| 1:D:166:MET:HE3 | 1:F:184:VAL:HG11 | 1.90 | 0.53 |
| 1:H:317:ARG:NH1 | 1:H:317:ARG:H | 2.06 | 0.53 |
| 1:C:226:ALA:O | 1:C:230:THR:HG23 | 2.08 | 0.53 |
| 1:L:226:ALA:O | 1:L:230:THR:HG23 | 2.07 | 0.53 |
| 1:A:66:ILE:HD13 | 1:A:185:TRP:CD1 | 2.44 | 0.53 |
| 1:C:317:ARG:NH1 | 1:C:317:ARG:H | 2.06 | 0.53 |
| 1:H:226:ALA:O | 1:H:230:THR:HG23 | 2.08 | 0.53 |
| 1:K:66:ILE:HD13 | 1:K:185:TRP:CD1 | 2.44 | 0.53 |
| 1:A:118:PRO:O | 1:A:119:ASP:HB2 | 2.07 | 0.53 |
| 1:L:166:MET:HE3 | 1:M:184:VAL:HG11 | 1.90 | 0.53 |
| 1:A:317:ARG:NH1 | 1:A:317:ARG:H | 2.07 | 0.53 |
| 1:D:66:ILE:HD13 | 1:D:185:TRP:CD1 | 2.44 | 0.53 |
| 1:D:317:ARG:NH1 | 1:D:317:ARG:H | 2.07 | 0.53 |
| 1:M:66:ILE:HD13 | 1:M:185:TRP:CD1 | 2.43 | 0.53 |
| 1:H:66:ILE:HD13 | 1:H:185:TRP:CD1 | 2.43 | 0.53 |
| 1:I:317:ARG:NE | 2:S:31:U:H2' | 2.06 | 0.53 |
| 1:L:66:ILE:HD13 | 1:L:185:TRP:CD1 | 2.44 | 0.53 |
| 1:L:317:ARG:NH1 | 1:L:317:ARG:H | 2.07 | 0.53 |
| 1:M:226:ALA:O | 1:M:230:THR:HG23 | 2.08 | 0.53 |
| 1:C:66:ILE:HD13 | 1:C:185:TRP:CD1 | 2.44 | 0.53 |
| 1:D:166:MET:HE1 | 1:F:184:VAL:CG2 | 2.19 | 0.53 |
| 1:J:270:LYS:HE3 | 1:J:273:SER:HB2 | 1.91 | 0.53 |
| 1:M:317:ARG:NH1 | 1:M:317:ARG:H | 2.06 | 0.53 |
| 1:I:226:ALA:O | 1:I:230:THR:HG23 | 2.09 | 0.53 |
| 1:D:226:ALA:O | 1:D:230:THR:HG23 | 2.08 | 0.52 |
| 1:F:317:ARG:NH1 | 1:F:317:ARG:H | 2.07 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:226:ALA:O | 1:J:230:THR:HG23 | 2.08 | 0.52 |
| 1:C:270:LYS:HE3 | 1:C:273:SER:HB2 | 1.91 | 0.52 |
| 1:I:66:ILE:HD13 | 1:I:185:TRP:CD1 | 2.44 | 0.52 |
| 1:J:104:ILE:HD11 | 1:J:198:VAL:HA | 1.92 | 0.52 |
| 1:A:226:ALA:O | 1:A:230:THR:HG23 | 2.09 | 0.52 |
| 1:J:66:ILE:HD13 | 1:J:185:TRP:CD1 | 2.44 | 0.52 |
| 1:K:317:ARG:NH1 | 1:K:317:ARG:H | 2.07 | 0.52 |
| 1:A:317:ARG:NE | 2:R:31:U:H2' | 2.06 | 0.52 |
| 1:D:104:ILE:HD11 | 1:D:198:VAL:HA | 1.92 | 0.52 |
| 1:I:317:ARG:NH1 | 1:I:317:ARG:H | 2.07 | 0.52 |
| 1:F:107:LEU:HD23 | 1:F:107:LEU:H | 1.66 | 0.52 |
| 1:D:107:LEU:HD23 | 1:D:107:LEU:H | 1.66 | 0.52 |
| 1:F:66:ILE:HD13 | 1:F:185:TRP:CD1 | 2.44 | 0.52 |
| 1:K:317:ARG:NE | 2:S:40:U:H2' | 2.06 | 0.52 |
| 1:L:104:ILE:HD11 | 1:L:198:VAL:HA | 1.92 | 0.52 |
| 1:A:172:GLU:HB3 | 1:A:173:PRO:CD | 2.27 | 0.52 |
| 1:C:184:VAL:CG1 | 1:M:166:MET:HE2 | 2.39 | 0.52 |
| 1:F:66:ILE:HD13 | 1:F:185:TRP:CG | 2.45 | 0.52 |
| 1:L:270:LYS:HE3 | 1:L:273:SER:HB2 | 1.92 | 0.52 |
| 1:F:270:LYS:HE3 | 1:F:273:SER:HB2 | 1.92 | 0.51 |
| 1:L:107:LEU:HD23 | 1:L:107:LEU:H | 1.66 | 0.51 |
| 1:C:66:ILE:HD13 | 1:C:185:TRP:CG | 2.45 | 0.51 |
| 1:D:270:LYS:HE3 | 1:D:273:SER:HB2 | 1.92 | 0.51 |
| 1:K:66:ILE:HD13 | 1:K:185:TRP:CG | 2.46 | 0.51 |
| 1:K:270:LYS:HE3 | 1:K:273:SER:HB2 | 1.92 | 0.51 |
| 1:A:66:ILE:HD13 | 1:A:185:TRP:CG | 2.45 | 0.51 |
| 1:C:104:ILE:HD11 | 1:C:198:VAL:HA | 1.92 | 0.51 |
| 1:D:66:ILE:HD13 | 1:D:185:TRP:CG | 2.45 | 0.51 |
| 1:F:104:ILE:HD11 | 1:F:198:VAL:HA | 1.92 | 0.51 |
| 1:M:104:ILE:HD11 | 1:M:198:VAL:HA | 1.93 | 0.51 |
| 1:A:143:ARG:HH21 | 2:R:35:U:H5'' | 1.76 | 0.51 |
| 1:H:66:ILE:HD13 | 1:H:185:TRP:CG | 2.46 | 0.51 |
| 1:K:104:ILE:HD11 | 1:K:198:VAL:HA | 1.92 | 0.51 |
| 1:L:66:ILE:HD13 | 1:L:185:TRP:CG | 2.45 | 0.51 |
| 1:I:270:LYS:HE3 | 1:I:273:SER:HB2 | 1.93 | 0.51 |
| 1:K:107:LEU:HD23 | 1:K:107:LEU:H | 1.66 | 0.51 |
| 1:F:317:ARG:NE | 2:R:49:U:H2' | 2.05 | 0.51 |
| 1:J:66:ILE:HD13 | 1:J:185:TRP:CG | 2.45 | 0.51 |
| 1:A:270:LYS:HE3 | 1:A:273:SER:HB2 | 1.93 | 0.51 |
| 1:I:66:ILE:HD13 | 1:I:185:TRP:CG | 2.46 | 0.51 |
| 1:A:172:GLU:CB | 1:A:173:PRO:HD3 | 2.31 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:M:66:ILE:HD13 | 1:M:185:TRP:CG | 2.46 | 0.51 |
| 1:M:160:LEU:HD12 | 1:M:161:THR:HG23 | 1.93 | 0.51 |
| 1:H:143:ARG:HH21 | 2:R:62:U:H5'' | 1.76 | 0.51 |
| 1:K:166:MET:HE2 | 1:L:184:VAL:HG11 | 1.92 | 0.51 |
| 1:A:184:VAL:CG1 | 1:C:166:MET:HE2 | 2.40 | 0.51 |
| 1:M:270:LYS:HE3 | 1:M:273:SER:HB2 | 1.93 | 0.51 |
| 1:K:143:ARG:HH21 | 2:S:44:U:H5'' | 1.76 | 0.50 |
| 1:H:317:ARG:NH2 | 2:R:59:U:C5' | 2.75 | 0.50 |
| 1:L:143:ARG:HH21 | 2:S:53:U:H5'' | 1.76 | 0.50 |
| 1:M:143:ARG:HH21 | 2:S:62:U:H5'' | 1.76 | 0.50 |
| 1:F:143:ARG:HH21 | 2:R:53:U:H5'' | 1.76 | 0.50 |
| 1:H:160:LEU:HD12 | 1:H:161:THR:HG23 | 1.93 | 0.50 |
| 1:C:107:LEU:HD23 | 1:C:107:LEU:H | 1.68 | 0.50 |
| 1:F:160:LEU:HD12 | 1:F:161:THR:HG23 | 1.94 | 0.50 |
| 1:H:104:ILE:HD11 | 1:H:198:VAL:HA | 1.93 | 0.50 |
| 1:J:143:ARG:HH21 | 2:S:26:U:H5'' | 1.77 | 0.50 |
| 1:M:107:LEU:HD23 | 1:M:107:LEU:H | 1.67 | 0.50 |
| 1:H:270:LYS:HE3 | 1:H:273:SER:HB2 | 1.93 | 0.50 |
| 1:A:104:ILE:HD11 | 1:A:198:VAL:HA | 1.93 | 0.50 |
| 1:L:160:LEU:HD12 | 1:L:161:THR:HG23 | 1.94 | 0.50 |
| 1:D:160:LEU:HD12 | 1:D:161:THR:HG23 | 1.94 | 0.50 |
| 1:H:107:LEU:HD23 | 1:H:107:LEU:H | 1.67 | 0.50 |
| 1:I:143:ARG:HH21 | 2:S:35:U:H5'' | 1.76 | 0.50 |
| 1:J:160:LEU:HD12 | 1:J:161:THR:HG23 | 1.94 | 0.50 |
| 1:K:172:GLU:CB | 1:K:173:PRO:HD3 | 2.32 | 0.50 |
| 1:A:166:MET:HE2 | 1:D:184:VAL:CG1 | 2.42 | 0.50 |
| 1:C:143:ARG:HH21 | 2:R:26:U:H5'' | 1.77 | 0.50 |
| 1:H:65:SER:HB2 | 1:H:117:LEU:HD11 | 1.94 | 0.49 |
| 1:I:104:ILE:HD11 | 1:I:198:VAL:HA | 1.93 | 0.49 |
| 1:C:317:ARG:NH2 | 2:R:23:U:C5' | 2.75 | 0.49 |
| 1:C:160:LEU:HD12 | 1:C:161:THR:HG23 | 1.94 | 0.49 |
| 1:D:143:ARG:HH21 | 2:R:44:U:H5'' | 1.76 | 0.49 |
| 1:I:65:SER:HB2 | 1:I:117:LEU:HD11 | 1.94 | 0.49 |
| 1:M:65:SER:HB2 | 1:M:117:LEU:HD11 | 1.94 | 0.49 |
| 1:A:317:ARG:NH2 | 2:R:32:U:C5' | 2.75 | 0.49 |
| 1:H:107:LEU:CD1 | 1:H:274:TYR:HE2 | 2.26 | 0.49 |
| 1:I:166:MET:HE2 | 1:K:184:VAL:HG11 | 1.94 | 0.49 |
| 1:M:317:ARG:NH2 | 2:S:59:U:C5' | 2.75 | 0.49 |
| 1:F:317:ARG:NH2 | 2:R:50:U:C5' | 2.75 | 0.49 |
| 1:I:184:VAL:HG11 | 1:J:166:MET:HE2 | 1.94 | 0.49 |
| 1:J:107:LEU:CD1 | 1:J:274:TYR:HE2 | 2.26 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:M:107:LEU:CD1 | 1:M:274:TYR:HE2 | 2.26 | 0.49 |
| 1:A:38:ILE:HG13 | 1:A:38:ILE:O | 2.13 | 0.49 |
| 1:A:65:SER:HB2 | 1:A:117:LEU:HD11 | 1.94 | 0.49 |
| 1:D:65:SER:HB2 | 1:D:117:LEU:HD11 | 1.94 | 0.49 |
| 1:K:38:ILE:HG13 | 1:K:38:ILE:O | 2.13 | 0.49 |
| 1:C:38:ILE:HG13 | 1:C:38:ILE:O | 2.13 | 0.49 |
| 1:C:107:LEU:CD1 | 1:C:274:TYR:HE2 | 2.25 | 0.49 |
| 1:D:107:LEU:CD1 | 1:D:274:TYR:HE2 | 2.26 | 0.49 |
| 1:I:38:ILE:HG13 | 1:I:38:ILE:O | 2.13 | 0.49 |
| 1:J:170:GLN:HB3 | 1:J:171:PHE:H | 1.53 | 0.49 |
| 1:K:65:SER:HB2 | 1:K:117:LEU:HD11 | 1.94 | 0.49 |
| 1:M:38:ILE:HG13 | 1:M:38:ILE:O | 2.13 | 0.49 |
| 1:A:160:LEU:HD12 | 1:A:161:THR:HG23 | 1.94 | 0.49 |
| 1:J:38:ILE:HG13 | 1:J:38:ILE:O | 2.13 | 0.49 |
| 1:K:317:ARG:NH2 | 2:S:41:U:C5' | 2.75 | 0.49 |
| 1:D:38:ILE:O | 1:D:38:ILE:HG13 | 2.13 | 0.48 |
| 1:I:317:ARG:NH2 | 2:S:32:U:C5' | 2.75 | 0.48 |
| 1:A:107:LEU:CD1 | 1:A:274:TYR:HE2 | 2.27 | 0.48 |
| 1:I:107:LEU:CD1 | 1:I:274:TYR:HE2 | 2.26 | 0.48 |
| 1:I:160:LEU:HD12 | 1:I:161:THR:HG23 | 1.94 | 0.48 |
| 1:J:107:LEU:HD23 | 1:J:107:LEU:H | 1.68 | 0.48 |
| 1:K:160:LEU:HD12 | 1:K:161:THR:HG23 | 1.94 | 0.48 |
| 1:D:317:ARG:NH2 | 2:R:41:U:C5' | 2.75 | 0.48 |
| 1:H:38:ILE:HG13 | 1:H:38:ILE:O | 2.13 | 0.48 |
| 1:I:107:LEU:HD23 | 1:I:107:LEU:H | 1.68 | 0.48 |
| 1:L:107:LEU:CD1 | 1:L:274:TYR:HE2 | 2.27 | 0.48 |
| 1:L:65:SER:HB2 | 1:L:117:LEU:HD11 | 1.94 | 0.48 |
| 1:F:65:SER:HB2 | 1:F:117:LEU:HD11 | 1.94 | 0.48 |
| 1:F:107:LEU:CD1 | 1:F:274:TYR:HE2 | 2.27 | 0.48 |
| 1:H:107:LEU:HD13 | 1:H:274:TYR:CZ | 2.48 | 0.48 |
| 1:L:38:ILE:HG13 | 1:L:38:ILE:O | 2.14 | 0.48 |
| 1:L:317:ARG:NH2 | 2:S:50:U:C5' | 2.75 | 0.48 |
| 1:J:317:ARG:NH2 | 2:S:23:U:C5' | 2.75 | 0.48 |
| 1:K:107:LEU:CD1 | 1:K:274:TYR:HE2 | 2.26 | 0.48 |
| 1:L:317:ARG:O | 1:L:317:ARG:HG2 | 2.14 | 0.48 |
| 1:M:107:LEU:HD13 | 1:M:274:TYR:CZ | 2.48 | 0.48 |
| 1:A:107:LEU:HD23 | 1:A:107:LEU:H | 1.68 | 0.48 |
| 1:C:65:SER:HB2 | 1:C:117:LEU:HD11 | 1.95 | 0.47 |
| 1:J:65:SER:HB2 | 1:J:117:LEU:HD11 | 1.95 | 0.47 |
| 1:H:149:MET:C | 1:H:151:GLU:H | 2.18 | 0.47 |
| 1:D:107:LEU:HD13 | 1:D:274:TYR:CZ | 2.49 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:166:MET:HE3 | 1:H:184:VAL:HG11 | 1.95 | 0.47 |
| 1:H:409:GLU:OE2 | 1:H:409:GLU:N | 2.48 | 0.47 |
| 1:H:107:LEU:CD1 | 1:H:274:TYR:CE2 | 2.97 | 0.47 |
| 1:L:317:ARG:HH21 | 2:S:50:U:C5' | 2.27 | 0.47 |
| 1:M:41:TYR:HA | 1:M:110:LEU:O | 2.15 | 0.47 |
| 1:C:107:LEU:CD1 | 1:C:274:TYR:CE2 | 2.97 | 0.47 |
| 1:K:107:LEU:HD13 | 1:K:274:TYR:CZ | 2.49 | 0.47 |
| 1:L:170:GLN:HB3 | 1:L:171:PHE:H | 1.54 | 0.47 |
| 1:C:107:LEU:HD13 | 1:C:274:TYR:CZ | 2.49 | 0.47 |
| 1:C:199:ASP:OD1 | 1:C:214:ARG:HD2 | 2.15 | 0.47 |
| 1:C:317:ARG:O | 1:C:317:ARG:HG2 | 2.15 | 0.47 |
| 1:D:41:TYR:HA | 1:D:110:LEU:O | 2.15 | 0.47 |
| 1:F:38:ILE:O | 1:F:38:ILE:HG13 | 2.14 | 0.47 |
| 1:F:317:ARG:O | 1:F:317:ARG:HG2 | 2.14 | 0.47 |
| 1:F:409:GLU:OE2 | 1:F:409:GLU:N | 2.48 | 0.47 |
| 1:L:409:GLU:N | 1:L:409:GLU:OE2 | 2.48 | 0.47 |
| 1:M:107:LEU:CD1 | 1:M:274:TYR:CE2 | 2.97 | 0.47 |
| 1:C:41:TYR:HA | 1:C:110:LEU:O | 2.15 | 0.47 |
| 1:C:317:ARG:HH21 | 2:R:23:U:C5' | 2.27 | 0.47 |
| 1:M:409:GLU:OE2 | 1:M:409:GLU:N | 2.48 | 0.47 |
| 1:H:199:ASP:OD1 | 1:H:214:ARG:HD2 | 2.15 | 0.47 |
| 1:J:107:LEU:HD13 | 1:J:274:TYR:CZ | 2.49 | 0.47 |
| 1:J:107:LEU:CD1 | 1:J:274:TYR:CE2 | 2.97 | 0.47 |
| 1:K:41:TYR:HA | 1:K:110:LEU:O | 2.15 | 0.47 |
| 1:K:317:ARG:O | 1:K:317:ARG:HG2 | 2.15 | 0.47 |
| 1:K:409:GLU:OE2 | 1:K:409:GLU:N | 2.48 | 0.47 |
| 1:A:37:GLU:CG | 1:A:108:VAL:HG21 | 2.45 | 0.47 |
| 1:C:409:GLU:N | 1:C:409:GLU:OE2 | 2.48 | 0.47 |
| 1:D:107:LEU:CD1 | 1:D:274:TYR:CE2 | 2.97 | 0.47 |
| 1:H:66:ILE:O | 1:H:70:ASN:ND2 | 2.48 | 0.47 |
| 1:I:409:GLU:OE2 | 1:I:409:GLU:N | 2.48 | 0.47 |
| 1:L:41:TYR:HA | 1:L:110:LEU:O | 2.15 | 0.47 |
| 1:L:107:LEU:HD13 | 1:L:274:TYR:CZ | 2.49 | 0.47 |
| 1:M:317:ARG:O | 1:M:317:ARG:HG2 | 2.15 | 0.47 |
| 1:A:170:GLN:HB3 | 1:A:171:PHE:H | 1.54 | 0.46 |
| 1:D:317:ARG:O | 1:D:317:ARG:HG2 | 2.15 | 0.46 |
| 1:F:41:TYR:HA | 1:F:110:LEU:O | 2.15 | 0.46 |
| 1:F:107:LEU:HD13 | 1:F:274:TYR:CZ | 2.49 | 0.46 |
| 1:F:107:LEU:CD1 | 1:F:274:TYR:CE2 | 2.97 | 0.46 |
| 1:H:133:TRP:HB3 | 1:H:167:ILE:HG21 | 1.97 | 0.46 |
| 1:M:149:MET:C | 1:M:151:GLU:H | 2.18 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:199:ASP:OD1 | 1:F:214:ARG:HD2 | 2.15 | 0.46 |
| 1:H:41:TYR:HA | 1:H:110:LEU:O | 2.15 | 0.46 |
| 1:H:107:LEU:HD13 | 1:H:274:TYR:HH | 1.78 | 0.46 |
| 1:I:107:LEU:HD13 | 1:I:274:TYR:CZ | 2.50 | 0.46 |
| 1:J:41:TYR:HA | 1:J:110:LEU:O | 2.15 | 0.46 |
| 1:J:199:ASP:OD1 | 1:J:214:ARG:HD2 | 2.15 | 0.46 |
| 1:A:41:TYR:HA | 1:A:110:LEU:O | 2.15 | 0.46 |
| 1:A:107:LEU:HD13 | 1:A:274:TYR:CZ | 2.50 | 0.46 |
| 1:A:107:LEU:CD1 | 1:A:274:TYR:CE2 | 2.98 | 0.46 |
| 1:A:133:TRP:HB3 | 1:A:167:ILE:HG21 | 1.98 | 0.46 |
| 1:D:172:GLU:CB | 1:D:173:PRO:HD3 | 2.32 | 0.46 |
| 1:I:317:ARG:HH21 | 2:S:32:U:C5' | 2.28 | 0.46 |
| 1:J:409:GLU:N | 1:J:409:GLU:OE2 | 2.48 | 0.46 |
| 1:L:149:MET:C | 1:L:151:GLU:H | 2.19 | 0.46 |
| 1:L:172:GLU:CB | 1:L:173:PRO:HD3 | 2.32 | 0.46 |
| 1:M:66:ILE:O | 1:M:70:ASN:ND2 | 2.48 | 0.46 |
| 1:M:133:TRP:HB3 | 1:M:167:ILE:HG21 | 1.97 | 0.46 |
| 1:M:199:ASP:OD1 | 1:M:214:ARG:HD2 | 2.15 | 0.46 |
| 1:A:66:ILE:O | 1:A:70:ASN:ND2 | 2.49 | 0.46 |
| 1:A:199:ASP:OD1 | 1:A:214:ARG:HD2 | 2.16 | 0.46 |
| 1:D:37:GLU:CG | 1:D:108:VAL:HG21 | 2.46 | 0.46 |
| 1:D:199:ASP:OD1 | 1:D:214:ARG:HD2 | 2.16 | 0.46 |
| 1:D:317:ARG:HH21 | 2:R:41:U:C5' | 2.28 | 0.46 |
| 1:H:37:GLU:CG | 1:H:108:VAL:HG21 | 2.46 | 0.46 |
| 1:I:133:TRP:HB3 | 1:I:167:ILE:HG21 | 1.98 | 0.46 |
| 1:C:37:GLU:CG | 1:C:108:VAL:HG21 | 2.45 | 0.46 |
| 1:D:66:ILE:O | 1:D:70:ASN:ND2 | 2.48 | 0.46 |
| 1:D:409:GLU:OE2 | 1:D:409:GLU:N | 2.48 | 0.46 |
| 1:J:66:ILE:O | 1:J:70:ASN:ND2 | 2.49 | 0.46 |
| 1:J:308:LEU:O | 1:J:309:ARG:HB2 | 2.16 | 0.46 |
| 1:K:107:LEU:CD1 | 1:K:274:TYR:CE2 | 2.97 | 0.46 |
| 1:K:149:MET:C | 1:K:151:GLU:H | 2.19 | 0.46 |
| 1:C:109:SER:C | 1:C:110:LEU:HD23 | 2.25 | 0.46 |
| 1:D:149:MET:C | 1:D:151:GLU:H | 2.19 | 0.46 |
| 1:F:133:TRP:HB3 | 1:F:167:ILE:HG21 | 1.98 | 0.46 |
| 1:J:133:TRP:HB3 | 1:J:167:ILE:HG21 | 1.98 | 0.46 |
| 1:K:37:GLU:CG | 1:K:108:VAL:HG21 | 2.46 | 0.46 |
| 1:K:308:LEU:O | 1:K:309:ARG:HB2 | 2.16 | 0.46 |
| 1:L:107:LEU:CD1 | 1:L:274:TYR:CE2 | 2.97 | 0.46 |
| 1:D:133:TRP:HB3 | 1:D:167:ILE:HG21 | 1.98 | 0.46 |
| 1:I:199:ASP:OD1 | 1:I:214:ARG:HD2 | 2.16 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:317:ARG:O | 1:J:317:ARG:HG2 | 2.15 | 0.46 |
| 1:K:133:TRP:HB3 | 1:K:167:ILE:HG21 | 1.98 | 0.46 |
| 1:M:37:GLU:CG | 1:M:108:VAL:HG21 | 2.46 | 0.46 |
| 1:A:149:MET:C | 1:A:151:GLU:H | 2.20 | 0.46 |
| 1:C:133:TRP:HB3 | 1:C:167:ILE:HG21 | 1.98 | 0.46 |
| 1:D:107:LEU:HD13 | 1:D:274:TYR:HH | 1.79 | 0.46 |
| 1:F:149:MET:C | 1:F:151:GLU:H | 2.19 | 0.46 |
| 1:I:107:LEU:CD1 | 1:I:274:TYR:CE2 | 2.98 | 0.46 |
| 1:J:37:GLU:CG | 1:J:108:VAL:HG21 | 2.45 | 0.46 |
| 1:K:66:ILE:O | 1:K:70:ASN:ND2 | 2.48 | 0.46 |
| 1:K:166:MET:HE2 | 1:L:184:VAL:CG1 | 2.45 | 0.46 |
| 1:A:317:ARG:O | 1:A:317:ARG:HG2 | 2.16 | 0.46 |
| 1:H:308:LEU:O | 1:H:309:ARG:HB2 | 2.16 | 0.46 |
| 1:I:37:GLU:CG | 1:I:108:VAL:HG21 | 2.45 | 0.46 |
| 1:I:66:ILE:O | 1:I:70:ASN:ND2 | 2.49 | 0.46 |
| 1:L:66:ILE:O | 1:L:70:ASN:ND2 | 2.49 | 0.46 |
| 1:L:133:TRP:HB3 | 1:L:167:ILE:HG21 | 1.98 | 0.46 |
| 1:D:308:LEU:O | 1:D:309:ARG:HB2 | 2.16 | 0.46 |
| 1:J:149:MET:C | 1:J:151:GLU:H | 2.19 | 0.46 |
| 1:M:308:LEU:O | 1:M:309:ARG:HB2 | 2.16 | 0.46 |
| 1:A:409:GLU:OE2 | 1:A:409:GLU:N | 2.48 | 0.45 |
| 1:F:308:LEU:O | 1:F:309:ARG:HB2 | 2.16 | 0.45 |
| 1:H:170:GLN:HB3 | 1:H:171:PHE:H | 1.54 | 0.45 |
| 1:I:166:MET:HE2 | 1:K:184:VAL:CG1 | 2.46 | 0.45 |
| 1:I:317:ARG:O | 1:I:317:ARG:HG2 | 2.16 | 0.45 |
| 1:J:317:ARG:HH21 | 2:S:23:U:C5' | 2.27 | 0.45 |
| 1:C:149:MET:C | 1:C:151:GLU:H | 2.19 | 0.45 |
| 1:F:66:ILE:O | 1:F:70:ASN:ND2 | 2.49 | 0.45 |
| 1:I:41:TYR:HA | 1:I:110:LEU:O | 2.15 | 0.45 |
| 1:J:317:ARG:NE | 2:S:22:U:H2' | 2.06 | 0.45 |
| 1:A:107:LEU:HD13 | 1:A:274:TYR:HH | 1.80 | 0.45 |
| 1:C:66:ILE:O | 1:C:70:ASN:ND2 | 2.49 | 0.45 |
| 1:L:199:ASP:OD1 | 1:L:214:ARG:HD2 | 2.15 | 0.45 |
| 1:C:72:TYR:CE1 | 1:C:134:LEU:HD12 | 2.52 | 0.45 |
| 1:C:308:LEU:O | 1:C:309:ARG:HB2 | 2.16 | 0.45 |
| 1:I:72:TYR:CE1 | 1:I:134:LEU:HD12 | 2.52 | 0.45 |
| 1:K:199:ASP:OD1 | 1:K:214:ARG:HD2 | 2.16 | 0.45 |
| 1:M:72:TYR:CE1 | 1:M:134:LEU:HD12 | 2.52 | 0.45 |
| 1:M:107:LEU:HD13 | 1:M:274:TYR:HH | 1.80 | 0.45 |
| 1:M:253:GLU:CD | 1:M:253:GLU:N | 2.70 | 0.45 |
| 1:A:253:GLU:CD | 1:A:253:GLU:N | 2.70 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:308:LEU:O | 1:A:309:ARG:HB2 | 2.16 | 0.45 |
| 1:D:128:SER:O | 1:D:130:ASP:N | 2.50 | 0.45 |
| 1:H:317:ARG:O | 1:H:317:ARG:HG2 | 2.15 | 0.45 |
| 1:I:128:SER:O | 1:I:130:ASP:N | 2.50 | 0.45 |
| 1:I:184:VAL:CG1 | 1:J:166:MET:HE2 | 2.46 | 0.45 |
| 1:I:215:TYR:CD2 | 1:I:215:TYR:N | 2.85 | 0.45 |
| 1:M:128:SER:O | 1:M:130:ASP:N | 2.50 | 0.45 |
| 1:D:253:GLU:CD | 1:D:253:GLU:N | 2.70 | 0.45 |
| 1:F:37:GLU:CG | 1:F:108:VAL:HG21 | 2.46 | 0.45 |
| 1:K:72:TYR:CE1 | 1:K:134:LEU:HD12 | 2.52 | 0.45 |
| 1:K:128:SER:O | 1:K:130:ASP:N | 2.50 | 0.45 |
| 1:L:109:SER:C | 1:L:110:LEU:HD23 | 2.24 | 0.45 |
| 1:L:308:LEU:O | 1:L:309:ARG:HB2 | 2.16 | 0.45 |
| 1:C:332:LEU:HD21 | 1:C:397:ALA:HB2 | 1.99 | 0.45 |
| 1:D:109:SER:C | 1:D:110:LEU:HD23 | 2.24 | 0.45 |
| 1:H:253:GLU:CD | 1:H:253:GLU:N | 2.70 | 0.45 |
| 1:I:149:MET:C | 1:I:151:GLU:H | 2.20 | 0.45 |
| 1:J:72:TYR:CE1 | 1:J:134:LEU:HD12 | 2.52 | 0.45 |
| 1:M:38:ILE:H | 1:M:108:VAL:HG23 | 1.82 | 0.45 |
| 1:D:72:TYR:CE1 | 1:D:134:LEU:HD12 | 2.52 | 0.45 |
| 1:F:128:SER:O | 1:F:130:ASP:N | 2.50 | 0.45 |
| 1:F:152:TYR:HD1 | 1:F:153:ARG:H | 1.64 | 0.45 |
| 1:H:128:SER:O | 1:H:130:ASP:N | 2.50 | 0.45 |
| 1:K:107:LEU:HD13 | 1:K:274:TYR:HH | 1.79 | 0.45 |
| 1:K:253:GLU:CD | 1:K:253:GLU:N | 2.70 | 0.45 |
| 1:L:152:TYR:HD1 | 1:L:153:ARG:H | 1.64 | 0.45 |
| 1:A:128:SER:O | 1:A:130:ASP:N | 2.50 | 0.45 |
| 1:C:66:ILE:HD11 | 1:C:191:TYR:HB2 | 1.99 | 0.45 |
| 1:D:317:ARG:NE | 2:R:40:U:H2' | 2.06 | 0.45 |
| 1:M:317:ARG:HH21 | 2:S:59:U:C5' | 2.27 | 0.45 |
| 1:H:72:TYR:CE1 | 1:H:134:LEU:HD12 | 2.52 | 0.44 |
| 1:H:123:ASP:C | 1:H:125:SER:H | 2.21 | 0.44 |
| 1:I:38:ILE:H | 1:I:108:VAL:HG23 | 1.83 | 0.44 |
| 1:J:66:ILE:HD11 | 1:J:191:TYR:HB2 | 1.99 | 0.44 |
| 1:J:81:ARG:HD3 | 1:J:208:HIS:CE1 | 2.52 | 0.44 |
| 1:K:317:ARG:HH21 | 2:S:41:U:C5' | 2.28 | 0.44 |
| 1:L:37:GLU:CG | 1:L:108:VAL:HG21 | 2.46 | 0.44 |
| 1:M:215:TYR:N | 1:M:215:TYR:CD2 | 2.85 | 0.44 |
| 1:C:81:ARG:HD3 | 1:C:208:HIS:HE2 | 1.82 | 0.44 |
| 1:F:72:TYR:CE1 | 1:F:134:LEU:HD12 | 2.52 | 0.44 |
| 1:I:253:GLU:CD | 1:I:253:GLU:N | 2.70 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:152:TYR:HD1 | 1:J:153:ARG:N | 2.16 | 0.44 |
| 1:L:81:ARG:HD3 | 1:L:208:HIS:HE2 | 1.82 | 0.44 |
| 1:L:332:LEU:HD21 | 1:L:397:ALA:HB2 | 1.99 | 0.44 |
| 1:A:66:ILE:HD11 | 1:A:191:TYR:HB2 | 2.00 | 0.44 |
| 1:A:72:TYR:CE1 | 1:A:134:LEU:HD12 | 2.52 | 0.44 |
| 1:F:287:SER:HA | 1:F:288:PRO:HD3 | 1.88 | 0.44 |
| 1:K:215:TYR:N | 1:K:215:TYR:CD2 | 2.86 | 0.44 |
| 1:C:81:ARG:HD3 | 1:C:208:HIS:CE1 | 2.52 | 0.44 |
| 1:C:128:SER:O | 1:C:130:ASP:N | 2.50 | 0.44 |
| 1:C:253:GLU:CD | 1:C:253:GLU:N | 2.71 | 0.44 |
| 1:D:81:ARG:HD3 | 1:D:208:HIS:HE2 | 1.83 | 0.44 |
| 1:F:123:ASP:C | 1:F:125:SER:H | 2.21 | 0.44 |
| 1:H:287:SER:HA | 1:H:288:PRO:HD3 | 1.89 | 0.44 |
| 1:J:81:ARG:HD3 | 1:J:208:HIS:HE2 | 1.82 | 0.44 |
| 1:J:123:ASP:C | 1:J:125:SER:H | 2.20 | 0.44 |
| 1:L:128:SER:O | 1:L:130:ASP:N | 2.50 | 0.44 |
| 1:L:215:TYR:N | 1:L:215:TYR:CD2 | 2.86 | 0.44 |
| 1:L:253:GLU:CD | 1:L:253:GLU:N | 2.71 | 0.44 |
| 1:A:215:TYR:CD2 | 1:A:215:TYR:N | 2.85 | 0.44 |
| 1:F:253:GLU:CD | 1:F:253:GLU:N | 2.71 | 0.44 |
| 1:I:128:SER:O | 1:I:129:ALA:C | 2.56 | 0.44 |
| 1:I:308:LEU:O | 1:I:309:ARG:HB2 | 2.16 | 0.44 |
| 1:J:109:SER:C | 1:J:110:LEU:HD23 | 2.25 | 0.44 |
| 1:L:152:TYR:HD1 | 1:L:153:ARG:N | 2.16 | 0.44 |
| 1:D:38:ILE:H | 1:D:108:VAL:HG23 | 1.83 | 0.44 |
| 1:D:128:SER:O | 1:D:129:ALA:C | 2.56 | 0.44 |
| 1:D:128:SER:C | 1:D:130:ASP:N | 2.70 | 0.44 |
| 1:F:128:SER:C | 1:F:130:ASP:N | 2.69 | 0.44 |
| 1:H:215:TYR:N | 1:H:215:TYR:CD2 | 2.85 | 0.44 |
| 1:J:128:SER:C | 1:J:130:ASP:N | 2.70 | 0.44 |
| 1:J:128:SER:O | 1:J:130:ASP:N | 2.50 | 0.44 |
| 1:J:287:SER:HA | 1:J:288:PRO:HD3 | 1.87 | 0.44 |
| 1:K:128:SER:O | 1:K:129:ALA:C | 2.56 | 0.44 |
| 1:M:332:LEU:HD21 | 1:M:397:ALA:HB2 | 2.00 | 0.44 |
| 1:A:128:SER:O | 1:A:129:ALA:C | 2.56 | 0.44 |
| 1:C:123:ASP:C | 1:C:125:SER:H | 2.21 | 0.44 |
| 1:C:152:TYR:HD1 | 1:C:153:ARG:H | 1.65 | 0.44 |
| 1:C:287:SER:HA | 1:C:288:PRO:HD3 | 1.87 | 0.44 |
| 1:F:38:ILE:H | 1:F:108:VAL:HG23 | 1.83 | 0.44 |
| 1:F:81:ARG:HD3 | 1:F:208:HIS:CE1 | 2.52 | 0.44 |
| 1:H:128:SER:O | 1:H:129:ALA:C | 2.56 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:66:ILE:HD11 | 1:I:191:TYR:HB2 | 2.00 | 0.44 |
| 1:I:81:ARG:HD3 | 1:I:208:HIS:CE1 | 2.53 | 0.44 |
| 1:K:81:ARG:HD3 | 1:K:208:HIS:HE2 | 1.83 | 0.44 |
| 1:K:332:LEU:HD21 | 1:K:397:ALA:HB2 | 1.99 | 0.44 |
| 1:L:128:SER:C | 1:L:130:ASP:N | 2.69 | 0.44 |
| 1:F:81:ARG:HD3 | 1:F:208:HIS:HE2 | 1.82 | 0.44 |
| 1:J:215:TYR:CD2 | 1:J:215:TYR:N | 2.86 | 0.44 |
| 1:K:81:ARG:HD3 | 1:K:208:HIS:CE1 | 2.53 | 0.44 |
| 1:C:128:SER:C | 1:C:130:ASP:N | 2.70 | 0.44 |
| 1:F:128:SER:O | 1:F:129:ALA:C | 2.56 | 0.44 |
| 1:F:152:TYR:HD1 | 1:F:153:ARG:N | 2.16 | 0.44 |
| 1:H:152:TYR:HD1 | 1:H:153:ARG:H | 1.65 | 0.44 |
| 1:K:152:TYR:HD1 | 1:K:153:ARG:N | 2.16 | 0.44 |
| 1:L:66:ILE:HD11 | 1:L:191:TYR:HB2 | 1.99 | 0.44 |
| 1:L:72:TYR:CE1 | 1:L:134:LEU:HD12 | 2.52 | 0.44 |
| 1:C:152:TYR:HD1 | 1:C:153:ARG:N | 2.16 | 0.43 |
| 1:D:66:ILE:HD11 | 1:D:191:TYR:HB2 | 2.00 | 0.43 |
| 1:D:81:ARG:HD3 | 1:D:208:HIS:CE1 | 2.53 | 0.43 |
| 1:D:123:ASP:C | 1:D:125:SER:H | 2.21 | 0.43 |
| 1:D:287:SER:HA | 1:D:288:PRO:HD3 | 1.89 | 0.43 |
| 1:H:38:ILE:H | 1:H:108:VAL:HG23 | 1.82 | 0.43 |
| 1:H:332:LEU:HD21 | 1:H:397:ALA:HB2 | 2.00 | 0.43 |
| 1:I:128:SER:C | 1:I:130:ASP:N | 2.69 | 0.43 |
| 1:J:152:TYR:HD1 | 1:J:153:ARG:H | 1.65 | 0.43 |
| 1:K:38:ILE:H | 1:K:108:VAL:HG23 | 1.83 | 0.43 |
| 1:L:81:ARG:HD3 | 1:L:208:HIS:CE1 | 2.52 | 0.43 |
| 2:R:29:U:O2' | 2:R:30:U:OP1 | 2.34 | 0.43 |
| 1:C:215:TYR:N | 1:C:215:TYR:CD2 | 2.86 | 0.43 |
| 1:K:128:SER:C | 1:K:130:ASP:N | 2.70 | 0.43 |
| 1:A:128:SER:C | 1:A:130:ASP:N | 2.69 | 0.43 |
| 1:A:152:TYR:HD1 | 1:A:153:ARG:H | 1.66 | 0.43 |
| 1:D:152:TYR:HD1 | 1:D:153:ARG:N | 2.16 | 0.43 |
| 1:D:332:LEU:HD21 | 1:D:397:ALA:HB2 | 1.99 | 0.43 |
| 1:F:66:ILE:HD11 | 1:F:191:TYR:HB2 | 1.99 | 0.43 |
| 1:F:332:LEU:HD21 | 1:F:397:ALA:HB2 | 1.99 | 0.43 |
| 1:I:81:ARG:HD3 | 1:I:208:HIS:HE2 | 1.83 | 0.43 |
| 1:L:128:SER:O | 1:L:129:ALA:C | 2.56 | 0.43 |
| 1:M:128:SER:O | 1:M:129:ALA:C | 2.56 | 0.43 |
| 1:I:287:SER:HA | 1:I:288:PRO:HD3 | 1.90 | 0.43 |
| 1:J:128:SER:O | 1:J:129:ALA:C | 2.56 | 0.43 |
| 1:M:81:ARG:HD3 | 1:M:208:HIS:CE1 | 2.53 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:M:128:SER:C | 1:M:130:ASP:N | 2.70 | 0.43 |
| 1:A:332:LEU:HD21 | 1:A:397:ALA:HB2 | 2.00 | 0.43 |
| 1:C:38:ILE:HA | 1:C:39:PRO:HD3 | 1.86 | 0.43 |
| 1:H:109:SER:C | 1:H:110:LEU:HD23 | 2.24 | 0.43 |
| 1:I:152:TYR:HD1 | 1:I:153:ARG:N | 2.17 | 0.43 |
| 1:J:253:GLU:CD | 1:J:253:GLU:N | 2.71 | 0.43 |
| 1:K:123:ASP:C | 1:K:125:SER:H | 2.21 | 0.43 |
| 1:M:66:ILE:HD11 | 1:M:191:TYR:HB2 | 2.01 | 0.43 |
| 1:A:81:ARG:HD3 | 1:A:208:HIS:CE1 | 2.53 | 0.43 |
| 1:A:81:ARG:HD3 | 1:A:208:HIS:HE2 | 1.83 | 0.43 |
| 1:A:287:SER:HA | 1:A:288:PRO:HD3 | 1.90 | 0.43 |
| 1:C:38:ILE:H | 1:C:108:VAL:HG23 | 1.84 | 0.43 |
| 1:F:215:TYR:CD2 | 1:F:215:TYR:N | 2.86 | 0.43 |
| 1:H:38:ILE:HA | 1:H:39:PRO:HD3 | 1.87 | 0.43 |
| 1:H:81:ARG:HD3 | 1:H:208:HIS:HE2 | 1.84 | 0.43 |
| 1:K:66:ILE:HD11 | 1:K:191:TYR:HB2 | 2.00 | 0.43 |
| 1:M:123:ASP:C | 1:M:125:SER:H | 2.21 | 0.43 |
| 1:F:166:MET:HE2 | 1:H:184:VAL:HG11 | 2.00 | 0.43 |
| 1:H:66:ILE:HD11 | 1:H:191:TYR:HB2 | 2.01 | 0.43 |
| 1:H:81:ARG:HD3 | 1:H:208:HIS:CE1 | 2.53 | 0.43 |
| 1:I:263:LEU:HA | 1:I:264:PRO:HD3 | 1.81 | 0.43 |
| 1:J:332:LEU:HD21 | 1:J:397:ALA:HB2 | 1.99 | 0.43 |
| 1:A:123:ASP:C | 1:A:125:SER:H | 2.21 | 0.43 |
| 1:C:128:SER:O | 1:C:129:ALA:C | 2.56 | 0.43 |
| 1:I:38:ILE:HA | 1:I:39:PRO:HD3 | 1.87 | 0.43 |
| 1:I:170:GLN:HB3 | 1:I:171:PHE:H | 1.54 | 0.43 |
| 1:L:38:ILE:H | 1:L:108:VAL:HG23 | 1.83 | 0.43 |
| 1:L:81:ARG:HD3 | 1:L:208:HIS:NE2 | 2.34 | 0.43 |
| 1:D:152:TYR:HD1 | 1:D:153:ARG:H | 1.65 | 0.43 |
| 1:D:215:TYR:N | 1:D:215:TYR:CD2 | 2.86 | 0.43 |
| 1:F:28:PRO:HG2 | 1:F:266:GLN:NE2 | 2.33 | 0.43 |
| 1:F:370:PRO:HD3 | 1:F:381:TRP:CG | 2.54 | 0.43 |
| 1:J:38:ILE:H | 1:J:108:VAL:HG23 | 1.84 | 0.43 |
| 1:J:313:ALA:O | 1:J:314:ARG:C | 2.57 | 0.43 |
| 1:K:152:TYR:HD1 | 1:K:153:ARG:H | 1.65 | 0.43 |
| 1:M:152:TYR:HD1 | 1:M:153:ARG:N | 2.17 | 0.43 |
| 1:K:109:SER:C | 1:K:110:LEU:HD23 | 2.24 | 0.42 |
| 1:L:123:ASP:C | 1:L:125:SER:H | 2.21 | 0.42 |
| 1:L:370:PRO:HD3 | 1:L:381:TRP:CG | 2.54 | 0.42 |
| 1:M:81:ARG:HD3 | 1:M:208:HIS:HE2 | 1.84 | 0.42 |
| 1:A:38:ILE:H | 1:A:108:VAL:HG23 | 1.82 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:81:ARG:HD3 | 1:D:208:HIS:NE2 | 2.35 | 0.42 |
| 1:F:317:ARG:HH21 | 2:R:50:U:C5' | 2.27 | 0.42 |
| 1:I:332:LEU:HD21 | 1:I:397:ALA:HB2 | 2.00 | 0.42 |
| 1:J:81:ARG:HD3 | 1:J:208:HIS:NE2 | 2.34 | 0.42 |
| 1:J:263:LEU:HA | 1:J:264:PRO:HD3 | 1.82 | 0.42 |
| 1:K:263:LEU:HA | 1:K:264:PRO:HD3 | 1.81 | 0.42 |
| 1:C:28:PRO:HG2 | 1:C:266:GLN:NE2 | 2.33 | 0.42 |
| 1:F:81:ARG:HD3 | 1:F:208:HIS:NE2 | 2.34 | 0.42 |
| 1:M:172:GLU:CB | 1:M:173:PRO:HD3 | 2.32 | 0.42 |
| 2:R:56:U:C2' | 2:R:57:U:OP1 | 2.67 | 0.42 |
| 1:A:152:TYR:HD1 | 1:A:153:ARG:N | 2.17 | 0.42 |
| 1:A:317:ARG:HH21 | 2:R:32:U:C5' | 2.28 | 0.42 |
| 1:K:370:PRO:HD3 | 1:K:381:TRP:CG | 2.55 | 0.42 |
| 1:M:152:TYR:HD1 | 1:M:153:ARG:H | 1.65 | 0.42 |
| 1:A:370:PRO:HD3 | 1:A:381:TRP:CG | 2.55 | 0.42 |
| 1:H:152:TYR:HD1 | 1:H:153:ARG:N | 2.17 | 0.42 |
| 1:I:109:SER:C | 1:I:110:LEU:HD23 | 2.24 | 0.42 |
| 1:I:123:ASP:C | 1:I:125:SER:H | 2.22 | 0.42 |
| 1:K:313:ALA:O | 1:K:314:ARG:C | 2.58 | 0.42 |
| 2:R:29:U:C2' | 2:R:30:U:OP1 | 2.68 | 0.42 |
| 2:R:50:U:H2' | 2:R:52:U:H5'' | 2.01 | 0.42 |
| 1:D:370:PRO:HD3 | 1:D:381:TRP:CG | 2.55 | 0.42 |
| 1:F:172:GLU:CB | 1:F:173:PRO:HD3 | 2.32 | 0.42 |
| 1:H:128:SER:C | 1:H:130:ASP:N | 2.71 | 0.42 |
| 1:I:313:ALA:O | 1:I:314:ARG:C | 2.58 | 0.42 |
| 1:I:370:PRO:HD3 | 1:I:381:TRP:CG | 2.55 | 0.42 |
| 2:S:56:U:C2' | 2:S:57:U:OP1 | 2.67 | 0.42 |
| 1:C:81:ARG:HD3 | 1:C:208:HIS:NE2 | 2.34 | 0.42 |
| 1:C:370:PRO:HD3 | 1:C:381:TRP:CG | 2.55 | 0.42 |
| 1:I:81:ARG:HD3 | 1:I:208:HIS:NE2 | 2.35 | 0.42 |
| 1:I:152:TYR:HD1 | 1:I:153:ARG:H | 1.66 | 0.42 |
| 1:L:287:SER:HA | 1:L:288:PRO:HD3 | 1.88 | 0.42 |
| 1:F:109:SER:C | 1:F:110:LEU:HD23 | 2.24 | 0.42 |
| 1:H:313:ALA:O | 1:H:314:ARG:C | 2.59 | 0.42 |
| 1:J:370:PRO:HD3 | 1:J:381:TRP:CG | 2.55 | 0.42 |
| 1:M:287:SER:HA | 1:M:288:PRO:HD3 | 1.89 | 0.42 |
| 2:S:47:U:C2' | 2:S:48:U:OP1 | 2.68 | 0.42 |
| 1:C:313:ALA:O | 1:C:314:ARG:C | 2.57 | 0.41 |
| 1:F:313:ALA:O | 1:F:314:ARG:C | 2.59 | 0.41 |
| 1:L:152:TYR:CD1 | 1:L:153:ARG:N | 2.89 | 0.41 |
| 1:L:313:ALA:O | 1:L:314:ARG:C | 2.59 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:M:81:ARG:HD3 | 1:M:208:HIS:NE2 | 2.35 | 0.41 |
| 1:M:263:LEU:HA | 1:M:264:PRO:HD3 | 1.80 | 0.41 |
| 2:R:47:U:C2' | 2:R:48:U:OP1 | 2.68 | 0.41 |
| 2:S:29:U:C2' | 2:S:30:U:OP1 | 2.68 | 0.41 |
| 2:S:59:U:H2' | 2:S:61:U:H5'' | 2.02 | 0.41 |
| 1:A:81:ARG:HD3 | 1:A:208:HIS:NE2 | 2.35 | 0.41 |
| 1:C:81:ARG:HB3 | 1:C:208:HIS:HE2 | 1.85 | 0.41 |
| 1:D:313:ALA:O | 1:D:314:ARG:C | 2.58 | 0.41 |
| 1:H:370:PRO:HD3 | 1:H:381:TRP:CG | 2.56 | 0.41 |
| 1:J:81:ARG:HB3 | 1:J:208:HIS:HE2 | 1.85 | 0.41 |
| 1:F:40:LEU:HD13 | 1:F:42:ILE:HD11 | 2.02 | 0.41 |
| 1:K:81:ARG:HD3 | 1:K:208:HIS:NE2 | 2.35 | 0.41 |
| 1:M:170:GLN:HB3 | 1:M:171:PHE:H | 1.54 | 0.41 |
| 2:R:38:U:C2' | 2:R:39:U:OP1 | 2.68 | 0.41 |
| 2:S:41:U:H2' | 2:S:43:U:H5'' | 2.02 | 0.41 |
| 1:H:323:GLU:H | 1:H:323:GLU:HG3 | 1.70 | 0.41 |
| 1:I:184:VAL:HG11 | 1:J:166:MET:HE3 | 2.02 | 0.41 |
| 1:J:152:TYR:CD1 | 1:J:153:ARG:N | 2.88 | 0.41 |
| 1:C:152:TYR:CD1 | 1:C:153:ARG:N | 2.88 | 0.41 |
| 1:H:40:LEU:HD13 | 1:H:42:ILE:HD11 | 2.02 | 0.41 |
| 1:H:81:ARG:HD3 | 1:H:208:HIS:NE2 | 2.35 | 0.41 |
| 1:L:40:LEU:HD13 | 1:L:42:ILE:HD11 | 2.03 | 0.41 |
| 2:R:20:U:C2' | 2:R:21:U:OP1 | 2.68 | 0.41 |
| 2:S:32:U:H2' | 2:S:34:U:H5'' | 2.02 | 0.41 |
| 1:D:81:ARG:HB3 | 1:D:208:HIS:HE2 | 1.86 | 0.41 |
| 1:K:152:TYR:CD1 | 1:K:153:ARG:N | 2.89 | 0.41 |
| 2:R:59:U:H2' | 2:R:61:U:H5'' | 2.02 | 0.41 |
| 1:K:287:SER:HA | 1:K:288:PRO:HD3 | 1.89 | 0.41 |
| 1:L:144:VAL:HG11 | 1:L:156:LEU:HG | 2.03 | 0.41 |
| 1:M:313:ALA:O | 1:M:314:ARG:C | 2.59 | 0.41 |
| 2:S:20:U:C2' | 2:S:21:U:OP1 | 2.68 | 0.41 |
| 2:S:50:U:H2' | 2:S:52:U:H5'' | 2.01 | 0.41 |
| 2:S:38:U:C2' | 2:S:39:U:OP1 | 2.68 | 0.41 |
| 1:A:38:ILE:HA | 1:A:39:PRO:HD3 | 1.87 | 0.41 |
| 1:A:40:LEU:HD13 | 1:A:42:ILE:HD11 | 2.03 | 0.41 |
| 1:A:313:ALA:O | 1:A:314:ARG:C | 2.58 | 0.41 |
| 1:C:22:GLU:HB3 | 1:M:206:LYS:NZ | 2.36 | 0.41 |
| 1:I:166:MET:HE3 | 1:K:184:VAL:HG11 | 2.02 | 0.41 |
| 1:I:306:LEU:HD22 | 1:I:412:ILE:HD12 | 2.03 | 0.41 |
| 1:J:28:PRO:HG2 | 1:J:266:GLN:NE2 | 2.33 | 0.41 |
| 1:J:40:LEU:HD13 | 1:J:42:ILE:HD11 | 2.03 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:L:81:ARG:HB3 | 1:L:208:HIS:HE2 | 1.86 | 0.41 |
| 1:L:263:LEU:HA | 1:L:264:PRO:HD3 | 1.81 | 0.41 |
| 1:M:28:PRO:HG2 | 1:M:266:GLN:NE2 | 2.33 | 0.41 |
| 1:M:40:LEU:HD13 | 1:M:42:ILE:HD11 | 2.02 | 0.41 |
| 1:M:370:PRO:HD3 | 1:M:381:TRP:CG | 2.56 | 0.41 |
| 1:I:40:LEU:HD13 | 1:I:42:ILE:HD11 | 2.03 | 0.41 |
| 1:K:81:ARG:HB3 | 1:K:208:HIS:HE2 | 1.86 | 0.41 |
| 2:R:32:U:H2' | 2:R:34:U:H5'' | 2.02 | 0.41 |
| 1:C:40:LEU:HD13 | 1:C:42:ILE:HD11 | 2.03 | 0.40 |
| 1:C:356:THR:N | 1:C:357:PRO:HD3 | 2.36 | 0.40 |
| 1:H:81:ARG:HB3 | 1:H:208:HIS:HE2 | 1.86 | 0.40 |
| 1:H:356:THR:N | 1:H:357:PRO:HD3 | 2.37 | 0.40 |
| 1:I:28:PRO:HG2 | 1:I:266:GLN:NE2 | 2.33 | 0.40 |
| 2:R:41:U:H2' | 2:R:43:U:H5'' | 2.02 | 0.40 |
| 2:S:23:U:H2' | 2:S:25:U:H5'' | 2.02 | 0.40 |
| 1:A:22:GLU:HB3 | 1:C:206:LYS:NZ | 2.36 | 0.40 |
| 1:D:206:LYS:NZ | 1:F:22:GLU:HB3 | 2.37 | 0.40 |
| 1:F:166:MET:HE2 | 1:H:184:VAL:CG1 | 2.51 | 0.40 |
| 1:H:317:ARG:HH21 | 2:R:59:U:C5' | 2.27 | 0.40 |
| 1:M:152:TYR:CD1 | 1:M:153:ARG:N | 2.89 | 0.40 |
| 1:M:356:THR:N | 1:M:357:PRO:HD3 | 2.37 | 0.40 |
| 1:A:206:LYS:NZ | 1:D:22:GLU:HB3 | 2.37 | 0.40 |
| 1:C:323:GLU:H | 1:C:323:GLU:HG3 | 1.71 | 0.40 |
| 1:I:118:PRO:O | 1:I:119:ASP:CB | 2.69 | 0.40 |
| 1:I:152:TYR:CD1 | 1:I:153:ARG:N | 2.90 | 0.40 |
| 1:K:166:MET:CE | 1:L:184:VAL:CB | 2.99 | 0.40 |
| 1:C:250:LEU:HD22 | 1:C:379:LEU:HD21 | 2.02 | 0.40 |
| 1:D:170:GLN:HB3 | 1:D:171:PHE:H | 1.54 | 0.40 |
| 1:F:206:LYS:NZ | 1:H:22:GLU:HB3 | 2.37 | 0.40 |
| 1:H:152:TYR:CD1 | 1:H:153:ARG:N | 2.89 | 0.40 |
| 1:K:144:VAL:HG11 | 1:K:156:LEU:HG | 2.03 | 0.40 |
| 1:M:109:SER:C | 1:M:110:LEU:HD23 | 2.24 | 0.40 |
| 1:A:356:THR:N | 1:A:357:PRO:HD3 | 2.36 | 0.40 |
| 1:D:28:PRO:HG2 | 1:D:266:GLN:NE2 | 2.34 | 0.40 |
| 1:F:81:ARG:HB3 | 1:F:208:HIS:HE2 | 1.86 | 0.40 |
| 1:F:144:VAL:HG11 | 1:F:156:LEU:HG | 2.03 | 0.40 |
| 1:J:250:LEU:HD22 | 1:J:379:LEU:HD21 | 2.02 | 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 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.

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|-----------------|------------|-----------|----------|-------------|----|
| 1 | A | 410/422 (97%) | 341 (83%) | 45 (11%) | 24 (6%) | 1 | 17 |
| 1 | C | 410/422 (97%) | 341 (83%) | 45 (11%) | 24 (6%) | 1 | 17 |
| 1 | D | 410/422 (97%) | 341 (83%) | 45 (11%) | 24 (6%) | 1 | 17 |
| 1 | F | 410/422 (97%) | 341 (83%) | 45 (11%) | 24 (6%) | 1 | 17 |
| 1 | H | 410/422 (97%) | 340 (83%) | 46 (11%) | 24 (6%) | 1 | 17 |
| 1 | I | 410/422 (97%) | 341 (83%) | 45 (11%) | 24 (6%) | 1 | 17 |
| 1 | J | 410/422 (97%) | 341 (83%) | 45 (11%) | 24 (6%) | 1 | 17 |
| 1 | K | 410/422 (97%) | 341 (83%) | 45 (11%) | 24 (6%) | 1 | 17 |
| 1 | L | 410/422 (97%) | 341 (83%) | 45 (11%) | 24 (6%) | 1 | 17 |
| 1 | M | 410/422 (97%) | 340 (83%) | 46 (11%) | 24 (6%) | 1 | 17 |
| All | All | 4100/4220 (97%) | 3408 (83%) | 452 (11%) | 240 (6%) | 3 | 17 |

All (240) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 24 | PRO |
| 1 | A | 98 | ALA |
| 1 | A | 128 | SER |
| 1 | A | 150 | PRO |
| 1 | A | 168 | ASN |
| 1 | C | 24 | PRO |
| 1 | C | 98 | ALA |
| 1 | C | 117 | LEU |
| 1 | C | 128 | SER |
| 1 | C | 150 | PRO |
| 1 | C | 168 | ASN |
| 1 | D | 24 | PRO |
| 1 | D | 98 | ALA |
| 1 | D | 117 | LEU |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | D | 122 | SER |
| 1 | D | 128 | SER |
| 1 | D | 150 | PRO |
| 1 | D | 168 | ASN |
| 1 | F | 24 | PRO |
| 1 | F | 98 | ALA |
| 1 | F | 128 | SER |
| 1 | F | 150 | PRO |
| 1 | F | 168 | ASN |
| 1 | H | 24 | PRO |
| 1 | H | 98 | ALA |
| 1 | H | 122 | SER |
| 1 | H | 128 | SER |
| 1 | H | 150 | PRO |
| 1 | H | 168 | ASN |
| 1 | I | 24 | PRO |
| 1 | I | 98 | ALA |
| 1 | I | 128 | SER |
| 1 | I | 150 | PRO |
| 1 | I | 168 | ASN |
| 1 | J | 24 | PRO |
| 1 | J | 98 | ALA |
| 1 | J | 117 | LEU |
| 1 | J | 128 | SER |
| 1 | J | 150 | PRO |
| 1 | J | 168 | ASN |
| 1 | K | 24 | PRO |
| 1 | K | 98 | ALA |
| 1 | K | 117 | LEU |
| 1 | K | 122 | SER |
| 1 | K | 128 | SER |
| 1 | K | 150 | PRO |
| 1 | K | 168 | ASN |
| 1 | L | 24 | PRO |
| 1 | L | 98 | ALA |
| 1 | L | 128 | SER |
| 1 | L | 150 | PRO |
| 1 | L | 168 | ASN |
| 1 | M | 24 | PRO |
| 1 | M | 98 | ALA |
| 1 | M | 122 | SER |
| 1 | M | 128 | SER |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | M | 150 | PRO |
| 1 | M | 168 | ASN |
| 1 | A | 47 | SER |
| 1 | A | 117 | LEU |
| 1 | A | 119 | ASP |
| 1 | A | 122 | SER |
| 1 | A | 129 | ALA |
| 1 | A | 172 | GLU |
| 1 | A | 177 | GLU |
| 1 | A | 341 | SER |
| 1 | C | 47 | SER |
| 1 | C | 119 | ASP |
| 1 | C | 122 | SER |
| 1 | C | 129 | ALA |
| 1 | C | 172 | GLU |
| 1 | C | 177 | GLU |
| 1 | C | 341 | SER |
| 1 | D | 47 | SER |
| 1 | D | 119 | ASP |
| 1 | D | 172 | GLU |
| 1 | D | 177 | GLU |
| 1 | D | 341 | SER |
| 1 | F | 47 | SER |
| 1 | F | 117 | LEU |
| 1 | F | 119 | ASP |
| 1 | F | 122 | SER |
| 1 | F | 129 | ALA |
| 1 | F | 172 | GLU |
| 1 | F | 177 | GLU |
| 1 | F | 341 | SER |
| 1 | H | 47 | SER |
| 1 | H | 117 | LEU |
| 1 | H | 119 | ASP |
| 1 | H | 172 | GLU |
| 1 | H | 177 | GLU |
| 1 | H | 341 | SER |
| 1 | I | 47 | SER |
| 1 | I | 117 | LEU |
| 1 | I | 119 | ASP |
| 1 | I | 122 | SER |
| 1 | I | 129 | ALA |
| 1 | I | 172 | GLU |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | I | 177 | GLU |
| 1 | I | 341 | SER |
| 1 | J | 47 | SER |
| 1 | J | 119 | ASP |
| 1 | J | 122 | SER |
| 1 | J | 129 | ALA |
| 1 | J | 172 | GLU |
| 1 | J | 177 | GLU |
| 1 | J | 341 | SER |
| 1 | K | 47 | SER |
| 1 | K | 119 | ASP |
| 1 | K | 172 | GLU |
| 1 | K | 177 | GLU |
| 1 | K | 341 | SER |
| 1 | L | 47 | SER |
| 1 | L | 117 | LEU |
| 1 | L | 119 | ASP |
| 1 | L | 122 | SER |
| 1 | L | 129 | ALA |
| 1 | L | 172 | GLU |
| 1 | L | 177 | GLU |
| 1 | L | 341 | SER |
| 1 | M | 47 | SER |
| 1 | M | 117 | LEU |
| 1 | M | 119 | ASP |
| 1 | M | 172 | GLU |
| 1 | M | 177 | GLU |
| 1 | M | 341 | SER |
| 1 | A | 43 | ASN |
| 1 | A | 61 | SER |
| 1 | A | 113 | LEU |
| 1 | A | 170 | GLN |
| 1 | A | 180 | ASP |
| 1 | C | 43 | ASN |
| 1 | C | 61 | SER |
| 1 | C | 113 | LEU |
| 1 | C | 170 | GLN |
| 1 | C | 180 | ASP |
| 1 | D | 43 | ASN |
| 1 | D | 61 | SER |
| 1 | D | 113 | LEU |
| 1 | D | 129 | ALA |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | D | 170 | GLN |
| 1 | D | 180 | ASP |
| 1 | F | 43 | ASN |
| 1 | F | 61 | SER |
| 1 | F | 113 | LEU |
| 1 | F | 170 | GLN |
| 1 | F | 180 | ASP |
| 1 | H | 43 | ASN |
| 1 | H | 61 | SER |
| 1 | H | 113 | LEU |
| 1 | H | 129 | ALA |
| 1 | H | 165 | LYS |
| 1 | H | 170 | GLN |
| 1 | H | 180 | ASP |
| 1 | I | 43 | ASN |
| 1 | I | 61 | SER |
| 1 | I | 113 | LEU |
| 1 | I | 170 | GLN |
| 1 | I | 180 | ASP |
| 1 | J | 43 | ASN |
| 1 | J | 61 | SER |
| 1 | J | 113 | LEU |
| 1 | J | 170 | GLN |
| 1 | J | 180 | ASP |
| 1 | K | 43 | ASN |
| 1 | K | 61 | SER |
| 1 | K | 113 | LEU |
| 1 | K | 129 | ALA |
| 1 | K | 170 | GLN |
| 1 | K | 180 | ASP |
| 1 | L | 43 | ASN |
| 1 | L | 61 | SER |
| 1 | L | 113 | LEU |
| 1 | L | 170 | GLN |
| 1 | L | 180 | ASP |
| 1 | M | 43 | ASN |
| 1 | M | 61 | SER |
| 1 | M | 113 | LEU |
| 1 | M | 129 | ALA |
| 1 | M | 165 | LYS |
| 1 | M | 170 | GLN |
| 1 | M | 180 | ASP |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | A | 165 | LYS |
| 1 | A | 344 | LEU |
| 1 | C | 165 | LYS |
| 1 | C | 344 | LEU |
| 1 | D | 165 | LYS |
| 1 | D | 344 | LEU |
| 1 | F | 344 | LEU |
| 1 | H | 344 | LEU |
| 1 | I | 165 | LYS |
| 1 | I | 344 | LEU |
| 1 | J | 165 | LYS |
| 1 | J | 344 | LEU |
| 1 | K | 165 | LYS |
| 1 | K | 344 | LEU |
| 1 | L | 344 | LEU |
| 1 | M | 344 | LEU |
| 1 | A | 309 | ARG |
| 1 | C | 179 | ARG |
| 1 | C | 309 | ARG |
| 1 | D | 309 | ARG |
| 1 | F | 165 | LYS |
| 1 | F | 179 | ARG |
| 1 | F | 309 | ARG |
| 1 | H | 179 | ARG |
| 1 | H | 309 | ARG |
| 1 | I | 309 | ARG |
| 1 | J | 179 | ARG |
| 1 | J | 309 | ARG |
| 1 | K | 309 | ARG |
| 1 | L | 165 | LYS |
| 1 | L | 179 | ARG |
| 1 | L | 309 | ARG |
| 1 | M | 179 | ARG |
| 1 | M | 309 | ARG |
| 1 | A | 179 | ARG |
| 1 | D | 179 | ARG |
| 1 | I | 179 | ARG |
| 1 | K | 179 | ARG |
| 1 | A | 27 | TYR |
| 1 | A | 80 | ILE |
| 1 | C | 27 | TYR |
| 1 | C | 80 | ILE |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | D | 27 | TYR |
| 1 | F | 27 | TYR |
| 1 | F | 80 | ILE |
| 1 | H | 27 | TYR |
| 1 | I | 27 | TYR |
| 1 | I | 80 | ILE |
| 1 | J | 27 | TYR |
| 1 | J | 80 | ILE |
| 1 | K | 27 | TYR |
| 1 | L | 27 | TYR |
| 1 | L | 80 | ILE |
| 1 | M | 27 | TYR |
| 1 | D | 80 | ILE |
| 1 | H | 80 | ILE |
| 1 | K | 80 | ILE |
| 1 | M | 80 | ILE |

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 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.

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles |
|-----|-------|-----------------|------------|-----------|-------------|
| 1 | A | 357/363 (98%) | 313 (88%) | 44 (12%) | 4 19 |
| 1 | C | 357/363 (98%) | 313 (88%) | 44 (12%) | 4 19 |
| 1 | D | 357/363 (98%) | 313 (88%) | 44 (12%) | 4 19 |
| 1 | F | 357/363 (98%) | 314 (88%) | 43 (12%) | 5 20 |
| 1 | H | 357/363 (98%) | 313 (88%) | 44 (12%) | 4 19 |
| 1 | I | 357/363 (98%) | 313 (88%) | 44 (12%) | 4 19 |
| 1 | J | 357/363 (98%) | 313 (88%) | 44 (12%) | 4 19 |
| 1 | K | 357/363 (98%) | 313 (88%) | 44 (12%) | 4 19 |
| 1 | L | 357/363 (98%) | 314 (88%) | 43 (12%) | 5 20 |
| 1 | M | 357/363 (98%) | 313 (88%) | 44 (12%) | 4 19 |
| All | All | 3570/3630 (98%) | 3132 (88%) | 438 (12%) | 8 19 |

All (438) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 25 | VAL |
| 1 | A | 30 | ASP |
| 1 | A | 34 | LYS |
| 1 | A | 40 | LEU |
| 1 | A | 46 | LYS |
| 1 | A | 48 | LEU |
| 1 | A | 78 | LYS |
| 1 | A | 84 | LEU |
| 1 | A | 85 | ASP |
| 1 | A | 95 | ILE |
| 1 | A | 107 | LEU |
| 1 | A | 108 | VAL |
| 1 | A | 116 | VAL |
| 1 | A | 126 | ARG |
| 1 | A | 134 | LEU |
| 1 | A | 149 | MET |
| 1 | A | 153 | ARG |
| 1 | A | 154 | LYS |
| 1 | A | 156 | LEU |
| 1 | A | 163 | GLN |
| 1 | A | 165 | LYS |
| 1 | A | 181 | ILE |
| 1 | A | 189 | SER |
| 1 | A | 215 | TYR |
| 1 | A | 217 | THR |
| 1 | A | 237 | ILE |
| 1 | A | 243 | GLU |
| 1 | A | 278 | LEU |
| 1 | A | 286 | LYS |
| 1 | A | 307 | LEU |
| 1 | A | 308 | LEU |
| 1 | A | 311 | THR |
| 1 | A | 317 | ARG |
| 1 | A | 327 | LEU |
| 1 | A | 329 | THR |
| 1 | A | 332 | LEU |
| 1 | A | 353 | ASN |
| 1 | A | 354 | LYS |
| 1 | A | 377 | GLU |
| 1 | A | 387 | ARG |
| 1 | A | 407 | LEU |
| 1 | A | 409 | GLU |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | A | 410 | LYS |
| 1 | A | 414 | LYS |
| 1 | C | 25 | VAL |
| 1 | C | 30 | ASP |
| 1 | C | 34 | LYS |
| 1 | C | 40 | LEU |
| 1 | C | 46 | LYS |
| 1 | C | 48 | LEU |
| 1 | C | 78 | LYS |
| 1 | C | 84 | LEU |
| 1 | C | 85 | ASP |
| 1 | C | 95 | ILE |
| 1 | C | 107 | LEU |
| 1 | C | 108 | VAL |
| 1 | C | 116 | VAL |
| 1 | C | 126 | ARG |
| 1 | C | 134 | LEU |
| 1 | C | 149 | MET |
| 1 | C | 153 | ARG |
| 1 | C | 154 | LYS |
| 1 | C | 156 | LEU |
| 1 | C | 163 | GLN |
| 1 | C | 165 | LYS |
| 1 | C | 181 | ILE |
| 1 | C | 189 | SER |
| 1 | C | 215 | TYR |
| 1 | C | 217 | THR |
| 1 | C | 237 | ILE |
| 1 | C | 243 | GLU |
| 1 | C | 278 | LEU |
| 1 | C | 286 | LYS |
| 1 | C | 307 | LEU |
| 1 | C | 308 | LEU |
| 1 | C | 311 | THR |
| 1 | C | 317 | ARG |
| 1 | C | 327 | LEU |
| 1 | C | 329 | THR |
| 1 | C | 332 | LEU |
| 1 | C | 353 | ASN |
| 1 | C | 354 | LYS |
| 1 | C | 377 | GLU |
| 1 | C | 387 | ARG |

Continued on next page...

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | C | 407 | LEU |
| 1 | C | 409 | GLU |
| 1 | C | 410 | LYS |
| 1 | C | 414 | LYS |
| 1 | D | 25 | VAL |
| 1 | D | 30 | ASP |
| 1 | D | 34 | LYS |
| 1 | D | 40 | LEU |
| 1 | D | 46 | LYS |
| 1 | D | 48 | LEU |
| 1 | D | 78 | LYS |
| 1 | D | 84 | LEU |
| 1 | D | 85 | ASP |
| 1 | D | 95 | ILE |
| 1 | D | 107 | LEU |
| 1 | D | 108 | VAL |
| 1 | D | 116 | VAL |
| 1 | D | 126 | ARG |
| 1 | D | 134 | LEU |
| 1 | D | 149 | MET |
| 1 | D | 153 | ARG |
| 1 | D | 154 | LYS |
| 1 | D | 156 | LEU |
| 1 | D | 163 | GLN |
| 1 | D | 165 | LYS |
| 1 | D | 181 | ILE |
| 1 | D | 189 | SER |
| 1 | D | 215 | TYR |
| 1 | D | 217 | THR |
| 1 | D | 237 | ILE |
| 1 | D | 243 | GLU |
| 1 | D | 278 | LEU |
| 1 | D | 286 | LYS |
| 1 | D | 307 | LEU |
| 1 | D | 308 | LEU |
| 1 | D | 311 | THR |
| 1 | D | 317 | ARG |
| 1 | D | 327 | LEU |
| 1 | D | 329 | THR |
| 1 | D | 332 | LEU |
| 1 | D | 353 | ASN |
| 1 | D | 354 | LYS |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | D | 377 | GLU |
| 1 | D | 387 | ARG |
| 1 | D | 407 | LEU |
| 1 | D | 409 | GLU |
| 1 | D | 410 | LYS |
| 1 | D | 414 | LYS |
| 1 | F | 25 | VAL |
| 1 | F | 30 | ASP |
| 1 | F | 34 | LYS |
| 1 | F | 40 | LEU |
| 1 | F | 46 | LYS |
| 1 | F | 48 | LEU |
| 1 | F | 78 | LYS |
| 1 | F | 84 | LEU |
| 1 | F | 85 | ASP |
| 1 | F | 95 | ILE |
| 1 | F | 107 | LEU |
| 1 | F | 108 | VAL |
| 1 | F | 116 | VAL |
| 1 | F | 126 | ARG |
| 1 | F | 134 | LEU |
| 1 | F | 149 | MET |
| 1 | F | 153 | ARG |
| 1 | F | 154 | LYS |
| 1 | F | 156 | LEU |
| 1 | F | 163 | GLN |
| 1 | F | 165 | LYS |
| 1 | F | 181 | ILE |
| 1 | F | 189 | SER |
| 1 | F | 215 | TYR |
| 1 | F | 217 | THR |
| 1 | F | 237 | ILE |
| 1 | F | 243 | GLU |
| 1 | F | 286 | LYS |
| 1 | F | 307 | LEU |
| 1 | F | 308 | LEU |
| 1 | F | 311 | THR |
| 1 | F | 317 | ARG |
| 1 | F | 327 | LEU |
| 1 | F | 329 | THR |
| 1 | F | 332 | LEU |
| 1 | F | 353 | ASN |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | F | 354 | LYS |
| 1 | F | 377 | GLU |
| 1 | F | 387 | ARG |
| 1 | F | 407 | LEU |
| 1 | F | 409 | GLU |
| 1 | F | 410 | LYS |
| 1 | F | 414 | LYS |
| 1 | H | 25 | VAL |
| 1 | H | 30 | ASP |
| 1 | H | 34 | LYS |
| 1 | H | 40 | LEU |
| 1 | H | 46 | LYS |
| 1 | H | 48 | LEU |
| 1 | H | 78 | LYS |
| 1 | H | 84 | LEU |
| 1 | H | 85 | ASP |
| 1 | H | 95 | ILE |
| 1 | H | 107 | LEU |
| 1 | H | 108 | VAL |
| 1 | H | 116 | VAL |
| 1 | H | 126 | ARG |
| 1 | H | 134 | LEU |
| 1 | H | 149 | MET |
| 1 | H | 153 | ARG |
| 1 | H | 154 | LYS |
| 1 | H | 156 | LEU |
| 1 | H | 163 | GLN |
| 1 | H | 165 | LYS |
| 1 | H | 181 | ILE |
| 1 | H | 189 | SER |
| 1 | H | 215 | TYR |
| 1 | H | 217 | THR |
| 1 | H | 237 | ILE |
| 1 | H | 243 | GLU |
| 1 | H | 278 | LEU |
| 1 | H | 286 | LYS |
| 1 | H | 307 | LEU |
| 1 | H | 308 | LEU |
| 1 | H | 311 | THR |
| 1 | H | 317 | ARG |
| 1 | H | 327 | LEU |
| 1 | H | 329 | THR |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | H | 332 | LEU |
| 1 | H | 353 | ASN |
| 1 | H | 354 | LYS |
| 1 | H | 377 | GLU |
| 1 | H | 387 | ARG |
| 1 | H | 407 | LEU |
| 1 | H | 409 | GLU |
| 1 | H | 410 | LYS |
| 1 | H | 414 | LYS |
| 1 | I | 25 | VAL |
| 1 | I | 30 | ASP |
| 1 | I | 34 | LYS |
| 1 | I | 40 | LEU |
| 1 | I | 46 | LYS |
| 1 | I | 48 | LEU |
| 1 | I | 78 | LYS |
| 1 | I | 84 | LEU |
| 1 | I | 85 | ASP |
| 1 | I | 95 | ILE |
| 1 | I | 107 | LEU |
| 1 | I | 108 | VAL |
| 1 | I | 116 | VAL |
| 1 | I | 126 | ARG |
| 1 | I | 134 | LEU |
| 1 | I | 149 | MET |
| 1 | I | 153 | ARG |
| 1 | I | 154 | LYS |
| 1 | I | 156 | LEU |
| 1 | I | 163 | GLN |
| 1 | I | 165 | LYS |
| 1 | I | 181 | ILE |
| 1 | I | 189 | SER |
| 1 | I | 215 | TYR |
| 1 | I | 217 | THR |
| 1 | I | 237 | ILE |
| 1 | I | 243 | GLU |
| 1 | I | 278 | LEU |
| 1 | I | 286 | LYS |
| 1 | I | 307 | LEU |
| 1 | I | 308 | LEU |
| 1 | I | 311 | THR |
| 1 | I | 317 | ARG |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | I | 327 | LEU |
| 1 | I | 329 | THR |
| 1 | I | 332 | LEU |
| 1 | I | 353 | ASN |
| 1 | I | 354 | LYS |
| 1 | I | 377 | GLU |
| 1 | I | 387 | ARG |
| 1 | I | 407 | LEU |
| 1 | I | 409 | GLU |
| 1 | I | 410 | LYS |
| 1 | I | 414 | LYS |
| 1 | J | 25 | VAL |
| 1 | J | 30 | ASP |
| 1 | J | 34 | LYS |
| 1 | J | 40 | LEU |
| 1 | J | 46 | LYS |
| 1 | J | 48 | LEU |
| 1 | J | 78 | LYS |
| 1 | J | 84 | LEU |
| 1 | J | 85 | ASP |
| 1 | J | 95 | ILE |
| 1 | J | 107 | LEU |
| 1 | J | 108 | VAL |
| 1 | J | 116 | VAL |
| 1 | J | 126 | ARG |
| 1 | J | 134 | LEU |
| 1 | J | 149 | MET |
| 1 | J | 153 | ARG |
| 1 | J | 154 | LYS |
| 1 | J | 156 | LEU |
| 1 | J | 163 | GLN |
| 1 | J | 165 | LYS |
| 1 | J | 181 | ILE |
| 1 | J | 189 | SER |
| 1 | J | 215 | TYR |
| 1 | J | 217 | THR |
| 1 | J | 237 | ILE |
| 1 | J | 243 | GLU |
| 1 | J | 278 | LEU |
| 1 | J | 286 | LYS |
| 1 | J | 307 | LEU |
| 1 | J | 308 | LEU |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | J | 311 | THR |
| 1 | J | 317 | ARG |
| 1 | J | 327 | LEU |
| 1 | J | 329 | THR |
| 1 | J | 332 | LEU |
| 1 | J | 353 | ASN |
| 1 | J | 354 | LYS |
| 1 | J | 377 | GLU |
| 1 | J | 387 | ARG |
| 1 | J | 407 | LEU |
| 1 | J | 409 | GLU |
| 1 | J | 410 | LYS |
| 1 | J | 414 | LYS |
| 1 | K | 25 | VAL |
| 1 | K | 30 | ASP |
| 1 | K | 34 | LYS |
| 1 | K | 40 | LEU |
| 1 | K | 46 | LYS |
| 1 | K | 48 | LEU |
| 1 | K | 78 | LYS |
| 1 | K | 84 | LEU |
| 1 | K | 85 | ASP |
| 1 | K | 95 | ILE |
| 1 | K | 107 | LEU |
| 1 | K | 108 | VAL |
| 1 | K | 116 | VAL |
| 1 | K | 126 | ARG |
| 1 | K | 134 | LEU |
| 1 | K | 149 | MET |
| 1 | K | 153 | ARG |
| 1 | K | 154 | LYS |
| 1 | K | 156 | LEU |
| 1 | K | 163 | GLN |
| 1 | K | 165 | LYS |
| 1 | K | 181 | ILE |
| 1 | K | 189 | SER |
| 1 | K | 215 | TYR |
| 1 | K | 217 | THR |
| 1 | K | 237 | ILE |
| 1 | K | 243 | GLU |
| 1 | K | 278 | LEU |
| 1 | K | 286 | LYS |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | K | 307 | LEU |
| 1 | K | 308 | LEU |
| 1 | K | 311 | THR |
| 1 | K | 317 | ARG |
| 1 | K | 327 | LEU |
| 1 | K | 329 | THR |
| 1 | K | 332 | LEU |
| 1 | K | 353 | ASN |
| 1 | K | 354 | LYS |
| 1 | K | 377 | GLU |
| 1 | K | 387 | ARG |
| 1 | K | 407 | LEU |
| 1 | K | 409 | GLU |
| 1 | K | 410 | LYS |
| 1 | K | 414 | LYS |
| 1 | L | 25 | VAL |
| 1 | L | 30 | ASP |
| 1 | L | 34 | LYS |
| 1 | L | 40 | LEU |
| 1 | L | 46 | LYS |
| 1 | L | 48 | LEU |
| 1 | L | 78 | LYS |
| 1 | L | 84 | LEU |
| 1 | L | 85 | ASP |
| 1 | L | 95 | ILE |
| 1 | L | 107 | LEU |
| 1 | L | 108 | VAL |
| 1 | L | 116 | VAL |
| 1 | L | 126 | ARG |
| 1 | L | 134 | LEU |
| 1 | L | 149 | MET |
| 1 | L | 153 | ARG |
| 1 | L | 154 | LYS |
| 1 | L | 156 | LEU |
| 1 | L | 163 | GLN |
| 1 | L | 165 | LYS |
| 1 | L | 181 | ILE |
| 1 | L | 189 | SER |
| 1 | L | 215 | TYR |
| 1 | L | 217 | THR |
| 1 | L | 237 | ILE |
| 1 | L | 243 | GLU |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | L | 286 | LYS |
| 1 | L | 307 | LEU |
| 1 | L | 308 | LEU |
| 1 | L | 311 | THR |
| 1 | L | 317 | ARG |
| 1 | L | 327 | LEU |
| 1 | L | 329 | THR |
| 1 | L | 332 | LEU |
| 1 | L | 353 | ASN |
| 1 | L | 354 | LYS |
| 1 | L | 377 | GLU |
| 1 | L | 387 | ARG |
| 1 | L | 407 | LEU |
| 1 | L | 409 | GLU |
| 1 | L | 410 | LYS |
| 1 | L | 414 | LYS |
| 1 | M | 25 | VAL |
| 1 | M | 30 | ASP |
| 1 | M | 34 | LYS |
| 1 | M | 40 | LEU |
| 1 | M | 46 | LYS |
| 1 | M | 48 | LEU |
| 1 | M | 78 | LYS |
| 1 | M | 84 | LEU |
| 1 | M | 85 | ASP |
| 1 | M | 95 | ILE |
| 1 | M | 107 | LEU |
| 1 | M | 108 | VAL |
| 1 | M | 116 | VAL |
| 1 | M | 126 | ARG |
| 1 | M | 134 | LEU |
| 1 | M | 149 | MET |
| 1 | M | 153 | ARG |
| 1 | M | 154 | LYS |
| 1 | M | 156 | LEU |
| 1 | M | 163 | GLN |
| 1 | M | 165 | LYS |
| 1 | M | 181 | ILE |
| 1 | M | 189 | SER |
| 1 | M | 215 | TYR |
| 1 | M | 217 | THR |
| 1 | M | 237 | ILE |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | M | 243 | GLU |
| 1 | M | 278 | LEU |
| 1 | M | 286 | LYS |
| 1 | M | 307 | LEU |
| 1 | M | 308 | LEU |
| 1 | M | 311 | THR |
| 1 | M | 317 | ARG |
| 1 | M | 327 | LEU |
| 1 | M | 329 | THR |
| 1 | M | 332 | LEU |
| 1 | M | 353 | ASN |
| 1 | M | 354 | LYS |
| 1 | M | 377 | GLU |
| 1 | M | 387 | ARG |
| 1 | M | 407 | LEU |
| 1 | M | 409 | GLU |
| 1 | M | 410 | LYS |
| 1 | M | 414 | LYS |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (50) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 70 | ASN |
| 1 | A | 163 | GLN |
| 1 | A | 187 | ASN |
| 1 | A | 266 | GLN |
| 1 | A | 385 | GLN |
| 1 | C | 70 | ASN |
| 1 | C | 163 | GLN |
| 1 | C | 187 | ASN |
| 1 | C | 266 | GLN |
| 1 | C | 385 | GLN |
| 1 | D | 70 | ASN |
| 1 | D | 163 | GLN |
| 1 | D | 187 | ASN |
| 1 | D | 266 | GLN |
| 1 | D | 385 | GLN |
| 1 | F | 70 | ASN |
| 1 | F | 163 | GLN |
| 1 | F | 187 | ASN |
| 1 | F | 266 | GLN |
| 1 | F | 385 | GLN |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | H | 70 | ASN |
| 1 | H | 163 | GLN |
| 1 | H | 187 | ASN |
| 1 | H | 266 | GLN |
| 1 | H | 385 | GLN |
| 1 | I | 70 | ASN |
| 1 | I | 163 | GLN |
| 1 | I | 187 | ASN |
| 1 | I | 266 | GLN |
| 1 | I | 385 | GLN |
| 1 | J | 70 | ASN |
| 1 | J | 163 | GLN |
| 1 | J | 187 | ASN |
| 1 | J | 266 | GLN |
| 1 | J | 385 | GLN |
| 1 | K | 70 | ASN |
| 1 | K | 163 | GLN |
| 1 | K | 187 | ASN |
| 1 | K | 266 | GLN |
| 1 | K | 385 | GLN |
| 1 | L | 70 | ASN |
| 1 | L | 163 | GLN |
| 1 | L | 187 | ASN |
| 1 | L | 266 | GLN |
| 1 | L | 385 | GLN |
| 1 | M | 70 | ASN |
| 1 | M | 163 | GLN |
| 1 | M | 187 | ASN |
| 1 | M | 266 | GLN |
| 1 | M | 385 | GLN |

5.3.3 RNA [i](#)

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|-----|-------|-------------|-------------------|-----------------|
| 2 | R | 44/45 (97%) | 34 (77%) | 1 (2%) |
| 2 | S | 44/45 (97%) | 34 (77%) | 1 (2%) |
| All | All | 88/90 (97%) | 68 (77%) | 2 (2%) |

All (68) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | R | 19 | U |
| 2 | R | 21 | U |
| 2 | R | 23 | U |
| 2 | R | 24 | U |
| 2 | R | 25 | U |
| 2 | R | 26 | U |
| 2 | R | 27 | U |
| 2 | R | 28 | U |
| 2 | R | 30 | U |
| 2 | R | 32 | U |
| 2 | R | 33 | U |
| 2 | R | 34 | U |
| 2 | R | 35 | U |
| 2 | R | 36 | U |
| 2 | R | 37 | U |
| 2 | R | 39 | U |
| 2 | R | 41 | U |
| 2 | R | 42 | U |
| 2 | R | 43 | U |
| 2 | R | 44 | U |
| 2 | R | 45 | U |
| 2 | R | 46 | U |
| 2 | R | 48 | U |
| 2 | R | 50 | U |
| 2 | R | 51 | U |
| 2 | R | 52 | U |
| 2 | R | 53 | U |
| 2 | R | 54 | U |
| 2 | R | 55 | U |
| 2 | R | 57 | U |
| 2 | R | 59 | U |
| 2 | R | 60 | U |
| 2 | R | 61 | U |
| 2 | R | 62 | U |
| 2 | S | 19 | U |
| 2 | S | 21 | U |
| 2 | S | 23 | U |
| 2 | S | 24 | U |
| 2 | S | 25 | U |
| 2 | S | 26 | U |
| 2 | S | 27 | U |
| 2 | S | 28 | U |
| 2 | S | 30 | U |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | S | 32 | U |
| 2 | S | 33 | U |
| 2 | S | 34 | U |
| 2 | S | 35 | U |
| 2 | S | 36 | U |
| 2 | S | 37 | U |
| 2 | S | 39 | U |
| 2 | S | 41 | U |
| 2 | S | 42 | U |
| 2 | S | 43 | U |
| 2 | S | 44 | U |
| 2 | S | 45 | U |
| 2 | S | 46 | U |
| 2 | S | 48 | U |
| 2 | S | 50 | U |
| 2 | S | 51 | U |
| 2 | S | 52 | U |
| 2 | S | 53 | U |
| 2 | S | 54 | U |
| 2 | S | 55 | U |
| 2 | S | 57 | U |
| 2 | S | 59 | U |
| 2 | S | 60 | U |
| 2 | S | 61 | U |
| 2 | S | 62 | U |

All (2) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | R | 24 | U |
| 2 | S | 24 | U |

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

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.

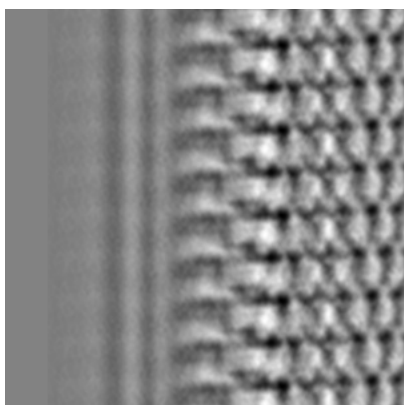
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-1663. These allow visual inspection of the internal detail of the map and identification of artifacts.

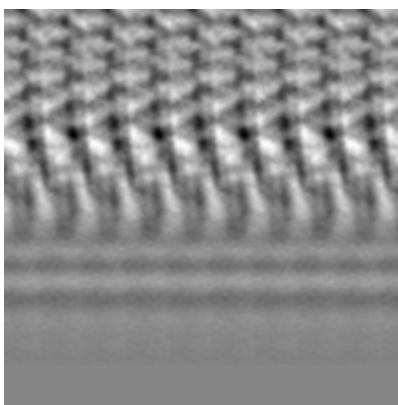
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

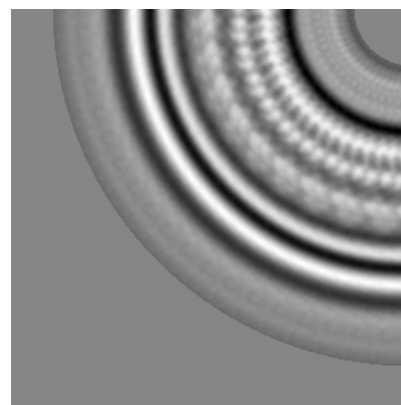
6.1.1 Primary map



X



Y

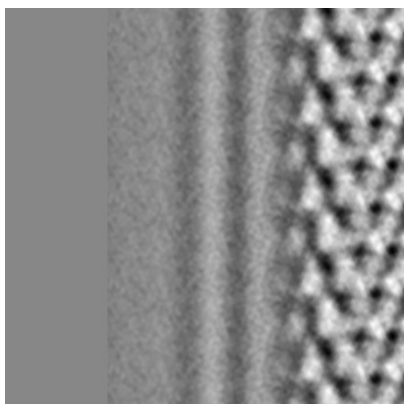


Z

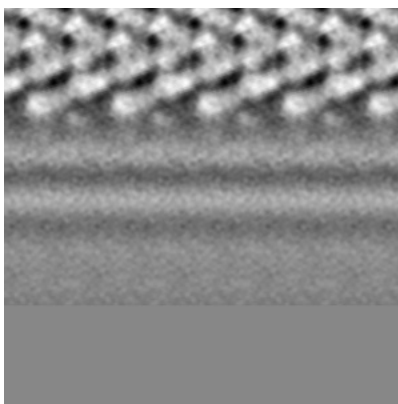
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

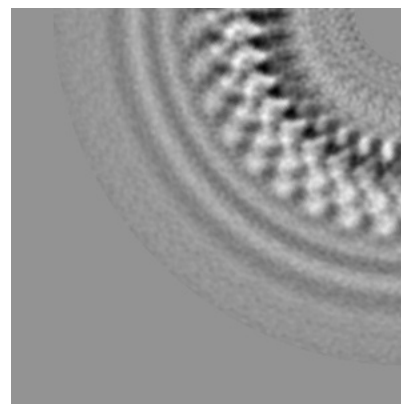
6.2.1 Primary map



X Index: 160



Y Index: 160

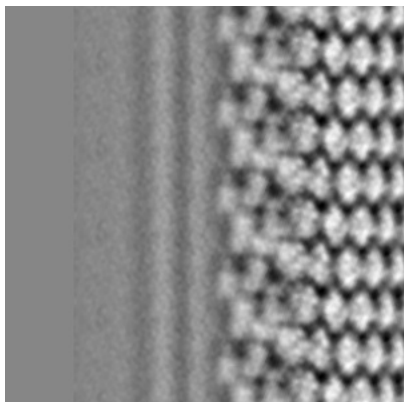


Z Index: 160

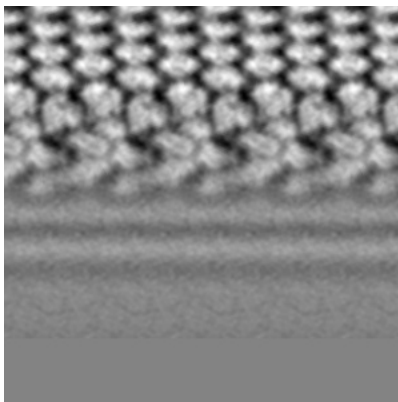
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

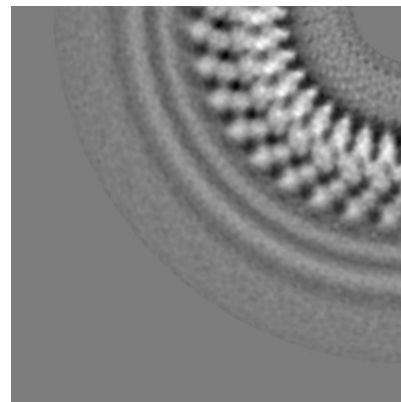
6.3.1 Primary map



X Index: 212



Y Index: 213

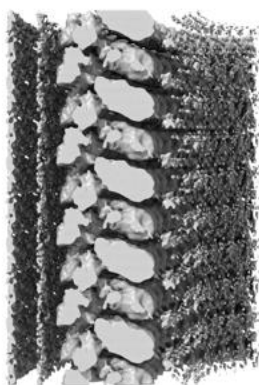


Z Index: 317

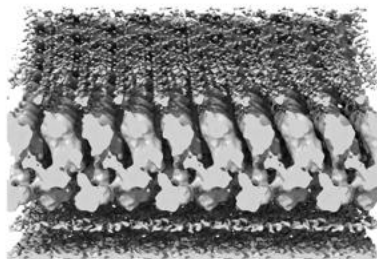
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

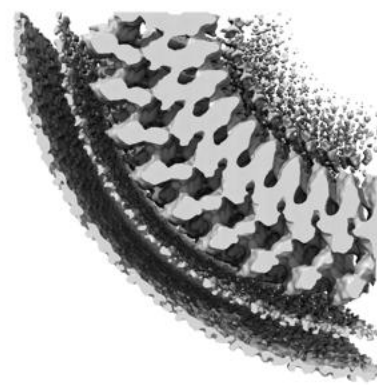
6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 1.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

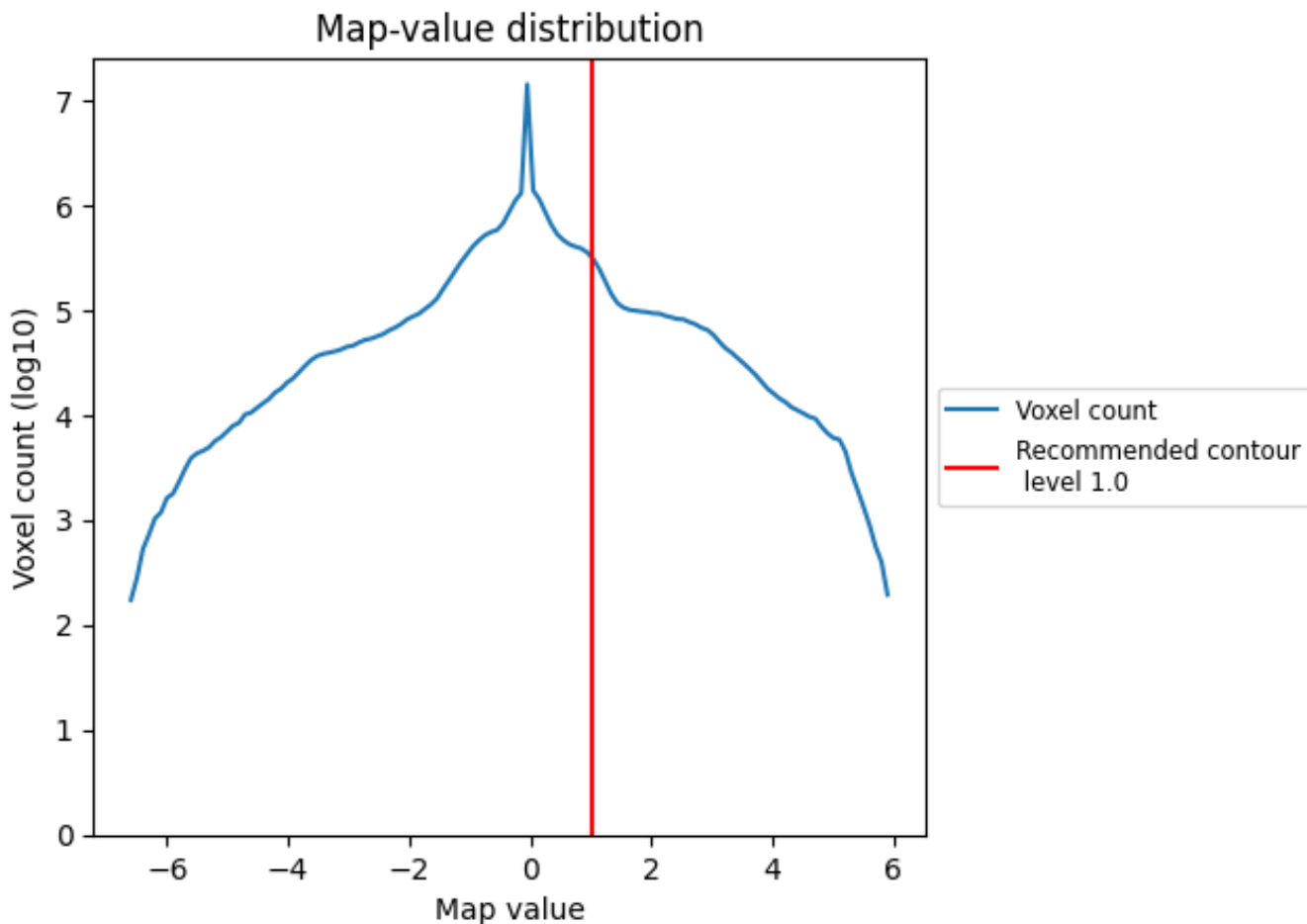
6.5 Mask visualisation

This section was not generated.

7 Map analysis [i](#)

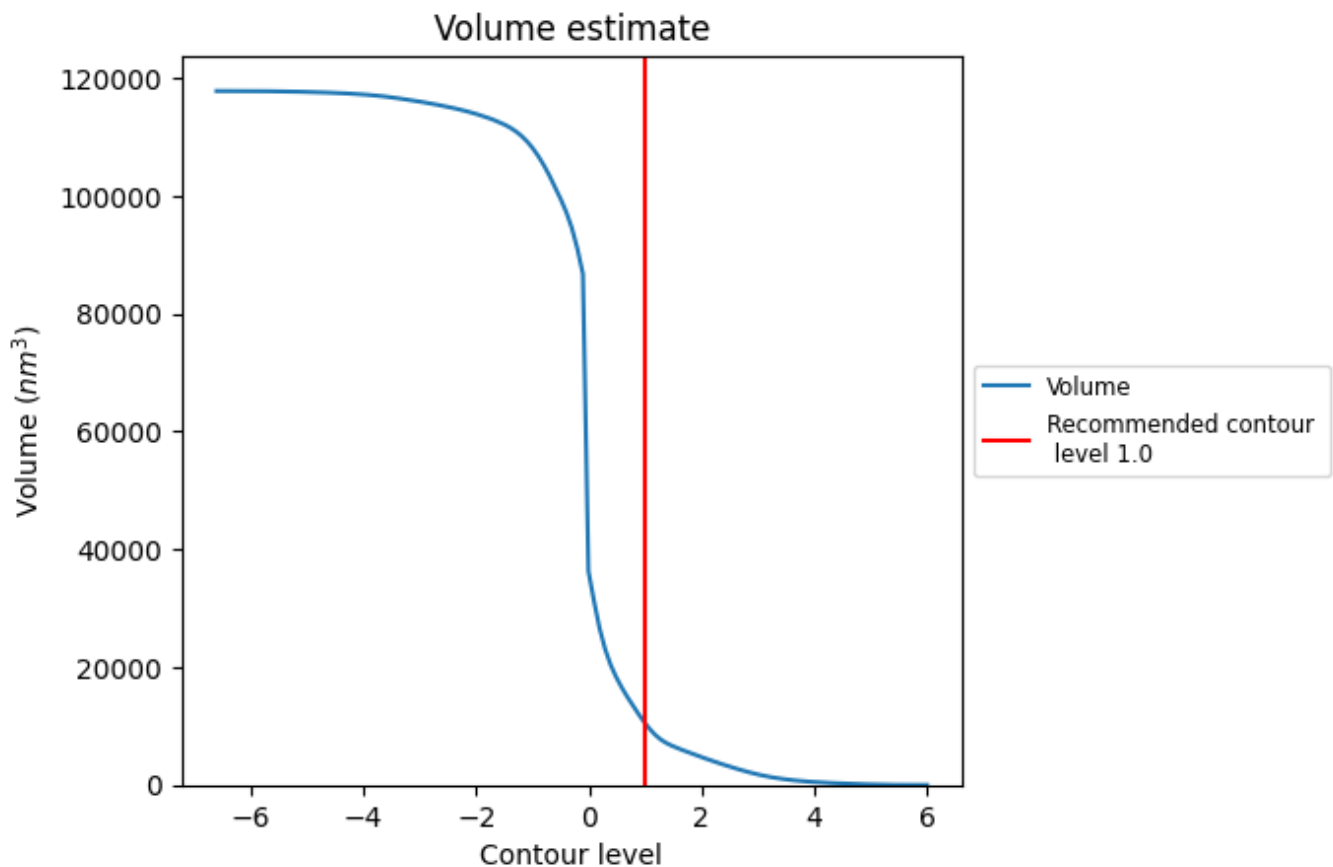
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

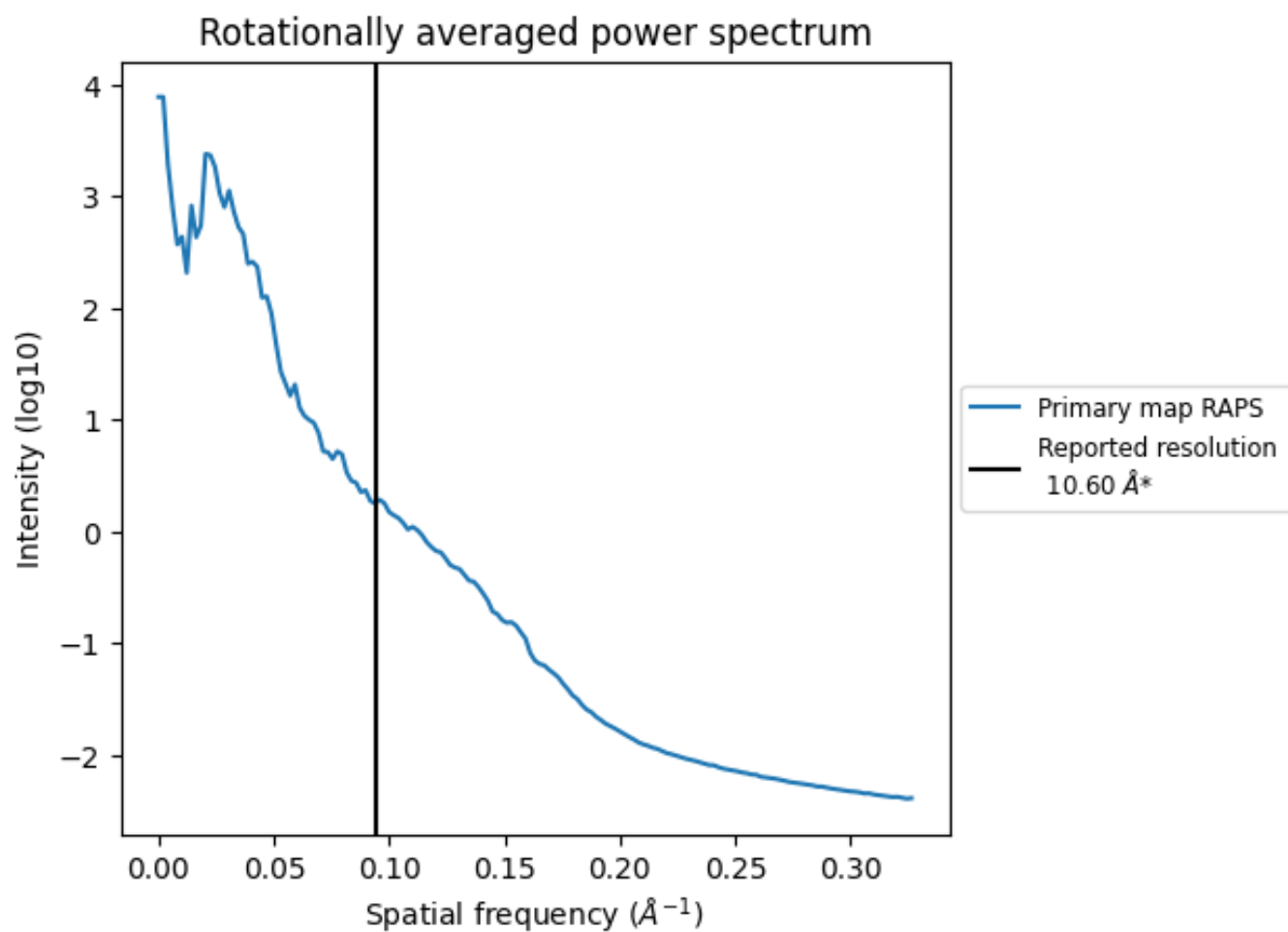
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 10476 nm³; this corresponds to an approximate mass of 9463 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum [i](#)



*Reported resolution corresponds to spatial frequency of 0.094 Å⁻¹

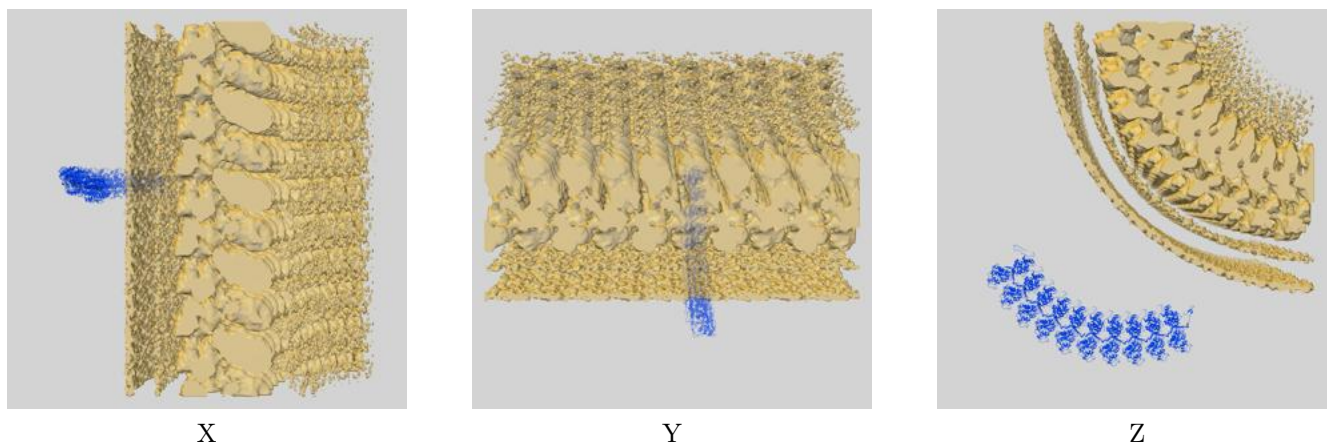
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit [i](#)

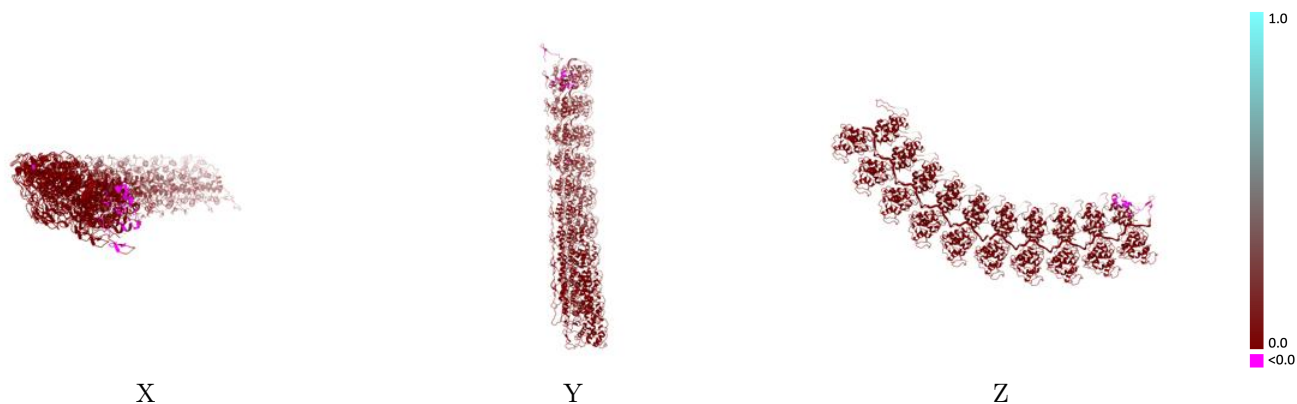
This section contains information regarding the fit between EMDB map EMD-1663 and PDB model 2WYY. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlay [i](#)



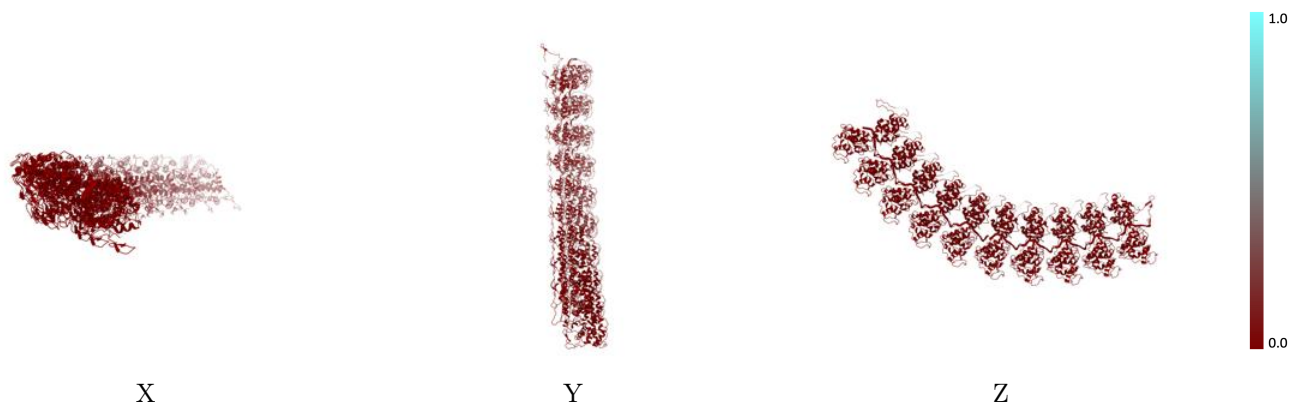
The images above show the 3D surface view of the map at the recommended contour level 1.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [\(i\)](#)



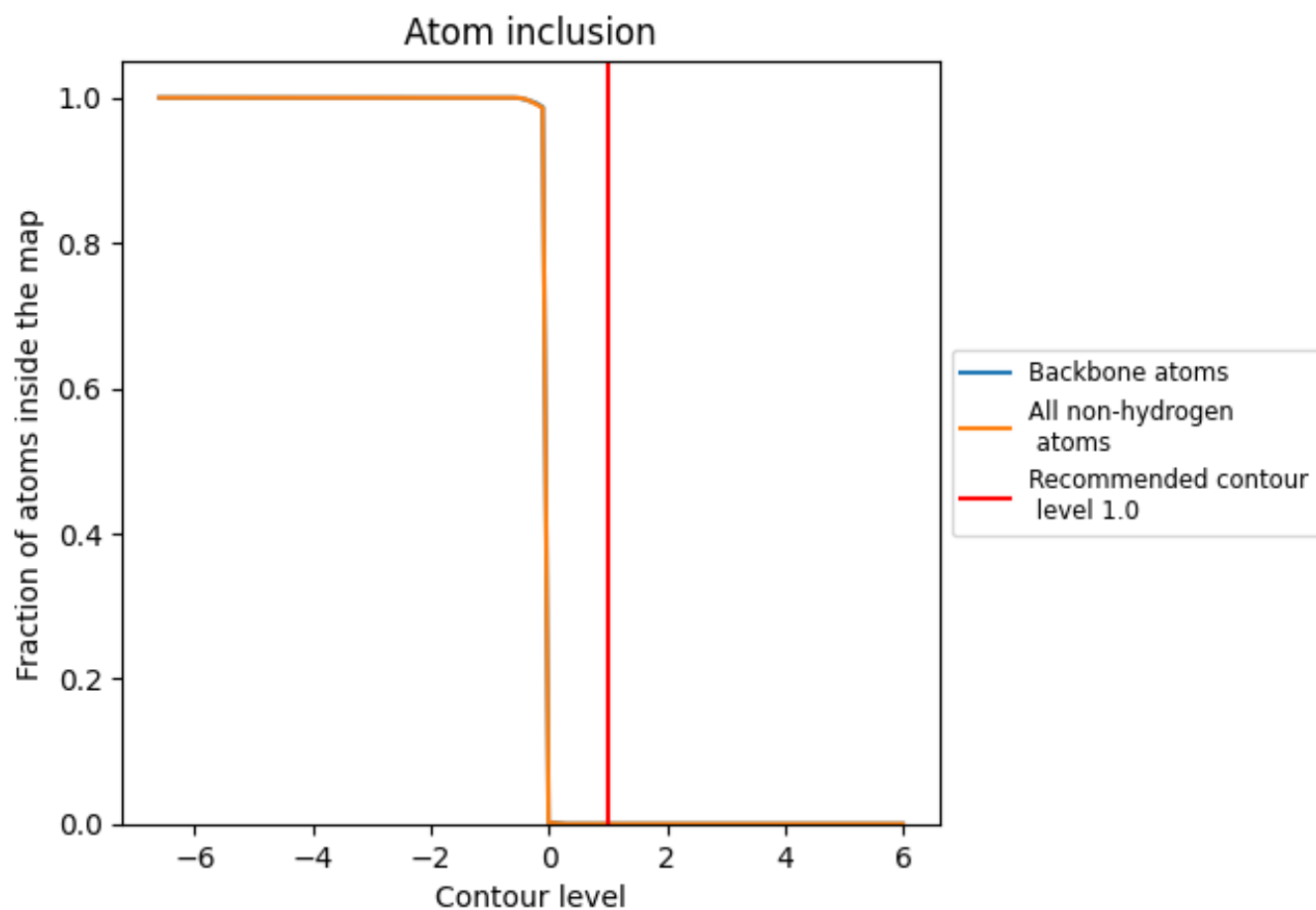
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [\(i\)](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (1.0).

9.4 Atom inclusion [i](#)



At the recommended contour level, 0% of all backbone atoms, 0% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (1.0) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|-------|----------------|---------|
| All | 0.0000 | 0.0000 |
| A | 0.0000 | 0.0000 |
| C | 0.0000 | 0.0000 |
| D | 0.0000 | 0.0000 |
| F | 0.0000 | 0.0000 |
| H | 0.0000 | 0.0000 |
| I | 0.0000 | 0.0010 |
| J | 0.0000 | 0.0030 |
| K | 0.0000 | 0.0000 |
| L | 0.0000 | -0.0000 |
| M | 0.0000 | -0.0000 |
| R | 0.0000 | 0.0000 |
| S | 0.0000 | 0.0010 |

