|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **FACLs** |  |  | **FAALs** |  |  | **Entry****Active site** |
| **StACS(1PG4)** | **HsFACL****(3EQ6)** | **AfFACL(3G7S)** | **MtFACL13(3R44)** | **EcFACL(model)** |  |  | **MtFAAL28****(3E53)** | **EcFAAL****(3PBK)** | **MsFAAL32****(5ICR)** | **RsFAAL****(model)** |  |  |
| R191 | - | - | - | - |  |  | - | - | - | - |  |  |
| G332 | K290 | M252 | Q230 | N284 |  |  | P244 | T252 | P253 | P238 |  |  |
| P334 | D292 | N254 | D232 | D287 |  |  | F247 | F255 | F256 | F241 |  |  |
| V333 | F291 | F253 | F231 | R286 |  |  | L248 | A256 | V257 | I242 |  |  |
| A363 | M317 | V279 | F257 | A312 |  |  | L275 | L283 | H288 | A269 |  |  |
| A360 | V314 | A276 | I254 | L309 |  |  | A272 | G280 | A285 | G266 |  |  |
| T359 | I313 | P275 | A253 | T308 |  |  | F271 | F279 | F284 | F265 |  |  |
| A357 | A311 | V273 | V251 | V306 |  |  | P269 | P277 | P282 | P263 |  |  |
| Y355 | M309 | W271 | G249 | T304 |  |  | A267 | V275 | V280 | G261 |  |  |
| V386 | V337 | G302 | G278 | G333 |  |  | G299 | G307 | G313 | G293 |  |  |
| G387 | G338 | A303 | G279 | G334 |  |  | S300 | A308 | S314 | A294 |  |  |
| T311 | L267 | A232 | A210 | F263 |  |  | M223 | M231 | M233 | M217 |  |  |
| V310 | I266 | S231 | V209 | I262 |  |  | D222 | D230 | D232 | D216 |  |  |
| W309 | W265 | H230 | H208 | H261 |  |  | H221 | H229 | H231 | H215 |  |  |
| D306 | D262 | P227 | P205 | P258 |  |  | P218 | P226 | P228 | P212 |  |  |
| A305 | S261 | M226 | L204 | L257 |  |  | L217 | L225 | L227 | L211 |  |  |
| T304 | I260 | C225 | P203 | A256 |  |  | W216 | W224 | W226 | W210 |  |  |

(**a**)

(**b**)

|  |
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| **Gain of function in FAALs through mutations in canonical pocket** |
| **Residues mutated** | ***Ec*FAAL** | ***Ms*FAAL32** | ***Rs*FAAL** |
| F279A | 🗸 | - | 🗸 |
| M231A | 🗸 | - | 🗸 |
| ∆FSH254-257 | 🗸 | 🗸 | 🗸 |
| F279A/M231A | 🗸 | - | 🗸 |
| F279A/M231A/A256G | 🗸 | 🗸 | 🗸 |

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| **Loss of function in FACLs through mutations in canonical pocket** |
| **Residues mutated** | ***Mt*FACL13** | ***Af*FACL** | ***Ec*FACL** |
| A253F | 🗸 | - | - |
| SQFLins | 🗸 | - | 🗸 |
| A253F/ SQFLins | 🗸 | - | - |
| A253F/ A210M | - | 🗸 | - |
| A253F/ A210M/ SQFLins | 🗸 | 🗸 | 🗸 |

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| **Loss of function in FAALs through mutations in alternate pocket** |
| **Residues mutated** | ***Ec*FAAL** | ***Rs*FAAL32** | ***Mx*FAAL** |
| T83F | 🗸 | 🗸 | - |
| T83R | 🗸 | NA | 🗸 |
| P107F | 🗸 | 🗸 | 🗸 |
| P107R | 🗸 | 🗸 | 🗸 |
| T252F | 🗸 | 🗸 | - |
| T252R | 🗸 | - | 🗸 |