|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Gene name** | ***Gene ID (Kazusa)*** | **Protein name** | **Length (aa) - UniProt** |  |
| **PSII** | *psbA1* | *slr1181* | D1 | 360 |  |
| *psbA2* | *slr1311* | D1 | 360 |  |
| *psbA3* | *sll1867* | D1 | 360 |  |
| *psbB* | *slr0906* | CP47 | 507 |  |
| *psbC* | *sll0851* | CP43 | 460 |  |
| *psbDI* | *sll0849* | D2 | 352 |  |
| *psbDII* | *slr0927* | D2 | 352 |  |
| *psbE* | *ssr3451* | PsbE (Cyt*b559*–α subunit) | 81 |  |
| *psbF* | *smr0006* | PsbF (Cyt*b559*–β subunit) | 44 |  |
| *psbH* | *ssl2598* | PsbH | 64 |  |
| *psbI* | *sml0001* | PsbI | 38 |  |
| *psbJ* | *smr0008* | PsbJ | 39 |  |
| *psbK* | *sml0005* | PsbK | 45 |  |
| *psbL* | *smr0007* | PsbL | 39 |  |
| *psbM* | *sml0003* | PsbM | 35 |  |
| *psbN* | *smr0009* | PsbN | 43 |  |
| *psbO* | *sll0427* | PsbO (33 kDa, MSP) | 274 |  |
| *psbT* | *smr0001* | PsbT | 31 |  |
| *psbU* | *sll1194* | PsbU (12 kDa) | 131 |  |
| *psbV* | *sll0258* | PsbV (Cyt*c550)* | 160 |  |
| *psbX* | *sml0002* | PsbX | 39 |  |
| *psbY* | *sml0007* | PsbY | 39 |  |
| *psbZ* | *sll1281* | PsbZ | 62 |  |
|  |  |  |  |  |
| **PSI** | *psaA* | *slr1834* | PsaA | 751 |  |
| *psaB* | *slr1835* | PsaB | 731 |  |
| *psaC* | *ssl0563* | PsaC | 81 |  |
| *psaD* | *slr0737* | PsaD | 141 |  |
| *psaF* | *sll0819* | PsaF | 165 |  |
| *psaJ* | *sml0008* | PsaJ | 40 |  |
| *psaK1* | *ssr0390* | PsaK1 | 86 |  |
| *psaK2* | *sll0629* | PsaK2 | 90 |  |
| *psaL* | *slr1655* | PsaL | 157 |  |
| *psaM* | *smr0005* | PsaM | 31 |  |
| *psaI* | *smr0004* | PsaI | 40 |  |
|  |  |  |  |  |  |
| **Cytochrom *b6-f*** | *petA* | *sll1317* | PetA (Cyt f) | 328 |  |
| *petB* | *slr0342* | PetB (Cyt *b6*) | 222 |  |
| *petC1* | *slr1185* | PetC1 (Fe-S subunit 1) | 178 |  |
| *petC2* | *sll1316* | PetC2 (Fe-S subunit 2) | 180 |  |
| *petD* | *slr0343* | PetD (Cyt*b6-f* subunit IV) | 160 |  |

***Synechocystis* PCC 6803 PSII/PSI/TM-related genes/proteins**

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| **… *b6-f*** | *petG* | *smr0010* | PetG (Cyt*b6-f* subunit V) | 38 |  |
| *petL* | *ssl3803* | PetL (Cytb6-f subunit VI, Ycf7) | 32 |  |
| *petM* | *smr0003* | PetM (Cyt*b6-f* subunit VII) | 36 |  |
| *petN* | *sml0004* | PetN (Cyt*b6-f* subunit VIII) | 29 |  |
|  |  |  |  |  |  |
| **Auxiliary**  **factors** | *btpA* | *sll0634* | BtpA | 287 |  |
| *curt1* | *slr0483* | Slr0483 (CURT1) | 149 |  |
| *hliA* | *ssl2542* | HliA (ScpC) | 70 |  |
| *hliB* | *ssr2595* | HliB (ScpD) | 70 |  |
| *hliC* | *ssl1633* | HliC (ScpB) | 70 |  |
| *hliD* | *ssr1789* | HliD (ScpE) | 58 |  |
| *isiA* | *sll0247* | IsiA (CP43') | 342 |  |
| *pam68* | *sll0933* | PAM68 | 158 |  |
| *pratA* | *slr2048* | PratA | 383 |  |
| *psbP* | *sll1418* | CyanoP | 188 |  |
| *psbQ* | *sll1638* | CyanoQ | 149 |  |
| *psb27* | *slr1645* | Psb27 | 134 |  |
| *psb28-1* | *sll1398* | Psb28-1 | 112 |  |
| *psb28-2* | *slr1739* | Psb28-2 | 122 |  |
| *psb29* | *sll1414* | Psb29 | 240 |  |
| *rubA* | *slr2033* | RubA | 115 |  |
| *slr0575* | *slr0575* | Slr0575 | 184 |  |
| *sll1071* | *sll1071* | Sll1071 | 275 |  |
| *ssl1498* | *ssl1498* | Ssl1498 | 61 |  |
| *ssl2148* | *ssl2148* | Ssl2148 | 98 |  |
| *ycf39* | *slr0399* | Ycf39 | 326 |  |
| *ycf39-like* | *sll1218* | Sll1218 (Ycf39-like) | 219 |  |
| *ycf39-like* | *slr0317* | Slr0317 (Ycf39-like) | 287 |  |
| *ycf48* | *slr2034* | Ycf48 (HCF136) | 342 |  |
|  |  |  |  |  |
|  |  |  |  |  |  |
| **Insertase -Translocon** | *yidC* | *slr1471* | SynOxa (YidC, Alb3) | 384 |  |
| *secE* | *ssl3335* | SecE | 81 |  |
| *secD* | *slr0774* | SecD | 472 |  |
| *secY* | *sll1814* | SecY | 442 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| **Proteases** | *ctpA* | *slr0008* | CtpA | 427 |  |
| *ftsH1* | *slr1390* | FtsH1 | 665 |  |
| *ftsH2* | *slr0228* | FtsH2 | 627 |  |
| *ftsH3* | *slr1604* | FtsH3 | 616 |  |
| *ftsH4* | *sll1463* | FtsH4 | 628 |  |
|  |  |  |  |  |  |
| **Pilins** | *pilA1* | *sll1694* | Pil A1 (HofG) | 168 |  |
| *pilA2* | *sll1695* | PilA2 (HofG) | 170 |  |
| *pilD* | *slr1120* | PilD | 269 |  |
|  |  |  |  |  |  |
| **Chlorophyll biogenesis**  (in functional order) | *gltX* | *sll0179* | glutamyl-tRNA  synthetase, GluRS | 483 |  |
| *hemA* | *slr1808* | glutamyl-tRNA reductase, GluTR | 427 |  |
| *hemL* | *sll0017* | glutamate-1-  semialdehyde-aminotransferase, GSAT | 433 |  |
| *hemB* | *sll1994* | ALA dehydratase, ALAD | 327 |  |
| *hemC* | *slr1887* | porphobilinogen  deaminase, PBGD | 320 |  |
| *hemD* | *sll0166* | uroporphyrinogen III synthase, UROS | 538 |  |
| *hemE* | *slr0536* | uroporphyrinogen III decarboxylase, UROD | 350 |  |
| *hemF* | *sll1185* | coproporphyrinogen III oxidase (oxygen-dependent), CPO | 340 |  |
| *hemN* | *sll1876* | coproporphyrinogen III oxidase (oxygen-independent), CPO | 466 |  |
| *hemJ* | *slr1790* | protoporphyrinogen IX oxidase, PPO | 210 |  |
| *hemH* | *slr0839* | Ferrochelatase, FeCh | 387 |  |
| *chlH/D/I* | *slr1055/slr1777/*  *slr1030* | Mg-chelatase subunits, MgCh | 1,331/676/357 |  |
| *gun4-like* | *sll0558* | Gun4-like (Ycf53-like) | 233 |  |
| *chlM* | *slr0525* | Mg-protoporphyrin IX methyltransferase, MgpMT | 230 |  |
| *acsF1* | *sll1214* | Mg-protoporphyrin IX monomethyl ester oxidative cyclase, MgpMC; Ycf59 | 358 |  |
| *?* | *?* | divinyl-(proto)chlorophyllide  reductase, DVR | ? |  |
| *por* | *slr0506* | light-dependent protochlorophyllide oxidoreductase (POR) | 322 |  |
| *chlL/chlN/chlB* | *slr0749/*slr0750*/*  *slr0772* | light-independent protochlorophyllide oxidoreductase (LiPOR) subunits | 288/469/508 |  |
| *chlG* | *slr0056* | chlorophyll-*a* synthase | 324 |  |