
Bibliography

Bibliography

1. Adelskov J, Patel BKC (2017) Draft genome sequence of *Microbacterium* sp. TNHR37B isolated from a heated aquifer bore well of the great artesian basin, Australia. *Am Soc Microbiol* 5: 9–10.
2. Afolabi AS, Worland B, Snape JW, Vain P (2004) A large-scale study of rice plants transformed with different T-DNAs provides new insights into locus composition and T-DNA linkage configurations. *Theor Appl Genet* 109: 815–826.
3. Agarraberes FA, Dice JF (2001) Protein translocation across membranes. *Biochim Biophys Acta - Biomembr* 1513: 1–24.
4. Ainsworth EA, Davey PA, Bernacchi CJ, Dermody OC, Heaton EA, Moore DJ, Morgan PB, Naidu SL, Ra HSY, Zhu XG, et al (2002) A meta-analysis of elevated CO₂ effects on soybean (*Glycine max*) physiology, growth and yield. *Glob Chang Biol* 8: 695–709.
5. Andersson I (2008) Catalysis and regulation in Rubisco. *J Exp Bot* 59: 1555–1568.
6. Andersson I, Backlund A (2008) Structure and function of Rubisco. *Plant Physiol Biochem* 46: 275–291.
7. Angov E (2011) Codon usage: Nature's roadmap to expression and folding of proteins. *Biotechnol J* 6: 650–659.
8. Aoki S, Syono K (1999) Horizontal gene transfer and mutation: Ngr1 genes in the genome of *Nicotiana glauca*. *Proc Natl Acad Sci* 96: 13229–13234.
9. Atkinson N, Feike D, Mackinder LCM, Meyer MT, Griffiths H, Jonikas MC, Smith AM, McCormick AJ (2016) Introducing an algal carbon-concentrating mechanism into higher plants: Location and incorporation of key components. *Plant Biotechnol J* 14: 1302–1315.
10. Atkinson N, Leitão N, Orr DJ, Meyer MT, Carmo-Silva E, Griffiths H, Smith AM, McCormick AJ (2017) Rubisco small subunits from the unicellular green alga *Chlamydomonas* complement Rubisco-deficient mutants of *Arabidopsis*. *New Phytol* 214: 655–667.
11. Badger MR, Bek EJ (2008) Multiple Rubisco forms in proteobacteria: their functional significance in relation to CO₂ acquisition by the CBB cycle. *J Exp Bot* 59: 1525–1541
12. Badger MR, Hanson D, Price GD (2002) Evolution and diversity of CO₂ concentrating mechanisms in cyanobacteria. *Funct Plant Biol* 29: 161–173.
13. Badger MR, Price GD (2003) CO₂ concentrating mechanisms in cyanobacteria: molecular components, their diversity and evolution. *J Exp Bot* 54: 609–622.
14. Bartlett JG, Smedley MA, Harwood WA (2014) Analysis of T-DNA/host-plant DNA junction sequences in single-copy transgenic barley lines. *Biology* 3: 39–55.
15. Bauwe H, Hagemann M, Fernie AR (2010) Photorespiration: players, partners and origin. *Trends Plant Sci* 15: 330–336.

Bibliography

16. Bellack A, Huber H, Rachel R, Wanner G, Wirth R (2011) *Methanocaldococcus villosus* sp. nov., a heavily flagellated archaeon that adheres to surfaces and forms cell-cell contacts. *Int J Syst Evol Microbiol* 61: 1239–1245.
17. Bernaudat F, Frelet-Barrand A, Pochon N, Dementin S, Hivin P, Boutigny S, Rioux JB, Salvi D, Seigneurin-Berny D, Richaud P, et al (2011) Heterologous expression of membrane proteins: choosing the appropriate host. *PLoS One* 6: e29191.
18. Bernsel A, Viklund H, Hemmerdal A, Elofsson A (2009) TOPCONS: consensus prediction of membrane protein topology. *Nucleic Acids Res* 37: 465–468.
19. Betti M, Bauwe H, Busch FA, Fernie AR, Keech O, Levey M, Ort DR, Parry MAJ, Sage R, Timm S, et al (2016) Manipulating photorespiration to increase plant productivity: recent advances and perspectives for crop improvement. *J Exp Bot* 67: 2977–2988.
20. Bhushan S, Kuhn C, Berglund AK, Roth C, Glaser E (2006) The role of the N-terminal domain of chloroplast targeting peptides in organellar protein import and miss-sorting. *FEBS Lett* 580: 3966–3972.
21. Bimboim HC, Doly J (1979) A rapid alkaline extraction procedure for screening recombinant plasmid DNA. *Nucleic Acids Res* 7: 1513–1523.
22. Bionda T, Tillmann B, Simm S, Beilstein K, Ruprecht M, Schleiff E (2010) Chloroplast import signals: the length requirement for translocation *in vitro* and *in vivo*. *J Mol Biol* 402: 510–523.
23. Birch RG (1997) Plant transformation: problems and strategies for practical application. *Annu Rev Plant Physiol Plant Mol Biol* 48: 297–326.
24. Black CC, Osmond CB (2003) Crassulacean acid metabolism photosynthesis: 'working the night shift'. *Photosynth Res* 76: 329–341.
25. Bloom AJ (2015) Photorespiration and nitrate assimilation: a major intersection between plant carbon and nitrogen. *Photosynth Res* 123: 117–128.
26. Bonacci W, Teng PK, Afonso B, Niederholtmeyer H, Grob P, Silver PA, Savage DF (2012) Modularity of a carbon-fixing protein organelle. *Proc Natl Acad Sci* 109: 478–483.
27. Borland AM, Hartwell J, Weston DJ, Schlauch KA, Tschaplinski TJ, Tuskan GA, Yang X, Cushman JC (2015) Engineering crassulacean acid metabolism to improve water-use efficiency. *PLoS One* 10: e0123338.
28. Borland AM, Yang X (2013) Informing the improvement and biodesign of crassulacean acid metabolism via system dynamics modelling. *New Phytol* 200: 946–949.
29. Bottone EJ (2010) *Bacillus cereus*, a volatile human pathogen. *Clin Microbiol Rev* 23: 382–398.
30. Bracher PJ (2015) Origin of life: primordial soup that cooks itself. *Nat Chem* 7: 273–274.
31. Bradford MM (1976) A rapid and sensitive method for the quantitation of protein utilizing the principle of protein-dye binding. *Anal Biochem* 72: 248–254.

Bibliography

32. Bruce BD (2000) Chloroplast transit peptides: structure, function and evolution. *Trends Cell Biol* 10: 440–447.
33. Buchanan BB (1991) Regulation of CO₂ assimilation in oxygenic photosynthesis: the ferredoxin thioredoxin status, and future development. *Arch Biochem Biophys* 288: 1–9.
34. Burnap R, Hagemann M, Kaplan A (2015) Regulation of CO₂ concentrating mechanism in cyanobacteria. *Life* 5: 348–371.
35. Busch FA, Sage TL, Cousins AB, Sage RF (2013) C₃ plants enhance rates of photosynthesis by reassimilating photorespired and respired CO₂. *Plant, Cell Environ* 36: 200–212.
36. Cai F, Sutter M, Bernstein SL, Kinney JN, Kerfeld CA (2015) Engineering bacterial microcompartment shells: chimeric shell proteins and chimeric carboxysome shells. *ACS Synth Biol* 4: 444–453.
37. Carmo-Silva E, Scales JC, Madgwick PJ, Parry MAJ (2015) Optimizing Rubisco and its regulation for greater resource use efficiency. *Plant, Cell Environ* 38: 1817–1832.
38. Carvalho J de FC, Madgwick PJ, Powers SJ, Keys AJ, Lea PJ, Parry MAJ (2011) An engineered pathway for glyoxylate metabolism in tobacco plants aimed to avoid the release of ammonia in photorespiration. *BMC Biotechnol* 11: 111.
39. Chamani E, Tahami SK (2016) Efficient protocol for protoplast isolation and plant regeneration of *Fritillaria imperialis* L. *J Agric Sci Technol* 18: 467–482.
40. Chang S, DesMarais D, Mack R, Miller SL, Stathearn GE (1983) Prebiotic organic syntheses and the origin of life. In JW Schopf (Ed.), *Earth's earliest biosphere: its origin and evolution* (pp 53–92). Princeton University Press.
41. Chen S, Jin W, Wang M, Zhang F, Zhou J, Jia Q, Wu Y, Liu F, Wu P (2003) Distribution and characterization of over 1000 T-DNA tags in rice genome. *Plant J* 36: 105–113.
42. Chen ZX, Spreitzer RJ (1989) Chloroplast intragenic suppression enhances the low CO₂/O₂ specificity of mutant ribulose-bisphosphate carboxylase/oxygenase. *J Biol Chem* 264: 3051–3053.
43. Cho JC, Vergin KL, Morris RM, Giovannoni SJ (2004) *Lentisphaera araneosa* gen. nov., sp. nov., a transparent exopolymer producing marine bacterium, and the description of a novel bacterial phylum, Lentisphaerae. *Environ Microbiol* 6: 611–621.
44. Clough SJ, Bent AF (1998) Floral dip: A simplified method for *Agrobacterium*-mediated transformation of *Arabidopsis thaliana*. *Plant J* 16: 735–743.
45. Cornish L (2017) Agriculture and food security — where are we headed in 2017? <https://www.devex.com/news/agriculture-and-food-security-where-are-we-headed-in-2017-89419>.
46. Crafts-Brandner SJ, Salvucci ME (2000) Rubisco activase constrains the photosynthetic potential of leaves at high temperature and CO₂. *Proc Natl Acad Sci* 97: 13430–13435.

Bibliography

47. Cushman JC, Tillett RL, Wood JA, Branco JM, Schlauch KA (2008) Large-scale mRNA expression profiling in the common ice plant, *Mesembryanthemum crystallinum*, performing C₃ photosynthesis and Crassulacean acid metabolism (CAM). *J Exp Bot* 59: 1875–1894.
48. Dalal J, Lopez H, Vasani NB, Hu Z, Swift JE, Yalamanchili R, Dvora M, Lin X, Xie D, Qu R, et al (2015) A photorespiratory bypass increases plant growth and seed yield in biofuel crop *Camelina sativa*. *Biotechnol Biofuels* 8: 175.
49. Daley SME, Kappell AD, Carrick MJ, Burnap RL (2012) Regulation of the cyanobacterial CO₂-concentrating mechanism involves internal sensing of NADP⁺ and α -ketoglutarate levels by transcription factor CcmR. *PLoS One* 7: 1–10.
50. Deamer DW (1997) The first living systems: a bioenergetic perspective. *Microbiol Mol Biol Rev* 61: 239–261.
51. Dengler NG, Nelson T (1999) Leaf structure and development in C₄ plants. *C₄ Plant Biol* (pp 133–172). Woodhead Publishing Limited.
52. DePaoli HC, Borland AM, Tuskan GA, Cushman JC, Yang X (2014) Synthetic biology as it relates to CAM photosynthesis: challenges and opportunities. *J Exp Bot* 65: 3381–3393.
53. Diallinas G (2014) Understanding transporter specificity and the discrete appearance of channel-like gating domains in transporters. *Front Pharmacol* 5: 1–17.
54. Dille S, Kleinschmitz EM, Kontchou CW, Nolke T, Hacker G (2015) In contrast to *Chlamydia trachomatis*, *Waddlia chondrophila* grows in human cells without inhibiting apoptosis, fragmenting the golgi apparatus, or diverting post-golgi sphingomyelin transport. *Infect Immun* 83: 3268–3280.
55. Ding F, Wang M, Zhang S, Ai X (2016) Changes in SBPase activity influence photosynthetic capacity, growth, and tolerance to chilling stress in transgenic tomato plants. *Sci Rep* 6: 32741.
56. Ditt RF, Kerr KF, de Figueiredo P, Delrow J, Comai L, Nester EW (2006) The *Arabidopsis thaliana* transcriptome in response to *Agrobacterium tumefaciens*. *Mol Plant Microbe Interact* 19: 665–81.
57. Ditt RF, Nester EW, Comai L (2001) Plant gene expression response to *Agrobacterium tumefaciens*. *Proc Natl Acad Sci* 98: 10954–10959.
58. Ditt RF, Nester EW, Comai L (2005) The plant cell defense and *Agrobacterium tumefaciens*. *FEMS Microbiol Lett* 247: 207–213.
59. Driever SM, Kromdijk J (2013) Will C₃ crops enhanced with the C₄ CO₂-concentrating mechanism live up to their full potential (yield)? *J Exp Bot* 64: 3925–3935.
60. Du J, Förster B, Rourke L, Howitt SM, Price GD (2014) Characterisation of cyanobacterial bicarbonate transporters in *E. Coli* shows that SbtA homologs are functional in this heterologous expression system. *PLoS One* 9: 1–25.

Bibliography

61. Duncan SH, Hold GL, Barcenilla A, Stewart CS, Flint HJ (2002) *Roseburia intestinalis* sp. nov., a novel saccharolytic, butyrate-producing bacterium from human faeces. *Int J Syst Evol Microbiol* 52: 1615–1620.
62. Ehleringer JR, Cerling TE (2002) C₃ and C₄ photosynthesis. *Encycl Glob Environ Chang* 2: 186–190.
63. Ehleringer JR, Cerling TE, Helliker BR (1997) C₄ photosynthesis, atmospheric CO₂, and climate. *Oecologia* 112: 285–299.
64. Ehrlich HL and Newman DK (2008) *Geomicrobiology* (fifth edition), CRC Press.
65. Eisenhut M, von Wobeser EA, Jonas L, Schubert H, Ibelings BW, Bauwe H, Matthijs HC, Hagemann M (2007) Long-term response toward inorganic carbon limitation in wild type and glycolate turnover mutants of the cyanobacterium *Synechocystis* sp. strain PCC 6803. *Plant Physiol* 144: 1946–1959.
66. Eisenhut M, Huege J, Schwarz D, Bauwe H, Kopka J, Hagemann M (2008) Metabolome phenotyping of inorganic carbon limitation in cells of the wild type and photorespiratory mutants of the cyanobacterium *Synechocystis* sp. strain PCC 6803. *Plant Physiol* 148: 2109–20.
67. Emanuelsson O, Nielsen H, Brunak S, von Heijne G (2000) Predicting subcellular localization of proteins based on their N-terminal amino acid sequence. *J Mol Biol* 300: 1005–1016.
68. Emanuelsson O, Nielsen H, von Heijne G (1999) ChloroP, a neural network-based method for predicting chloroplast transit peptides and their cleavage sites. *Protein Sci* 8: 978–984.
69. Espie GS, Kimber MS (2011) Carboxysomes: cyanobacterial RubisCO comes in small packages. *Photosynth Res* 109: 7–20.
70. Evans JR, Kaldenhoff R, Genty B, Terashima I (2009) Resistances along the CO₂ diffusion pathway inside leaves. *J Exp Bot* 60: 2235–2248.
71. Evans JR, Von Caemmerer S (1996) Carbon Dioxide Diffusion inside Leaves. *Plant Physiol* 110: 339–346.
72. Fani R, Fondi M (2009) Origin and evolution of metabolic pathways. *Phys Life Rev* 6: 23–52
73. Feldmann KA, Marks MD (1987) *Agrobacterium*-mediated transformation of germinating seeds of *Arabidopsis thaliana*: a non-tissue culture approach. *Mol Gen Genet* MGG 208: 1–9.
74. Ferro M, Brugière S, Salvi D, Seigneurin-Berny D, Court M, Moyet L, Ramus C, Miras S, Mellal M, Le Gall S, et al (2010) AT_CHLORO, a comprehensive chloroplast proteome database with subplastidial localization and curated information on envelope proteins. *Mol Cell Proteomics* 9: 1063–1084.
75. Ford DM, Shibles R, Green DE (1982) Growth and yield of soybean lines selected for divergent leaf photosynthetic ability. *Crop Sci* 23: 517–520.
76. Forsbach A, Schubert D, Lechtenberg B, Gils M, Schmidt R (2003) A comprehensive characterization of single-copy T-DNA insertions in the *Arabidopsis thaliana* genome. *Plant Mol Biol* 52: 161–176.

Bibliography

77. Frillingos S (2012) Insights to the evolution of nucleobase-ascorbate transporters (NAT/NCS2 family) from the Cys-scanning analysis of xanthine permease XanQ. *Int J Biochem Mol Biol* 3: 250–272.
78. Froehlich JE, Keegstra K (2011) The role of the transmembrane domain in determining the targeting of membrane proteins to either the inner envelope or thylakoid membrane. *Plant J* 68: 844–856.
79. Fuhrmann M, Hausherr A, Ferbitz L, Schödl T, Hegemann P (2004) Monitoring dynamic expression of nuclear genes in *Chlamydomonas reinhardtii* by using a synthetic luciferase reporter gene. *Plant Mol Biol* 55: 869–881.
80. Gallois P, Marinho P (1995) Leaf disk transformation using *Agrobacterium tumefaciens*-Expression of heterologous genes in Tobacco. In H Jones (Ed.), *Plant gene transfer and expression protocols* (pp 39–48).
81. Genkov T, Meyer M, Griffiths H, Spreitzer RJ (2010) Functional hybrid rubisco enzymes with plant small subunits and algal large subunits: engineered rbcS cDNA for expression in *chlamydomonas*. *J Biol Chem* 285: 19833–19841.
82. Georg J, Hess WR (2011) *cis*-Antisense RNA, another level of gene regulation in bacteria. *Microbiol Mol Biol Rev* 75: 286–300.
83. Ghannoum O, Evans JR, von Caemmerer S (2011) Nitrogen and water use efficiency of C₄ plants. In AS Raghavendra and RF Sage (Eds.), *C₄ photosynthesis and related CO₂ concentrating mechanisms* (pp 129–146). Springer Science and Business Media BV.
84. Gheysen G, Montagu MV, Zambryski P (1987) Integration of *Agrobacterium tumefaciens* transfer DNA (T-DNA) involves rearrangements of target plant DNA sequences. *Proc Natl Acad Sci* 84: 6169–6173.
85. Giordano M, Beardall J, Raven JA (2005) CO₂ concentrating mechanisms in algae: mechanisms, environmental modulation, and evolution. *Annu Rev Plant Biol* 56: 99–131.
86. Girke C, Daumann M, Niopek-Witz S, Möhlmann T (2014) Nucleobase and nucleoside transport and integration into plant metabolism. *Front Plant Sci* 5: 443.
87. Göker M, Lu M, Fiebig A, Nolan M, Lapidus A, Tice H, Del Rio TG, Cheng J-F, Han C, Tapia R, et al (2014) Genome sequence of the mud-dwelling archaeon *Methanoplanus limicola* type strain (DSM 2279T), reclassification of *Methanoplanus petrolearius* as *Methanolacinia petrolearia* and emended descriptions of the genera *Methanoplanus* and *Methanolacinia*. *Stand Genomic Sci* 9: 1076–1088.
88. Gorbunov D, Sturlese M, Nies F, Kluge M, Bellanda M, Battistutta R, Oliver D (2014) Molecular architecture and the structural basis for anion interaction in prestin and SLC26 transporters. *Nat Commun* 5: 3622.
89. Gournas C, Papageorgiou I, Diallynas G (2008) The nucleobase-ascorbate transporter (NAT) family: genomics, evolution, structure-function relationships and physiological role. *Mol Biosyst* 4: 404–416.
90. Gustafsson C, Govindarajan S, Minshull J (2004) Codon bias and heterologous protein expression. *Trends Biotechnol* 22: 346–353.

Bibliography

91. Hanson MR, Lin MT, Carmo-Silva AE, Parry MAJ (2016) Towards engineering carboxysomes into C_3 plants. *Plant J* 87: 38–50.
92. Hasani A, Kariminik A, Isaazadeh K (2014) Streptomyces : characteristics and their antimicrobial activities. *Int J Adv Biol Biomed Res* 2: 63–75.
93. Hensley SA, Jung JH, Park CS, Holden JF (2014) *Thermococcus paralvinellae* sp. nov. and *Thermococcus cleftensis* sp. nov. of hyperthermophilic heterotrophs from deep-sea hydrothermal vents. *Int J Syst Evol Microbiol* 64: 3655–3659.
94. Herranen M, Battchikova N, Zhang P, Graf A, Sirpio S, Paakkanen V (2004) Towards functional proteomics of membrane protein complexes in *Synechocystis* sp. PCC 6803. *Plant Physiol* 134: 470–481.
95. Hibberd JM, Covshoff S (2010) The regulation of gene expression required for C_4 photosynthesis. *Annu Rev Plant Biol* 61: 181–207.
96. Hibberd JM, Sheehy JE, Langdale JA (2008) Using C_4 photosynthesis to increase the yield of rice—rationale and feasibility. *Curr Opin Plant Biol* 11: 228–231.
97. Hu CY, Chee PP, Chesney RH, Zhou JH, Miller PD, O'Brien WT (1990) Intrinsic GUS-like activities in seed plants. *Plant Cell Rep* 9: 1–5.
98. Hunt I (2005) From gene to protein: A review of new and enabling technologies for multi-parallel protein expression. *Protein Expr Purif* 40: 1–22.
99. Jabnourne M, Secco D, Lecampion C, Robaglia C, Shu, Qingyao and Poirier Y (2015) An efficient procedure for protoplast isolation from mesophyll cells and nuclear fractionation in rice. *Bio-protocol* 5(5).
100. Jack DL, Paulsen IT, Saier J (2000) The amino acid/polyamine/organocation (APC) superfamily of transporters specific for amino acids, polyamines and organocations. *Microbiology* 146: 1797–1814.
101. Jefferson RA, Kavanagh TA, Bevan MW (1987) GUS fusions: β -glucuronidase as a sensitive and versatile gene fusion marker in higher plants. *EMBO J* 6: 3901–3907.
102. Kaplan A, Zenvirth D, Marcus Y, Omata T, Ogawa T (1987) Energization and activation of inorganic carbon uptake by light in cyanobacteria. *Plant Physiol* 84: 210–213.
103. Kaplan A, Reinhold L (1999) CO_2 concentrating mechanisms in photosynthetic microorganisms. *Annu Rev Plant Physiol Plant Mol Biol* 50: 539–570.
104. Karley AJ, Leigh RA, Sanders D (2000) Where do all the ions go? The cellular basis of differential ion accumulation in leaf cells. *Trends Plant Sci* 5: 465–470.
105. Kashefi K, Tor JM, Holmes DE, Van Praagh CVG, Reysenbach AL, Lovley DR (2002) *Geoglobus ahangari* gen. nov., sp. nov., a novel hyperthermophilic archaeon capable of oxidizing organic acids and growing autotrophically on hydrogen with Fe(III) serving as the sole electron acceptor. *Int J Syst Evol Microbiol* 52: 719–728.

Bibliography

106. Kato S, Krepski S, Chan C, Itoh T, Ohkuma M (2014) *Ferriphaselus amnicola* gen. nov., sp. nov., a neutrophilic, stalk-forming, iron-oxidizing bacterium isolated from an iron-rich groundwater seep. *Int J Syst Evol Microbiol* 64: 921–925.
107. Kawaichi S, Ito N, Kamikawa R, Sugawara T, Yoshida T, Sako Y (2013) *Ardenticatena maritima* gen. nov., sp. nov., a ferric iron- and nitrate-reducing bacterium of the phylum 'Chloroflexi' isolated from an iron-rich coastal hydrothermal field, and description of *Ardenticatena* classis nov. *Int J Syst Evol Microbiol* 63: 2992–3002.
108. Kebeish R, Niessen M, Oksaksin M, Blume C, Peterhaensel C (2012) Constitutive and dark-induced expression of *Solanum tuberosum* phosphoenolpyruvate carboxylase enhances stomatal opening and photosynthetic performance of *Arabidopsis thaliana*. *Biotechnol Bioeng* 109: 536–544.
109. Kebeish R, Niessen M, Thiruveedhi K, Bari R, Hirsch HJ, Rosenkranz R, Stabler N, Schonfeld B, Kreuzaler F, Peterhansel C (2007) Chloroplastic photorespiratory bypass increases photosynthesis and biomass production in *Arabidopsis thaliana*. *Nat Biotechnol* 25: 593–599.
110. Keim CN, Farina M, Lins U (2007) Magnetoglobus, Magnetic Aggregates in Anaerobic Environments. *Microbe* 2: 437–445.
111. Kerfeld CA, Sawaya MR, Tanaka S, Nguyen CV, Phillips M, Beeby M, Yeates TO (2005) Protein structures forming the shell of primitive bacterial organelles. *Science* 309: 936–8.
112. Kerfeld CA, Kinney JN, Greenleaf WB (2010) The carboxysome and other bacterial microcompartments. *Microbe Mag* 5: 257–263.
113. Kerfeld CA, Melnicki MR (2016) Assembly, function and evolution of cyanobacterial carboxysomes. *Curr Opin Plant Biol* 31: 66–75.
114. Khanna HK, Raina SK (2002) Elite Indica transgenic rice plants expressing modified Cry1Ac endotoxin of *Bacillus thuringiensis* show enhanced resistance to yellow stem borer (*Scirpophaga incertulas*). *Transgenic Res* 11: 411–423.
115. Kim MJ, Baek K, Park CM (2009) Optimization of conditions for transient *Agrobacterium*-mediated gene expression assays in *Arabidopsis*. *Plant Cell Rep* 28: 1159–1167.
116. Kimball BA, Zhu J, Cheng L, Kobayashi K, Bindi M (2002) Responses of agricultural crops of free-air CO₂ enrichment. *Adv Agron* 77: 293–368.
117. Kinney JN, Axen SD, Kerfeld CA (2011) Comparative analysis of carboxysome shell proteins. *Photosynth Res* 109: 21–32.
118. Klanchui A, Cheevadhanarak S, Prommeenate P, Meechai A (2017) Exploring components of the CO₂-concentrating mechanism in alkaliphilic cyanobacteria through genome-based analysis. *Comput Struct Biotechnol J* 15: 340–350.
119. Knight S, Andersson I, Branden CI (1990) Crystallographic analysis of ribulose 1, 5-bisphosphate carboxylase from spinach at 2.4  resolution: subunit interactions and active site. *J Mol Biol* 215: 113–160.

Bibliography

120. Kohli A, Miro B, Twyman RM (2010) Transgene integration, expression and stability in plants: strategies for improvements. In C Kole et al (Eds.) Transgenic crop plants (pp 201-237). Springer Berlin Heidelberg.
121. Kohli A, Twyman RM, Abranches R, Wegel E, Stoger E, Christou P (2003) Transgene integration, organization and interaction in plants. *Plant Mol Biol* 52: 247-258.
122. Koropatkin NM, Koppelaar DW, Pakrasi HB, Smith TJ (2007) The structure of a cyanobacterial bicarbonate transport protein, CmpA. *J Biol Chem* 282: 2606-2614.
123. Krami O (2009) Factors affecting *Agrobacterium tumefaciens* mediated transformation of plants. *Pakistan J Bot* 41: 3239-3246.
124. Krishnamurthy H, Piscitelli CL, Gouaux E (2009) Unlocking the molecular secrets of sodium-coupled transporters. *Nature* 459: 347-355.
125. Krogh A, Larsson B, von Heijne G, Sonnhammer EL (2001) Predicting transmembrane protein topology with a hidden markov model: application to complete genomes. *J Mol Biol* 305: 567-580.
126. Kromdijk J, Głowacka K, Leonelli L, Gabilly ST, Iwai M, Niyogi KK, Long SP (2016) Improving photosynthesis and crop productivity by accelerating recovery from photoprotection. *Science* 354: 857-861.
127. Kurland CG (1991) Codon bias and gene expression. *FEBS Lett* 285: 165-169.
128. Labrenz M, Lawson PA, Tindall BJ, Collins MD, Hirsch P (2003) *Saccharospirillum impatiens* gen. nov., sp. nov., a novel γ -*Proteobacterium* isolated from hypersaline Ekho Lake (East Antarctica). *Int J Syst Evol Microbiol* 53: 653-660.
129. Latham JR, Wilson AK, Steinbrecher RA (2006) The mutational consequences of plant transformation. *J Biomed Biotechnol* 2006: 1-7.
130. Lazcano A, Miller SL (1996) The origin and early evolution of life: prebiotic chemistry, the pre-RNA world, and time. *Cell* 85: 793-798.
131. Le SQ, Gascuel O (2008) An improved general amino acid replacement matrix. *Mol Biol Evol* 25: 1307-1320.
132. Leadbetter JR, Crosby LD, Breznak JA (1998) *Methanobrevibacter filiformis* sp. nov., a filamentous methanogen from termite hindguts. *Arch Microbiol* 169: 287-292.
133. Lee KC, Webb RI, Janssen PH, Sangwan P, Romeo T, Staley JT, Fuerst JA (2009) Phylum *Verrucomicrobia* representatives share a compartmentalized cell plan with members of bacterial phylum *Planctomycetes*. *BMC Microbiol* 9: 5.
134. Lee YN, Chen LK, Ma HC, Yang HH, Li HP, Lo SY (2005) Thermal aggregation of SARS-CoV membrane protein. *J Virol Methods* 129: 152-161.
135. Leegood RC (2002) C₄ photosynthesis: principles of CO₂ concentration and prospects for its introduction into C₃ plants. *J Exp Bot* 53: 581-590.

Bibliography

136. Lefebvre S, Lawson T, Zakhleniuk OV, Lloyd JC, Raines CA (2005) Increased sedoheptulose-1, 7-bisphosphatase activity in transgenic tobacco plants stimulates photosynthesis and growth from an early stage in development. *Plant Physiol* 138: 451–460.
137. Leuzinger K, Dent M, Hurtado J, Stahnke J, Lai H, Zhou X, Chen Q (2013) Efficient agroinfiltration of plants for high-level transient expression of recombinant proteins. *J Vis Exp* 77:e50521.
138. Li H, Chiu CC (2010) Protein transport into chloroplasts. *Annu Rev Plant Biol* 61: 157–180.
139. Long BM, Rae BD, Rolland V, Forster B, Price GD (2016) Cyanobacterial CO₂-concentrating mechanism components: function and prospects for plant metabolic engineering. *Curr Opin Plant Biol* 31: 1–8.
140. Long SP, Marshall-Colon A, Zhu XG (2015) Meeting the global food demand of the future by engineering crop photosynthesis and yield potential. *Cell* 161: 56–66.
141. Long SP, Zhu XG, Naidu SL, Ort DR (2006) Can improvement in photosynthesis increase crop yields? *Plant, Cell Environ* 29: 315–330.
142. Lorenz TC (2012) Polymerase chain reaction: basic protocol plus troubleshooting and optimization strategies. *J Vis Exp* 63: e3998.
143. Lu F, Li S, Jiang Y, Jiang J, Fan H, Lu G, Deng D, Dang S, Zhang X, Wang J, et al (2011) Structure and mechanism of the uracil transporter UraA. *Nature* 472: 243–246.
144. Lucas-Elio P, Goodwin L, Woyke T, Pitluck S, Nolan M, Kyrpides NC, Detter JC, Copeland A, Lu M, Bruce D, et al (2012) Complete genome sequence of *Marinomonas posidonica* type strain (IVIA-Po-181 T). *Stand Genomic Sci* 7: 31–43.
145. Ludwig M, Bryant DA (2012) *Synechococcus* sp. Strain PCC 7002 transcriptome: acclimation to temperature, salinity, oxidative stress, and mixotrophic growth conditions. *Front Microbiol* 3: 1–14.
146. Lüttge U (2002) CO₂-concentrating: consequences in crassulacean acid metabolism. *J Exp Bot* 53: 2131–2142.
147. Lyimo TJ, Pol A, HJMO Den Camp, Harhangi HR, Vogels GD (2000) *Methanosarcina semesiae* sp. nov., a dimethylsulfide-utilizing methanogen from mangrove sediment. *Int J Syst Evol Microbiol* 50: 171–178.
148. Lyu Z, Jain R, Smith P, Fetchko T, Yan Y, Whitman WB (2016) Engineering the autotroph *Methanococcus maripaludis* for geraniol production. *ACS Synth Biol* 5: 577–581
149. Ma L, Lukasik E, Gawehns F, Takken FLW (2012) The use of agroinfiltration for transient expression of plant resistance and fungal effector proteins in *Nicotiana benthamiana* leaves. *Methods Mol Biol* 835: 61–74.
150. Maddocks SE, Oyston PCF (2008) Structure and function of the LysR-type transcriptional regulator (LTTR) family proteins. *Microbiology* 154: 3609–3623.

Bibliography

151. Maeda SI, Badger MR, Price GD (2002) Novel gene products associated with NdhD3/D4-containing NDH-I complexes are involved in photosynthetic CO₂ hydration in the cyanobacterium, *Synechococcus* sp. PCC7942. *Mol Microbiol* 43: 425-435.
152. Maier A, Fahnenstich H, von Caemmerer S, Engqvist MKM, Weber APM, Flügge UI, Maurino VG (2012) Transgenic introduction of a glycolate oxidative cycle into *A. thaliana* chloroplasts leads to growth improvement. *Front Plant Sci* 3: 1-12.
153. Manavella PA, Chan RL (2009) Transient transformation of sunflower leaf discs via an *Agrobacterium*-mediated method: applications for gene expression and silencing studies. *Nat Protoc* 4: 1699-1707.
154. Mangan N, Brenner M (2014) Systems analysis of the CO₂ concentrating mechanism in cyanobacteria. *Elife* 3: e02043.
155. Mangano S, Gonzalez CD, Petrucci S (2014) *Agrobacterium tumefaciens*-mediated transient transformation of *Arabidopsis thaliana* leaves. In JJ Sanchez-Serrano and J Salinas, (Eds.), *Arabidopsis* Protocols (pp 165-173). Humana Press.
156. Marchler-Bauer A, Derbyshire MK, Gonzales NR, Lu S, Chitsaz F, Geer LY, Geer RC, He J, Gwadz M, Hurwitz DI, et al (2015) CDD: NCBI's conserved domain database. *Nucleic Acids Res* 43: D222-D226.
157. Marques JP, Dudeck I, Klösgen RB (2003) Targeting of EGFP chimeras within chloroplasts. *Mol Genet Genomics* 269: 381-387.
158. Maus I, Wibberg D, Stantscheff R, Cibis K, Eikmeyer FG, König H, Pühler A, Schlüter A (2013) Complete genome sequence of the hydrogenotrophic Archaeon *Methanobacterium* sp. Mb1 isolated from a production-scale biogas plant. *J Biotechnol* 168: 734-736.
159. McGrath JM, Long SP (2014) Can the cyanobacterial carbon-concentrating mechanism increase photosynthesis in crop species? A theoretical analysis. *Plant Physiol* 164: 2247-61.
160. McIntosh KB, Hulm JL, Bonham-smith RC (2004) A rapid *Agrobacterium*-mediated *Arabidopsis thaliana* transient assay system. *Plant Mol Biol Report* 22: 53-61.
161. Miyagawa Y, Tamoi M, Shigeoka S (2001) Overexpression of a cyanobacterial fructose-1, 6-bisphosphatase in tobacco enhances photosynthesis and growth. *Plant Physiol* 19: 965-969.
162. Monson RK, Rawsthorne S (2000) CO₂ assimilation in C₃-C₄ intermediate plants. In RC Leegood, T D Sharkey and S von Caemmerer (Eds.), *Photosynthesis* (pp 533-550). Springer Netherlands.
163. Mount DB, Romero MF (2004) The SLC26 gene family of multifunctional anion exchangers. *Plant Physiol* 144: 710-721.
164. Murchie EH, Pinto M, Horton P (2009) Agriculture and the new challenges for photosynthesis research. *New Phytol* 181: 532-552.
165. Nakayama T, Archibald JM (2012) Evolving a photosynthetic organelle. *BMC Biol* 10: 35-37.

Bibliography

166. Nei M, Kumar S (2002) Molecular evolution and phylogenetics. Oxford University Press.
167. Newman J, Gutteridge S (1993) The X-ray structure of *Synechococcus* ribulose-bisphosphate carboxylase oxygenase-activated quaternary complex at 2.2 Å resolution. *J Biol Chem* 268: 25876–25886.
168. Nishimura T, Takahashi Y, Yamaguchi O, Suzuki H, Maeda SI, Omata T (2008) Mechanism of low CO₂-induced activation of the *cmp* bicarbonate transporter operon by a LysR family protein in the cyanobacterium *Synechococcus elongatus* strain PCC 7942. *Mol Microbiol* 68: 98–109.
169. Ogawa T, Mi H (2007) Cyanobacterial NADPH dehydrogenase complexes. *Photosynth Res* 93: 69–77.
170. Omata T, Gohta S, Takahashi Y, Harano Y, Maeda SI (2001) Involvement of a CbbR homolog in low CO₂-induced activation of the bicarbonate transporter operon in cyanobacteria. *J Bacteriol* 183: 1891–1898.
171. Omata T, Price GD, Badger MR, Okamura M, Gohta S, Ogawa T (1999) Identification of an ATP-binding cassette transporter involved in bicarbonate uptake in the cyanobacterium *Synechococcus* sp. strain PCC 7942. *Proc Natl Acad Sci U S A* 96: 13571–6.
172. Omata T, Takahashi Y, Yamaguchi O, Nishimura T (2002) Structure, function and regulation of the cyanobacterial high-affinity bicarbonate transporter, BCT1. *Funct plant Biol* 29: 151–159.
173. Oren A, Hallsworth JE (2014) Microbial weeds in hypersaline habitats: the enigma of the weed-like *Haloferax mediterranei*. *FEMS Microbiol Lett* 359: 134–142.
174. Ort DR, Merchant SS, Alric J, Barkan A, Blankenship RE, Bock R, Croce R, Hanson MR, Hibberd JM, Long SP, et al (2015) Redesigning photosynthesis to sustainably meet global food and bioenergy demand. *Proc Natl Acad Sci* 112: 1–8.
175. Owens L, Busico-Salcedo N (2006) *Vibrio harveyi*: pretty problems in paradise. *Biol vibrios* 266–280.
176. Parry MA, J, Madgwick PJ, Carvalho JFC, Andralojc PJ (2007) Prospects for increasing photosynthesis by overcoming the limitations of Rubisco. *J Agric Sci* 145: 31–43.
177. Parry MA, Andralojc PJ, Scales JC, Salvucci ME, Carmo-Silva AE, Alonso H, Whitney SM (2013) Rubisco activity and regulation as targets for crop improvement. *J Exp Bot* 64: 717–730.
178. Parry MAJ, Andralojc PJ, Mitchell RAC, Madgwick PJ, Keys AJ (2003) Manipulation of Rubisco: the amount, activity, function and regulation. *J Exp Bot* 54: 1321–1333.
179. Parry MAJ, Hawkesford MJ (2010) Food security: increasing yield and improving resource use efficiency. *Proc Nutr Soc* 69: 592–600.
180. Pearson WR (1997) Identifying distantly related protein sequences. *Comput Appl Biol Sci* 13: 325–332.

Bibliography

181. Pengelly JLL, Forster B, von Caemmerer S, Badger MR, Price GD, Whitney SM (2014) Transplastomic integration of a cyanobacterial bicarbonate transporter into tobacco chloroplasts. *J Exp Bot* 65: 3071–3080.
182. Peterhansel C, Horst I, Niessen M, Blume C, Kebeish R, Kreuzaler F, Kürkcüoglu S, Kreuzaler F (2010) Photorespiration. *Arab B* 8: e0130.
183. Pinhassi J, Pujalte MJ, Macian MC, Lekunberri I, Gonzalez JM, Pedros-Alio C, Arahal DR (2007) *Reinekea blandensis* sp. nov., a marine, genome-sequenced gammaproteobacterium. *Int J Syst Evol Microbiol* 57: 2370–2375.
184. Porsch P, Jahnke A, Düring K (1998) A plant transformation vector with a minimal T-DNA II. Irregular integration patterns of the T-DNA in the plant genome. *Plant Mol Biol* 37: 581–585.
185. Portis AR (1990) Partial reduction in ribulose 1,5-bisphosphate carboxylase/oxygenase activity by carboxypeptidase A. *Arch Biochem Biophys* 283: 397–400.
186. Price GD (2011) Inorganic carbon transporters of the cyanobacterial CO₂ concentrating mechanism. *Photosynth Res* 109: 47–57.
187. Price GD, Badger MR, von Caemmerer S (2011) The prospect of using cyanobacterial bicarbonate transporters to improve leaf photosynthesis in C₃ crop plants. *Plant Physiol* 155: 20–26.
188. Price GD, Badger MR, Woodger FJ, Long BM (2007) Advances in understanding the cyanobacterial CO₂-concentrating mechanism (CCM): functional components, Ci transporters, diversity, genetic regulation and prospects for engineering into plants. *J Exp Bot* 59: 1441–1461.
189. Price GD, Howitt SM (2014) Topology mapping to characterize cyanobacterial bicarbonate transporters: BicA (SulP/SLC26 family) and SbtA. *Mol Membr Biol* 31: 177–182.
190. Price GD, Howitt SM (2014a) Towards turbocharged photosynthesis. *Nature* 513: 497–498.
191. Price GD, Pengelly JLL, Forster B, Du J, Whitney SM, von Caemmerer S, Badger MR, Howitt SM, Evans JR (2013) The cyanobacterial CCM as a source of genes for improving photosynthetic CO₂ fixation in crop species. *J Exp Bot* 64: 753–768.
192. Price GD, Sheldon MC, Howitt SM (2011b) Membrane topology of the cyanobacterial bicarbonate transporter, SbtA, and identification of potential regulatory loops. *Mol Membr Biol* 28: 265–275.
193. Price GD, Woodger FJ, Badger MR, Howitt SM, Tucker L (2004) Identification of a SulP-type bicarbonate transporter in marine cyanobacteria. *Proc Natl Acad Sci* 101: 18228–18233
194. Puigbò P, Bravo IG, Garcia-Vallvé S (2008) E-CAI: a novel server to estimate an expected value of Codon Adaptation Index (eCAI). *BMC Bioinformatics* 9: 65.
195. Rae BD, Förster B, Badger MR, Price GD (2011) The CO₂-concentrating mechanism of *Synechococcus* WH5701 is composed of native and horizontally-acquired components. *Photosynth Res* 109: 59–72.

196. Rae BD, Long BM, Whitehead LF, Förster B, Badger MR, Price GD (2013) Cyanobacterial carboxysomes: microcompartments that facilitate CO₂ fixation. *J Mol Microbiol Biotechnol* 23: 300–307.
197. Rai M, Datta K, Parkhi V, Tan J, Oliva N, Chawla HS, Datta SK (2007) Variable T-DNA linkage configuration affects inheritance of carotenogenic transgenes and carotenoid accumulation in transgenic indica rice. *Plant Cell Rep* 26: 1221–1231.
198. Rangan P, Furtado A, Henry RJ (2016) New evidence for grain specific C₄ photosynthesis in wheat. *Sci Rep* 6: 31721.
199. Rath A, Glibowicka M, Nadeau VG, Chen G, Deber CM (2009) Detergent binding explains anomalous SDS-PAGE migration of membrane proteins. *Proc Natl Acad Sci* 106: 1760–5.
200. Raven J A, Cockell CS, De La Rocha CL (2008) The evolution of inorganic carbon concentrating mechanisms in photosynthesis. *Philos Trans R Soc B Biol Sci* 363: 2641–2650.
201. Read BA, Tabita FR (1992) A hybrid ribulosebiphosphate carboxylase/oxygenase enzyme exhibiting a substantial increase in substrate specificity factor. *Biochemistry* 31: 5553–5560.
202. Reslewic S, Zhou S, Place M, Zhang Y, Briska A, Goldstein S, Churas C, Runnheim R, Forrest D, Lim A, et al (2005) Whole-genome shotgun optical mapping of *Rhodospirillum rubrum*. *Appl Environ Microbiol* 71: 5511–5522.
203. Rivero L, Scholl R, Holomuzki N, Crist D, Grotewold E, Brkljacic J (2014) Handling *Arabidopsis* plants: growth, preservation of seeds, transformation, and genetic crosses. *Methods Mol Biol* 1062: 3–25.
204. Rolland N, Ferro M, Seigneurin-Berny D, Garin J, Douce R, Joyard J (2003) Proteomics of chloroplast envelope membranes. *Photosynth Res* 78: 205–230.
205. Rolland V, Badger MR, Price GD (2016) Redirecting the cyanobacterial bicarbonate transporters BicA and SbtA to the chloroplast envelope: soluble and membrane cargos need different chloroplast targeting signals in plants. *Front Plant Sci* 7: 185.
206. Rosewarne CP, Greenfield P, Li D, Tran-Dinh N, Midgley DJ, Hendry P (2013) Draft Genome sequence of *Methanobacterium* sp. *Maddingley*, reconstructed from metagenomic sequencing of a methanogenic microbial consortium enriched from coal-seam gas formation. *Genome Announc* 1: e00082-12.
207. Rothschild LJ (2008) The evolution of photosynthesis...again? *Philos Trans R Soc Lond B Biol Sci* 363: 2787–2801.
208. Roy S, Kumar V (2014) A practical approach on SDS PAGE for separation of protein. *Int J Sci Res* 3: 955–960.
209. Rürger K, Hampel A, Billig S, Rucker N, Suerbaum S, Bange F (2014) Characterization of rough and smooth morphotypes of *Mycobacterium abscessus* isolates from clinical specimens. *J Clin Microbiol* 52: 244–250.

Bibliography

210. Ryngajllo M (2011) SLocX: predicting subcellular localization of *Arabidopsis* proteins leveraging gene expression data. *Front Plant Sci* 2: 1–19.
211. Ryu SH, Nguyen TTH, Park W, Kim CJ, Jeon CO (2006) *Rumella limosa* sp. nov., isolated from activated sludge. *Int J Syst Evol Microbiol* 56: 2757–2760.
212. Saarela M, Alakomi HL, Suihko ML, Maunuksela L, Raaska L, Mattila-Sandholm T (2004) Heterotrophic microorganisms in air and biofilm samples from Roman catacombs, with special emphasis on actinobacteria and fungi. *Int Biodeterior Biodegrad* 54: 27–37.
213. Sagné C, Isambert MF, Henry JP, Gasnier B (1996) SDS-resistant aggregation of membrane proteins: application to the purification of the vesicular monoamine transporter. *Biochem J* 316: 825–831
214. Sanchez-serrano JJ, Walker JM (2014) *Methods in molecular biology. Arabidopsis Protocols*. Humana Press.
215. Sambrook J, Fritsch EF, Maniatis T (1989) *Molecular cloning: a laboratory manual* (second edition). Cold Spring Harbor laboratory press.
216. Sambrook J, Russell DW (2001) *Molecular cloning: a laboratory manual* (third edition). Cold Spring Harbor laboratory press.
217. Sandrini G, Matthijs HCP, Verspagen JMH, Muyzer G, Huisman J (2014) Genetic diversity of inorganic carbon uptake systems causes variation in CO₂ response of the cyanobacterium *Microcystis*. *ISME J* 8: 589–600.
218. Sato T, Terabe M, Watanabe H, Gojobori T, Hori-Takemoto C, Miura KI (2001) Codon and base biases after the initiation codon of the open reading frames in the *Escherichia coli* genome and their influence on the translation efficiency. *J Biochem* 129: 851–860.
219. Schott J, Griffin BM, Schink B (2010) Anaerobic phototrophic nitrite oxidation by *Thiocapsa* sp. strain KS1 and *Rhodospseudomonas* sp. strain LQ17. *Microbiology* 156: 2428–2437.
220. Schulze-Robbecke R (1993) Mycobacteria in the environment. *Immun Infekt* 21: 126–131.
221. Sharkey TD (2001) Photorespiration. *Encycl. Life Sci.* 1–5.
222. Sharma AK, Rigby AC, Alper SL (2011) STAS domain structure and function. *Cell Physiol Biochem* 28: 407–22.
223. Sharp PM, Li W (1987) The codon adaptation index - a measure of directional synonymous codon usage bias, and its potential applications. *Nucleic Acids Res* 15: 1281–1295.
224. Sharwood RE (2017) A step forward to building an algal pyrenoid in higher plants. *New Phytol* 214: 496–499.
225. Sheehy JE, Mitchell PL, Hardy B (2007) Charting new pathways to C₄ rice. International Rice Research Institute.
226. Sheldon MC, Howitt SM, Price GD (2010) Membrane topology of the cyanobacterial bicarbonate transporter, BicA, a member of the SulP (SLC26A) family. *Mol Membr Biol* 27: 12–23.

Bibliography

227. Shen BR, Zhu CH, Yao Z, Cui LL, Zhang JJ, Yang CW, He ZH, Peng XX (2017) An optimized transit peptide for effective targeting of diverse foreign proteins into chloroplasts in rice. *Sci Rep* 7: 46231.
228. Shibata M, Katoh H, Sonoda M, Ohkawa H, Shimoyama M, Fukuzawa H, Kaplan A, Ogawa T (2002) Genes essential to sodium-dependent bicarbonate transport in cyanobacteria: function and phylogenetic analysis. *J Biol Chem* 277: 18658–18664.
229. Sidhu GK, Mehrotra R, Mehrotra S (2014) Carbon concentrating mechanisms: in rescue of Rubisco inefficiency. *Acta Physiol Plant* 36: 3101–3114.
230. Sinclair TR, Purcell LC, Sneller CH (2004) Crop transformation and the challenge to increase yield potential. *Trends Plant Sci* 9: 70–75.
231. Sinetova MA, Kupriyanova EV, Markelova AG, Allakhverdiev SI, Pronina NA (2012) Identification and functional role of the carbonic anhydrase Cah3 in thylakoid membranes of pyrenoid of *Chlamydomonas reinhardtii*. *Biochim Biophys Acta - Bioenerg* 1817: 1248–1255.
232. Singh J, Pandey P, James D, Chandrasekhar K, Achary VMM, Kaul T, Tripathy BC, Reddy MK (2014) Enhancing C₃ photosynthesis: an outlook on feasible interventions for crop improvement. *Plant Biotechnol J* 12: 1217–1230.
233. Söding J (2005) Sequence analysis Protein homology detection by HMM–HMM comparison. *Bioinformatics* 21: 951–960.
234. Soding J, Biegert A, Lupas AN (2005) The HHpred interactive server for protein homology detection and structure prediction. *Nucleic Acids Res* 33: 244–248.
235. Sparkes IA, Runions J, Kearns A, Hawes C (2006) Rapid, transient expression of fluorescent fusion proteins in tobacco plants and generation of stably transformed plants. *Nat Protoc* 1: 2019–2025.
236. Spring S, Rachel R, Lapidus A, Davenport K, Tice H, Copeland A, Cheng J-F, Lucas S, Chen F, Nolan M, et al (2010) Complete genome sequence of *Thermosphaera aggregans* type strain (M11TL). *Stand Genomic Sci* 2: 245–59.
237. Stackebrandt E, Schumann P, Schaal KP, Weiss N (2002) *Propionimicrobium* gen. nov., a new genus to accommodate *Propionibacterium lymphophilum* (Torrey 1916) Johnson and Cummins 1972, 1057 AL as *Propionimicrobium lymphophilum* comb. nov. *Int J Syst Evol Microbiol* 52: 1925–1927.
238. Stenström CM, Jin H, Major LL, Tate WP, Isaksson LA (2001) Codon bias at the 3'-side of the initiation codon is correlated with translation initiation efficiency in *Escherichia coli*. *Gene* 263: 273–284.
239. Suzuki S, Murai N, Burnell JN, Arai M (2000) Changes in photosynthetic carbon flow in transgenic rice plants that express C₄-type phosphoenolpyruvate carboxykinase from *Urochloa panicoides*. *Plant Physiol* 124: 163–172.
240. Szczepaniak A, Gubernator B, Króliczewski J, Łączmański Ł (1998) Targeting of proteins into and within the chloroplast. *Acta Physiol Plant* 20: 437–451.

Bibliography

241. Taiz L, Zeiger E (2010) Photosynthesis: carbon reactions. *Plant Physiol* 145–170.
242. Takahashi Y, Yamaguchi O, Omata T (2004) Roles of CmpR, a LysR family transcriptional regulator, in acclimation of the cyanobacterium *Synechococcus* sp. strain PCC 7942 to low-CO₂ and high-light conditions. *Mol Microbiol* 52: 837–845.
243. Tamoi M, Nagaoka M, Miyagawa Y, Shigeoka S (2006) Contribution of fructose-1, 6-bisphosphatase and sedoheptulose-1, 7- bisphosphatase to the photosynthetic rate and carbon flow in the calvin cycle in transgenic plants. *Plant Cell Physiol* 47: 380–390.
244. Tamura K, Stecher G, Peterson D, Filipski A, Kumar S (2013) MEGA6: molecular evolutionary genetics analysis version 6.0. *Mol Biol Evol* 30: 2725–2729.
245. Tcherkez GGB, Farquhar GD, Andrews TJ (2006) Despite slow catalysis and confused substrate specificity, all ribulose biphosphate carboxylases may be nearly perfectly optimized. *Proc Natl Acad Sci* 103: 7246–51.
246. Tomar V, Sidhu GK, Nogia P, Mehrotra R, Mehrotra S (2016) Role of habitat and great oxidation event on the occurrence of three multisubunit inorganic carbon-uptake systems in cyanobacteria. *J Genet* 95: 109–118.
247. Trainer MG (2013) Atmospheric prebiotic chemistry and organic hazes. *Curr Org Chem* 17: 1710–1723.
248. U.S. Census Bureau (2015) World Population: 1950–2050. International Programs (pp 2–3).
249. Uehara S, Adachi F, Ito-Inaba Y, Inaba T (2016) Specific and efficient targeting of cyanobacterial bicarbonate transporters to the inner envelope membrane of chloroplasts in *Arabidopsis*. *Front Plant Sci* 7: 1–8.
250. Uehlein N, Otto B, Hanson DT, Fischer M, McDowell N, Kaldenhoff R (2008) Function of *Nicotiana tabacum* aquaporins as chloroplast gas pores challenges the concept of membrane CO₂ permeability. *Plant Cell* 20: 648–657.
251. Ueki S, Lacroix B, Krichevsky A, Lazarowitz SG, Citovsky V (2009) Functional transient genetic transformation of *Arabidopsis* leaves by biolistic bombardment. *Nat Protoc* 4: 71–77.
252. Ueki S, Magori S, Lacroix B, Citovsky V (2013) Transient gene expression in epidermal cells of plant leaves by biolistic DNA delivery. *Methods Mol Biol* 940: 17–26.
253. Uemura K, Suzuki Y, Shikanai T, Wadano A, Jensen RG, Chmara W, Yokota A (1996) A rapid and sensitive method for determination of relative specificity of RuBisCO from various species by anion-exchange chromatography. *Plant cell* 37: 325–331.
254. van der Graaff E, Hooykaas PJJ (1996) Improvements in the transformation of *Arabidopsis thaliana* C24 leaf-discs by *Agrobacterium tumefaciens*. *Plant Cell Rep* 15: 572–577.

Bibliography

255. van der Graaff E, Hooykaas PJJ (1998) Transformation of *Arabidopsis thaliana* C24 Leaf Discs by *Agrobacterium tumefaciens*. In JM Martinez-Zapater, J Salinas (Eds.), *Arabidopsis* Protocols (pp 245–258). Humana Press.
256. Västermark A, Saier MH (2014) Evolutionary relationship between 5+5 and 7+7 inverted repeat folds within the amino acid-polyamine-organocation superfamily. *Proteins Struct Funct Bioinforma* 82: 336–346.
257. Vitha S (2007) Histochemical localization of beta-glucuronidase (GUS) reporter activity in plant tissues. Microscopy and Imaging Center, Texas A & M University (<http://microscopy.tamu.edu>).
258. Vogel C, Chothia C (2006) Protein family expansions and biological complexity. *PLoS Comput Biol* 2: 370–382.
259. Voges MJ, Silver PA, Way JC, Mattozzi MD (2013) Targeting a heterologous protein to multiple plant organelles via rationally designed 5' mRNA tags. *J Biol Eng* 7: 20.
260. von Caemmerer S, Evans JR (2010) Enhancing C₃ photosynthesis. *Plant Physiol* 154: 589–592
261. von Caemmerer S, Quick WP, Furbank RT, Hibberd JM, Sheehy JE, Langdale JA, Badger MR, Sage RF, Christin PA, Edwards EJ, et al (2012) The development of C₄ rice: current progress and future challenges. *Science* 336: 1671–2.
262. Voznesenskaya E V, Franceschi VR, Kiirats O, Freitag H, Edwards GE (2001) Kranz anatomy is not essential for terrestrial C₄ plant photosynthesis. *Nature* 414: 543–546.
263. Wang HL, Postier BL, Burnap RL (2004) Alterations in global patterns of gene expression in *Synechocystis* sp. PCC 6803 in response to inorganic carbon limitation and the inactivation of ndhR, a LysR family regulator. *J Biol Chem* 279: 5739–5751.
264. Weissgerber T, Zigann R, Bruce D, Chang Y, Detter JC, Han C, Hauser L, Jeffries CD, Land M, Munk AC, et al (2011) Complete genome sequence of *Allochromatium vinosum*. *Stand Genomic Sci* 5: 311–330.
265. Wenzler H, Mignery G, May G, Park W (1989) A rapid and efficient transformation method for the production of large numbers of transgenic potato plants. *Plant Sci* 63: 79–85.
266. Whitney SM, Houtz RL, Alonso H (2011) Advancing our understanding and capacity to engineer nature's CO₂-sequestering enzyme, Rubisco. *Plant Physiol* 155: 27–35.
267. Winter K, Holtum JAM (2005) The effects of salinity, crassulacean acid metabolism and plant age on the carbon isotope composition of *Mesembryanthemum crystallinum* L., a halophytic C₃-CAM species. *Planta* 222: 201–209.
268. Wise RR (2007). The diversity of plastid form and function. In RR Wise and JK Hooper (Eds.), *The structure and function of plastids* (pp 3-26). Springer Dordrecht.

Bibliography

269. Woodger FJ, Bryant DA., Price GD (2007) Transcriptional regulation of the CO₂-concentrating mechanism in a euryhaline, coastal marine cyanobacterium, *Synechococcus* sp. strain PCC 7002: Role of NdhR CcmR. *J Bacteriol* 189: 3335-3347.
270. Wu HY, Liu KH, Wang YC, Wu JF, Chiu WL, Chen CY, Wu SH, Sheen J, Lai EM (2014) AGROBEST: an efficient *Agrobacterium*-mediated transient expression method for versatile gene function analyses in *Arabidopsis* seedlings. *Plant Methods* 10: 1-16.
271. Xin CP, Tholen D, Devloo V, Zhu XG (2015) The benefits of photorespiratory bypasses: how can they work? *Plant Physiol* 167: 574-85.
272. Yan S, Yu M, Wang Y, Shen C, Zhang XH (2011) *Catenovulum agarivorans* gen. nov., sp. nov., a peritrichously flagellated, chain-forming, agarhydrolysing gammaproteobacterium from seawater. *Int J Syst Evol Microbiol* 61: 2866-2873.
273. Yeo ME, Yeo AR, Flowers TJ (1994) Photosynthesis and photorespiration in the genus *Oryza*. *J Exp Bot* 45: 553-560.
274. Yoo H, Widhalm JR, Qian Y, Maeda H, Cooper BR, Jannasch AS, Gonda I, Lewinsohn E, Rhodes D, Dudareva N (2013) An alternative pathway contributes to phenylalanine biosynthesis in plants via a cytosolic tyrosine:phenylpyruvate aminotransferase. *Nat Commun* 4: 2833.
275. Zabaleta E, Martin MV, Braun H-P (2012) A basal carbon concentrating mechanism in plants? *Plant Sci* 187: 97-104.
276. Zelitch I (1982) The close relationship between net photosynthesis and crop yield. *Bioscience* 32: 796-802.
277. Zellner G, Messner P, Kneifel H, Tindall BJ, Winter J, Stackebrandt E (1989) *Methanolacinia* gen. nov., incorporating *Methanomicrobium paynteri* as *Methanolacinia paynteri* comb. nov. *J Gen Appl Microbiol* 35: 185-202.
278. Zhang CL, Xie W, Martin-Cuadrado AB, Rodriguez-Valera F (2015) Marine Group II Archaea, potentially important players in the global ocean carbon cycle. *Front Microbiol*. 6.
279. Zhang X, Henriques R, Lin S-S, Niu QW, Chua NH (2006) *Agrobacterium*-mediated transformation of *Arabidopsis thaliana* using the floral dip method. *Nat Protoc* 1: 641-646.
280. Zheng J, Shen W, He DZ, Long KB, Madison LD, Dallos P (2000) Prestin is the motor protein of cochlear outer hair cells. *Nature* 405: 149-155.
281. Zhu XG, Long SP, Ort DR (2010) Improving photosynthetic efficiency for greater yield. *Annu Rev Plant Biol* 61: 235-261.