

Supplemental Data 1: List of enzymes and related genes

Table SD1. Name and sequences of the primers used, ID and localization List of the enzymes and of their corresponding gene/isogene(s), protein ID (<http://genome.jgi.doe.gov/Phatr2/Phatr2.home.html>) and primers.

| | Enzyme | Gene abbreviation | Protein ID | Compartment | Primer-F (5'-3') | Primer-R (5'-3') |
|---|---------------------------------|--------------------------|-------------------|--------------------|-------------------------------|-------------------------------|
| 1 | Pyruvate phosphate dikinase | PPDK | 21988 | Plastid/cytosol | CAGCGGG TTGAGCA AGACAT | TCATACCA GGCATGGA AATGG |
| 2 | Phosphoenolpyruvate carboxylase | PEPC1 | 51136 | plastid | AATTGCCC AAGCTGG GTTTC | ATGACGTA GGCTCCCA AACAA |
| | | PEPC2 | 27976 | mitochondria | GCGACTC ACATCAA GCATCAG | GTCTTCGC CGCAAGGA AAC |
| 3 | Malate dehydrogenase | MDH | 51297 | mitochondria | CAACCGC TCTCGATG | TGTGACTG AGATCCGC |

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| | | | | | CTTCT | AGCTA |
| 4 | Malate synthase | MS | 54478 | peroxisome | GGGCGGT ATGAGTG CATCA | AGCTGTCA CTTCGCGC AACT |
| 5 | Phosphoenolpyruvate carboxykinase | PEPCK | 55018 | mitochondria | GCCGAAT ACGGTGA CACATTT | CTTCGGTC TCGGATCC CTTAT |
| 6 | Phosphoglycolate phosphatase | PGP | 48026 | plastid | ACCTGGC ACCAATCA TTTGG | CGGTAAAC CACACCGT CACA |
| 7 | Pyruvate carboxylase | PYC1 | 30519 | mitochondria | TTTCGACC GCTGGCA TTTAT | GCGACTGG AGACTTGC TGGTA |
| | | PYC2 | 49339 | plastid | GGAAAAT CCCGAGC GAGACT | GGAGTATC CAATGCCG TCCAT |
| 8 | Sedoheptulose-1,7- | SBP | 56467 | cytosol | GGAGCGG | GGCGAGA |

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| | biphosphatase | | | | CAGGAGG ATTAC | GCTTCGTA CGATT |
| 9 | Hydroxypyruvate reductase/glycerate | HPR | 56499 | mitochondri a | GATCTCC GGCCTCG TGATT | GGAGGCTT CTCGGACT GAAA |
| 10 | Glyceraldehyde-3- phosphate dehydrogenase | GAPC1 | 22122 | plastid | AGCCGAC TACGTCTG CGAAT | GGGTGCC GAGTAGAT GACCTT |
| | | GAPDH | 23598 | cytosol | TGTGAGT CCGCTGC CTATCTC | CGTCGACG GTAAAGGA TTGG |
| | | GapC4 (TPI/Ga pC3) | 32747/ 25308 | mitochondri a | TCCTCCAT GGACGTG GTTTC | TGAGACCC TCCTTGAG TCCAA |
| 11 | 6-phosphogluconate dehydrogenase | 6PGDH | 45333 | cytosol | CTCAGCA AGCCTCG GAAAGT | AATTCGCT GATCGCTT CGAT |

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| 12 | Oxoglutarate/malate transporter | OMT1 | 8990 | mitochondria | ATTACCTC AATCAAC GCCGAAA | GGCGAGC GCATAGAT GAGA |
| 13 | Pyruvate kinase | PK1 | 22404 | plastid | CGGATGT GTTGGCA AAGACA | AACCGCTG CCACTGTT GTTT |
| | | PK2 | 49098 | cytosol | GTAACGG CCACACA GATGCTT | AGTCCGTG CCGTCCAA GAC |
| | | PK3 | 56445 | cytosol | ATTGAATC GGGCATG AATGTG | TGTTTTGT GCAGCCTG ACGTA |
| | | PK4a/P K4b | 45997/ 27502 | cytosol | ATTTGTC CGGGCTT GAGT | TGCCCAAC AGCAATCC ACTA |
| | | PK5 | 49002 | mitochondria | TGCAGCT ACACCGTT CTATAATT | CGTACGGC TTCAGCTC TCAGA |

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| | | PK6 | 56172 | mitochondria | CCTCCACT CGTCTCG GCATA | TGCAACTG TCGGGCTA ACTTG |
| 14 | Bicarbonate transporter | SLV4_1 | 45656 | plastid | GCCCAGC CGTTGAC AATC | CAGCATCT TCGCCAAT TGTG |
| | | SLV4_2 | 32359 | plastid | CGGTGCT CTGGATC GGAATA | ACCAAGTG CAAGGATG ATGGTT |
| | | SLV4_3 | 54405 | membrane | TGGTTGC CTCCATTC TGATCT | TGAGTCGG CGTGATGC TATC |
| 15 | Triose phosphate isomerase | TPI_1 | 18228 | plastid | ACCTGCC GTCAGATT TTGGT | CTGACGCT TCCTCCGT AAAGA |
| | | TPI_2 | 50738 | plastid | GGGTAGT | GATTCGGA |

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| | | | | | CTTTGGC GAAACG | TTCGCCAA TGC |
| 16 | Fructose-1,6- biphosphatase | FBP | 23247 | cytosol | GCGATTG CGACCTC CTGTAA | CGTCGCCG GTTGAGTT G |
| | | FBPC1 | 42886 | plastid | ACATTGG GCTCTGG AGTCGAT | AAATGGGT CCAGAGGA AGGAA |
| | | FBPC2 | 42456 | plastid | GTGACGC TGACGCG CTTTA | TTGCCTTA CAGGCCGT ATCG |
| | | FBPC3 | 31451 | plastid | TTTGGGTA TCCTGGC GACAA | ACAATCCA CCCGCCTG TTC |
| | | FBPC4 | 54279 | plastid | AGCACCC GCTGTGC ATTC | AAACCGGC TCAACGTA ATGG |

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| 17 | Glucose-phosphate isomerase | GPI_3 | 56512 | plastid | CCACGCA ACGGTCA ATCTT | CGAAACGA GCTGTGGT CGAT |
| | | GPI_1 | 23924 | cytosol | TCAGCAA GGCGACA TGGAA | GGTGCCAG GTTCACCG AATA |
| | | GPI | 53878 | cytosol | AGCGCAG CAGCACA TTCAT | CGGGCTGT GCAAAAAA GTTT |
| 18 | Fructose-bisphosphatase aldolase | Fba3 | 29014 | cytosol | CGGATCG GTCGCTTT GG | AGTGGTCG GAATGAAG GATGA |
| | | Fba4 | 42447 | cytosol | GGACGAG AATCATT CGAGTAA AGC | GCGGTCCA TCGTATCT TCAA |
| | | FbaC1 | 825 | plastid | TGGTTGC CCTGGTTT | CTTCGGAG AGATCCAA |

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| | | | | | GATG | CATGTG |
| | | FbaC2 | 22993 | plastid | ACCGGAC AAGCCCA ACAAG | TAGGTCGG CGTACGAT TTGC |
| | | FbaC5 | 51289 | plastid | TGACGTTC TGACCGA TGCA | GCCAGAGC ACCAGGTT TCAC |
| 19 | Carbonic anhydrase | aCA1 | 35370 | secreted | GACACTTC CGGTACT ATTTGGAG AA | GTCGCTGT AGTTGGCA TCGA |
| | | aCA2 | 44526 | secreted | CATACCAT TGACGGT TTCAACAC T | AGGTTGCG ACTTTTTTG ACGAA |
| | | aCA3 | 55029 | secreted | CGCTTACA GTTCCAG GTGTATC | TCGGCTCC CGAGAAAT TG |

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| | | aCA6 | 54251 | secreted | TCGCAGT GGTGGTT CCTTTC | CATATGCA ATTCGCCA TCGT |
| | | aCA7 | 42574 | secreted | AGCAAAG GTTTCCC GGATTG | GTGTGACT TCGGCGTC GTATC |
| | | bCA4 (PtCA1) | 42406 | plastid | ACGTTATC GTCTGTG GTCACTAT GA | CGGATGTT ACGGAGCC AGAT |
| | | bCA5 (PtCA2) | 45443 | secreted | CGTCGATT TGAACGT CATTGA | CCGCCATC CTTGTAGC TTTC |
| 20 | Phosphoglycerate mutase | PGAM_ 1 | 42857 | plastid | CCGTCTG AGAACGA GGTTGTG | CGGGTACG CTGCCCAT AC |

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| | | PGAM_ 2 | 43253 | mitochondri a | CAAGACA GTTATGGT GGCAGAT TC | CCAAGGCA TCCTCCAT CTTC |
| | | PGAM_ 3 | 43812 | plastid | GATTGCG ACCACCA GAAAGG | GTTGACGT GCCGAAAA AGGA |
| | | PGAM_ 4 | 51298 | plastid | AGGCGTT CCGCTCG TTTAC | GTCCTGAT AACGGCGC AATC |
| | | PGAM_ 5 | 26201 | mitochondri a | AAGCCTG CCGATTC CTCTCT | TTGCATGC TTGCACAG AATTT |
| | | PGAM_ 6 | 33839 | mitochondri a | CCGCGGT ACAATGG CTTT | CAAATGG TACAACGC GTTCA |
| | | PGAM_ 7 | 35164 | mitochondri a | CTGGACC AACGTCCG | CGATCGAG TACCCGTG |

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| | | | | | GTCTTT | CAA |
| 21 | Glycine decarboxylase | GDCP | 22187 | mitochondri a | CGTATTGC TTTGGAG GATTCG | GGACGATC CCTTCT CATTG |
| | | GDCT_ 1 | 56477 | mitochondri a | TCGAAAC GCGAAGC AATCT | GGGAGCG TACCAGGA TGGA |
| | | GDCH | 32847 | mitochondri a | TTCATTTG ACAAAGG CGATAGC | TCGACGAC AGTTCCAG AGATTG |
| 22 | NAD Malic enzyme | ME1 | 56501 | mitochondri a | TCGTATTA TGAACATC CATTTGCA | TCGAGCAT GACGTTCT TACGAA |
| 23 | Glycolate dehydrogenase/glycolate oxidase | GOX1 | 22568 | peroxisome | GATGCCTT TGCTCGC TGGTA | CCGGCATA CTGAGTCC TTGTC |
| | | GOX2 | 50804 | mitochondri | CAAGGAC | TGTGACGT |

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| | | | | a | GCGTATTC CGAAT | CCTGGCCA AAG |
| 24 | RubisCO small subunit | rbcS | ABK20 640 | plastid | TGCTTACG GTACTGA AAGTTGTG TT | AAGCAATA CGACGACC TTCAAGT |
| | RubisCO large subunit | rbcL | AAF07 200 | plastid | TTGGGCG CGTGATA ATGA | AAATAACA CGGAAGTT GATACCAT GA |
| 25 | 3-deoxy-7- phosphoheptulonate synthase | AroA | 24353 | plastid | CACGCCT GGAATTTG GACTT | GAAACGGA GCGACTCG TCAA |
| 26 | 3-dehydroquinate synthase | AroB | 20809 | plastid | CTTTGAGT GGCAGGA GGATCA | AAGATCGC GTAATGGC GAAA |
| 27 | Shikimate/quininate 5- dehydrogenase / | AT3G* | 45535 | cytosol | GGCAGAG TCCCGTTA | CGCGCATT GCTGAAAC |

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| | 3-dehydroquinate dehydratase | | | | TTCGA | AAT |
| 28 | Shikimate kinase | SK* | 49363 | plastid | ATCGAAA GAGCAAC AGGAATG AC | GTCCAAAA CTTGCGCT TCCA |
| 29 | 3-phosphoshikimate 1- carboxyvinyltransferase | EPSP* | 18246 | plastid | TCCCTGG TTCCAAAT CTCTGA | CAAATGTC GTCGGAAT CCAA |
| 30 | chorismate synthase | AT1G* | 43429 | plastid | TTGAGAGT GGAGACG GCTTTG | GGTCTCGG GATCCACG TAGA |
| 31 | Acetyl-CoA carboxylase | ACC1 | 54926 | | CATGTCC GAGGCGA TTGG | TTACTGTT CGCACACC CATAGC |
| | | ACC2 | | | ACGGAAG CACATCC AATAACG | TCTCCGGC AGCAAAAT GTATC |

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| 32 | Pyruvate dehydrogenase | PDH1 | 20360 | | CAGGTTC ACACTTAC CGCTTCA | CGCCCACG CCTTTTCTT |
| | | PDHA1 | 55035 | mitochondrial precursor | TGGCGGG CTTGATTC TGA | CGGCTCGT CGTTCTCA CA |
| | | PDHB | 20183 | mitochondrial precursor | ACGCGAC CATTATCT CCTTCA | TTCCACGG ATACGCCT TTTT |
| 33 | Glycosyl transferase | BGS1 | 55327 | | CCTTTGCC AACGACC ATTCT | GGTGACCA TAGTGGAG ACGGATA |

