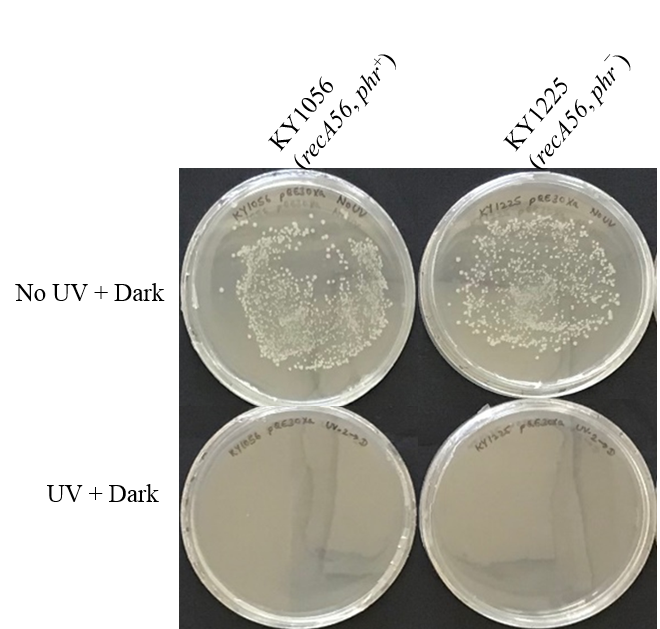
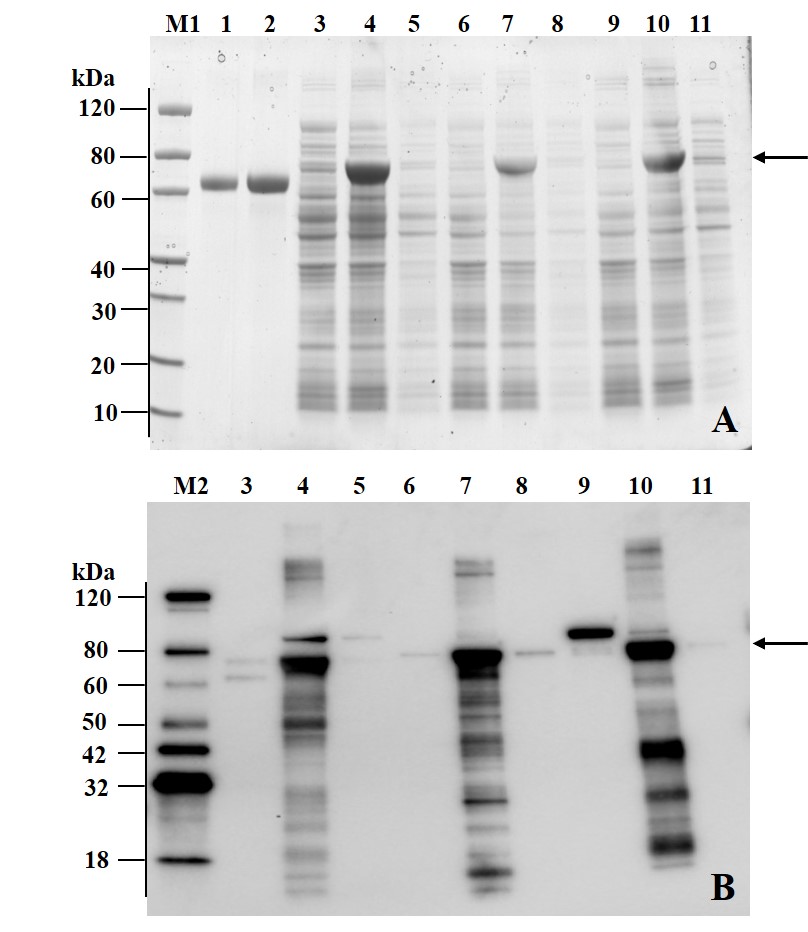
**Supporting data**

**Table S1. Primers used in pCR2.1- TOPO TA cloning and qRT-PCR**

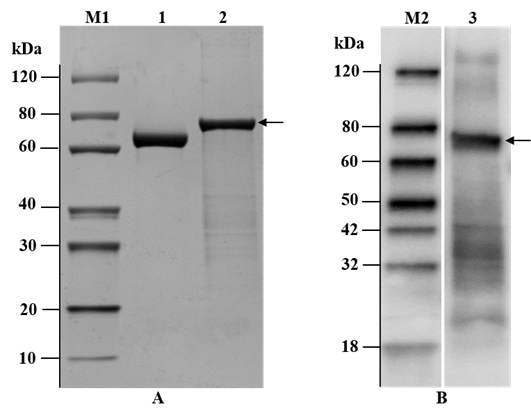
|  |  |
| --- | --- |
| **TOPO TA cloning** | |
|  | |
| Gene: OINE01015670\_T110144 | |
| **Primer Name** | **Sequence (5' ─> 3')** |
| Pn\_PHR-CRY 1\_cF | AAGCTTGCATGCGGGAAATCGAGAGTCTTGTAT |
| Pn\_PHR-CRY 1\_cR | CGTCTTCCCGGGTTATTTGTGATCACACGTCTT |
|  |  |
| Gene: OINE01000912\_T103440 | |
| **Primer Name** | **Sequence (5' ─> 3')** |
| Pn\_PHR-CRY 2\_cF | AAGCTTGCATGCGAGTCAAAGTCTTCTACTACA |
| Pn\_PHR-CRY 2\_cR-R | CGTCTTGTCGACTCAATTACTCGCTCTTCCAAG |
|  |  |
| Gene: OINE01005061\_T102555 | |
| **Primer Name** | **Sequence (5' ─> 3')** |
| Pn\_PHR-CRY 3\_cF | AAGCTTGCATGCACGGAGATAAAAAGGCTGCTA |
| Pn\_PHR-CRY 3\_cR | CGTCTTCCCGGGATCAACCCATTTATTTGATGC |
|  |  |
|  |  |
| **qRT-PCR** | |
|  |  |
| Gene: OINE01013217\_T107300 | |
| **Primer Name** | **Sequence (5' ─> 3')** |
| αTubulin\_F | TAATTCCTCGGGACTGCAAC |
| αTubulin\_R | CATCATCGGGTGAAGAAGGT |
|  |  |
| Gene: OINE01000912\_T103440 | |
| **Primer Name** | **Sequence (5' ─> 3')** |
| qPn\_0912\_F | CTCATTAAGCTCCCGGACTG |
| qPn\_0912\_R | ATTAGCGTACTCGGGCTTGA |



**Fig. S1.** UV dose tested on *Escherichia coli* strains KY1056 (*recA56*, *phr*+) and KY1225 (*recA56*, *phr*¯) transformed with pREP4 (KanR) and pQE-30Xa (AmpR). Transformed *E. coli* strains were treated with brief UV-C, peak 254 nm of 2 ± 0.2 µmoles m2 s-1 for 10 s and immediately incubated at 37°C in dark for overnight. Next day, plates were assessed for surviving colonies.

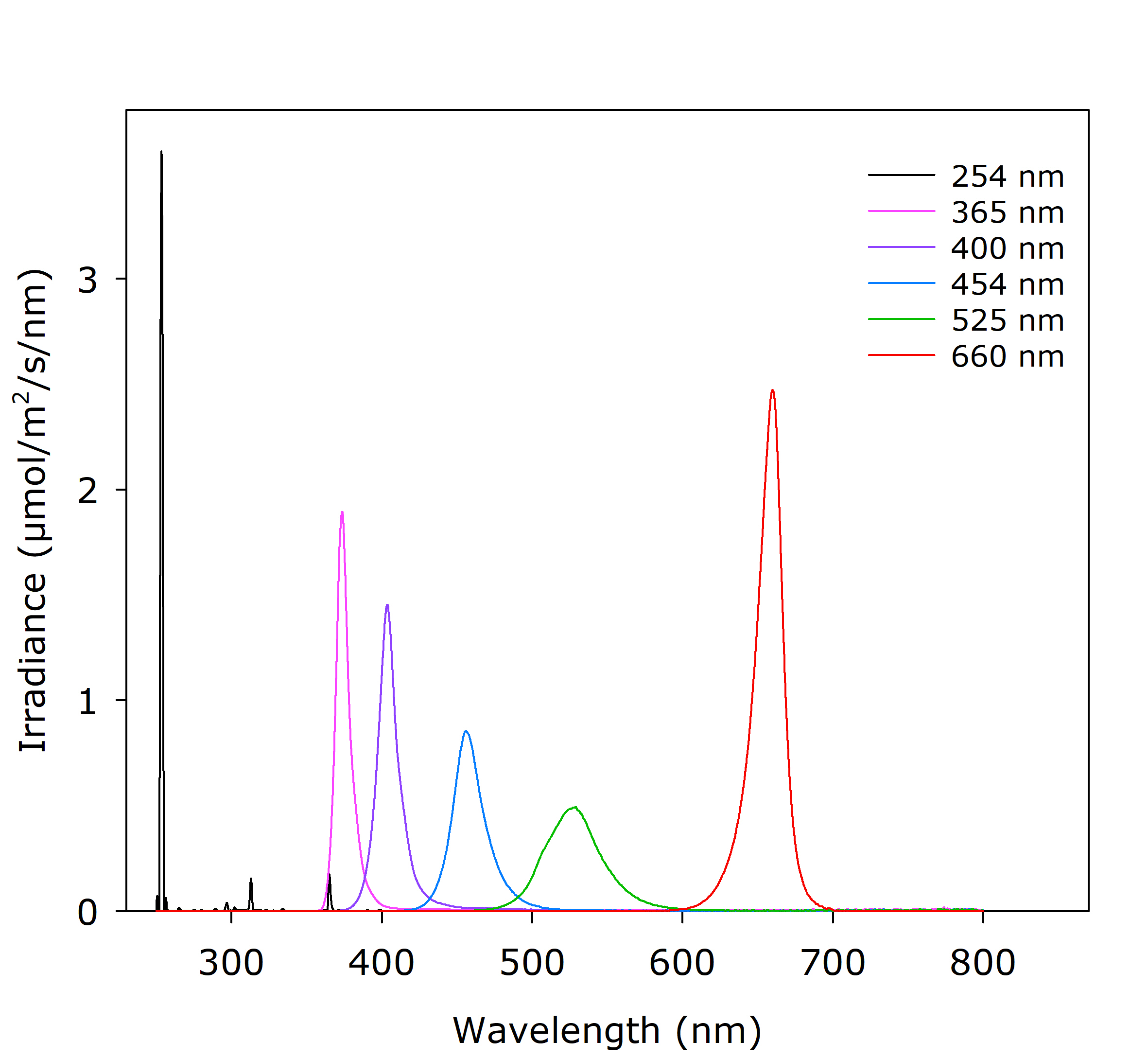


**Fig. S2**. SDS-PAGE and Western blot of three recombinant *Escherichia coli* strains transformed with the constructs (pQE-30Xa\_PN5670, pQE-30Xa\_PN0912 and pQE-30Xa\_PN5061) carrying *Pseudoidium neolycopersici* cryptochrome/photolyase family like genes. (A) Coomassie-stained SDS-PAGE. (B) Western blot detection of His-tagged proteins by Mouse-anti-His mAb (GenScript, cat. no. A00186). Arrows indicate the bands corresponding to the size of 73.28 kDa, 72.69 kDa and 75.14 kDa for pQE-30Xa\_PN5670, pQE-30Xa\_PN0912 and pQE-30Xa\_PN5061 proteins respectively, including 6X-His tag. M1- Protein Marker (GenScript, cat. no. M00516), M2- Protein Marker (GenScript, cat. no. M00521). Lane 1, 2- Bovine Serum Albumin 1.0 µg and 2.0 µg. Lane 3, 6, 9- Cell lysate of non-induced strains carrying pQE-30Xa\_PN5670, pQE-30Xa\_PN0912 and pQE-30Xa\_PN5061, respectively. Lane 4, 7, 10- Cell lysate after induction of expression in strains carrying pQE-30Xa\_PN5670, pQE-30Xa\_PN0912 and pQE-30Xa\_PN5061, respectively. Lane 5, 8, 11- Supernatant of cell lysate after induction of strains carrying pQE-30Xa\_PN5670, pQE-30Xa\_PN0912 and pQE-30Xa\_PN5061, respectively.



**Fig. S3.** SDS-PAGE and Western Blot analysis of *Pseudoidium neolycopersici* photolyase (pET-30a\_PN0912) protein purified by Ni-NTA spin column (Qiagen, Germany). (A) Coomassie- stained SDS- PAGE gel. M1- Protein Marker (GenScript, cat. no. M00516), Lane 1- Bovine Serum Albumin (2.0 µg), Lane 2- *P. neolycopersici* photolyase (2.0 µg). (B) Western blot analysis. M2- Protein Marker (GenScript, cat. no. M00521), Lane 3- Detection of His-tagged photolyase by Mouse-anti-His mAb (GenScript, cat. no. A00186). Arrows indicate *P. neolycopersici* photolyase corresponding to a size of 72.69 kDa including 6X-His tag.

**Fig. S4.** Spectral distribution of optical radiation sources used in this study, measured at 1 nm intervals (peak wavelengths in parentheses). UV-C (254 nm) used for brief UV treatments, and UV-A (365 nm), UV-A/blue (400 nm), blue (454 nm), green (525 nm), red (660 nm) lights used in recovery of *Escherichia coli* and in quantitative RT-PCR with *Pseudoidium neolycopersici.*



**Fig. S5.** The effect of incubation wavelengths, dark and 454 nm immediately after brief UV treatment on recombinant *Escherichia coli* strains: (A) positive control KY1056 (photolyase-proficient, wild type) and (B) negative control KY1225 (photolyase-deficient, mutant), each transformed with an empty expression vector, pQE-30Xa; and (C) KY1225\_pQE-30Xa\_PN0912 expressing functional photolyase gene from *Pseudoidium neolycopersici*. 50 colonies were picked up and inoculated on a fresh LB agar (AmpR, KanR) plate and exposed to either darkness (non-UV) or UV-C (peak 254 nm of 2 ± 0.2 µmol m-2 s-1 for 10 s). After UV treatment, samples were immediately incubated with blue light (peak 454 nm of 25 ± 5 µmol m-2 s-1 ) for 2 h at 25°C followed by incubation at 37°C for overnight.

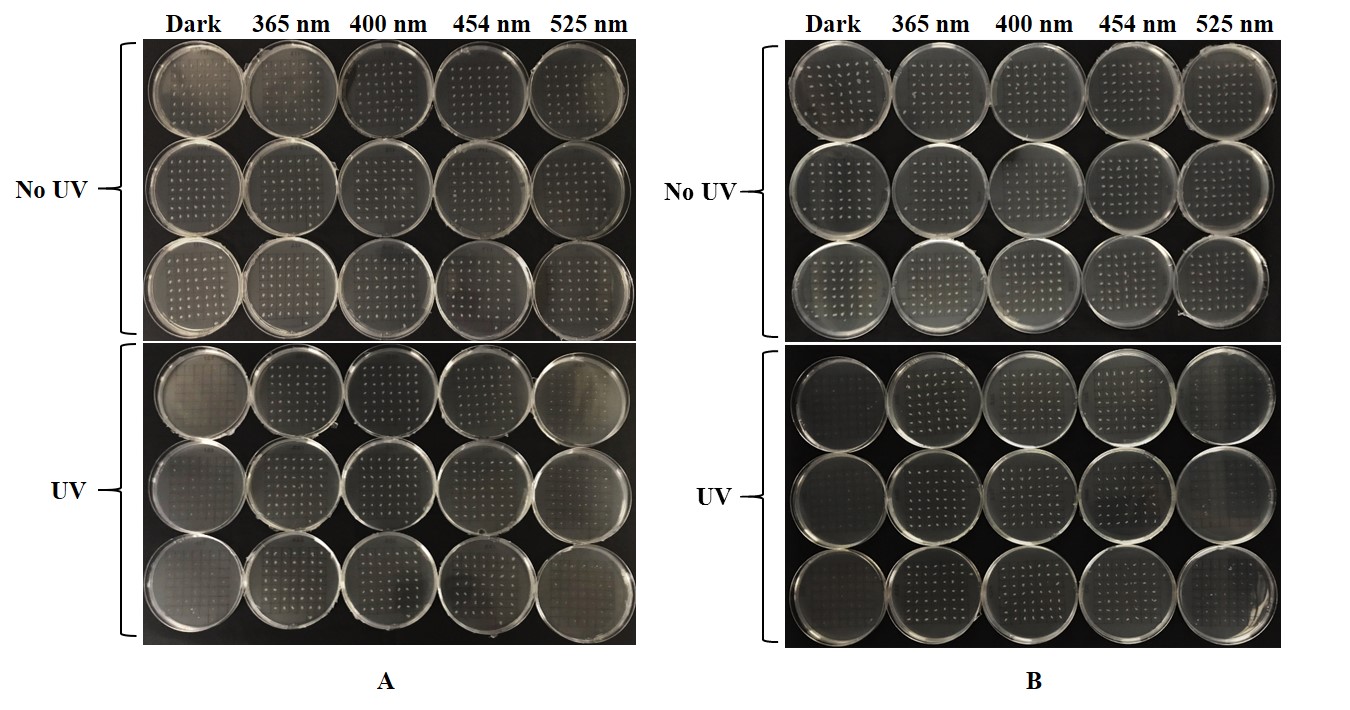




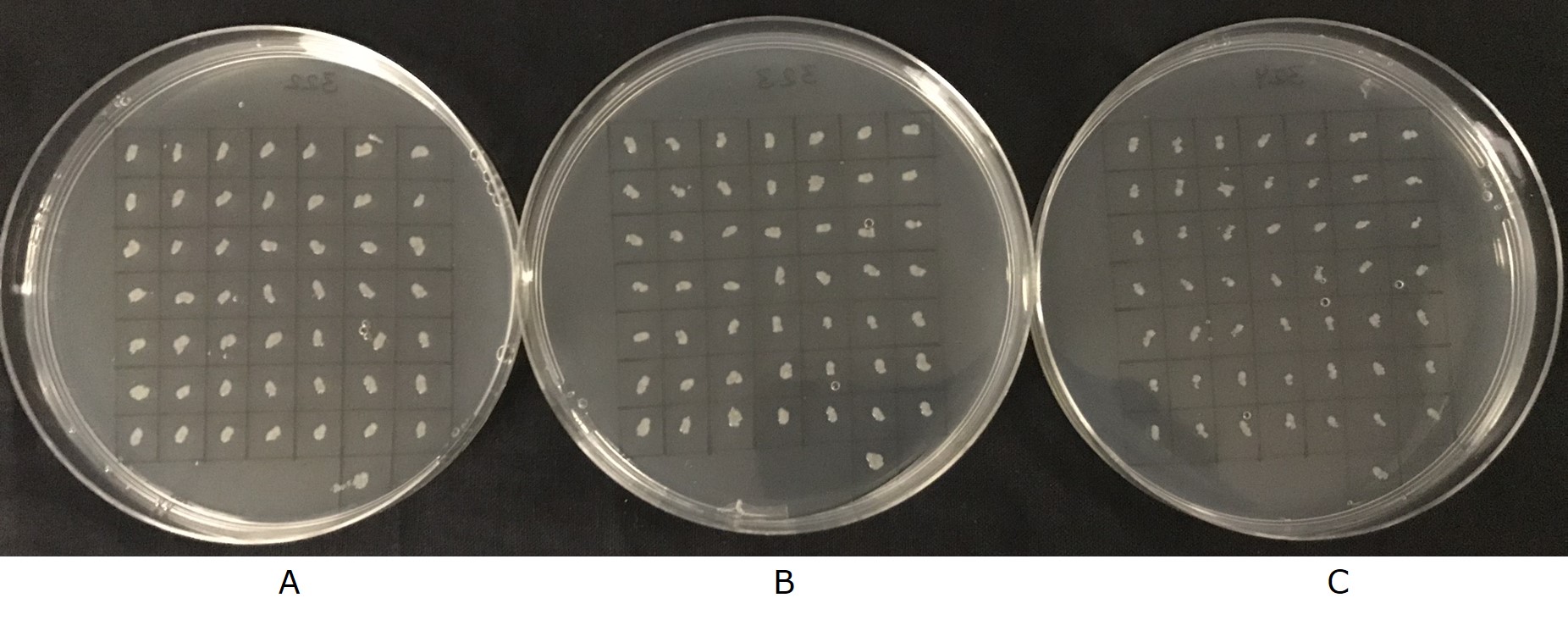
**Fig. S6.** The surface representation of the *Pseudoidium neolycopersici* photolyase showing (dashed circles) (1) Methenyltetrahydrofolate (MTHF) binding cavity and (2) Flavin adenine dinucleotide (FAD) binding cavity. Two domains (alpha/beta and helical) and the linker are colored in cyan, green and magenta, respectively, and a 3D superimposition with *Escherichia coli* photolyase bound with FAD and MTHF corroborates the nature of each binding cavities. After 3D superimposition only two co-factors from *E.coli* structure is shown, which superimpose perfectly into the binding pockets on the *P. neolycopersici* photolyase structure. The MTHF head group goes deep into the cleft between the two domains, while a deep cavity in the center of the helical domain (green) accommodate FAD without any structural clashes.

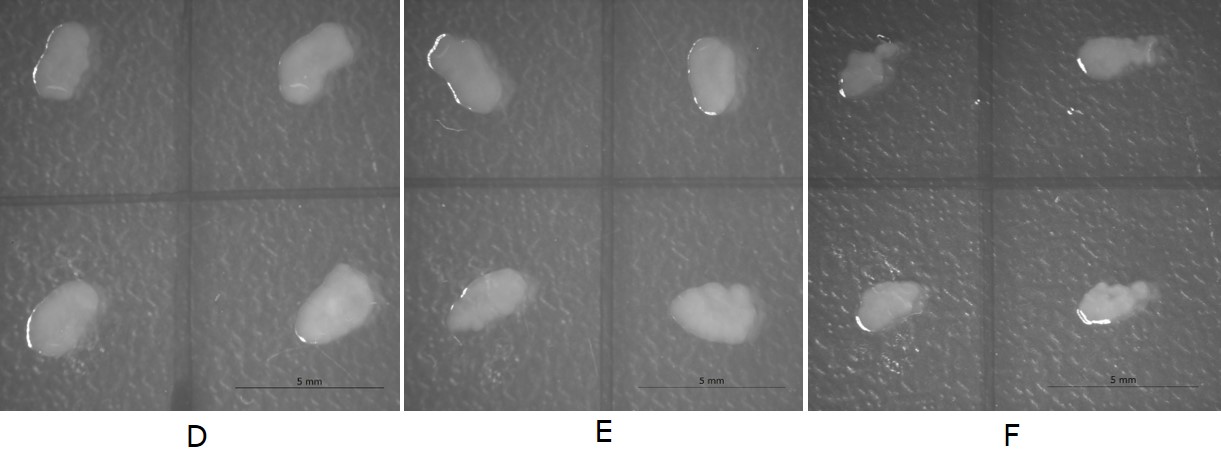


**Fig. S7.** A sequence alignment of *Pseudoidium neolycopersici* (*P. neo\_0912*)photolyase with the *Escherichia coli* (*E. coli\_phr*) photolyase (PDB id: 1DNP) and *Anacystis nidulans* (*A. nid\_phr*) photolyase (PDB id: 1QNF) showing the conservation of residues involved in interaction with the FAD (highlighted in cyan) and MTHF (highlighted in yellow) cofactors. All the FAD interacting residues are completely conserved in *E. coli*, *P. neolycopersici* and *A. nidulans* and MTHF interacting residues are conserved with some variations only in *P. neolycopersici*, however the mode of MTHF binding would still be same, as the present residues would form an identical bonding pattern in the predicted structure (see Fig. 4C). In *A. nidulans*, MTHF residues are not conserved as it has 8-HDF (highlighted in green) as a second cofactor.



**Fig. S8.** The effect of incubation wavelength immediately after brief UV treatment on recombinant *Escherichia coli* strains. Samples were plated on LB agar (AmpR, KanR), exposed to either dark (non-UV) or UV-C (peak 254 nm of 2 ± 0.2 µmol m-2 s-1 for 10 s). After treatment, samples were immediately incubated in dark, 365 nm, 400 nm, 454 nm and 525 nm of 25 ± 5 µmol m-2 s-1 for 2 h at 25°C followed by incubation at 37°C for overnight. (A) *E. coli* strainKY1225 containing pQE-30Xa\_PN0912 construct (KY1225\_ pQE-30Xa\_PN0912) with functional photolyase gene from *Pseudoidium neolycopersici* and (B) *E. coli* positive control KY1056 (photolyase-proficient, wild type) strain transformed with empty pQE-30Xa.





**Fig. S9.** The effect of incubation wavelengths on KY1225\_pQE-30Xa\_PN0912 construct containing functional photolyase gene from *Pseudoidium neolycopersici*. (A) 365 nm, (B) 400 nm and (C) 454 nm immediately after brief UV treatment on *Escherichia coli*. Samples were plated on LB agar (AmpR, KanR), exposed to UV-C, peak 254 nm of 2 ± 0.2 µmol m-2 s-1 for 10 s. After UV treatment, samples were immediately incubated in 365 nm, 400 nm and 454 nm of 25 ± 5 µmol m-2 s-1 for 2 h at 25°C followed by incubation at 37°C for overnight. Fig. D, E & F were taken from fig. A, B & C respectively with similar magnification (5 mm, scale bar) in stereomicroscope.

**Supplemental Data 1. Coding sequence information of *Pseudoidium neolycopersici* cryptochrome/ photolyase family (CPF) like genes and respective codon optimized sequences for *Escherichia coli* expression system.**

**>OINE01015670\_T110144\_CDS**

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**>OINE01015670\_T110144\_CDS\_Codon optimized**

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**Amino Acid Sequence**

**>OINE01015670\_T110144\_AA**

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**>OINE01000912\_T103440\_CDS**

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**>OINE01000912\_T103440\_CDS\_Codon optimized**

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**Amino Acid Sequence**

**>OINE01000912\_T103440\_AA**

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**>OINE01005061\_T102555\_CDS**

ATGATTCTTGAGCTAGTACCCCTTATGTTCCGCAATATAAGTTGTAGTTCACGTCTTCTTCCAAAGCTACTTAAATTTGAATCAAACCTCTTAAGAAAAGACATACATACCACTGCCTCTAAGATGACGGAGATAAAAAGGCTGCTAATCTACGTAATGCGCCGAGATTTGCGAGTAGCAGATAATCCTATACTATATGAATTGGCAACGAACAGTAAAAAGCATGGATTTACCCACATGCTTCCACTTTATGTTTTTTCAGCCCAGCAAATTGAAGTAAGTGGCTTCGTTGATGGGCAAGAGAAGTGTCCATTTCCTGAGGCAAGGAGTCGTATAGCTGGATTTTGGCGCTGTGGCTATCACCGCGCTAAGTTTATTTCCGAGAGTCTGGATGATGTGAAAGAAAGGTTGGAAGAGATTGGAAGTAGCCTATGTATTCGGGTAGGCATGATTGGCAATGTAATTGAGGATATGATAGCCAAATATGCTAGAGAGGACTTTAAGGTTGCGGCAGTATGGATGGTGGGGGAAAGTGCTTCAGAGGAGATAAGTGAAGAAGCTGCTGTGAAAAATGCGTGTAAGGCTGCCAAGGTGGGGTTTAAAGTCTGGGCAGATGAGAAATATCTCATAGATGACCGTGAACTGCCATTTGATAAAATTAAAGATCTTCCTGATGTCTTCACAAGTTTTAGAAAAAGCGTCGAGCCACTTCGCACCATTCCACGAGCTTCACTTCCCACACCCTCAAAAGGATCACTTCCCGCATACCCCAATATTATTCCTTCGCAGCAGCCACCCTTTAGCGTCCCTCTTTCCTTTGTAGAAATCCAAAAAGCTCTTCTTAAGCCACTTGAAGCTTTAATCCTTATTGATGATCCACCAAAATTTCCACTTGGTGCGTCCTCGAGTTTCCCACTAAAAGGTGGTTGCTCCCATGCAACGAAGCGCCTCCGACATCTTTTATTATCCTCAAGTATAAGCAACTATAAAGAAACTCGGAATGGACTTTTAGGAGTTGACTATTCAACAAAGCTCTCTGCCTATCTTGCTCTTGGCTGTATCACATCACGACAAATTCACCACGCTCTCCTCTCGCTTGAGAATGGAACAGATTCGTCTCTTTCATCCGTCCATGGATATGGAGCCGGTGAAAATGATGGGACTAAAGCGACTCGCTTTGAACTACTGTGGCGTGACTATATGCGACTCTGCACTCGAAAATTTGGAATTAAGTTATTCCGTCTTTCTGGTTTCCGCGACCAAAAAGAATATAGGCCAATGTGGAACTTGCCTTTAAAGCCTTTGCCTGGGAGCTCGATAGCTCAAGTTCAAGAAATGATTAAACGTTTCCTAAATGGAACTACGGGCATGGGGCTTATTGATGCTGCTCAGCGAGAACTTTACCACACAGGCTTTACGTCCAACCGTACGCGTCAGAATGTTGCCTCGTTTCTAGCGAAACATCTCAAGATTGACTGGCGCATCGGTGCTGAGTGGTATGAATGTATGCTTGTAGATCATGATGTGTCTTCCAACTGGGGTAATTGGCAATATGTATCCGGTGTTGGTAATGATCCTCGAGGTGAAGACAGAGTATTCAATCCGGTAAAGCAGGCTCTCGACTATGATCCTTACGCTGAATACGTAAAGACTTGGTGTCCAGAACTACGGGCTGAAGGATTAGAGATCAGTGAGATATTTCAACCCTGGACTATTCCAGAGACAAAGAGGGAGGCTTTGGGATTAAAAGGATTAATTGGTGTTGAAAAACCTTTGCGGAAAATTCAATTTGGTAGCTACGGCAGTAGAGGTGGTCATTCTCAACACCATAAAACACAACTGAATACGAATCAACAAGGGCGAAACTCAGGCCGAGGTAAAGCACCAAAAAATGACTATGGTGGTCGTGGCTATGGGAGTTCTAAGGGATACGCAACGACTTCGAAAGGAAAAGGCGCTGCATCAAATAAATGGGTTGATACGTAA

**>OINE01005061\_T102555\_CDS\_Codon optimized**

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TTCGAAAGCAACCTGCTGCGTAAGGACATCCACACCACCGCGAGCAAGATGACCGAGATTAAACGTCTGCTGATC

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GGTTTTACCCACATGCTGCCGCTGTATGTTTTCAGCGCGCAGCAAATCGAAGTTAGCGGTTTTGTGGATGGCCAG

GAAAAATGCCCGTTCCCGGAGGCGCGTAGCCGTATTGCGGGTTTTTGGCGTTGCGGCTACCACCGTGCGAAGTTC

ATCAGCGAAAGCCTGGACGATGTGAAAGAGCGTCTGGAGGAAATTGGTAGCAGCCTGTGCATCCGTGTTGGCATG

ATCGGTAACGTGATTGAAGACATGATCGCGAAGTATGCGCGTGAGGATTTTAAAGTGGCGGCGGTTTGGATGGTG

GGTGAAAGCGCGAGCGAGGAAATTAGCGAGGAAGCGGCGGTGAAGAACGCGTGCAAGGCGGCGAAAGTTGGCTTT

AAAGTGTGGGCGGACGAAAAATACCTGATTGACGATCGTGAGCTGCCGTTCGATAAGATCAAAGACCTGCCGGAT

GTTTTCACCAGCTTTCGTAAGAGCGTGGAGCCGCTGCGTACCATCCCGCGTGCGAGCCTGCCGACCCCGAGCAAA

GGTAGCCTGCCGGCGTACCCGAACATCATTCCGAGCCAGCAACCGCCGTTTAGCGTTCCGCTGAGCTTCGTGGAA

ATCCAGAAGGCGCTGCTGAAACCGCTGGAGGCGCTGATCCTGATTGACGATCCGCCGAAATTTCCGCTGGGTGCG

AGCAGCAGCTTTCCGCTGAAGGGTGGCTGCAGCCACGCGACCAAACGTCTGCGTCACCTGCTGCTGAGCAGCAGC

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AGCGTGCACGGTTATGGCGCGGGTGAAAACGACGGTACCAAGGCGACCCGTTTTGAGCTGCTGTGGCGTGATTAC

ATGCGTCTGTGCACCCGTAAGTTCGGTATTAAACTGTTTCGTCTGAGCGGCTTCCGTGACCAAAAGGAGTATCGT

CCGATGTGGAACCTGCCGCTGAAACCGCTGCCGGGTAGCAGCATTGCGCAGGTTCAAGAAATGATCAAACGTTTC

CTGAACGGCACCACCGGTATGGGTCTGATTGATGCGGCGCAGCGTGAGCTGTACCACACCGGTTTTACCAGCAAC

CGTACCCGTCAAAACGTGGCGAGCTTCCTGGCGAAGCACCTGAAAATTGATTGGCGTATCGGCGCGGAGTGGTAT

GAATGTATGCTGGTTGACCACGATGTGAGCAGCAACTGGGGTAACTGGCAGTACGTTAGCGGCGTGGGTAACGAC

CCGCGTGGCGAAGATCGTGTTTTCAACCCGGTGAAGCAAGCGCTGGACTACGATCCGTATGCGGAATACGTTAAA

ACCTGGTGCCCGGAGCTGCGTGCGGAGGGTCTGGAAATCAGCGAGATTTTTCAGCCGTGGACCATCCCGGAAACC

AAGCGTGAGGCGCTGGGCCTGAAAGGTCTGATTGGCGTGGAGAAGCCGCTGCGTAAAATCCAATTCGGTAGCTAT

GGTAGCCGTGGTGGCCACAGCCAGCACCACAAGACCCAACTGAACACCAACCAGCAAGGTCGTAACAGCGGCCGT

GGCAAGGCGCCGAAAAACGACTATGGTGGCCGTGGCTACGGTAGCAGCAAGGGCTACGCGACCACCAGCAAGGGC

AAGGGTGCGGCGAGCAACAAATGGGTTGATACCTAA

**Amino Acid Sequence**

**>OINE01005061\_T102555\_AA**

MILELVPLMFRNISCSSRLLPKLLKFESNLLRKDIHTTASKMTEIKRLLIYVMRRDLRVADNPILYELATNSKKHGFTHMLPLYVFSAQQIEVSGFVDGQEKCPFPEARSRIAGFWRCGYHRAKFISESLDDVKERLEEIGSSLCIRVGMIGNVIEDMIAKYAREDFKVAAVWMVGESASEEISEEAAVKNACKAAKVGFKVWADEKYLIDDRELPFDKIKDLPDVFTSFRKSVEPLRTIPRASLPTPSKGSLPAYPNIIPSQQPPFSVPLSFVEIQKALLKPLEALILIDDPPKFPLGASSSFPLKGGCSHATKRLRHLLLSSSISNYKETRNGLLGVDYSTKLSAYLALGCITSRQIHHALLSLENGTDSSLSSVHGYGAGENDGTKATRFELLWRDYMRLCTRKFGIKLFRLSGFRDQKEYRPMWNLPLKPLPGSSIAQVQEMIKRFLNGTTGMGLIDAAQRELYHTGFTSNRTRQNVASFLAKHLKIDWRIGAEWYECMLVDHDVSSNWGNWQYVSGVGNDPRGEDRVFNPVKQALDYDPYAEYVKTWCPELRAEGLEISEIFQPWTIPETKREALGLKGLIGVEKPLRKIQFGSYGSRGGHSQHHKTQLNTNQQGRNSGRGKAPKNDYGGRGYGSSKGYATTSKGKGAASNKWVDT

**Full- length amino acid sequence of the *Pseudoidium neolycopersici* photolyase protein produced by GenScript**

**>OINE01000912\_T103440**

MKLVPLDNLPSFPITLTSFYIKSIHYGRGISIKLIMESKSSTTTGVGKRKLEVLGSPTASKRSKSSATSSNVPSKADSKDSKPTWANIVLRKYYPQEMSNARAQAYKDKKIPRPIDELNSALKDTFKQRGSISAGKSVAHWFKSDLRLNDNHALSAASEKSQEAGIPLIAFYIVSPEDYEAHMRAPIRVDFILRSLKILRDELAKLHIPLYVETVEKRKEIPNRIAELLNEWGAKHLFANMEYEVDELRREAGLVRNLASQGISFDVRHDTCVVPPGKIVNGTGNQYSVFTPWFRNWVAYLHSNLDLLEAFPTPSANSSSVISNPIFEPLFNHPIPTAPSNKLLSSEETKRFSALWPAGEKEALRRLEKFCKERITSYKKLRNFPAETGTSSLSPHFAVGSLSSRTAVALARERSGVKKLDGGNEGTQTWISEVAWRDFYKHVLVEWSYVCMYKPFKPEYANIEWEYNEEHLNAWKEGRTGYPIVDAAMRQLTHTGWMHNRLRMVTASFLAKHLLLDWRLGEQFFMLNLIDGDFASNNGGWGWSASSGVDPQPYFRIFNPELQSEKFDKNGDFIRKWIPELKAVKGTKPIHDPYGRGAISEAKKGGYVKRIVEHKKARDRCLARYKEGLGRASNHHHHHH

**Sequence information of *Pseudoidium neolycopersici* Alpha tubulin**

**>OINE01013217\_T107300**

ATGACTAGAGGCGAGATTCTCCACCTTCATATTGGCCAGGGAGGCACTCAGCTTGGAAATAGCGCCTGGGAGCTATACCTTCTCGAACATGGCCTATCCAAAGATGGTTACCCAAATCCTGATGCAAAAGACCTCCATGAATCTGGCGAGCTTGACACCGTCTTTACAGAAACAGGTAGTGGAAAATATGTACCACGATCAATTTTTGTGGATCTTGATCCTTCTCCCATTGATGAGATCCGGTTTTTGATTTTTCATTCTTTTGGTGGTGGGACCGGATCTGGCTTTGGATCTCTACTTCTTGAACGCCTATCTACTGATTATGGTAAGAAATCGAAGCTTGAGTTTGCTGTCTATCCTGCACCAAGAGTATCAACTGCCGTCGTTGAGCCATATAATGCGGTTTTATCAACACACTCAACAATTGAAAATAGTGACTGCACTTTCTTAGTTGACAATGAAGCTGTCTATGATATATGTCATCGTAACCTTGGTATCCCTCGTCCGTCTTTCGAACACTTAAATCGATTAATAGCACAAGTGGTGAGCAGTATTACTTCAAGTTTGCGATTTGAAGGCGCTTTGAACGTTGATCTTAACGAATTTCAAACGAATCTCGTCCCATACCCCCGAATTCATTACCCTTTGATTTCATATGCGCCAGTAATTAGTGCCTCTCGTAGTAGTCACGAAAGCTTTAAAACACATGACTTAACCCTACAATGTTTTGAACCTTACAATCAAATGGTAGTATGCGATCCTCGTGCTGGTAAATATATGGCTGTCGCACTTCTCTATCGCGGGGATGTAATTCCTCGGGACTGCAACGCTGCTGTTGTCTCACTCAAAGCTAAACCCTCCTTCAATCTTGTGGAATGGTGCCCTACAGGCTTTAAACTTGGGATCAACTATCAAAAACCTGTGTCAGTACCTTCTTCACCCGATGATGGTGCCCTTGCCTCAGTTGACCGTTCTGTTTCTATGCTTAGCAATACCACTGCCATTGCTGAGGCATGGTCTCGTCTTGACCATAAATTCGATCTTATGTATAATAAGCGTGCATTTGTCCATTGGTATGTTGGTGAGGGTATGGAGGAAGGCGAATTTAGTGAAGCACGAGAAGACCTTGCAGCTCTTGAAAAGGATTATGAAGAAGTTGCTGCTGATTCATATGATCCAGAAGATGGTGAAGCTGAGTATTAA

**Supplemental Data 2. Amino acid sequences of cryptochrome/photolyase family (CPF)- like genes (137 members) used in Phylogenetic analysis, retrieved from NCBI.**

1.

>Anacystis\_nidulans\_phr

MAAPILFWHRRDLRLSDNIGLAAARAQSAQLIGLFCLDPQILQSADMAPARVAYLQGCLQELQQRYQQAGSRLLLLQGDPQHLIPQLAQQLQAEAVYWNQDIEPYGRDRDGQVAAALKTAGIRAVQLWDQLLHSPDQILSGSGNPYSVYGPFWKNWQAQPKPTPVATPTELVDLSPEQLTAIAPLLLSELPTLKQLGFDWDGGFPVEPGETAAIARLQEFCDRAIADYDPQRNFPAEAGTSGLSPALKFGAIGIRQAWQAASAAHALSRSDEARNSIRVWQQELAWREFYQHALYHFPSLADGPYRSLWQQFPWENREALFTAWTQAQTGYPIVDAAMRQLTETGWMHNRCRMIVASFLTKDLIIDWRRGEQFFMQHLVDGDLAANNGGWQWSASSGMDPKPLRIFNPASQAKKFDATATYIKRWLPELRHVHPKDLISGEITPIERRGYPAPIVNHNLRQKQFKALYNQLKAAIAEPEAEPDS

2.

>gi|161138112|gb|ABX58027.1|\_cryptochrome\_1a\_Triticum\_aestivum

MSASPSMSGGAGERTRTRTVVWFRRDLRVEDNPALAAAARTAGEVVPAYVWAPKEDGPYYPGRVSRWWLSQSLKHLDASLRRLGATRLVTRRSTDTVAALLELVRSTGATHLFFNHLYDPLSLVRDHRVKQVLGAEGITVQSFNSDLLYEPWEVLDDHGCPFTMFTPFWNTCLCMVDPPAPMLPPKRINSGELSRCCSSDDLIFEDESERGSNALLARAWSPGWQNADKAFTAFINGPLIDYSVNRKKADSANTSLLSPYLHFGELSVRKVFHQIRMKQLTWSNESNGDGEEGCSLFLRSIGLREYSRRLAFNHPCSHEKPLLAHLRFFPWVVNEVYFKVWRQGRTGYPLVDAGMRELWATGWLHDRIRVVVSSFFVKVLQLPWRWGMKYFWDTLLDADLESDALGWQYISGSLPDGRELDRIDNPQFEGYKFDPYGEYVRRWLPELARLPTEWIHHPWDAPESVLRAAGIELGSNYPLPIVELDEAKSRLQDALSEMWELEAASRAEIENGMEEGLGDSSDEPPIAFPQELQHMEVDRATIHTPATAGRRRADQMVPSITSSLVRAETETELSAAFESEVTRPEVPSQVHFQPQTRMEVRDEGVSDGTAARYNGVQQQQQYTLHRHRVQGGIAPSTSEASSSWTGREGGVVPVWSPPAASGHSDPYAADETDISSRSYLDRHPQQSHRLMNWNQLSQSS

3.

>gi|161138116|gb|ABX58029.1|\_cryptochrome\_2\_Triticum\_aestivum

MGGSERTVVWFRRDLRIDDNPALAAAARDGAVLPVFIWCPAEEGRFYTGRCSRWWLKESLAHLARSLQALGCPLVLIRAQTTLAALLQCVDSIGATRVVYIHLYDPISLVRDDKIKNELLGLGISMQSFNGDLLYEPWEVYDENGLPFTTFKKYWEKCMKLHIDISPSLAPWRLVPVSGIENICSSSIDNLGLESSKDEESSNALLSRAWSPGWRNAEKTLEDFVSHGLLDYSKDRMKVAGTTTSLSSPYLHYGEVSVRKIYQLVRVQQIKWENEGKSGAGESDNLFLLSIGLREYSRYLCFNFPFTRERSLLGNLKHYPWRADEDRFKSWRQGMTGYPLVDAGMRELWATGWTHNRIRVIVSSFAVKFLQIPWTWGMKYFWDVLLDADIESDILGWQYISGSLPDGHELGRLDNPEVQGQKYDPDGEYVRTWIPELARMPGEWIHHPWDAPSSILEVAGVELGFNYPMPIVELHTARECLDDAISTMWQLDTAEKLAELDGEVVEDNLSHIKSFDVPKVVLKELSPHCDRKVPTDDGRNLELQPKELKGTNKQTICVDVIKASKMEDTGSIANSPISRKRSSSGSVFNVPSYSSSVEVHSQNQHPGGYLVGSSKYIQQKAERNCVGKAEDDDSADSGTNTSRASKRPAA

4.

>gi|528295567|emb|CCU77936.1|\_deoxyribodipyrimidine\_photolyase\_Blumeria\_graminis\_f.\_sp.\_hordei\_DH14

MSKFGRQLVRKILIFDQIVSKRSFLRTSGSSLQIPWTIKMASSNFPSTTTRKRKIEQPESSSSSKKPKVAVSSVNESLTTPDPKHALSAAHGIVLRKYYPHEMNNARAQAYKDNTLTRPISILNDALSETHKLRESTKAGKAVVHWFKSDLRVNDNHALSAASEKAREAGVPLLALFILSPQDLEAHLTAPIRVDFLLRSLKLLRDDLAALHIPLHIKTIEKRKEIPTLIAALLAEWEVKHMFANIEYEVDELRRDAEIVREISKQQIAFDLRHDSCIVQPGKLLSGTGNAYSVYTPWYRAWMAHVHSNPDLLETFPAPTPNPSSITSDSTYKSLFDCPIPKPPENKRLSIEETKRFSALWPAGEREASDRLEKFCKERITGYKAKRNFPAETGTSSLSPHFALGTLSSRTAVRAARESSGSKKMDGGNEGVQTWISEVAWRDFYRHVLVAFPYVCMNKPFKPEYSKIEWEYNDDHFNAWKEGRTGYPIVDAAMRQLAYTGWMHNRLRMVVASFLTKHLLLDWRLGEQYFMLNLIDGDFASNNGGWGWSAGSGVDPQPYFRIFNPELQSEKFDKEGHFIRKWVPELKGVRGSKPIHDPYARGAASEAKSGGYIPRIVNHKEARERCLKRYKEGLGKVTS

5.

>gi|16128683|ref|NP\_415236.1|\_deoxyribodipyrimidine\_photolyase\_(photoreactivation)\_Escherichia\_coli\_str.\_K-12\_substr.\_MG1655

MTTHLVWFRQDLRLHDNLALAAACRNSSARVLALYIATPRQWATHNMSPRQAELINAQLNGLQIALAEKGIPLLFREVDDFVASVEIVKQVCAENSVTHLFYNYQYEVNERARDVEVERALRNVVCEGFDDSVILPPGAVMTGNHEMYKVFTPFKNAWLKRLREGMPECVAAPKVRSSGSIEPSPSITLNYPRQSFDTAHFPVEEKAAIAQLRQFCQNGAGEYEQQRDFPAVEGTSRLSASLATGGLSPRQCLHRLLAEQPQALDGGAGSVWLNELIWREFYRHLITYHPSLCKHRPFIAWTDRVQWQSNPAHLQAWQEGKTGYPIVDAAMRQLNSTGWMHNRLRMITASFLVKDLLIDWREGERYFMSQLIDGDLAANNGGWQWAASTGTDAAPYFRIFNPTTQGEKFDHEGEFIRQWLPELRDVPGKVVHEPWKWAQKAGVTLDYPQPIVEHKEARVQTLAAYEAARKGK

6.

>gi|521771249|gb|EPQ63205.1|\_DNA\_photolyase\_Blumeria\_graminis\_f.\_sp.\_tritici\_96224

MSNFRRQLVRNIIIFDQISYKLSFLQTSGSSLRIPWTIKMASSNLPSVTTRKRKVEQPESLSSSKKLKVAVSSVNESLTTPDPKYALSAAHGIVLRKYYPHEMNNARAQAYKDNALTRPISILNAALAETHKLRENTKVGKAVVHWFKSDLRVKDNHALSAASEKAREADVPLLALFILSPQDLEAHLTAPIRVDFLLRSLKLLRDDLAVLNIPLHIMTIEKRKEIPTLIAALLAEWEVKHIFANIEYEVDELRRDAEIVRGISKQEIAFDLRHDSCIVQPGKLLSGTGNAYSVYTPWYRAWMAHVHSNPDLLETFPAPTPNPSSITSDSTYTSLFNCPIPKPPENKRLSFDETKRFSALWPAGEREASDRLEKFCKERITGYKAKRNFPAETGTSSLSPHFALGTLSSRTAVRAARESSGSKKIDGGNEGVQTWISEVAWRDFYRHVLVAFPYVCMNKPFKPEYSKIEWEYNDDHFNAWKEGRTGYPIVDAAMRQLAYTGWMHNRLRMVVASFLTKHLLLDWRLGEQYFMLNLIDGDFASNNGGWGWSAGSGVDPQPYFRIFNPELQSEKFDKEGHFIRKWVPELKGVRGSKPIHDPYGRGAASEAKSGGYIPRIVNHKEARERCLQRYKEGLGKVTS

7.

>gi|730183381|gb|KHJ34441.1|\_putative\_deoxyribodipyrimidine\_photo-lyase\_Erysiphe\_necator

MSNARAQDYKDKRIPRPIDELNSALKDTFKQRGVISPGRSVVHWFKSDLRLKDNHALSAASEKAQKSGVPLITFYIVSPEDYEAHLRAPIRVDFILRSLKTLQDDLAKLHIPLYVETVEKRREVPLRIAQLLNNWGTKHLFTNMEYEVDELRREAAMVRDLASQDIAFDVRHDTCVVPPGKVVNGTGNQYSVFTPWFRNWVTYLHSNLDLLETFPAPIANSPSINSDPNLKSLFNQLIPVAPLNKQLSKEEEKRFTALWPAGEKEAFARLEKFCKERITSYKKLRNFPAETGTSSLSPHFAVGSLSSRTAVAVARERNGLKKLDGGDEGIQTWISEVAWRDFYKHVLVEWSYVCMYKPFKPEYTNIQWECNEEHLNAWKEGRTGYPIVDAAMRQLTHTGWMHNRLRMVTASFLSKHLLLDWRLGEQFFMLNLIDGDFASNNGGWGWSASSGVDPQPYFRIFNPELQSEKFDKNGDFIRKWIPELKAVKGAKAIHDPFGRGAISEAKKGGYVKRIVAHKEARDRCLARYKEGLMKPSS

8.

>gi|6324962|ref|NP\_015031.1|\_deoxyribodipyrimidine\_photolyase\_PHR1\_Saccharomyces\_cerevisiae\_S288C

MKRTVISSSNAYASKRSRLDIEHDFEQYHSLNKKYYPRPITRTGANQFNNKSRAKPMEIVEKLQKKQKTSFENVSTVMHWFRNDLRLYDNVGLYKSVALFQQLRQKNAKAKLYAVYVINEDDWRAHMDSGWKLMFIMGALKNLQQSLAELHIPLLLWEFHTPKSTLSNSKEFVEFFKEKCMNVSSGTGTIITANIEYQTDELYRDIRLLENEDHRLQLKYYHDSCIVAPGLITTDRGTNYSVFTPWYKKWVLYVNNYKKSTSEICHLHIIEPLKYNETFELKPFQYSLPDEFLQYIPKSKWCLPDVSEEAALSRLKDFLGTKSSKYNNEKDMLYLGGTSGLSVYITTGRISTRLIVNQAFQSCNGQIMSKALKDNSSTQNFIKEVAWRDFYRHCMCNWPYTSMGMPYRLDTLDIKWENNPVAFEKWCTGNTGIPIVDAIMRKLLYTGYINNRSRMITASFLSKNLLIDWRWGERWFMKHLIDGDSSSNVGGWGFCSSTGIDAQPYFRVFNMDIQAKKYDPQMIFVKQWVPELISSENKRPENYPKPLVDLKHSRERALKVYKDAM

9.

>gi|1435243662|ref|NP\_066940.3|\_cryptochrome-2\_isoform\_1\_Homo\_sapiens

MAATVATAAAVAPAPAPGTDSASSVHWFRKGLRLHDNPALLAAVRGARCVRCVYILDPWFAASSSVGINRWRFLLQSLEDLDTSLRKLNSRLFVVRGQPADVFPRLFKEWGVTRLTFEYDSEPFGKERDAAIMKMAKEAGVEVVTENSHTLYDLDRIIELNGQKPPLTYKRFQAIISRMELPKKPVGLVTSQQMESCRAEIQENHDETYGVPSLEELGFPTEGLGPAVWQGGETEALARLDKHLERKAWVANYERPRMNANSLLASPTGLSPYLRFGCLSCRLFYYRLWDLYKKVKRNSTPPLSLFGQLLWREFFYTAATNNPRFDRMEGNPICIQIPWDRNPEALAKWAEGKTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWVSWESGVRVFDELLLDADFSVNAGSWMWLSCSAFFQQFFHCYCPVGFGRRTDPSGDYIRRYLPKLKAFPSRYIYEPWNAPESIQKAAKCIIGVDYPRPIVNHAETSRLNIERMKQIYQQLSRYRGLCLLASVPSCVEDLSHPVAEPSSSQAGSMSSAGPRPLPSGPASPKRKLEAAEEPPGEELSKRARVAELPTPELPSKDA

10.

>gi|15219720|ref|NP\_171935.1|\_cryptochrome\_2\_Arabidopsis\_thaliana

MKMDKKTIVWFRRDLRIEDNPALAAAAHEGSVFPVFIWCPEEEGQFYPGRASRWWMKQSLAHLSQSLKALGSDLTLIKTHNTISAILDCIRVTGATKVVFNHLYDPVSLVRDHTVKEKLVERGISVQSYNGDLLYEPWEIYCEKGKPFTSFNSYWKKCLDMSIESVMLPPPWRLMPITAAAEAIWACSIEELGLENEAEKPSNALLTRAWSPGWSNADKLLNEFIEKQLIDYAKNSKKVVGNSTSLLSPYLHFGEISVRHVFQCARMKQIIWARDKNSEGEESADLFLRGIGLREYSRYICFNFPFTHEQSLLSHLRFFPWDADVDKFKAWRQGRTGYPLVDAGMRELWATGWMHNRIRVIVSSFAVKFLLLPWKWGMKYFWDTLLDADLECDILGWQYISGSIPDGHELDRLDNPALQGAKYDPEGEYIRQWLPELARLPTEWIHHPWDAPLTVLKASGVELGTNYAKPIVDIDTARELLAKAISRTREAQIMIGAAPDEIVADSFEALGANTIKEPGLCPSVSSNDQQVPSAVRYNGSKRVKPEEEEERDMKKSRGFDERELFSTAESSSSSSVFFVSQSCSLASEGKNLEGIQDSSDQITTSLGKNGCK

11.

>gi|15641816|ref|NP\_231448.1|\_deoxyribodipyrimidine\_photolyase\_Vibrio\_cholerae\_O1\_biovar\_El\_Tor\_str.\_N16961

MSKKIGLYWFTNDLRVNDNPLLEQASQQVDRLICLYCYPSITPFLARYAQQTQWGEAKKRFLNQTLADLDHSLSTLGQKLWVTPLLPYQALRHLLTQVEITDIYVDAVAGSDERQAIARIHQDFSSVHIHQQALHSLLSEPQLPFALEALPSTFTQFRKQVETISLSAPMGYPHVLPPIEQGWQLPLMDIVTEPNHSAFVGGEQAGLTHCQNYFSSLLPSRYKETRNGLDGMDYSTKFSPWLALGAVSPKTIYAMLQRYEAVHGANDSTYWIFFELLWREYFYWYARRYGAKLFRFSGIGEKKPLTSFYAQRFLQWKHGETPFPIVNACMRQLNQTGYMSNRGRQLVASCLVHELGLDWRYGAAYFETQLVDYDVGSNWGNWQYLAGVGADPRGSRQFNLEKQAHTYDPKGEFVAKWCGTACDKLNALENLALDSVDMVDWPIAASAYLLIHHPQNKESSS

12.

>gi|15600828|ref|NP\_232458.1|\_deoxyribodipyrimidine\_photolyase\_Vibrio\_cholerae\_O1\_biovar\_El\_Tor\_str.\_N16961

MRLVWFRRDLRSFDNTALTAALNSGDPVAAMYIATPEQWHQHHLAPIQADLIWRRLAELQQELAALNVPLFYQQVADFQAAAVAVSQLAKTLNATQVLANRDYELDEQQRDQLAQQLLSEQGIIWSAFDDKCVLPPGSVRTKQGEFFKVFTPFKRAWLTLFQPPVIGKNRPVALWNVPSALAELVWHPEQAFDYPRIDSTPWAADFETVRAQLRDFCRERVQDYHQARDFPAREGTSSLSPYLAIGVLSARQCVARLYHESSMGELSEGAQVWLSELIWREFYQHLVAIEPNLSKSRDFVEWGARLEWWNDNEKFQLWCEGKTGYPIVDAAMRQLNQTGWMHNRLRMIVASFLTKDLHIDWRWGERYFMSRLIDGDYAANNGGWQWCASTGCDGQPYFRIFNPVSQGEKFDPNGDFIRRWVPELRSVSSAYIHQPWTYPAVNSVLYPARLVDHKQEREVTLRLYKTAKG

13.

>gi|15888554|ref|NP\_354235.1|\_DNA\_photolyase\_Agrobacterium\_fabrum\_str.\_C58

MSLKTAPVIVWFRKDLRLSDNLALLAAVEHGGPVIPVYIREKSAGPLGGAQEWWLHHSLAALSSSLEKAGGRLVLASGDAERILRDLISETGADTVVWNRRYDPTGMATDKALKQKLRDDGLTVRSFSGQLLHEPSRLQTKSGGPYRVYTPFWRALEGSDEPHAPADPPKSLTAPKVWPKSEKLSNWKLLPTKPDWAKDFSDIWTPGETGALDKLDDFIDGALKGYEEGRDFPAKPATSLLSPHLAAGEISPAAVWHATKGLSRHIASNDISRFRKEIVWREFCYHLLFHFPELGEKNWNDSFDAFSWRDDEKSFKAWTRGMTGYPIVDAGMRQLWQHGTMHNRVRMIVASFLIKHLLIDWRKGEKWFRDTLVDADPASNAANWQWVAGSGADASPFFRIFNPILQGEKFDGDGDYVRRFVPELEKLERKYIHKPFEAPKDALKKAGVELGKTYPLPIVDHGKARERALAAYAAVKKTT

14.

>gi|16125677|ref|NP\_420241.1|\_deoxyribodipyrimidine\_photolyase\_Caulobacter\_vibrioides\_CB15

MQVRNDSGDSKANLDAVIVWFRKDLRIADNPALRHAAQSGRPVIPLYILDETPGIRPMGGASLWWLDKSLKSLAASLETLGTKLVLRKGVAAEVLDQLIAQSGARSVVWNRLYDKPSTDRDAAIKAALRDRGVDCQSFNAGLLNEPWTVKNGSDQPYKVFTPYWRAAREHLTDVAVTAAPGHLVAPARFPASESLASWNLHPTKPDWSKGFDLWTPGEAGAHARLDAFLKGPIKGYGDQRDIPGVEATSKLSPHLHFGEIGPRQVWLATRSAADQGDIPLAEADKFLSEIGWREFNHSILYNWPHMPSANFKPEFDGFPWVKDEGALEAWKRGQTGYPIVDAGMRELWTTGFMHNRVRMIVASFLIKHLMIDWREGEAWFWDTLLDADLANNVGNWQWTAGSGADAAPYFRIFNPIAQGEKFDPKGDYVRRWVPELRNVSDDVIHKPWTKPLHLPAGAKRLYSRPIVDHAMARARALEAYHGL

15.

>gi|16764079|ref|NP\_459694.1|\_deoxyribodipyrimidine\_photolyase\_Salmonella\_enterica\_subsp.\_enterica\_serovar\_Typhimurium\_str.\_LT2

MPTHLVWFRRDLRLQDNLALAAACRDASARVLALYISTPAQWQAHDMAPRQAAFISAQLNALQTALAEKGIPLLFHEVADFNASIETVKNVCRQHDVSHLFYNYQYEFNERQRDAAVEKTLPSVICEGFDDSVILAPGAVMTGNHEMYKVFTPFKNAWLKRLKEDIPPCVPAPKIRVSGALSTPLTPVSLNYPQQAFDAALFPVEENAVIAQLRQFCAQGADEYALRRDFPAVDGTSRLSASLATGGLSPRQCLHRLLAEQPQALDGGPGSVWLNELIWREFYRHLMTWYPALCKHQPFIRWTKRVAWQENPHYFQAWQKGETGYPIVDAAMRQLNATGWMHNRLRMITASFLVKDLLIDWRLGERYFMSQLIDGDLAANNGGWQWAASTGTDAAPYFRIFNPTTQGERFDRDGEFIRQWLPALRDIPGKAIHEPWRWAEKAGVVLDYPRPIVEHKQARIATLSAYEAARKGA

16.

>gi|24586396|ref|NP\_523653.2|\_photorepair\_isoform\_A\_Drosophila\_melanogaster

MFTLASYWRESFKIVLPLQAMKRTKAQKAGPSKKAAKNEKASSEPKSDQESSDEEASTSKALLVSKPDYQNFEQFLTHLEHQRVCTAANIQEFSFRKKRVRVLSKTEDVKESSLGGVVYWMSRDGRVQDNWALLFAQRLALKLELPLTVVFCLVPKFLNATIRHYKFMMGGLQEVEQQCRALDIPFHLLMGSAVEKLPQFVKSKDIGAVVCDFAPLRLPRQWVEDVGKALPKSVPLVQVDAHNVVPLWVASDKQEYAARTIRNKINSKLGEYLSVFPPVVRHPHGTGCKNVNTVDWSAAYASLQCDMEVDEVQWAKPGYKAACQQLYEFCSRRLRHFNDKRNDPTADALSGLSPWLHFGHISAQRCALEVQRFRGQHKASADAFCEEAIVRRELADNFCFYNEHYDSLKGLSSWAYQTLDAHRKDKRDPCYSLEELEKSLTYDDLWNSAQLQLVREGKMHGFLRMYWAKKILEWTATPEHALEYAILLNDKYSLDGRDPNGYVGCMWSIGGVHDMGWKERAIFGKVRYMNYQGCRRKFDVNAFVMRYGGKVHKKK

17.

>gi|18400841|ref|NP\_566520.1|\_DNA\_photolyase\_family\_protein\_Arabidopsis\_thaliana

MQRFCVCSPSSYRLNPITSMATGSGSLIWFRKGLRVHDNPALEYASKGSEFMYPVFVIDPHYMESDPSAFSPGSSRAGVNRIRFLLESLKDLDSSLKKLGSRLLVFKGEPGEVLVRCLQEWKVKRLCFEYDTDPYYQALDVKVKDYASSTGVEVFSPVSHTLFNPAHIIEKNGGKPPLSYQSFLKVAGEPSCAKSELVMSYSSLPPIGDIGNLGISEVPSLEELGYKDDEQADWTPFRGGESEALKRLTKSISDKAWVANFEKPKGDPSAFLKPATTVMSPYLKFGCLSSRYFYQCLQNIYKDVKKHTSPPVSLLGQLLWREFFYTTAFGTPNFDKMKGNRICKQIPWNEDHAMLAAWRDGKTGYPWIDAIMVQLLKWGWMHHLARHCVACFLTRGDLFIHWEQGRDVFERLLIDSDWAINNGNWMWLSCSSFFYQFNRIYSPISFGKKYDPDGKYIRHFLPVLKDMPKQYIYEPWTAPLSVQTKANCIVGKDYPKPMVLHDSASKECKRKMGEAYALNKKMDGKVDEENLRDLRRKLQKDEHEESKIRNQRPKLK

18.

>gi|18413170|ref|NP\_567341.1|\_cryptochrome\_1\_Arabidopsis\_thaliana

MSGSVSGCGSGGCSIVWFRRDLRVEDNPALAAAVRAGPVIALFVWAPEEEGHYHPGRVSRWWLKNSLAQLDSSLRSLGTCLITKRSTDSVASLLDVVKSTGASQIFFNHLYDPLSLVRDHRAKDVLTAQGIAVRSFNADLLYEPWEVTDELGRPFSMFAAFWERCLSMPYDPESPLLPPKKIISGDVSKCVADPLVFEDDSEKGSNALLARAWSPGWSNGDKALTTFINGPLLEYSKNRRKADSATTSFLSPHLHFGEVSVRKVFHLVRIKQVAWANEGNEAGEESVNLFLKSIGLREYSRYISFNHPYSHERPLLGHLKFFPWAVDENYFKAWRQGRTGYPLVDAGMRELWATGWLHDRIRVVVSSFFVKVLQLPWRWGMKYFWDTLLDADLESDALGWQYITGTLPDSREFDRIDNPQFEGYKFDPNGEYVRRWLPELSRLPTDWIHHPWNAPESVLQAAGIELGSNYPLPIVGLDEAKARLHEALSQMWQLEAASRAAIENGSEEGLGDSAEVEEAPIEFPRDITMEETEPTRLNPNRRYEDQMVPSITSSLIRPEEDEESSLNLRNSVGDSRAEVPRNMVNTNQAQQRRAEPASNQVTAMIPEFNIRIVAESTEDSTAESSSSGRRERSGGIVPEWSPGYSEQFPSEENGIGGGSTTSSYLQNHHEILNWRRLSQTG

19.

>gi|1063729030|ref|NP\_568461.3|\_cryptochrome\_3\_Arabidopsis\_thaliana

MAASSLSLSSPLSNPLRRFTLHHLHLSKKPLSSSSLFLCSAAKMNDHIHRVPALTEEEIDSVAIKTFERYALPSSSSVKRKGKGVTILWFRNDLRVLDNDALYKAWSSSDTILPVYCLDPRLFHTTHFFNFPKTGALRGGFLMECLVDLRKNLMKRGLNLLIRSGKPEEILPSLAKDFGARTVFAHKETCSEEVDVERLVNQGLKRVGNSTKLELIWGSTMYHKDDLPFDVFDLPDVYTQFRKSVEAKCSIRSSTRIPLSLGPTPSVDDWGDVPTLEKLGVEPQEVTRGMRFVGGESAGVGRVFEYFWKKDLLKVYKETRNGMLGPDYSTKFSPWLAFGCISPRFIYEEVQRYEKERVANNSTYWVLFELIWRDYFRFLSIKCGNSLFHLGGPRNVQGKWSQDQKLFESWRDAKTGYPLIDANMKELSTTGFMSNRGRQIVCSFLVRDMGLDWRMGAEWFETCLLDYDPCSNYGNWTYGAGVGNDPREDRYFSIPKQAQNYDPEGEYVAFWLQQLRRLPKEKRHWPGRLMYMDTVVPLKHGNGPMAGGSKSGGGFRGSHSGRRSRHNGP

20.

>gi|40254688|ref|NP\_571861.2|\_cryptochrome-2\_Danio\_rerio

MVVNSVHWFRKGLRLHDNPALQEALNGADTVRCVYILDPWFAGSANVGVNRWRFLLESLEDLDTSLRKLNSRLFVVRGQPTDVFPRLFKEWNVTRLTFEYDSEPYGKERDAAIIKMAQEYGVETVVRNTHTLYNPDRIIEMNNHSPPLTFKRFQAIVNRLELPRKPLPTITQEQMARCRTQISDNHDEHYGVPSLEELGFRTQGDSLHVWKGGETEALERLNKHLDRKAWVANFERPRISGQSLFPSPTGLSPYLRFGCLSCRVFYYNLRDLFMKLRRRSSPPLSLFGQLLWREFFYTAGTNNPNFDHMEGNPICVQIPWDHNPEALAKWAEGRTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWESGMKVFEELLLDADWSVNAGSWMWLSCSAFFQQFFHCYCPVGFGRRTDPSGDYIRRYIPKLKDYPNRYIYEPWNAPESVQKAANCIVGVDYPKPMINHAESSRLNIERMKQVYQQLSHYRGLSLLASVPTIQEEAEPPMSDDSQASSSSTGQASSPPHLSITAPSTPPLSESSSPNSSPTASTSVPHTQRKRVRPSETPSKQKTKVKHTSQARGLELKMDDKQ

21.

>gi|18858473|ref|NP\_571863.1|\_cryptochrome\_circadian\_regulator\_5\_Danio\_rerio

MSHNTIHWFRKGLRLHDNPALIAALKDCRHIYPLFLLDPWFPKNTRIGINRWRFLIEALKDLDSSLKKLNSRLFVVRGSPTEVLPKLFKQWKITRLTFEVDTEPYSQSRDKEVMKLAKEYGVEVTPKISHTLYNIDRIIDENNGKTPMTYIRLQSVVKAMGHPKKPIPAPTNEDMRGVSTPLSDDHEEKFGIPTLEDLGLDTSSLGPHLFPGGEQEALRRLDEHMERTNWVCKFEKPKTSPNSLIPSTTVLSPYVRFGCLSARTFWWRLADVYRGKTHSDPPVSLHGQLLWREFFYTTAVGIPNFNKMEGNSACVQVDWDNNPEHLAAWREARTGFPFIDTIMTQLRQEGWIHHLARHAVACFLTRGDLWISWEEGQKVFEELLLDSDWSLNAGNWQWLSASTFFHQYFRVYSPIAFGKKTDKHGDYIKKYLPVLKKFPTEYIYEPWKAPRSVQERAGCIVGKDYPRPIVDHEVVHKKNILRMKAAYAKRSPEDKTINKGEKRKASPSIKEMFQKKAKR

22.

>gi|24585455|ref|NP\_724274.1|\_(6-4)-photolyase\_isoform\_A\_Drosophila\_melanogaster

MDSQRSTLVHWFRKGLRLHDNPALSHIFTAANAAPGKYFVRPIFILDPGILDWMQVGANRWRFLQQTLEDLDNQLRKLNSRLFVVRGKPAEVFPRIFKSWRVEMLTFETDIEPYSVTRDAAVQKLAKAEGVRVETHCSHTIYNPELVIAKNLGKAPITYQKFLGIVEQLKVPKVLGVPEKLKNMPTPPKDEVEQKDSAAYDCPTMKQLVKRPEELGPNKFPGGETEALRRMEESLKDEIWVARFEKPNTAPNSLEPSTTVLSPYLKFGCLSARLFNQKLKEIIKRQPKHSQPPVSLIGQLMWREFYYTVAAAEPNFDRMLGNVYCMQIPWQEHPDHLEAWTHGRTGYPFIDAIMRQLRQEGWIHHLARHAVACFLTRGDLWISWEEGQRVFEQLLLDQDWALNAGNWMWLSASAFFHQYFRVYSPVAFGKKTDPQGHYIRKYVPELSKYPAGCIYEPWKASLVDQRAYGCVLGTDYPHRIVKHEVVHKENIKRMGAAYKVNREVRTGKEEESSFEEKSETSTSGKRKVRRATGSAPKRKR

23.

>gi|24648152|ref|NP\_732407.1|\_cryptochrome\_Drosophila\_melanogaster

MATRGANVIWFRHGLRLHDNPALLAALADKDQGIALIPVFIFDGESAGTKNVGYNRMRFLLDSLQDIDDQLQAATDGRGRLLVFEGEPAYIFRRLHEQVRLHRICIEQDCEPIWNERDESIRSLCRELNIDFVEKVSHTLWDPQLVIETNGGIPPLTYQMFLHTVQIIGLPPRPTADARLEDATFVELDPEFCRSLKLFEQLPTPEHFNVYGDNMGFLAKINWRGGETQALLLLDERLKVEQHAFERGFYLPNQALPNIHDSPKSMSAHLRFGCLSVRRFYWSVHDLFKNVQLRACVRGVQMTGGAHITGQLIWREYFYTMSVNNPNYDRMEGNDICLSIPWAKPNENLLQSWRLGQTGFPLIDGAMRQLLAEGWLHHTLRNTVATFLTRGGLWQSWEHGLQHFLKYLLDADWSVCAGNWMWVSSSAFERLLDSSLVTCPVALAKRLDPDGTYIKQYVPELMNVPKEFVHEPWRMSAEQQEQYECLIGVHYPERIIDLSMAVKRNMLAMKSLRNSLITPPPHCROINEEEVRQFFWLADVVV

24.

>gi|30021247|ref|NP\_832878.1|\_deoxyribodipyrimidine\_photolyase\_Bacillus\_cereus\_ATCC\_14579

MQNKIIVMFQKDFRLYDNPALFEAVQSGEVLPVYIQDETFSIGSASKWWLHHAVIDVKKQLEALGSTLIIRKGRTEEEILSLIEQLDITAVYWNICYDPDRLQSNQKMKMMLEDKGIICKEFNSHLLLEPWIIKKKDNTEYKVFTPFYNAFQKQVIPKPFSRVQSIKWGNSLPASLSVSELQLLPIIPWTSHMEVIWDPTEEGAYKTFKKFFSSKLVSYSEGRDFPGQNVHSMLAPYLSFGQISVKLMFHYLINKSTERQCSLFEKQVNSFIRQLIWREFSYYLLYHYPFTVYKPLNKSFENFPWDKEEELLRVWQKGKTGYPFIDAGMRELWQTGFMHNRARMAVASFLVKHLLIPWQEGAKWFMDTLLDADIANNTMGWQWVAGSGADASPYFRIFNPITQGEKFDKNGEYIRRWVPELRDIPNKYIHKPWEAPEHILQKSNIKLGDTYPFPIVDHKAARERALCAYKSMKEFV

25.

>gi|30682738|ref|NP\_849651.1|\_photolyase\_1\_Arabidopsis\_thaliana

MASTVSVQPGRIRILKKGSWQPLDQTVGPVVYWMFRDQRLKDNWALIHAVDLANRTNAPVAVVFNLFDQFLDAKARQLGFMLKGLRQLHHQIDSLQIPFFLLQGDAKETIPNFLTECGASHLVTDFSPLREIRRCKDEVVKRTSDSLAIHEVDAHNVVPMWAASSKLEYSARTIRGKINKLLPDYLIEFPKLEPPKKKWTGMMDKKLVDWDSLIDKVVREGAEVPEIEWCVPGEDAGIEVLMGNKDGFLTKRLKNYSTDRNNPIKPKALSGLSPYLHFGQVSAQRCALEARKVRSTSPQAVDTFLEELIVRRELSDNFCYYQPHYDSLKGAWEWARKSLMDHASDKREHIYSLEQLEKGLTADPLWNASQLEMVYQGKMHGFMRMYWAKKILEWTKGPEEALSISIYLNNKYEIDGRDPSGYVGCMWSICGVHDQGWKERPVFGKIRYMNYAGCKRKFNVDSYISYVKSLVSVTKKKRKAEEQLTRDSVDPKITIV

26.

>gi|45383642|ref|NP\_989575.1|\_cryptochrome-2\_Gallus\_gallus

MAAAASPPRGFCRSVHWFRRGLRLHDNPALQAALRGAASLRCIYILDPWFAASSAVGINRWRFLLQSLEDLDNSLRKLNSRLFVVRGQPTDVFPRLFKEWGVTRLTFEYDSEPFGKERDAAIIKLAKEAGVEVVIENSHTLYDLDRIIELNGNKPPLTYKRFQAIISRMELPKKPVSSIVSQQMETCKVDIQENHDDVYGVPSLEELGFPTDGLAPAVWQGGETEALARLDKHLERKAWVANYERPRMNANSLLASPTGLSPYLRFGCLSCRLFYYRLWELYKKVKRNSTPPLSLYGQLLWREFFYTAATNNPKFDRMEGNPICIQIPWDKNPEALAKWAEGKTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWESGVRVFDELLLDADFSVNAGSWMWLSCSAFFQQFFHCYCPVGFGRRTDPSGDYVKRYLPKLKGFPSRYIYEPWNAPESVQKAAKCIIGVDYPKPMVNHAETSRLNIERMKQIYQQLSRYRGLCLLASVPSCVEDLSGPVTDSAPGQGSSTSTAVRLPQSDQASPKRKHEGAEELCTEELYKRAKVTGLPAPEIPGKSS

27.

>gi|45383636|ref|NP\_989576.1|\_cryptochrome-1\_Gallus\_gallus

MGVNAVHWFRKGLRLHDNPALRECIRGADTVRCVYILDPWFAGSSNVGINRWRFLLQCLEDLDANLRKLNSRLFVIRGQPADVFPRLFKEWSIAKLSIEYDSEPFGKERDAAIKKLASEAGVEVIVRISHTLYDLDKIIELNGGQPPLTYKRFQTLISRMEPLEMPVETITPEVMQKCTTPVSDDHDEKYGVPSLEELGFDTDGLPSAVWPGGETEALTRLERHLERKAWVANFERPRMNANSLLASPTGLSPYLRFGCLSCRLFYFKLTDLYKKVKKNSSPPLSLYGQLLWREFFYTAATNNPRFDKMEGNPICVQIPWDKNPEALAKWAEGRTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWEEGMKVFEELLLDADWSVNAGSWMWLSCSSFFQQFFHCYCPVGFGRRTDPNGDYIRRYLPVLRGFPAKYIYDPWNAPESVQKAAKCVIGVNYPKPMVNHAEASRLNIERMKQIYQQLSRYRGLGLLATVPSNPNGNGNGGLMSFSPGESISGCSSAGGAQLGTGDGQTVGVQTCALGDSHTGGSGVQQQGYCQASSILRYAHGDNQQSHLMQPGRASLGTGISAGKRPNPEEETQSVGPKVQRQSTN

28.

>gi|45387783|ref|NP\_991249.1|\_cryptochrome\_DASH\_Danio\_rerio

MSASRTVICLLRNDLRLHDNEVFHWAQRNAEHIIPLYCFDPRHYQGTYHYNFPKTGPFRLRFLLDSVKDLRALLKKHGSTLLVRQGKPEDVVCELIKQLGSVSTVAFHEEVASEEKSVEEKLKEICCQNKVRVQTFWGSTLYHRDDLPFSHIGGLPDVYTQFRKAVEAQGRVRPVLSTPEQVKSPPSGLEEGPIPTFDSLGQTEPLDDCRSAFPCRGGETEALARLKHYFWDTNAVATYKETRNGMIGVDFSTKFSPWLALGCISPRYIYEQIKKYEVERTANQSTYWVIFELLWRDYFKFVALKYGNRIFYMNGLQDKHVPWKTDMKMFDAWKEGRTGVPFVDANMRELALTGFMSNRGRQNVASFLTKDLGLDWRLGAEWFEYLLVDHDVCSNYGNWLYSAGIGNDPRENRKFNMIKQGLDYDNNGDYVRQWVPELRGIKGGDVHTPWTLSNSALSHAQVSLNQTYPCPIITAPEWSRHVNNKSSGPSSSKGRKGSSYTARQHKDRGIDFYFSKNKHF

29.

>gi|79313247|ref|NP\_001030703.1|\_DNA\_photolyase\_family\_protein\_Arabidopsis\_thaliana

MQRFCVCSPSSYRLNPITSMATGSGSLIWFRKGLRVHDNPALEYASKGSEFMYPVFVIDPHYMESDPSAFSPGSSRAGVNRIRFLLESLKDLDSSLKKLGSRLLVFKGEPGEVLVRCLQEWKVKRLCFEYDTDPYYQALDVKVKDYASSTGVEVFSPVSHTLFNPAHIIEKNGGKPPLSYQSFLKVAGEPSCAKSELVMSYSSLPPIGDIGNLGISEVPSLEELGYKDDEQADWTPFRGGESEALKRLTKSISDKAWVANFEKPKGDPSAFLKPATTVMSPYLKFGCLSSRYFYQCLQNIYKDVKKHTSPPVSLLGQLLWREFFYTTAFGTPNFDKMKGNRICKQIPWNEDHAMLAAWRDGKTGYPWIDAIMVQLLKWGWMHHLARHCVACFLTRGDLFIHWEQGRDVFERLLIDSDWAINNGNWMWLSCSSFFYQALSPFCFSF

30.

>gi|390979651|ref|NP\_001070765.2|\_cryptochrome\_1a\_Danio\_rerio

MVVNTVHWFRKGLRLHDNPSLRDSILGAHSVRCVYILDPWFAGSSNVGISRWRFLLQCLEDLDASLRKLNSRLFVIRGQPTDVFPRLFKEWNINRLSYEYDSEPFGKERDAAIKKLANEAGVEVIVRISHTLYDLDKIIELNGGQSPLTYKRFQTLISRMEAVETPAETITAEVMGPCTTPLSDDHDEKFGVPSLEELGFDTEGLSSAVWPGGETEALTRLERHLERKAWVANFERPRMNANSLLASPTGLSPYLRFGCLSCRLFYFKLTDLYRKVKKNSSPPLSLYGQLLWREFFYTAATNNPRFDKMEGNPICVQIPWDKNPEALAKWAEGRTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWEEGMKVFEELLLDADWSVNAGSWMWLSCSSFFQQFFHCYCPVSFGRRTDPNGDYIRRYLPVLRGFPAKYIYDPWNAPESVQKAAKCIIGVHYPMPMVHHAEASRLNIERMKQIYQQLSCYRGLGLLAMVPSNPNGNGENSTSLMGFKTGDMTKEVTTPSGYQMPPTSQGEWHGRTMVYSQGDQQTSSIMTSQGFGNNGSTMCYRQDAQQITGRGLHSSIIQTSGKRHSEESGPTTVSKVQRQCSS

31.

>gi|147901097|ref|NP\_001081129.1|\_cryptochrome-1\_Xenopus\_laevis

MGVNAVHWFRKGLRLHDNPALRECIQGADTVRCVYILDPWFAGSSNVGINRWRFLLQCLEDLDANLRKLNSRLFVIRGQPADVFPRLFKEWKITKLSIEYDSEPFGKERDAAIKKLASEAGVEVIVRISHTLYDLDKIIELNGGQPPLTYKRFQTLISKMDPLEIPVETITAEVMEKCTTPVSDDHDEKYGVPSLEELGFDTEGLPSAVWPGGETEALTRLERHLERKAWVANFERPRMNANSLLASTTGLSPYLRFGCLSCRLFYFKLTDLYKKVKKNSSPPLSLYGQLLWREFFYTAATNNPRFDKMDGNPICVQIPWDRNPEALAKWAEGRTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWEEGMKVFEELLLDADWSVNAGSWMWLSCSSFFQQFFHCYCPVGFGKRTDPNGDYIRRYLPILKGFPPKYIYDPWNAPETVQKAAKCIIGVNYPKPMVNHAEASRLNIERMKQIYQQLSRYRGLGLLASVPSNPNGNGGLMSYSPGESMPGCSNNGGGQMGAIEGSSASNPNPNQGEVLPGTSGLQGYWQGSSILHYSHSDNQQSYLMQARNPLHSVVSSGKRPNPEEETQSVGPKVQRQSTH

32.

>gi|147906624|ref|NP\_001081421.1|\_6-4\_photolyase\_Xenopus\_laevis

MRHNSIHWFRKGLRLHDNPALLAAMKDCAELHPIFILDPWFPKNMQVSVNRWRFLIDALKDLDENLKKINSRLFVVRGKPAEVFPLLFKKWKVTRLTFEVDIEPYSRQRDAEVEKLAAEHDVQVIQKVSNTLYDIDRIIAENNGKPPLTYVRFQTVLAPLGPPKRPIKAPTLENMKDCHTPWKSSYDEKYGVPTLEELGQDPMKLGPHLYPGGESEALSRLDLHMKRTSWVCNFKKPETEPNSLTPSTTVLSPYVKFGCLSARTFWWKIADIYQGKKHSDPPVSLHGQLLWREFYYTTGAGIPNFNKMEGNPVCVQVDWDNNKEHLEAWSEGRTGYPFIDAIMTQLRTEGWIHHLARHAVACFLTRGDLWISWEEGQKVFEELLLDADWSLNAGNWLWLSASAFFHQFFRVYSPVAFGKKTDKNGDYIKKYLPILKKFPAEYIYEPWKSPRSLQERAGCIIGKDYPKPIVEHNVVSKQNIQRMKAAYARRSGSTEGVDKDSGQNNKKGGKRKVAAGTSVAELFKKK

33.

>gi|147901075|ref|NP\_001083936.1|\_cryptochrome\_circadian\_regulator\_2\_S\_homeolog\_Xenopus\_laevis

MEGKPSVSSVHWFRKGLRLHDNPALLAALRGANSVRCVYILDPWFAASSSGGVNRWRFLLQSLEDLDSSLRKLNSRLFVVRGQPADVFPKLFKEWGVSRLTFEYDSEPFGKERDAVIMKLAKEAGVEVIVENSHTLYDSDRVIELNGHSPPLTYKRFQAIISRMELPRRLAPSVTRQQMEACRAEIKRNHDETYGVPSLEELGFHSENKGPAIWPGGETEALARLDRHLERKAWVANYERPRMSANSLLASPTGLSPYLRFGCLSCRLFYYRLQELYQKVKKNSPPPLSLYGQLLWREFFYTAATNNPKFDQMEGNPICVQIPWDKNPKALAKWTEGKTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWNSWECGVKVFDELLLDADFSVNAGSWMWLSCSAFFQQFFHCYCPVGFGRRTDPSGDYVKRYLPVLKAFPSRYIYEPWSAPESVQKEAKCIIGIDYPKPIVNHAEASRMNIERMKQTYQQLSHYRGLCILASVPSSVEDLGGPITDSSHNPAEAAPKQSLCNADSPKRKLEGSEEASHVKVRVRSVPVMRRPENDF

34.

>gi|147902555|ref|NP\_001084438.1|\_cryptochrome\_DASH\_Xenopus\_laevis

MCVPSRVIICLLRNDLRLHDNEVLHWAHRNADQIVPLYCFDPRHYVGTHYFNFPKTGPHRLKFLLESVRDLRITLKKKGSNLLLRRGKPEEVIEDLVKQLGNVSAVTLHEEATKEETDVESAVKQACTRLGIKYQTFWGSTLYHREDLPFRHISSLPDVYTQFRKAVETQGKVRPTFQMPDKLKPLPSGLEEGSVPSHEDFDQQDPLTDPRTAFPCSGGESQALQRLEHYFWETNLVASYKDTRNGLIGLDYSTKFAPWLALGCVSPRYIYEQIGKYEKERTANQSTYWVIFELLWRDYFRFVALKYGRRIFFLRGLQDKDIPWKRDPKLFDAWKEGRTGVPFVDANMRELAMTGFMSNRGRQNVASFLTKDLGIDWRMGAEWFEYLLVDYDVCSNYGNWLYSAGIGNDPRENRKFNMIKQGLDYDSGGDYIRLWVPELQQIKGGDAHTPWALSNASLAHANLSLGETYPYPIVMAPEWSRHINQKPAGSWEKSARRGKGPSHTPKQHKNRGIDFYFSRNKDV

35.

>gi|212275870|ref|NP\_001130580.1|\_type\_II\_CPD\_DNA\_photolyase\_Zea\_mays

MPPAIPSLVHPSRVRILHPGGSHIHGPVVYWMLRDQRLADNWALLHAAELAAASTPAAPLAIAFTLFPRPFLLGAHLRQLGFLLRGLRRLAADAHARGLPFFLLEGGPAELPSLVRRLGASALVADFSPLRPVREALDAVVQELLRDAANMAVHQVDAHNVVPVWTASGKLEYSAKTFRSKVNKVINEYLVEYPEVPQWAPWCMEQPKSVDWDALINSIFSEAENVPEINWCEPGESSAMEVLLGSKDGFLTKRIKNYDTGRNDPTKPHALSCLSPYLHFGHISAQRCALEAKKRRHLSPKSVDTFLEELIIRRELADNFCYYQPQYDSLAGAWEWARKTLTDHTGDKREHIYTREQLENAKTSDPLWNASQLEMVHHGKMHGFMRMYWAKKILEWTSQPEEALSIAIYLNDKYHIDGRDPNGYVGCMWSICGLHDQGWKERPVFGKIRYMNYAGCKRKFDVDAYISYVKRLVPRAKKRKTEEGESTVKESNV

36.

>gi|350536405|ref|NP\_001234245.1|\_cryptochrome\_2\_Solanum\_lycopersicum

MESNYKTIVWFRRDLRIEDNPALAAAARNGSVLPVFIWCPKEEGQFYPGRVSRWWLKQSLIHLKQSLKSLGAELVLMKAQSTLSALTECVDAVGATKVVYNHLYDPVSLVRDHNIKQKLGDLGISVQSYNGDLLNEPWEVYDDDGKVFTTFDAYWEKSLSIQNEPVSQLPPWRLTQAAGSVKMCSVEELGLENESEKSSNALLGKGWAPGWSNADKALTEFVESNLLAYSKDRLRVGGNSTSLLSPYLHFGEVSVRKVFNSVRLKQILWTKEGNSVGKDSATIYLRAIGLREYSRYICFNFPFTHERSLLNNLRFFPWNADQAHFKAWRQGRTGYPLVDAGMRELWATGWVHNKIRVIVSSFFVKFLLLPWQWGMKYFWDTLLDADLESDIIGWQYISGSLPDGHELERLDNPEVQGFNYDPEGEYVRHWLPELARMPAEWIHHPWDAPLNVLKAAGVELGMNYPNPIIDVDVARDRLMQAIIIMREKEAAVNTSHANGTVEVVFDNSENVGDSASIPKDDVVKGKEPCPSSSSYDQRVPSMQNVGTYRKRPKPEEETKKLNDNKLSYKNERIKMSNVDGDLCSTAESSSMKKQMTVSRNSFSVPRTITMSHDRKSFDDEASSHVKLQKEEEIDT

37.

>gi|350537989|ref|NP\_001234577.1|\_cryptochrome\_1b\_Solanum\_lycopersicum

MSSGGCSIVWFRRDLRLEDNPALAAAVRAGSVIAVFIWAPEEEGYYCPGRVSRWWIKKSLAHLDSSLKKLGTSLITKRSNDSVSSLLQVVKSTGATRVFFNHLYDPISLVRDNCAKETLSAEGVSVCSFNADLLYEPWEVVDDESRPFSTFSDFWEKCLTMPYDPEAPLLPPKRIISGDASRCPSDNLVFESELEKGSNALLARAWSPGWSNADKALTTFINGPLIEYSKNRSKADSATTSFLSPCLHFGEVSVRKVFHRIRTKQTLWANEGNKAGEESVNLFLKSIGLREFSRYMSFYHPYSHERPLLGQLKYFPWLVDEGYFKAWRQGRTGYPLVDAGMRELWATGWLHDRIRVVVSSFSVKVLQLPWTWGMKYFWDTLLDADLESDALGWQFITGTLPDGCEFLGIDNPQFEGYKFDPNGEYVRRWLPELARLPTEWIHHPWDAPESVLQAAGIELGSNYPFPIVEIVAAKERLEEALSQMWQLEAAARSAIENGMEEGHGDSTDEFVPIAFPQAMQIEMEANNVPVRNNNPTITALRRYGDQIVPSMSSSFFRNEDEETSVDIRNSVVDSRAEVPIISM

38.

>gi|350539503|ref|NP\_001234667.1|\_cryptochrome\_1\_Solanum\_lycopersicum

MSGGGCSIVWFRRDLRVEDNPALAAGVRAGAVIAVFIYAPEEEGHYYPGRVSRWWLKQSLAHLDSSLKSLGTSLITKRSTDSISSLLEVVKSTGATQLFFNHLYDPISLVRDHRTKEILTAQGISVRSFNADLLYEPWEVNDDEGRPFTTFSAFWEKCLSMPYDPEAPLLPPKRIISGDASRCPSDNLVFEDESEKGSNALLARAWSPGWSNADKALTTFVNGPLLEYSQNRRKADSATTSFLSPHLHFGEVSVRKVFHFVRIKQVLWANEGNKAGEESVNLFLKSIGLREYSRYMSFNHPYSHERPLLGHLRYFPWVVDEGYFKAWRQGRTGYPLVDAGMRELWATGWLHDRIRVVVSSFFVKVLQLPWRWGMKYFWDTLLDADLESDALGWQYISGTLPDGRELDRIDNPQFVGYKCDPHGEYVRRWLPELARLPTEWIHHPWNAPESVLEAAGIELGSNYPLPIVEIDSAKVRLEQALSQMWQNDAAARAAIENGMEEGHGDSADSPIAFPQAMHMEMDHEPVRNNPVIVTVRRYEDQMVPSMTSSLFRAEDEENSVDIRNSVVESRAEVPTDINVAEVHRRDTRDQAVMQTARTNATPHFNFAVGRRNSEDSTAESSSSTRERDGGVVPTWSPSSSNYSDQYVGDDNGIGTSSSYLQRHPQSHQLMNWQRLSQTG

39.

>gi|351734424|ref|NP\_001235220.1|\_cryptochrome\_2\_Glycine\_max

MGSNRTIVWFRRDLRIEDNPALTAAAKEGSVLPVYVWCPKEEGQFYPGRVSRWWLKQSLAHLDQSLKSLGSRLVLIKTHSTAVALVECVKAIQATKVVFNHLYDPVSLVRDHNIKEKLVEQGISVQSYNGDLLYEPWEVNSESGRAFTTFNAFWKKCLHMQMDIVSVVPPWQLIPAEGKIEECSLEELGLENESEKPSNALLGRAWSPGWRNADKALREFVELHLLHYSKKRLKVGGESTSLLSPYLHFGELSARKVFQVTCMKQILWTNEGNSAGEESANLFLRAIGLREYSRYLCFNFPFTHERALLGHLKFFPWNPDPDIFKTWRQGRTGFPLVDAGMRELWATGWIHNRIRVIVSSFAVKMLLLPWKWGMKYFWDTLLDADLESDILGWQYISGGLPDGHELERLDNPEIQGAKFDPEGEYVRQWLPELARMPTEWIHHPWDAPLTVLRAAGVELGQNYPKPIIDIDLARERLTEAIFKMWESEAAAKAAGSEPRDEVVVDNSHTVENLDTQKVVVLGKAPCATISANDQKVPALQDSKNEPPTRKRPKHMIEEGQNQDHSQNHNKDTGLSSIDQDICSTADSSSCKKQCASTSSYSFSVPQQCSSSSNLKWPWQEKIDMEQSSSKDGAM

40.

>gi|1154067538|ref|NP\_001238710.2|\_CPD\_photolyase\_Glycine\_max

MASTASPMTVQAGRVRTLKEGSRGESGLGPVVYWMFRDQRVTDNWALIHAVAEANKANVPVAVVFNLFHTFLGAKSRHLGFMLRGLRQLCHRMQHSLQIPFFLFQGEAEETVPKFLRECGASLLVTDFSPLREVRRCKEEICKRVSDSVAVHEVDAHNVVPLWVASDKLEYSARTIRAKITKRLSDYLVDFPDIEVEPPAGKWVATENHSIDWDDLIADVLRRGAEVPEVDWCEPGEIAASEVLMGSKNGFLTKRLKGYSLDRNNPCHPNALSGLSPYLHFGQISAQRCALEARKRRNSHPQAIDAFLEELIVRRELADNYCFYQPHYDSLKGAWAWAQNTLTEHATDKREHIYTKEQLEKAQTADPLWNASQLEMVHYGKMHGFMRMYWAKKILEWTRGPEEALEISLYLNDKYELDGRDPNGYVGCMWSICGVHDQGWKERPIFGKIRYMNYAGCKRKFDVDKYIAYVNKLVRELKKRKAENLLSQKEKVVRSCDPED

41.

>gi|525344850|ref|NP\_001266969.1|\_cryptochrome\_2\_(photolyase-like)\_Fragaria\_vesca

MGSSNKTIVWFRRDLRIEDNPALAAAARDGAVFPVYIWCPKDEGHFYPGRVSRWWLKQSLAHLDQSLKSLGAQLALIKTDSTVSALLDCIQAIGATKVVFNHLYDPVSLVRDHNIKGKLVELGISVQSYNADLLHEPWEVYDAKGQTFTTFKEYWDKCLNMERELVTFLPPWKLLQATGMVAKYSLEELGLENETEKSSNALLGRAWTPGWSQADKALTEFFDVHLLDYAKNRTKLGGNSTSLLSPYLHFGEVSVRKVFQLARMKQILFAKEGNSLGEESVTLFLRAIGLREFSRYICFNFPFTHEKLLLSNLRFFPWKADQGRFKAWRQGRTGYPLVDAGMRELWATGWIHNRIRVIVSSFAVKVLLLPWKWGMKYFWDTLMDADLESDILGWQYISGSLPDGHELERLDSPEVQGSKFDPDGEYVRHWLPELARLPTEWIHHPWDTPDNVLKVSGVELGVNYPRPIIEIDLARERLTEAIFKMWEIEAAAKAANLNGTNEVVVDNSDGIENFPIPKVILRNNTPCATYSSNDQKVPSCHNSEGNQLKRSRCTQERPLPDNGHNTNPNEATSRTIEDRSSTAESSMSKKQTTSTTSFSVPQSCSSSKDNPFMESESCEMKQSWQERIDMEQHSSKDGALEDECL

42.

>gi|525507079|ref|NP\_001267582.1|\_deoxyribodipyrimidine\_photo-lyase-like\_Cucumis\_sativus

MASTLSNSVQPCRFRVLKDGTGSLGPVVYWMFRDQRVKDNWALIHAVDEANRANVPVAVAFNLFDRFLGAKSRQLGFMLRGLQQLQHDIQETLQIPFFLFQGEAEQTIPNFIRECGASLLVTDFSPLREVRKCKEEICKRVEESVKVHEVDAHNVVPTWVASEKLEYSAKTLRGKINKKLPDYLIDYPSMVIPTRKWPSADKFIDWDRLIDDNLRKGADVPELEWCKPGEKAAMEVLMGSKDGFLTKRLKGYAIDRNNPLKPKGLSGLSPYLHFGQISAQRCALEARSIRKLNPQAVDVFLEELIVRRELADNYCYYQPHYDSLLGAWEWARKTLMDHASDKREYIYTREQLEKAQTADPLWNAAQLEMAHHGKMHGFMRMYWAKKILEWTRGPEEALEICIYLNDKYEIDGRDPNGYVGCMWSICGVHDQGWKERPVFGKIRYMNYAGCKRKFDVDGYIAYVKRLVGEIKKRKPEETLEDRKPKGIRC

43.

>gi|823683792|ref|NP\_001296304.1|\_cryptochrome\_DASH\_chloroplastic/mitochondrial\_Solanum\_lycopersicum

MIKQPFLLTKFTPFSSKSKHTLFTFHCNFSIKMASLTARTTPTVQNVPGLTPEEMERVCEQTFQRYESGGLGKRKGKGVAIVWFRNDLRVLDNEALLRAWVSSEAILPVYCVDPRLFGTTHYFGMPKTGALRAQFIIECLNDLKRNLVKRGLDLLIQHGKPEDIVPSLAKAYKAHTVYAHKETCSEEVKVEKMVTRNLQKLVSPSSGGIGNDPGSGNTTKLELVWGSTMYHIDDLPFDCESLPDVYTQFRKSVEYKSKVRNCTKLPTSFGPPPEVGDWGHVPQVSELGLQQEKVSKGMNFVGGESAALGRVHDYFWKKDLLKVYKETRNGMLGADYSTKFSPWLASGSLSPRFIYEEVKRYEKERLSNDSTYWVLFELIWRDYFRFLSIKLANLLFQAGGPQKVNINWSQDQTMFDAWRRGQTGYPLIDANMKELAATGYMSNRGRQIVCSFLVRDMGIDWRMGAEWFETCLLDYDPCSNYGNWTYGAGVGNDPREDRYFSIPKQAQNYDPEGEFVAYWLPELRALPREKRHSPGMMYLNPIVALKHGYTKKTGDSKTAFSSRRGRPEDNRRKRHGY

44.

>gi|1485594596|gb|RKF54075.1|\_Deoxyribodipyrimidine\_photo-lyase\_Golovinomyces\_cichoracearum

MTISKFINVNCKSFCKSILSVIVHSPRSSYIQTTCQVSRTTLPQEMLPKQASSTNSIAVKRRCDTPEQIVTNKRLRQTLIPTDDSNRNSDPNEGDCASSSIIIRKYYPPEMSNERVLAYKEKKIARPIEELNSAQKETSKQRAEIKVGDSVVHWFKSDLRLKDNHSLYAASLKAKEAGIPLIAFYIISPQDFEAHKSAPIRVDFILRSLKSLRDDLAKLHIPLYTETVKKRKEIPDRIAELLSKWGSKHLFANIEYEVDELRREAGMVRKFASQGVDFDLRHDTCVVQPGKLVSGSGNQYSVYTPWFRAWLAYLHANLDLLQAFPGPNANSSSINSNENLKALFDHPIPSIPANKKLTLDETKRFAALWPVGETEALIRLEKFCKDRISAYKTHRNFPAETGTSSLSPYFAVGSLSARTAVIFAKEKSGAKKLDGGNEGTQTWISEVAWRDFYKHVLVEWPYVCMFKPFKPEYSNIKWESNNAHFIAWKEGRTGYPIVDAAMRQLAHTGWMHNRLRMITASFLAKHLLLDWRLGEQFFMLNLIDGDFASNNGGWGWSASSGVDPQPYFRIFNPELQSEKFDKDGEFIRKWVPELKAIKGSKLIHDPYGRGAASEAKKGGYVKKIVIHKEARERCLNRYKQGLGKAND

45.

>gi|501246294|ref|WP\_012289312.1|\_deoxyribodipyrimidine\_photo-lyase\_Halobacterium\_salinarum

MQLFWHRRDLRTTDNRGLAAAAPGVTAVDGGHDQGPVAAVFCFDDEVLAHAAPPRVAFMLDALAALRERYRDLGSDLIVRHGDPAAVLPAVANDLDATRVVWNHDYSGLATDRDAGVRDALDAAGVAHAQFHDAVHHRPGEIRTNAGDPYSVYTYFWRKWQDREKNPPAPEPEPADLAADTALADTSPLPSVQELGFAEPEAAVPDAGTAAARSLLDAFRESGDIYRYEDRRDYPHEEPTSRLSPHLKFGTIGIRTVYEAARAAKSDADTDDERENVAAFIGQLAWREFYAQVLYFNQNVVSENFKAYEHPIEWRDDPAALQAWKDGETGYPIVDAGMRQLRAEAYMHNRVRMIVAAFLTKDLLVDWRAGYDWFREKLADHDTANDNGGWQWAASTGTDAQPYFRVFNPMTQGERYDPDADYITEFVPELRDVPADAIHSWHELSLSERRRHAPEYPDPIVDHSQRREDAIAMFERARGDE

46.

>gi|501349949|ref|WP\_012381584.1|\_deoxyribodipyrimidine\_photolyase\_Streptomyces\_griseus

MSVAVVLFTSDLRLHDNPVLRAALRDADEVVPLFVRDDAVHRAGFDAPNRLAFLADCLAALDAGLRHRGGRLIVRRGEAATEVRRVAEETGAARVHIAAGVSRYAARREQRIREALADTGRELHVHDAVVTALAPGRVVPTGGKDHFAVFTPYFRRWEAEGVRGTLTAPRTVRVPDGVASDPLPDRDSVENLSPGLARGGEEAGRKLVTSWLNGPMADYEDGHDDLAGDATSRLSPHLHFGTVSAAELVHRAREKGGLGGEAFVRQLAWRDFHHQVLADRPDASWSDYRPRHDRWRSDADEIDAWKSGLTGYPLVDAAMRQLAHEGWMHNRARMLAASFLTKTLYVDWRVGARHFLDLLVDGDVANNQLNWQWVAGTGTDTRPNRVLNPVIQGKRFDARGDYVRRWVPELAEVEGSAIHEPWKLQGLDRAALDYPDPVVDLAEARARFERARGLD

47.

>gi|501552936|ref|WP\_012557448.1|\_deoxyribodipyrimidine\_photolyase\_Rhizobium\_leguminosarum

MAKDAVKPVILWFRRDLRLDDNQALNAAHLSGRPIIPVYINEPAAAGTGPLGAAQAWWLHHSLEALDRSLHERQGELVLASGDALEVLRAVIKKSGAEAVFWNRRYDPSGISVDTHIKQELEKQAIEARSFGGQLLHEPSRLMTGNGTPYRVYTPFWRALEGAGEAEPPLEAPAKLRLASQRPASETLKSWKLLPTKPDWAKGFADLWTPGEQGARERLSAFVEDELKGYKENRDYPAKPATSMLSPHLALGEISPARIWDATRGLSNRVPAADIVHFRKEIAWREFSYHLLFHFPRLASENWNDRFDGFKWRNDDGDFEAWRRGMTGYPIVDAGMRQLWRHGWMHNRVRMIVASFLIKDLMIDWRDGEAWFRDTLVDADPANNAASWQWVAGSGADASPFFRIFNPMLQGETFDPDGDYVRAHVPELQRLGAKYIHRPFEAPKSALDEAGIILGQTYPKPIVDHASARDRALAAYKATKDAA

48.

>gi|518698395|ref|WP\_019859900.1|\_deoxyribodipyrimidine\_photo-lyase\_Mesorhizobium\_loti

MSRQAQAPTIVLFRRDLRIGDNAALAAAADRGAPVVALYILDETTKGLRAMGAASRWWLHHSLAALGDLLRKAGANLFLAHGRTEDAVAKAIDASGANCVFWNRRYDPSEAGVDARLKAALREKGLTALSFDGALLHEPSLLKTGSGGFYKVYTPFWKAMAEEVDVRDPIDTPGQIDGWRGELGGLRLDELDLLPSKPDWAYGLRETWTPGEKGAQARLGQFIEHDLANYERQRDYPGQPSTSRLSPHLTFGEITPFQIFAALRRSKSSGTSKFRAEIGWREFSYHLLFHNPDLSGRNFRPEFDAMSWRDDMRALRTWQRGLTGYPIVDAGMRELWRTGWMHNRVRMIVASFLIKDLMIDWRHGEKWFWDTLVDADAANNPASWQWVAGSGADAAPYFRIFNPVLQGEKFDPHGDYVRQHVPEISALPDRYIHRPWEAPAAVLKDKGIVLGKTYPNPIVDHGAARERALIVYQSLKD

49.

>gi|1524057604|ref|WP\_124105698.1|\_deoxyribodipyrimidine\_photo-lyase\_Thermus\_thermophilus

MGPLLVWHRGDLRLHDHPALLEALARGPVVGLVVLDPNNLKTTPRRRAWFLENVRALREAYRARGGALWVLEGFPWEKVPEAAKRLRAKAVYALRSYTPYGRHRDARVQEALPVPLHLLPAPHLLPPDLPKPYRVYTPFSRLYRGAAPPLPPPEALPKGPEEGEIPREDPGLPLPEPGEEAALRRLRAFLEAKLPRYAEERDRLDGEGGSRLSPYFALGVLSPRLAAWEAERRGGEGARKWVAELLWRDFSYHLLYHFPWMAERPLDPRFQALPWQEDEALFQAWYEGKTGVPLVDAAMRELHATGFLSNRARMNAAQFAVKHLLLPWKRAEEAFRHLLLDGDRAVNLQGWQWAGGLGVDAAPYFRVFNPVLQGERHDPEGRWLKRWAPEYPSYAPKDPVVDLEEARRRYLRLARDLARG

50.

>gi|50752305|ref|XP\_422729.1|\_deoxyribodipyrimidine\_photo-lyase\_Gallus\_gallus

MPRGNGKGRKERDAGREEEEAVGTLEAAVREARRRTAPSVRDFRYNKQRARLVSRGSELKEGAECILYWMCRDQRVQDNWAFLYAQRLALKQELPLRVCFCLVPAFLDATIRHYGFMLRGLREVAKECAELDIPFHVLLGCPKDVLPSFVVEHGVGGLVTDFCPLRVPRQWVEEVKERLPEDVPFAQVDAHNIVPCWVASPKQEYSARTIRAKIHSQLPEFLTEFPPVIRHPHPPPNPPEPIAWDACYSSLQVDRTVTEVAWATPGTAAGLAMLQSFITERLKSFGSQRNDPNKAALSNLSPWFHFGQVSTQRAILEVQKHRRVYKESVDAFVEEAVVRRELAENFCYYNENYDSVRGAYDWAQSTLKLHAKDKRPFLYKLPQLEQATTHDPLWNAAQLQMVREGKMHGFLRMYWAKKILEWTRSPEEALQFAIYLNDRYELDGMDPNGYVGCLWSICGIHDQGWKERDVFGKIRYMNYAGCKRKFDVDQFERRYAHCK

51.

>gi|73983386|ref|XP\_540761.2|\_cryptochrome-2\_isoform\_X1\_Canis\_lupus\_familiaris

MAAAVVAAAAAAPVPTAGVDGASSVHWFRKGLRLHDNPALLAAVRGARCVRCVYILDPWFAASSSVGINRWRFLLQSLEDLDTSLRKLNSRLFVVRGQPADVFPRLFKEWGVTRLTFEYDSEPFGKERDAAIMKMAKEAGVEVVTENSHTLYDLDKIIELNGQKPPLTYKRFQAIISRMELPKKPVGSVTSQQMESCRADIQDNHDDTYGVPSLEELGFPTEGLGPAVWQGGETEALARLDKHLERKAWVANYERPRMNANSLLASPTGLSPYLRFGCLSCRLFYYRLWDLYKKVKRNSTPPLSLFGQLLWREFFYTAATNNPRFDRMEGNPICIQIPWDRNPEALAKWAEGKTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWVSWESGVRVFDELLLDADFSVNAGSWMWLSCSAFFQQFFHCYCPVGFGRRTDPSGDYIRRYLPILKGFPSRYIYEPWNAPESIQKAAKCIIGVDYPRPIVNHAETSRLNIERMKQIYQQLSRYRGLCLLASVPSCVEDLSNPVAEPSSSQTGSMSSAGPRPLPSGPASPKRKLEAAEEPPGEELSKRARVAELPTPELPCRDV

52.

>gi|758984047|ref|XP\_964834.2|\_deoxyribodipyrimidine\_photolyase\_Neurospora\_crassa\_OR74A

MAPSKRKASAPPQTSHVNGNPSADKKRKTTTDAPPTNPNTSSDPLRAPHPFYKDSETHGIVLRKFYPHEMSNARAQAYNDNELPRPIETLSAALAETAALRKSLPVRQAVVHWFKMDLRLHDNRSLWLASQKAKEAGVPLICLYVLSPEDLEAHLRAPIRVDFMLRTLEVLKTDLEDLGIPLWVETVEKRKEVPTKIKELMKSWGASHLFCAMEYEVDELRREAKLVKLLAEGEKGEKMAADVVHDTCVVMPGALQSGSGGQYAVYSPWFRAWIKHIEENPECLEIYEKPGPNPPGTKEKHENLFACSIPEAPEGKRLRDDEKARYHSLWPAGEHEALKRLEKFCDEAIGKYAERRNIPAMQGTSNLSVHFASGTLSARTAIRTARDRNNTKKLNGGNEGIQRWISEVAWRDFYKHVLVHWPYVCMNKPFKPTYSNIEWSYNVDHFHAWTQGRTGFPIIDAAMRQVLSTGYMHNRLRMIVASFLAKDLLVDWRMGERYFMEHLIDGDFASNNGGWGFAASVGVDPQPYFRVFNPLLQSEKFDPDGDYIRKWVEELRDLPELKGGKGGEIHDPYGRGSEKVKKKLEEKGYPRPIVEHSGARDRALDAYKRGLARDL

53.

>gi|758983086|ref|XP\_965722.3|\_cryptochrome\_DASH\_Neurospora\_crassa\_OR74A

MAPSKVVIYAMRRELRLSDNPIFHHLSNPESKHGFSHLLPVYVFPAQQIDLSGFVPKGSENPHPAPKSAVGGYARCGPYRAKFLAESVWDLKTSLQSIGSDLLVRAGPYKDVIQSLVEGLKAKECQVGAVWMTSHEGSEEKSEEKTVASFCAKSGIDFKLWDDEKYLIHDRDTGITHLNDLPDVFTTYRKQIEPLREKARKTLPVPEKGALPAYPDIDMIPSQQPPFNIPGTCEELVDAVVRPVKNFLKDLPDFPEKAESSHPFRGGETSAHKRIDHLVLSGGMKSYKDSRNGLLGPDFSTKLSAYLAQGCVTARQIHHALVAYEDGTGTKYKGADGFGEGDNQGTETVRMELLWRDYMRLCHQKYGDKLFRVEGFNGKHTDYEGEDKKYGWRTANTSIALPGQEPTPEKVSEILARFNAGTTGMGLIDASQRELIHTGYTSNRTRQNVASFLAKHLEIDWRYGAEWYEMLLVDYDVSSNWANWQYVAGVGNDPRGAARIFNPVKQAFDYDKDGTYVRTWVPEVAKFENLENVFQAWTASKEDLKTAGLEGNIMVTDPVKPIKFNLDHKPSKVKKRPFFRKRGTKTRDAQGSAESPGSSDSHSGSGGSPDGSGGGNIPSESNCAAAGSGQAQQTHQGSGRSQSSSNHGGRSHSHQHNQQNYHHSHRGNDYTRGGGGGRGGRGGRGGGGGGYSASQGYYGIGGGYRGGGRGRGGGGGFRGRYAPTGGLGGHHHSEQQVASQFQTDA

54.

>gi|317036499|ref|XP\_001397458.2|\_DNA\_photolyase\_Aspergillus\_niger\_CBS\_513.88

MPPQSAPTVIFWHRTDLRLHDNPALQAALSLNPSTFIPIFTWDPHYAYQVRVGPNRWRFLLECQNDLSQSYRKLNPKQKLWVVREAPQTVFPKLFKAWGATHLVFESDTDGYARERDETIRKLANEAGVEVIVKSGRTLFDSDEVVKQNKGEPTMSIHQVEKAIEQINNGVPDRPVDAPERIPDPLGEEKMRDISGLEHEVPDHEDDINAAHRTKHNDNQYNNIAGPKGDFSIPTLDELSIDPSQATSPHHGGESIALEMLTTYLQQNEDYIATFEKPKTSPAAFHPQATTLLSPHLHFGSLSVRKFWHDVQDTLQQRESAHKPTSDLPTNLPGQLLFREMFFAAQAALGPVYAQTRGNKIVRFVPWHLQSNHDKETGLVDRTYTVDDEQAEVWFRRWKEGRTGFPWIDALMRQLKNEGWIHHLGRHSVACFLTRGGCYVHWERGAEVFEEWLIDHETASNVGNWMWLSCTAFFTQYNRCYSPVAFGKKWDPEGRFIRHYIPELEHYDKKYIYEPWKAPLEDQKRWKCRVTGDGMVEKDEETGLRAYPEPMFDFDERRQTCIAQMKEAYEVHLMGNDEKVMDGSWKEIFEYEVKDGRVVDETNVKVDGDGGHRKGGEKRGRQAGDQDGEDEDGGHGLKKKK

55.

>gi|145258924|ref|XP\_001402217.1|\_deoxyribodipyrimidine\_photlyase\_Aspergillus\_niger\_CBS\_513.88

MPPQKRKASSSSATNGASSHTNKREKPDLTRPHPHAKDTEDFGIVLRDFYPPEMCNERCEAYNNGTLERPIESLHRAYEDTFDERQKIRPNAAVVHWFKTDLRLHDNRGLQMAYQVAREHKLPLVGLYILSPEDLTAHLSSAPRVDLMLRTLELLRRDLSELDIPLYMETQEKRNDIPQRIIDLCQEWGATHLFANLEYEVDELRREAKLVRLCARNGIRFEAAHDTCVVTPGKLVSQQGKQYAVYSPWFRAWCAFLNENPEYLEVADEPGSNPGDARKHFKTLFGCEVPVAPENKRLSEEEKTRFRELYPEGEHEALRRLEAFLEEKANDYDDLRNTLAGRNTSVLSPYFASGSLSARTAVFQARKKNKGHLKRNQTGYTSWISEVAWRDFYKHVLVHWPFICMNKCFKPEFTNLAWSYNKDHFNAWCEGKTGYPIVDAAMRQIKHAAWMHNRTRMVVSSFLSKDLLIDWRRGERYFMENLIDGDFASNHGGWGFGSSTGVDPQPYFRIFNPLRQSERFDPEGEYIRLWVPELRAIEGAAVHDPYGRGAGDIAEKNGYPRPIVDHSESRDRALENYKKVAQGR

56.

>gi|149742994|ref|XP\_001499263.1|\_cryptochrome-1\_isoform\_X1\_Equus\_caballus

MGVNAVHWFRKGLRLHDNPALKECIQGADTIRCVYILDPWFAGSSNVGINRWRFLLQCLEDLDANLRKLNSRLFVIRGQPADVFPRLFKEWNITKLSIEYDSEPFGKERDAAIKKLATEAGVEVIVRISHTLYDLDKIIELNGGQPPLTYKRFQTLISKMEPLEIPVETITSEVIEKCTTPLSDDHDEKYGVPSLEELGFDTDGLPSAVWPGGETEALTRLERHLERKAWVANFERPRMNANSLLASPAGLSPYLRFGCLSCRLFYFRLTDLYRKVKKNSSPPLSLYGQLLWREFFYTAATNNPRFDKMEGNPICVQIPWDKNPEALAKWAEGRTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWEEGMKVFEELLLDADWSINAGSWMWLSCSSFFQQFFHCYCPVGFGRRTDPNGDYIRRYLPVLRGFPAKYIYDPWNAPEGIQKVAKCLIGVNYPKPMVNHAEASRLNIERMKQIYQQLSRYRGLGLLASVPSNPNGNGGLMGYSPGENIPGCSSSGSCSQGSGILHYAHGDSQQTHLLKQGRSSLGPGLSSGKRPGPEEDTQGIGPKVQRQSTT

57.

>gi|1377708916|ref|XP\_001548442.2|\_Bccry1\_Botrytis\_cinerea\_B05.10

MFLVFPARNIFPKQLPSRLIISQRNILPLPQFLAKQQILHQSCISTSRILKMSTRKATAAAAASTKRKASSTPEPISHLNGSKKKAKVSDDDHDLSELRQPHHSAKEAEENGIVLRKYYPHEMCNPRAIAYNNDELERPIEALHAALADTQKERKGIDKGGECVVHWFKCDLRTKDNTALSMASQKAKELGIPLVTMYIVSPQDFEAHLTAPVRVDFILRTLDILKKDLAKLDIPLYVETIDKRKRVESRILELLGEWGCSHFYANMEYEVDELRREARMVRACVEKGICMDVIHDTCVVRPGELKSGQGKQYAVYTPWFKSWVAYVHENSDLLELFDAPEKNPSSARKTFAKLFETEIPDAPKNKSLTSEEKERFRSMWPAGEHAAHERLSKFADEKINKYQDHRNFPSLNSTSSLSVHFASGTLSSRTAIRTARDHNNTKKLNAGYQGIQTWISEVAWRDFYKHVLVHWPYVCMNKPFKPEYTNIEWEYNRAHFQAWTEGRTGYPIVDAAMRQLNHCGYMHNRSRMIVGSFLAKHLLLDWRMGERYFMEHLIDGDFASNNGGWGFCASTGVDPQPYFRIFNPLLQSEKFDAEGEYIRKWVEELKGVKGKAIHEPYGDKEAAKIAKKSGYPERIVEHKVSRERCLKRYKEGLGRANS

58.

>gi|219118604|ref|XP\_002180071.1|\_class\_II\_CPD\_photolyase\_Phaeodactylum\_tricornutum\_CCAP\_1055/1

MLANRTRVLTSEGTEPKEGQSVVYWMQRDVRSVDNWALLWARDLAMQHDVPLHVVYALPPPASSDGSDNDRDLPPALIQLPMTKRHGAFLLGGLECVYKELKEMKIPLYVCLPDSHEKVGETVCEAILHKYKAKIVVSDFSPIREYRQWMELQAVPILEEAKVPFYQVDAHNIVPVWTATDKRQVGARTLRPRIHKVYNDYLQDYPDLKGNSHSVDQPKFDRVEYESFLQMDESVESVDWAQPGTEAGMKQFEFFSKNGLKIFHEQRNDPVQKHVCSDMSPWINHGHISFQRLALNVKALNKHANGAAAFIEEGVIRRELSDNMLYYSPNDYDSLETAAGWARESLQLHASDEREFVYSLSELEEGRTHDDLWNAAQLQMVRDGKMHGFMRMYWAKKILEWSESPVGALRTAQYLNDKYELDGRDPNGFVGVGWSIMGIHDQGWKEREVFGKIRYMNYNGCKRKFKVEEYVAQYKGAAENAANAVEETNGSSNKRKSLPSSSNSKQKTARK

59.

>gi|242096612|ref|XP\_002438796.1|\_cryptochrome\_DASH\_chloroplastic/mitochondrial\_Sorghum\_bicolor

MLHFISSSPLRPRFLLLPSPPSNLRFLAMSAAPSSSSSRSVRGVAVPVPSLSAGEACAVADEAFQRYTSPSLRRGGAGVAVVWFRNDLRVLDNEALLRAWSASEAVLPVYCVDPRVFAGSTHYFGFPKTGALRAQFLIECLGDLKQILRKKGLDLLVRHGKPEEILPSIAKAVSAHTIYAHKETCSEELLVERLVSKGLEQVQIAQGGASVPKKPLNPRLQLIWGATMYHIDDLPFPVSNLPDVYTQFRKAVESKSSVRNCTKLPPSLGPLPSSSIDEIGGWGAIPTLESLGLSVTKSEKGMHFIGGENAALGRVHEYFWKKDQLKDYKVTRNGMLGPDYSTKFSPWLASGSLSPRYICEEVKRYEKQRVANDSTYWVLFELIWRDYFRFLSAKYGNTIFHLGGPRKVVSKWSQDQALFESWRDGRTGYPLIDANMRELSATGFMSNRGRQIVCSFLVRDMGIDWRMGAEWFETCLLDYDPASNYGNWTYGAGVGNDPREDRYFSIPKQAKSYDPEGEYVAYWLPELRSLAKERRNFPGASYIRQIVQLKFDGGNQKKDQQFNRQRRPNNMYRRQVK

60.

>gi|242060916|ref|XP\_002451747.1|\_(6-4)DNA\_photolyase\_isoform\_X1\_Sorghum\_bicolor

MEAATAATAAMVWFRKGLRVHDNPALDAARRYGAGAASARRLYPVFVLDPRYLRPDPAASSPGSARAGVARIRFLLESLSDLDARLRRLGSRLLLLRARDDVADAVCAALKDWNIGKLCFESDTEPYALARDKKVTDFALASGIEVFTPVSHTLFDPAEIIKKNGGRPPLTYQSFVSIAGEPPDPIMEEYSELPPLGDTGEYELLPVPTVEELGYVDISEEEIPPFRGGETEALRRMKESLQNKEWVAKFEKPKGDPSAFLKPSTTVLSPYLKFGCLSSRYFYHCIQDVYKSVRNHTKPPVSLIGQLLWRDFFYTVSYGTPNFDRMKGNKICKQIPWSENEELFVAWRDGQTGYPWIDAIMIQLRKWGWMHHLARHSVACFLTRGDMFIHWEKGRDVFERLLIDSDWAINNGNWMWLSCSSFFYQYHRIYSPITFGKKYDPNGNYIRHFIPVLKDMPREYIYEPWTAPLSIQKKANCIIGKDYPKPVVDHETASKECKKRMGEAYASSRLDANPTKGKTLNSSRRKMPHGDQDTSNSTISKLLKRNSRAE

61.

>gi|1275567720|ref|XP\_003074697.2|\_Cryptochrome/DNA\_photolyase\_class\_1\_Ostreococcus\_tauri

MGRTRVVIWFRNDLRLLDNACVARAATLASESSDVEVVPVYVFDETYFKPSKRGLARFGAGRGKFTLECVGDLKTSLRALGSDLLVRCGKSRDVIAELTLTGANDRTIILTQTEVTSEETEMDVAVERATRERARGGAASATMERHWGSTLYHIDDVPFDVTSGLSDLPDVFTPFRNKVESKCKVRDVIPAPTANELGHVPASVEGFEWMPKPSDLPFASSEIAMDCDKRIKDCLDERSVLDFKGGESNALARVKYYLWESDRLATYFETRNGMLGGDYSTKLAPWLALGCVSPRHVVSEIRRYESERVENKSTYWVIFELIWRDFFKFFALKHGNKIFHLDGTAGRRASWKRDEKILKAWKTGTTGYPLIDANMRELAATGFMSNRGRQNVASWLALDAGIDWRHGADWFEHHLLDYDTASNWGNWCAAAGMTGGRINRFNIAKQTKDYDPAGEYIKTWVKELAEVPAAYIADPNQAPRELRDRIGLNYPNKLALPRRDFTEMGSPPGPRRGGGGGGRGRGRPGGSTPNRGTKARVASVYDTVYG

62.

>gi|1275569395|ref|XP\_003078467.2|\_DNA\_photolyase\_class\_2\_Ostreococcus\_tauri

MAPACSKKRVRALTSNTEPMASATAPVMYWMSRDQRVDDNWALLRACDLARERGAPVVIAFNLLTKYLGAGARQFGFMLRGLRELEAKARAAKATFAMTYGDEPAAAIDALAKKIGAKTIVCDFSPLRDGVRWRKDLAVLSEKRGAHVEECDAHNVVPCWEASDKLEVGARTLRGRLAKRYPEFLKEFPAIPDDLVEYDGPAIDAVKWDDLLAEALKRGEAVPEVTWAIPGETAARAVLDDFVANRMKLYEKRNDPSKPRALSGLSPWLHFGQISAQRCALEAKKAVGKASPAAYDSFFEELVVRRELADNFCYYCPGQKYDEMEGQKYDWAKDTLRAHAGDKRPYIYTLEQLERAQTHDDLWNAAQRELRYGGKMHGFCRMYWAKKILEWTESPEQALKWSIYLNDTYSLDGRDPSGYVGCMWSIVGVHDQGWKEREVFGKIRYMAYDSTKKKFNIPDYIARVNALVKAAKSDFKTGEKSSAANPGLFSIDVSGVKRKADAMA

63.

>gi|348558770|ref|XP\_003465189.1|\_cryptochrome-2\_Cavia\_porcellus

MAAAVGTGTAAAPTPVTGAEGACSVHWFRKGLRLHDNPALLAAVRGARCVRCVYILDPWFAASSSVGINRWRFLLQSLEDLDTSLRKLNSRLFVVRGQPADVFPRLFKEWGVTRLTFEYDSEPFGKERDAAIMKMAKEAGVEVVTENSHTLYDLDRIIELNGQKPPLTYKRFQAIISRMELPKKPVGAVSSQQMESCRAEIQENHDDTYGVPSLEELGFPTEGLGPAVWQGGETEALARLDKHLERKAWVANYERPRMNANSLLASPTGLSPYLRFGCLSCRLFYYRLWDLYKKVKRNSTPPLSLFGQLLWREFFYTAATNNPRFDRMEGNPICIQIPWDRNPEALAKWAEGKTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWVSWESGVRVFDELLLDADFSVNAGSWMWLSCSAFFQQFFHCYCPVGFGRRTDPSGDYIRRYLPKLKGFPSRYIYEPWNAPESIQKAAKCIIGVDYPRPIVNHAETSRLNIERMKQIYQQLSRYRGLCLLASVPSCVEDLSHPVAEPSLSQAGSSTSTGPRPLPGGPASPKRKLEAAEEPPGEELSKRARVAELPTPEPPSKDA

64.

>gi|571472557|ref|XP\_003531700.2|\_(6-4)DNA\_photolyase\_isoform\_X1\_Glycine\_max

MLRKGANPMILFKPSSAMRLSPCANTTSMSSGSGSLLWFRKGLRIHDNPALEVASRGASHLYPVFVIDPHFMEPDPNSSAPGSSRAGLNRIKFLLECLVDLDLNLKNLGSRLLILKGDPAEVVIRCLKELHVKKLCFEYDTEPYYQALDVKVKNFALAAGIEVFSPVSHTLFNPTDIIEKNGGKPPLSYQSFVKLAGEPPSSLSTVYSSLPPVGNLGSCDISEVPTIRDLGYGDAEQDEFSPFKGGESEALKRLDECMKDKKWVANFEKPKGNPSAFLKPATTVLSPYLKFGCLSPRYFYQSIQDVYKSMPKHTLPPVSLIGQLLWREFFYTAAFGTPNFDRMKGNRICKQIPWKDDDKLLEAWREARTGFPWIDAIMVQLRKWGWMHHLARHSVACFLTRGDLFVHWEKGRDVFERLLIDSDWAINNGNWMWLSCSSFFYQYNRIYSPTTFGKKYDPNGDYIRHFLPVLKDMPREYIYEPWTAPKSIQTKANCIIGKDYPMPVVSHDSASKECRRKMGEAYALNKELNGLVSEDDLKNLRRKLDESEGQEAGAKRYKQQLIG

65.

>gi|357139910|ref|XP\_003571518.1|\_(6-4)DNA\_photolyase\_isoform\_X1\_Brachypodium\_distachyon

MDAATAVTATAGAAAAMVWFRKGLRVHDNPALDAARRGAARVYPVFVLDPRYLRPDPAAHSPGSARAGVARVRFLLESLSDLDAGLRRLGSRLLLLRARDDVPDALCAALRDWNIGKLCFEADTEPYALARDKRVTDFAAALGIEVFTPVSHTLFDPAEIIEKNGGRPPLTYQSFLAIAGEPPKPVMAEYSELPLIGDTGEYELLPVPKLEELGYGDISQENISPFRGGETEALKRMRESLQDKEWVSMFEKPKGDPSAFLKPATTVLSPYLKFGCLSSRYFYHCIQEVYRSTKKHTKPPVSLTGQLLWRDFFYTVSFGTLSFDHMKGNKICKQIPWRQNEELFVAWRDGRTGYPWIDAIMIQLRKWGWMHHLARHSVACFLTRGDLFIHWEKGRDVFERLLIDSDWAINNGNWLWLSCSSFFYQYHRIYSPISFGKKYDPNGDYIRHFIPVLKDMPKEYIYEPWTAPLSVQEKARCIVGRDYPKPVVDHEAASKECRKRMGEAYASNRLGGNTVNGKTSESSRRKSSDGGQDASDLSKSKQPKRRS

66.

>gi|357163871|ref|XP\_003579874.1|\_cryptochrome-1\_isoform\_X1\_Brachypodium\_distachyon

MSVSSSSMCGGDAGMKSVVWFRRDLRVEDNPALAAAARTAGEVVPAYVWSPEEDGPYFPGRVSRWWLSQSLKHLEASLQRLGAGKLVTRRSADAVVALLQLVRDTGATHLFFNHLYDPISLVRDHRLKEMLTAEGIIVQSFNADLLYDPWEVVDDEGHPFTMFMPFWNRCLSMPYDPPAPLLPPKRINSGDLLMCPSDDLIFEDDSERGSNALLARAWSPGWQNADKALTAFLNGPLVDYSVNRKKADSANTSLLSPYLHFGELSVRKVFHLVRMKQLVWSNEGNHAAEESCTLFLRSIGLREYSRYICFNHPCSHEKPLLAHLRFFPWVVNECNFKFWRQGRTGYPLVDAGMRELWATGWLHDRIRVVVSSFFVKVLQLPWRWGMKYFWDTLLDADLESDALGWQYISGSLPDSRELDHIDNPQLEGYKFDPHGEYVRRWLPELARLPTEWIHHPWDAPASVLQAAGVELGSNYPLPIIELDAAKSRLQEALSEMWQLEAASRAAMDTGMEEGLGDSSEVPPIEFPQDLQMEVHWEPARVTANVLTTARRRQDQMVPTMTSSLNRVETEISADLGNSVDSRAEVPSHMHVEPQTEREEMIRSTGNVVRTNDFRHHNNFQQPQHRMRDMFAASVSEASSSWTGREGGVVPVWSPPAASGHSETYVADEADVSSRSYLDRHPQSHRLMNWSQLSQSLTTGRDVENSVQPNFIG

67.

>gi|410965445|ref|XP\_003989258.1|\_cryptochrome-1\_isoform\_X1\_Felis\_catus

MGVNAVHWFRKGLRLHDNPALKECIQGADTIRCVYILDPWFAGSSNVGINRWRFLLQCLEDLDANLRKLNSRLFVIRGQPADVFPRLFKEWNITKLSIEYDSEPFGKERDAAIKKLATEAGVEVIVRISHTLYDLDKIIELNGGQPPLTYKRFQTLISKMEPLEIPVETITSELIEKCTTPLSDDHDEKYGVPSLEELGFDTDGLPSAVWPGGETEALTRLERHLERKAWVANFERPRMNANSLLASPTGLSPYLRFGCLSCRLFYFKLTDLYKKVKKNSSPPLSLYGQLLWREFFYTAATNNPRFDKMEGNPICVQIPWDKNPEALAKWAEGRTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWEEGMKVFEELLLDADWSINAGSWMWLSCSSFFQQFFHCYCPVGFGRRTDPNGDYIRRYLPVLRGFPAKYIYDPWNAPEGIQKVAKCLIGVNYPKPMVNHAEASRLNIERMKQIYQQLSRYRGLGLLASVPSNPNGNGGLMGYSPGENIPGCSSSGSCSQGSGILHYTHGDSQQTHLLKQGRSSMGTGLSGGKRPSQEEDTQSIGPKVQRQSVN

68.

>gi|460413920|ref|XP\_004252323.1|\_(6-4)DNA\_photolyase\_Solanum\_lycopersicum

MASGANSLMWFRKGLRLHDNPALEYAAKGSKFLYPVFVIDPHYMDPDPTAFSLGSSKAGLNRIQFLLESLADLDLSLKKVGSRLLVLKGDPGELLIRCLKEWSIGKLCFEYDTEPYYQALDEKVKGYVSGTGVEIFSPVSHTLYNPADIIHKNGGSPPLSYQSFLKLAGQPSWAATPLSTTISSLPRIGNTGSFAVSEVPTVRELGYEDLPEDEKTPFKGGESEALKRLRESIANKEWVANFEKPKGNPSAFLKPATTVLSPYLKFGCLSSRYFYQCIQDILKCSKKHTSPPVSLLGQLLWRDFFYTAAFGTPNFDQMKGNRICKQIPWKNDDKLLAAWRDSKTGFPWIDAIMVQLRKWGWIHHLARHSVACFLTRGDLFVHWERGRHVFERLLIDSDWAINNGNWLWLSCSSFFYQYNRIYSPISFGKKYDPAGNYIRHFLPVLKDMPKEYIYEPWTAPISVQRKAKCIIGVDYPKPVVSHDSASKECKMRLGEAYALNKKLNGLVSEEDLNELRRKADNESTTLDSVSRKKKQKLID

69.

>gi|470457268|ref|XP\_004341122.1|\_type\_II\_CPD\_DNA\_photolyase\_Acanthamoeba\_castellanii\_str.\_Neff

MDAPSASESRDEDFEVEQEEEQGRAKVAKERVRVLHEPKGKEGRKATGVVYWMSRDQRANDNWALLYAQQLAVKSGVPLAVAFCLLPSFKGASIRHFGFMVRGLTEVEKTLNSRGIPMLLLKGLPQDELPKALKTYGASHLVCDFSPLRIGRKWREEVAEATNAFVYEVDAHNLVPLWEVSPKQEYAARTIRPKIHKQVPKYLHEFPALRDHSKRNGGNKWSPAIPEVNWDSVWSYVREHVDDSVPELDWLKPGEKEGRRMLDLFLTKKLKDYNSKRNTPVEDGQSNLSAYLHYGQLSAQRIILEAMKHKAKAKESYEAYFEELIVRRELADNFCYYNQHYDQFEGFPDWARKSLEEHAADKRSSLYTYEELERGKTHDELWNAAQMEMVHLGKMHGFMRMYWAKKILEWTESPQQAMQFAVKLNDHYEIDGRDPNGYVGCAWAIGGVHDQGWKERPVFGKVRYMNYAGCKRKFDVDAYVRKMAKFMSEPTGTKKTEASAVSRKRKDKEGKKEKEKEEETNEAEEDEDEDEEEEGEEEEKQPAKKARRTAKRTVAQSAGSRAAARILKTKKSSSRGK

70.

>gi|502095106|ref|XP\_004490375.1|\_cryptochrome-1\_isoform\_X1\_Cicer\_arietinum

MTSGGCSIVWFRRDLRVEDNPALAAGVRAGAVVAVFIWAPEEEGQYYPGRVSRWWLKNSLSQLDSSLRSLGTPLITKRSTDSVSSLLEVVKNTGATQIFFNHLYDPLSLVRDHKAKEVLTTQGITVRSFNSDLLYEPWDVNDEHDQPFTTFDSFWERCLSMPYDPQAPLLPPKRIIPGDVSRCPSDTLVFEDESEKASNALLARAWSPGWSNANKALTTFINGPLIEYAKNRRKADSATTSFLSPHLHFGEVSVKKVFHLVRIKQVFWANEGNQAGEESVNLFLKSIGLREYSRYISFNHPYSHERPLLGHLKFFPWVVNEGYFKAWRQGRTGYPLVDAGMRELWATGWLHDRIRVVVSSFFVKVLQLPWRWGMKYFWDTLLDADLESDALGWQYISGTLPDGREFDRIDNPQFEGYKCDPNGEYVRRWLPELARLPTEWIHHPWNAPESVLQAAGIELGSNYPLPIVEIDAATVRLEEALIQMWQLEAASRAAAENGTEEGLGDSSESTPIAFPQDIQMEEIHEPVRNNPPHGTRRYEDQMVPSITSSRVRMEEEETSSVRNSGEDSRAEVPTNANGQQNTRETESQGVLQNVNRNTRQRNNTPTTFWLRNAPEDSTAESSSSTRRERDGGVVPEWSPPTSNFSDQFVDDENGIGSSSPYLQRHPQSHQLMSWTRLPQTG

71.

>gi|502132182|ref|XP\_004501253.1|\_cryptochrome\_DASH\_chloroplastic/mitochondrial\_Cicer\_arietinum

MAIFLFTTTLPFLSLPTTTLNSSKSTLTSILTNPTTLHHFPAIAMNLCTTTSAASCSSMQHVPEQDSNQTERVANLIFQRYTSNNTNRSGKGTAIVWFRNDLRVLDNEALYKAWLSSQTILPVYCVDPRLFATTYHFGFPKTGALRAQFLLESLADLRKNLMKRGLNLLIQHGKPEDVLPSLAKTFGAHTVYAQKETCSEEVNVERSVSRCLQQVGVPSEESVGAPTTSNSHPKLQFVWGTTMYHHGDLPFDVSCLPDVYTQFRKAIEAKCTVRSCIKLPASLGPPPAIEDWGCLPSLEQLGLYSQNVSKGMKFVGGETAALSRVYEYFWKKDLLKVYKETRNGMLGPDYSTKFSPWLASGSLSPRLIYEEVKRYENERQANSSTYWVLFELIWRDYFRFLSVKYGNLLFHIGGPRNVQHNWSQDKKLFEAWRDGCTGYPLIDANMKELSTTGFMSNRGRQIVCSFLVRDMGIDWRMGAEWFETCLLDYDPCSNYGNWTYGSGVGNDPREDRYFSIPKQAQTYDPEGEYVAYWLPQLRIIAKDKRNFPGNLYIRQIVPLKFGTSSRHNKDDKSLGARRANDKGNERRWNRR

72.

>gi|514708349|ref|XP\_004951515.1|\_(6-4)DNA\_photolyase\_Setaria\_italica

MEAATAATAAAMVWFRKGLRVHDNPALDAARRGAGRLYPVFVLDPRYLRPDPAAASPGSARAGVARVRFLLESLGDLDARLRRLGSRLLLLRARDDVADAVCAALKDWNIGKLCFESDTEPYALVRDKKVTDFAMASGIEVFTPVSHTLFDPAEIINKNGGRPPLTYQSFIAIAGEPPEPLMEEYSELPPVGDTGEYELLPVPTVEELGYGDISQEEIPPFRGGETEALRRMKESLENKEWVAKFEKPKGDPSAFLKPATTVLSPYLKFGCLSSRYFYHCIQDVYRSVRNYTKPPVSLTGQLLWRDFFYTVSFGTPNFDQMKGNKICKQIPWSENEELFVAWRDSRTGYPWIDAIMIQLRKWGWMHHLARHSVACFLTRGDLFIHWEKGRDVFERLLIDSDWAINNGNWLWLSCSSFFYQYHRIYSPITFGKKYDPNGNYIRHFIPALKDMPREYIYEPWTAPLSIQKKAKCIIGKDYPKPVVDHETASKECRKRMGEAYASSRLDSNPSRGKPSNMSRRKKSHGDQGASNSSIAKLMKRSRAE

73.

>gi|528487228|ref|XP\_005166949.1|\_cryptochrome-1\_isoform\_X1\_Danio\_rerio

MAPNSIHWFRKGLRLHDNPALQEAVRGADTVRCVYFLDPWFAGSSNLGVNRWRFLLQCLDDLDSNLRKLNSRLFVVRGQPANVFPRLFKEWKISRLTFEYDSEPFGKERDAAIKKLAMEAGVEVIVKTSHTLYNLDKIIELNGGQPPLTYKRFQTLISRMDPPEMPVETLSNSIMGCCVTPVSEDHGDKYGVPSLEELGFDIEGLPSAVWPGGETEALTRIERHLERKAWVANFERPRMNANSLLASPTGLSPYLRFGCLSCRLFYFKLTDLYRKVKKTSTPPLSLYGQLLWREFFYTAATTNPRFDKMEGNPICVRIPWDKNPEALAKWAEAKTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWEEGMKVFEELLLDADWSVNAGSWMWLSCSSFFQQFFHCYCPVGFGRRTDPNGDFIRRYLPILRGFPAKYIYDPWNAPDSVQAAAKCIIGVHYPKPMVNHAEASRLNIERMKQIYQQLSRYRGLGLLASVPSTHNGNGNGMAYSPGEQQSGTNTPAPAVSSGSVASGNRSGSILLNFDSEEHQGPSGIQQQHQQQQQQQQQQQLGYHHMPDSGHNSRFYKSNVSHDMAAGHLLHKGGSVTGKRERESERDLDGEDESLSTSHKLQRQIAEVTSVYASSGNQSSMRS

74.

>gi|528514795|ref|XP\_005168334.1|\_cryptochrome\_circadian\_clock\_4\_isoform\_X1\_Danio\_rerio

MLPEAIWSPSEVFSSWRKSVAMSHRTIHLFRKGLRLHDNPSLLGALASSSALYPVYVLDRVFLQGAMHMGALRWRFLLQSLEDLDTRLQAIGSRLFVLCGSTANILRELVAQWGITQISYDTEVEPYYTRMDKDIQTVAQENGLQTYTCVSHTLYDVKRIVKANGGSPPLTYKKFLHVLSVLGEPEKPARDVSIEDFQRCVTPVDVDRVYAVPSLADLGLQVEAEVLWPGGESHALQRLEKHFQSQGWVANFSKPRTIPNSLLPSTTGLSPYLSLGCLSVRTFYHRLNSIYAQSKNHSLPPVSLQGQVLWREFFYTVASATPNFTKMEGNSICLQIDWYHDPERLEKWRTAQTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWEEGMKVFEEFLLDADYSVNAGNWMWLSASAFFHKYTRIFCPVRFGRRTDPQGEYLRKYLPVLKNFPSQYIYEPWKAPEDVQLSAGCIIGKDYPRPIVSHIEASQRNLALMRQVRTEQQTTAELTRDVADDPMEAGLKRELREEEGLLEEAESQCTSKRFSGSSDHKSRPCSWTPETLQLSELSGEVM

75.

>gi|542152115|ref|XP\_005484958.1|\_deoxyribodipyrimidine\_photo-lyase\_Zonotrichia\_albicollis

MRRARGKRKAEATEVPCVNRRRTEGDEAIQEARRRAAPSVREFKYNKKRVRLVSQGSDLKDDARCILYWMCRDQRVQDNWAFLYAQRLALKQELPLHVCFCLVPKFLEATIRHYRFMLRGLQEVAEECAELNISFHLLLGYAKDVLPVFVTEHGVGGLVTDFSPLRLPRQWVEEVRERLPEDVPFAQVDAHNIVPCWVASPKQEYSARTIRGKIHAQLPEFLTEFPPVVRHPHPPSCPAEPIAWEACYSSLEVDHTVKEVEWATPGTAAGMAVLKSFIAERLKSFSSHRNDPNKAALSNLSPWLHFGQVSTQRAILEVQKQRRSYKDSVDAFVEEAVVRRELAENFCYYNENYDSVQGAYDWAQTTLKVHAKDKRPYLYSLQELEQGTTHDPLWNAAQLQMVREGKMHGFLRMYWAKKILEWTHSPEEALQFAIYLNDRYELDGRDPNGYVGCLWSICGIHDQGWAERPIFGKIRYMNYAGCKRKFDVEQFERRYSPTHSQ

76.

>gi|542165234|ref|XP\_005491227.1|\_cryptochrome-1\_isoform\_X1\_Zonotrichia\_albicollis

MGVNAVHWFRKGLRLHDNPALRECIQGADTVRCVYILDPWFAGSSNVGINRWRFLLQCLEDLDANLRKLNSRLFVIRGQPADVFPRLFKEWNIAKLSIEYDSEPFGKERDAAIKKLASEAGVEVIVRISHTLYDLDKIIELNGGQPPLTYKRFQTLISRMEPLEMPVETITPEVMKKCTTPVSDDHDEKYGVPSLEELGFDTDGLPSAVWPGGETEALTRLERHLERKAWVANFERPRMNANSLLASPTGLSPYLRFGCLSCRLFYFKLTDLYKKVKKNSSPPLSLYGQLLWREFFYTAATNNPRFDKMEGNPICVQIPWDKNPEALAKWAEGRTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWEEGMKVFEELLLDADWSVNAGSWMWLSCSSFFQQFFHCYCPVGFGRRTDPNGDYIRRYLPVLRGFPAKYIYDPWNAPESIQKAAKCIIGVNYPKPMVNHAEASRLNIERMKQIYQQLSRYRGLGLLATVPSNPNGNGNGGLMGYSPGESISGCGSTGGAQLGTGDGHSVVQSCALGDSHTGTSGIQQQGYCQASSILHYAHGDNQQSHLLQAGRTALGTGISAGKRPNPEEETQSVGPKVQRQSTN

77.

>gi|542165810|ref|XP\_005491511.1|\_cryptochrome\_DASH\_Zonotrichia\_albicollis

MSGTAGTAICVLRCDLRAHDNQVLHWAQHNADFVIPLYCFDPRHYLGTHCYSWPKTGPHRLRFLLESVKDLRETLKKKGSTLVVRKGKPEDVVCDLITQLGSVTAVVFHEEATQEELDVEKGLCQVCGQHGVKVQTFWGSTLYHRDDLPFRPIDRLPDVYTHFRKALESGARVRPTLQMPDQLKPLAPGLQEGSIPTMEDFGQKDPVTDPRTAFPCSGGETQALMRLQYYFWDTNLVASYKETRNGLVGMDYSTKFAPWLALGCISPRYIYEQIQKYERERTANQSTYWVLFELLWRDYFRFVALKYGRRIFSLRGLQSKEIPWKKDLQLFNCWKEGRTGVPFVDANMRELSATGFMSNRGRQNVASFLTKDLGLDWRMGAEWFEYLLVDYDVCSNYGNWLYSAGIGNDPRENRKFNMIKQGLDYDGNGDYVRLWVPELQGLKGADIHTPWALSSAALSQAGVTLGETYPQPVVTAPEWSRHIHQRPGGSPHPRASKRGPAQYKDRGIDFYFSRKKDAC

78.

>gi|542167846|ref|XP\_005492496.1|\_cryptochrome-1\_isoform\_X1\_Zonotrichia\_albicollis

MLHRTIHLFRKELRLHDNPVLLAALESSEALYPVYILDTAFLTSSMHIGALRWNFLLQSLEDLHKNLGKLGSCLLVIQGQYELVLRDHIQKWNITQVTLDAEMEPFYKEMEANIQRLGAELGFKVLSLVSHSLYNTQRILDLNGGSPPLTYKRFLHILSLLGDPEVPVRNLTAEDFQRCRAPDPGLAECYRVPLPMDLKISLESLSPWRGGETEGLQRLEQHLTDQGWVTSFTKPRTIPNSLLPSTTGLSPYFSMGCLSVRTFFYRLSNIYAQAKHHSLPPVSLQGQLLWREFFYTVASATPNFTQMAGNPICLQICWYKDAERLHKWKTAQTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWEEGMKVFEELLLDADYSINAGNWMWLSASAFFHQYTRIFCPVRFGKRTDPQGDYIRKYLPILKNFPSKYIYEPWTASEEEQKQAGCIIGQDYPFPIVNHKEASDHNLQLMKQVREEQHRTVQLTRDDADDPMEIKVKRDHSEENIAKGKVARTAE

79.

>gi|545515038|ref|XP\_005625992.1|\_cryptochrome-1\_Canis\_lupus\_familiaris

MGVNAVHWFRKGLRLHDNPALKECIQGADTIRCVYILDPWFAGSSNVGINRWRFLLQCLEDLDANLRKLNSRLFVIRGQPADVFPRLFKEWNITKLSIEYDSEPFGKERDAAIKKLATEAGVEVIVRISHTLYDLDKIIELNGGQPPLTYKRFQTLISKMEPLEIPVETITSEVVEKCTTPLSDDHDEKYGVPSLEELGFDTDGLPSAVWPGGETEALTRLERHLERKAWVANFERPRMNANSLLASPTGLSPYLRFGCLSCRLFYFKLTDLYKKVKKNSSPPLSLYGQLLWREFFYTAATNNPRFDKMEGNPICVQIPWDKNPEALAKWAEGRTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWEEGMKVFEELLLDADWSINAGSWMWLSCSSFFQQFFHCYCPVGFGRRTDPNGDYIRRYLPVLRGFPAKYIYDPWNAPEGIQKVAKCLIGVNYPKPMVNHAEASRLNIERMKQIYQQLSRYRGLGLLASVPSNPNGNGGLMGYSPGENIPGCSSSGSCSQGSGILHYAHGDSQQTHLLKQGRSSMGTGLSSGKRPSEEEDTQTISPKVQRQSTN

80.

>gi|552844479|ref|XP\_005851091.1|\_CPD\_photolyase\_Chlorella\_variabilis

MSRDQRVRDNWALLHAAAEASKRGVPVAVAFNLVTEYLHAGARQFGFMVRGLRLMQPKLQALNIPLFLLKGDPLETVPQLVKDTGASLLVTDFAPLRLGRHWREGVAAKIKVPFHEVDAHNVVPVWVASDKREYAARTIRPKIHSKLPEFLTEFPQLEPQPEWSSGVTPEAVDWDALLAEVLERGKEVPEVRWCAPGEDAAMEALSGPKGFLGSKARLARYEEKRNDPTVPDALSGLSPYLHFGHLSPQRAAVEAARNKAVHKASVEGFLEELIVRRELADNYCFYVPNYDSLDAAYDWARQTLNDHRGDKREHVYTREQFEKGQTHDKLWNAAQAEMVHFGKMHGFMRMYWAKKILEWSASPEEALEISIWLNDKYELDGRDANGYVGCMWSIAGIHDQGWAERPVFGKIRFMNFAGCKRKFDVEKYVARIGALVRDIKAGQK

81.

>gi|558143037|ref|XP\_006092785.1|\_cryptochrome-1\_isoform\_X1\_Myotis\_lucifugus

MGVNAVHWFRKGLRLHDNPALKECIRGADTIRCVYILDPWFAGSSNVGINRWRFLLQCLEDLDSNLRKLNSRLFVIRGQPADVFPRLFKEWNITKLSIEYDSEPFGKERDAAIKKLATEAGVEVIVQISHTLYDLDKIIELNGGQPPLTYKRFQTLISKMEPLEIPVETITLEVIEKCTTPLSDDHDEKYGVPSLEELGFDTDGLPSAVWPGGETEALTRLERHLERKAWVANFERPRMNANSLLASPTGLSPYLRFGCLSCRLFYFKLTDLYKKVKKNSSPPLSLYGQLLWREFFYTAATNNPRFDKMEGNPICVQIPWDKNPEALAKWAEGRTGFPWIDAIMTQLRQEGWIHHLARHAVACFVTRGDLWISWEEGMKVFEELLLDADWSINAGSWMWLSCSSFFQQFFHCYCPVGFGRRTDPNGDYIRRYLPVLRAFPAKYIYDPWNAPESIQKVAKCLIGVNYPKPMVNHAEASRLNIERMKQIYQQLSRYRGLGLLASVPSNPNGNGGLMGYSPGENIPGCSSSGSYAQGSGILHYALGDSQQTHLLKQGRSSVGTGLSSGKRPSQEEDTQSIGRKVQRQSTN

82.

>gi|566147859|ref|XP\_006368713.1|\_deoxyribodipyrimidine\_photo-lyase\_Populus\_trichocarpa

MASLSSPPTQNTIVQPGRIRVIKEGSRGQVGGGPVVYWMFRDQRLQDNWALIHAVDQANRSNVPVAVAFNLFDQFLGAKARQLGFMLRGLCQLQSHIEETLQIPFFLFLGEAEETIPAFLKDCGASLLVTDFSPLRQFRTCQDEICKRVSDSVTIHEVDAHNVVPIWVASEKLEYSARTLRGKINKLLPEYLIDFPMLQLPKNKWVAATKQSIDWNDLIDNVLRKGAEVPEIKWCEPGEDAAMEVLMGSKDGFLTQRLKNYSTDRNNPLKPKGLSGLSPYLHFGQISAQRCALEARKVRNLSPQSADAFLEELIVRRELADNFCFYQPNYDSIHGAWEWARKTLADHASDKREHIYSKEQLEKAQTADPLWNASQLEMVCHGKMHGFMRMYWAKKILEWTRGPEEALAISIYLNDKYEIDGRDPGGYVGCMWSICGIHDQGWKERPIFGKIRYMNYAGCKRKFNVDGYITYVKRIVGDIKKRKAENELHKTMKELPS

83.

>gi|568453348|ref|XP\_006460239.1|\_CPD\_photolyase\_Agaricus\_bisporus\_var.\_bisporus\_H97

MEAAAVVDANPPYFELKQLIEHGMPDPDKGKVVFYWMRFADLRITDNRALHKASEQAQKDGIPLAVLFVLSPEDYFAHDRSSRRIDFVLRNLKLLQEAFSKLHIPLYVITHKPRRTLAERVVESIKEYGCRHLYANLEHEVDELRRDIRMWQLGERHGIQVNLFHDKCIVEPGVVLTKQARGYTIFTPYWRNWVDTLNANLGKYTEKCPVPLPNNESIRRDKKLSFLFQTSVPGSINGFELSDNDAANMKEFWPAGEATAIQVLDRFLKTKSRSSQLGAVDPLSPGAQDGANHNRIHKYHQSRDQMDRDTTSRLSVYLSAGVISVRECVRQTMQLTGSKKVDGNRSAGVGRWIQELAWRDFYTGILVHYPRVSMGRPYLEKYSRVVWENHQAPQDTTGVHEHHDSENFKKWKEGMTGVAIVDAAMRCLNKMGWVHNRARMIVAMYLTKDLMIDWRLGERYFMQTLIDGDLASNNGGWQWSASTGVDPCPYFRIFNPHSQSLNADPTGEFIRYWVPELQKLHGPEIHDPSASTADKLGYPRKVIEHSAARDRALRRFKNPGEA

84.

>gi|612392706|ref|XP\_007511873.1|\_CPD\_photolyase\_Bathycoccus\_prasinos

MLLRTATRCCSPLLNNNRFALFKSSKRTPARRSATTCAFFPSSSLFTNLTTTTTTASATARGFQDHFARRSNRASSNRTLLTLLQSPNGGRFTTRRKKHTAAISSTFVVYAGTTNTTIDINENNNNNKNEDKNMIVHPDRVMLINDQPILREGNGPIVYWMSRDQRVNDNWAMLYAIELANKEKKPLVVVFNVVTKFLGAGARQFGFMLRGLREVESALEERDIPFKLLHGGDEPNAEIEKFCNEVNASAVVTDFSPLRLGLKWRDDFAKETKRSVRVVDAHNIVPCWVASPKLEVGARTLRGKLAKLYGDFMVPFPDNFPNVENKDAALHAKIKSVKTDWDDVLGQALERGKDVPEVTWAVPGEKAAMAVLDNFLTKRMSLYGLRNDPAKPQALSGLSPYLHFGQISGQRCAMKALEAKKGSNGKAVDVFFEELVVRRELADNFCYYSPQYDTIEGQKYDWAKDTLRMHAGDKREYTYTYEEFEQAKTHDNLWNAAQRELVYGGKMHGFMRMYWAKKILEWSDTPENALKYAIALNDRWSLDGRDPSGYVGCMWSIVGVHDQGWKEREIFGKIRYMAYSGCEKKFKIPEYIKRVDALVEAVQKCEVSYKSNPGAWEIGRDDVLPKVAKSDNDDDDERKSKKQKK

85.

>gi|670394653|ref|XP\_008677763.1|\_cryptochrome\_2\_isoform\_X1\_Zea\_mays

MTASQSSMSGGGEPGVRTVVWFRRDLRVEDNPALAAAARTAGEVVPAYVWSPEEDGPYYPGRVSRWWLSQSLKHLDASLRRLGACRLVTRRSSDAVVALIDLVRSTGATHLFFNRLYDPLSLVRDHRVKEQLSAEGITVQSFNADLLYEPWEVLDDDGFPFTMFAPFWNRCLCMPDPAAPLLPPKRINSGDLSRCPWDELIFEDESEKGSNALLARAWSPGWQNADKALTAFLDGPLVDYSANHKKADSASTSLLSPYLHFGELSVRKVFHQVRMKQLMWSNDGDRAGEESCTLFLRAIGLREYSRYLTFNHPCSLEKPLLSHLRFFPWVVDEVHFKVWRQGRTGYPLVDAGMRELWATGWVHDRIRVVVSSFFVKVLQLPWRWGMKYFWDTLLDADLESDALGWQYISGSLPDGRELDRIDNPQFEGYKFDPHGEYVRRWLPELARLPTEWIHHPWDAPESVLQAAGVELGSNYPRPIVELDAANSRLQGALSEMWELEAASCAAIENGMEEGLGDSTDEPPIDFPQELRMEVDRQPAQPAIIHTPVVAGWRREDQRVPSMTSSLIRAETELTADFGNTSEDSRPEVPSNIHLQARAEREETVDGATGNTVRVNGNQQQQNLQNNMHRVLGIAPSISEASSSWTGREGGLVPVWSPPAASVHSDPYTADEADISSRSYLDRHQQSNTMMNWSQLSQSLTTGWEVDN

86.

>gi|723724759|ref|XP\_010325452.1|\_deoxyribodipyrimidine\_photolyase\_isoform\_X1\_Solanum\_lycopersicum

MASAIPVVQSGRIRVVKQGSGPLVGPVVYWMFRDQRIRDNWALIHAVDQANKANVPVAIAFNLFDQFLGAKARQLGFMLRGLEKLQGNLESTLRIPFFLFQGEAIDTIPNFLKECGASLLVTDFSPLRDVRSWKEKICERVDESVTVHEVDAHNIVPLWVASNKLEYSARTIRGKINKLLPEYLIELPAIEPLKIKWSSSNAPIDWPKLVSDVVRKGAEVPELEWCEPGEDAAFEVLMGSKKGFLTTRLKTYSTDRNNPLKPQALSGLSPYLHFGQISAQRCALEANKVRKNYTQAVDTFLEEMIVRRELSDNFCYYQPQYDSLLGAWEWARKTLMEHASDKREHIYTREQLEKAQTADVCFGQLWNASQLEMVHYGKMHGFMRMYWAKKILEWTNGPEEALAITIYLNDKYHIDGRDPSGYVGCMWSICGVHDQGWRERPVFGKIRYMNYAGCKKKFNVDGYISYVKRLVGESKKRKAEVILDKKAKELRN

87.

>gi|1567546042|ref|XP\_012014825.2|\_cryptochrome-1\_isoform\_X1\_Ovis\_aries

MGVNAVHWFRKGLRLHDNPALKECIQGADTIRCVYILDPWFAGSSNVGINRWRFLLQCLEDLDANLRKLNSRLFVIRGQPADVFPRLFKEWNITKLSIEYDSEPFGKERDAAIKKLATEAGVEVIIRISHTLYDLDKIIELNGGQPPLTYKRFQTLISKMEPLEIPVETITSEVMEKCTTPLSDDHDEKYGVPSLEELGFDTDGLPSAVWPGGETEALTRLERHLERKAWVANFERPRMNANSLLASPTGLSPYLRFGCLSCRLFYFKLTDLYKKVKKNSSPPLSLYGQLLWREFFYTAATNNPRFDKMEGNPICVQIPWDKNPEALAKWAEGRTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWEEGMKVFEELLLDADWSINAGSWMWLSCSSFFQQFFHCYCPVGFGRRTDPNGDYIRRYLPVLRGFPAKYIYDPWNAPEGIQKVAKCLIGVNYPKPMVNHAEASRLNIERMKQIYQQLSRYRGLGLLASVPSNPNGNGGLMGYSPGENIPGCSSSASCTQGSGILHYAHGDSQQTHLLKQGRSSTAAGLGSGKRPSQEEDTQSVGPKVQRQSTN

88.

>gi|802581644|ref|XP\_012069829.1|\_cryptochrome-1\_Jatropha\_curcas

MGSNKTIVWFRRDLRIEDNPALASAARDGCVFPVFIWCPQEEGQFYPGRVSRWWLKQSLAHLGHSLNSLGAELVVIKTHSTLAALLDCINAIGATRVVFNHLYDPVSLVRDHNIKEKLVEVGISVQSYNGDLLLEPWEVYDESGHAFVTFDAYWDKCLHMQMEPVSHLPPWRLVPVAGAVEKCSLEELGLENEAEKSSNSLLGRGWSPGWSKADKALAEFVEQHLIDYSKNMLRVGGNSTSLLSPYLHFGELSVRKVFQCVQMKRLLWLKEENSAGKESVTLFLRSIGLREYSRYLCFNYPFTHERSLLSNLKYFPWDINQAHFKAWRQGRTGYPLVDAGMRELWATGWVHNRIRVIVSSFAVKVLLLPWRWGMKYFWDTLLDADLESDILGWQYISGSLPDGHELERLDSPEVQGSKFDPEGEYVRQWLPELARVPTEWIHHPWDAPLIVLKAAGLELGQNYPKPIIELDLARERLTEAIFKMWEMEATARASNSGGTNEVVVDNTVGTENLAIPKVLVKEKVPCHTDSSNDQKVPTVQKPKNFPDHRKRSKYMEEEIIKRPNLDKLQNHSGIEGTSRAEDDLCSTAESSAAKKQATSRCSFSVPQCCSTTESKPLYECESSDLKQPWQVQIDVEQSSSEDVATGT

89.

>gi|802623866|ref|XP\_012076312.1|\_cryptochrome\_DASH\_chloroplastic/mitochondrial\_Jatropha\_curcas

MAGLYSSISSLSLKKLIQPSQRISTLTYPILTAHSKLCIRQIMNSSSSSSSTLTCQVPALDSDEMDRIADHTFDRYSSKIVKRVGKGTAIVWFRNDLRVLDNEALFMAWVSSEAVLPVYCVDPRLFQTTYHFGFPKTGALRAQFIIECLADLRKNLMKKGLNLLIRHGKPEEILPSLAEAFAAHTVYAQKETCSEETNVERLISKALQQVKLSPSPEKSKSHGSSKSPKLQLVWGSTMYHMDDLPFYTNDIPDVYTQFRKSVEAKCAIRSCTKMPTSLAPPPSVEDWGCVPSIDDLGFQPQKVNKGMRFLGGESAALSRVYEYFWKKDLLKIYKETRNGMLGPDYSTKFSPWLASGSLSPRFIYEEVKRYEKERAANDSTYWVLFELIWRDYFKFISVKYGNSLFHLGGPRKVERRWTQDQRLFESWRDGCTGYPLIDANMKELLSTGFMSNRGRQIVCSFLVRDMGIDWRMGAEWFETCLLDYDPCSNYGNWTYGAGVGNDPREDRYFSIPKQAQTYDPEGEYVAYWLPQLQKLEKDKRHFPGKSYTMQVVPLKFRNPKKQYSQDRAYATRQTNHAGRQTKGFKR

90.

>gi|884859557|ref|XP\_012998342.1|\_cryptochrome-1\_isoform\_X1\_Cavia\_porcellus

MGVNAVHWFRKGLRLHDNPALKECIRGADTIRCVYILDPWFAGSSNVGINRWRFLLQCLEDLDANLRKLNSRLFVIRGQPADVFPRLFKEWNITKLSIEYDSEPFGKERDAAIKKLASEAGVEVIVRISHTLYDLDKIIELNGGQPPLTYKRFQTLISKMEPLEIPVETITSEVVEKCVTPLSDDHDEKYGVPSLEELGFDTDGLPSAVWPGGETEALTRLERHLERKAWVANFERPRMNANSLLASPTGLSPYLRFGCLSCRLFYFKLTDLYKKVKKNSSPPLSLYGQLLWREFFYTAATNNPRFDKMEGNPICVQIPWDRNPEALAKWAEGRTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWVSWEEGMKVFEELLLDADWSINAGSWMWLSCSSFFQQFFHCYCPVGFGRRTDPNGDYIRRYLPVLRGFPAKYIYDPWNAPEGIQKVAKCLIGVNYPKPMVHHAEASRLNIERMKQIYQQLSRYRGLGLLASVPSNPNGNGGLLGYAPGESTPGSGGGSCVPGSSSAGVSHCAQGEAPQAPPGRDPAGPGLGGGKRPSQEEDAQSTGHKIQRQSPD

91.

>gi|1197621000|ref|XP\_013222407.2|\_cryptochrome-2\_partial\_Columba\_livia

LLFLICRFLLQSLEDLDNSLRKLNSRLFVVRGQPTDVFPRLFKEWGVTRLTFEYDSEPFGKERDAAIIKLAKEAGVEVVIENSHTLYDLDRIIELNGHKPPLTYKRFQAIISRMELPKKPVSTIMSQQMEACKVDIQENHDDVYGVPSLEELGFPTDGLAPAVWQGGETEALARLDKHLERKAWVANYERPRMNANSLLASPTGLSPYLRFGCLSCRLFYYRLWELYKKVKRNSTPPLSLYGQLLWREFFYTAATNNPKFDRMEGNPICIQIPWDRNPEALAKWAEGKTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWESGVRVFDELLLDADFSVNAGSWMWLSCSAFFQQFFHCYCPVGFGRRTDPSGDYVKRYLPKLKGFPSRYIYEPWNAPESVQKAAKCIIGVDYPKPMVNHAETSRLNIERMKQIYQQLSRYRGLCLLASVPSCVEDLSGPVTDSASGQGCSTSTAMRLSQADQSSPKRKHEGAEELCTEELYKRARVTDLPTAEIPGKSV

92.

>gi|927384477|ref|XP\_013938084.1|\_DNA\_photolyase\_PHR1\_Trichoderma\_atroviride\_IMI\_206040

MLARSVYTVTRSQITSTSYLPSLSSYSKFLQPKFTFSTMPPKGSKRKTASPVGKANGVETKRVKHEANQDELHQPHPFAKDAEEHGIVLRRFYPHEMSTSRAYAYNSNEIERPMEGLVAALEETAGARKQAKVRHAVVHWFKMDLRHSDNRSLALASAKAKEAGVPLICVYIISPQDFEAHLTSPVRVDFMLRTLSVLKDDLAALDIPLHVETVDKRKDIPRRILELMEEWGSNHLFANMEYEVDELRRETRMIRQFAENNMSFEVVHDTCVVPPGELHSGTGKQYAVYTPWYRAWMAHIHENLDLLEIYDRPEKNPGATRRTFKTLFDCPIPDAPKNKQLNDEEKKRFHGLWPCGEHEAMSRLEKFCDEAVTSYHDRRNIPGDNGTSCLSVHLASGTISSRTCVRTARDRNKTKRLDGGHQGIHVWISEVAWRDFYKHVLVNWPYVCMNKPFKPEYANIEWSYNMDHFEAWCEGRTGFPIVDAAMRQLNHMGYMHNRCRMIVASFLSKDLLIDWRMGEKYFMEHLVDGDFASNNGGWGFSASVGVDPQPYFRVFNPLLQSEKFDPNGEYIRKWIPELKALSDKEIHDPYNRGAGTKAKKQGYPKQIVDHKGARERALSAYKDGLERGI

93.

>gi|929426245|ref|XP\_014121765.1|\_cryptochrome-2\_Zonotrichia\_albicollis

MELPKKPVSTVISQQMETCKVDIQENHDDVYGVPSLEELGFPTDGLAPAVWQGGETEALARLDKHLERKAWVANYERPRMNANSLLASPTGLSPYLRFGCLSCRLFYYRLWELYKKVKRNSTPPLSLYGQLLWREFFYTAATNNPKFDRMEGNPICIQIPWDRNPEALAKWAEGKTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWESGVRVFDELLLDADFSVNAGSWMWLSCSAFFQQFFHCYCPVGFGRRTDPSGDYVKRYLPKLKGFPSRYIYEPWNAPESVQKAAKCIIGVDYPKPMVNHAETSRLNIERMKQIYQQLSRYRGLCLLASVPSCVEDLSGPVTDSASGQGCSTSTAVRLSQADQASPKRKHEGAEEPCPEELYKRAKVTDLPASEISGKSL

94.

>gi|951033962|ref|XP\_014515872.1|\_(6-4)DNA\_photolyase\_isoform\_X1\_Vigna\_radiata\_var.\_radiata

MGSGSGSLVWFRKGIRIHDNPALEFASRTASHLYPVFVIDPHYMKPDPNAFSPGSSRAGLNRIKFLLESLVDLDLNLKNLGSRLLILKGDPAEVVIHCLKEWNVSKLCFEYDTEPYYQALDVKVKNFALAAGIEVFSPVSHTLFNPTDIIHKNGGKPPLSYQSFVKLAGEPPSPLTTVYSSLPPVGHLGSCDIFEVPTITDLGYGEAEQDEFSPFKGGESEALKRLDECMKDKKWVANFEKPKGNPSAFLKPATTVLSPYLKFGCLSSRYFYQRIQDIYRSMPKHSSPPVSLSGQLLWREFFYTAAFGTPNFDRMKGNRICKQIPWKDDDKLLEAWREARTGFPWIDAIMIQLRRWGWMHHLARHSVACFLTRGDLFVHWEKGRDVFERLLIDSDWAINNGNWMWLSCSSFFYQYNRIYSPTTFGKKYDPNGDYIRHFLPVLKDMPKEYIYEPWTAPKSIQTKANCIIGKDYPIPVVSHDSASKECRRKMGEAYALNKELNGLVGEDDLKNLRRKLDESEREEPEGKRYKQKLIG

95.

>gi|966985534|ref|XP\_014969885.1|\_cryptochrome-2\_Macaca\_mulatta

MAATVATAAAVAPAPAPGTDGASSVHWFRKGLRLHDNPALLAAVRGARCVRCVYILDPWFAASSSVGINRWRFLLQSLEDLDTSLRKLNSRLFVVRGQPADVFPRLFKEWGVTRLTFEYDSEPFGKERDAAIMKMAKEAGVEVVTENSHTLYDLERIIELNGQKPPLTYKRFQAIISRMELPKKPVGSVTSQQMESCRAEIQENHDETYGVPSLEELGFPTEGLGPAVWQGGETEALARLDKHLERKAWVANYERPRMNANSLLASPTGLSPYLRFGCLSCRLFYYRLWDLYKKVKRNSTPPLSLFGQLLWREFFYTAATNNPRFDRMEGNPICIQIPWDRNPEALAKWAEGKTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWVSWESGVRVFDELLLDADFSVNAGSWMWLSCSAFFQQFFHCYCPVGFGRRTDPSGDYIRRYLPKLKGFPSRYIYEPWNAPESIQKAAKCIIGVDYPRPIVNHAETSRLNIERMKQIYQQLSRYRGLCLLASVPSCVEDLSHPVAEPSSSQAGSVNSAGPRPLPSGPASPKRKLEAAEEPPGEELSKRAKVAELPTPELPSKDA

96.

>gi|966974323|ref|XP\_015008131.1|\_cryptochrome-1\_isoform\_X1\_Macaca\_mulatta

MGVNAVHWFRKGLRLHDNPALKECIQGADTIRCVYILDPWFAGSSNVGINRWRFLLQCLEDLDANLRKLNSRLFVIRGQPADVFPRLFKEWNITKLSIEYDSEPFGKERDAAIKKLATEAGVEVIVRISHTLYDLDKIIELNGGQPPLTYKRFQTLISKMEPLEIPVETITSEVIEKCTTPLSDDHDEKYGVPSLEELGFDTDGLSSAVWPGGETEALTRLERHLERKAWVANFERPRMNANSLLASPTGLSPYLRFGCLSCRLFYFKLTDLYKKVKKNSSPPLSLYGQLLWREFFYTAATNNPRFDKMEGNPICVQIPWDKNPEALAKWAEGRTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWEEGMKVFEELLLDADWSINAGSWMWLSCSSFFQQFFHCYCPVGFGRRTDPNGDYIRRYLPVLRGFPAKYIYDPWNAPEGIQKVAKCLIGINYPKPMVNHAEASRLNIERMKQIYQQLSRYRGLGLLASVPSNPNGNGGFMGYSTENIPGCSSSGSCSQGSGILHYTHGDSQQTHLLKQGRSSMGTGLSGGKRPSQEEDTQSIGPKVQRQSTN

97.

>gi|971433169|ref|XP\_015154168.1|\_cryptochrome\_4\_isoform\_X1\_Gallus\_gallus

MRHRTIHLFRKGLRLHDNPALLAALQSSEVVYPVYILDRAFMTSSMHIGALRWHFLLQSLEDLRSSLRQLGSCLLVIQGEYESVVRDHVQKWNITQVTLDAEMEPFYKEMEANIRGLGEELGFQVLSLMGHSLYNTQRILELNGGTPPLTYKRFLRILSLLGDPEVPVRNPTAEDFQRCSPPELGLAECYGVPLPTDLKIPPESISPWRGGESEGLQRLEQHLADQGWVASFTKPKTVPNSLLPSTTGLSPYFSTGCLSVRSFFYRLSNIYAQAKHHSLPPVSLQGQLLWREFFYTVASATPNFTKMAGNPICLQIRWYEDAERLHKWKTAQTGFPWIDAIMTQLRQEGWIHHLARHAAACFLTRGDLWISWEEGMKVFEELLLDADYSINAGNWMWLSASAFFHHYTRIFCPVRFGRRTDPEGQYIRKYLPILKNFPSKYIYEPWTASEEEQKQAGCIIGRDYPFPMVDHKEASDHNLQLMKQAREEQHRIAQLTRDDADDPMEMKLKRDHSEESFTKTKAARMTEQT

98.

>gi|992231580|ref|XP\_015412200.1|\_deoxyribodipyrimidine\_photolyase\_Aspergillus\_nomius\_NRRL\_13137

MRRISPVIGLSRVTLLYSSTLSSRSRSTLTPTIVRNMPQKRKPSQNVTRENGTNSTSHSNKRGKADLSSPHPNARQAEEFGIVLRQFYPPEMSNERCQAYNDGTLERPMEALNRVCEETVDARLSIRPNAAVVHWFKSDLRLHDNRALRKAYELAREHSIPLIALYILSPEDLTAHLSSPARVDLTLRTLEQLKRDLGELDIPLYMETQEKRRGIPQRIIDLCQEWGANHLFANIEYEVDELRREAKLVRLCVENGIAFDLLHDTCVVPPGLLSSQQGKQYAVYSPWFRAWQVFLMDNPDYLEASEEPGANPGNTRKVFKSLFESEIPGAPDNKGLSDEEREHFRELYPAGEHEALDRLERFLEEKATDYDDMRNSLCKQTTSVLSPYFASGSLSARTAVAQAKKANKNQLDRNDLGFVSWISEVAWRDFYKHVLVHWPFICMNKCFKSEFTDLEWEYNEDYFNAWCEGKTGYPIVDAAMRQINSVAWMHNRSRMIVASFLSKDLLIDWRRGERYFMEHLIDGDFASNHGGWGFGSSTGVDPQPYFRIFNPLRQSERFDPDGEYIRRWVPELREIQGSAIHDPYERGAGDLAEKNGYPGPIVDHATRRALALDRYKKAAGGNSK

99.

>gi|1002303097|ref|XP\_015614933.1|\_deoxyribodipyrimidine\_photolyase\_isoform\_X1\_Oryza\_sativa\_Japonica\_Group

MPPTSVSPPRTAPGPANPSPAHPSRVRVIHPGGGKPGGPVVYWMLRDQRLADNWALLHAAGLAAASASPLAVAFALFPRPFLLSARRRQLGFLLRGLRRLAADAAARHLPFFLFTGGPAEIPALVRRLGASTLVADFSPLRPVREALDAVVGDLRREAPGVAVHQVDAHNVVPVWTASAKMEYSAKTFRGKVSKVMDEYLVEFPELPAVVPWDREQPEGVDWDALIARVCSEAENVPEIDWCEPGEEAAIEALLGSKDGFLTKRIKSYETDRNDPTKPRALSGLSPYLHFGHISAQRCALEAKKCRHLSPKSVDAFLEELVVRRELADNFCYYQPQYDSLSGAWEWARKTLMDHAADKREHIYTREQLENAKTHDPLWNASQLEMVHHGKMHGFMRMYWAKKILEWTSGPEEALSTAIYLNDKYEIDGRDPSGYVGCMWSICGLHDQGWKERPVFGKIRYMNYAGCKRKFDVDAYISYVKRLAGQSKKRNAEESPNPVVKLSKSQH

100.

>gi|1002239385|ref|XP\_015623929.1|\_(6-4)DNA\_photolyase\_Oryza\_sativa\_Japonica\_Group

MDAAATAATATAAAAMVWFRKGLRVHDNPALDAARRGGAAARLYPVFVLDPRYLRPDQAAPSPGSARAGVARVRFLLESLSDLDARLRRLGSRLLLLRARDDGDVAGTVCAALKDWNIGKLCFESDTEPYALARDKKVMDFAAASGIDVFSPVSHTLFDPAEIIEKNGGRPPMTYQSFVAIAGEPPEPIMEEYSELPPVGDTGEYELLPVPRVEELGYGDISQEDLSLFRGGETEALKRMRESLHDKEWVAKFEKPKGDPSAFLKPATTVLSPYLKFGCLSSRYFYHCIQDIYRSTKKHTNPPVSLTGQLLWRDFFYTVAFGTPNFDQMKGNKICKQIPWTENEELFPAWRDGRTGYPWIDAIMIQLRKWGWMHHLARHSVACFLTRGDLFIHWEKGRDVFERLLIDSDWAINNGNWMWLSCSSFFYQYHRIYSPTSFGKKYDPNGNYIRHFIPVLKDMPKEYIYEPWTAPLSIQKKANCIIGKDYPKPVVDHAIASKECKKMMGEAYASNRLDDDKPDKGKSSNSSRRKLSAGSQVTPNSSKTKQLKRSS

101.

>gi|1002264531|ref|XP\_015636604.1|\_cryptochrome-1\_isoform\_X1\_Oryza\_sativa\_Japonica\_Group

MSVSSSSMGGGGGGDAGGRTVVWFRRDLRVEDNPALAAAARAGGEVVPAYVWAPEEDGPYYPGRVSRWWLSQSLKHLDASLRRLGAGKLVTRRSADAVVALLQLVRDTGATRLFFNHLYDPISLVRDHRLKEMMAAEGIIVQSFNADLLYEPWEVVDDEGQSFTMFAPFWNRCLSMPYDPAAPLLPPKRINSGDLSMCPSDDLIFEDDSERGSNALLARAWSPGWQNADKALTAFLNGPLIHYSVNRKKADSASTSLLSPYLHFGELSVRKVFHLVRMKQLVWSNEGNRAAEESCTLFLRSIGLREYSRYLSFNHPCSHEKPLLAHLRFFPWVINECYFKIWRQGRTGYPLVDAGMRELWATGWLHDRIRVVVSSFFVKVLQLPWRWGMKYFWDTLLDADLESDALGWQYISGSLPDGRELDRIDNPQLEGYKFDPHGEYVRRWLPELARLPTEWIHHPWDAPASVLQAAGVELGSNYPLPIVGLDAANARLQEALSEMWQLEAASRAAMDNGMEEGLGDSSEVPPIEFPRELQMEVDREPARVTANVLTTARRREDQMVPTMTSSLNRAETEISADFMNSVDSRAEVPTRVNFEPRTEREENFRTTAGNVARTNGIHEHNNFQQPQHRMRNVLAPSVSEASSGWTGREGGVVPVWSPPAASDHSETFASDEADISSRSYLDRHPQSHRLMNWSQLSQSLTTGREVENSMQPNWIG

102.

>gi|1002279585|ref|XP\_015644117.1|\_cryptochrome\_DASH\_chloroplastic/mitochondrial\_isoform\_X1\_Oryza\_sativa\_Japonica\_Group

MLHFLSSSSPLNPQFLLLPRQSARLRVLLSIPVSAMSSSSSSSSRGALAAAAVPSLSADEAGAAADEAFLRYTSPSMRRSGGGGVAIVWFRNDLRVLDNEAVVRAWAASDAVLPVYCVDPRISAGSTHYFGFPKTGALRAQFLIECLEDLKRNLTKQGLDLLIRHGKPEDILPSIAKAVTAHTVYAHKETCSEELLVEHLVRKGLEQVVIPQGGASNQKKPRNPKLQLIWGATLYHVDDLPFSVNNLPDVYTQFRKAVESKSSVRNCSKLPPSLGPPPGSGLDEIGGWGTVPTLESLGLSMTKSEKGMHFVGGESAALGRVHEYFWKKDQLKVYKETRNGMLGPDYSTKFSPWLASGSLSPRYICEEVKRYEKQRIANDSTYWVLFELIWRDYFRFISAKYGNSIFHLGGPRNVESKWSQDQALFESWRDGRTGYPLIDANMKELLATGFMSNRGRQIVCSFLVRDMGIDWRMGAEWFETCLLDYDPASNYGNWTYGAGVGNDPREDRYFSIPKQAKTYDPDGEYVAYWLPELRSIAKERRNFPGASYIKQVVPLKFDGGHQKRDQQFNRQRRPGHMYRRQK

103.

>gi|1009576523|ref|XP\_015919899.1|\_deoxyribodipyrimidine\_photolyase\_isoform\_X1\_Parasteatoda\_tepidariorum

MFGTSLILFNRGFTLFSIRLSKFTMSEKKHKLSEKDGPVKKAKLDETVQNDSDLVENIKKSRLSCAASIRDFKFNKKRVRVLTTAKDIPEEAKCIVYWMSRDQRVQDNWAFLYAQNLAFKINLPLCVCFCLVPKFLEATIRHYRFMLKGLQEVEEECKSLNIHFHLLLGESKNVLPKFVKDNQVGGVVTDFSPLRVPQKWVSELASKLPPDVPLCQVDAHNIVPCWVASDKQEYGARTIRKKIHDKLKEYLTDFPPVVKNKLTPECEFEPVDWNSVEKILEVNMDVDEVKWAIPGTTAGLKQLSSFCKDRLKHFHDCRNDPTKNNLSNLSPWFHFGQLSIQRTILVVSKLRSKYPASVDAFVEEAVIRRELSDNFCFYNKKYDQVDGAYDWAKKTLKDHSKDKREYIYTKEQFENAKTHDLLWNAAQRQLKKEGKMHGFLRMYWAKKILEWTNSPEEALEFAIYFNDKYNLDGRDPNGYVGCMWSICGIHDQGWAERAVFGKIRFMNFKGCQRKFDVNAFIQRYREK

104.

>gi|1034088063|ref|XP\_016776215.1|\_cryptochrome-2\_Pan\_troglodytes

MGGVHVAYRGGAGVAGAVWTVMAATVATAAAVAPAPAPGTDGASSVHWFRKGLRLHDNPALLAAVRGARCVRCVYILDPWFAASSSVGINRWRFLLQSLEDLDTSLRKLNSRLFVVRGQPADVFPRLFKEWGVTRLTFEYDSEPFGKERDAAIMKMAKEAGVEVVTENSHTLYDLDRIIELNGQKPPLTYKRFQAIISRMELPKKPVGSVTSQQMESCRAEIQENHDETYGVPSLEELGFPTEGLGPAVWQGGETEALARLDKHLERKAWVANYERPRMNANSLLASPTGLSPYLRFGCLSCRLFYYRLWDLYKKVKRNSTPPLSLFGQLLWREFFYTAATNNPRFDRMEGNPICIQIPWDRNPEALAKWAEGKTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWVSWESGVRVFDELLLDADFSVNAGSWMWLSCSAFFQQFFHCYCPVGFGRRTDPSGDYIRRYLPKLKAFPSRYIYEPWNAPESIQKAAKCIIGVDYPRPIVNHAETSRLNIERMKQIYQQLSRYRGLCLLASVPSCVEDLSHPVAEPSSSQAGSMSSAGPRPLPSGPASPKRKLEAAEEPPGEELSKRARVAELPTPELPSKDA

105.

>gi|1034098191|ref|XP\_016779596.1|\_cryptochrome-1\_isoform\_X1\_Pan\_troglodytes

MGVNAVHWFRKGLRLHDNPALKECIQGADTIRCVYILDPWFAGSSNVGINRWRFLLQCLEDLDANLRKLNSRLFVIRGQPADVFPRLFKEWNITKLSIEYDSEPFGKERDAAIKKLATEAGVEVIVRISHTLYDLDKIIELNGGQPPLTYKRFQTLISKMEPLEIPVETITSEVIEKCTTPLSDDHDEKYGVPSLEELGFDTDGLSSAVWPGGETEALTRLERHLERKAWVANFERPRMNANSLLASPTGLSPYLRFGCLSCRLFYFKLTDLYKKVKKNSSPPLSLYGQLLWREFFYTAATNNPRFDKMEGNPICVQIPWDKNPEALAKWAEGRTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWEEGMKVFEELLLDADWSINAGSWMWLSCSSFFQQFFHCYCPVGFGRRTDPNGDYIRRYLPVLRGFPAKYIYDPWNAPEGIQKVAKCLIGVNYPKPMVNHAEASRLNIERMKQIYQQLSRYRGLGLLASVPSNPNGNGGFMGYSAENIPGCSSSGSCSQGSGILHYAHGDSQQTHLLKQGKNEALEHTVLFPFPILNIHFLNVQEEAPWALVSVVGNVLVRKRTHRVLVLKSRDRALIRKHSGGILLQLKLVGSSILFN

106.

>gi|1070334966|ref|XP\_018235323.1|\_cryptochrome\_Fusarium\_oxysporum\_f.\_sp.\_lycopersici\_4287

MAKPRVIYWFRTDLRLHDSPALKAALDLDPAVLWPIFTWDPHYVYRARGGLNRWQFLLDCQNDLSRSISQVNPKSKLFVLREAPQTLFPKLFKAWKVTHLVFEKDTDSYGRERDGVVVQAAKDAGVEVLVRSGRTLWDSDQIVEKHGGKPTMSITQLQTAGSKLGEIRKPIPAPKHLPDPGDMPVNFEQDEPSTKPDFNAGFRTEGDKAYTRIAGPNDDFAIETMEELGFPPATTPHRGGETRALKELNKLIADKKYTATFQKPKTNPAQFEPQATTLLSPFLHFGALSVRLFYWRVREIVDSYGKGASTPPESLIGQLLFRDMYFAAQAALGYVFSQTANNPYCRFIPWHLPSKRDSETGLITGEYHIDSEEAEIWFRRWRVGMTGFPWIDALMRQLKDEGWIHHLGRHAVACFLTRGGCYIDWERGCEVFEEWLIDHEPACNAGNWQWLSCTAFFSQYFRCYSPIAFGQKWDKEGNFIRRYVPELKNMDSKYIYEPWKAPLPDQKKAGVRIKGDGVEQYRGGNISKTNV

107.

>gi|1070556872|ref|XP\_018383275.1|\_photolyase\_Alternaria\_alternata

MPPKRKASIPPNAASARNYTDVSGDAPNKRSRIAKPLSKAFADSAPPIDSIARNTENGAPGEAVKKEEEEEEEEEEEEEEEEEEEEEEEGEEGEEGEGEFDHSRPEERAGIVDRRYYPAEMSNERCALYNANEIPRPIEILAKTLESTKDRRMAIREANKAQFGDAVVHWFKRDLRIRDNTGLSQAAQLAKAKGVGVIGVWFMSPQDWEAHLVSPPKCDFELRSVESLKQELEEFDIPLYVETIAERKNVTKRLVELAESWNAKNVFCNLEYEPDELRREERLVRKMLEKGINFDPQHDDCVVPPGSLKTGGGKQYAVYSPWYRAWVAYLHAHPHLLNERPIPERNSPNFRQKFTQLFDSKVPDLPDCKSLTQEEKERFHRLWPAGEAAAIDRLERFLIEKIGKYKDTRNFPAKNSTGRVSVHHAAGTLAARTSVRMARDVNSAKKLDGGKDGVKGWIGEVAWRDFYRHVLVHWPYVCMNKPFKFEYTNIEWEYNDAHFQAWTQGRTGYPIVDAAMRCMNHTGYMHNRLRMIAASFLAKHLLLDWRLGEQYFLTHLVDGDFSSNNGGWGFSASTGVDPQPYFRIFNPWTQSERFDEEGEFIKLWVPELEEIEGPAIHNPYGAGGKAAQAAKSKGYPEPVVEHKFARERCLARYKAGIGRETA

108.

>gi|1092963636|ref|XP\_018750188.1|\_cryptochrome\_Fusarium\_verticillioides\_7600

MSNPRVIYWFRTDLRLHDSPALKAALDLDPAVLWPIFTWDPHYVYRARGGLNRWQFLLDCQNDLSRSISQVNPKSKLFVLREAPQTLFPKLFKAWKVTHLVFEKDTDSYGRERDSVVVQAAKDAGVEVLVRSGRTLWDSDQIVEKHGGKPTMSITQLQTAGSKLGEIRKPIPAPKHLPDPGDMPVNFEQDEPNTKPDFNAGFRTEGDKSYTRIAGPNDDFAIETMEELGFPPATTPHRGGETLALKELNKLIADEKYTATFQKPKTNPAQFEPQATTLLSPYLHFGALSVRLFYWRVREIVDSYGNGASTPPESLLGQLLFRDMYFAAQAALGYVFSQTANNPYCRFIPWHLPSKRDSETGLITGEYHIDSEEADIWFRRWRVGMTGFPWIDALMRQLKDEGWIHHLGRHAVACFLTRGGCYIDWERGCEVFEEWLIDHEPACNAGNWQWLSCTAFFSQYFRCYSPIAFGQKWDKEGNFIRRYVPELKNMDSKYIYEPWKAPLPDQKKAGVRIKGDGLNSIEEGTYPKPMFDFAKRRDVCISAMKTAYQVGLHGNDGQALDGTWRKLFPTDRGEIQGDIESDGDEHAGYGDDEGGREDNEAKEKGEGIKSIENGDQSMSKRSSRRHSSENTTKRQKT

109.

>gi|1179529173|ref|XP\_020685617.1|\_(6-4)DNA\_photolyase\_isoform\_X1\_Dendrobium\_catenatum

MESSSSSNCMIWFRKGLRIHDNPALELAQKGSKHLFPVFVLDPYYIDPDSLASSPGSSRAGINRIQFLLESLVDLDCGLRRLESRLLVLKGEPVQVIARLLKDWNIGKLFFEFDTEPYAQTRDNKVKDIASASGIEVFSPVSHTLFDPAEVIRKNGGKAPLTYKSFVAIAGKPSAPLRSMYSKLPPIGDIAGYEILGVPSIHDLGYKDVKQEFSPFRGGETEALKRLKENLVNKKWVAEFEKPKGDPSEFIKPATTVLSPYLKFGCLSSRYFFQCVDDAYKTVKKHTQPPVSLAGQLLWRDFFYTVAFGTPNFDRMQGNKICKQIPWRDDEKLFVAWRDAQTGYPWIDAIMIQLKKWGWMHHLARHSVACFLTRGDLFIHWEKGRDVFERLLIDSDWAINNGNWLWLSCSSFFYQYHRIYSPISFGKKYDPSGNFIRHFLPVLKDMPKEYIYEPWTAPLSIQRQANCIIGRDYPKPVVPHDLASKECKRQIGAAYALNLSGETADAEEKLNSLRRKLEEDDYDGIQNMKQKKRMSK

110.

>gi|1190968235|ref|XP\_020887646.1|\_(6-4)DNA\_photolyase\_Arabidopsis\_lyrata\_subsp.\_lyrata

MQRFSVCSPSSYRLNPITSMATRSGSLIWFRKGLRVHDNPALEFASKGSEFMFPVFVIDPHYMESDPSAFSPGSSRAGVNRIRFLLESLKDLDSSLKKLGSRLLVLKGEPGEVLFRCLQEWKVKRLCFEYDTDPYYKALDVKVKDYASSTGVEVFSPVSHTLFNPADVIEKNGGKPPLSYQSFLKIAGEPSCAKSELVMSYSSLPPVGDVGNLGISEVPSLEELGYRDDDEQADWTPFRGGESEALKRLTKSISDKAWVANFEKPKGDPSAFLKPATTVMSPYLKFGCLSSRYFYQCLQNIYKDVKKHTSPPVSLLGQLLWREFFYTTAFGTPNFDKMKGNRICKQIPWNEDHAMLAAWRDGKTGYPWIDAIMVQLLKWGWMHHLARHCVACFLTRGDLFIHWEQGRDVFERLLIDSDWAINNGNWMWLSCSSFFYQYNRIYSPISFGKKYDPDGKYIRHFLPVLKDMPKQYIYEPWTAPLSVQTKANCIVGKDYPKPMVLHDSASKECKRKMGEAYALNKKMDGKVDEENLRDLRRKLEKDEHEESKIRNQRPKLK

111.

>gi|1193802275|ref|XP\_020987354.1|\_(6-4)DNA\_photolyase\_isoform\_X1\_Arachis\_duranensis

MLSGSGSSVMWFRKGLRIHDNPALQLASQGASHLYPLFVVDPHYMEPDPTSFSPGSSRAGLNRTKFLLESLVDLDLSLKNLGSRLLVLKGDPAEVLIRCLKEQWNVRKLCFEYDTEPYYQALDTKVKNFALGAGIEVFSPVSHTLFNPTEIIERNGGKPPLTYQSFTKIAGQPPPPLTITHSSLPPIGILGSCDISEVPTIEDLGYGDAKQDEFSPFKGGESEALKRLAECMKDKAWVAKFEKPKGNPSAFLKPATTVLSPYLKFGCLSSRYFYRQIQDVYETMPKHTSPPVSLLGQLLWRDFFYTVAFGTPNFDRMKDNKICKQIPWKDDDKLLEAWRNGRTGFPWIDAIMVQLHQWGWMHHLARHCVACFLTRGDLFVHWERGRDVFERLLIDADWAINNGNWLWLSCSSFFYQYNRIYSPTSFGKKYDPNGDYIRHFLPVLKDMPRQYIYEPWSAPLSIQTKANCIIGKDYPKPVVLHDSASKECKRKMGEAYALSKELDGVVNEDDLKNLRRKLDEGKEQETKAKRPRNTRVCMFRMLFCLLITSL

112.

>gi|1205956693|ref|XP\_021316231.1|\_cryptochrome-1-like\_isoform\_X1\_Sorghum\_bicolor

MSASQSSMSGAAGEPGMRTVVWFRRDLRVEDNPALAAAARTAGEVVPAYVWAPEEDGPYYPGRVSRWWLSQSLKHLDASLRRLGAGRLVTRRSNDAVVALLDLVRSTGATHLFFNHLYDPLSLVRDHRVKEQLTAEGITVQSFNADLLYEPWEVLDDDGCPFTMFAPFWNRCLCMPDPAAPLLPPKRINSGDLSRCPWDELIFEDESERGSNALLARAWSPGWQNADKALTAFLNGPLMDYSVNRKKADSASTSLLSPYLHFGELSVRKVFHQVRMKQLMWSNDGNHAGEESCTLFLRSIGLREYSRYLTFNHPCSHEKPLLSHLRFFPWVVNEVYFKVWRQGRTGYPLVDAGMRELWATGWVHDRIRVVVSSFFVKVLQLPWRWGMKYFWDTLLDADLESDALGWQYISGSLPDGRELDRIDNPQFEGYKFDPHGEYVRRWLPELARLPTEWIHHPWDAPESVLQAAGVELGSNYPRPIVELDAANSRLQDALSEMWELEAASRAAMENGMEEGLGDSTDEPLIDFPQELRMEVDRQPAQPAIHTPAVAGRRREDQMVPSMTSSFIRAETELTADFGNTSEDSRPEVPSNIHLQARAEREETVDGGTGNTVRMNGNHQQQNLQNNMHRVLGIAPSVSEASSSWTGREGGVVPVWSPPAASGHSDPYAADEADISSRSYLDRHPQSHTMMNWSQLSQSLTTGWEVDN

113.

>gi|1226790434|ref|XP\_021844547.1|\_deoxyribodipyrimidine\_photo-lyase\_Spinacia\_oleracea

MTSKPVPTTTVQPERIRVLKPGSNPNGAVVYWMFRDQRVRDNWALIHAVDEANKRNAPVAVAFNLFDGFKGANARQLGFMLRGLKLLQASLHNSLHIPFFLFQGEVVETIPKFLVECGASLLVTDFTPLREIRGFKEELCKRVGDSVSIHEVDAHNVVPVWEASSKLEYGARTIRTKINKLLPTYLTDYPILQPPNCSWESSSPVIQWDQLIEDRLKKGAEVPEIDWCKPGETAALEVLKGSQNGFLTKRLKSYATDRNIPLKPGALSGLSPYLHFGQISAQRCAFEARNVRKVAPEAVDAFTEELIVRRELADNFCYYQPNYDSLMGAWEWARKTLMDHASDKREHLYTREQLEKAQTADPLWNASQLEMVHFGKMHGFMRMYWAKKILEWTSGPEEALAIAIYLNDKYEMDGRDPNGYVGCMWSICGLHDQGWRERPVFGKIRYMNYAGCKRKFNVDGYIAYVRKLVVDTKKRKAEADISSEKKKEPRC

114.

>gi|1226796804|ref|XP\_021847704.1|\_cryptochrome-1\_Spinacia\_oleracea

MGSNSKTIVWFRRDLRIEDNPALAAAARDGSVLPVFIWCPKEEAQFFPGRVSRWWMKESLAHLDNSLRSLGAELVFIRAESTLDALLECICATGATKVVFNRLYDPVSLVRDHIIKQKLGELNISVYSYNGDLLYEPWDVCDEKGNAFTTFAAFWDKCLNMQMEPSTLPTPFRLVPATGSFKKFSIGDLGLENESEKPSNALLRRAWSPGWTNANKALMEFVEQHLLDYQQSRVTVGGSSTSLLSPYLHFGELSVRKVFHSVQMKQMLWANEGNIRGCESVTMFLRAIGFREYSRYICFNFPFTHERSLLCNLKYFPWNSDQERFKAWRQGRTGYPMVDAGMRELWATGWTHNRMRVIVASFCVKVLLLHWRWGMKYFWDTLLDADLECDILGWQYISGSLPDGHDLHRLDDPELQGSKYDPEGEYIRQWLPELARLPTEWIHHPWDAPVSVLKAAGVELGSNYPKPIIEIETARDNLTEAICLMQGKAGAEETNCISEVVVDSSEKGGNTESARFNNPESFREPSIPEVVLNGKPSCITGSSRDQRVPSMQHFSNNLLQNGKRPRISVEDRAPDPNVNACYVNTEALSVQEHEADLCSTAESSSAKKQATSSFSFCVPRACSVSSKGKDSLDCESSEVKQPWKEHVDEE

115.

>gi|1226797871|ref|XP\_021848229.1|\_(6-4)DNA\_photolyase\_Spinacia\_oleracea

MRFLNSLSSNHHLLLPTKLQTAKASSIVTKMTASSNSSITWFRKGLRVHDNPALEHAATGSDFVYPIFVIDPHYMDPDPDAFSPGSSRAGVNRIKFLLESLLDLDCGLRKIGSRLLVFKGEPGDVLIHCLKQLNIKKLCFEYDTDPYYQAIDARVEKYSSQEGIEVFSPVSHTLFDPRVIIHKNGGKPPLTYQSFLKLAGQPSWVSSLVSTGPSSIPPPGDVGDLQISNVPTMEELGYGNVAQHEFSPFKGGESEALKRLKLSLDDKAWVAKFEKPKGDPSSFLKPATTVLSPYLKFGCLSSRYFYQCIQEIYKNVKQHTSPPVSLHGQLLWRDFFYTAAFGTPNIDRMRGNRICKQIPWNEDSELFAAWRDGRTGYPWIDAIMIQLHKWGWMHHLARHCVACFLTRGDLFIHWEKGRDVFERLLIDSDWAINNGNWLWLSCSSFFYEYHRIYSPISFGKKHDPNGDFIRHFLPVLKDMPKQYIYEPWTAPKSIQVKAKCIIGKDYPGPVVAHDTASKECKRKLAEAYALNRLSNGSVSEDDLTKLRRKLEEDQQTPKQAVKRQKQKLITDSL

116.

>gi|1249010769|ref|XP\_022533499.1|\_deoxyribodipyrimidine\_photo-lyase\_Astyanax\_mexicanus

MHCFVVAAKRTLNIFQTAAKVPRAAGLHALLDGRAASMSAKKAELKRRGGSGQAEGAGGKKQRSGESAAAAGGREDGWLGLEVAELRAKNTGCKFNDKRVRFLSEEQKVKQSCSGVLYWMSRDQRVQDNWALIYAQRLALAEELPLHICFCLVPRYLDAAYRQYAFMIRGLQEVAKECKSLDIQFHFLRGDPEQLLLDFVKSWNIGALVTDFNPLRLHLQWIENVRKGLPSNIPFLQVDAHNVVPCWEASPKLEYGARTIRGKITKQLPDFLTEFPPVDTHPHASKKTAKSVNWEEVLDSVEVDRTVGEVEWARPGTSGGMAMLESFIQQRLRLFATERNNPNSEAVSHLSPWLHAGQLSAQRVVKEVQRWGKNARESVASFTEELVVRRELADNFCYYNKEYDSIAGAYDWAKTTLKIHAKDKRAYLYTQEQLETGKTHDQLWNAAQRQLLLEGKMHGFMRMYWAKKILEWTSSPEEALTIALYLNDHYSLDGCDPNGYVGCMWSICGIHDQGWAERPVFGKVRYMNYAGCKRKFDVSRFERKYAVKTD

117.

>gi|1269931430|ref|XP\_022714863.1|\_(6-4)DNA\_photolyase\_isoform\_X1\_Durio\_zibethinus

MKLPLSLLNSTMPSGSGSLVWFRKGLRIHDNPALEYASRGSNYVYPLFVIDPHYMEPDPNAFSPGSTRAGINRIHFLLESLHDLDLNLKKLGSRLLVLKGEPSQVLIHCLKEWDVKKLCFEYDTDPYYQALDNRVKNYASTAGIEVFSPVSHTLFNPADIIEKNGGRPPLNYQSFLKLAGEPPWASSPLSVDLSSIPPVGDVGSCEILQVPTLKELGYVEKDQDEFTPFRGGESEALRRLRESLSDKEWVANFEKPKGDPSAYVKPATTVLSPYLKFGCLSSRYFYQCLKDVYKNVKRHTSPPVSLVGQLLWREFFYTVAFGTPNFDKMKGNKICKQIPWNVDDKLLAAWREARTGYPWIDAIMVQLRKWGWMHHLARHCVACFLTRGDLFVHWEKGRDVFERLLIDSDWAINNGNWLWLSCSSFFYQYNRIYSPTSFGRKYDPNGNYIRHFLPVLKDMPKEYIYEPWTAPLSVQTKAKCIIGRDYPKPVVSHDSASKECRRKMREAYALNQKLKGLVSEEDLKKLGSKLDEDEDEGQEPNPRRKRQKLIN

118.

>gi|1280985442|ref|XP\_022976147.1|\_cryptochrome\_DASH\_chloroplastic/mitochondrial\_Cucurbita\_maxima

MNTLRISFSSFPLLKTLPNSSSLKPAQIAANSAHRRIFVMNSSSKLDSRSSSSSICQVPGLESEEMDRIAEQMFRRYASPSSSSVKRGKGVAIVWFRNDLRVLDNEALYKAWISSEAVLPVYCVDPRLFGSTCYFGFPKTGALRAQFIVECLADLKRNLINRGLNLLIQHGKPEEILPSLAKALGAHTVYAQMETCSEELYVERMVSKGLKTVVLSPTSEKSAKPSSAKSLTLQLVWGTTMYHIDDLPFDTNSLPDVYTQFRKSVEAKCAIRDCIRLPALLGPPASIDNWGCVPSLDKLELQPPSVVKGMRFIGGETAALSRIYEYFWKKDLLRIYKETRNGMLGPDYSTKFSPWLASGSISPRLIHEEVKRYEKEREANQSTYWVLFELIWRDYFRFLSVKYGNSLFHIGGPRKVDSKWSRDKNLFESWRDGRTGYPLIDANMKELSTTGFMSNRGRQIVCSFLVRDMGIDWRMGAEWFETCLLDYDPCSNYGNWTYGAGVGNDPREDRYFSIPKQAQTYDPEGEYVAYWLPQLRMLPKDKRHFPGKMLYMEQVVALKFGNAGRPQSQDYARRKNFGGRQAKDFRR

119.

>gi|1281042848|ref|XP\_023006104.1|\_cryptochrome-1\_Cucurbita\_maxima

MGCNKTIVWFRRDLRIEDNPALNAAARDGFVYPVYIWCPKEEGQFYPGRVSRWWLKQSLAHLKQSLKSLGSDLVLMKTQSTIFSLLECINAIGATKVAFNCLYDPISLVRDHNIKEKLVELGISVQSYNADLLYEPWDVYDENGNAFTTFKDYWGKCLLLQKEFISTLPPWKLQHAAGSVGSCSIEELGLENESEKSSNALLARAWSPGWSNADKALAEFVENHLLEYAKNRQQLGGSSTSLLSPYLHFGEVSVWKVFQKVRMKQILWAREENAVGEQSTNLFLRAIGLREYSRYICFNFPFTHERSLLSSLKFFPWHASQNNFKAWRQGRTGYPLVDAGMRELWATGWIHNRIRVIVSSFAVKVLLLPWKWGMKYFWDTLLDADLESDILGWQYISGSLPDGHELERLDDPQIQGSKYDPDGEYIRHWLPELARMPTEWIHHPWDAPQTVLKVSGVELGLNYPTPIVDLDLAANRLRESIIKMREIEAAAGANSNGTNEVVMDNADRIQSLGTANVVAEPKTCATYSSNDQKVPMIQTSKVDNPLSRKRSKPMEEKGEFQYNIRNNVQSEAGTSKPDEDLCSTAESSSSKKPSTSRTSFSVPQFCSSSKGLPESSEGTTDR

120.

>gi|1304933189|ref|XP\_023095565.1|\_cryptochrome-2\_Felis\_catus

MAAAVVTAAAAAAPAPAAGADGASSVHWFRKGLRLHDNPALLAAVRGARCVRCVYILDPWFAASSSVGINRWRFLLQSLEDLDTSLRKLNSRLFVVRGQPADVFPRLFKEWGVTRLTFEYDSEPFGKERDAAIMKMAKEAGVEVVTENSHTLYDLDRIIDLNGQKPPLTYKRFQAIISRMELPKKPVGSVTSQQMESCRAEIQENHDEAYGVPSLEELGFPTEGLGPAVWQGGETEALARLDKHLERKAWVANYERPRMNANSLLASPTGLSPYLRFGCLSCRLFYYRLWDLYKKVKRNSTPPLSLFGQLLWREFFYTAATNNPRFDRMEGNPICIQIPWDRNPEALAKWAEGKTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWVSWESGVRVFDELLLDADFSVNAGSWMWLSCSAFFQQFFHCYCPVGFGRRTDPSGDYIRRYLPMLKGFPSRYIYEPWNAPESIQKAAKCIIGVDYPRPIVNHAETSRLNIERMKQIYQQLSRYRGLCLLASVPSCVEDLSNPVAEPSSSQTGNVSSAGPRALPSGPASPKRKLEAAEEPPGEELSKRARVAGLPAPELPSRDV

121.

>gi|1333565547|ref|XP\_023509705.1|\_cryptochrome-2\_Equus\_caballus

MAAAAAVTAAAAAPAAAAAAAGAEGASSVHWFRKGLRLHDNPALLAAVRGARCVRCVYILDPWFAASSSVGINRWRFLLQSLEDLDTSLRKLNSRLFVVRGQPADVFPRLFKEWGVTRLTFEYDSEPFGKERDAAIMKMAKEAGVEVVTENSHTLYDLDRIIELNGQKPPLTYKRFQAIISRMELPRKPVGSVTSQQMESCRADIQENHDETYGVPSLEELGFPTEGLGPAVWQGGETEALARLDKHLERKAWVANYERPRMNAASLLASPTGLSPYLRFGCLSCRLFYYRLWDLYRKVKRNSTPPLSLFGQLLWREFFYTAATNNPRFDRMEGNPICIQIPWDRNPEALAKWAEAKTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWVSWESGVRVFDELLLDADFSVNAGSWMWLSCSAFFQQFFHCYCPVGFGRRTDPSGDYIRRYLPKLKAFPSRYIYEPWNAPEAVQKAAKCIIGVDYPRPIVNHAETSRLNIERMKQIYQQLSRYRGLCLLASVPSCVEDLSNPVAEPSSSQAGSVSSAGPRPPPSGPASPKRKLEAAEEPPGEELSKRARVAEPPSRAV

122.

>gi|1335140825|ref|XP\_023612446.1|\_cryptochrome-2\_isoform\_X1\_Myotis\_lucifugus

MAANAVTAAAAAPAPAAGTDGASSVHWFRKGLRLHDNPALLAAVRGARCVRCVYILDPWFAASSSVGINRWRFLLQSLEDLDTSLRKLNSRLFVVRGQPADVFPRLFKEWGVTRLTFEYDSEPFGKERDAAIMKMAKEAGVEVVTENSHTLYDLDRIIELNGQKPPLTYKRFQAIISRMELPKKPVASVTRHQMESCPAEIQENHDETYGVPSLEELGACFCLVGFPTEGLGPAVWQGGETEALARLDKHLERKAWVANYERPRMNANSLLASPTGLSPYLRFGCLSCRLFYYRLWDLYKKVKRNSSPPLSLFGQLLWREFFYTAATNNPRFDRMEGNPICIQIPWDRNPEALAKWAEGKTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWVSWESGFRVFDELLLDADFSVNAGSWMWLSCSAFFQQFFHCYCPVGFGRRTDPSGDYIRRYLPKLKGFPSRYIYEPWNAPESIQKAAKCIIGVDYPRPIVNHAETSRLNIERMKQIYQQLSRYRGLCLLASVPSCMEDLSNPVAEPSLSQTGSMSSAGPKPLPSGPASPKRKLEAAEEPPGEELSKRARVAELPAAELTSRDV

123.

>gi|1370461229|ref|XP\_024304612.1|\_cryptochrome-1\_isoform\_X1\_Homo\_sapiens

MGVNAVHWFRKGLRLHDNPALKECIQGADTIRCVYILDPWFAGSSNVGINRWRFLLQCLEDLDANLRKLNSRLFVIRGQPADVFPRLFKEWNITKLSIEYDSEPFGKERDAAIKKLATEAGVEVIVRISHTLYDLDKIIELNGGQPPLTYKRFQTLISKMEPLEIPVETITSEVIEKCTTPLSDDHDEKYGVPSLEELGFDTDGLSSAVWPGGETEALTRLERHLERKAWVANFERPRMNANSLLASPTGLSPYLRFGCLSCRLFYFKLTDLYKKVKKNSSPPLSLYGQLLWREFFYTAATNNPRFDKMEGNPICVQIPWDKNPEALAKWAEGRTGFPWIDAIMTQLRQEGWIHHLARHAVACFLTRGDLWISWEEGMKVFEELLLDADWSINAGSWMWLSCSSFFQQFFHCYCPVGFGRRTDPNGDYIRRYLPVLRGFPAKYIYDPWNAPEGIQKVAKCLIGVNYPKPMVNHAEASRLNIERMKQIYQQLSRYRGLGLLASVPSNPNGNGGFMGYSAENIPGCSSSGSCSQGSGILHYAHGDSQQTHLLKQGKNEALEHTVLFPFPILNIHFLNVQEEAPWALVSVVGNVLVRKRTHRVLVLKSRDRALIRKHSGGILLQLKLVGSSILFN

124.

>gi|1375848827|ref|XP\_024452973.1|\_(6-4)DNA\_photolyase\_Populus\_trichocarpa

MQLSLCLSKPAQHLKNPLMAASGSGSIIWFRKGLRIHDNPALEYASKGSDFVYPVFVIDPHYMEPDPKAFSPGSRLAGLNRIRFLLESLVDLDTSLKKLGSRLLILRGEPGQVLTRCLKEWGVKKLCFEYDTDPHYQALDIRVKEYASAAGIEVFSPVSHTLFNPADIIQRNGGKPPLTYQSFLKLAGQPSWASSPLLTSISSLPPVGDVGSCEISEVPTIKDLGYGDIEQEWIPFRGGESEALKRLKESISDKEWVANFEKPKGNPSAFVKPATTVLSPYLKFGCLSSRYFYQCLQDVYKNVQKHTSPPVSLAGQLLWRDFFYTVAFGTPNFDRMEGNKLCKQIPWNDDDELLAAWREARTGYPWIDAIMVQLRKWGWMHHLARHSVACFLTRGDLFLHWERGRDVFERLLIDSDWAINNGNWLWLSCSSFFYQYNRIYSPISFGKKYDPNGDYIRHFLPVLKDMPKEYIYEPWTAPPGIQRKAKCIIGRDYPKPVVYHDSASKECKRKLAEAYALNKKLNGQLSQEDLDNLRRKLEQDEDQEPKIRRQRQKVGHLT

125.

>gi|1375887318|ref|XP\_024466341.1|\_cryptochrome-1\_isoform\_X1\_Populus\_trichocarpa

MDRSKTIVWFRRDLRIEDNPALAAAARDGCVFPVFIWCPKEEGQFYPGRVSRWWLKQSLAHLGQSLKSLGAELVLIKTHSTVAALLDCIETIGATRVVFNHLYDPVSLVRDHNIKEKLVELGISVQSYNGDLLYEPWEIYDERGHAFTTFEAYWDRCLHMQMEPVSHLPPWRLVPAAGTVMKCSVEELGLEDEAEKSSNSLLGRGWSPGWSNADKALTEFAEQHLIDYVESRLKVGTSTSLLSPYLHFGELSVRKVFQCVQLKQLLWAKEENLMGKESVTLFLRSIGLREYSRYLCFNFPFTHERSLLRNLKYFPWNDNQVHFKAWRQGRTGYPLVDAGMRELWATGWIHNKIRVIVSSFAVKVLLLPWRWGMKYFWDTLLDADLESDILGWQYISGSLPDAHELERLDNPEIQGSKFDPEGEYVRRWLPELARMPAEWIHHPWDASIAVLKAAGVELGINYPKPIIDIDLARERLMEAIFKMWEMEAAARASNTNGTNEVVVDNTDDTENLAIPKVVLKDKVTCPTNSSNDQRVPTNQNSKNIPAYRKRSKYMEEERPQPDKLHNDGNVVGTTRKDEDLCSTAESSSAKKQATSSCSFSVPQYCSSSEGKPLQESESSDLRQPLQAQIEMEQSSSKDGKQLHFIV

126.

>gi|1377713737|ref|XP\_024550731.1|\_Bccry2\_Botrytis\_cinerea\_B05.10

MIRLCSTTKSILDLTTSSISRKQRHQQIATIAKMSHSNILIYLMRRDLRVGDNPVLHSLVDNKDHGFTHLLPLYVFAAQQIEVSGFITTDGCKSPYPEARSQIGAFWRCGPHRAKFLAESVWDLKGGLEKIESGLAIRVGMVDEVVKDLIEGFQKTGGSKVSAVWMTSEEGVEEKREERSTEKICDKAGVDFQLWQDEKYLIDDRDIPFKDPKDLPDVYTTYRKSVEPLREAPRPALPKPEKNSLPPFPTDVPTQHSPFAIPTNYEEIESALLKPINAQPLIKNPPSYPENSLSVHPFTGGESHAQERLEHLITSGSINAYKSSRNGLMGTDFSTKLSAYLALGSITSRQIHSSMSIFENGSDSDNRYKDLEGYGKGENEGTYGVRFELLWRDYMRLCTRKFGPKLFQLGGFKDEENAHSKWSRLDSPRDGVSKEQIQEIIERFLNGTTGMGFIDASQRECYHTGYTSNRARQNVASFLAKHLYIDWRIGAEWYECMLVDYDVSSNWGNWQYVAGVGNDPRGNDRIFNPVKQAFDYDPKAEYVLAWVDELRGVDELGQIFQAWTINDQEKKEELGIADTEMVTNPLKRIDFKINRGRGGGGGRGGGRGRPPYRPHGGDRWMGRRSGPGDQGRGGFHGGRGDRGFHQARRLYRGGRGSGSELRTGMMDKEREAAADNE

127.

>gi|1431632403|ref|XP\_025610306.1|\_cryptochrome-1-like\_isoform\_X1\_Arachis\_hypogaea

MSGGGGCSIVWFRRDLRVEDNPALAAGVRAGAVVAVFVYAPEEEGQYYPGRVSRWWLKNSLAHLDSSLRSLGTPLITKRSTDSVSSLLDVVKSTGATQLFFNHLYDPLSLIRDHRAKEVLTAQGITVRSFNSDLLYEPWDVNDSNGQPFTTFSAFWERCLSMPYDPQAPLLPPKRIIPGDVSRCQGDTLVFEDESEKASNALLARAWSPGWSNADKALTAFINGPLIEYAKNRRKADSATTSFLSPHLHFGEVSVKKVFHLVRIKQVLWANEGNQAGEESVNLFLKSIGLREYSRYISFNHPYSHERPLLGHLKFFPWVINESHFKAWRQGRTGYPLVDAGMRELWATGWLHDRIRVVVSSFFVKVLQLPWRWGMKYFWDTLLDADLESDALGWQYISGTLPDGREFDRIDNPQFEGYKFDPNGEYVRRWLPELSRLPTEWIHHPWNAPESVLQAAGIELGSNYPLPIVGIDAAKARLQEALIQMWQLEAASRAAIENGVEEGLGDSTELAPIAFPEDIQMEESHEPVRNNPPVGPRRYEDQMVPSMTSSLVRVEEEEASSVLRNLAEESRAEVPTNATAQQNARETVNQGVLQNVNRNTQVQHNNTTAWLRNAAEDSTAESSSSTRRERDGGVVPVWSPPSSSYAEPFVDDESGIGASSSYLQNHPQSHRLMNWTRLPQTG

128.

>gi|1432025511|ref|XP\_025673554.1|\_cryptochrome\_DASH\_chloroplastic/mitochondrial-like\_Arachis\_hypogaea

MAVPFFTTTFVPSLSSKTITPITPSKSTIAFIRFLTFSTMNSSPSPSSPSIYHVPDLGANDMDRVADHTFRTYTSNNNANVAKRSGKGSAIVWFRNDLRVLDNEVLYKAWLSSETVLPVFCVDPRLFSTTYHFGFPKTGALRAQFFVECLADLRKNLTKFGLNLLIQHGKPEDILPSLAKAFKAHTVYAQKETCSEELNVERLVSKGLRQVAMPSGESSSSTNSNNFPKLQLIWGTTLYHIDDLPFDAGSLPDVYTQFRKTVEAKCSIRPCIKLPVLLGPPPLVEDWGCVPSLEKLGLSSQNVSKGMKFVGGETAALSRVYEYFWKKDLLKVYKETRNGMLGPDYSTKFSPWLAFGSLSPRLIHEEVKRYEKERIANGSTYWVLFELIWRDYFRFLSVKYGNSIFYLGGPRKVQQKWSQDKILFESWRDGRTGYPLIDANMKELSTTGFMSNRGRQIVCSFLVRDMGIDWRMGAEWFETCLLDYDPCSNYGNWTYGSGVGNDPREDRYFSIPKQAQTYDPEGEYVAYWLPRLQTIPKEKRNFPGNLYIRQIVPLKYGRLQNDGARSSNDRRNDRRWNRN

129.

>gi|1432029722|ref|XP\_025674864.1|\_(6-4)DNA\_photolyase-like\_isoform\_X1\_Arachis\_hypogaea

MLSGSGSSVMWFRKGLRIHDNPALQLASQGASHLYPLFVVDPHYMEPDPTSFSPGSSRAGLNRIKFLLESLVDLDLSLKNLGSRLLVLKGDPAEVLIRCLKEQWNVRKLCFEYDTEPYYQALDTKVKNFALGAGIEVFSPVSHTLFNPTEIIERNGGKPPLTYQSFTKIAGQPPPPLTITHSSLPPIGILGSCDISEVPTIEDLGYGDAKQDEFSPFKGGESEALKRLAECMKDKAWVATFEKPKGNPSAFLKPATTVLSPYLKFGCLSSRYFYRQIQDVYETMPKHTSPPVSLLGQLLWRDFFYTVAFGTPNFDRMKDNKICKQIPWKDDDKLLEAWRDGRTGFPWIDAIMVQLRQWGWMHHLARHCVACFLTRGDLFVHWERGRDVFERLLIDADWAINNGNWLWLSCSSFFYQYNRIYSPTSFGKKYDPNGDYIRHFLPVLKDMPRQYIYEPWSAPLSIQTKANCIIGKDYPKPVVLHDSASKECKRKMGEAYALSKELDGVVNEDDLKILRRKLDEGKEQETKAKRSRNTSGLA

130.

>gi|1448256400|ref|XP\_025983854.1|\_cryptochrome\_1\_isoform\_X1\_Glycine\_max

MSGGGGSIVWFRRDLRIEDNPALTAGVRAGAVVAVFVWAPEEEGQYYPGRVSRWWLKNSLAHLHSSLRNLGTPLITKRSTDTLSSLLEVVKSTGATQLFFNHLYDPLSLVRDHRAKEVLTAQGITVRSFNADLLYEPWEVNDAHGRPFTTFAAFWERCLSMPYDPESPLLPPKRIIPGDASRCPSDTLLFEDELEKASNALLARAWSPGWSNANKALTTFINGPLIEYSKNRRKADSATTSLLSPHLHFGELSVKKVFHLVRIKQVLWANEGNKAGEESVNLFLKSIGLREYSRYISFNHPYSHERPLLGHLKFFPWVVNEGYFKAWRQGRTGYPLVDAGMRELWATGWLHDRIRVVVSSFFVKVLQLPWRWGMKYFWDTLLDADLESDALGWQYISGSLPDGREIDRIDNPQFEGYKFDPNGEYVRRWLPELARLPTEWIHHPWNAPESVLQAAGIELGSNYPLPIVGIDAAKTRLLEALSEMWQQEAASRAAMENGTEEGLGDSSESVPAAFPQDMQMEETHEPVRNNPLPVARRYQDQMVPSITSSLLRVEEEETSSDLRHSAEESSRAEVPVTANAQQNVGVTLNERMLQTTNRNAQTQYNTTMELRNVAEDSAVESSSGTRRERDGGVVPVWSPPASSYSEQFVGEENGITNSSSFLQRHPQSHQMLNWRQLPQTG

131.

>gi|1527515270|ref|XP\_027107300.1|\_cryptochrome\_DASH\_chloroplastic/mitochondrial-like\_isoform\_X1\_Coffea\_arabica

MVTYSSLSHPIASPFITLRKSATKVSFLLLLLKQPFPRNCKFVAAMHSNSSGTMAVSVPGVSPQEMVAIAQETFRRCTSSSSSGSSLPERRGKGVAIFWFRSDLRILDNEALIKAWLSSQALLPVYCVDPRLFTSSTHYFGFPKTGVLRAQFLMESLADLKNNLKSRGLDLLIKQGKPEDILPLLAKAHGAHTVFAQKETCSEELNVERLVAKNLRQVDQPLLKGLSTKPESKTGTKLQLIWGGSLYHIDDIPFDCKCLPDVYTQFRKSVESKSTVRACLKIPTTLGPPPNISDWGTVPEITELGFQKPKVEKGMRFVGGESAALSRLHEYFWKKDLLRIYKETRNGMLGPDYSTKFSPWLAAGNLSARFIYEEVKRYEAERQSNNSTYWVLFELIWRDYFRFLSIKEGNTLFNPGGPRKVEVNWNQDSILFDAWRDGHTGYPLIDANMRELSTTGFMSNRGRQIVCSFLVRDMGIDWRMGAEWFESCLLDYDPCSNYGNWTYGAGVGNDPREDRYFSIPKQAQNYDPEGEFVAYWLPELRALPKEKRNFPGHLYIKPVVGLKHGGSNKTSSKTRTAGRAKTWK

132.

>gi|1527533303|ref|XP\_027116568.1|\_cryptochrome-1\_isoform\_X1\_Coffea\_arabica

MDGKAKTIVWFRRDLRIEDNPALAAAARDGCVFPVFIWCPKEEGQFYPGRVSRWWLKQSLIQLEQSLTSLGAKLVLIKAQSTLEALLECIGAAGATKVVYNHLYDPVSLVRDHDIKQKLGELGISVQSYNGELLYEPWEVHGDDGHAFTTFDAFWDNCVHMQNEPASQLPPWRLGLCAGSVDGCSIDELGLEDESEKSSNALLGRGWSPGWSNADKALTEFVENHLCDYSKDRLRVAGNSTSLLSPHLHFGELSVRKVFHLVRMKHLLWSKEGNHDQEESANLFLRAIGLREYSRYLCFNFPFTHERSLLSTLKFFPWHADQSHFKAWRQGRTGYPLVDAGMRELWATGWIHNRIRVIVSSFFVKFLLLPWQWGMKYFWDTLLDADLESDILGWQYISGSLPDGHELERLDSPEVQGFKFDPEGEYVRHWLPELARMPAEWIHHPWDAPISVLKASGVELGLNYPKPIVDIDVARDRLIEAIFTMRGKEATARATNFNGTDEVVFDNSETSEIVGNPKAILREKLPCPTSSSHDQRVPSLQNSKNVILNRKRPMPAEDKPPLRDNVHNCNHNGETSKTDDDLRSTAESSSTKKQTTSSRTSFSVPQAVSLPLKVKPFPECESSGLKLPVEEEIDTEETSRENRAVGV

133.

>gi|1567514899|ref|XP\_027834775.1|\_cryptochrome-2\_isoform\_X1\_Ovis\_aries

MAAAAAATASAAAAAQAPAPRGDGASSVHWFRKGLRLHDNPALLAAVRGAHCVRCVYILDPWFAASSSVGINRWRFLLQSLEDLDRSLRKLNSRLFVVRGQPADVFPRLFKEWGVTRLTFEYDSEPFGKERDAAIMKMAKEAGVEVVTENSHTLYDLDKIIELNGQKPPLTYKRFQAIISRMELPRKPVGSVTSQQMEGCQAEIQESHDETYGVPSLEELGFPTEGLGPAVWRGGETEALARLDKHLERKAWVASYERPRMNASSLLASPTGLSPYLRFGCLSCRLFYYRLWDLYRKVKRNSTPPLSLFGQLLWREFFYTAATNNPRFDRMEGNPICIQIPWDRNPEALAKWAEGKTGFPWIDAIMAQLRQEGWIHHLARHAVACFLTRGDLWVSWESGVRVFDELLLDADFSVNAGSWMWLSCSAFFQQFFHCYCPVGFGRRTDPSGDYIRRYLPKLKGFPSRYIYEPWNAPESIQKAAKCIIGVDYPRPIVNHAEASRLNIERMKQVYQQLSRYRGLCLLASVPSCVEDLSTPVAEPSSSQAGSSSSAGPRPLPGGPASPKRKLEAAEEPPGGELSKRARVAESLPSELPSRGV

134.

>gi|49478047|ref|YP\_037258.1|\_deoxyribodipyrimidine\_photolyase\_Bacillus\_thuringiensis\_serovar\_konkukian\_str.\_97-27

MQNKIIVMFQKDFRLYDNPALFEAAQSGEVVPVYVHDETFSMGSASKWWLHHAIIDVKKQLEALGSTLIIRKGSTQEEILSLVEQLGITAVYWNICYDPDRLQFNQKMKMMLEHKGMICKEFNSHLLLEPWVIKKKDNTEYKVFTPFYNAFQKQVIHKPISKVQSIKGGNSLPVSLSVSELHLLPTIPWTSHMESIWEPTEEGAYKTWKEFFSSKLASYSEGRDFPNQNAHSMLAPYLSFGQISVKLIYHYLINKSTESQCSLFEKQVNSFIRQLIWREFSYYLLYHYPFTAYKPLNKSFEHFPWNNEEELLRVWQKGDTGYPFIDAGMRELWQTGFMHNRTRMAVASFLVKHLLIPWQEGAKWFMDTLLDADIANNTMGWQWVAGSGADASPYFRIFNPITQGEKFDKNGEYIREWVPELKDMPNKYIHKPWEAPEHILQKANIQLGHTYPLPVVDHKAARERALCAYKSMKEFV

135.

>gi|55978285|ref|YP\_145341.1|\_DNA\_photolyase\_(plasmid)\_Thermus\_thermophilus\_HB8

MGPLLVWHRGDLRLHDHPALLEALARGPVVGLVVLDPNNLKTTPRRRAWFLENVRALREAYRARGGALWVLEGLPWEKVPEAARRLKAKAVYALTSHTPYGRYRDGRVREALPVPLHLLPAPHLLPPDLPRAYRVYTPFSRLYRGAAPPLPPPEALPKGPEEGEIPREDPGLPLPEPGEEAALAGLRAFLEAKLPRYAEERDRLDGEGGSRLSPYFALGVLSPRLAAWEAERRGGEGARKWVAELLWRDFSYHLLYHFPWMAERPLDPRFQAFPWQEDEALFQAWYEGKTGVPLVDAAMRELHATGFLSNRARMNAAQFAVKHLLLPWKRCEEAFRHLLLDGDRAVNLQGWQWAGGLGVDAAPYFRVFNPVLQGERHDPEGRWLKRWAPEYPSYAPKDPVVDLEEARRRYLRLARDLARG

136.

>gi|221234432|ref|YP\_002516868.1|\_deoxyribodipyrimidine\_photolyase\_Caulobacter\_vibrioides\_NA1000

MQVRNDSGDSKANLDAVIVWFRKDLRIADNPALRHAAQSGRPVIPLYILDETPGIRPMGGASLWWLDKSLKSLAASLETLGTKLVLRKGVAAEVLDQLIAQSGARSVVWNRLYDKPSTDRDAAIKAALRDRGVDCQSFNAGLLNEPWTVKNGSDQPYKVFTPYWRAAREHLTDVAVTAAPGHLVAPARFPASESLASWNLHPTKPDWSKGFDLWTPGEAGAHARLDAFLKGPIKGYGDQRDIPGVEATSKLSPHLHFGEIGPRQVWLATRSAADQGDIPLAEADKFLSEIGWREFNHSILYNWPHMPSANFKPEFDGFPWVKDEGALEAWKRGQTGYPIVDAGMRELWTTGFMHNRVRMIVASFLIKHLMIDWREGEAWFWDTLLDADLANNVGNWQWTAGSGADAAPYFRIFNPIAQGEKFDPKGDYVRRWVPELRNVSDDVIHKPWTKPLHLPAGAKRLYSRPIVDHAMARARALEAYHGL

137.

>gi|375135573|ref|YP\_004996223.1|\_deoxyribodipyrimidine\_photolyase\_(photoreactivation)\_FAD-binding\_protein\_Acinetobacter\_pittii\_PHEA-2

MSNVNQLIWFRQDLRVRDHAALWHASQQGPCIGLIILSPEQWQTHHDAPIKINFYLRQLQQLKKELEQLNIPLIIQVIPYWKDIADYIGELSIQLNIENVYSNIEFGVNELKRDKTVQDFLNQQGKELFLFHDRTIFPLCSIRNQSQQPYQVFGAFKKACYSKLDISGLPQCYPIPEKQSSYPASFSKINSLTLEDIEAFFDPSVSKEQQGLWPAGENFALEQLDIFIKDHLSDYKLERDFPNVRGTSQLSPYLNIGILSIRQCLQALFRAEHGNFHLTNEGQQTWLDELLWREFYQHILFDFPHVSKHIPFKKNTQKIKWSHNPEHLTAWQTGQTGIPIIDAGMRQLLKTGWMHNRVRMITAMFLCKNMLIDWRVGEQWFMEHLIDGDLAANNGGWQWCASTGTDAVPYFRIFNPIAQSKKFDPNGDYIRQWVQELAHLDNKAIHEPYSTKTNIQLNYPKPIVDLKETRLKAIETFKSI