

# Oryzines A & B, maleidride congeners from *Aspergillus oryzae* and their putative biosynthesis

Zahida Wasil<sup>1</sup>, Eric Kuhnert<sup>2</sup> Thomas J. Simpson<sup>1</sup> and Russell J. Cox<sup>1,2,\*</sup>

<sup>1</sup> University of Bristol, School of Chemistry, Cantock's Close, Bristol, BS8 1TS, UK;

<sup>2</sup> BMWZ and OCI, Leibniz Universität Hannover, 30167, Hannover, Germany;

\* Correspondence: russell.cox@oci.uni-hannover.de

## Supplementary Information

### 1. Spectroscopic Data for 3 and 4.

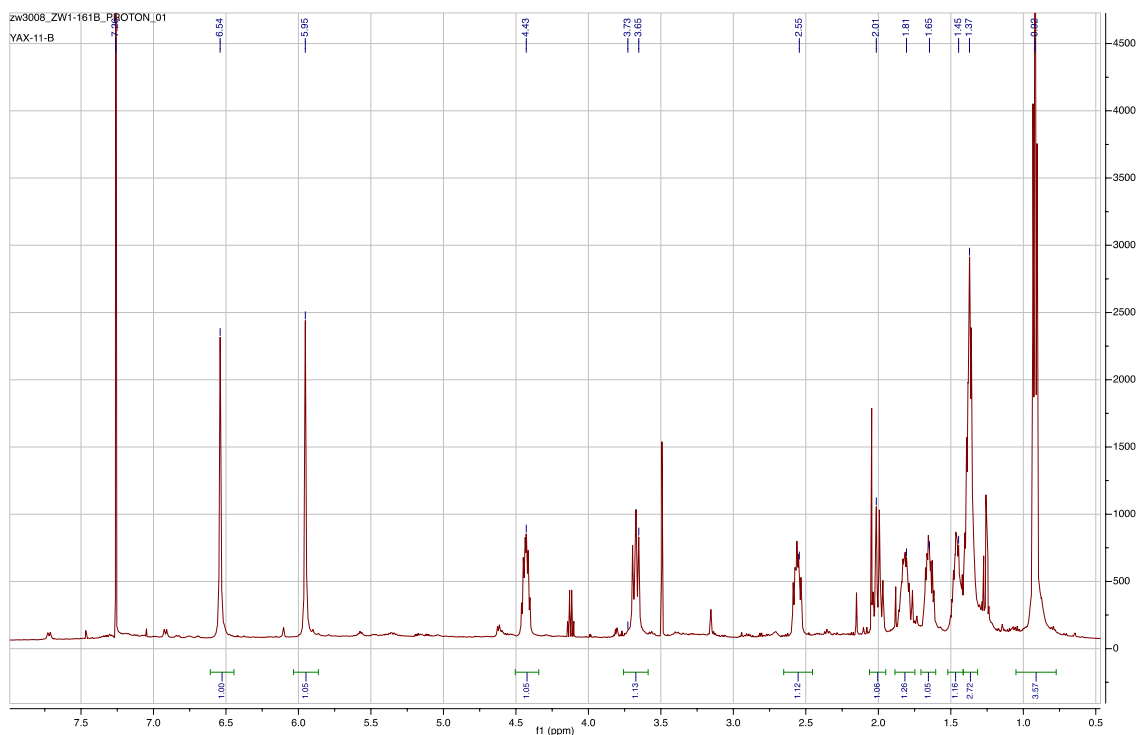


Figure S1. <sup>1</sup>H NMR of 3, 500 MHz.

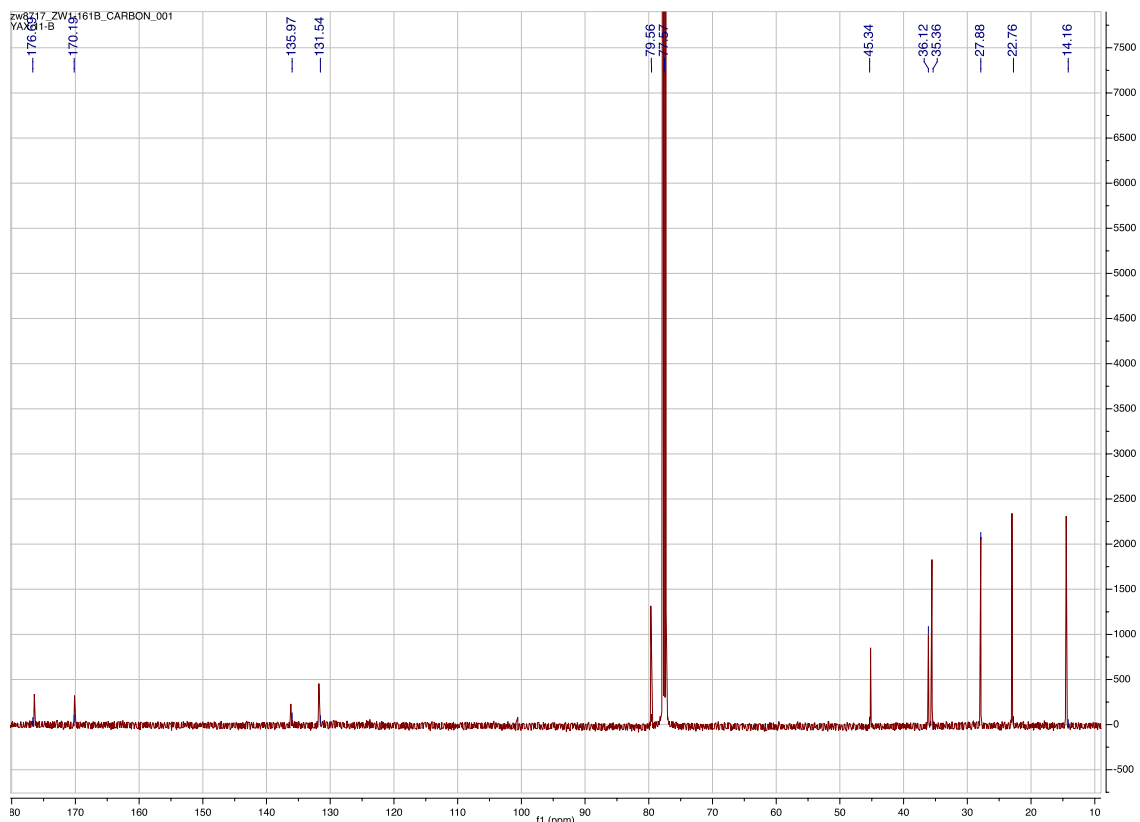


Figure S2.  $^{13}\text{C}$  NMR of **4** 125 MHz.

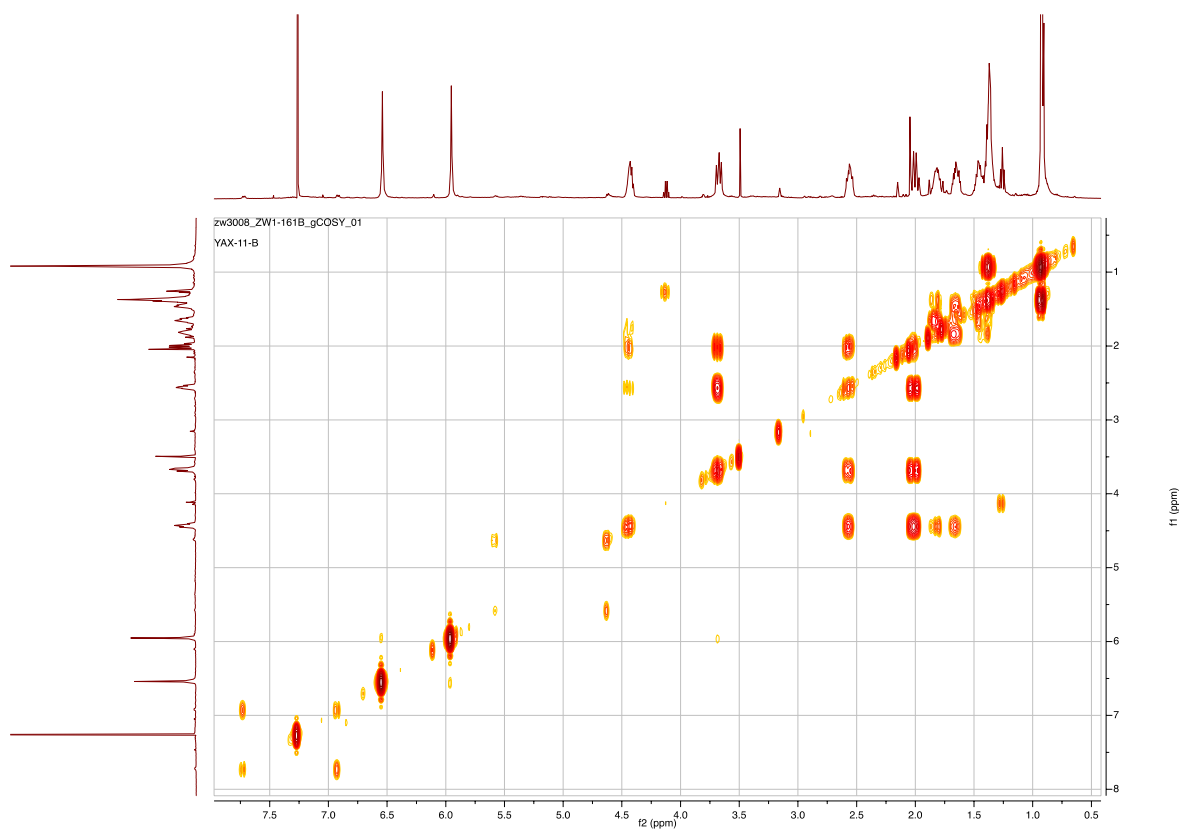


Figure S3. gCOSY of **4**.

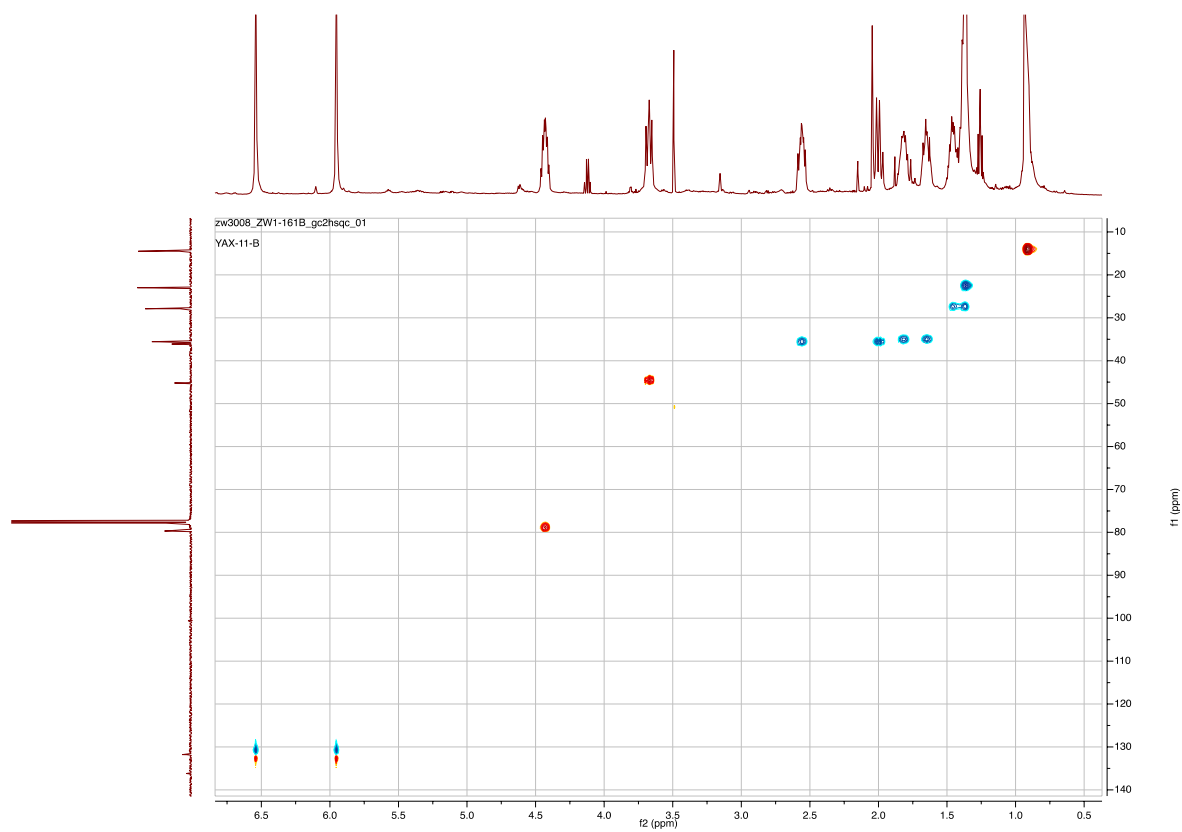


Figure S4. HSQC of 4.

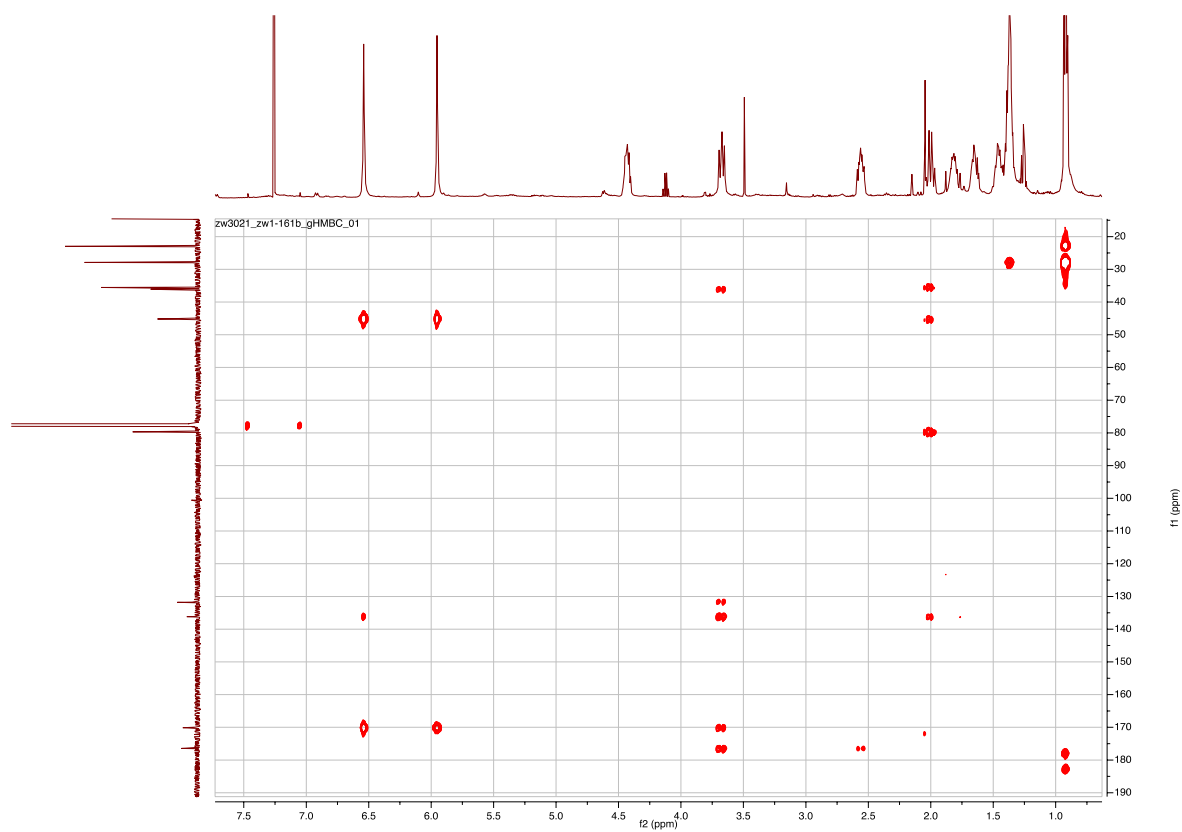


Figure S5. HMBC of 4.

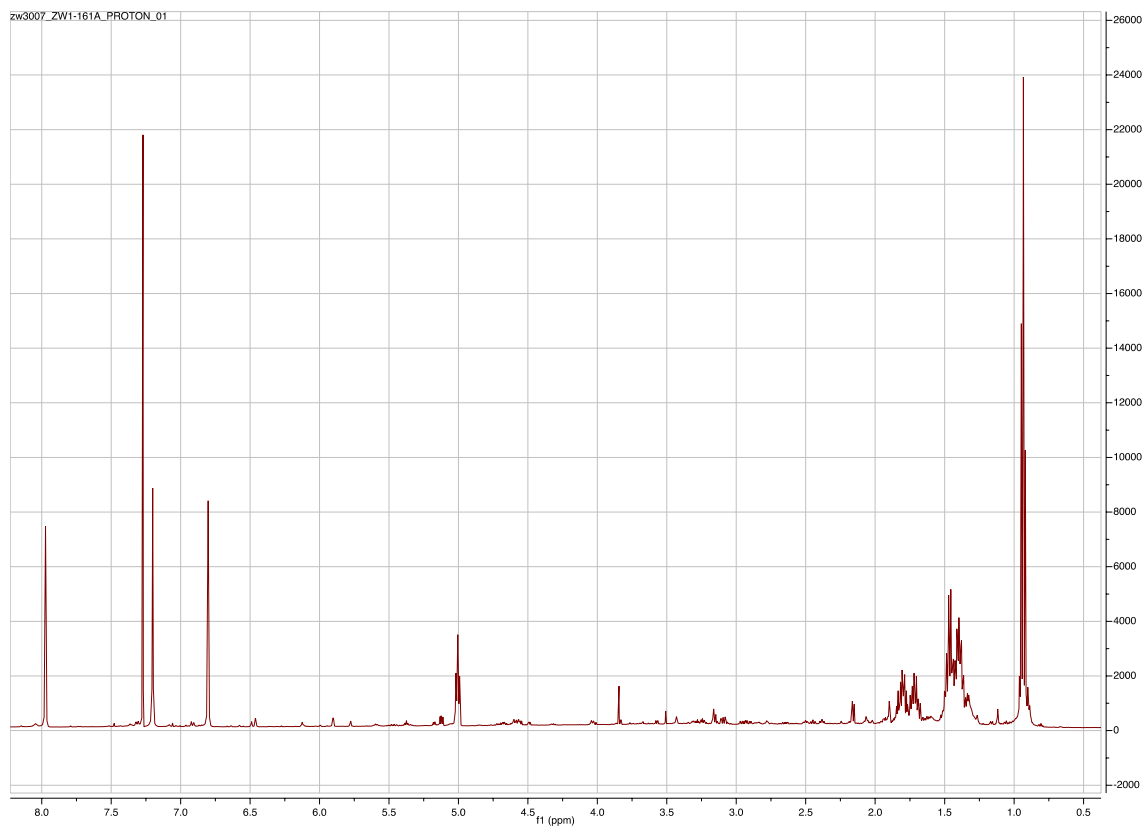


Figure S6.  $^1\text{H}$  NMR of 4, 500 MHz.

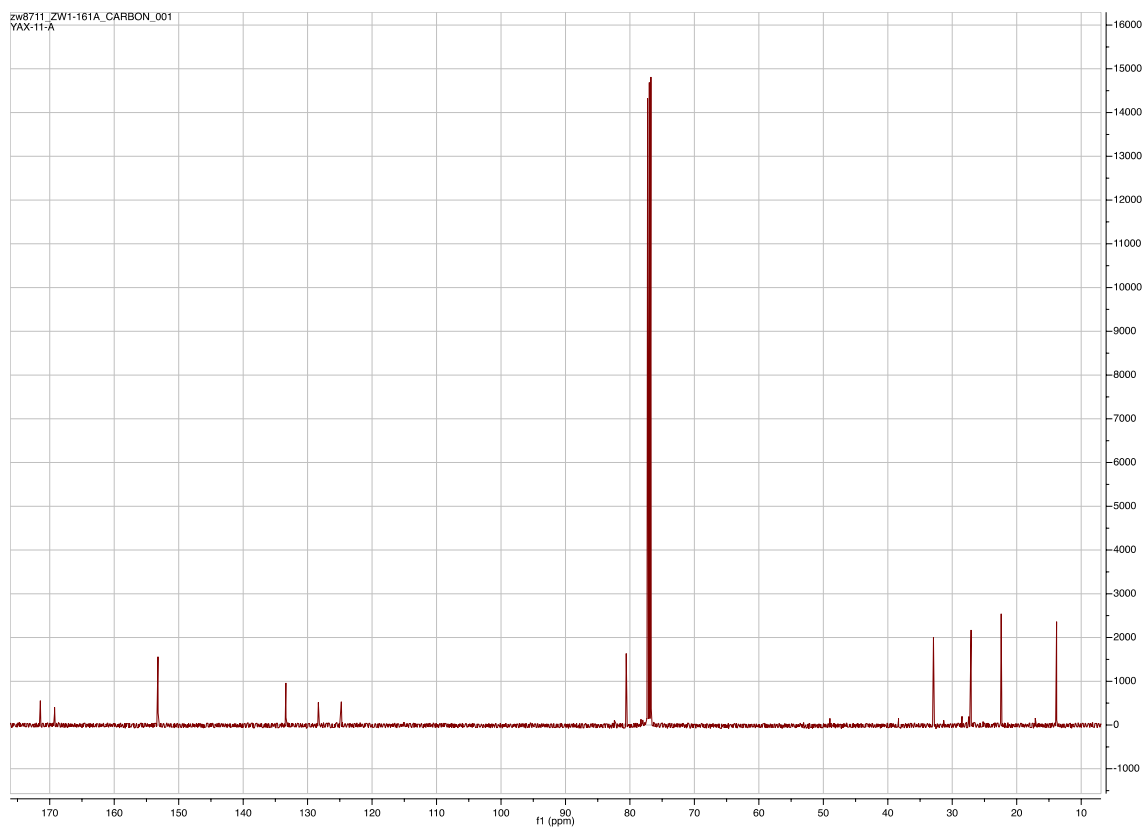


Figure S7.  $^{13}\text{C}$  NMR of 4, 125 MHz.

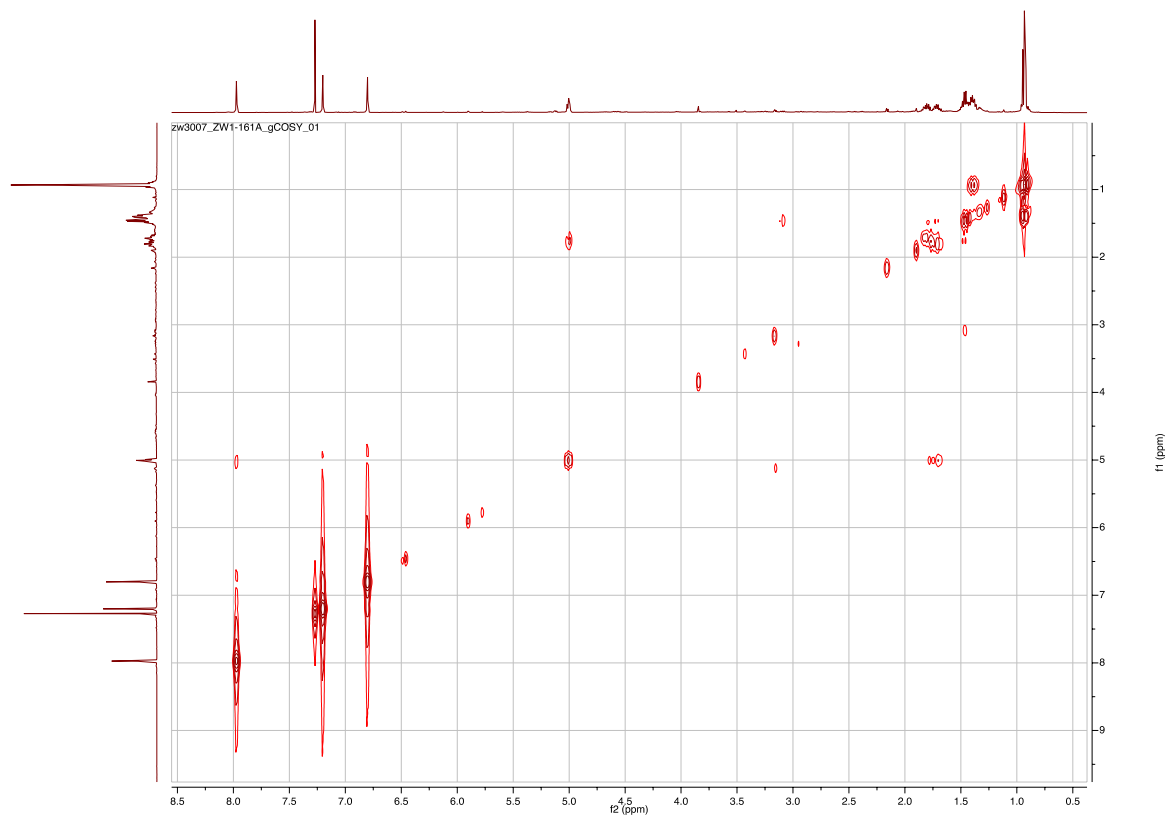


Figure S8. COSY of 4.

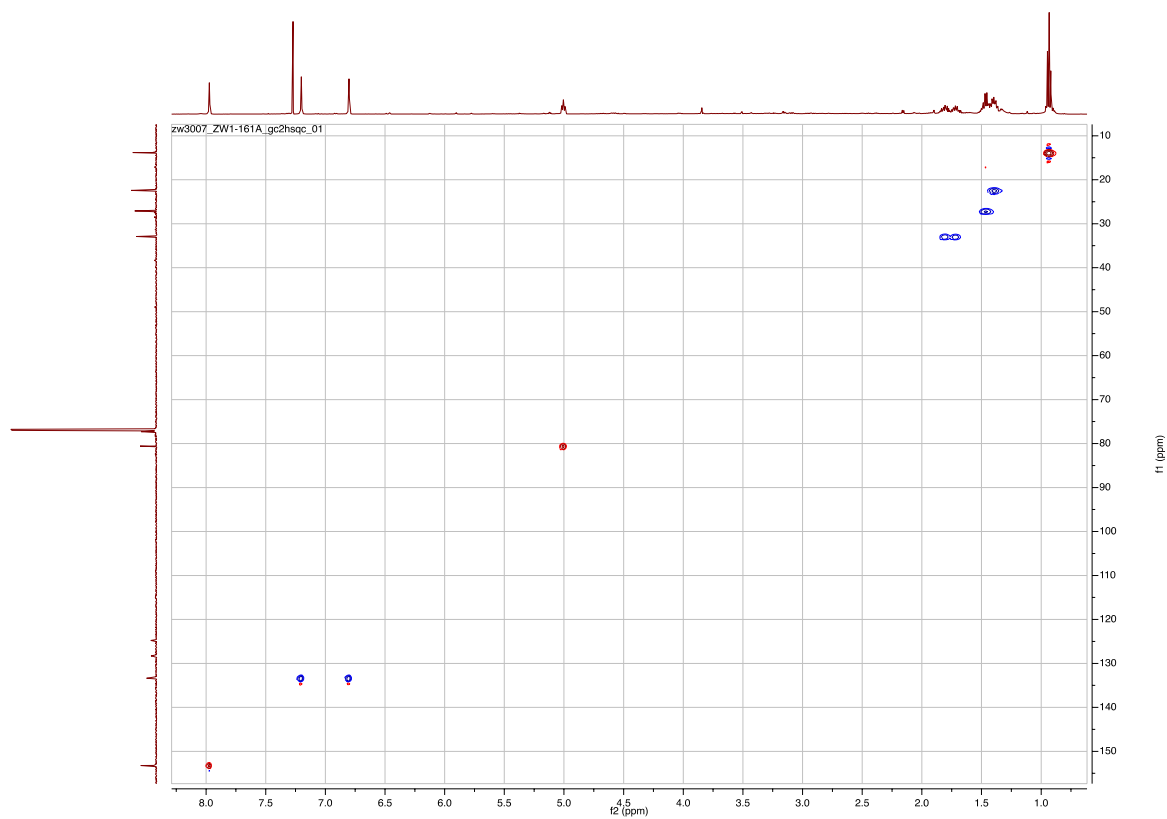


Figure S9. HSQC of 4

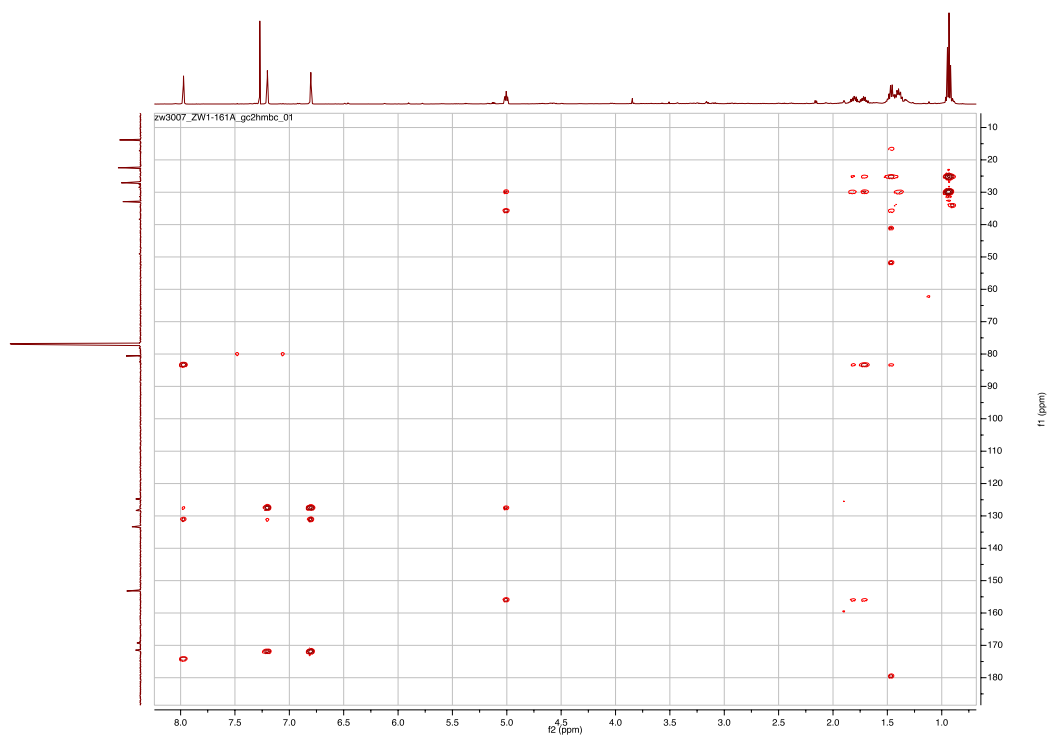
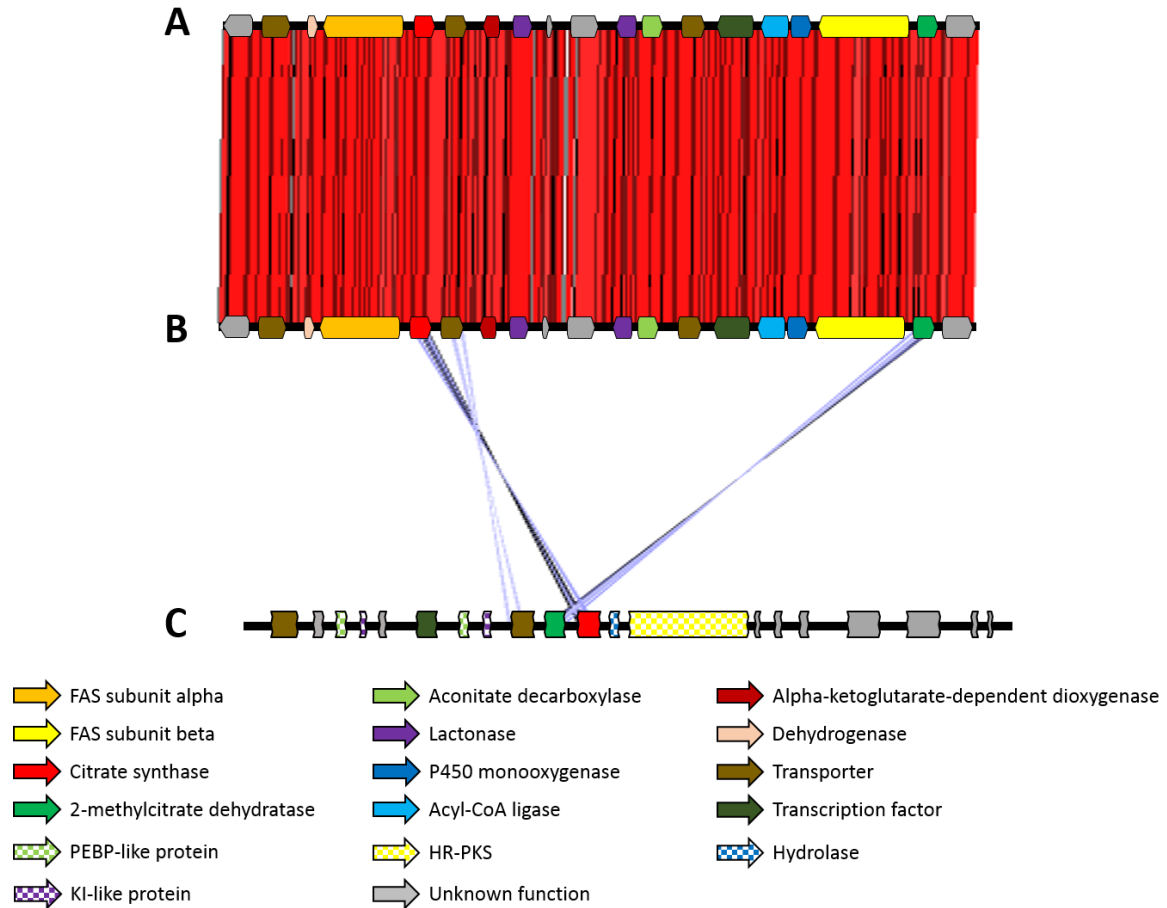


Figure S10. HMBC of 4.

## 2. Bioinformatic Analysis



**Figure S11.** MultiGeneBlast (architecture search) of the byssochlamic acid biosynthetic enzymes bfpks1, bfl2 and bfl3 against the genomes of *Aspergillus oryzae* RIB40 and *A. flavus* NRRL3357. The top two hits are the only gene cluster containing a citrate synthase (bfl2) and 2-methyl citrate dehydratase (bfl3) homologue.



**Figure S12.** Artemis comparison tool (ACT) analysis between the putative oryzine biosynthetic gene cluster (BGC) of *A. flavus* (A) and *A. oryzae* (B) and the byssochlamic acid BGC of *Byssochlamys fulva* (C). Areas (genes) with high similarity are marked in red (same reading direction) or blue (inverted reading direction).

**Table S1.** Predicted genes and corresponding nucleotide as well as protein sequences of the re-annotated oryzine BGC from *A. oryzae* RIB40.

Gene	Predicted nucleotide sequence	Predicted protein sequence
<i>oryC</i>	ATGACCGTGTTAACCAGGGAAAAAAGCCTATTTTGGCTTGACTGGA GGATGGCTCACATTCTGGGTACGGTATGGCAATTTAGCACCTTCGTC GATCACGATGGGCTGACAATTCATTAGGTTGCCTGCGCAACAGATATG TCCTTGTTCCGGTACGACCAGGGTGTCTCAGTGAGACTACCTAGAATA AATCATGGATCTTCTAACACACCCGAGGTGGCGTGGTTATCACACGA GACTTCTGGAAGTCCATGACCTGGTCGGTCCGGAGAAAAACCAAGACG CTTTCCACTGTTACAGCGATATACGATGTAGGCTGTTTCTCGGTGCAA TCGTTGCCCTTACAATCGGAGAGCAACTAGGACGGAAAAAGGCGATC CTGCTAGGAACACTACGATTATGGCTATCGGTGCTGACTGCAGGCTGCCT CTTTCAGTTTGGCACAGATGTTTGTGGGCCGCAATATTCTGGGGTGAGT GAACAGCGTTAACTGTTCTATTAACCTGTCTGGTCCGTTGCATTGATG ATGTGTTCAACGATAGTATCGGCAATGGAATCAACACTGCGACTGCAC CTATCTGGCAAACCGAGACATCGCAGCTGAAATGGCGTGGTAACTGG TCATCTTTGAGATGATGATGAATATCTTCGGCTTCGCTCGTCAATTGG ATCAATTATGGTCTCTCCTTCGTCGGTGGTCCATCGTTCGGCGTTCCTCC GCTAGCATCCAATTCTTCTTGTGATTATTCTGTGGTCCACTACACCAT GGCTTCTGAGTCCCCTCGGTAGGCAGTTTGGACTTCTTCTCATTACTA AACCTGCTAATGACATGCAGATGGCTCATAGCCACGGGAGACAAGA AGAAGCCACAGTAGTACTCAGTGCCTCGAGGCAAAACCCATCGATG ACCCTTCGTCATCGCGCAACGGAACGAGATCGAGTTTAGCGTGGCAT ACGAACCGGAGAATTCCATGCGGTGGCGAGACCTCTGTGAGAAAAAG GGGAAATGACAGCAAGACCTACGCAGACTTCTCCTCGGTGCCGCGAGT	MTVLTREKKPYFGLTGGWLTFWVTVACATDM SLFGYDQGVFSGVVITRDFLEVHDLVGPBKTKT LSTVTAIYDVGCFFGAIVAFTIGEQLGRKKAILL GTTMAIGAVLQAASFSLAQMVFVGRILGIGNGI NTATAPIWQTETSQKWRGKLVIFEMMMNIFG FCLVNWINYGLSVFGGSIARFPLAFQFFLLIIL WSTTPWLPESPRWLIHGRQEEATVLSCLEAK PIDDPFVIAQRNEIEFSVRYERENSMRWRDLCO KKGNDKTLRLLLLGAGSQFMQQFGGINIMSY YLPTVLMDSVGLSDTMARLLAACNALSYLVSF GLAVLLVERIGRRGLMLLSTFGQFLCFLIITILLRF SRISDNGEKFFASASVAFFFLYYGAFGIGMLGVP WLYPTEINSLPMRTKGA AVATATDWITNFVVV EITPIGKNIDWKFVIVWTVTNA AFLPILYFLYPE TANRSLEDMD EYRSPALVVTKDPDAICRRRP QKYLQREEEIEIERAAAAVDKRALSVGAVEH AEWTNAMGNKS



	<p>CAATTCATGCAGCAATTCGGTGAATCAATATCATGTCATATTATCTGC CAACGGTGCTTATGGATGTGAGTAACCTCTCCCATTCATCCGATCCACT TTGTACAACAATTAACGCATGATTGAACCCAGTCCGTCGGGCTTTCCG ATACAATGGCCCGCTGCTAGCTGCATGTAACGCCCTATCTACCTTGT ATTCTCCGGCCTCGAGTCTCTAGTCGAGAGAATAGTTCGCCGAGG CTTGATGCTCCTCTACTTTCCGCCAGTTCCTCTGTTTCTCATCATTAC CATCTACTTCGGTTCCTCGTATAAGTGACAACGGCGAAAAGTTTGCC TCTGCATCAGTTGCATTCTTCTCTACTACGGCGCATTTGGCATCGG TATGCTCGGTGTACCTTGGCTATATCCACGGAGATCAATCCCTTCCC ATGAGGACCAAGGGAGCGGCTGTTGCGACTGCCACTGATTGGTTTGT TCTCACTCCGATTCCCCAGTATACTAATACTCGGGATGGAAGGAT AACAAATTCGTCGTCGTTGAAATAACACCCATCGGAATCAAGAATAT AGACTGGAAAATCTGGATCGTCTGGACGGTCACTAATGCTGCGTTTCTA CCGATTCTTACTTCTTTATCTGAAAACAGGTTTGTCTGGCTTCTCGTT GTGGGAAGATGATTGCTGATGGTTATGTTAGCGAACCGAAGCCTT GAGGATATGGATGAGTATTATCGGTCTAATCCGGCGTTGGTAGTCACC AAAGATCTGATGCTATCTGCGGACGGGCTCCACAGAAGTATCTTACG AGGGAAGAGGAAGAGATTGAGAGGGCTGCTGCTGCGGTGGATAAGAG GGCTTTGTCGGTTGGAGCTGTGGAGCATGCGGAGTGGACCAACGCTAT GGGAATAAGAGTTGA</p>	
<i>oryD</i>	<p>ATGCCCCGTGGTACCGAGGCAATCCGCAAAGTCGATTTTCTGGCTGGC ACGGGAACCGATTCTGGCTGAGGGTAAGCGGCAGCTGTTTGGTGAA GTTGGCATTGACCTTTTTGCTGGTCCCACCGAGAGCCTCGTCTGGCAG ATGAGACGGCCGATCCGTTACGGTGGCTACGGACTTGATCTCAGG CTGGGCATGGGCCGATACACCGCTGTGTTGATTACGACATGTCCCA AGGTTGGGAGGGAGACGATTGAGATTGTCAATAAGTCTCTCTGCGA CGGATCTGTCAACCCAGATGTGGCGAAGGTATCGTGGGATGCGTTTG GGGAGGTCATTATTGTTGATACTCTGAAGGAGCTTTGGGAGCTGGGTG ATCATTATGCTAGTGAACAGGTTACAGTGTACTAAGGATCCGAGAG ATGCGTTGGACAAGATGTCCAATTATGGGGCGCTATTTCTGGGGAGA ACACATCGTTTCATACGGTGACAAGGTAGGTGATTAGAATGAAGAA ACAAACCAGATAGGGGTAGGCCTACTGACTATTCTAAGGTAATTGGAA AAAACCATGTCCTCTTACTCGGACAACAGCTCGATACACCGGTGGTC TGTGGGTGGCAAGTATCTCAAACATGCACCTACCAAGAGGTGACTT CGCCAGAGTCCAGTGGAAAGCTCGGACGCTTGTGTGGACGAGCTGCTC GACCCGAGAGGTTTGAAGCGCATGCGCGATCTGGTGATCTACAAGCTA ACAGGCACATGTGA</p>	<p>MPVGTFAIRKVDVFLAGTGNRFVAEGKRQLFGE VGIDLFAGPTESLVLADETDAPFTVATDLISQAG HGPDPAPVLIITCPKVGRETIEIVNKLKLSATDLST PDVAKVSWDAFGEVIIVDTLWELGDHYAS EQVQVFTKDPDRDALDKMSNYGALFLGENTCVS YGDVKVIGKNHVLLTRTARYTGLLWVWGKYLKT CTYQEVTSPESSKGLRCLCGRAARPERFEAHAR SGDLQANRHM</p>
<i>oryfas</i> <i>A</i>	<p>ATGTTTCAACGCAAAGATCCACCGTCAGAGCAGCTTAGAGCCTACACA TTGCTCATTGAGCTCTTGTCTACGTTGCAAACCCATGAAACGTTGTA GATGCTAACCGCAGTTTAAAGTATCAATTTGCCTTTCCCGTCCGATGGTGA GACTTCTCGTTAAACACATAACAGAAAAGGGCTAATTAGGAATGCCA GGATTGAAACACAAAATGATCTAATCCAGCGAAATAATACTATCCAGC GCTTCTGTTGAAGTGGGACCATCCAATGTCCTGGCGAACATGGCGAAGA AGACAGCCAAAGGCCAATACGCTGAAGAGGATCTGGTGCCTGCGTA GACCGTCAGTACCTATCGCACGCGGACGACGCCCCAGCACATCTACTAC CAGTATGATGAAGAGGCACCGGTGGAAAGCGCTGATAATGAACCGGC CCAACCGGCCGCTCGTCCACCCCTGCTGCTCCGGCACCAGTGGCTGC GCCACCGTGGTAGTTCAAACAGCCGCCAGCCAGTGCACCGAGCAG CTGTGCTGTACCCGATGTCGACTTGAGTGAATCGAGCTTGTCTATCTC CATAGTCTGCTCAGAAGATCCGCAAAGCATTGACGAGGTACCCGACG GAAGTCTATCCGCAATTTATCCGCAAGTACGTTCCGTTCTGATAGCTGC TCATTGTGTTTCACTAAGTCCGACAGGCAAATCCACATTACAGAAT GAGCTAATCGGACAGCTGGACGCTGAGTTTCCGGCTCTGCCAGAAGGA AGTGAAGATCTCGGCTAGAAGCACTGGCCTCCCACTTCAAAAACCTTC TCTGGACCGCTGTAAGGTGATGGCGGACATATCGATCGACTTGTG GCCGCCGCTATGCTGCAAGTTTCAACCAAGCCAAAGATCAGAGACTAT CTCTCTCACACTGGGACTAGGCCTAATCGGCAGACCACCGTCTGT GCTATGCGGTAACAATGGAACCGGCTGCTCGCCTCGCCGATGCCGGCC AGGCAACCGAGTCTTAGATTACGTTGAGCCGATACGGAGGAAAG GCAGGCATAGCTCTACAGAAGAGACGCGAGGGTGGAGCGTCAACAGAC ATCTGCTGTGGCCAGGTCGACTTGGCTAGTCTTGAACCCCTCAAGAA GGAACAAAATGAGTACTTACACAAACAGTTCAGCTTCTCGCCAAGCA TCTGATTGGATGGCGTGGCGCAACCCAGTCAAACCCAGGTGCAAGG GGAGTACTGACAGGCTGGCTGAATGGGACGCCAATTCGATGAAG AGTTTCTACGGGTATGCGGACGATCTTCCACCCGCGGAAGGCTCGTC GTTATGATTATGTTGGAATACGGCCGAGAGGACCTCATGGCCTTGT GCACGACATCCGCTCTGCTGCCGAGGACAAGGCCTCGCAGCGATACC AGAGCCTTGTCAATCGGTGGTCACCAAGATTGGAGCAGATGCTGGAAC ACAGTCTCAGGATGACACGACAGGAGAAGGAGAAGGCTCAGATGCTGCT GACGATGTTGCTGCTTCCGGAGTAGCCAACGGGCCAGTCTTTCGTTATA CTCAGCCTGCTATGGCGCTGAGACGAAAAGTTCGATGCGAACGGGGC ATCCAGTACTCTGAGTGCCTGCTGCTCAGCTCCACGGTGAGAACAAA GCTTCCACCCTGAACTACGCGCAGGTAGTTCAGCTCGACACCGCGAC GTGCCCTATGCGCACCTCCGACCGGACCGGCTGTGATTGGAAGTAT GACGACCAGTCAACGACATGTTTTGAATATCTATCTACCGGAGCCT</p>	<p>MVQRKDPPEQLRAYTLLIELLSYQFAFPVRWIE TQNDLIQRNNTIQRFEVVGPSNVLANMAKKT KGQYAEEDLVRCVDRQYLSHADDAQHYYQY DEEAPVESADNEPAQPAASSTPAAPAPVAAPP VVVQTAPQPAQAQAAVAVPDVLSAIDVVISIVA QKIRKAFDEVPAAKSIRDLSAGKSTLQNELIGQL DAEFRGLPEGSEDLALEALASHFTNFSGRPGKV MGGHIDLRLAARMPAGFNQAKIRDYLSHHWG LGLNRQTTLVLYAVTMEPAARLADAGQATQF LDSVVSRYGGKAGIALQKRAEGGASQTSAVAQ VDLASLETLKEQNEYLHKQFOLLAKHLDLDG VAQPSQTQVQGEDTDRLEAWEADAEFDEEFLTGM RTIFDPRKARRYDSWNTAREDELMALLHIRP AAEDKASQRYQSLVNRWSPLEQMLEHSAQD DTTKEKAQMLLDDVRASGVANGPVFRYTPQA MAPETKVDANGRIQYSEVPRQLHGENKASTL NYAQVVAARHRDVPYAHLSRAGVDWKYDD QLTDMFLNLSTGASTGLSFTGRRVLTGAGVG SIGADIVAGLLAGGAHVIVTTSRQPSDVAASFR QLYAKVGAPGSELIVLPFNQASKRDCEELINHIY DEQSYGWDLDFIIPFAAISEIGRQIDKIDSKSEL AHRAMLVNLRLGFIKQOKEKRGDFDCRPTGV LLPLSPNHGNGGGLYSESKLGLTFLNRFHSE GWSDFLCIIGAVIGWTRGTGLMSANNIVAQGM EDSLDILTFSAPEMAFNILSLLSGDILEVADDEPI YADLSGGLQGVSDLKDKISAIRKIVSDSRIRQA LVAENLHEQKVLRTGKPAEGNVQPLKRRSNIE PAFPPLSDYNSVTAGLQSLKGMVDLSRTVVVVG YSELGPWSSRTRWEMEHEGRSLLEGYTELAW MMGLIKHFDDGLKGPYTGWVDSKTEAVDE ADIEEKYQGHILGHAGIRVIEPELSEGYDPSQKEI MHEVVIDEDLPPFEAPQGVAFKFLRHGDKVI LTPIEGSESVKVVVKSAGVFMVPMKAMAFNRFVA GQLPSGWDPTRYGIPEDIVAQVDPMTVYVLLC VSEAMYASAGLEDPPFELYRHHVSELANCVGTGA GGLLAMRGVYRDRYLDPRVQSDILQESFLNAM NAWTNMLLMGAAGPIKSPSGTCATSVESMDIA CEAIQTLKAKVAIVGGSDDFQEEMSYEFGNMK</p>

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	GCTGCCGATGCCAAAAGGTGGAAGAGGTCCAGGTTAGTATCACGCACTCCCCAGAGAGTGGCATGGCTATTGCTTTAGCGCGACGTCGTTTATAG	
<i>oryE</i>	ATGACTGTGACTCAAGAAGCCTCTCCCAAGCGGGAATCCCTACACATTATTGATCCAGCTACTGGATCTTATTACTCGATTCCCATCAATGACAAATG CCATCAATGCCAGCGATTTCAAAAAAGTGACCGCGCCAGAAGACAAA GCTTACCTGCCAACCAAACGAGAATGGGCTGCGGGTTTACGACCCA GGCTACTCCAACACTGCCGTCAGTCACAGTAAGATCACCTATATTGAT GGGCTCAAGGGCACTATCCAGTACCGTGGGTACTCCATCAATGACATT GTCCGACGCAAGACGTTTATCGATACCGCGCATCTCCTGATCTGGGGT CACTGGCCCTCCACCGCGAGCGCAAACCCCTCAGCAACGCCCTCGAC CAGGTTCTGTCCCTCAGGATTTTGTCTTCAATGTGATCAAATCCTTTCC GTACGTTTCCAAAACACTGACCCCTCCTACGGGTGCTTCTTGTGACCAG CAGCAGACGAGATGGTTCCTTATGGGAATGTTAATCGCCGGTCTATC AGCGCTCCAGTCCAGTGATATGAATGCGATCCCGGCTCATGTGGGAAA GACCATCTATCTGAACAATCCCGAGCTAGCCGATCAACAGATCATTGG GGTCATGGCAAACATGTCCATGTTGACAGCCGCGGCATACTGCCATCA CATCGGACGTGACTTCACTCCACCCCGCGGGGCTATCGTACATTGA GAATTCCTACTCATGACTGGTCATGTTGAGGCAGCTACTGGCCTGCCA AACCCGCGATACGTGAATGCCATTGAGCGACTCTGGGCTCCTATTGCC GATCATGAAATGACCTGCTCCACTGCGGCCCTTCTTCAAACCGCATCTG CCCTACAGATGTTATCTCTGCATGGTCTCCGCCATCTCGGCATTGTA TGGTCTCTCCATGGTGGAGCCATTGAAGTCGCTTACAAGAATATTGA GAGCATCGGCTCCATCTCCAATGTACTGCCAAGATCGCCCGCGTCAA AGCAGGAAAGGAACGTCTGTATGGTACGGCCACCGAGTCTACCGTGT GACAGATCCTCGATTTGTCTTACCCGTGAGATCCTCAATGAACTGTCC GAGGAAGTGAGAAGGACCCCTTGTGAAAGTTGCATTGAGGTGCGAC CGTGTTCCTCAGAAGATGAGTACTTACGTCACGGAATCCTCCGCCCC AACCGGATTGTTCGCTGCGTTTGTCTACAAGGCTCTGTATGTTCCCTT TCCCGTATTCTGAATTATAGTGGTATTAACCCCTGTGCTATAGTGGGT CCCGCCGAATTCATCTGCCTCTGTGATTCTCTCCCGCACACAAGGG TTTATGGCCACTGGAGAGAGGCCATGGGTATGCCAGAATCAACCCTA AATTCCTTAGAAGCATCTGCTCAGACCAATATAGGAATCCTCCTC GAATCTGGCGCCGGGTGAGATCTATACCGGTGACTGAACAAGTCCA TGGATGAGTGA	MTVTQEASPKRESLHIIDRTGSYSIPIVNNAIN ASDFKVTAPEDKAYPANQTENGLRVYDPGYS NTAVSHSKITYIDGLKGTIQYRGYSINDIVGRKTF IDTAHLLIWHGHPSTAEAE TLQORLDQVPPVQ DFVFNVIKSFPRDGLMGMVIALGLSALQSSDMN AIPAHVGTKIYLNPELADQQHIRVMANMSML TAAAYCHHIGRDFTPPRAGLSYIENFLMTGHV EAATGLPNPRYVNAIERLWVLIADHEMTCSTA ALLQTASALPDVISCMVSAISALYGLPHGGAIEV AYKNIESIGSISNPVAKIARVKAGKERLYGYGHR VYRVTDPRFVFIHREILNELSEEVEKDLLKVAFEV DRVASEDEYFTSRNLRPNADLFAAFVYKALGFP PEFILPLSILSRITQGFMAHWREAMGNPPRIWRP GQIYTGDLNKSMD E
<i>oryF</i>	ATGGCCGAAGAAGTAAACGAAAGAACGAGACTGCTTCCAGTCCGA TGTAAGTTTGTGCTCGGCTTCTGACCCTGTCTAAAGCTAATGCCCAA GGACCTTCTCCTCTAGAAAGACTAGAAGAGTGGGAAGAGCCTCG CAATTGGAAGGTTTCTACCGCTGGCTATGTATTGCCGTGATTCAGTTT ACGGACTGATCAGTCCAGTCATCGCAGCAATCATCGTGCCTGCCATGC CGCAAAATGCCACAGACTTGAATGTTACCGACCCAGGAATGCTGCAA GCTTCTGTTTCTGTATGTCCTCGGCTGGAGCTTTGCAACCGCTGGTGT CGGTCTTTGTCCGAAGTCTACGGCGCATCTCGTTGTTGAATACCGGG CATGGCTTGTCTTGTCTTAATGCCTTATGCGCGTTCGCTCGTAGTGA CTACGAATTGCTCATTCTCGGTTTATACGGGGCCCGTGGTAGCGCT CCACTCTGTGAGTAATATTAGTCATACATTAACCATCGCTGACGAA GAAAATAGATCGGCCAGGTATAATCGGTGACCTATGGGCTCCAGAA GAGCGAGGCTCTCCATCTCCCTTACACTTTGGGGCCCTGCTTGGTC CGCCATCGCACCCATCACAGGTGCATACATCGTGTCCACACATCAT GGCGGGCAATATTGCGCTGGTCTCGCTTACATCCTCATCATGGGT GGTCCGCTTTGTACACTTCGCGAGACCTTCCGGCCAGTCCCTCATCCAA CGCAAACAAGCTGCTGCCGTCCGCAAAGGTACAGTGCCTGGCTGTGA CAGCACCATCATAAGAGTCTAGCAGATGTATTACAGACAGGATCTCCGC CGACCTTACCTTCTCGGAACCCAGCCCATCATAAGTCTTGTCCC TCTTATGGGCTATCTGTTTGGCCTCAACCACCTCTCCATCACCACATTC GAGTCTGTCTGGACAGACATCTACAACCAAACCTCCATCCCGCGAGCA CTAAACTACATCTCCATCGCCGGGGTTCATCTCCTCGGCAGCCAAATC ACAGGCTCCCTCAACGACCGGGTACCCTCCCTCATCCCTTTTCTCATCG CATCCAGATTTCTAACAACCCAGATCTACATCTACTACACCTCCAAA GACCCCGCAAAGGAACCTCCGAACTTCAACAATCCTCATGCTCCCA GCCGCCCTGCTCGTCTTCTACCAGCTACTAATCTACGGCTGGTCCGCC AGACCCACAGCCACTGGATCATGCCAACATCGGAATCGGCATCTATG CCCTGGGCTGATAATGAGTACCAATGTATTACAGGCTATGTGCTGGA CTGCTATGCGGTGTATGTGCTGAGGATGGGTGCCCTGACGATTCTG CGGTGCTGCTGTTTGTGTTTACCGATTGGCTCCCTGATCTATAG GACGCTTGGGTATGGATGGGGCAGTTCCTTGTGGCGCTTTGGGCTTTG GTGATGGGTGGGTGGTTCGATTTGCTGTGGCGGTATGGAGCTGTTT TGAGGAAACCGAGTGGGATTCTTGAGGAGATGATG	MAEEVNERTRLLSQDDPSPSLEELEEWEEPRN WKVSYRWLCLIAVISVYGLISPVIAAIIVPAMPQIA TDLNVTDPGMLQAFVSVYVLGWSFAPLVVGPL SEVYGRISLLNTGHGLFLVFNALCAFARSDYELL ILRFITGAVGSAPLSIGAGIIGDLWAPERGLSISL YTLGPLLPAIAPITGAYIVSHTSWRAIFAWCSL YILITVWVGLCTLRETRFPVLIQRKQAAAVRKG QLPGSVQH HHKSLADVFRQDLRRPFTFLGTQPI IQVLSLFMYLFLGNHLSITTFESVWTDIYNQTP SRAALNYISIAAGFILGSQITGSLNDRIYYTTSKD PAKGTPELRTILMLPAALLVPTGLLIYGWSAQ HSHWIMPNIIGIYALGLIMS YQCIQAVLDCY AVYAASAMGALTILRSLGLFVLPILAPLIYRTL YGWGSLLALWALVMGGLVPILLWRYGAVLR KRSGILEEM
<i>oryG</i>	ATGCACCTCCAAAGGTACCTACCCGAGCCTATGCACTCAGCGGT ATCTCGATCAATACGAGTCTTCCAGTCACTTGCATTGGTACTG AATTCCCAAGGCGAACTTGGCGAATGGCTCCACTCGCCAAATGCCG ATGCTCTTTCGCGACCTGGCCATTACGAGTAAGTATCATCTTGACCC ACAACAAGAAAAGCCACACAGCAACTAACTGATCACACTAGTGGCC AACGGGGAGTGTCTTCTCCGTGCCAGACTGACCTGGACGGGAGAAC TCCAGAAGGACTCACCACCGTGGGTGCAATCTGGCAAGCCAG CTGGCCACCGTCTGAGCAAGCACCCCTCCACCTTATCCGTAAGGATG	MHSTKVTYPEPEMQLSGILDQYESFQVTPCIGTEF PKANLAEWLHSPNADALLRDLAITAQRGVVF FRAQTDLDGELQKELTHRLGVQSGKPA GHRLS KHPLHLIRKDDPEMGLDPRGQQLHGVENT QKRQRAVLEYHSDGSYEVCPDFMRLMTEIPP TGGDTLWASGYELDRSLTPYQKFFESLTAQHE VPSLRKLAETEPGYDGRGAPANTDMQFKQS HPMVRTHPVTGWKTLFAGGLHCRRVNDVDF

	<p>ACCCAGAAATGGGCGTCTCGACCCCGGCCAGCAGAAGCTGCAC GGTGTGAGAAACCCAGAAAGCGTCAGCGCGCGCTCTGGAGTACCA CAGCGATGGTCTCTAAGAAGTCTGCCCCCTGACTTTACCATGCTCCGC ATGACCGAGATCCCCCCCCACCGGTACGCTAACCACTATCAATCTACTG CACCCACATACTGACGAATCCAGGTGGCGACACCCCTCTGGGCTTCCG GATACGAGCTCTATGACCGTCTCTCAACCCCTACCAGAAATTCTTCGA GTCTCTTACCGCCAGCAGAGGTTCCCTCCCTGCGCAAGCTGGCTGA AACCGAACCCGGCATCTACGATGGCCCTCGTGGTCTCCCGCCAACAC CGACATGCAGTTCAAGCAGTCTCACGTACGTAGCCTACCCCAATCAC AGTCTCTGTTCCCATCTAATCTCTACAGCCATGGTCCGCACCCACCC CGTAACAGGCTGGAAGACCCTCTTCGACAGCGGTCTTACTGCGCGCG CGTCAACGACGTTACCGATTTGAGAGCGAACAGCTCTGAGCAAGAT CATCTCTCTCGTGGCGACAACCACGACCTCAAGTCCGCTTCCGCTGG AACACCCCGGGCATGTTGGTGAAGTACAACCTCCAAATCCAAACCATG CCTAACACCTGTCTAACCTCAATAGCTATCTGGGACAACCGTTGCGTC CTGCACTGCCCTACCCAGGACCACTATGGCCTCGGAGGCCGATGGGA TATCGCACCATGGGTATCGCTGAGAAGCCTTACTTGGACCTAACAGC CCTTCTCGCCAGGAGCTTTGGCAGCTGCCGTAAGTGA</p>	<p>ESEQLLSKIISLVGDNHDLQVFRWNNPGDVAI WDNRCVLHCPTQDHYLGLGRRMGYRTMGIAE KPYLDPNPSRQEALAAAAK</p>
<i>oryH</i>	<p>ATGATTTTATCTCTGCGATTGGTCTCCCTGGCGCTATGCATAGCCCCGT AGCATCTGCCGGAAACAATCCACCCCTGGTTCAAGCCTGCAGTGG CTACAGCTTCCCACGTGTCGCTGCATGTACCGTTATGCGTCGAAAAATG CCCTTGACTTCTACCGCAAGGCCAGCGTCGACATCAGTAACGTGGAC ACTTACTCATCGACCGAAGTGGCAATGACGACTCGTTCACGACGTT GGGAAGGCCACATTCTAGTCTGGGATCAACAGCGTGGTAGCGAAATC CTAGGATCCGACCCGCGTATGATATTGTGTTACTATCTCAACTGGCG GACACGAGGCGCCCGTATATGTCGGGACACCAACGAGCTGTGGTTCT CTGAACCTGGTAAAGGAGAGCTACACCAGCAGGTACATCAGTCTGGAT GGTGATTCCCCTACCATCTCAGAGGTTCTGACCGACCCACCTCTCTACG CTCCATCCGGGGCCGCTATAGGAATGGAAGATCTATTCTCCGCTG GAGGTGGCAATTCCACCCCTGGAAGGGGGTCTTATCACCCAGGAATCT ACTCGTGGATCCAAAACCCGAAATCCACCATTGAGGTCAACAAC ATTTTGGATGGTACTTTAACCCAGGTAAGCATGCCACTGCCCATACGC GAGGCGGGTCCCCTTTGTCGCAATTTCTGCACATTTGGTGGATCCACGCT AGTGGCTACGGACTAACTTTCAACACAGGCCAACGACATGGATATT GACCAACACGGTTCGATCTGGTTTAGTGATCCTTGAAGTTCCTGGACC CGGATCTCAGCTTAGTCCATACTGATGCAGCTATAGTCTCGCCCGCA ACCACGGTACCTCGACAGTCGCCCCCTAGGTCCAGGCATCGTTTTACC GTTACGACCCAGAAACTGGAGCAGTGAATATTGTGGATGACACCTGC ATTGTCCCAATGGTGTGCTTCTCTCCCGACTACAAAACCTCTACCT CACAGACTGATGCCGGTGTCCCATGATTGACCCGAGAGTGCCATT GAGCGAGGTGCCATCGCTCCAGTACAACCTCCACCAACCGTCCGACAGT CTACGCTTTCGACGTGAGCGAGGATGGATCGTATCTCAAGAACCGCCG ACCGATCTACACAGCGAAGGACTTCGTTCTGATGGTCTTAAGGTGGC TAGCAATGGATATGTGATTACCGGGGGCGGCAAGGGTGTGACATCCT TGATACCACCGGCACACCATTGCTAAGCATCCAGACTAACTTACC CGTGAACATGGTCTTTGGTGGTAAGAACTTGGATGAGCTGTGGATTGTT GGGCACGGCGCTGTTGCGGAGCTAGACTGAACTGACTGGTCTGCT CTAGAGTAA</p>	<p>MYLSRLVSLALCIAPLASAGNNSTPLVQACTG YSFPRVACMYRYASKMPLDFYRKASVDISNVD YSSTEVANDDSFQVQVKATFLVWVQQRGSEIL GSDPAYDIVFTISTGGHEAPVYVPDTELWFS ELGKELHQVVISLDGDSPTISEVLTDPPLYAP SGARYRNGKIYFSAAGGNSTLEGGPYHPGIY SVDPKTRKSTIEVNNYFQWYFNQANDMDID QHGRWIFSDPFLARNHGTSTVAPQVQASVY RYPETGAVNIVDDTLHCPNGVAFSPDYKTL LYLTDTDAGVPMIDPRVPLSEVPSLQYNST NRRRTVYAFDVSEDGSLKNNRRPIYAKDF VPDGLKVASNGYVITGAGKVDILDTTGT PLLSIQTNFTAVNMVFGGKNLDELWIVGH GAVARARLNLTPALE</p>
<i>oryJ</i>	<p>ATGGGCTCCCTCTGAGAAAGACTTCCCCAAGTCCACCGCTTCATCA CGACCCACAAGGAAGACGGAACCCCCACCTCGAGACCAAAATCCCC GAGCCAATCGAATGGGAGCGCACCAACATTGGCGTCTGATTTCTCTC GCCTACACCCCTCGGTCTTTCCGCTCCCTCAGCCAGATGCCGACT TGAACCAATACAAGGACCACCTCGTCAATCACCTCCCTTCATGATCC CCGGCGGTGCCGTCGTGCGTACGTCGACTACCACCCGGGTGTGAGC CCATGTGCATCGACTGTGACCGTGGACTTCGGAGTGGTCAATTGAGG GCGAGCTGGAGCTGGAGGTGGAAGCGCGGAGAAGCGATTGATGAAG AGGGGTGATGTTGCCGTGCAGAGAGGTACCAACCACTGCTGGCGCAA CCCCAGCAAGACTCAGTTTGCAGCGCCCTGTATATTGCCCTGGATGCC AAGCCGGTCACTCGTCAATGGCCAGGAGTTGGGCGAGTCTTTGGGCGAG GTTAAGCACTGA</p>	<p>MGSLPEKDFPQVHRFITTHKEDGTPTFETKIPEPI EWERTNIGVDFFLAYTLGSFPAPLSDADLNQY KDHLVNHPPFMPGGAVVRYVDYHPGCEPMW HRTVTVDVFGVIEGELELEVEGGEKRLMKRGD VAVQRGNTNHCWRNPKTQFARALYIALDAKPI VIVNGQELGESLGEVKH</p>
<i>oryK</i>	<p>ATGGATATTTATGAAGCAGCAAGCCAAGGCCGATCGACGCGATAAAA ATTTGCCGTTGAGCAAGGCTGTGATGTCGACGGTCCCAATGAAGACGG GAAGACCGCTCTCTGGTTCGCTGTGACAGTGGCCAGCCAGAAGCCTG CAGATTTCTTATGAGTCTAGGAGCTGGCAGGGGGCCGAAAAATCTAG CCTCTCGAAGTCTGCTGTTGGAGGGGGTACCGGATATTGTCGCACT GCTGTGGCCGCACTGCAATGCAGAAAGGGAACATCGTTCTTTAAAAAC TGCCATCTCACTGGGCTTTCATGAAATCGTGTATTCTTATAGAGACG GGCGGTTTGAATACCAGGACTCTGAAGTCAAGTGGCAGTGAATCCCTC TATAGAAGATGGTCCCTCCCGAGAGAGAATCCACAGTTTTTCAGCAATGG GAGCGATTCTGTTCTGCGACGTGGGCGAGAAGTGCCTTTGCATCGCG TATTTTTGACTACGCTCTTCTTCTGCCACGAAGGCAGGCCGAATGC AGGGCTTCGACTGGTAGAGTTCTGCTTGGGGAATCCATGCCCGACGT GAAGTCAAGATGATGATCAATGGGCAGTTTGGACACCTTTGACCGG GGCGGCTAGAAGGTAACCTGGAGATCCTCGCAACTCTGATCGACCA CCCAAACATCGACTGACTATTTGTTGGCAAGTATAACTGGCCCGCTTTT</p>	<p>MDIYEASQGRIDAIFAVEQGCDDVDGPNEDG KTPLWFVAVQSGQPEACRFLMSLGAGRGPQNP SLLLEVAVGGGYADIVALLWPHCNAEREHRS LKT AISLGFHEIADFLIETGAFEYQDSEVSG TESLIEDGSPERESTVFFQWERFLFVRRGQ LPLHRVFFDYALLLAKAGRNAGRLRVEFLL GESMPDVNCKIMINGQFETPLTAAAEEK NLEILATLIDHPNIDL TICGKYNWPAFL HLLASPLSISTERGRVIARRLAYKAVY NRLFIDSRERLQGAFAQNVLRFGDDGLV KQVIDLVRGAAGTLILPLLIRANEVDGLT WVLNCDGVSSKKPPPAFWLLCQYFKRYQD QDALGLFTSVTEFLVEKKIWNQAILKCL HACNFSFIQQDFYPLSEAPPKEVTEETL SPGFENLLFSNADLNGSDPHPNGLGRLE IIPHAFDDPSSAAQKISLSALPSASP NPSNPHLYSQMELIRLEQQNKRRLFFA</p>

	<p>CTCCACCTGCTAGCCAGCCCTCTGTCTATCTCAACAGAAAGAGGCCGT  GTCATTGACACGCCGATTGGCTTACAAGGCTGTCTACAATAGGCTGTTA  TTGATAGTCGGGAGATTCTGTTGCAAGGTGCATTCCAGAATGTGCTTCC  ATTCGGCGACGAGCCCTTGGAAGCAAGTAATTGATCTCGTTCCGTGG  CGCAGCAGGAACCTTATACTACCCCTTCTGATCAGAGCTAACGAGGT  TGACGGTCTGACGTGGGTCTGAACTGCGATGGGTCTCTTCAAAGAA  ACCACCACGACCTTTGGGTCTTACTCTGTCAATACTTCAAACGTTAT  CAAGATCAGGACGCTCTGGGACTTTTCACTAGCGTCACAGAATTCTTG  GTAGAAAAGAAAATCTGGAACCAGGCCATTCTGAAATGTCTCCACGC  ATGCAACTTCTTTTATCCAGCAATTTTCTATCCATTGTCCGAGGCGC  CCCCAAAGGAAGTGACAGAAGAAACACTGGTAGGATCCACGCGGC  TCTACTAACCATGCATCATAACAAGATGGGCTGGCCAAGGGTTTGCC  CGTGTCCGTTAGTGGAACGCTATTCACTGTGGATTATGGAAGAGCCCA  GGCTTCGAAAATCTTCTTTTTTCCAACGCTGATCTAAACGGGTCAGATC  CGCATCTAATGGCTGGGGCGACTAGAGCTGGAATAATCCACACCG  CATTCTCGATGACCCATCTAGTGGCGCGAAAAGATCTCTTATGATC  CGCTTACCTTCTGGAGCCCAATCCATCTAATCCGACCTTACTCC  TATCAAATGGAATTGATTGCGCTGGAGCAGCAGAATAAAAGGCGTTA  TTTTTTGCCGAGATACGAGGTGCCCTTTCTTGGGCCGCGAAAAGCC  ACAATGCTCCACTGTAAATGCTCTGCTACGCAAGTCCGCAAGTCAACG  TCAATTTTCAGGACCCCTCCGACCGAACTCCGCTTCTGTACGCAATTGC  TGTGAATGACAGGCCAATTGTGGAAGGTTACTGAATCATCGAGATAT  TGACCTCAACTTGGGGATGCAGAAGGCAGAAGTGTATCTTCTACGC  CGCACAAGGCGGGGATCTGTCCATTGTACAGTTGCTTATGGAACACA  GAACGTGGACTTTTCTATCCGAAACAAAAACGGGAAAAATGTGAAGG  AGTTTGCCAAAAAGGCCAAGTTGAAGCAGGATATTGTGGCTGCACTTT  CTAACTGA</p>	<p>GDTRCPLSWAAKSHNAPLVNALLRSPQVNVN  FQDPSDRTPLLYAIAVNDRPIVERLLNHRDIDLN  LRDAEGRTAIFYAAQGGDLIVQLLIGTQNVDF  SIRNKNKGNVKEFAKKAKLKDQIVAALSN</p>
<i>oryL</i>	<p>ATGCTTTCCTACTAGCCACTGTCTGCAGGCACTGCTCGGGTTCGCT  CCCTACCTACCAGCAATACCAGGCGTACTCCAGCCCTCAAGCACC  TCCAAGTACCCCAAGTACCCCAAGCCGACCCCAATCACCACACTGG  TCTCGTCATGCGGGGTTACAGTACCCGAGGTTGCTGTATTGATCG  CTACGGATCCCTCTGCAAGGCGAGTTCGAGCGCAAAGTACGCAACGT  GCTTGGCGACGCCACCTACATCTCCACCAACGCGCCGTCAGAACC  AACCTTCTCCGATCTGCAGAATGCCATTTCTCGTATGGAACCAATCG  GCGGCAAAGGCCATCTGGGTCCCAACCCGACGTCGATTTCAATGTT  AGCATCGAGGACTGCTCCACGAGGCTCCGTTGACTGCCCACTACT  AACGAACTGTACTTCTCCGCTTACAGCAGGGATTCTCCCTCAACTGG  TGATTAACCTGAAACAATGACCTCCTACTTTGGAAGAGAAGCTAGCCC  AGCCACCTATTTACGCCCGCACGGGAGCGGATTCCGTTGATGGCCTCC  TCTACCTCGCCACGATAGGCGGAAACGAGTCTTTCGCGGCTACACGT  TTCGTCACGCTGTATACGTTGGACCTATTACGGGAAAAAAGTCAAG  CTCTTCTGAACAATACTACTACGGGTATTATTTCAATGCAGTGGACGAT  TGACATCGATCATGAAGGTCAGATCTGGTTACGGACAATGGTAACAC  TGCCCTCTCTCCCTACCCTCCCTACTCCACTACCTACCCCTATCAA  ACAGTCCAGCTAAACAACCAATTTCCAAAACTCGAAAGATTACGGCC  GTCCCTGCCAAGTAAACACCTACGCCCCCAAAATCAACGCCGCCACCT  ACCGCTTCAACCCCAAAAACGGGCTCGTAACCATGGTGCAGCACACC  TCTCGAACCCAAACGACTCACCTTCTCCCGGACAACAAAACCGTCT  ATCTAACCGACACAGGCGCCGGTCCGCAATCATCGACCCCAACATCT  ACCCAGCACCGCACATCGCCTACAACCTCACGCGCAAAGCCGACCC  ATCTACCGGTACGACGTTGGCGCGTCCCGCAAGGCATTGCTGAATAAA  CGCCCCGTGACTTGTCCATGGAGTATGCGCCGGATGGAATCAAGACT  TCCCGGAAAGGGTATTGGTGTCCGGCAGCGGGAAGGGGGTGGTTGT  TTGACGGATGAGGGGGAGCCGTTGGTGAGGGTGCAGACTAATTTACG  GTGATTAATATTGCGTTTTCGCGGGGCGGAGAGGGATGAGCTTGGCT  ATTGGGAAGGGGGTGTGGCGAGGATTAGGTGGGGTTGAAGGGGTC  TTATGCTTGA</p>	<p>MLSYSHCLQALLGVASLPYRQYQAYSSPQAPL  QVPVQVQAGPPITLVSSCAGFSYPEVACIDRYG  SLQGEFERKVRNVLDGADTYISTNAPSEPTFS  LQADFLVWVNSAAKAILGNPHVDFMFSIED  CSHEAPVYVPTNELYFSRLQQGFLPQLVINLN  NDPPTLEEKLAQPPIYAATGARFRDGLLYLATIG  GNESLAGYTFRPLGLYTLDPITGKTQALLNNYYG  YFNAVDDLIDHEGQIWFDTNDYGRPCQVNT  YAPQINAATYRFNPKTLVMTVDDTLLEPNGL  TFSPDNKTVYLTDTGAGSIIIDPNIYPAPHIAYN  STRKGRTIYAYDVAPSRKALLNKRVPVLSMEYA  PDGIKTSREGYLVSATGKGVVVLDEGEPLVRV  QTNFTVINIAFAGAERDELWAIGKGGVARIRW  GLKGSYA</p>
<i>oryM</i>	<p>ATGACCGTCAAGACTCCACGCCAGAAGGAAACGCTACTGCAGAGCT  CTGCAACTGGGTGACAGAGCTCAAGCCCTCAGACATCCCGCAGATGT  CCTTCAACGAGCCAAACATTTGCTGCTGACGGCATCGCCTGTGGCCT  GGTCCGATCTCACGTCCCGTGGTCCGAGCAAGCGGCCAAGGCCATCGA  TGACTATGAACCGGAAGGATATTGTAGTGCATAGGATACAACCGGGT  ATCAACTATCAAATATCCACCAATGAATGATTGACTAACCGGCAACTA  GCCATACGGCCCCCAAGCAGCGCCATTCTAACGTTCAATTCATCCA  AGCCGTAGAAATTAGATGATTACCAAGTCCCGCACCGCTCCACTCCGC  CAGTGTCTCTTGCCTGCATTATTCCGCCGACGGGAAGTGCAGTCCAA  GGACACCCGAAGAGCGTGGTCTCGGACTCGATTTCTCGTTGCCT  AGTGGTGGGATTGAAACGGGACCACGAGTCCGATCCGCCATGTACG  GTGAGATCTGCTTTCGCGGGGATGGCACTCAGTCCCGTCTTCCGGCT  TCCGGCAGCGCAGCTGCGTCTCGAAGCTTGGGCTCAGCCAGA  TGACACCGAGTACGCGTCCGGATCGCCTGCACACAGCGGGCGGGC  TGATGGCAGCACAGTACGAAGGAATGGTGAAGCGTGTACAGCACGG  TTCGCGCTCGCAACGACTCTTCCGGTCTCTTGGCTCGGCAGGAT  ACGTCGGAATCAAGAAGGTGTTTCGACCCGACGATATGGCGTTCCCTCA  CCATGTTACACAAGGAAACGGCCGACTCCGAGTATAAGCCGGAG</p>	<p>MTVTDSTPEGNVTAELCNWVTELKPSDIPADVL  QRAKHLLEDGACGLVGSHPVWSEQAQAAID  YEPEGYSVIGYNRRYGPQAAAILNGSFIQAVEL  DDYHSAAPLHSAVLLPALFAAAEVQSKGHRK  SVVSGLDLFLVALVVFETGPRVGSAMYGADLLS  RGWHSVPVFGSPAAAAASSKLLGLSPDDTESAV  GIACQAGGLMAAQYEGMVKRVQHAFARN  GLFGALLARDGYVGKIKVFRSRYGGFLTMFTQG  NGRTPQYKPEEVTALGKEWQTTNIRVKLHAC  VGGCHGQIEALEKLQRNYPDRFAVDQLHNIRR  ITVSLSEPVFAHDGWAPERPLTATGGQMNA  YIGAAQLVYQVLLDQFEPHALDSDAVWVSLID  KTTCVHSEFFDKPGLHLCGARIVVEFNDGETVED  VVAMPKGFDPPIITDDEIREKWRKLASSVIDSERL  QRIENSVLSLETSADVSELLALISGEL</p>

	<p>GAGGTAACGACCGCACTGGGGAAGGAGTGGCAGACGACGAATATCCG  CGTGAAATTGCATGCCTGTGTGGCGGCTGTACGGACAGATTGAAGC  CCTGGAGAAGTCCAGCGGAACTACCTGACCGATTGTGTGACCA  GCTGCACAAATATCCGTCGCATTACGGTTTCCTGTCTGAGCCGGTGT  GCGCACGATGGTGGGCCCCGAGGAGCGGCCGTTGACTGCGACTGG  CGGGCAGATGAACGCGCGTACATTGGTGCCGCGCAGCTGGTGTATGG  ACAGGTGTGTGATCAGTTTGTGAGCTCATGCTTTGGACAGTGTATGCC  GTCTGGAGTCTCATTGACAAAACCACTGTGTTCATAGCTCGGAGTTCG  ATAAGCCAGTTCATCTGTGGGGCACGCATCGTGGTTGAGTTAACG  ACGGGGAGACTGTGGAAGATGTGGTGGCCATGCCGAAAGGTTTGATC  CACCCATACGGACGATGAAATCCGTGAGAAGTGGCGCAAGCTGGCG  AGTTCCTGTATCGACTCGGAAAGACTGCAGAGAATCGAAGACTCGGT  CTGTCTTTGGAGACTTACGCTGATGTGTCCGAATTGTAGCTCTGATCA  CGGGTGTAGCTGTAG</p>	
<i>oryN</i>	<p>ATGGCGGTAGCTGAGTACCAATATTGTGTCTACGGACTCTTACCCT  CCCCTCATCCGGGTAGTGCATATCATCGAACTACCACATCGAAA  GCCAGAAAGTCTCTTCAAACCGCGAGCCAAAGCGGATCCAAACCTA  GTCACCTGGGATGGACCGGATGATCCAGCCAACCCCAAAACTGGTCC  TTGCGATACCGGGCGTTTGTACAGCCATCTGGTCTATGGAACCTCT  GCACATGTATCGCCAGTAGTATCTTACAGCAGTGGAAAGTGGCCAAATCG  CCCAACGGTTTATGTGCGGAGTACGGTGGTACACTGGAATCAGCT  TGTTCTTGCTGGTAGGTCGTATCTATCATTCTTTTCTGTCTATGTGAA  AGACTGACTAGATAGGGTTACTGTTGGTCCGCCCGTATGGGGTCTT  TGCTGAGCGATTGGGGCTAAGTGGCCATGGTTCATCGGTATGGCTCT  TTTTACCATCTTCTGTATACCGTGGCGTGGCGAAGAATTGTCAAACG  GTCCTCATCGGTCGGTCTGACCGGAGTCTTGGCGCGGCTCCCTGT  CTCTTGTGGAGGTTTCTTGGTGGATATGTGGAATCCCGCGCAACGTGG  TGTGGCGATGGCATGTTGTATCGGCACAATCTTGGCAGTCCGGTGTG  GCCCTTTGATGGGTAACCTTATCGTGGAAAGCTATCTGGGGTGGCGGT  TCACACAATGGCTCAGTTGCATCATGGCGGGTCCATGTACAGTTCTGGT  GGTCTTTGGGTGCCCCGAGACATTTGCCGGTCCATCTGCGCAAGAA  GGCTGCAGCATCCGCAAGGCGGGCAACCCGACGTCCACACGGTGT  ATGATGGGAAGCAAAAGGGAATCAAGGATATATTCTGCATCTTCTTGC  TGAGACCATTTGGTTAGTACACTGTCCCTCGTGTGACTCAAGACATGCT  AACAGTGCACAGCACTTTTGGTTACCGAGCCGATTCTTCTGTGGTCA  TATCTACCAGGTAAGGAAAACCGCTATAGAACATTACATACGATGTC  CCTGACAAATGTAAGGCTTTCATCTATGGCATCTTATACCTCGTGT  CGTTTCGTACCCTATCGCCTTCCGGAAGTACGTGGTGGTGGTGGGA  ATCAGCGCCTCCATATATCGGCATGATGGTGGAAATCTGATCGGTT  GTGCCATTGGTGCATACAAACCGGACGCAACTACGACGGGAACAAA  GCCGTGGTCCCGGAGCAACGCTGCCCTCATGATCGCGGGAGGATGC  CTGCTCCCCGTCGGACTTTCATCTTCCGCTGGACATCCAACCCCAACA  TCCACTGGGCTGGCATGGTATCGGAAAGTCCCCCGTGGCACAGGCA  TGATACATGGTCTCGTGCAGTGTCTGAACTACCTAGTTGACGTGATCCC  GACCATCGCAACAGTGGATCGGCGCAATACCTTCGTGGCTAGCTT  CTCGGCGCGGCTTCCCACTCTTCCGACCTTTCATGTATCACAACCTT  GGCGTGGCTGGCGTCGAGTACCTCGGTTTATCAGTATTGCGATG  ATCCCCATCCCCGACTCTTCTATCGGTATGGTGTCTCGGATTCGGTCTG  GGTCAAGAATAGCAAGCACAGTGA</p>	<p>MAVAELPNIVSTDSSPSHPGSRLSSEPTDIESQK  APSNAEPKTDPNLVTDWGDPPANPNQNSWFA  YRAFVTAIWVYGNLCTCIASSIFSSGSGQIAQRF  HVGSTVVTLGISLFLLYTVGPPVWGPLSERFGR  KWPMVIGMALFTIFCIPVAVAKNLQTVLIGRFL  TGVFGAAPSLVGGSLVDMWNPAQRGVAMAC  CIGTIFGSPVLAPLMGNFIVESYLGRWFTQWLSC  IMGGSCTVLVVFGLPETFAGSILRKA AAIKAG  NPDVHTVYDQKQKGIKIDIFVILLRPFALLVTEP  ILLLVTIYQAFIYILYLVFVSYPIAFREVRGWSLG  ISALPYIGMMVILIGCAIVVIQTRRNYDGNKAV  VPEQRLPLMIAGGCLLPVGLFIFAWTNSPNIHV  AGMVIGSAPVGTGMYMVVQCLNLYLDVYPTI  ANSAIGANTFVRSFFGAGPFLGPFMYHNLGV  AWASSTLGFISIAMIPVFLFYRYGARIRSWSKNS  KHT</p>
<i>oryO</i>	<p>ATGACGGCCCGGACCCCTAACAGGGCGACTGGTGGCCAGAAAATGC  AAATCCCAGTGTTCGAGACCAAACGACGAGGATCAGGGGAACGGA  GTGAATCGCCAGCCATACCCAGCCTTACCAACAAGAAAACCGCCGCG  TCCCAACCAGACAACACTCCAGTCTGCTGCAATCAGTGTGCGACA  CGGAAGATTGCTGCGACCGACAGCAACCAAAGTGTCCAATGTGCG  CGGGCGGATGTCGAATGTGACTTGTGCACTACCCGAAGCGCGTGCAG  CGCACAAACAACCTCTAAATGATTTACGCGGTGCTGTCGCCCGCCTC  GATCGGGTGGATAATTGCTGGCGAAGCTATCGGACGAGTGCAGCA  ACAGCAGCATGTGGTGTCCCACTCCCCGGTCCCATCGCAGGTGGA  TAATCCCTGGGGGGCTCCGAACCCGACGCAATACACCACGTATAC  TCCGAAGAGCTCCACTCGTGGCGATCCCCCACTGATGGAGGTGGA  CGGTTCCGAAGACTGCGATCCGGAGATTCCCAACGGCGATCTGTCGA  TTTTGACCAGGGCGGCAACGCTGCTGGACTACCCGGCCGATTTGTC  ACTGTTAAGAACCTGCAGCGACAGATTACCCGGTGGCTGACCAAGGA  TGTCCCGCAAGGATCGGAATTGTGPGAGTGTGCTGCGCAACCGG  GTTCAAAGCAAGTTTGAATATCAGCTGGAGCAGTTTCCCTTTGGCGG  CCTCTGTACGAACCCGTCATCGTGTGATCACCAGCCATCAGTAC  ACCGCCTCGTACTATTAGAGCTATCCTTGGATGGTCTCTACGCCAT  ATCAATATCCATACGCTATCTTGCAGCACTCTCTGCGGAAAGCC  ATCGATACCCACTACAGTCAATTGCTGCGTGAACCGCGATCGGTGG  GCCCTTACTTTTACCAACATCATCTTGTGACGGTACCCCTGGATGCTC  GTGTGCTGCGCAACTGCCTCCATCTAGTACGATGAACGATGATA  TGCTCCCTCCTTCTGAAAAATTGCGATCGAGCATTGGCGGATCTGAA  CCGGTTTACTGCGCCATGTCTAATCAATGTTTCAAGTGTCTGTACTCTG  GTAAGGATGCTCATCAACTTTCCTGAGCTTATATACGAGTATAAAAA  ATTTTGAAAGCAAGCTAATCCGTTGTGTACAGGCTCTCGTGGTAGGG</p>	<p>MTARTPNRATGAPENANPTVRDQTTQQDQGER  SESPAIPSLTNKKRPSQPDNTSSPACNQCRTRK  IRCDRQPKSCNRRADVECDFATTPKRVDRT  KQLLNDVFSVVARLDRVDNSLAKLSEQLQQQQ  PCRSCHSPVPSQVDNPWGASEPAAIYTTYTPKSS  TSCRSPHLMVEVDGSEDCDPEIPNGDLVDFDQ  GQRLLDYPAALSFLKNLQQRITRWLTKDVPQGS  ELWQVIAQQPGFKASLEYQLEQFPFGGLCHEPV  IVSDHRPISTPPRYLLESLDGFRLHINIHTPIFDD  SSLGKAIDTHYQSLSAGTDAWALFTNIIIITV  ALDARVARATASHLVSMNDDMLPSFLKNCDR  ALADLNRFTAPCLINQVLLTLALVAREFYGSV  VFEKVCQAVCQVARSTGLHRAHGARSMRWEK  MPERERLFWVVYTMKQRAFLTGQPCDLYLFD  SDIQLRSCGERAPFLRLNAAYVHMMTIWEQIFI  NLYSSRAVLAGAADRSRQVQQLWGLSNEWNI  KYHALLSSPILEKMA DLAPMQLELKYCFMVSQ  VLVHRCDRNARSQQRYRDPARSALKLIAQVAG  DHRITLARCAV LARMFRNYPLVAVHDLFSFCL  TDGEPDSTEDGQLIHETRRHLELLHYADFPQAY  FARLEVGLKWCTDMLDTIKDCLSRSAVAGDW  GPMDSSTGLSDRTPPSESELSSIPDAWASLNL  PMSRDEMLCGLSPSPSEGLLDQPSAFGLTSS  TGDSTVPAFAQQGDNP AVTMMHPSMWVPAEVP  CNSSEPLDFEPTRSIMS</p>

	<p>AATTCTATGGTAGCGTAGTGTGGTAAAGGTTGTCAGGCAGCTGCGCA  AGTGGCCCCGCTACGGGGCTCCATAGGGCTCATGGAGCACGAAGTAT  GAGATGGGAAAAATGCCTGAGCGTGAACGGCTGTTCTGGGTGGTATA  CACCATGGATAAAGCAGCGAGCCTTCCTAACAGGCCAGCCCTGTGATCT  ATACTTATTCGACTCCGATATCCAATTGAGGAGCTGCGGGGAGCGTGC  ACCATTCCCGTTGCGGCTCAACGCCGCTACGTGCATATGATGACGAT  CTGGGAGCAGATTTTCATCAATCTCTATTTCCCGAGCTGCTCTCGCC  GGCGGGCCGATCGGAGTCGCCAGGTGCAGCAGCTATGGGGTTCATTG  AATGAATGGAATATCAAATACCATGCGCTCCTAAGTTCGCTATTCTCG  AGAAGATGGCTGACCTAGCGCCATGCAACTCGAGTTGAAATACTGTT  TCATGGTGAGCCAGGTTCTCGTACATCGCTGTGACCGTAATGCACGCTC  CCAGCAGCGGTATCGAGATCCCGCCGCACTGCGCTCAAATCATCCG  TCAGGTCGCCGGGATCACCGTAGCATACGCTCGCGCATGTGCCGT  CTTAGCCAGGTTTGTGTTTCGATCCTGTCCAGGCTTCCGTGAAGTCGCT  GACCACCCCTAGGATGTTTCGAAACTATCCCTCGTTGCTGTCCATGAT  CTTTCTCTTTCTGTTGACAGATGGCGAGCCTGACAGCACGGAGGACG  GACAACTATCCATGAGACTCGCCGCCATCTCGAGCTCTGCACTATG  CGGACTTCCCTCAAGCGTACTTTGCCGACTCGAAGTCGGGCTGAAAT  GGTGTACCGACATGTGGATACCATAAAGGATTGCTGTCCCGCTCTG  CGGTAGCCGCTGACTGGGGCCGATGGATGGCTCTCGACCGGCTCT  CCGACCGCACTCCCCCTCAGAATCTGAGCTCTGTCATACCCCCGG  ACGCGTGGGCTCGCTGAACCTTCCGATGAGCCGCGACGAGATGCTT  GTGGCCTTAGTCTTCACTACCCTCAGAAGGCTGTTGGACCCTCAATT  TTCTGCTTTGGATTGACCACGTCGTCTACCGCGATAGTACCGTCCCG  GCGTTCCGCTAAGCGGTGATAATCCCGCGGTGACCATGCATCCATCA  ATGCGGTACCGGCTGAAGTACCCTGTAACCTGTCGTAACCACTTTTCG  ACCCGAATTTACCCGAAGCATAATGTCATGA</p>	
<i>oryP</i>	<p>ATGATTCTACCTGCAGATCCAATATTTTCGCAATTGCTTCTATTGCGCG  AAACAGCCCTGATGAAGTCGATCGATGATCGAAATCTTCATGTCCA  GGCAGGCTACAGCCATCTCCTCATGATGCGGTTCAACTCGCACAGCA  GTTGCGAGATAGCCTCTCACAGGGCCCTAGTACTGTCGGTAGTGCCTTT  ATTGGGATCTAGCTCCAACCGATATGAATCTACAGTAGCTTCTCTGG  CAATTCTCGCCGTTGGAGGTGTGTGTGTGCCCATCTGTAAGTTCAAA  TCCAAACGTTGCTAGGAATATAAGCGTGCAAGATCTGATTAGGTCAAC  AAATTATTACAGCGCGCGTGCATTTAGAGGAATTAGCATATACTTT  GAAACAATGTTACGCCACGTGTGTTTATGTCGGTCCAGCACCAAGA  GACAAAACCTGGCCACACAACCTCAAGAGCAGACAGGAATCTCAAAC  TTGCGATCCAGTACTGTCCCTGGCCGCTCCCCCATGAGTCGTATAC  TCTAGATGAGGATTAATCCATCAGACGATTACCTGCCTTCTGTCT  TCACTTCCGGGACCACAGGGGCCCTAAAGGTGTTCTGCTGCTCGAA  GCTATTGTACGCCAAATCTCAGTCCAACAGTCCGAGTTACCGGATG  AGCTCTGTCTGATATATGATTCTATCTGCTGGTCAACCTGTTTTATTCT  GTCTGTCCACATTCTGCGGGGGAGCGAGTCGAGCTACATGAGCTT  GACGCCCGTATGATTTGATCTGGGATCGGTTCCGGACTGTGAAATCA  CCAAGATTCACTTCTCCGACCTTTGGTATACAATGATGAAAGTGTT  TCAGGAGCCATCTCTAAGCTTCCCGAGCCTTCTGTCCAGGCATATAT  CGGGGGGCCAGTACATTGCAACCCCAATTACCTTGGGTGGAATCTT  CCAGTCCCGTCAAACAGTCTGGCTGAATCTGCGGGGAGGGCGGCT  ATAAAGGTGATATATGGGAGTACTGAAGCGGGCCTCCTACTGTGGCC  GATCCGGAGCGTACAGCGAGTGAAGAGGTATGTTACTATCTGAGACG  CTCGTCGCTCGGATCCTGGCTGACCTATTGCAATGTGGTGGTCAAT  AGGCATCTATTGGGTACCGGCACCGAATGTCACAGTCAAAGTGTCCG  ATGGAGATTCCGGAGAGTGTCTGTCAAAGCTCAAATCTTCTTACA  GTAATACTACCCCCCGACCCCTTTATTATTCTGTACCGCACTACT  ATTGCTTTATGCCATGGTGAACCGTACATATGTTGATACATAGCCTGC  CTCTCTTTAGATACCTCAACTCTCCGGAGTCACTGCATCGTGCTTCG  ATCCGAAGGTTCTATAAGACGGGCGATTTAGTCAACGACAGGGA  AAGAACTCATCTCCGAGGTAGATACAAGGCGGACTGTAAGTGTCTG  ATCCCGTATCCTCATTGCCATGAACCTGTTATGCTCATAACAAGTT  GACATACGGCTGCTGAACCATGTACCTCTAGTTTTCAAATCTGGGATC  ACAAGATCCCTAGGCTCATGTAGAGTCTGTCTTTCAAGTCTCCCTA  TATTGAGGAAGCTCATATCCTCCCTGTTGAGATGCACGATGCGATAA  CCGTGTAGCAGCGTGTACGTTCTGCCAGGACACACGTTGTGTTAC  ATTACAGCATCAGGAAGATCTCTCAACCATGCTTCCAGTTTATCA  AATGCCGACATTGCTTAGGATTTTGGGTAAGGGGATGAGGTGCCTCG  CACATTCTCAGAGAAGGTTGCAATGAAAAAGACTGTGGAGAGGTTCTT  TCCCCGATGGAACAATGATCACTTTATGGACGATAGCATAGAAGTCT  GGGCATCAAGGAGATTCTACAGTTCGATACTACAGGCCATTGGAGCT  AGTGGAGCTATGGTAG</p>	<p>MILPADPIFSQLLIARNSPDEVVIDDRNLHVQA  GYSHLLHDAVQLAQQLRDSLSQGFSTVGSFAFIG  ILAPTSYESTVASLAILAVGAAGASLEELAYTLK  QCSATCVLVGSQHQOTKLATQLQEQTGILKLAI  PVLSPGRPIESYTLDEDSIPSDLLPAFLFFTSGTT  GAPKGVLHARRYLYAKFSVQOSELDELCLIYD  SICWSTCFISVLLHILRGERVELHELDARYDLIW  DRFRDCEITKIHFSPTSWMKVFQERISKLPE  PSVQAYIRGAQYIRTPITLGGILPVPVKQFWLNL  RGGRIKVIYGSTEAGLLTVADPEASASEEASIGS  PAPNVTVKLSGDGSGELLVKAPTLQLYLNPSPE  LTASCFDSEGFYKTGDLVERQGNFIFRGRYKA  DFFKFDHDKIPRLHVESLSSLPYIEEAHILPVA  DARCDNRVAALVRLRQDHTCVTLQSIKDLST  MLPVYQMPITLLRILKKGDEVPRTFSEKVAAMKKT  VERFFPRWNNDHFMDDSIIEVLGIKEILQFDTTG  PLELVELW</p>
<i>oryQ</i>	<p>ATGCGTCTTGGCCAGCCATCGCCATCAGTCTACCCCGTGTGACACCC  CAGAAGGCTGTGAGATCGATGGCTCCTGGGTGCCAGCGGCTACTAAG  TCGGCGTTAGCCAATGGTCCGATACCGTTCGGAGCGCAATTCGCGC  GAGCCGATCAGTTTCTCCCGAAAGGTGGTTCGGCAAGGAGAAGAA  GAGTCTTTCATCAATGATACTAGGCGGCAATTCAGCCATTGACGACCG  GCCCGCAAATTCCTGGGAATGAAGTAACTATACCTATGCCATGCA</p>	<p>MRLWPAIAISLPRVTPPEGEIDGSWVPGGTKV  GVSQWSAYRSERNFARADQFLPERWLPPEGEES  FINDTRAQFPFSTGPRNCLGMNFAAETRIIFA  RLLDFDLELLTGRDEWEAQKVIWDRCLPLYV  RGFGRQTRHKRPANLWLPWDTHGSSASNERK  LADLLS</p>

	<p>GTTCCGGGTTAACACCGTTTTACTAGTCGGCTAACCGATTCCCTAGTTTT  GCCCCGGGCGGAGACTCGAATTATTTTTGCTCGCTTGTGTGGACTTTG  ATCTAGAGCTTTTGACCCGGCGGATGAGTGGGAGGCGCAGAAGGTTT  ATATCATCTGGGATCGGTGCCCCCTCTATGTTCCGGGTAGACAAAGCGA  AGAGACGATGAAACACAGGAGCTGCAAAGAATTTATCTGGAGGTTTC  CTAGTCATACTGCATAGACTTCAACTAAATGCTTCTCCATGTCATCT  ATCATATAAAGCTCATTATATTTTTGGAACCAACTACTAGAGGCGAA  ACCCCCCTGACGTTTTCTCGGAGTTCCTCATATCGTGAAAACTCATA  TCATTATATTTAAATCTATTCCTTAATTAATGTTGACCCTTTGTGACATA  TATTGCCGTAGTTTTATCAACAAAGAGGGGATGTTAATCAATATCTAT  TGCCGAAAGTAGACGTTTCTTGTCTAGCTGGAGAGGGTCTGACTGAG  CCTGCTGAGATAAGATATCAGGAAGGATTTCTTGTGAAGAATGCAAG  CGGCATCCCTTCTGACTGGTCTTAGATCAGCACGGTCTGAGGGTGT  TTTTATTTATTTCTTTTTCTGAGTCAGGACGACATGAAATGAGACCATG  CACGCGTAGGAAAAGGTACAACCGAAGTATGACAGGGTGCAACA  TGTTACCGGAGGACAACAACGCTCCGACGCGAGTAATTTGGCATCCGA  AAGTAAATTTTGGCTGAGACATAGCCCAATTTGAAGATTTGCAAGCT  ACCTACATTCTGAGACATGCCACGCCAGGTAAGTAGAGGCTACCGT  CAGCAATGGTACTATAATGACATGGGATACACTTTTACCGCCAATC  ATTGGTCTGATGCGTTATATTATCGTATTACCGATACACACTCTGACA  CGCTCATGGTGTGGTTTCCACGTGAGGGTCTAGAAGTGAAGCTGATT  GACTGACACTCAACTGAATGCTTTAATGGGAATCGCCCCGACCGCA  AAACCCCGTTACGAACACTAACTATTACTCTGCAGGGATTCCGTC  GACAGACTCGCCACAAGAGGCCGCTAATCTGTGGTGGCCTGGGATA  CCCACGGCAGCTCGGCTTCAAACGAGAGGAAGCTGGCCGACCTTCTGT  CGTAA</p>	
<p><i>oryzas</i>  <b>B</b></p>	<p>ATGGCCTCCACCCAGCTCTGGTTCCTATGATCTTGCGATCGTGACAC  CCACGGAAGACCATTCTGTTGAGGTCTTTTTCTTTCCAGGGGAACGT  CCAGCAAACATTCTGTATCGACACAGGACGGTCTTCTCGGACCA  GCAAAAGGCCTCTTCTCAGAGCTATTGAAAGACCAGTCAATCTT  GGCTTGGTCTTTGAATTTTGAATCTCTGCTGGATGAAGCTTGGCCG  AGTCCCTAGGAGCGTCTCTCGGCGCATCGAGTACAGTGCCTGAG  AGACGGAATATCCACGACCTGATTGTGTCGAGCCAGAGGCCAAGA  ATATCATAACGACCTACTACCGCGCATGCGGTGCGCGTCTTAACC  CCCGTCCAGCCCCAGTGGACTCTCAGACCGGTTAATATTGAAGCAC  ACCGCATTTGATGGCCTTCCGGGGCAAGGGTCTACGAATCTGTCTG  TGTCGACGAACTGGCTGATCTATACTACTGTACCAACCCTTGTGGAG  CCGCTGATCGGTCAGTAGCGCCAGCCCTGGCAAGCCTTTCTCGAGAA  CCGTCCAGCTTGACACTACTTGGCCGTGAGATTGATCTTACTCCT  GGTGTACTATTTCCGAGTCGCGTCCGGACCGGGCGTTACAGCTACCC  CCGAGTCAGCTTCCAATCATTTGGCTTACTGATATGGCGCATTACTA  TGTGCTTGGTAAATTAAGTCCGACTCCGATCCCCGAAGCGACTAAGGTC  AGCGCTCAAAGCCCTACGGGCCACTCGAAGGAATATCGTGGCTGC  AGCCGTCCGCTCAAGCCGACAGCTGGGCGTCTTTTGGCGCAGGCACA  ATGGGCCATTCCGCTATTGTTTGGATGGGTTATGAATGCCACACAGCC  GTCTCTGCTTCTCCCTCTCATCCGCGCCATCAGGGATAGTATTGACC  ACGGCGAGGGATCCCCCTCATGGCTCCTTAGTGTCCGAGGCTCGCGT  CGCCCGCTTGTATGCGTTAATCAGGACTGCAATCGCGTACCAGA  ATCCGAACACCTGTCCATCGGATTGATCAACTGAGCGGAAACATTTG  GGTAGCCGTTCTCCAGCTTCCCTCCGCGGTTATGTTTGGGTTGCGA  GAAATGAAAGCCGATGATGGTCAAGACCAAAGTCCGGTCTCTTCCGT  CAGCGCAAGCCTGTGTCCATCATACCTTCTCTCTGTTAGCGCTCCTT  CCATTCCAGCCACTCCGTGCGCGTGCAGACCGCGTCAAGGAACCGGT  TCCGGATGCCTCATCCCCCAAGTGGGGGATCTCTCACTGCTGTTTAT  CATACACGACCGCCAGGACATGCGCGAGATGTTACGCCCATCGAA  TAACCTGATCCATAGCCTGGTCGAGGACAGTACCTGTGAGACCGTCGA  TTGGCCAGCAACCTTGAAGTATCAGTTCACAGCCGCTTCCACATT  GTGCTTCTCAGCAGCAGCGTCTCAGTGTATCTCGATCCGAAATGTGCG  ATGGCCGTGGAGTTCGATCATCGCAGGAACAGTGTAGCCCAACCGG  ACCCGCGCTTCTCGGTGGGAAAGCGGAGTTACTAACCCAGAAAGCCCT  CACAGGCGCAACCCCTTGGGCGGAGCTCTTAAAGCTCGACTCGTGG  CCGGCCAGACGCGCAGGCCATACTTGAACGCGACTCAGTCAAGTTCG  TGCAAGCGCCCTATCATCACAGCTGGTATGACACCCACCACCGTAC  ATCGGACTTCTGTCGCGCGGTGATGACAGGCTGATCAGTTCAGTACG  TTGCCGCGGTTGTTACTTTGACCGGCTGGCATGACAACAGCTATTG  AGAACTAGCGGCCACGTTCCCCCGGCGCGGCATCACCTGCAATC  TCATCTATGCCAGCCCTATTGATGCGTTCAGATCCCCCTAATTCG  CAGCATGATCCAACGCGGAATCCCATAGATGGCTTGAACAATTGGAGC  GGAGTTCCTCGCAAGATGTTGTTCAACGAATGGATCCAAACACTGGG  GATCAAACACCTTCCCTCAAACCAGGGTCCATCGTGTATATATGA  GGTGTGAAATCGTAAAAAGACCCGACCTTCCCAATATTTTACA  GTGGACCGGAGCCGCGGTGGTGGCCATCACTCCTGTGAGGACTTCCA  CGAACCACTAGCAGACCTATCGGATATCCGCGCTGTTCCAATTTG  TATCTGTTTGGGACGTTGGGTTGGCCAGGCGGACAGTACACCC  TATATCACGGTGAATGGTCTGCTATTCCGTCGCTCCGTAATGCCCT</p>	<p>MASTPSSGSYDLAIVPTEDHLSRFSLSQGNVQ  QTFLVSTQDGAFLDQQKASFLQSYSKDQSLGL  VFELQFLLEACPAPLGAFLGAIESQCVRDA  NIHDLIVSEPEAKNIIRTYRAHAVAGLNPRPAP  SGLFSTVNIIEAHRILMAFGGQGSNLCVDELA  DLYSLYQPLLEPLIASVAPALASLSREPSTLQHYL  GREIDLYSWLTIPESRPDRAFTATAAVSFPIIGLL  DMAHYVVLGKLLDSDSPKRLRSALQGLTGHSQ  GIIVAAVAQADTWASFLAQAWAIRLLFWM  GYECHTAAASPSSAAIRDSIEHGEGPSWLLS  VRGLRSPALDALITDCNRRLPSEHLSIGLINTER  NIVVAGSPRSLRGLCLRLREIEADDDQDQSRVFP  RQRKPVVHHTFPLVSPAPFHSLSLRAAADRVKE  RFPDASSPQVGDLLTAVYHTRTQDMREMFSPS  NNLIHSLVEAVACETVDWPATLQVSRSKPPSHI  VLLSSRLSDLVSEIVDGRGVRIIAGTVLAPTDPA  VLGGKAEELLTKPSQAPTPWAEFLKARLVAGP  DGRPILETRLSQLQAPPIITAGMPTTVHWDFV  AAVMQAGYHVELAGGGYFDAAGMTTAEIKLA  AHVPPGRGTCNLIYASPHSIAFQIPLIRSMIQRGI  PIDGLTIGAGVPSQDVVNEWIQTGKHLKSLKPG  SIAAIEVEIIEAKKHPTFPIILQWTTGGGGGHHHS  CEDFHEPLLQTYRDIRRCSNLYLVVGSFGQAD  QMHPYITGEWSLSFGRPVMPDCGILIGSRMMV  AREAHTSPQAKELILAAAGVADSEWEQSFKKP  TGGVLTVOSEMGOPIHKLATRGVRLWHEMDK  TIFSLPRDKRVAAALNARKAEIIRLSADFAKPFW  GYNAAGDAVDLEDMTYTEVIARLIRLVVYVSHQ  HRWIDPSYRQLVLDFTYRTRLERVSNADYATDKL  DLSQPEQFVEQVQQLCPAATRRRLHPDDVRFLL  TICKQRGRKPVNFIPALDEDFEYWFKKDSLWQS  EDVDSIIDQDADRVCIQGPVAVQYSRRADQSA  REILDEIHHGLANHFEEGPSQSDRPSLAISEMVS  ARVTVTESNTHRIIRPTSESLPSVEDWQAFASQ  VTGSVRSAIMAEVLRGSQRQANPLRRVLEPRT  GQSIQIPLDGRDLRLVEDAKNRPLVHIKPSGDQ  EVAVDFFYYDFVETPGNLRFTYKFDKSLSLVEN  LDGRDDRVLKLYAHLWLGRADLSYHRLSEVFE  GEEITLSSDLHRHLHNLRLHTVPDASATNTNT  LPLEAIIIAAWKPLMEPLFVAELQGDLLRLVHL  SNSIRYTPGAAPLEVNDVVATKQSVRAVITKET  GKTISVEAQIFRSKTLVATVTEFFIKGSFSDYETT  FSHQDEAAIELKVQSAIDAEALLRDREWFLDDP  TQSLIDKTLVFRLHTVTRWKDQSTFTSLKTTGSI  YTKHWNGTEQKVGTVASEVVECHGNPVIDFLQ  RKGTVVQEKVPLKHPGLIDNGSRITRPLDNLAL  YSSVSKDYNPIHTSSVFARFADLPGITTHGMVYTA  AVSRAVTECLAADGETGRLRSFSAFVGMVLP  DQLTVIRIHEAMCHGRMVLVSAAYREGTDEK</p>



GTGATGGTATCCTCATTGGCAGTCGGATGATGGTCGCCCGGGAGGCGC  
ACACATCTCCGCAAGCAAAGGAATTGATCTTGGCAGCTGCCGGAGTGG  
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CTCGGGACAAACGAGTCGCTGCACTCAATGCACGCAAGGCTGAAATT  
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	<p>CCCAGCTGAACAATCCCACTGAATTGAAACGAGGCCGAGCAACCATC  CCGTTGCAAGGCATCGACGTTCCCTTCCATTCTGCCACCTGCGCTCCG  GGTGTCCGTCTACCCGACGATCTTAGAGGAGCGGATCCAAGCAGAGA  ATGTACAGGTGGACCGTCTAGTGGGCAAATTCATCCCAATGTCATGG  GAAAGCCGTTCCGATTGATCGGTCATATCTAGAAGAGGCCGAGCAG  TCACAGGGAGTCTGTGTTGAGGGAGCTGGCGCTAGCCGCTGA</p>	
<p><i>oryR</i></p>	<p>ATGACTATTCCAGCGGGCAGCACAATAATTGCCCTTCTATGACAAG  GTAATCGATTTGATCGTCGACTACGCCTATGACTATGAAATCGACTCCC  CAGCGGCCTGGACAAGAGCCAAAGCAGCTCTTATTGATGCCCTAGGTG  CTGCTATCGAAAGTATCCATACTAGCCAGAATGTGCCGCCATGATTG  GCCCGTCTGGCCCCAGACGGCCACGGTGCCAGGGGCTTCCGCTTGC  CGGGTACTCAATTTCAAGTGGATGCCCTCAAGGGTGCCTTTGACCTTGG  GGGAATGATCCGGTACCTTGACCACAACGATGCCTTCCCGGAGCGGA  ATGGGGCCATCCATCCGGTAAGTTAATACCCACTTCTACCGTCTGTCTG  TCCTGACCAATGACCAGATAATCTTGGCGCAATCCTCAGCACTGCCGA  CATCCTCAGTCGGGAGGCCCTCGCTCGTGGCAGCCCCGAGGAAGTCAT  CTCCATGAAGCAGGTCTCTACTGCTGATCAAGGCCTACGAGATCCA  AGGGGTGTTCCAGATCCGCAACCGCTTCAACAAGGTGGCCTGGATCA  TGTCATTTTGGTCAAGGTTGCCTCATCTGCCATGGTCTCTGGCTCATGG  GTCTATCCCGGATCAAGCCCGGGCTGTGGTCTCGCATGCCCTGGGCTG  ATGGTCATCCGCTGCGGGTCTATCGACAGGGCCAAATGCAGGACCTC  GGAAAGGATGGCCCGTGGGGATGCCTGCATGCGTGTGTGATTGG  CCAACCTGGTTCGATGCGGCCAGCCCGGTATCCGCTCTGCTATCACA  CCCCGCTGGGGGTTTTATGACGCTTGTACCGGGTCCAGACCTTCGA  GCTACCCCGTCCGTTACTAGCTGGGTATGGAGACAGTCTCTTCAAG  GTCTCGACGGTGAAGGGCACGGACTGACCGCTGTGGAAGCAGCATT  GACTATTGCAGAAAAGCTGGCTCAACGTGGGCTTCGGCCAGAAGAGG  ACATTGCAACATACGAGCTCGAACACAGGAGGCTGGAATGATTATCA  TCAATAAGAAGGGGCCGCTGCATAATGCCGAGATCGCGACCATTGCC  TGCGTTATATGGTCGCCGTGGTCTGCTCAAGGGCAGTCAAATCACAA  CTGCTGACTACCAGACAGCAGTCCCTGGGCTCGTGACCCTCGTGTAG  AAACACTACGCTCCATCACCACAATGGAAGAAGATCCGTCATTACCC  GGGATTACCATGATCCTCAGTGCCGACGGTGGCCAACGCATTGGAGG  TGACGCTACGGGATGGCACCAGTTGGAAGAATTGGTCCCGTCCCTT  TGGGTCATGTGCTGACCTGAGACTTTGCAGCTGGTCCGCGAGAAGG  CCCAGCAGAACTGGGTTTGAAGCTGTCGTCGAGAGGGTGGGGCAG  ATATTGGACACGGTCGATCAACCGAAGTTCGAGAAGATGGCCGCTAGT  GATTTGTAGACCTATTCATCCACAACCTGCGTCCAGCGCTGCATGA</p>	<p>MTIPAADDNNCPHYDKVIDLIVDYAYDYEIDSP  AAWTRAKAALIDALGAAIESIHTSPECAAMIGP  VWPQTATVPGGFRLPGTQFQVDALKGAFDLG  GMIRYLDHNDAPFGAEWGHPSDNLGAILSTAD  ILSREALARGSPPEVISMKQVLTALIKAYEIQGVF  QIRNAFNKVGLDHVILVKVASSAMVSWLMGLS  RDQARAVVSHAWADGHPLRVYRQAPNAGPR  KGWAAGDADMRAVHLANLVRGQPGIRSAIT  TPRWGFYDVLRYGQTFELPRPFTSWVMETVLFK  VSTAEHGHLTAVEAALITAEKLAQRGLRPEEDI  VNIRARTQEAAGMIINKKGPLHNAADRDLHCLR  YMAVAVLLKGSQITADYQDSSWARDPRVET  LRSITTEEDPSFTRDYHDPQCRSVANALEVTL  RDGKLEELVFPPLGHVRRPETLQLVREKAQQN  LGLKLSSERVGQILDVDPKFEKMAASDFVDL  FIPQPASSAA</p>