Upstream sequence^b $patS \rightarrow DIF1 \ score^{c}$ **Organism**^{*a*} Nos21 A<mark>TCCGGA</mark>TTTTTCCGC<mark>-</mark>TAAAAAAAGAA AGAGAATT<mark>A</mark>ATAG<mark>G</mark>G ... (562)... CCATTGATTTTTGAATA**ATG**AAGGCAGCA**ATG**TTA 5.2 AATCTTTTAACCTTTCT тт<mark>с</mark> Nos7107 AATCTTTTAACCTTTCT AAC ΤТ ACTATCCGGA ttcagc<mark>-taa</mark>aaaat<mark>c</mark>aagagaattaatagc</mark>g ...(567)...tcattgatttttgaata**atg**aaggcagta**atg**tta 5.4 Nos7524 <mark>taactatcceeat</mark>g<mark>t</mark>ttgagc<mark>-</mark>a<mark>aa</mark>taact<mark>gtagagaa</mark>c-<mark>aata</mark>ggt ...(570)...cattgattttgggattaaagcagata CT**ATG**TTA 5.5 CATGATTTAACTTGTCT TΤ GGA Nos3756 AGT AGGG ... (580)... TCACCGATTTTACGATTAGAAGGCA TTTT CATA<mark>TAA</mark>CTA<mark>TCCGGA</mark>TTTTTTAGC<mark>-</mark>ACTTAACTC TT**ATG**TTA 5.8 AAGCCTTTTACTTACCC GATG STAGAGAAA-Ana29413 TAACTATCCGGATTTTTTACC-AAATAACT TAGAGAAA-AA AGGG ... (559)... TCACCGATTTTAAGATTATGAAGGCA AAGCCTTTTACT CAT AGC TΤ CAT TTATGTTA 5.8 CTCC Ana7120 TAGAGAAA-AGTAGG ...(559)...TCACCGATTTTAAGATT**ATG**AAGGCAA AAGCCT<mark>T</mark>TTACT<mark>T</mark>CTCC<mark>C</mark>CGT AGC TTTTGCAT TAACTATCCGGATTTTTTACC-AAATAACT TT**ATG**TTA 5.8 **CylS7417** TCCTCTG<mark>T</mark>T<mark>AGT</mark>T<mark>TCC</mark>TGT TAGATAGTTTTC<mark>A</mark>GAA TT<mark>ATCCCTCT</mark>ACTAGCT (0)ACTTTTAGATACATTGGGGAATATTTT**GTG**AGC Nos29133 TTGACTGC<mark>T</mark>A<mark>AA</mark>TA<mark>ATCC</mark>A<mark>GA</mark>T TGTTGTTTAACTTTTTCTCTAC AGC TAGAGAACCAATCAGG ...(133)...TTTTTCACTTATTTTGGGTTGAGATA GTTCTCTTA ATGAGA CA**ATG**TTA 3.1 (8.5) TTTTE TAT<mark>TTAACTATCCCCATTT</mark>TTTCTCTAAATAACT<mark>GTAGAGAA</mark>TTA<mark>GTAGO</mark>G ...(595)...TCATTGATTTTTGGATAATGAGACAA Nod9414 AAGATCTAACTTTAACTACAATTT CA**ATG**TTA 6.3 **Tol7601** ... ATTTAGCAAACAAATTAAGGAAGGCT Cal7507 ...TCACTCATTCTTGAATAATTAAGATA CAATGTTA 2.3(3.1)ATACCTETAAAGATTTCOGACCAABGCETATECCACEAACCECEAACCECTTTATTTGCACAATTAEAAAAATTCGGCAAA ...(581)...TGATTAATTTTTGAATAAAAAAGATAACAATGCTA **Mch7126** (4.1)Has12170 ... AAAATATTTAGTAAAAGCTGGTAACTAAA**ATG**ACA 2.5 **Tol9009** ... AAAATGGCTAATAAAAACTGGTAACT 2.1 TGTGCAGAGTATATTCTCCGGCAAAATTTCCGGTGTTTAACTCHCCCCCATTGAGATAACAATTCCGCGGAGAAGTAACTCCCCCATGAGTATTTCTCGAGTTGAGATAGCCCAATGTTT 4.2 Cal336-3 ATCTAAATAAAACTATATT<mark>TCCCCCAT</mark>GATTACTGAT<mark>AA</mark>TCACA<mark>GT</mark>TT<mark>A</mark>TT<mark>A</mark>GTATGTAAC ...(717)...AACATAGTTTTATCTGTAGAAGGAGT Cal6303 AA**ATG**ATT 4.9 Cal7103 aaaacagtcaaaaa<mark>aaacetteat</mark>tgcacaagagccagggt<mark>gta</mark>attggacttgatgt(86)....aactattaattaaaatcgaggaaaga CTACCAGTTCGGAGAATTCTT AAATGATG 5.4 Chl6912 TAA<mark>A</mark> TTCAGTGTTTAAGA ATCCGGATTTATTGCC A<mark>A</mark>ACTTT<mark>GTAGAGAA</mark>TG<mark>A</mark>A<mark>TA</mark>C<mark>G</mark>G ...(236)...GCAACAATATTTGGGTAAGAGGAATA TTGCTA TTAAATTGTATTCA CCATGGAA 4.8 Chl9212 TTCA<mark>G</mark>TGTTTA TAGAGAATG<mark>A</mark>A<mark>TA</mark>C<mark>G</mark>G ...(234)...GCAACAATATTTGGGTAAGAGGAATA TTGCTATTTAAATTGTATTCA GA TCCGGA ACTTT CCATGGAA 4.8 TTATTGCC Fis3754 AAA TTCAGTGTTTC <mark>STAGAGAA</mark>TG<mark>A</mark>ATACG</mark>T ...(444)...GTCAATAAATTTAGATAAGAGAGTTAA AGTGGTTTAACTTTTATCAGC CTATCCGGATTTAATGTC -TG<mark>A</mark>GTTTT CA**ATG**CTA 5.1 Fis7521 AGTGGTTTAACTTTTAT TCCGGA ACA ... (77)...GTCAATAAATTTAGACAAGAGAGTTA<mark>A</mark>CA**ATG**CTA 3.1 (3.4) **Fis9339** aa<mark>atccggat</mark>ttcattga<mark>-gaa</mark>atttt<mark>gtagagaa</mark>tg<mark>aatacg</mark>g ...(443)...atcactaagtttaggtaagataaata<mark>a</mark>ca**atg**gta 4.6 ATGGTTTAACTTTATATCAAC TTAA<mark>G</mark>TATTC<mark>Z</mark> **Hap220** TTAG TAT<mark>TTCA</mark>AA<mark>ATCCGGAT</mark>TTGTTTTA<mark>-</mark>T<mark>AA</mark>ATTTT ATGGTTTAAGTTTATATCAAC CAA AAAT ... (437)...ATCACCTAGTTTAGATAAGAGAAATAATAATAATAATGCTA 4.6 Scy7110 ...AATATTTGTAAACAATACTTGGTAAAAAAATGACA 3.3 (<2) Tol521301 Scv61278 Mas10914 ...TAATTTTCGAAGTC**ATG**GGTGTAATC<mark>A</mark>AG**ATG**AAA 2.0 (<2) Tol511288 RicHH01 ...AGACAATCAGCCATTCATCATATATCAATATGTTA 3.2 (<2) **Riv7116** ... TAGTATAAAATAATTCC**TTG**AAATTC<mark>A</mark>AT**ATG**TCT **Mas008** ...TTAAATTTAGATTTGGGACATACATAATCATGAGA 3.2 (<2)

Supporting Figure S7: *patS* upstream sequences

^a Organism nicknames are associated with the full names in Fig. 3A.

^b Highlighting conventions are the same as in Supporting Fig. S5. In addition, possible translational start codons are rendered in red font. Sequences that are rendered in gray font are of interest but did not pass the DIF1 score threshold. The nucleotide frequencies are shown graphically in Fig. 7A.

The primary DIF1 score is calculated from a PSSM using the 54 DIF1 regions shown in Fig. 4 as the training set, on a log base 10 scale. The secondary DIF1 score (in parentheses) is calculated from a PSSM using the DIF1 regions upstream from *patS* genes shown above with primary DIF1 scores better than 4. A hyphen indicates the analysis wasn't done for that sequence.