

A

1 ATGTCTCTTCTGCCGATTTTGTAGACGACTCGCACTTTCTAAGACCATCTCGGCTCATAGATCAACATTTTGGTCTGACGTTGGATCCA
1 M S L L P Y L L D D S H F L R P S R L I D Q H F G L T L D P
91 AATGATTTTCAACCTTAACCTGTACCCAGGATGGTAATAAAATGTCCGGCAGGATATCTAAGAAATGGAGGCTCTCTCGCTCTCAA
31 N D F L Q P L T V P R M V I K C P A G Y L R N W R S S A S Q
181 CAAGACACCGGATCCACTGTCAAATGGACAAGGACAAATCCATGCAAGTTTGGACGTACAGCAGTTCAAACCGGAAGAAATTACCGTA
61 Q D T G S T V K L D K D K F H A S L D V Q Q F K P E E I T V
271 AAAGTTACTGGAGAAAAATACAATTACAGTGGAGGGTAAGCACCAGGAGAAAGAGGATGAGCACGGCCATTTTACAGACATTTTGTGAGG
91 K V T G E N T I T V E G K H E E K E D E H G H I Y R H F V R
361 AAATACGTTTTGCCCAAGAATTGCGATATCAATAAGGTAGAGTCCAAGTTGTCTTCTGATGGAGTTTAACTATGCGCGTCCGAAGATT
121 K Y V L P K N C D I N K V E S K L S S D G V L T I A A P K I
451 GGAGCAGTAAATCGAACATAAAGAAGTTCCCATACCATACTGGAGAGCCAGTCAAGGCTTTGGAAACAACCAAGCAGGAGATAAA
151 G G N E I E H K E V P I T H T G E P V K A L E Q P K A G D K
541 AAGTAA
181 K *

B

1 ATGGTTGACAGTTGGTATCGACTTGGGAACAACCTACTCCTGTGTAGGCGTGGCAGCATGAAAAAGTGGAAATCATCGCCAACGATCAA
1 M V A V G I D L G T T Y S C V G V W Q H G K V E I I A N D Q
91 GGCAACAGGACGACCGGAGTTATGTTGCATTTACGGACACCGAGCGTCTCTTGGGAGACGCCCAAGAACCAGGTCCGCATGAACCC
31 G N R T P S Y V A F T D T E R L L G D A A K N O V A M N P
181 AGTAACACCGTCTTCGACGCTAAGAGATTGATCGGCCGCAAGTATGACGACTCGAAGATCCAGCAGGACCTCAAACATTTGGCTTTTAAA
61 S N T V F D A K R L I G R K Y D D S K I Q Q D L K H W P F K
271 GTTGTGGACGACTCGCGGAAGCCCAAGTACAAGTAATGTACAAGGGTGAAGAAGACCTTCGCCCTGAAGAGGTGAGTTCCATGGTG
91 V V D D C G K P K I Q V M Y K G E K K T F A P E V S S M V
361 TTGACGAAGATGAAGAACCAGGAGGCTTATTTGGGCTCCTGTGAAAGATGCAGTCTTACGGTCCCTGCGTACTTCAATGATTTCC
121 L T K M K E T A E A Y L G S P V K D A V V T V P A Y F N D S
451 CAGAGACAAGCTACAAAAGATGCAGGTGTGATAGCAGGTCAAACGTTCTTAGAATAATCAATGAACCAACAGCGGCAGCTCTGGCTTAC
151 Q R Q A T K D A G V I A G L N V L R I I N E P T A A A L A Y
541 GGTGGGACAAAACCTGAAGGGGAGAGGAATGTGCTTATCTTCGACTTGGGTGGTACATTGATGTGTCTATCTTACGATAGAC
181 G L D K N L K G E R N V L I F D L G G G T F D V S I L T I D
631 GAAGGGTCTTTGTTGAAGTAAGATCGACAGCAGGCGACACATCTCGGGGAGAGGACTTTGACAATCGGTTAGTTAATCACTTGTCT
211 E G S L F E V R S T A G D T H L G G E D F D N R L V N H L A
721 GATGAATTCAGCGTAAATACAAGAAAGACCTCCGAAGCAACCCAGGGCTCTAAGACGACTGAGAAGTCCGCTGAGAGGGCTAAGAGA
241 D E F K R K Y K K D L R S N P R A L R R L R T A A E R A K R
811 ACGTCTCTCGAGCACCGAAGCCAGCATCGAGATAGATGCTTTATACGAGGTATCGATTTCTACACCAAGTTAGCAGAGCGAGGTT
271 T L S S S T E A S I E I D A L Y E G I D F Y T K V S R A R F
901 GAAGAATTGTGCTCTGATCTATTAGAGAACTCTACAACCCGTAGAAAAAGCTCTGATGGACCAAGATGGACAAAGGCCAAATACAC
301 E E L C S D L F R G T L Q P V E K A L M D A K M D A K M Q I H
991 GACGTGGTCTGTGGGCGGCTCCACTAGAATCCCGAAGATCCAACAACCTCCAGCATTACTTTAACGAAAACCGTTGAAGTGTCC
331 D V V L V G G S T R I P K I Q Q L L Q H Y F N G K P L N L S
1081 ATCAACCCGGACGAAGCTGTAGCCTATGGTCCCGAGTCCAAGCCCGTACTTACCGGAGAACTGATTTCAAATCCAAGACGCTTAA
361 I N P D E A V A Y G A A V Q A A V L T G E T D S K I Q D V L
1171 CTGGTTGACGTAACCTCCCTTGTCTTTGGGATTTGAAACCGCAGGTGGCGTCATGACGAAGATCATTGAACGTAACCGAGGATCCCTGC
391 L V D V T T P L S L G I E T A G G V M T K I I E R N A R I P C
1261 AAGCAAACCTCAAGTCTTACGACGTACGCCGACCAACCAACCGCGGTTACCGTGCAGGTATTGAGGGTGAAGGGCTATGACGAAAGAT
421 K Q T Q V F T T Y A D N Q P A V T V Q V F E G E R A M T K D
1351 AATAACTTGCTTGGAACTTCGATCTACCGGAATACCCTTGGCTCCTAGAGGGTTCCCAAGATAGAAGTACCTTCGATCTAGACGCT
451 N N L L G T F D L T G I P L A P R G V P K I E V F D L D A
1441 AACGGAATCTCAACGTATCTGCTAAAAGACACCGGCTCCGAAAGAGTACTAACATCACCATCAAGAACAATAAAGGCAGATTATCACAG
481 N G I L N V S A K D T G S G K S T N I T I K N N K G R L S Q
1531 CAGGATATAGACAGAAATGGTGTTCGAGGCGGAGAGGTACAAGGAGGAAGACGAACGACAAAGGAAAGAAATCTCGGCCGTAATCAGCTG
511 Q D I D R M V F E A E R Y K E E D E R Q R E R I S A R N Q L
1621 GAGGGCTATATCTTCAAGTGAAGCAAGCTATTTCTGACTGTGCCGACAAGCTTAGTGCGGAAGACAAAGCTAAAATCGAGAGTGAATGT
541 E G Y I F Q V K Q A I S D C A D K L S A E D K A K I E S E C
1711 GACGACTGCCTGAGATGGCTGGACGGCAACTCGTTGGCCGAGAAGGAGAGTACGAAGAGAAGCGGAAGCACTTGACGAGTGTCTGAGT
571 D D C L R W L D G N S L A E K E E Y E E K R K H L T S V C S
1801 CCTATTATGGCAAGTTTACCAGAACGGGCTCAGAACGGTCAATTTGGAAGTGGTACCCTAGTGGAAATGCCTGGTGAAGTTGCGGC
601 P I M A K L Y Q N G P Q N G Q F G S G T A S G M P G G S C G
1891 CAGCAAGCGGGAGGATTTACAGGTGCTCATAGTGGGCAACGATAGAAGAAGTAGACTAA
631 Q Q A G G F T G G H S G P T I E E V D *

C

1 ATGCTTGAAGAAAACAAAATGGTGAAGTTGAAACCTTTGCCTCCAGGCAGAAAATGCCAGTTGATGAGTTTGATCATCAACACTTTC
1 M P E E N Q N G E V E T F A F Q A E I A Q L M S L I I N T F
91 TACTCGAACAAAGGAAATTTCTGCGGAACTGATTTCCAACCTTTCAGATGCTCTGGATAAAATCCGTTACCAGTCCGTCACAAATCCA
31 Y S N K E I F L R E L I S N S S S D A L D K I R Y Q S L T N P
181 TCATGTTTGGACAGCGGCAAGGATCTTCATATTAATAATCATCCAAACAAAAATGAGGGCACACTTACCATTATGATACTGGTATTGGT
61 S C L D S G K D L H I K I I P N K N E G T L T I I D T G I G
271 ATGACTAAGGCAGATCTGGTCAACAACCTGGGTACCATCGCAAAATCTGGAACATAAGCTTTTATGGAAGCGTTGCAAGCAGGCGCAGAT
91 M T K A D L V N N L G T I A K S G T K A F M E A L Q A G A D
361 ATCAGTATGATTTGGTCTAGTTGGTGTAGCTTCTACTCTGCTTACTTATTGCGGATCGAGTACGGTAATCTCTAAAAACAATGATGAC
121 I S M I G Q F G V G F Y S A Y L I A D R V T V I S K N N D D
451 GAGCAGTACATCTGGGAGTCTTCTGCTGGCGGAAGCTTCACCATCCGCCCTGATCATGGAGAACCCTGGGTCTGGTACAAAAATCCTT
151 E Q Y I W E S S A G G S F T I R P D H G E P L G R G T K I L
541 CTACACATCAAGGAAGATCAAACTGAATTCCTAGAAAGAAATAAGATTAAGGAAATCGTTAAGAAACATTCGCAGTTTATCGGATACCCA
181 L H I K E D Q T E F L E E N K I K E I V K K H S Q F I G Y P
631 ATTAAACTCTGGTAGAGAAAGAGAGGAAAAGGAACTGAGCGATGATGAGGCTGAAGAGGAAAAGAGGATGAGGAGGACACCGATAAA
211 I K L L V E K E R E K E L S D D E A E E E K K D E E D T D K
721 CCAAAAATTGAGGATGTAGGAGAAGATGAAGACGAGGACAAGAAAGCAAAAAGAAAAGAAAAGAAAGAACCATTAAGAGAGATACACT
241 P K I E D V G E D E D E D K K D E K K K K K K T I K E K Y T
811 GAAGCGAAGAACTAAATAAGACGAAACCCATCTGGACCAGAAAATCCAGACGATATCAGTCAAGAAGAATAGGTGAATTTTCAAAATCG
271 E D E E L N K T K P I W T R N P D D I S Q E Y G E F Y K S
901 CTACCAATGACTGGGAAAGATCATCTGGCTGTAAAACATTTGAGCGTGAAGGTCAGCTGGAAATTCCTGCTCTTCTGTTGTACCACGT
301 L T N D W E D H L A V K H F S V E G Q L E F R A L L F V P R
991 CGTGTGCCATTGATCTCTCGAAAACAAGAAACGCAAAAATAACGTCAAAATTGTATGTACGCCGTATTCTATTGACCAACTCGGAA
331 R V P F D L F E N K K R K N N V K L Y V R R V F I M D N C E
1081 GACATCTCCAGATCACTCACTTCAATTAAGGTTGTGTAGATTCGGAAGATTTGCCTCTAAACATTTCTCGTAAATGTTGCAACAG
361 D I I P E Y L N F I K G V V D S E D L P L N I S R E M L Q Q
1171 AACAACTCTCAAAGTCAATCCGTAAGAACTTAGTCAAGAAATGTTGGAATCTTCGAAGAATTGTCAGATGATAAGGATGGCTACAAG
391 N K I L K V I R K N L V K K C L E L F E E L S D D K F I G Y K
1261 AAGTTCTATGAACAGTTCTCGAAGAACCTCAAGTTGGGTATCCATGAAGACTCGCAGAACAGGGCCAAAATGGCAGATTTACTACGCTAC
421 K F Y E Q F S K N L K L G I H E D S Q N R A K L A D L L R Y
1351 CACACTTCTGCCAGTGGAGCAAGCCTGCTCGTCAAGGATTATGTCAGCCGATGAAGGAGAACCAGAACGCTCTACTATATCAGC
451 H T S A S G D E A C S L K D Y V S R M K E N Q K H V Y Y I T
1441 GCGAAAAGCAAGAACTAGCGCACTCGGCCTTTGTCGAACGTGTCAAGAAACGTCGGCTTCGAGGTAGTCTACATGACCGAACCCATC
481 G E S K E Q V A H S A F V E R V K K R G F E V V Y M T E P I
1531 GACGAGTATGTTTCAACAGCTAAAGGAATACGACGGTAAATCCTTAGTTTCCGTAACCAAGAAGGTTTGGAGTTGCCGGAAGATGAT
511 D E Y V V Q Q L K E Y D G K S L V S V T K E G L E L P E D D
1621 GAAGAAAAGAAGAACTGAGGAGGATAAGGCCAAATTTGAGGCCTGTGCAAGTCAATGAAGACATTTTGGACAATAAGGTGGAAGAAA
541 E E K K K R E E D K A K F E G L C K V M K T I L D N K V E K
1711 GTAGTTGATCAATCGTCTAGTCAATCTCCATGTTGCATCGTAACATCCCAATATGGTTGGTCGGCCAAATGGAACGTATCATGAAA
571 V V V S N R L V E S P C I V T S Q Y G W S A N M E R I M K
1801 GCTCAGGCCCTTCTGACACTTCCACCATGGGTACATGGCTGCCAAGAAACATCTCGAAATCAATCCAGATCATCTATCGTTGAGAAT
601 A Q A L R D T S T M G Y M A A K K H L E I N P D H P I V E N
1891 CTACGTCAGAAAGCCGAAAGCTGATAAAAACGATAAGGCTGTCAAAGATTTGGTTATTCTCTCTTTGAAACCCGCTCTACTTAGCTTGGA
631 L R Q K A E A D K N D K A V K D L V I L L F E T A L L S S G
1981 TTCACCTAGACGAACTCAAGTCCATGCTTCTAGGATCTACAGGATGATTAAGCTGGGTCTGGGTATTGACGAGGAAGAGCTATGGTT
661 F T L D E P Q V H A S R I Y R M I K L G L G I D E E E A M V
2071 ACGGATGAAGCTCCAGCAGGGGATGCCCCACAGCAGAGGCTGGTGTGCTGAGGATGCTTCCCGCATGGAAGAAGTTGATTA
691 T D E A P A G D A P T A E A G D A E D A S R M E E V D *

D

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1 ATGAAGCAGTACATATTTTATTCATAGGTTTATTATTTCTTATAGGTACCACACAAGCGAGTGAAGCTGGGGGATCAGAAAAATGTTGAA
1 M K Q Y I F L F I G L F I L I G T T Q A S E A G G S E N V E
91 ACTGTTGATATAGACTTGGGGCCAGCAGGGAAGGTTCAAGAACAGATGACGAAGTTGTTAAACGTGAAGAGGAGGCAATTAAGCTCGAT
31 T V D I D L G A S R E G S R T D D E V V K R E E E A I K L D
181 GGCCCAATGTGGCTCAGCTTAAGGAGCTTCGTGAGAAATCTGAGAAATTCGCATTCCAGACCGAAGTTAACAGGATGATGAAACTCATT
61 G L N V A Q L K E L R E K S E K F A F Q T E V N R M M K L I
271 ATTAATTCCTTTATAGGAATAAAGAAATCTTCTTGAGGGAATTGATCTCAAATGCCTCCGACGCTTTGGATAAGATCCGATGTTATCT
91 I N S L Y R N K E I F L R E L I S N A S D A L D K I R M L S
361 CTCACGGACAGAAGTGTCTGGATGTTCAACCAGAGCTGAACATTCGAATAAAAAGCGGATAAAGACTCGGGAATGCTGCATATCACGGAC
121 L T D R S V L D V Q P E L N I R I K A D K D S G M L H I T D
451 ACAGGCATAGGTATGACGAAACAGGACCTTGTCAACAACCTGGGTACTATAGCAAAGTCTGGAACCTGCCGAGTTCCTCAGTAAGATGCAG
151 T G I G M T K Q D L V N N L G T I A K S G T A E F L S K M Q
541 AATGCGGAGTCGTCTCAAGATATGAATGATATGATCGGACAGTTTGGTGTGGTTTCTACTCTGCCTTCTTGGTAGCCGATAGGTCATT
181 N A E S Q D M N D M I G Q F G V G F Y S A F L V A D K V I
631 GTCACATCTAAGCACACAGATGATAAACAGTATATTTGGGAGTCTGACTCGGCAACCTTCAGTATCGTGGAAAGATCTAGAGGTGACAGT
211 V T S K H N D D K Q Y I W E S D S A T F S I V E D P R G D S
721 TTGAAGAGAGGTACCAGTGTGAGTTTGGAACTGAAACCAGAGCCAAAGGATTTCTTGGAACACGATACTCTCCGACCTTAGTCAAGAAA
121 L K R G T T V S L E L K P E A K D F L E H D T V R T L V K K
241 TACTCACAGTTTAACTTCCCGATTATCTGTGGACCATCACACGGAACTGTAGAGGAACCGATTGAAGAGGAAGTAGCAGAGGAA
811 Y S Q F I N F P I Y L W T S H T E T V E E P V E E E V A E E
271 AAACCGAAACTGCCGATGAAGAAGATGCTGCTGTCGAGGAGAGAAAGAGGACGAGAAACCAAGACCAAGAGGTTGAGAAGACGGTT
901 K P E T A D E E D A A V E E K E D E K P K T K K V E K T V
301 TGGGATTTGGGAGCTTCTGAATGACAGCAAGCCGATTTGGACTAGGAAGCCCTCAGAAATCGAAGATAAGGAGTACGACGCAATTTCTACAAA
991 W D W E L L N D S K P I W T R K P S E I E D K E Y D E F Y K
331 GCCCTAACCAAGGACACCAATTCGCCTTTGACCAAAATCTATTTGTAGCCGAGGGCGAAGTCACTTTCAGGCTTATTTGTACGTGGCC
1081 A L T K D T N S P L T K I H F V A E G E V T F K A L L Y V P
361 ACCGTCCAACCGTCTGAGAGCTTCAACAAATATGGCACAAAACAGACAATATAAAATTTATATGTTTCGTCGCGTATTCTACTGACGAA
1171 T V Q P S E S F N K Y G T K T D N I K L Y V R R V F I T D E
391 TTTAACGACATGATGCCTTCACTTGAACCTTGTGAGAGGAGTGTGGACTCGGACGACCTACCTTTGAACGTATCTCGTGAAACCTTG
1261 F N D M M P S Y L N F V R G V V D S D D L P L N V S R E T L
421 CAACACACAACTTCAAGGTGATCAAGAAAGTTGGTCCGTAAGTACTGGACATGCTCAAGAAGCTTCTGAGGAGGACTTTGAG
1351 Q Q H K L I K V I K K K L V R K V L D M L K K L P E E D F E
451 AAGTTTGGAGGAATTTCCACAAACATCAAGCTGGGAGTTATCGAGGATCCAACAAATCGCTCCAGATTGGCCAAACTTCTTCAATTC
1441 K F W K E F S T N I K L G V I E D P T N R S R L A K L L H F
481 TTCTCCTCCAATGACAATAAACAGACTGGCTTAGCAGAATATGTGAGCCGGATGAAGCCCAAACAAGACAAAATCTTCTACATCGCAGGA
1531 F S S N D N K Q T G L A E Y V S R M K P K Q D K I F Y I A G
511 GCCTCGAAGCCGAGGTGCAAAAGTCACTTTTGTGACGGCTGTGCGTAAGGGATACGAAGTCTTGTACCTGGTAGAAGCGGTGAT
1621 A S K A E V Q K S P F V E R L L R K G Y E V L Y L V E A V D
541 GAATATACTATTTTCGCCCTTCTGAATTTGAAGGCAAGAAATTCAGAACGTTGCCAAGGAAGGGTTCTCCTTAACCGAAAAGTGAAGGA
1711 E Y T I S A L P E F E G K K F Q N V A K E G F S L T E S E G
571 GGCAAGGACCAATGGATCAGTTGAAGACCACTTTGAGCCCTCACCAAATGGTTGTCGGAACCGCTCTGAAGGATCAGTTGCCAAA
1801 G K D O L D O L K T T F E P L T K W L S E N A L K D H V A K
601 GCTATGGTATCCGAAAGATTGTCAGATCCCTTGTGCTCTAGTAGCAAGCTTGTTCGGCTGGACCGGAAACATGGAAGACTTGCCTT
1891 A M V S E R L S D S P C A L V A S L F G W T G N M E R L A V
631 TCCAATGCCATCAAAAATCAGATGATCCTCAGAGGTCCTACTATTTGAACCAAAAGAACCTTGGAGATCAATCAAGACACCCGCTG
1981 S N A H Q K S D D P Q R S Y Y L N Q K K T L E I N P R H P L
661 ATGCGAGAGTTATTGAAGAGGTTAACGATGATCGGATGACCCGACAGCGAAGACATGGCACTGATGATGTTAGAACCGGCAACTCTG
2071 M R E L L K R V N D D A D D P T A K D M A L M M F R T A T L
691 AGATCTGGTACATGCTGAAAGATACATCCGATTTGCCCCAGTCCATCGAAGTTATGATGAGAAAGACGCTAGGGGTTCTCTGGACGAG
2161 R S G Y M L K D T S D F A Q S I E V M M R K T L G V P L D E
721 CAAGTGGAGGAAGAGGAAGATGTTCCCGAGGATGGCATTCCAGAGGACGAGAAATGGAGATATTAAGGATGAGGAGGAGAGACGAAAGAG
2251 Q V E E E E D V P E D G I P E D E N G D I K D E E E R D E E
751 CATGACGAACGTGTA
2341 H D E L *
781

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Figure S1 The coding sequences and their deduced amino acid sequences for AglaHsp20.43, AglaHsp71.18, AglaHsp82.09, and AglaHsp89.76. The signal peptide sites and protein conserved domains are marked with black and red underscores, respectively. The signature sequences and subcellular localization motifs are marked with gray and red backgrounds, respectively.