

Black porgy	ATGCCTCACTCCTTGTCCCCCTGTGCGTCCTGGGACTCAT---CGCGCTCTCCTCCGCC
Sparus	ATGCCTCACTCCTTGTTCCTCCCTGTGCGTCCTGGGACTCCT---TGCCTTCTCCTCTGCC
Paralichthys	ATGCCTCACTCCATGTTCCCCGTGTGCGTCCTGGGATTCTCT---CGCCCTCTCCTCCGCC
Platichthys	ATGCCTCACTCCATGTTCCCCGTGTGCGTCCTGGGATTCTCT---CGCCCTCTCCTCCGCC
Halichoeres	ATGCCACACTCCGTGATCCCTCTGTGTCTCTGGGAATCCTTCTCGCGCTCTCCTCGGCT
Epinephelus	ATGCCTCACTCCATGTTCCCCCTGTGCGTCCTGGGACTCCT---CACGCTCTCATCCGCC
	*****:***** ** : *** ***** ***** **.* . * ****.* **
Black porgy	TGCTACATCCAGAACTGCCCCCGAGGAGGGAAGCGGGCGCTGCCGAGGCTGGGACCAGA
Sparus	TGCTACATCCAGAACTGCCCCCGAGGAGGGAAGCGGGCGCTGCCAGAGGCTGGGATCAGA
Paralichthys	TGCTACATCCAGAACTGTCCCGGGGGGGAAGCGAGCGCTGCCGGACACCGGCATCAGA
Platichthys	TGCTACATCCAGAACTGCCCCCGGGGAGGGAAGCGAGCGCTGCCGGACACTGGCATCAGA
Halichoeres	TGTTACATCCAGAACTGCCCCCGAGGAGGGAACCGCGCACTGCCGGAGACTGGGCTCAGA
Epinephelus	TGTTACATCCAGAACTGCCCGAGAGGAGGGAAGCGAGCGCTGCCGGAGACTGGGATCAGA
	** ***** ** .*.***.***.* **.****.* **.* ** . ****
Black porgy	CAGTGCATGTCGTGTGGCCCCAGAGACAGGGGCCGCTGCTTCGGCCCCAACATCTGCTGC
Sparus	CAGTGCATGTCGTGTGGCCCCAGAGACAGGGGCCACTGTTTCGGCCCCAACATCTGCTGC
Paralichthys	CAGTGCATGTCCTGTGGCCCCGAGACAGGGGCCGCTGCTTCGGCCCCAGTATCTGCTGC
Platichthys	CAGTGCATGCCCTGTGGCCCCGGGGACAGGGGCCGCTGCTTCGGCCCCGATATCTGCTGC
Halichoeres	CAGTGCATGCCGTGTGGCTGCCCTGTGGGCTCCCGAGAGACAGCTCACTGTGTGGAGGAGA
Epinephelus	CAGTGCATGTCCTGTGGCCCCGAGACAGGGGCCGCTGCTTCGGCCCCAGCATCTGCTGC
	***** * *****.*.***.***.* ** ** *****.. *****
Black porgy	GGGGAGGGCCTCGGCTGTCTGCTGGGCTCCCCGAAACAGCTCACTGCGTGAGGAGAAAC
Sparus	GGGGAGGGCCTCGGCTGTCTGCTGGGCTCCCCGAAACAGCTCACTGTGTGGAGGAGAAAC
Paralichthys	GGGGAGGGTCTGGGCTGCCCTGCTGGGCTCCCCAGAGACAGCTCACTGTGTGGAGGAGAAAC
Platichthys	GGGGAGGGTCTTGGCTGCCCTGCTGGGCTCCCCAGAGACAGCTCACTGTGTGGAGGAGAAAC
Halichoeres	GGGGAGGGCCTTGGCTGTTTGTGGGCTCCCCAGAAACAGCTCACTGTGTGGAAGAGAAAC
Epinephelus	GGGGAGGGCCTCGGCTGCCCTGCTGGGCTCCCCGAAACAGCTCACTGTGTGGAGGAGAAAC
	***** ** ***** ***** **.****** *****.* *****
Black porgy	TACCTGCTCACCCCCTGCCAGGCGGGAGGGAGACCCTGTGGCTCTGAAGGAGGACGCTGC
Sparus	TACCTGCTCACCCCCTGCCAGGCGGGAGGGAGACCCTGTGGCTCTGAAGGAGGACGCTGC
Paralichthys	TACCTGCTCACCCCCTGCCAGGCGAGGAGGGAGACCCTGTGGATCTGAGGGAGGACACTGT
Platichthys	TACCTGCTCACCCCCTGCATGGCAGGAGGGAGACCCTGTGGATCTGAGGGAGGACGCTGT
Halichoeres	TACCTGCTCACCCCCTGCCAGGCGAGGAGGGAGACCCTGTGGATCTGAGGGAGGGCGCTGT
Epinephelus	TACCTGCTCACGCCCTGCCAGGCGAGGAGGGAGACCTTGTGGCTCTGAGGGAGGACGCTGC
	***** ***** :***.***** *****.******.*.***
Black porgy	GCTGCTTCAGGACTCTGCTGTAACTCAGAGAGCTGCACGGTGGACTCTGACTGTCTCGGG
Sparus	GCTGCTTCAGGACTCTGCTGTAACTCAGAGAGCTGTACGGTGGACTCTGACTGCCTTGGG
Paralichthys	GCAGCTTCAGGACTCTGCTGTAACTCAGAGAGCTGTGCAGTTGACTCTGACTGCCTGGCA
Platichthys	GCGGCATCAGGACTCTGCTGTAACTCAGAGAGCTGTGCGGTAGACTCTGACTGCCTGGCG
Halichoeres	GCTGCCTCAGGAGTCTGCTGTAACTCAGAGAGCTGTGCGGTGGACTCTGACTGCCTGGGG
Epinephelus	GCTGCTTCAGGACTCTGCTGTAACTCAGAGAGCTGCATGGTGGACCCTGACTGCCTGGGG
	** ** ***** ***** ***** . ** ** ***** ** *
Black porgy	GAGGTTGAGGCCTCAGACCCGCTCTGACAGCTCTGTGGGGAGTTGCGCTGCAGAGCTGCTG
Sparus	GAGGTTGAGGCCTCAGACCCGTCGACAGCTCTGCGGGGAGCTGCGCTGCAGAGCTGCTG
Paralichthys	GAGACCGAGGCCTCAGATCCGGGCCACGGCGCCGAGGGAGCTTCCCGGCAGAGCTGCTG
Platichthys	GAGATCGAGGCCTCAGATCCGGGCCACGGCGCCGAGGGAGCTCACCTGCAGCGCTGCTG
Halichoeres	GAGATGGAAGCGTCAGATCAGGCCGACAGCTCTGCAGGGAGCTGCGCTGCGGAGCTGCTG
Epinephelus	GACACCGAGGCCTCAGATCCGGCTCACGGCTCTGCAGGGAGCTCACCTGCAGAACTGCTG
	** . **.* ***** *. * **.* * * .***** * ** **.*.*****
Black porgy	CTGCGCCTGCTACATGTGGCCACCAGAGGACAGACCGAGTACTGA
Sparus	CTGCGCCTGCTACATGTGGCCACCAGAGGACAGACCGAGTACTGA
Paralichthys	CTCCGCCTGCTGCATGTGACGGCCAGAGGACAGACCGAGTACTGA
Platichthys	CTCCGCCTGCTGCATGTGACGGCCAGAGGACAGACCGAGTACTGA
Halichoeres	CTGCGGCTGCTACATGTGGCCACAAGAGGACAGACCGAGTACTGA
Epinephelus	ATGCGCCTGCTGCACGTAGCCACCAGAGGACAAACCGAGTACTGA
	. * ** *****.* **.* .*.*****.*****

Figure S4 Multiple alignments of the nucleotide sequences of *avt* (black porgy, *Acanthopagrus schlegelii*) with other teleosts. GenBank accession numbers for the nucleotide sequences are

follows: gilthead sea bream (*Sparus aurata*, FR851924), orange spotted grouper (*Epinephelus coioides*, GU831571), European flounder (*Platichthys fleus*, AB036517), Chinese warasse (*Halichoeres tenuispinis*, GU212654), olive flounder (*Paralichthys olivaceus*, AB856411). The boxes represent the ATG start codon and underlines represent the stop codon. The symbols “*”, “.”, and “:” denote the identity, single nucleotide variation, and more than one nucleotide variation among fish species, respectively.