

Supplementary Table S1. Hemoglobin alpha and beta amino acid sequences

used for multiple alignment.

Subuni	Species Names	Order	Family	Accession
alpha	<i>Danio rerio</i>	Cypriniformes	Cyprinidae	NP_571332.2
	<i>Ictalurus punctatus</i>	Siluriformes	Ictaluridae	NP_001188201.1
	<i>Salmo salar</i>	Salmoniformes	Salmonidae	NP_001117134.1
	<i>Homo sapiens</i>	Primates	Hominidae	NP_000549.1
	<i>Ratus norvegicus</i>	Rodentia	muridae	NP_037228.1
beta	<i>Danio rerio 1</i>	Cypriniformes	Cyprinidae	NP_571095.1
	<i>Salmo salar</i>	Salmoniformes	Salmonidae	XP_014042118.1
	<i>Epinephelus coioides</i>	Perciformes	Serranidae	AAK38736.1
	<i>Homo sapiens</i>	Primates	Hominidae	AAR96398.1
	<i>Ratus norvegicus</i>	Rodentia	muridae	NP_942071.1

Supplementary Table S2. *Hemoglobin alpha* subunits cDNA sequences used
for phylogenetic analysis.

Species Names	Order	Family	Accession
<i>Carassius auratus</i>	Cypriniformes	Cyprinidae	AM933143.1
<i>Danio rerio</i>	Cypriniformes	Cyprinidae	NM_131257.2
<i>Brycon cephalus</i>	Cypriniformes	Characidae	EF153472.1
<i>Oncorhynchus mykiss</i>	Salmoniformes	Salmonidae	NM_001124551.1
<i>Salmo salar</i>	Salmoniformes	Salmonidae	NM_001123662.1
<i>Esox lucius</i>	Esociformes	Esocidae	BT079758.1
<i>Nibea miichthioides</i>	Perciformes	Sciaenidae	DQ150109.1
<i>Pseudosciaena crocea</i>	Perciformes	Sciaenidae	AY803735.2
<i>Sciaenops ocellatus</i>	Perciformes	Sciaenidae	AY940203.1
<i>Seriola quinqueradiata</i>	Perciformes	Carangidae	AB034640.1
<i>Pagrus major</i>	Perciformes	Sparidae	AY190679.1
<i>Epinephelus coioides</i>	Perciformes	Serranidae	JN112535.1
<i>Treatomus newnesi</i>	Perciformes	Nototheniidae	AY883037.1
<i>Ictalurus punctatus</i>	Siluriformes	Ictaluridae	NM_001201272.1
<i>Anoplopoma fimbria</i>	Scorpaeniformes	Anoplopomatid	BT082697.1
<i>Thunnus thynnus 1</i>	Scombriformes	Scombrida	AB093569.1
<i>Thunnus thynnus 2</i>	Scombriformes	Scombrida	AB093570.1
<i>Xenopus laevis</i>	Anura	Pipidae	NM_001086328.1
<i>Gallus gallus</i>	Galliformes	Phasianidae	NM_001004376.2
<i>Mus musculus</i>	Rodentia	muridae	NM_008218.2
<i>Ratus norvegicus</i>	Rodentia	muridae	NM_013096.1
<i>Canis lupus</i>	Carnivora	Canidae	NM_001270886.1
<i>Pan troglodytes</i>	Primates	Hominidae	NM_001042627.1
<i>Homo sapiens</i>	Primates	Hominidae	NM_000558.3

Supplementary Table S3. *Hemoglobin beta* subunits cDNA sequences used for phylogenetic analysis.

Species Names	Order	Family	Accession
<i>Cyprinus carpio</i>	Cypriniformes	Cyprinidae	XM_019073438.2
<i>Carassius auratus</i>	Cypriniformes	Cyprinidae	AM933144.1
<i>Danio rerio 1</i>	Cypriniformes	Cyprinidae	NM_131020.3
<i>Danio rerio 2</i>	Cypriniformes	Cyprinidae	NM_001005403.1
<i>Hypophthalmichthys</i>	Cypriniformes	Cyprinidae	HM124768.1
<i>Schizopygopsis pylzovi</i>	Cypriniformes	Cyprinidae	KT715803.1
<i>Pimephales promelas</i>	Cypriniformes	Cyprinidae	EF628375.1
<i>Sinocyclocheilus anshuiensis</i>	Cypriniformes	Cyprinidae	XM_016478984.1
<i>Sinocyclocheilus grahami</i>	Cypriniformes	Cyprinidae	XM_016275886.1
<i>Paramisgurnus dabryanus</i>	Cypriniformes	Cobitidae	AF528158.1
<i>Salmo salar</i>	Salmoniformes	Salmonidae	XM_014186643.1
<i>Oncorhynchus mykiss</i>	Salmoniformes	Salmonidae	XM_021625275.2
<i>Oncorhynchus tshawytscha</i>	Salmoniformes	Salmonidae	XM_024390321.2
<i>Pygocentrus nattereri</i>	Characiformes	Serrasalminidae	XM_017718993.2
<i>Epinephelus coioides</i>	Perciformes	Serranidae	AY029506.1
<i>Xenopus laevis 1</i>	Anura	Pipidae	NM_001096347.1
<i>Xenopus laevis 2</i>	Anura	Pipidae	NM_001088028.2
<i>Gallus gallus</i>	Galliformes	Phasianidae	NM_205489.3
<i>Equus caballus</i>	Perissodactyla	Equidae	NM_001164018.1
<i>Bos taurus</i>	Artiodactyla	Bovidae	NM_173917.2
<i>Ovis aries</i>	Artiodactyla	Bovidae	NM_001097648.1
<i>Mus musculus</i>	Rodentia	muridae	NM_001127686.1
<i>Ratus norvegicus</i>	Rodentia	muridae	NM_198776.1
<i>Pan troglodytes</i>	Primates	Hominidae	XM_508242.5
<i>Homo sapiens</i>	Primates	Hominidae	AY509193.1