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	90	100	110	120	130	140	150	160
conservation								
Asian 'Arowana' Scribble	FMQLVELDISRNDIPEIPESIKFCKALEIADFSGNPLSRLPEGFTQLRGLAHLALNDVSLQTLPNDIGNLANLVTLELRE	160						
Cattle 'Scribble	FMQLVELDVSRNDIPEIPESIKFCKALEIADFSGNPLSRLPEGFTQLRSLAHLALNDVSLQALPGDVGNLANLVTLELRE	160						
Zebrafish 'Scribble	FTQLVELDISRNDISEIPENIKFCQSLEIADFSGNPLTRLPDGFTQLRGLAHLSLNDVSLQSLPNDIGNLSNLVTLELRE	160						
Coelacanth 'Scribble	.....	0						
Spotted 'gar' Scribble	FMQLVELDISRNDIPEIPESIKFCKALEIADFSGNPLSRLPDGFTQLRSLAHLALNDVSLQALPNDIGNLANLVTLELRE	156						
Chinese 'softshell' turtle 'Scribble	FMQLVELDISRNDIPEIPESIKFCKSLEIADFSGNPLSRLPEGFTQLRSLGHLALNDVSLQSLPSDIGNLANLVTLELRE	108						
Zebra 'finch' Scribble	FMQLVELDISRNDIPEIPESIKFCKSLEIADFSGNPLSRLPEGFTQLRSLVHLALNDVSLQSLPTDIGNLANLVTLELRE	110						
Medaka 'Scribble	FMQLVELDISRNDIPEIPESIKFCRALEIADFSGNPLSRLPDGFTQLRTLALHLALNDVSLQTLPNDIGNLANLVTLELRE	160						
Yenyuan 'stream' salamander 'Scribble' isoform1	.....	0						
Yenyuan 'stream' salamander 'Scribble' isoform2	.....	0						
Yenyuan 'stream' salamander 'Scribble' isoform3	.....	0						
Yenyuan 'stream' salamander 'Scribble' isoform4	.....	0						
Yenyuan 'stream' salamander 'Scribble' isoform5	.....	0						
Yenyuan 'stream' salamander 'Scribble' isoform6	.....	0						
Yenyuan 'stream' salamander 'Scribble' isoform7	.....	0						
Yenyuan 'stream' salamander 'Scribble' isoform8	.....	0						
Yenyuan 'stream' salamander 'Scribble' isoform9	.....	0						

	170	180	190	200	210	220	230	240	
conservation									
Asian 'Arowana' Scribble	NLLKTLPTSLSFLVKLEQLDLGSNELEVLPDTLGALPNLRELLLLDRNHL	SALPPELGNLRLVCLDVSENRL	EQLPPELS	240					
Cattle 'Scribble	NLLKSLPASLSFLVKLEQLDLGGNDLEVLPDTLGALPNLRELWLDNRNQL	SALPPELGNLRLVCLDVSENRL	EELPAELG	240					
Zebrafish 'Scribble	NLLKSLPSSLSFLVKLEQLDLGSNVLEVLPDTLGALPNLRELWLDNRNQL	SSLPPELGNLRQLVCLDVSENRL	SELPTEIS	240					
Coelacanth 'Scribble									0
Spotted 'gar' Scribble	NLLKSLPTSLSFLVKLEQLDLGSNELEVLPDTLGALPNLRELWLDNRHLS	SSLPPELGNLRLVCLDVSENRL	EQLPSELS	236					
Chinese 'softshell' turtle 'Scribble	NLLKALPTSLSFLVKLEQLDLGGNDLEVLPDTLGALPNLRELWLDNRNQL	SALPPELGNLRLVCLDVSENKL	EHLPNELS	188					
Zebra 'finch' Scribble	NLLKTLPTSLSFLVKLEQLDLGGNDLEVLPDTLGALPNLRELWLDNRNQL	SALPPELGNLRLVCLDVSENKL	EQLPNEVS	190					
Medaka 'Scribble	NLLKSLPTSLSFLVKLEQLDLGSNELEDLPDTLGALPNLRELWLDNRNQL	STLPEELGNLRLVCLDVSENRL	EELPSELN	240					
Yenyuan 'stream' salamander 'Scribble' isoform1									0
Yenyuan 'stream' salamander 'Scribble' isoform2									0
Yenyuan 'stream' salamander 'Scribble' isoform3									0
Yenyuan 'stream' salamander 'Scribble' isoform4									0
Yenyuan 'stream' salamander 'Scribble' isoform5									0
Yenyuan 'stream' salamander 'Scribble' isoform6									0
Yenyuan 'stream' salamander 'Scribble' isoform7									0
Yenyuan 'stream' salamander 'Scribble' isoform8									0
Yenyuan 'stream' salamander 'Scribble' isoform9									0

		250	260	270	280	290	300	310	320			
conservation												
Asian Arowana Scribble		G L L A L T D L L L S Q N L L E L L P D T L G S L K Q L S I L K V D Q N R L T H L T D S I G E C E N L S E L V L T E N L L Q T L P R S M G K L K K L N N L N V D		320								
Cattle Scribble		G L V L L T D L L L S Q N L L Q R L P D G I G Q L K Q L S I L K V D Q N R L C E V T E A I G D C E N L S E L I L T E N L L T A L P H S L G K L T K L T N L N V D		320								
Zebrafish Scribble		G L I A L T D L L L S E N L L E I L P D S I G S L K K L S I L K V N Q N R L V H L T D S I G E C E N L T E L M L T E N L L Q S L P R S L G K L K K L T N L N V D		320								
Coelacanth Scribble		.	.	.	.	.	.	.	.	0		
Spotted gar Scribble		G L L A L T D L L L S Q N L L E T L P D S I G C L K Q L S I L K V D Q N R L T S L T D S I G E C E N L S E L M L T E N L L Q T L P R S L G K L K K L T N L N V D		316								
Chinese softshell turtle Scribble		G L V A L T D L L L S Q N L L E S I P D G I G Q L K Q L S I L K V D Q N R L V E V T E S I G D C E N L S E L I L T E N V L T A L P K S L G K L T K L T N L N V D		268								
Zebra finch Scribble		G L V A L T D L L L S Q N L L E C I P D G I G Q L K Q L S I L K V D Q N R L T D M T E S I G D C E N L S E L I L T E N M L T A L P K S L G K L A K L T N L N V D		270								
Medaka Scribble		G L L A L T D L L L T Q N L L E F V P D S I G S L K Q L S I L K V D Q N R M T N L T D S I G E C E N L T E L V L T E N L L Q S L P Q S L G K L K K L T N L N V D		320								
Yenyuan stream salamander Scribble isoform1		.	.	.	.	.	.	.	.	0		
Yenyuan stream salamander Scribble isoform2		.	.	.	.	.	.	.	.	0		
Yenyuan stream salamander Scribble isoform3		.	.	.	.	.	.	.	.	0		
Yenyuan stream salamander Scribble isoform4		.	.	.	.	.	.	.	.	0		
Yenyuan stream salamander Scribble isoform5		.	.	.	.	.	.	.	.	0		
Yenyuan stream salamander Scribble isoform6		.	.	.	.	.	.	.	.	0		
Yenyuan stream salamander Scribble isoform7		.	.	.	.	.	.	.	.	0		
Yenyuan stream salamander Scribble isoform8		.	.	.	.	.	.	.	.	0		
Yenyuan stream salamander Scribble isoform9		.	.	.	.	.	.	.	.	0		

conservation		
Asian 'Arowana' Scribble	RNRLYSVPEELGGCTSLNVLSLRDNRLARLPAELAGATELHVLDVAGNRLRNLPFALANLNLKAMWLAENQSQPMLKFQM	400
Cattle 'Scribble	RNHLEALPPEIGGCVALSVLSLRDNRLAVLPPELAHTAELHVLDVAGNRLQSLPFPALHTLNLKALWLAENQAQPMLRFQT	400
Zebrafish 'Scribble	RNRLSSVPAELGGCVSLNVLSLRDNRLGKLPELANATELHVLDVAGNRLQNLPPFALANLNLKAMWLAENQSQPMLKFQT	400
Coelacanth 'Scribble	.....SRLQNLPPFALTNLNLKALWLAENQSQPMLKFQT	33
Spotted 'gar' Scribble	RNRLTCLPVELGGCTGLNVLSLRDNRVAKLPAELASATELHVLDVAGNRLQNLPPFALTNLNLKAMWLAENQSQPMLKFQT	396
Chinese 'softshell' turtle 'Scribble	RNRLTALPSEIGGCASLNVLSLRDNRLALLPPELANTTTELHVLDVAGNRLQNLPPFALTNLNLKALWLAENQSQPMLKFQT	348
Zebra 'finch' Scribble	RNRLTALPAEIGGCANLSVLSLRDNRLALLPPELANTTTELHVLDVAGNRLQNLPPFALTNLNLKALWLAENQSQPMLKFQT	350
Medaka 'Scribble	RNRLSSVPKELGGCSSLNVLSLRDNRLGKLPAELADATELHVLDVAGNRLQNLPPSLTNLNLKAMWLAENQSQPMLKFQT	400
Yenyuan 'stream' salamander 'Scribble' isoform1	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform2	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform3	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform4	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform5	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform6	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform7	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform8	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform9	.....	0

conservation		
Asian 'Arowana' Scribble	EDDEQTGEKVLTCYLLPQQPSPSL...EDLPPNSVDDSW.TDSNLRVSTIQFQEEPKAEEDDEETAAERKGLQRRAT	474
Cattle 'Scribble	EDDAQTGEKVLTCYLLPQQPLPSL...EDPELQSSPSES.W.GDAPLSRVSVIQFLEAPAGDDDPEEAAAAEKRLQRRAT	475
Zebrafish 'Scribble	EDDEQTGEKVLTCYLLPQQPSSSL...ENLLERSVDEAWPTDTNLRVSVIQFRDDSKHEEEDDETAADKRGLQRRAT	475
Coelacanth 'Scribble	EDDEKTGEKVLTCYLFPPQQPSPSL...ENLLQNSMDENW.TDTNLRVSVIQFQEEPKPEDDDDEEAAERRGLQRRAT	107
Spotted 'gar' Scribble	EDDEKTGEKVLTCYLLPQQPSPSL...ENLLQNSVDDSW.TDSNLRVSVIQFQEETKPEAEDEDTAERRGLQRRAT	470
Chinese 'softshell' turtle 'Scribble	EDDEKTGEKVLTCYLLPQQPSPSLGKRSHENLLQNSVDES.W.TDTNLRVSVIQFLDEPRADDE.EEAGAEKRGLQRRAT	426
Zebra 'finch' Scribble	EDDEKTGEKVLTCYLLPQQPSPSL...ENLLQNSVDES.W.TDTNLRVSVIQFLDEPKGDDD.EESGAERRGLQRRAT	423
Medaka 'Scribble	EDDERTGEKVLTCYLLPQQPSPSL...ENLLQSSVDDSW.TDSNLRVSVIQFQEETKGEDEDEEAAERRGLQRRAT	474
Yenyuan 'stream' salamander 'Scribble' isoform1	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform2	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform3	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform4	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform5	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform6	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform7	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform8	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform9	.....	0



conservation		
Asian 'Arowana' Scribble	LTDRVNSSLQ...PVKGVSFQVNNLLIEPARIEEEEELTLTIVRQTGGLGISIAGGRGSTPYKGDDEGIFISRVSEEGP	766
Cattle 'Scribble	AAAEKEKA.VASAPSVKGVSFQVNNLLIEPARIEEEEELTLTIVRQTGGLGISIAGGKGSTPYKGDDEGIFISRVSEEGP	756
Zebrafish 'Scribble	.....FQHRLDAAELEDIRMSQMSSL.QPVKL.....TSLILRQTGGLGISIAGGKGSTPYKGDDEGIFISRVSEEGP	750
Coelacanth 'Scribble	LMMMGPFR..SSWNLKKGVSFQVNNLLIEPARIEEEEELTLTIHRQTGGLGISIAGGKGSTPYKGDDEGIFISRVSEEGP	396
Spotted 'gar' Scribble	LSDRGSASLQ...PVKGVSFQVNNLLIEPARIEEEEELTLTILRQTGGLGISIAGGKGSTPYKGDDEGIFISRVSEEGP	754
Chinese 'softshell' turtle 'Scribble	...VKD GALPTQPSVKGVSFDQVNNLLIEPARIEEEEELTLTILRQTGGLGISIAGGKGSTPYKGDDEGIFISRVSEEGP	680
Zebra 'finch' Scribble	VSRQPGSGVQLWSPA V TGVSFQVNNLLIEPARIEEEEELTLTIVRQTGGLGISIAGGKGSTPYKGDDEGIFISRVSEEGP	705
Medaka 'Scribble	MEELGDSRLQVNSSQVKGVSFDQVNNLLIEPARIEEEEHTITITRQTGGLGISIAGGKGSTPYKGDDEGIFISRVSAEGP	755
Yenyuan 'stream' salamander 'Scribble' isoform1	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform2	.....GIFISRVAAEGP	12
Yenyuan 'stream' salamander 'Scribble' isoform3	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform4	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform5	.....GIFISRVAAEGP	12
Yenyuan 'stream' salamander 'Scribble' isoform6	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform7	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform8	.....	0
Yenyuan 'stream' salamander 'Scribble' isoform9	.....GIFISRVAAEGP	12

[illegible]

conservation

Asian Arowana Scribble

Cattle Scribble

Zebrafish Scribble

Coelacanth Scribble

Spotted gar Scribble

Chinese softshell turtle Scribble

Zebra finch Scribble

Medaka Scribble

Yenyuan stream salamander Scribble isoform1

Yenyuan stream salamander Scribble isoform2

Yenyuan stream salamander Scribble isoform3

Yenyuan stream salamander Scribble isoform4

Yenyuan stream salamander Scribble isoform5

Yenyuan stream salamander Scribble isoform6

Yenyuan stream salamander Scribble isoform7

Yenyuan stream salamander Scribble isoform8

Yenyuan stream salamander Scribble isoform9

850 860 870 880 890 900 910 920

FCTEP...CFSQGTRQRLSTCLVRNDKGLGFSIAGGKGSTPYRVGDMGIFISRIAEGGAADRDSILQVGDRLVISINGVDM 920

LPLLPEPPG...PPRQRHVACLVRSEKGLGFSIAGGKGSTPYRAGDGGIFISRIAEGGAHRAGTLQVGDRLVISINGVDM 911

FLLDPCPAVSTGPAQRLATCLIRNDKGLGFSIAGGKGSTLYRVGDTGIFISRIAEGGAHRDNLQVGDRLVISINGVDM 907

FASEE...PEIPVREQFSTCLMRNEKGLGFSIAGGKGSTPYKAGDTGIFISRIAEGGAHRDGILQVGDRLVISINGVSM 549

.....PNSPGASGPCQRLSTCLVRNDKGLGFSIAGGKGSTPYHTGDTGIFISRIAEGGAHRDGTDLHVGDRLVITINGVDM 907

.....PEGAPPTERFSTCLVRNEKGLGFSIAGGKGSTPYKAGDMGIFISRIAEGGAHRDGTDLRVGDRLVISINGVDM 832

.....PEAAPATERFSTCLMRNEKGLGFSIAGGKGSTPYRAGDMGIFISRIAEGGAHRDGTDLRVGDRLVISINGVDM 857

FNLEP...TTS GPQQLTTCLIRNDKGLGFSIAGGKGSTPYRTGDTGIYISRIAEGGAHRDSVLCVGDRLVISINGVDM 908

VEEEEEETAVVPVPTERFSTCLMRNEKGLGFSIAGGKGSTPYRVGDTGIFISRIAEAGAAHKDGKLNVDRLVISINGVDM 0

.....LDYKTLAALPSTSLQK.....VNRLADSDT..... 43

.....LDYKTLAALPSTSLQK.....VNRLADSDT..... 43

VEEEEEETAVVPVPTERFSTCLMRNEKGLGFSIAGGKGSTPYRVGDTGIFISRIAEAGAAHKDGKLNVDRLVISINGVDM 172

.....LDYKTLAALPSTSLQK.....VNRLADSDT..... 43

.....LDYKTLAALPSTSLQK.....VNRLADSDT..... 43

.....LDYKTLAALPSTSLQK.....VNRLADSDT..... 15

VEEEEEETAVVPVPTERFSTCLMRNEKGLGFSIAGGKGSTPYRVGDTGIFISRIAEAGAAHKDGKLNVDRLVISINGVDM 172



conservation

Asian 'Arowana 'Scribble	TDARHDQAVALLTGTSP	TITLLVERDQ	GD	.....	PRARPHSPPPPQ	PSE.SLDQEE.....	SQANHL.N	978
Cattle 'Scribble	TEARHDHSVSLTTAASPTIAL	LLC	SSCGRC.....	AGQRLSRDAHPHSPPPP	TATP.ATPGE	GPLR...LPPS	LLA	979
Zebrafish 'Scribble	TEARHDQAVALLTGTSP	TITLLVVDRE	QSSV.....	GGAS..PRTRPHSPPPP	EP	SD.SPEQED	GGDE...HLGNHL.N	973
Coelacanth 'Scribble	TDARHDQAVALLTGTSP	TITLLVERETLE	PPSD.GEAGAS	PALYRARPHSPPPPPG	QADP	SEGENRNEEEI	VAQSNH	628
Spotted 'gar 'Scribble	TEARHDQAVTLLTGTSP	TITLLVERDVGD	PAADSAGLGGSP	ALARARPHSPPPP	PCD.TPDQED	ISED	RAYPQDNHL.S	985
Chinese 'softshell 'turtle 'Scribble	TEARHDQAVALLTASSPTIAL	LLVEREGAEQ.....	LSEGDSPVAPRAHSPPPP	SSHGES	PPEETALL.....	QRDHL.S	900	
Zebra 'finch 'Scribble	TEARHDQAVALLTAASPTIV	LLVEREGAEQ.....	PGE	GGSPRHALPPAIPRTWDDIIISTP	ASTVISA	AVNQYL.S	928	
Medaka 'Scribble	TEARHDQAVALLTGTSP	TISLVVERDP	PKAS.....	MGSPGQSRARAHSPPP	PE	SD.SPDQDE	EGLQ....GNHL.G	974
Yenyuan 'stream 'salamander 'Scribble 'isoform1	.....	.....	.....	.....	.....	.....	0	
Yenyuan 'stream 'salamander 'Scribble 'isoform2	TEARHDQAVALLTGSSPTIT	LLVEREII	IAPGTE.ADLGAS	PALQRT	TRPHSPPPP	SHLD.AGEEDD	GQ	249
Yenyuan 'stream 'salamander 'Scribble 'isoform3	.....HTLAMETDCQVL	QG	LLPSTDS	GG	.....	.....	QSQGLAS	74
Yenyuan 'stream 'salamander 'Scribble 'isoform4	.....HTLAMETDCQVL	QG	LLPSTDS	GG	.....	.....	QSQGLAS	74
Yenyuan 'stream 'salamander 'Scribble 'isoform5	TEARHDQAVALLTGSSPTIT	LLVEREII	IAPGTE.ADLGAS	PALQRT	TRPHSPPPP	SHLD.AGEEDD	GQ	249
Yenyuan 'stream 'salamander 'Scribble 'isoform6	.....HTLAMETDCQVL	QG	LLPSTDS	GG	.....	.....	QSQGLAS	74
Yenyuan 'stream 'salamander 'Scribble 'isoform7	.....HTLAMETDCQVL	QG	LLPSTDS	GG	.....	.....	QSQGLAS	74
Yenyuan 'stream 'salamander 'Scribble 'isoform8	.....	.....	.....	.....	.....	.....	15	
Yenyuan 'stream 'salamander 'Scribble 'isoform9	TEARHDQAVALLTGSSPTIT	LLVEREII	IAPGTE.ADLGAS	PALQRT	TRPHSPPPP	SHLD.AGEEDD	GQ	249


conservation


Asian 'Arowana 'Scribble	
Cattle 'Scribble	
Zebrafish 'Scribble	
Coelacanth 'Scribble	
Spotted 'gar 'Scribble	
Chinese softshell 'turtle 'Scribble	
Zebra 'finch 'Scribble	
Medaka 'Scribble	
Yenyuan 'stream 'salamander 'Scribble 'isoform1	
Yenyuan 'stream 'salamander 'Scribble 'isoform2	
Yenyuan 'stream 'salamander 'Scribble 'isoform3	
Yenyuan 'stream 'salamander 'Scribble 'isoform4	
Yenyuan 'stream 'salamander 'Scribble 'isoform5	
Yenyuan 'stream 'salamander 'Scribble 'isoform6	
Yenyuan 'stream 'salamander 'Scribble 'isoform7	
Yenyuan 'stream 'salamander 'Scribble 'isoform8	
Yenyuan 'stream 'salamander 'Scribble 'isoform9	


RALEDEYPV	EEVTLVK	TGGPLGLSIVGGSDHASH	PF	GVTEPGVFISKV	VLQGLACNS	GLRVGDRILEV	NGIDLRHATHQE	1058
AAL	EGPYPVEE	ICLPRA	GGPLGLSIVGGSDHSSHP	FGVQEPGVFISKV	LP	GLAARSGLRVGD	RILAVNGQDVREATHQE	1059
CPMEDEYPI	EEVTLIK	AGGPLGLSIVGGSDHASH	PF	GINEPGVFISKV	IP	NGLASQSGLRVGD	RILEVNSIDLRHATHQE	1053
REMEDDYP	VEVRHL..	AGILSIELAGKSDDNFSSV	SLGPP	CVYIRKVI	PP	GLAARSGLRVGD	RILEVNAIDLRHATHQE	705
RQLEDEYPI	EEVTLMK	AGGPLGLSIVGGSDHASH	PF	GISEPGVFISKV	IP	QLAAQSGLRVGD	RILEVNSIDLRHATHQE	1065
KGLEDQYPI	EEICLIK	AGGPLGLSIVGGSDHSSHP	FGI	QEPGVFISKV	IPHGLAS	RSGLRVGDRILEV	NTIDLRHATHQE	980
KGLEDQYP	VEEIRLVK	AGGPLGLSIVGGSDHSSHP	FGI	HEPGVFISKV	IP	RGLASRSGLRVGD	RILEVNGIDLRHATHQE	1008
.QMEDQYPI	EEVTL	LLKSGGPLGLSIVGGSDHASH	PF	GVNEPGVFISKV	IPHGLAS	QSGLRVGD	RILEVNSIDLRHATHQE	1053
.....	.....	.....	.....	.....	.....	.....	0	
RGMEDEYPM	EEVLLLK	AGGPLGLSIVGGSDHSSHP	FGVHEPGVFISKV	IP	QGLAARSGLRVGD	RILEVNTIDLRHATHQE	329	
AAAPQELV	VNCVNICPAA.....	.....	.....	.....	VPEGAPLYHTV	QLEEK	TAAAG...EQTAHST	120
AAAPQELV	VNCVNICPAA.....	.....	.....	.....	VPEGAPLYHTV	QLEEK	TAAAG...EQTAHST	120
RGMEDEYPM	EEVLLLK	AGGPLGLSIVGGSDHSSHP	FGVHEPGVFISKV	IP	QGLAARSGLRVGD	RILEVNTIDLRHATHQE	329	
AAAPQELV	VNCVNICPAA.....	.....	.....	.....	VPEGAPLYHTV	QLEEK	TAAAG...EQTAHST	120
AAAPQELV	VNCVNICPAA.....	.....	.....	.....	VPEGAPLYHTV	QLEEK	TAAAG...EQTAHST	120
.....	.....	.....	.....	.....	.....	.....	15	
RGMEDEYPM	EEVLLLK	AGGPLGLSIVGGSDHSSHP	FGVHEPGVFISKV	IP	QGLAARSGLRVGD	RILEVNTIDLRHATHQE	329	

conservation

Asian 'Arowana 'Scribble	AVRALLSSKH	EIRMLVRRDP	APP	GMQ	EIEIQKYPGEK	LGISIRGGAKGHAGN	PF	DP	TE	EGVFISKVSSSG	AAARDGRLQV	1138		
Cattle 'Scribble	AVSALLRPC	LELVLLVRRDP	PPPP	GMRE	LCIQKAPGER	LGISIRGGAKGHAGN	PF	CD	PT	DE	EGIFISKVSPTGA	AGRDGRLRV	1139	
Zebrafish 'Scribble	AVRALLSNKQ	EIRMLVRRDP	SPPP	GMQ	EIVIHKQPGEK	LGISIRGGAKGHAGN	PF	DP	TE	EGIFISKVSSNG	AAARDGRLRV	1133		
Coelacanth 'Scribble	AVKALLSNKQ	EIRMLVRRDP	PPPP	GMAV	QEKKSEPSVC	IGQTQNPDISH	NP	GNIF	FKLRD	LLFLPSQVSSSG	AAARDGRLKV	785		
Spotted 'gar 'Scribble	AVRALLSNKQ	EIRMLVRRDP	APP	GMQ	DIVIEKLAGEK	LGISIRGGAKGHAGN	PF	DP	TE	EGIFISKVSSSG	AAARDGRLQV	1145		
Chinese softshell 'turtle 'Scribble	AVNALLSSTQ	ALSMLVRRDP	PPPP	GMQ	EICIEKAPGEK	LGISIRGGAKGHAGN	PF	DP	TE	EGIFISKVSSSG	AAARDGRLKV	1060		
Zebra 'finch 'Scribble	AVNALLSNTQ	ELSMLVRRDP	PPPP	GMQ	EICIEKAPGEK	LGISIRGGAKGHAGN	PF	DP	TE	EGIFISKVSSSG	AAARDGRLQV	1088		
Medaka 'Scribble	AVRSL	LANKQ	EIRMLVRRDP	SPPP	GMQ	EVVIQKQPGEK	LGISIRGGAKGHAGN	PF	DA	TE	EGVFISKVSS	TGAAARDGRLQV	1133	
Yenyuan 'stream 'salamander 'Scribble 'isoform1	.....	.....	.....	.....	.....	.....	.....	.....	YSPT	T	QQQ	.....	8	
Yenyuan 'stream 'salamander 'Scribble 'isoform2	AVNALLSNSQ	EIRMLVRRDP	PPPP	GMQ	EISIDKCPGEK	LGISIRGGAKGHAGN	PF	DP	TE	EGIFISRVSSSG	AAARDGRLRV	409		
Yenyuan 'stream 'salamander 'Scribble 'isoform3	SVRPTSESGT	ETAHHL	PQ	DLK	PR	TP	.....	.....	PF	APT	PETL	.....	Q	159
Yenyuan 'stream 'salamander 'Scribble 'isoform4	SVRPTSESGT	ETAHHL	PQ	DLK	PR	TP	.....	.....	PF	APT	PETL	.....	Q	159
Yenyuan 'stream 'salamander 'Scribble 'isoform5	AVNALLSNSQ	EIRMLVRRDP	PPPP	GMQ	EISIDKCPGEK	LGISIRGGAKGHAGN	PF	DP	TE	EGIFISRVSSSG	AAARDGRLRV	409		
Yenyuan 'stream 'salamander 'Scribble 'isoform6	SVRPTSESGT	ETAHHL	PQ	DLK	PR	TP	.....	.....	PF	APT	PETL	.....	Q	159
Yenyuan 'stream 'salamander 'Scribble 'isoform7	SVRPTSESGT	ETAHHL	PQ	DLK	PR	TP	.....	.....	PF	APT	PETL	.....	Q	159
Yenyuan 'stream 'salamander 'Scribble 'isoform8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15		
Yenyuan 'stream 'salamander 'Scribble 'isoform9	AVNALLSNSQ	EIRMLVRRDP	PPPP	GMQ	EISIDKCPGEK	LGISIRGGAKGHAGN	PF	DP	TE	EGIFISRVSSSG	AAARDGRLRV	409		

conservation		
Asian Arowana Scribble	GMRILEVNNQSLLGMSHTEAVRVLRAAGDSLIIILVCDGFDPRDAAAVESSPGIIANPF...IVRKNSMESISSIDRDMSP	1215
Cattle Scribble	GLRILLEVNQQSLGLTHGEAVQLLRSVGDTLTVLVCDGFDTSAAATP.EVSPGIIANPFAAGLGRNLSISSIDRELS	1218
Zebrafish Scribble	GMRILEVGNNSLLGMTHTEAVRVLRASGDSLVMLICDGFDPKSASTIEASPGVIANPFAAGIVRKNSMESISSVDRDLSP	1213
Coelacanth Scribble	GVRILEVNNHSLGMTHTEAVRILRSIGDTLLVLVCDGFDPKAAAAIEASPGIIANPFVAGMGRKNSMESISSIDRDLSP	865
Spotted gar Scribble	GMRILEVNGHSLGMTHTEAVRTLRGVGDTLAVLVCDGFDPRDAAAVEASPGVIANPFAAGIGRKNSMESISSIDRELS	1225
Chinese softshell turtle Scribble	GLRILEVNHQSLGMTHTEAVQILRSVGDKLLVLVCDGFDPKAAAAIEMSPGIIANPFAAGIGRKNSLESISSIDRDLTP	1140
Zebra finch Scribble	GMRILEVNHQSLGMTHTEAVQVLRGVGDALLVLVCDGFDPKAAAAIEMSPGIIANPFAAGIGRKNSLESISSIDRDLSP	1168
Medaka Scribble	GMRILEVNNHSLGMTHTEAVRVLRAVGDSLMLVCDGFDPPQKVTSEASPGIIANPFAAGIVRKNSMESISSIDRDLSP	1213
Yenyuan stream salamander Scribble isoform1	.....NHQSLGMTHTEAVRILRAVGDTLLVLVCDGFDPRAAAAIEVS.....	8
Yenyuan stream salamander Scribble isoform2	GMRILEVNHQSLGMTHTEAVQILRAVGDTLLVLVCDGFDPRAAAAIEVS.....	489
Yenyuan stream salamander Scribble isoform3	GEEETLVDSQPIL.....FSENPFVVAN.....RKKGKAGSGACLGG....	195
Yenyuan stream salamander Scribble isoform4	GEEETLVDSQPIL.....FSENPFVVAN.....RKKGKAGSGACLGG....	195
Yenyuan stream salamander Scribble isoform5	GMRILEVNHQSLGMTHTEAVQILRAVGDTLLVLVCDGFDPRAAAAIEVSPGIIANPFASGIARKNSMESISSIDRDMSP	489
Yenyuan stream salamander Scribble isoform6	GEEETLVDSQPIL.....FSENPFVVAN.....RKKGKAGSGACLGG....	195
Yenyuan stream salamander Scribble isoform7	GEEETLVDSQPIL.....FSENPFVVAN.....RKKGKAGSGACLGG....	195
Yenyuan stream salamander Scribble isoform8	.....	15
Yenyuan stream salamander Scribble isoform9	GMRILEVNHQSLGMTHTEAVQILRAVGDTLLVLVCDGFDPRAAAAIEVSPGIIANPFASGIARKNSMESISSIDRDMSP	489

conservation		
Asian Arowana Scribble	EEMAIMQK...EVMVQDTPRWDKEDIEDVERMLREREEANRLLEKEAETFGTGPLKLDYRTLAALPTTSLQ.KVMRGL	1290
Cattle Scribble	EGPGK.....EKELPGQIPLWGPEAMSAPQ.....GRSPESLKPACRALAATPGAGSMQRVLPAA	1273
Zebrafish Scribble	EEIDIMQK...EVMVRETSQWEREEMEKVERMLREREEATRLLLEEETESLSSGPLKLDYKTLAALPTTSLQ.KVNRAS	1288
Coelacanth Scribble	EEMEIIQK...EMEMVRETTRWEREEMEKV.....SYNTEPLKLDYKTLAALPATSLQ.KVNRGS	921
Spotted gar Scribble	EEMDIIQK...EVMVREASQWEREEIEKV.....NFSPGPLKLDYKTLAALPTTSLQ.KVTRSS	1281
Chinese softshell turtle Scribble	EELEILQK...EMEMVREATQWEREEMEKV.....NISSEPLRLDYRTLAALPTNNFP.RVTRAV	1196
Zebra finch Scribble	EELEILQKVAGSTLQMFPQLNLAQKQGDE.....PLRLDYRTLAALPSSGLQ.RGNRAA	1221
Medaka Scribble	EEIDIMQK...ESEMVRETSQWEREEMEKV.....NISTGPLKLDYKTLAALPTSSLQ.KINRAP	1269
Yenyuan stream salamander Scribble isoform1	.....P.....AAPRSVQLSGRETRFA	25
Yenyuan stream salamander Scribble isoform2	EEIEILQK...EMEMVRETSQWEKEELEKV.....SYLTQPLKLDYKTLAALPSTSLQ.KVNRTP	545
Yenyuan stream salamander Scribble isoform3	.....P.PVGYGKSGVLKTNMFS...KKTP	216
Yenyuan stream salamander Scribble isoform4	.....P.PVGYGKSGVLKTNMFS...KKTP	216
Yenyuan stream salamander Scribble isoform5	EEIEILQK...EMEMVRETSQWEKEELEKV.....SYLTQPLKLDYKTLAALPSTSLQ.KVNRTP	545
Yenyuan stream salamander Scribble isoform6	.....P.PVGYGKSGVLKTNMFS...KKTP	216
Yenyuan stream salamander Scribble isoform7	.....P.PVGYGKSGVLKTNMFS...KKTP	216
Yenyuan stream salamander Scribble isoform8	.....PLKLDYKTLAALPSTSLQ.KVNRTP	39
Yenyuan stream salamander Scribble isoform9	EEIEILQK...EMEMVRETSQWEKEELEKV.....SYLTQPLKLDYKTLAALPSTSLQ.KVNRTP	545

conservation		
Asian Arowana Scribble	SSE.PQGVHSPSRDIAGSPSS.PASLHFVSTASPKEN..IPTRPGVIQPLSRMWSNS.TVNQDTRNSPKAFHHGGVPATS	1365
Cattle Scribble	SGE.M.....AEPFCSPSHQQ.....PPSPSPAELPANV	1302
Zebrafish Scribble	PSE.PFRIDSPVRDAAHSPHNSQSNHFPSNANTKDN..ASTKPGAIQPLSRVRPPVSPASQDGHSSPNPFQHG.LSPIN	1364
Coelacanth Scribble	SSPALNSPVKRDSPHSPTPQLASINFLSTHNDS...KSTKPGVIQPLSRVRPNMAPASQEGRDSPNPFQQP.EPESD	996
Spotted gar Scribble	SSE.PMGLSPSKDALYSPSSQPASINFLSNAAPKEN..KSTKPGVIQPLSRLWQNAPPASQDQSSPSSFQRG.LPLTE	1357
Chinese softshell turtle Scribble	SDG.ASL....RLPLLSLSLQ.....LRPHA.....PPSPED.....VPNVN	1229
Zebra finch Scribble	AAG.SMQDSMT...PRGPS.....PPSPSPDE.....VPINV	1251
Medaka Scribble	STD.SPRTDSPIREAPYSPIIQPANIHYTSTPTTKDDLSSTRPGAIQPVGRVRQGTSPSTPDGH.SPNPFQHG.PSPFN	1346
Yenyuan stream salamander Scribble isoform1	SIN.FLSQSD.....SQS.....TKPGAIQPHSWVRQTVTPPSSEGRNSPNPFQQH.ENSSN	75
Yenyuan stream salamander Scribble isoform2	SID.AVSGSHVKREAPYSPTTQQ.....TKPGAIQPHSWVRQTVTPPSSEGRNSPNPFQQH.ENSSN	605
Yenyuan stream salamander Scribble isoform3	SID.AVSGSHVKREAPYSPTTQQ.....TKPGAIQPHSWVRQTVTPPSSEGRNSPNPFQQH.ENSSN	276
Yenyuan stream salamander Scribble isoform4	SID.AVSGSHVKREAPYSPTTQQ.....TKPGAIQPHSWVRQTVTPPSSEGRNSPNPFQQH.ENSSN	276
Yenyuan stream salamander Scribble isoform5	SID.AVSGSHVKREAPYSPTTQQ.....TKPGAIQPHSWVRQTVTPPSSEGRNSPNPFQQH.ENSSN	605
Yenyuan stream salamander Scribble isoform6	SID.AVSGSHVKREAPYSPTTQQASINFLSQSDS....QSTKPGAIQPHSWVRQTVTPPSSEGRNSPNPFQQH.ENSSN	289
Yenyuan stream salamander Scribble isoform7	SID.AVSGSHVKREAPYSPTTQQASINFLSQSDS....QSTKPGAIQPHSWVRQTVTPPSSEGRNSPNPFQQH.ENSSN	289
Yenyuan stream salamander Scribble isoform8	SID.AVSGSHVKREAPYSPTTQQ.....	61
Yenyuan stream salamander Scribble isoform9	SID.AVSGSHVKREAPYSPTTQQ.....TKPGAIQPHSWVRQTVTPPSSEGRNSPNPFQQH.ENSSN	605

conservation

Asian Arowana Scribble

Cattle Scribble

Zebrafish Scribble

Coelacanth Scribble

Spotted gar Scribble

Chinese softshell turtle Scribble

Zebra finch Scribble

Medaka Scribble

Yenyuan stream salamander Scribble isoform1

Yenyuan stream salamander Scribble isoform2

Yenyuan stream salamander Scribble isoform3

Yenyuan stream salamander Scribble isoform4

Yenyuan stream salamander Scribble isoform5

Yenyuan stream salamander Scribble isoform6

Yenyuan stream salamander Scribble isoform7

Yenyuan stream salamander Scribble isoform8

Yenyuan stream salamander Scribble isoform9

1370

1380

1390

1400

1410

1420

1430

1440

PAYQPQAPSPRSPDDFPINIKQAYKAFAAVPPSLALLDPPQEPVSQ..RNNIQPR..SPVVEPELDNDVFESEMKANS

KQAY.....RTF.....AAVPLG..HPPLDTPA.....

SQTT.....DLYSP..RNNVSAKQPSPEFQPELNNEVFMDECDGEGS..

THST.....EPFIQ..KNTVRPK.....PEA.....

SHTS.....EPFVQTRKTNALPL..QP..SPEV.....

KQAY.....KTF.....AAVPQS..HSLLEPQM.....

KQAY.....KTF.....AAVPLS..QPLLGTQV.....

SQTS.....DLYGV..RNNFHHRQSSP.....ES.....

MHNSPGPSTPLSPDEFPVNVKQAYKTFAAVPVAAQIVLE.QQDVFIIP..RTPERPN..AP...SEV.....

MHNS.....DVFIIP..RTPERPN..AP...SEV.....

MHNS.....DVFIIP..RTPERPN..AP...SEV.....

MHNSPGPSTPLSPDEFPVNVKQAYKTFAAVPVAAQIVLE.QQDVFIIP..RTPERPN..AP...SEV.....

MHNS.....DVFIIP..RTPERPN..AP...SEV.....

MHNS.....DVFIIP..RTPERPN..AP...SEV.....

MHNS.....DVFIIP..RTPERPN..AP...SEV.....

MHNS.....DVFIIP..RTPERPN..AP...SEV.....

MHNS.....DVFIIP..RTPERPN..AP...SEV.....

1441

1323

1404

1015

1381

1250

1272

1368

132

626

297

333

626

310

310

78

626

conservation

Asian Arowana Scribble

Cattle Scribble

Zebrafish Scribble

Coelacanth Scribble

Spotted gar Scribble

Chinese softshell turtle Scribble

Zebra finch Scribble

Medaka Scribble

Yenyuan stream salamander Scribble isoform1

Yenyuan stream salamander Scribble isoform2

Yenyuan stream salamander Scribble isoform3

Yenyuan stream salamander Scribble isoform4

Yenyuan stream salamander Scribble isoform5

Yenyuan stream salamander Scribble isoform6

Yenyuan stream salamander Scribble isoform7

Yenyuan stream salamander Scribble isoform8

Yenyuan stream salamander Scribble isoform9

1450

1460

1470

1480

1490

1500

1510

1520

RAGAAPISSRRSFSSDRRDYLSLAAVPRLSRTSLELQSPASTGRGSPEQQRSFDRDRQKYFELDVKQQTPNTKPKPRVSLVG

.....QHPMLGPTASPEQLSFRERQKYFELEVRVPQAE..GPPKRVSLVG

.....GPRPSLLSDRSEYRSLAAVPRLSRPSVEPKTPSPFLGRHSPEQQRSFKDRQKYFELDVKQQTPD..KPKPRISLVG

.....SSPRGLDSPEQQRSFDRDRQKYFELDVKQQQAE..KPPKRVSLVG

.....PTSSGLESPEQQRSFDRDRQKYFELDMKQQTLDSKPKPRVSLVG

.....LSPPGGLHSPEQQRSFDRDRQKYFEMEVRKQQQVE..KPPKRVSLVG

.....AVHSPGGQHSPEQQRSFDRDRQKYFELVVKQQHLD..KPPKRVSLVG

.....PSPSGKDGPEQQRSFKDRQKYFELDVKQQTPD..KPKPRVSLVG

.....STPTGLDSPEQQRSFDRDRQKYFELDVKQQQLSE..KPPKRVSLVG

.....STPTGLDSPEQQRSFDRDRQKYFELDVKQQQLSE..KPPKRVSLVG

.....STPTGLDSPEQQRSFDRDRQKYFELDVKQQQLSE..KPPKRVSLVG

.....STPTGLDSPEQQRSFDRDRQKYFELDVKQQQLSE..KPPKRVSLVG

.....STPTGLDSPEQQRSFDRDRQKYFELDVKQQQLSE..KPPKRVSLVG

.....STPTGLDSPEQQRSFDRDRQKYFELDVKQQQLSE..KPPKRVSLVG

.....STPTGLDSPEQQRSFDRDRQKYFELDVKQQQLSE..KPPKRVSLVG

.....STPTGLDSPEQQRSFDRDRQKYFELDVKQQQLSE..KPPKRVSLVG

1521

1366

1476

1056

1423

1291

1315

1409

173

667

338

374

667

351

351

119

667

conservation

Asian Arowana Scribble

Cattle Scribble

Zebrafish Scribble

Coelacanth Scribble

Spotted gar Scribble

Chinese softshell turtle Scribble

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Yenyuan stream salamander Scribble isoform3

Yenyuan stream salamander Scribble isoform4

Yenyuan stream salamander Scribble isoform5

Yenyuan stream salamander Scribble isoform6

Yenyuan stream salamander Scribble isoform7

Yenyuan stream salamander Scribble isoform8

Yenyuan stream salamander Scribble isoform9

1530

1540

1550

1560

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1580

1590

EDDLKKMKEEEARRIEGCAQDYLLDE..DEEDEEDLAKQMTEIKAQGVLLDGVVEYKIESVASQTSSSPRP..CVTPPSY

ADDLRKMQEEEARKLQKKRAQMLREAAAANTGLPEADAPEDEEPEEPPWAGQG.....PMA.....

EDDLKKMKEEEAKRIEQRAREFMLDE.DEDEEDEEDLAKQVAHMKAHGKVVLDDGVVEYKVESLGS....PTSRQCATPPNY

EDDLKKMKEEEARKLQKKAREVLLDEDEEDEDEEDVVKRMSDISSHGSVITIEGVVEYKVERVDGRGSRSPLT....GLNY

EDDLKKMKEEEVKRMEDIAQELLDE.EDDEEDEEDLAKQMAEMKAQGVVVIDGVVEYKIERVDGHSSTSPTTGYCTAKPVE

EDDLKKMKEEEARKLQKKRALLLEEE..DEEDEEDAGK..PDMSMQSSVITIEGVVEYKIKRLNGRSIQSPAT.....

EDDLKKMKEEEARKLQKKRALLLEEEAEEDDEERQVPEAMQAATA.....WQVSSRGPTASLSP.....

EDDLKKMREEEERKFQRRAREYLLDEDDDEEDEEDLAKQVAHMKASGKVLLDGVVEYKVEPISS....PSQHYNLTPQRY

EDDLKKMKEEEFKRLQKKRQMLLQEV..DEEDEEDVVKKMADLSSQSSIYIEGVVEYKIERIDGRSQSPVP.....

EDDLKKMKEEEFKRLQKKRQMLLQEV..DEEDEEDVVKKMADLSSQSSIYIEGVVEYKIERIDGRSQSPVP.....

EDDLKKMKEEEFKRLQKKRQMLLQEV..DEEDEEDVVKKMADLSSQSSIYIEGVVEYKIERIDGRSQSPVP.....

EDDLKKMKEEEFKRLQKKRQMLLQEV..DEEDEEDVVKKMADLSSQSSIYIEGVVEYKIERIDGRSQSPVP.....

EDDLKKMKEEEFKRLQKKRQMLLQEV..DEEDEEDVVKKMADLSSQSSIYIEGVVEYKIERIDGRSQSPVP.....

EDDLKKMKEEEFKRLQKKRQMLLQEV..DEEDEEDVVKKMADLSSQSSIYIEGVVEYKIERIDGRSQSPVP.....

EDDLKKMKEEEFKRLQKKRQMLLQEV..DEEDEEDVVKKMADLSSQSSIYIEGVVEYKIERIDGRSQSPVP.....

EDDLKKMKEEEFKRLQKKRQMLLQEV..DEEDEEDVVKKMADLSSQSSIYIEGVVEYKIERIDGRSQSPVP.....

1597

1422

1550

1131

1502

1358

1374

1484

242

736

407

443

736

420

420

188

736



*Yenyuan's stream salamander Scribble isoform9*

*Yenyuan's stream salamander Scribble isoform9*

*Yenyuan 'stream' salamander 'Scribble' isoform9*

