

Takifugu_rubripes	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Oryzias_melastigma	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Danio_rerio	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Parambassis_ranga	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Melanotenia_boesemani	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Homo_sapiens	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Mus_musculus	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Panthera_tigris	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Balaenoptera_musculus	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Cervus_canadensis	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Ailuropoda_melanoleuca	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Mizuhopecten_yessoensis	E	K	M	P	E	K	R	R	S	F	E	Q	K	E	D	V	R	L	R	E	Q	E	P	N	K	I	P	V	I	E	R	Y	N	G	E	K	Q	L	P	L	D	K	T	K	F	L	V	P	D	V	N	M	S	F	L	K	I	R	R	R	L	Q	L	N	S	G	A	F	F	80
Xenopus_laevis	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Rana_temporaria	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Sceloporus_undulatus	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Crocodylus_porosus	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Gallus_gallus	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Patagioenas_fasciata_monilis	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														
Takifugu_fasciatus	NPSE	IE	KRRSFE	QK	EDVRL	RE	QEP	NKI	PVI	IER	YNG	EKQLP	LD	KT	KFL	VPD	VNM	SFL	KI	RRRL	QL	NS	GAFF	80																																														

  

Takifugu_rubripes	LV	VN	GH	SV	SV	SA	A	EV	VE	CE	RD	ED	GF	LY	VY	AS	CE	TF	G	T	H	L	125	
Oryzias_melastigma	LV	VN	GH	SV	SV	SA	A	EV	VE	CE	RD	ED	GF	LY	VY	AS	CE	TF	G	T	H	L	125	
Danio_rerio	LV	VN	GH	SV	SV	SA	A	EV	VE	CE	RD	ED	GF	LY	VY	AS	CE	TF	G	T	H	L	122	
Parambassis_ranga	LV	VN	GH	SV	SV	SA	A	EV	VE	CE	RD	ED	GF	LY	VY	AS	CE	TF	G	T	H	L	125	
Melanotenia_boesemani	LV	VN	GH	SV	SV	SA	A	EV	VE	CE	RD	ED	GF	LY	VY	AS	CE	TF	G	T	H	L	125	
Homo_sapiens	LV	VN	GH	SV	SV	ST	P	EV	VE	SE	RD	ED	GF	LY	VY	AS	CE	TF	G	N	K	L	S	125
Mus_musculus	LV	VN	GH	SV	SV	ST	P	EV	VE	SE	RD	ED	GF	LY	VY	AS	CE	TF	G	N	K	L	S	125
Panthera_tigris	LV	VN	GH	SV	SV	ST	P	EV	VE	SE	RD	ED	GF	LY	VY	AS	CE	TF	G	N	K	L	S	125
Balaenoptera_musculus	LV	VN	GH	SV	SV	ST	P	EV	VE	SE	RD	ED	GF	LY	VY	AS	CE	TF	G	N	K	L	S	125
Cervus_canadensis	LV	VN	GH	SV	SV	ST	P	EV	VE	SE	RD	ED	GF	LY	VY	AS	CE	TF	G	N	K	L	S	125
Ailuropoda_melanoleuca	LV	VN	GH	SV	SV	ST	P	EV	VE	SE	RD	ED	GF	LY	VY	AS	CE	TF	G	N	K	L	S	125
Mizuhopecten_yessoensis	LV	VN	RT	VS	NT	TP		Q	V	Y	N	K	E	D	S	G	F	L	Y	T				122
Xenopus_laevis	LV	VN	GH	SV	SV	ST	P	EV	VE	SE	RD	ED	GF	LY	VY	AS	CE	TF	G	N	K	L	S	124
Rana_temporaria	LV	VN	GH	SV	SV	CT	P	EV	VE	SE	RD	ED	GF	LY	VY	AS	CE	TF	G	N	K	D	A	124
Sceloporus_undulatus	LV	VN	GH	SV	SV	ST	P	EV	VE	SE	RD	ED	GF	LY	VY	AS	CE	TF	G	N	K	S	S	125
Crocodylus_porosus	LV	VN	GH	SV	SV	ST	P	EV	VE	SE	RD	ED	GF	LY	VY	AS	CE	TF	G	V	H	S	A	125
Gallus_gallus	LV	VN	GH	SV	SV	ST	P	EV	VE	SE	RD	ED	GF	LY	VY	AS	CE	TF	G	V	Q	S	S	125
Patagioenas_fasciata_monilis	LV	VN	GH	SV	SV	ST	P	EV	VE	SE	RD	ED	GF	LY	VY	AS	CE	TF	G	V	Q	S	S	125
Takifugu_fasciatus	LV	VN	GH	SV	SV	SA	A	EV	VE	CE	RD	ED	GF	LY	VY	AS	CE	TF	G	T	H	L	125	

**Figure S4** Multiple alignment of the LC3 amino acid sequence of *T. fasciatus* with other animals.

Notes: High, medium, and low conserved amino acid residues are displayed in black, red, and blue shades, respectively.