

Takifugu_fasciatus	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQAESSEGETAPEEA.FVEN.KCD	73
Takifugu_rubripes	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQAESSEGETAPEEA.FVEN.KCD	73
Acanthopagrus_latus	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	73
Epinephelus_fasciatus	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	73
Salarias_fasciatus	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQAESSEGETAPEEA.FVEN.KCD	73
Homo_sapiens	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	76
Mus_musculus	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	74
Crotalus_tigris	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	74
Loxodonta_africana	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	74
Oryctolagus_cuniculus	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	74
Sceloporus_undulatus	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	74
Xenopus_laevis	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	71
Xenopus_tropicalis	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	71
Gallus_gallus	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	73
Patagioenas_fasciata_monilis	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	74
Homalodisca_vitripennis	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	0
Mizuhopecten_yssoensis	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	73
Plakobranchus_ocellatus	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	73
Octopus_sinensis	NEVSKSSS...TTMCVSFVCCRCOPLKLDTSFNVLDRTVHETAPLVTVTP...SKQADSSSEGETAPEET.FVEN.KCD	77
Takifugu_fasciatus	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	151
Takifugu_rubripes	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	151
Acanthopagrus_latus	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	151
Epinephelus_fasciatus	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	151
Salarias_fasciatus	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	151
Homo_sapiens	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	151
Mus_musculus	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	151
Crotalus_tigris	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	152
Loxodonta_africana	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	152
Oryctolagus_cuniculus	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	152
Sceloporus_undulatus	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	152
Xenopus_laevis	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	149
Xenopus_tropicalis	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	149
Gallus_gallus	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	151
Patagioenas_fasciata_monilis	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	152
Homalodisca_vitripennis	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	0
Mizuhopecten_yssoensis	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	150
Plakobranchus_ocellatus	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	147
Octopus_sinensis	GVSRKYI PPAP...MVSTESANSFTLL GEASDGNVEHL SRRL KVT SOL FDI MSGGTDVDHPL CEECTDTLL DLDLDTGLNI	156
Takifugu_fasciatus	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	230
Takifugu_rubripes	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	230
Acanthopagrus_latus	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	230
Epinephelus_fasciatus	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	230
Salarias_fasciatus	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	230
Homo_sapiens	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	233
Mus_musculus	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	233
Crotalus_tigris	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	231
Loxodonta_africana	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	231
Oryctolagus_cuniculus	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	231
Sceloporus_undulatus	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	231
Xenopus_laevis	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	228
Xenopus_tropicalis	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	228
Gallus_gallus	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	230
Patagioenas_fasciata_monilis	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	231
Homalodisca_vitripennis	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	69
Mizuhopecten_yssoensis	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	230
Plakobranchus_ocellatus	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	227
Octopus_sinensis	TENECONYKQCLELISNLQVEDEET LLAEL QQLKEEEAAVEETVEEQRAAVACDLACCRVHSCQDTELEOQKEY	236
Takifugu_fasciatus	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	308
Takifugu_rubripes	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	308
Acanthopagrus_latus	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	308
Epinephelus_fasciatus	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	308
Salarias_fasciatus	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	308
Homo_sapiens	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	311
Mus_musculus	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	309
Crotalus_tigris	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	309
Loxodonta_africana	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	309
Oryctolagus_cuniculus	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	309
Sceloporus_undulatus	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	309
Xenopus_laevis	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	306
Xenopus_tropicalis	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	306
Gallus_gallus	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	308
Patagioenas_fasciata_monilis	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	309
Homalodisca_vitripennis	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	149
Mizuhopecten_yssoensis	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	308
Plakobranchus_ocellatus	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	305
Octopus_sinensis	SEFRKQLELDELISVQVRAAGQDLKQKQVFNATFHVHS.GCGGTINFRRLGRPLSVFVWEI.NAAQGVTV	314
Takifugu_fasciatus	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	388
Takifugu_rubripes	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	388
Acanthopagrus_latus	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	388
Epinephelus_fasciatus	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	388
Salarias_fasciatus	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	388
Homo_sapiens	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	391
Mus_musculus	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	389
Crotalus_tigris	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	389
Loxodonta_africana	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	389
Oryctolagus_cuniculus	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	389
Sceloporus_undulatus	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	386
Xenopus_laevis	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	388
Xenopus_tropicalis	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	386
Gallus_gallus	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	388
Patagioenas_fasciata_monilis	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	389
Homalodisca_vitripennis	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	228
Mizuhopecten_yssoensis	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	388
Plakobranchus_ocellatus	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	384
Octopus_sinensis	LLHAIAKVKGLRQRYR.VPGNHYS.ESLTDKSKELPLYSGGGRFFVONKFDAAWAFLOVCOFKEVEKGTGRC	394
Takifugu_fasciatus	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	447
Takifugu_rubripes	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	447
Acanthopagrus_latus	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	447
Epinephelus_fasciatus	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	447
Salarias_fasciatus	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	447
Homo_sapiens	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	450
Mus_musculus	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	448
Crotalus_tigris	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	448
Loxodonta_africana	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	448
Oryctolagus_cuniculus	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	448
Sceloporus_undulatus	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	448
Xenopus_laevis	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	445
Xenopus_tropicalis	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	445
Gallus_gallus	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	447
Patagioenas_fasciata_monilis	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	448
Homalodisca_vitripennis	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	286
Mizuhopecten_yssoensis	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	444
Plakobranchus_ocellatus	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	440
Octopus_sinensis	LPYRVOVEKGLD EDTGSGSGSY KIQFNSEECQTKALKFNLNLVGLAWVTSQFYNR	450

**Figure S5** Multiple alignment of the Beclin-1 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.