

Figure S4. Shisa-like and Shisa proteins deduced from ESTs. The sequences are denoted by NCBI gene identification numbers followed by species abbreviations and their phylums. More detailed taxonomy information is shown for arthropods. Conserved cysteines are shaded in yellow. Mutations in conserved cysteines are in black background. Shisa-specific cysteines are shaded in red. Two sequences with tandem cysteine-rich domains are marked by green and blue gi numbers respectively. The two additional conserved cysteines in some lophotrochozoans are shaded in magenta. Predicted transmembrane segments are underlined. Cysteines and positively charged residues (arginines and lysines) near the C-terminal ends of predicted transmembrane segments are shown as red and blue letters, respectively. PY motifs ([LP]PxY) in the C-terminal regions after the predicted transmembrane segments are colored in cyan. Species abbreviations are as follows: Acan.gom, *Acanthoscurria gomesiana*; Acyr.pis, *Acyrtosiphon pisum*; Alvi.pom, *Alvinella pompejana*; Amph.que, *Amphimedon queenslandica*; Angi.can, *Angiostrongylus cantonensis*; Aphi.gos, *Aphis gossypii*; Apis.mel, *Apis mellifera*; Aply.cal, *Aplysia californica*; Arte.fra, *Artemia franciscana*; Asca.suu, *Ascaris suum*; Baet.sp., *Baetis* sp.; Bomb.ter, *Bombus terrestris*; Brac.pli, *Brachionus plicatilis*; Brug.mal, *Brugia malayi*; Burs.xyl, *Bursaphelenchus xylophilus*; Caen.bre, *Caenorhabditis brenneri*; Caen.ele, *Caenorhabditis elegans*; Caen.rem, *Caenorhabditis remanei*; Cala.fin, *Calanus finmarchicus*; Cali.cle, *Caligus clemensi*; Capi.tel, *Capitella teleta*; Carc.mae, *Carcinus maenas*; Conv.pul, *Convoluta pulchra*; Cras.gig, *Crassostrea gigas*; Cras.vir, *Crassostrea virginica*; Daph.pul, *Daphnia pulex*; Diap.cit, *Diaphorina citri*; Drei.ros, *Dreissena rostriformis*; Duge.ryu, *Dugesia ryukyuensis*; Echi.gra, *Echinococcus granulosus*; Erio.sin, *Eriocheir sinensis*; Grap.atr, *Graphocephala atropunctata*; Gryl.bim, *Gryllus bimaculatus*; Hali.div, *Haliotis diversicolor*; Helo.rob, *Helobdella robusta*; Homa.ame, *Homarus americanus*; Hyps.duj, *Hypsibius dujardini*; Ixod.sca, *Ixodes scapularis*; Lern.bra, *Lernaeocera branchialis*; Limu.pol, *Limulus polyphemus*; Locu.mig, *Locusta migratoria*; Lott.gig, *Lottia gigantea*; Macr.lig, *Macrostomum lignano*; Mere.mer, *Meretrix meretrix*; Moni.exp, *Moniezia expansa*; Myti.cal, *Mytilus californianus*; Myti.edu, *Mytilus edulis*; Myti.gal, *Mytilus galloprovincialis*; Myzo.cir, *Myzostoma cirriferum*; Myzu.per, *Myzus persicae*; Neob.mel, *Neobenedenia melleni*; Nila.lug, *Nilaparvata lugens*; Para.liv, *Paracentrotus lividus*; Pati.pec, *Patiria pectinifera*; Pere.mai, *Peregrinus maidis*; Petr.cin, *Petrolisthes cinctipes*; Prat.pen, *Pratylenchus penetrans*; Rudi.dec, *Ruditapes decussatus*; Rudi.phi, *Ruditapes philippinarum*; Schi.jap, *Schistosoma japonicum*; Schi.man, *Schistosoma mansoni*; Schm.med, *Schmidtea mediterranea*; Sole.inv, *Solenopsis invicta*; Stro.pur, *Strongylocentrotus purpuratus*; Sube.dom, *Suberites domuncula*; Taen.sol, *Taenia solium*; Tric.pse, *Trichinella pseudospiralis*; Xeno.boc, *Xenoturbella bocki*; Xiph.ind, *Xiphinema index*.