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Drome-SIRT6 -----MSCNYADGLSAYDNKGILGAPESFDSDEVVAEKQCQELAELIKSGHVVL
Tal-SIRT6 FTTFYCFHRFAMSCNYAEGLSPPYDPKGQVGMPERFAGKEEVSRKVSELAALMKASRHTVF
Pappo-SIRT6 -----MSCNYAEGLSPYEHKGVVLTGPIPEKFEAIEKLNKCEMLARLITESKHIVV
Papxu-SIRT6 -----MSCNYAEGLSPYEHKGVVLTGPIPEKFEAIEKLNKCELLARLISESKHIVV
          *****:****.* ** :* ** * . * : * . ** *:. * * * .

Drome-SIRT6 HTGAGISTTSAGIPDFRFGPKGVWVTLLEKGEKPDFNVSFDEARPTKTHMAIALIESGVVQY
Tal-SIRT6 HTGAGISTTSAGIPDFRFGPKGVWVTLLEKGLRPEVNVSFDDARPTYTHMALVALEKAGLIHY
Pappo-SIRT6 HTGAGISTTSAGIPDFRFGPNGVWVTLLEKGRPSTNISFTDAKPTKTHMILKKLIESNKIQY
Papxu-SIRT6 HTGAGISTTSAGIPDFRFGPNGVWVTLLEKGRPSTNISFTDAKPTKTHMILKKLIDCNKIQY
          *****:*****:*. *. *:* * :*.** ** * : * ... :.*

Drome-SIRT6 VISQNIIDGLHLKSGLDKRYLSELHGNIIYIEQCKKCRQFVSPSAVETVGQKSLQRACKSS
Tal-SIRT6 LVTQNIIDGLHLRSGFPRRKMALHGNMYLDKCSVCKREFVRCCTAVSTVGQKSLGVGCPGK
Pappo-SIRT6 IVSQNIIDGLHMKSGLSRKYLSELHGNMFIDECSLCKRQFIRSSPVETVGKKCSGVPCASG
Papxu-SIRT6 IVSQNIIDGLHLKSGLSRKYLSELHGNMFIDECSLCKRQFIRSSPVETVGKKCSGVPCASG
          :.:*****:*. * . :*****:*****. * . *:* :*.** *:. * .

Drome-SIRT6 MDSKGRSCRSGILYDNVLDWEHDLPENDLEMGVMHSTVADLNIALGTTLQIVPSGDLPLK
Tal-SIRT6 RDT-GRRCR-GRLHDNILDWEHDLPHLDYNLAEKHSVGSVCLGTTLQIIPSGVLPPL
Pappo-SIRT6 YNG-GRPCR-GRLYDGVLDWEHSLPEDDLLMAEWHSSIADLSICLGTTLQIVPSGNLPLE
Papxu-SIRT6 HNG-GRPCR-GRLYDGVLDWEHSLPENDLLMAEWHSSIADLSICLGTTLQIIPSGNLPLE
          : * * * * * * . :.*****. * * * . :. * * :* * . :.*****:*** **

Drome-SIRT6 NLKCGGKLVICNLQPTKHKDKKANLISSYVDVVLKSVCKLLGVEIPEYSEASDP-----
Tal-SIRT6 AKQSGGKLVICNLQPTKHKDISDIIINGYVDDVMRELLSLLNITCPEYSMEQDPVLI TRA
Pappo-SIRT6 TVKYGGKLVICNLQPTKHDNKSDLI INYYVDDILEKVMNIIKLDIPEYNEDTDL-----
Papxu-SIRT6 TVKYGGKLVICNLQPTKHDNKADLI INYYVDDILEKVMNIIKLDI PQYNEDTDL-----
          : * * * :*****: :.***. * * * :. :. :.* : * : * . *

Drome-SIRT6 --TKQSKP-----MEWTIPTS---NVNTFHRQYK-----KYVKDSKIESKAKK
Tal-SIRT6 LKTKLACSSDAELIEWTIPDSWFDDKDLIEKVS RNKAIADQKNAGKYP RATKIDRRKRK
Pappo-SIRT6 --TKLAST---EIVEWTIKKK---DVLVLEKVFKA KC-----KGVKKKKILIKTKR
Papxu-SIRT6 --TKLAST---SIVEWTINKK---DVLVLEKVFKA KC-----KGVKKKKILIKNKR
          ** : . :**** . : : . . * . .** . .

Drome-SIRT6 T-----KYT-----
Tal-SIRT6 SPIKPEVKKEETGESSSQDEGLSARNERYRKRSLDAGQLGTNKR
Pappo-SIRT6 N-----STESNGIENGCKVIKLEVKQEC DISEIK
Papxu-SIRT6 N-----STEINNGIENGCKVIKLEIKDECV-----
          .

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### Additional file 29. Putative *Talitrus saltator* SIRT6 protein

Alignment of *Drosophila melanogaster* SIRT6 (Drome-SIRT6; Accession No. NP\_649990) with the *T. saltator* SIRT6 (Tal-SIRT6) deduced from the Trinity *de novo* transcriptome assembly, together with the top two tblastn species homologue sequences *Papilio polytes* SIRT6 (Pappo-SIRT6; Accession No. XM\_013284914) and *Papilio xuthus* SIRT6 (Papxu-SIRT6; Accession No. XM\_013314262). '\*' indicates identical amino acid residues in the two proteins, '.' and ':' indicate similar amino acid residues between the two proteins. In this figure one SMART identified SIR2 domain is highlighted in yellow.