Α

1 AACATGGGGAGCGCAAGAATTTTAAAAAATCTTCCAAATGAGCTACAAAATCTGTTCAAAATGAAGTGCGCTTTACCGTCGCCAAGTGTT M G S A R I L K N L P N E L Q N L F K M K C A L P S P S V 1 91 30 R I. F V VIHA L A K LG D Y I YF E A E KE QL V R IK т GTTAATTCATCCAGATCAGTTTTTGTTGTTGTTTTTAAACTTTCCAAACAGTTTTTCATTTCCTACGAGCAAGAAACAATTGCTCTTCCTCAA 181 60 V N S S R S V F V V F K L S K QFFISYE QET IALPQ 271 ATATGTAAACTTACTTCGAAGTCTCTGCTGACTGTTTTCCGCTCTACTTCCTTAATTGACAAGTCTGTTGAAACGTGTTTAATTACAATG 90 K L T S K S L L T VFRS TSL ID S V E C I T M ĸ Т 361 CCAAATGATATGAGTGAATTAGCTATTCAGTTGAGATGCAGATTTGGCGTTGTGAGGTCTTACAACTTGAATATTGTTGAATGTGATGTAA 120 P NDM SELAIQ L R C R F G V V R S Y N L N I V E C D V GTTGATGTGCCGTATTCAAGAAATATACTGACTATTGATGAAGTGACTTTGGTGCTAGAGCCAACTAAAATAGCAATGAAGAACTACGTT 471 150 V D V P Y S R N I L P F H I G A S S K T F SEAVLNFR Ν 561 GATGATATTCAAGACCCTAGGAAAGCAATTCATACCGAGCTTCGCTCTCAAAAGACGAATTTATTGATTACACATGCAAACAAGGTGTG 180 т DEV T L V L ЕРТК IAMKNYVDDIQDP RKA GACTTAACTTTCAATCTAAAAGATTTCCGAGTGTTACTACAGTTCACTGAATTAGCCAATTATTCTATCGACTTAAGATTTGAAAACGTCA 651 TCKQGVDLTFNL TELSLS K D E F I D Y KDF 210 н R 741 GGCGATCCGATTGTAGCAAGTGTGGACTATGAACCTTTATTCACTGCGGACTTCGTTTTGGCGACGCTGGATGTAACAAATGTTACTCAG v L L Q F T E L A N Y S I D L R F E T S G D P I V A S V D Y 240 831 CCAACGCCACCCCCTATTCGTGACGCTTTAAATGCTTCTAATATCAATATTAGCTCTGCGAAAACCCCTCGTTCCCAAAGGAAAAGATAC 270 E P L F T A D F V L A T L D V T N V T Q P T P P I R D A L 300 Ν А SNINIS SAKTPRSQRKRYPTSVTNSEGA 1011 ATCTTCAAGCGTTGTTTTGAGACCTCTTTTTCGCAGCGGATTCAAAGTAATGAACAGATACTTGCACTTGATTCAGATGAAGATTAATTT MENGHETPSQSV IVKKMKRIFKRCFETSF 330 P 360 S Q R I Q S N E Q I L A L D S D **1191 AAAAAAA**

В



Figure S1. (**A**) Nucleotide sequence and deduced amino acid sequence of Rad9 gene in *A. sinica.* (**B**) Results of domain analysis of putative *As*-RAD9 protein.

ASRAD9 GGRAD9 MMRAD9 HSRAD9 ACCRAD9 DRRAD9 DRRAD9 TRAD9 BMRAD9 CGRAD9 OLRAD9 BTRAD9 DMRAD9 Consensus	MCSARI LKNLPNELQNLFKWK GALPSPS. VFI F VRVI FALAKL GDY YFEAEKECLVI KTVNSSRSVFVV KLSKCF I SYECETI ALP	100 79 82 87 80 83 82 85 82 80 74 90
ASRAD9 GGRAD9 MMRAD9 HSRAD9 HSRAD9 ACCRAD9 DRRAD9 TRAD9 BMRAD9 OLRAD9 BTRAD9 DMRAD9 DMRAD9 Consensus	VERSTSLI DKSVETCLI TI PNDISSE AI CLICKEFCVVRSYNL NI VECDVDUVPYSRNI LPFHI GASSKT SEAVLIN RNTI DEVTLVLEP. TKI AUXINYVDDI CD. PRKA WRSLPTLDKSVERCLVLI RPRAGRI VLCI HCKFCVTRTHCI AFOECERI DAVFDTQCCASRLRAPACLI AEAVLSPILALTEVTI GI GRGRRVI LI SYCEEEADSTSKA WRSLAMLEKTVEKCCI SI SGSHSH VVCI HCKFCVRKTHNI SFODCESI DAVFDPASCPHIL RTPARVI AEAVLSPILALTEVTI GI GRGRRVI LI SYCEEEADSTSKA WRSLAMLEKTVEKCCI SI NGRSSRI VVCI HCKFCVRKTHNI SFODCESI DAVFDPASCPHIL RAPARVI GEAVLF SPILALTEVTI GI GRGRRVI LI SYCEEEADSTSKA WRSLAMLEKTVEKCCI SI NGRSSRI VVCI HCKFCVRKTHNI SFODCESI DAVFDPASCPHIL RAPARVI GEAVLF SPILALTEVTI GI GRGRRVI LI SYHEEEADSTAKA WRSLPSLEKTVEKCCI SI NGRSSRI VVCI HCKFCVRKTHNI SFODCESI DAVFDPASCPHIL RAPARVI GEAVLF SPILALTEVTI GI GRGRRVI LI SYHEEEADSTAKA WRSLPSLEKTVEKCCI SI NGRSSRI VVCI HCKFCVRKTHNI SFODCESI DAVFDTGRCASSI CAPARVI AEAVVH PCTI AEVTI AEOPCGKI SI RNHVEDEAE. PGKT WKSLSSLERSVEKCRI GI NSEKSRI TI TI HCKHCILKTHNI SFODCESI DAVFDKESCTINUL GAOPRUI NOTIVLH PPSL EEVN WRSLPSLEKTVEKCCI SI NGRSSRI VVCI HCKFCVRKTHNI SFODCESI DAVFDPTOTNUK RAPARVI GEAVLF SPALAEVTL GI GRGRRVI LI SYHEEEADSTAKA AFKSPAHI DKCVESI ENKLDPESCKII FCI KCKHCI VKT HNI SFODCESI DAVFDPASCPHIL RAPARVI CEAVLF SPALAEVTL GI GRGRRVI LI SYHEEEADSTAKA AFKSPAHI DKCVESI ENKLDPESCKII FCI KCKHCI VKT HNI SFODCESI DAVFDPASCPHIL RAPARVI CEAVLF SPALAEVTL GI GRGRRVI LI SYHEEEADSTAKA AFKSPAHI DKCVESI ENKLDPESCKII FCI KCKHCI VKT HNI SFODCESI DAVFDASCPHIL RAPARVI LEAVLS PPALTEVTL GI GRGRRVI LI SYHEEEADSTAKA AFKSPAHI DKCVESI ENKLDPESCKII FCI KCKHCI VKT HNI SFODCESI DAVFDACCHNENTRAPARVI CEAVLF SPALAEVTL GI GRGRRVI LI SYHEEEADSTAKA AFKSPAHI DKCVESI ENKLDPESCKII FCI KCKHCI VKT HNI SFODCESI DAVFDACCHNENTRAPARVI CEAVLF SPALAEVTL GI GRGRRVI LI SYHEEEADSTAKA AFKSPAHI DKCVESI ENKLDPESCKII FCI KCKHCI VKT HNI SFODCESI DAVFNALCPHLI RAPARVI CEAVLF SPALAEVTU GI GRGRRVI LI SYNCEEEADSTIKA VERAPHLI DKCVETCH HKLEPADSE LFI KYKNSI TKTHLI PI LOCEI LI GTVYNKDSASI KLSSCPRVI LI DAVIGNI HCHLI EI TEVSA. CKLLI NYVDDVSG. LSNT WRSI GSLEKSVETCN MI PLLEALII I EKCKHCI I KHNI SYDDSESI DAVFNALCPRAVESSI SYSSFYSELLSENSTEV	208 188 192 192 196 188 192 193 192 188 182 198
ASRAD9 GGRAD9 MMRAD9 HSRAD9 ACCRAD9 DRRAD9 XTRAD9 PTRAD9 BMRAD9 CGRAD9 OLRAD9 DMRAD9 DMRAD9 Consensus	I HELS SKDET DYTCKCCVDLUSN, KDETVLUG TELANYSI DLRFETS OP I VASVDYEPLETAD VLATLDVTNVTCP	297 290 301 296 290 293 301 298 301 289 284 308
ASRAD9 GGRAD9 MMRAD9 HSRAD9 ACCRAD9 DRRAD9 DRRAD9 TRAD9 DMRAD9 CGRAD9 OLRAD9 DMRAD9 DMRAD9 Consensus	ALNASNI NI SSAKTPRSORKR	377 376 389 391 385 381 379 391 389 392 388 379 404

Figure S2: Multiple sequence alignment of *As*-RAD9 protein. Sequence alignment of known RAD9 sequences from 13 species. The sequences and their accession numbers are as follows: MmRAD9, *Mus musculus*, NP_035367.1; CgRAD9, *Cricetulus griseus*, XP_003509986.1; HsRAD9, *Homo sapiens*, NP_004575.1; PtRAD9, *Pan troglodytes*,XP_016776852.1; GgRAD9,*Gallus gallus*, NP_998748.1; AccRAD9, *Aquila chrysaetos canadensis*, XP_011599156.1; XtRAD9,*Xenopus tropicalis*, NP_001005810.1; DrRAD9, *Danio rerio*, NP_956501.2; OIRAD9, *Oryzias latipes*, XP_004073282.1; BmRAD9, *Bombyx mori*, XP_004926904.1; BtRAD9, *Bombus terrestris*,XP_020723628.1; AsRAD9, *Artemia sinica*, (MH_797557); DmRAD9, *Daphnia magna*, KZS14537.1. The sequence of the RAD9 domain is shown in red.



Figure S3: Phylogenetic tree constructed by RAD9 proteins. The sequence and registration number of the RAD9 are the same as in the legend of Figure S2. The red diamond indicates *As*-RAD9 from *A. sinica*.