

Additional file 2

>BFo_R2_shifted_from_R2_targetsite

MEEKNNETAGRTASSDKTSKSSASGSAARA AVTPAPSRACLF CGKAFKLRGLAGHTRRCESNPEWLNEKIHSSRWDFSGRSPVNCARCDLHMKATCYIGHFPDCIATNGCFRCGNQV
 PVADYVEHFQVCVRTIDPAEPPTQVVIPEVQKVTCPYCPAALQAKFSFKPGRGLSMHVKKKHPKEWNDYQLNRMEL YPSQYIWREGDDELICQAI E EYQSSAPAVKKA FGINQFIQ
 FRSFPHCTLDSITCHRKTSSFKEYAKDRAKRIADQQA VAE SRAEESLPNEDGGHFEEVEILSEKEKSAIAAKPFGSEILEIHQHLVNRWD TACSAAKLVFEELTCKFGKNIPVHK
 VKQGADPRPPGKPTRKSKKRANRRRLKPSKEKRRESYAKVQKRWSKKRVDVIKSILDGKLEQVQGEKPTMEKQHDYWKSLFERPSPEDPGKVPGESSVQYEL SAPLTKEEVANGLG
 TAKEASTGPDGVPLSALKELGSLSLWVLYCALWMMKSETPKGWRVSRVTVIDKTADECGKNPEDFRPISISSYFYRIYARSISSRLTRAVPISKRQRGFIRQDGV RDNIELFDNLVKD
 AKRTLTPLSVAFMDIRKAFDSVGHASIQRALEWAGVPGRVRRVIEELYDCYTEVGGGRIRVNRGVKQGDPLSSFLFNIVLEMALSRVPPGLGINYLGHQLFYMAFADDMILLARNA
 HVLQRIVDMVSSELGLAGLEFNHAKCKVLSLVTDP RNKAS MIDT DVEI AVNGDRIPPLGVLD TYRYLGIDVGVKGVPKFEPQKELKDLLQRLTKAPLKPHQRLYALRVHTMPRFQHK
 LIFSKVTRNALSQMDSLVRKHVREWLKLPDDVTKAALYADVSGGLGLICLERRVPLLKYSRIERLRDSDDELVRLLIDQEQVNKRVMQWKDRCKMSGKTYRSKEELRDLYRTLNS
 TVDGKGI RGDTRLGRLSMRSLVGPCIPLTPTRYIHAINVRLGTLQTSERKARGRV CNENGVLC DKERACHARKAVATLGHISQVCPVHGLRVRRHDRV RDVANQLQSRKKSVEKV
 LVEKTIKLQDGTVL RPDII VLT DTSIEVIDVQIKADMGIRRDLETDQTAKRAKYDRGDVQTSIERELSVVGMGRLYTVTALTITFRGQLPRHTVDLATRLKFKTLLPELVADVLADT
 GSMFVVWHRTTGNAGKP

BFo	-----MEEKNNETAGRTASSDKTSKSSASGSAARA AVTPAPSRACLF CGKAFKLRGL
B Mi	-----
MLe	KLHRCCPLFQE KDSGGLNRSAS-----GV
PBa	TL----PFLKLN MNRLNNEKNS-----GA

BFo	AGHTRRCESNPEWLNEKIHSSRWDFSGRSPVNCARCDLHMKATCYIG-HFPDCIATNGCF
B Mi	-----KNTMFNITPR---PEDSQVDRVTIDAESGLPNHAGANLLQCE
MLe	MSNTSHSKNLK-MDNKLKTSLET PSGV---RADSIITRVRTSSNRG-EHSGVTTYPRCE
PBa	VRSTEFVS----ADNRPSQSLRTTESH-----RCP

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BFo	RCGNQ-VPVADYVEHFQVC-----VRTIDPAEPPTQVVIPEVQKV-TCPYCPAA
B Mi	WC DR LCKNKAGLTLHKRACKNNPAVGSSAGNTDNRRINTP---PTMRSLFNCEYC---
MLe	-----QGVAPLDTHGGICDAPPQVTPATETDKQKK-----CEYC---
PBa	NCRKLCRSGNGLALHMKHC-----AKCYQNGDNREQPVK----PRM----EC SIC---

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BFo	LQAKFSFKPGRGLSMHVKKKHPKEWNDYQLNRMEL Y-PSQYIWREGDDELICQAI E EYQS
B Mi	---NTGYGTD RGLSAHISKKHIPEWNMIKMERFKADGPRQH V WREGDWEILCQGE E EHDR
MLe	---EFTY LKPRQIGTHMRKRHPQEWNDIKRTKFLSE-KRQKRWLDEDFELL CIGQE E YLV
PBa	---GLFFSGQRGV AIHKRKKHPAEWNETKRVEDTLS-RKKIRWTSGDRELLH LGMIEWEA

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Figure S2: (Top) Translated R2 ORF from *B. forskalii*. (Bottom) Multiple sequence alignment of all Ctenophora (*Bolinopsis microptera*, *Pleurobrachia bachei*, *Mnemiopsis leidyi* (recurated from Kojima et al. 2016) and *Beroe forskalii*.) R2 N-terminal ZnFs. CXXC residues in the ZnFs are highlighted in green.