

Table S1: Sequences used in the phylogenetic reconstruction of PABP in the Excavates.

>Tthe1

MTTATQEEITPTVPVTKPLQVASLYVGDLDPAINEPQLVELFKPYGTILNVRVCRDIITQORSLGYGYVN
FDSPEAAKAMESLNFKRIGEKCVRIMWQQRDPALRYSGNGNIFVKNLKNEVDSRALSILFKKFGDILS
CKVMEDEGGKSRGYGFVHFVEDDAKDAITNMNGDKENADEAKSGLYVANFIRRNRALALVANFTNVY
IKQVLPVTDKDIIEKFFSKFGGITSSATCKDKNGRVFAFCNFEKHDDAVKAI EAFHDQVIEGVTAPGEK
LYVQRAQPRSERLIALRQKYMOCQSLGNNLYVRNFDPDFTEKNLHELFEYGEIRSCRVMTDANGNSRG
FGFVSFENADQANAALREMNGRMLNGKPLIVNIAQRRDQRYTMLRLQFQQRLQMMRRMHPAPFVAQGP
GPORRNARNAORGGSGGAGRRHQAPQQAAPAPHPQPD MFSTPSMAFTAQRTPOPSPGVADPTPLPPIIT
AEDLRTMTVDEQRAALGDRLYIKVFEIAPDHAPKITGMFLEMDLKEAFTLLYNQKLLHEKVTEALCVLK
AHGTTA

>Tthe3

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KSLGYGFVQFETAEGAKTALEKSVESLGEAIIAVAPFVRKAERLAQEEKFFVNVYVKNIKPGTTEDEIR
GEFNKFGELKSLFLSGHPQHQT MFCILSFLTHDAAVA AIEAMHNSVSSPILLPDSKLFVCRALKKRDRQ
EIAQSSQTLYQSQRNLYIKHLDESVTREKLEELFSPFGKIVSCVLMKDASGVSREFGFVCFEAKEIAD
TALREMQNGKTVFGKPLVYSYAEQKDMRSRILHEKIQRMIRQQHQRTMPMTILSKPWTRNYPANSVFRP
PFMQPFHARRQPPHPPPPMFM TSSMQTPPPPPPPVPSQLMNHGTNRYYTQPHFPVPLPPPPPPPI
HSAQQVWQGANREALRESHLSNLSPEEKRNILGERLFSKVM EIQPNQAAKITGM LLEMETA EILEILNT
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>Tthe2

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ARISFEKEESAVEAVQEVNGMTIDDCVITVERYQPHHREEQLKQYTNLYVKNLDPV DDEKLETFSAF
GEVTSAKVRNLGPSQTVGFAYVAYATHEAAA KAVEELDEKESPLAKEGLKLSVCRFRSREERQRERERL
RRERQQH SKYPNLYVKNFDDTVTSSRLKEVFERFGETVSVSVMMDKATKLSRCFGFVSFKEQSSAARA
IQELHGSTVLGPRPLFVTYALRKDARRQ TLEDIRNKQPRMRQPPMGGLMGGMMGPQLGFMGPQTMFNGV
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>Tcar1

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POQPQHSRGRMGAPRGTRNHAPLHTPPPTQSQVQAQAQAQTHVQEMFTTPSMGFAAPRTPQASPGVA
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KVTEALCVLKAHGSAA

>Tcar2

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GEVTSAKVREIQONPGAGFAYVAYATHEAAA SAVEELDEKESPLAKEGMKLSVCRFRSREERHREHERL
RRERQQH SKYPNLYVKNFDDTVTDERLKELFERFGETVSVRVMIDMATKTSRCFGFVSFKEQSSAARA
VQELHGSTYL GPRPLFVTYALRKDARRQ TLEDMRNKQPRMRQPPIGGMMGGMMGAQIGFMNPQSMFNGV
PLMNPRMPMPMAAMMGAPIRPLGPTPMNQVRARPAPQRPLMQPLMQPQPQAPAQGNLSTVLASLSP
EQQKNVLGERLYNYIVRVNPSVAAKV TGMLLEMDNGEILNLLDNP SLLNTKIQEALDVLNRHMSV-
RTTNGLAAGWRSSMECNPLQDRNHI GEDVFRK

>Tbor1

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NAAEA EKALET LNFKTVKNCNIRLMYQQRDP TTRYNGSGNIFVKNL DKGKVD SKSLHEIFNKFGSILSCK
VMSNADGSSRGYGFVHFKDDSQASEAICKMNGNENAAENAALYVAQFIRRNNRI AALMANFTNVYIKQ
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LCVLKAHDRA

>Pdav3

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HHTTN

>Pdav2

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SL

>Pser1

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VLPDVKIEIESFFSKFGGITSATTCKDKSGRVFAFCNFEKHDEAVKAI EALHDNHVEGITAPGEKLYV
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RFTDHSVTEALCVLKAHNCA

>Pser2

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VLNHHMGV

>Pser3

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>Egra_a

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>Egra_b

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>Egra_c

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LE

>Tbru1

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>Tbru2

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IGM

>Lma j2

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>Lmaj3

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>Lmaj1

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>Lbra3

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>Lbra2

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>Lbra1

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TV

>Linf3

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HTGN

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>Tva1

MDPNWKEVFGDLPGSVDENFIKEIFKDYGSFPSTVTVKHKHSLDKSFAFVTFESHELAKRAISEVNY
TKLDGVP I R I L W S D P G T K R A I K N N V G A L F I R G L D E N I E V S Q L H D A F S N F G E I V S C K I P L T N G K S R G Y G F
I T F Y K E D D A K R A K T D L A D A S I N G K P I Q I E F Y Q K P T R K N P E E T F T N V F I K P L P A D I F K T D D D L A N F F K E F
G D F V V T G K A N P A I K R K E D G S S C E F G F C N F K H H E D A V K A V D A L N G K Q H E S G K V T F S C C R A Q T K A E R Q A F L
A K Q S A E F R R R L N E E T R G R N L Y V K N F D Q S V T D E Q F K E Y F E Q F G E V E K C S I R R E A Q E P H E S K G F G F V L F K T
K E S A Q N A L E N A V I T P L N G K T P Y I G L F K M K E E R E R E K A S N Q R K Q Q P K G A M I P N T I G G P V I P T Q Q I M M Q S M
M M P Q V P V S A P A T S K D L L K N E L T E R N I S G S K L K A I L S S I S E E Q A K S L C S D Q E K L N H W V E E K T K M

>Tva2

MATLTTQIFVGDLPKDIDESFLKQFFAESGEIIPNSGIVLKKHKTLDSSFAFVTFATHEQAAMKMLN
YTKLDGRPIRILWCDTETKAIKSGRGSFLINGLDESIEVSQLHDAFSNFGEIISCKIPLTDGKSRGYG
YIQFRNPENAEKAKLELADASINGKPIKIDNYNRKSRRNPDDEFNTVYIKPLPVDQVKTDEDLRKIFEP
FGEIQNP SLK K D E N G S K G F G F C N F K L H E D A V K A V E G L N G Q E M F G V T L Q V N R L M S K R E K E L Y N I K K H T E
K V E K F A E E T N G R N L Y V K S F S K D V T D K E F Q E Y F S K F G E I E L F K I E R V P E T K E S K G F G F V L Y K S K E D A Q N A
I E M A M L E R L H G D L P Y V G F F Q T K A A H E R V K V K N T H P R P S A V P A I A G N L M E N S M T T I A R Q Y Q P V E D N S P K G
Q L K Q L L Q E K G V L G T N L K R L L S S V S A E Q A V N L V K E Q S K F E I W Y S H N A N

>Tva3

MDLNWKELFVGDLPGYVDGNFIKELFREYGNFPSTITVKKHKS LDKSFAFVTFESHELARRALLEVNY
TKLDGVP I R I L W S D P A T K R A I K K D F C T L I I F D L D E Y I E A A Q L H D I F S N F G E V V S C K I P L T N G K P R G D G Y
V T F Y K E E D A M R V K N D L A Q A S I N G K P I Q I V L Y C K P T R K N S E E T F T N V F I K P L L V K Y F K T N E D L A K L M K D F
G E F V N P S I K F N D D G T S S E F G F C N F M Y H Q D A V K A V E S L N G K M H I S G E F E F V C C R A Q T K A E R Q A F L A E Q S A
E F R R R L Y E E T R G R N L Y I K N I D R S I N D E E F E E Y F K Q F G E V E K C L I S R E A Q E P H E S K G F G F V L F K T K E G A Q
N A L K N T I I T P L K G K I L Y V N Y F I M K E E R E H I L P M D Q P K T Y L N F I K T K L S E R G F P N K Q K K N S L F N L R R T S
S R T L Q