Additional File 15

Amino acid sequences of PB1 domain-containing proteins of *Dictyostelium*

discoideum. Sequences are obtained from the indicated servers: GenBank^{TM}

(http://www.ncbi.nlm.nih.gov/)

>Dd-PB1-A: GenBank No. XP_639165
MSWLNNPSQNFVDPFIRIKCILGDDIRIIKFNSNISYGGLMNQLEQDFQCPISIHQYEDYEGDKVTV
KSKDDIMEALTMYFELKALNPTKIISTKFFLKQLPPQSQPLSSSLSPTQSLILNNNNNNSNNNLMN
MNMNMNLNMNSNNSSGSSSSNNIVIPQQQGNRKGSNAPPLRTPPPSPPSSSPKNSPPFLGNNSNTS
INILDFYSLNGSNNNSGGTGSNNNGIGSSSREITPPLRTPPGSPRFALNNSNSNSNSSVNNIPTNNNN
NNHHHIIHQLNLNSPSPPPPLRTPPPSPPSSSPPSSSPQSSFIFEQTDFHFEELSKNNSPKNSNFLNTID
QPHQIYQPHQPHYQQQQQQQQMYNFNQPLSPSPPLQSQQKQQQQQQQQQQQQQQQPQQQQQQQ
QQQQQQQQQQQQQQFNNSFENGGIKLPRPLSPTFLNINNNIISNLNNNNNNNNNNNNNNNNNN
NNNNNNIIQHTDFPSLIINEHEELISNHNIKWQKGQILGRGGYGSVYLGLNKDTGELFAVKQLEIV
DINSDPKLKNMILSFSKEIEVMRSLRHDNIVRYLGTSLDQSFLSVFLEYIPGGSISSLLGKFGAFSEN
VIKVYTKQILQGLSFLHANSIIHRDIKGANILIDTKGIVKLSDFGCSKSFSGIVSQFKSMQGTPYWM
APEVIKQTGHGRSSDIWSLGCVIVEMATAQPPWSNITELAAVMYHIASSNSIPNIPSHMSQEAFDF
LNLCFKRDPKERPDANQLLKHPFIMNLDDNIQLPTISPTTTLSTNTTNTTATTTTTNNATNSNINQ
QQQQQQQQPPTRTQRVSISAGSSNNKRYTPPISTSTSSSSSSSILNNFSINIILPINLIILIFREIKPNFVN
TLSRVCKHWKQIIDDDELWNKYCSDRLINKSKFEESITWKSNYIKIYKQQKVWFHNKLNHSTLK
GHDKGVFCVKLIDDQGMVLSGGEDKKLKVWDISGNHHHNHHSGIVGSISKKSGLNIINNNNSNN
SNSSSNSSSSNSRYLFSLKGHSGCIKSVDYQRQSGSDVSRVFTASADFTCKIFSLKTKKTLFTYTN
HQEAVTCINYLGDVENKCITSSLDKTIQLWDAETGSCLSTLRGHTGGIYCVKTDQVATHGNGYN
HLVVSASVDKTSNVWDTRSSSKVRSFTQHTEDVLCCYVFDQKVVTGSCDGTIKLWDIGTGKTIS
TFIPSETRQKNYVWTVQFDQSKIISSGKTGIIRIWDIYNERDSRSIGGHHETIFSLQFNNQKLITGSL
DKLVKIWSID
>Dd-PB1-B: GenBank No. XP_646538
MVNLILKIQHNDDTRRVSMERDPTFLELRKMTVTFFKINSFLIKYFDEDKDLITITSDNDLKEAFSI
ATTSPRTVRLFVSKTEEESSSETINNNNTTPSINNYQNPLSNSVNNNNNNNNNNDNNTMNLKPLI
DSILANPNIAQLASASAVSCLTPKVHTSVYGIPTTGTDQTQIENLLSNLGSQNWINEIVQNSLSNIF
KPNVNNNQNQNQSTTTNNNNTTTTTTTSTTKNEEKQKTEKNENMVEHVGITCDGCDSKVFGN
RYKCTVCHDYDLCSECESRGDQVHPTSHPLLKIAQPTPISCSWQHSNAGRSGIPHGFGGGRCTRK
VYAARYLADISIKDGSVIPKGSSFTKTWRLRNDGKTSWPENTTLSFLSGDRFQYQTDIFVPVCQP
GQDIDISVDLVAPTKTGRYTGYWRLSTPEGFGFGQSIWVDIYVIADEDDNKKQQPIIQEEKQQEEE
QKDVVQRLPDSDSEDELLKQEQEKLEEEEEEEEEEKDEPKIEEEADSFCFLPFTPSPFSPFSIQNNV
PASVQVPSEISNSFNIPPVAEQQQQEKINNNTSNNSNNYQLPPLPVVEQEQIIENVQPQVEELPKLE
ELSVNGEQEDIRRKCIGTLVSMGFSNTPNIIEIIKRYNFNINEIIDHLLSNQEQ
>Dd-PB1-C: GenBank No. XP_644298
MNILIKSELENDKRRFRLKECSFSCLCYTLASIYSFYNDMIYSIFYLDNENEWITLASTDDLKESYS
LCPSLIRIKIIVLDLTINNNNNNNNNNNNNSCKLLLNNHSSNSNNIYNHSNSSNSNNYSTNNNNNN
NNNNNNNNNNNNNNNNNTTNNNNYHNNINNNSNSNNKIIDIASQLLSNDSIRSQMNNLLSGTL
ASFLPEILEKTIPHTIPILVATISSMKAEAEQNNYDEPTFYNNKDKHYKSTDESQHINIKSAGNNIPT
SKSSVELSVNKKSVASNNNNNNNVNNSSNTSNNIIINNNNVSKPQPIQNVMSQSSPNLTFTTNN
NNTTCSNINSSTGSMEPMEINPTTQPYSIISSTPASTSLPPLSATTSFLPTSSTTSNNNAGTSNGFTSIT
NSNNNNNNSNNNNNNNNNSSILSQSVPSVNLINKKPSSPSPILSLFSKSSITPIQTSSISLPSPGISPFS
NPLDGSSLINPETTPSQSSSSFFRPVSPTSISSLENNNTNSNTTVNNNNNNNNDTSPLKRKLSRFSFFS

SILGNKNNNTSTNTTKMDSPEISSTISDISTVDCSTTSSSTNQPNTSVIKLDIEQEKDDQEKQVDDL
QFGLIIEPMPLNVMEDLNNTITNDDNNNNNNNNNNNNNNNNINDDDVGDSLVNDINNQNDEK
NKNDIGSGSIVIVEDCISTQNNNDNNNNNNNNKNNIISSNSLTVDENDDSGRSSASMDYNETSLNN
NANTTKTTTNHLIINNGLELLSCDDDDEDDEITKEIESVFLKQQQQKLQQQQQQQQQQQQQQQQQQ
QQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQ
>Dd-PB1-D: GenBank No. XP_638776
MVDQPPKFWSFLGCHGNNSANNILAPPNPTKENNNSSNGSINGYGGNTNNLDSTTLNVTLGSEM
KSITVPKSSTYKDMISTIKDKFGVNSKSTLCIKCENKDGEMFSLASDCHVKKAYNQQPENQPKEL
RLVVKEIPQKKCDMFHNSILSFFSNCSSSNSNTIAQNYTSTQPPPASQSSLQHLATQPVPDYLKPSN
NNKSDFTPPTSSSPSYLTSNNNINNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN
LNSNIGTSTNNTNNINLRFSLFQMSNSSTNNISNIKNMGINQNINNSLNRGFFAKNNQTSLCMGSH
NSNLNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNKISTSPKQSNILPP
INTKSNNNNGINNNLSPSQQQHQSQQKLNTTLQHVTSNPQLNMSTSSFMTSASMNSNIGSDTETM
KRNESFDFNMVMEDDSSEPQSQSYQQNQSIINNGTCALLNQNLNDEVEFGDEQQQQEKQKIINN
GKPPTSTPMCREVGSFIQDTTKLFYKLRQTSDPKEMSAIKELICEKIQDSLTTMPWLLGFFPQLKQ
FANQSCPVFNVPPNTPPPSPLMTSPLLEMYQNPTSTFKPSSSVSSSLSSSTSSTTTTTKTSSTVNQAS
VYQVSPNVNINSIQSQLQLQNKIEVDMISKAYQESKKNQKIINEQQQQQQQQRPIDFSSQQSSANT
TTDEDSSCSNSNNNNNNNSKHFLKIAGPTIHKGTTCAFCKFSPIIGNIYECNSCSYAFCELCKTDSA
LQCPSNDPTHKVQMSSLSKQCKKLLKSKASQTGSSSVSASPNRGCPYKRKHPKPTFGVKFLNDIT
LFFGSEVHPNECIVKTWRLLNTGPTLKDCLLVRVCGNTRLSKVPAILIPIVSSGEEFSLSVPIQIPLIP
NKCEEYLVGEYWRICTSDGVYFGDQLWISLVVKNREMISLSDQFNKLSSQCNSTSQQNQQQQQQQ
QQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQQKTTTTTSTSCTCRNNNLISCNCQVNKN
STNFNSCLN
>Dd-PB1-E: GenBank No. XP_635325
MGITYKSNFEGDVRRFSSDHPLTYTRLQDKLVNLYNLYEISFGITYLDDGDNITIADAKDLEEAH
NLLGNEILRLTITRKLNENKNINNSSSSSNNNSNNSNNNNNIDSLFVQLLSNQFVQQMIPQVMNSL
ATNPALMTSIIQTAGSALRNNGVNNNNNNNSNNNTNNNNNNNNNVNSGDNNNNNNINCNIKRNS
PHLLNASLGNNFHTHSTDSIVATLKPIIDEENNGNNNNNTTRITLTSSNGNESCNGSFSSSISFEMV
NKESDSDNQYSTSSSTTSSTSATSNSHSLNNRPPSPMENLNKSPSTIVSSSSSSSSSSSSSSSTTSSSST
TTTTTTTPLPPPTTTTNNRLSGIPKSIFNILPFTNTTHSSNNNNNNSNKIEIKPKQDEPSNVNNTLSSS
SKPIATPTTATPTSQQQQQTNSSSPKQDRNMSTSPQQPPSHPHNSPNHLFQHNFSNPYIYQNGNVG
ATQPPPLPQSPFIPQQPVAPLVQQQPLPSAPLSQDQQQQQQQQQQQQQQQQQQQQQQQQQQQQQ
QQQQQQQQPLPTAPLSQSQEQQQPLSSESIKFIKEALQISESEAIKLFEKYGGDLDKIFSEIKN

Alignment of PB1 domains of Dd-PB1-A to -E

Each PB1 domains were identified by Pfam search program

(http://www.sanger.ac.uk/Software/Pfam/search.shtml). Amino acid sequences were

trimmed to the length of PB1 domain and were aligned. Dd-p67-like and Fg-Bem1 were

used as references. *Red* and *blue letters* indicate the amino acid residues corresponding

to K355 and K382 of PB1 domains of human p67*phox* and four acidic amino acid

residues (D289, D291, D293 and D302) of OPCA motif of human p40*phox* PB1 domain,

respectively.

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Dd-PB1C        -MNILIKSELENDKRRFR-LKECSFSCLCYTLASIYSFYNDMIYSIFYLD-NENEWITLAS
Dd-PB1E        -MGITYKSNFEGDVRRFSSDHPLTYTRLQDKLVNLYNLY-EISFGITYLD--DGDNITIAD
Dd-PB1B        MVNLILKIQHNDDTRRVSMERDPTFLELRKMTVTFFKIN---SFLIKYFD-EDKDLITITS
Dd-PB1D        --STTLNVTLGSEMKSITVPKSSTYKDMISTIKDKFGVNSKSTLCIKCEN-KDGEMFSLAS
Dd-PB1A        ---IRIKCILGDDIRIIKFNSNISYGGLMNQLEQDFQCP---ISIHQYED-YEGDKVTVKS
Dd-p67-PB1     --KITLKVFYKDRRLI-QIPVPCNLSTFIQKIELKFEIT---ISDKFSFQ-LDGEENEINS
Fg-Bem1-PB1    --AMKIKMYFNGDLIAIRVPTDISFQALYDKICDRLKIPANEEIQLFYKDEPTGDKPSMIS


Dd-PB1C        TDDLKESYSLCP--------SLIRIKIIVL 80
Dd-PB1E        AKDLEEAHNLLGN-------EILRLTITRK 80
Dd-PB1B        DNDLKEAFSIATT-------SPRTVRLFVS 80
Dd-PB1D        DCHVKKAYNQQPEN------QPKELRLVVK 134
Dd-PB1A        KDDIMEALTMYFELKALNPTKIISTKFFL- 98
Dd-p67-PB1     QVQLDKMICM---------EINEINVKD- 383
Fg-Bem1-PB1    DNDLDFALQR-NE-------KLLLYVEAV- 590
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