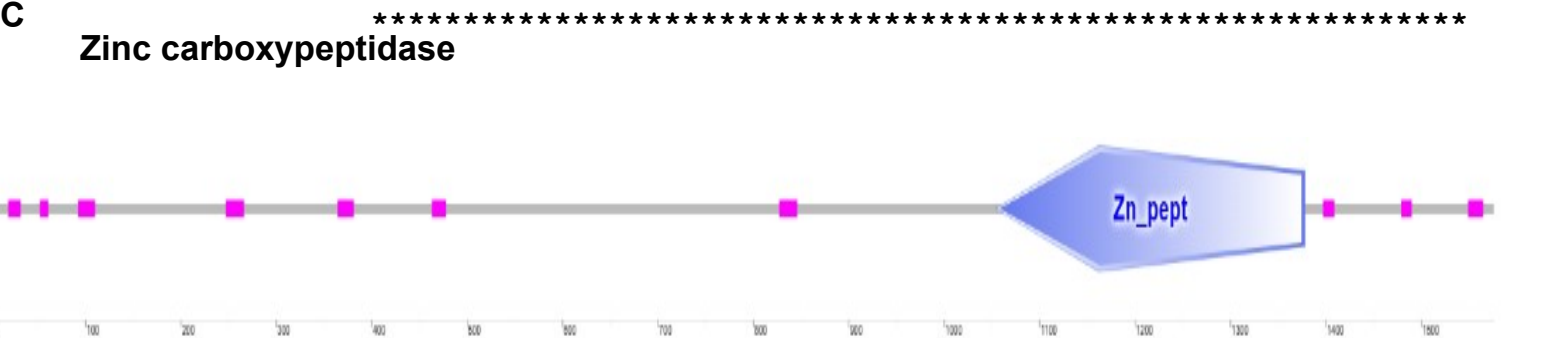
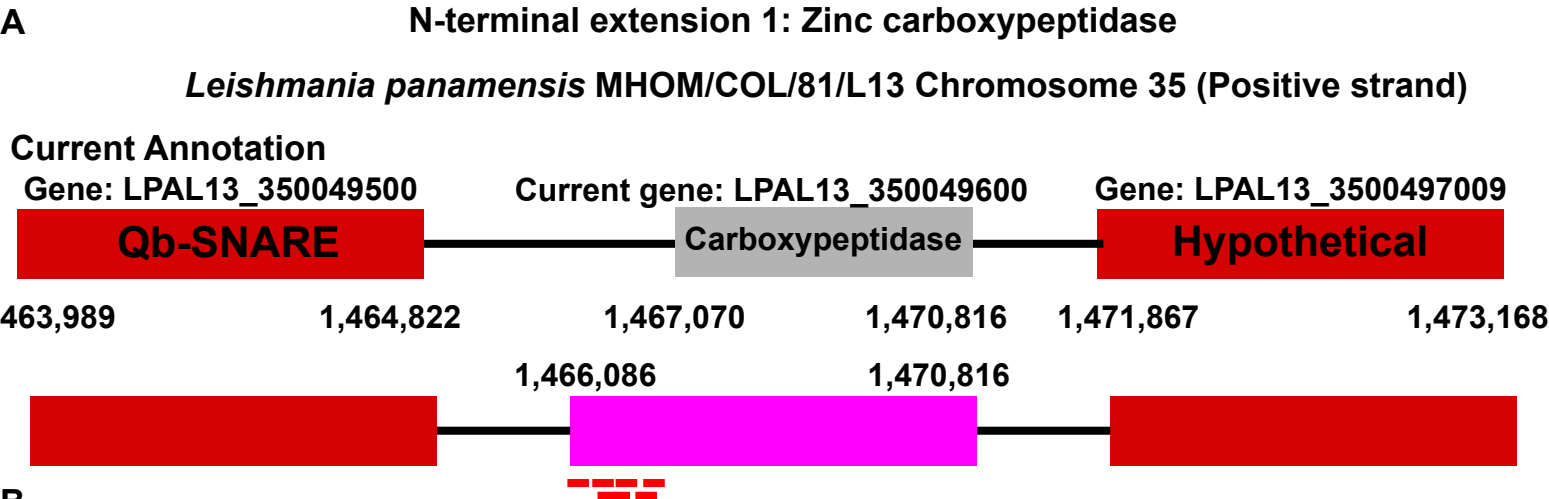
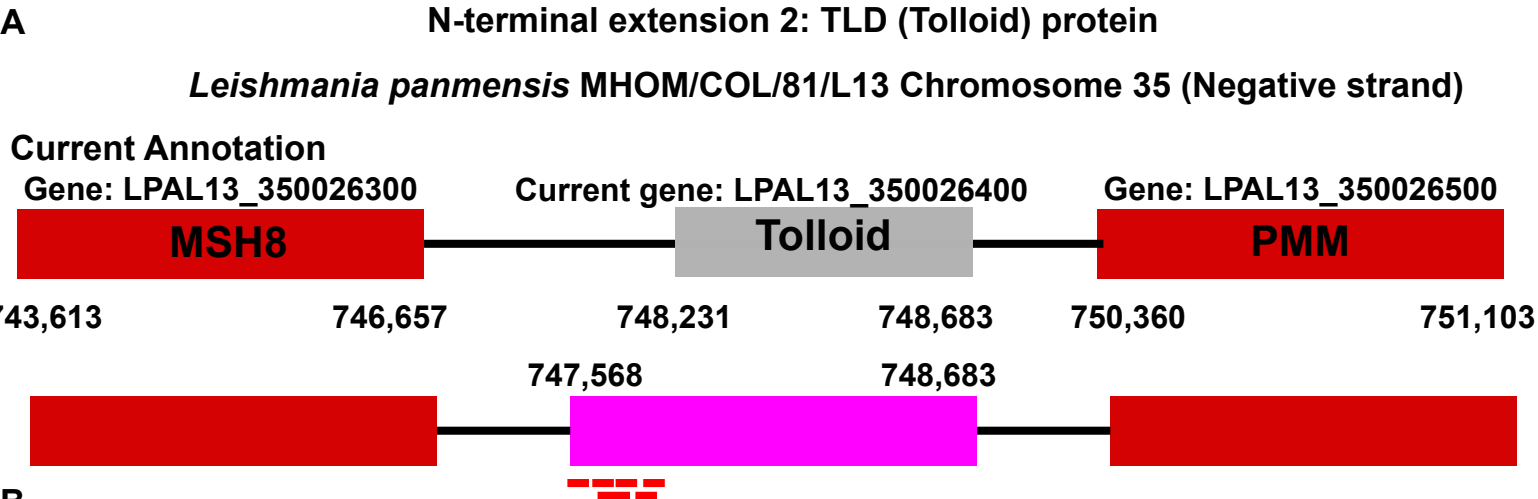


Supplementary Figure 1

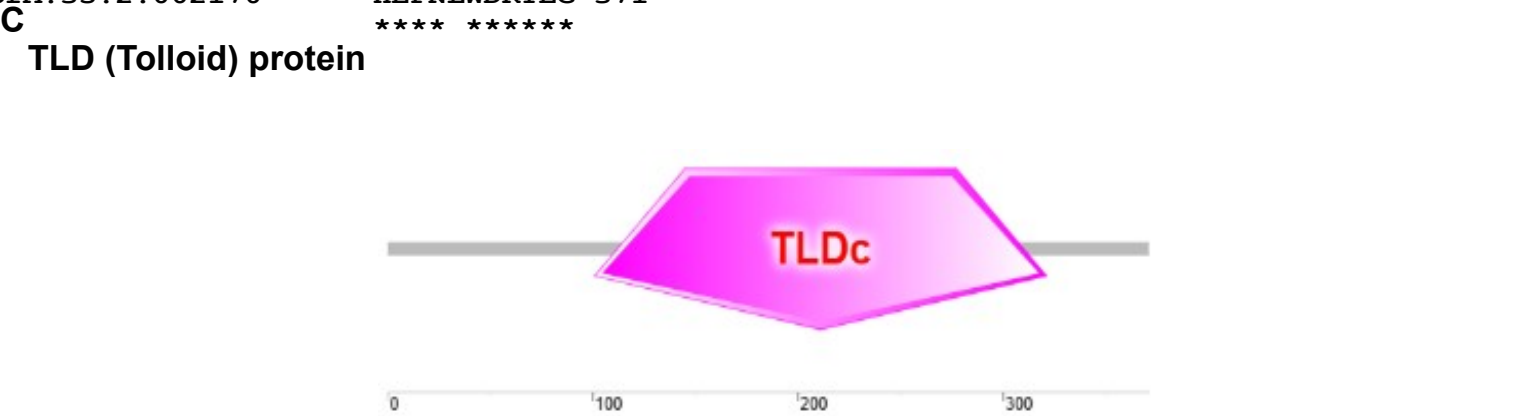


Supplementary Figure 2

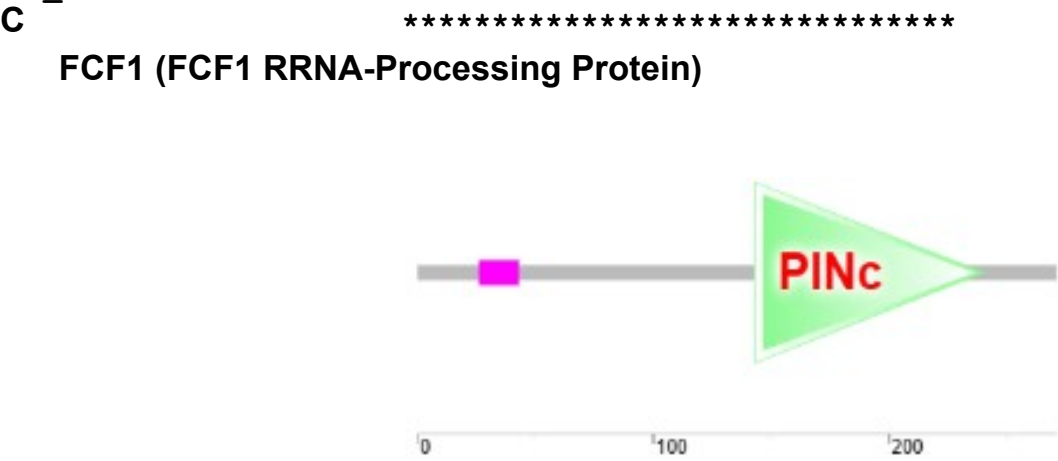
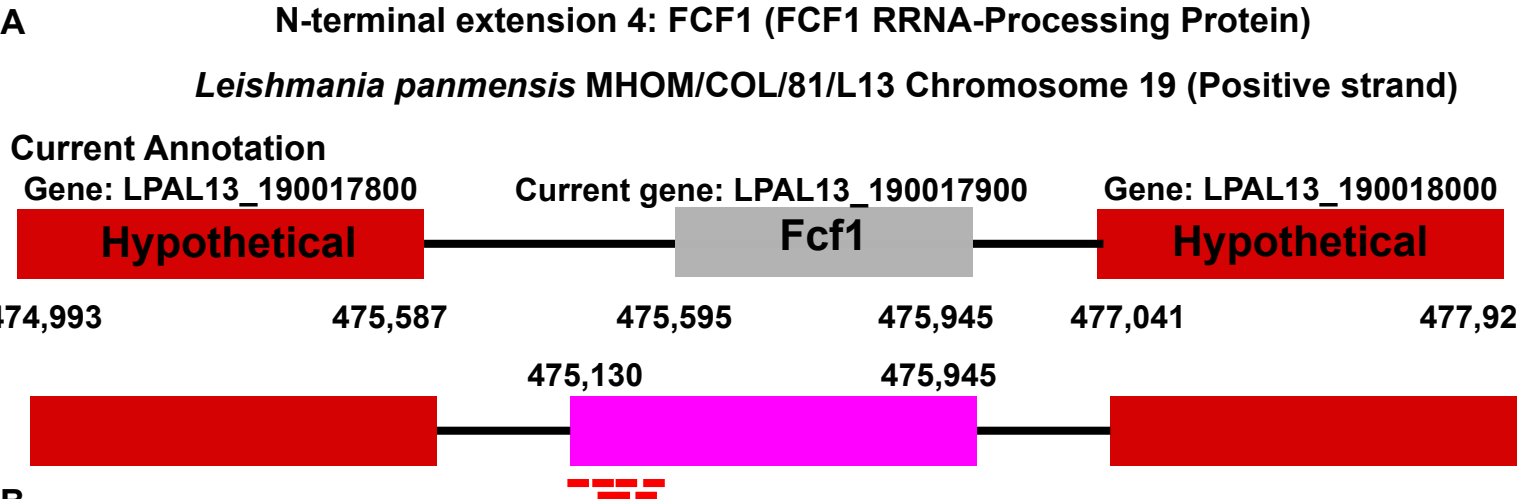


B

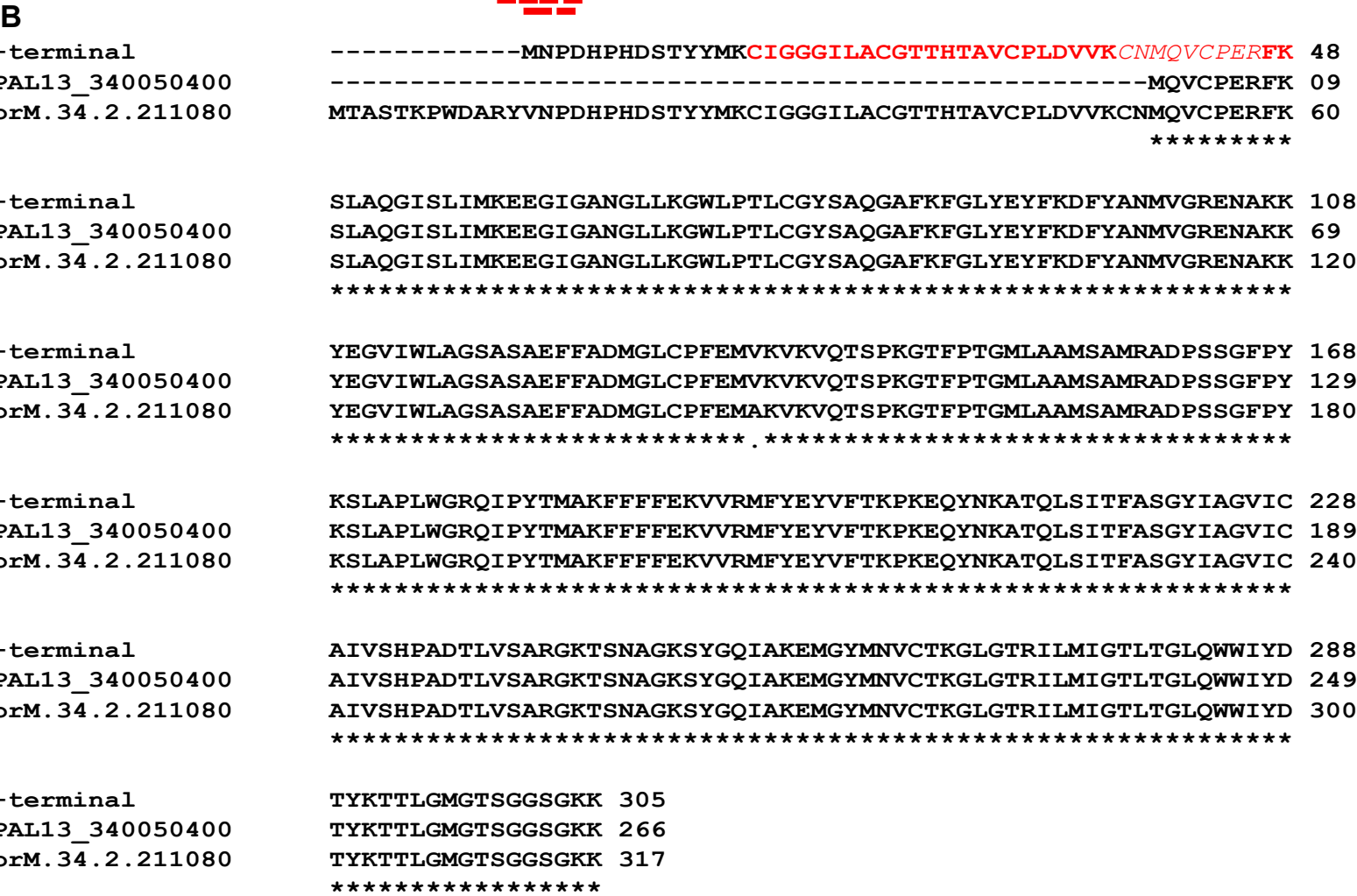
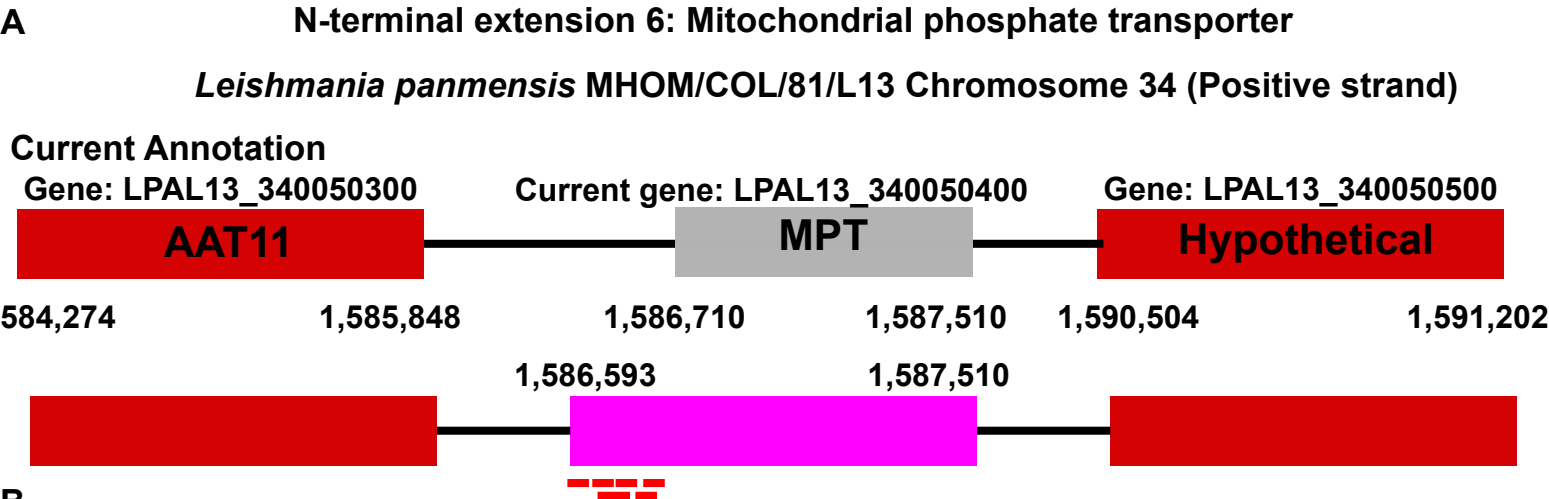
N-terminal	MTQSKSAVDVEEELTQTIQTMEFHSLVLFVSRSYSPPTNDICLFIHTDLAPMGHSFSTQW	60
LPAL13_350026400	-----	
LPMP_352030	MTQSKSAVDVEEELTQTIQTMEFHSLVLFVSRSYSPPTNDICLFIHTDLAPMGHSFNTQW	60
LbrM.35.2.002170	MTQSKSAVDVEKELTQTIQTMGFHTVFVFSRSYSPPTNDICLFIHTDLAPMGHSFNTQW	60
N-terminal	PGSDGSKCVDYNATEDAKVYGVPLELPSPEIVGVDDSEK NMLVLNAKLAARLADALPSSC	120
LPAL13_350026400	-----	
LPMP_352030	PGSDGNKCVDYNATEDAKVYGVPLELPSPEIVGVDDSEKNMLVLNAKLAARLADALPSSC	120
LbrM.35.2.002170	PGSDGNKCVDHNATEDAKVYGVPLELPSPEIVGVDDSEKNMLVLNAKLAARLADALPSSC	120
N-terminal	KCATFSEVAKWYLLYSSYLNGKSFQRLVQRITSRGPTIIVIKVKDSPRVLGAFCESDWLT	180
LPAL13_350026400	-----	
LPMP_352030	KCATFSEVAKWYLLYSSYLNGKSFQRLVQRITSRGPTIIVIKVK DS PRVLGAF CESD WLT	180
LbrM.35.2.002170	KCATFSEVAKWYLLYSSYLNGKSFQRLVQRITSRGPTIIVIKVK DS PRVLGAF CESD WLT	180
N-terminal	VTQREKNAKRAAAASTRAVREGQKQRTATAPLNQNKAFFGNMNCVFVRAHTDGIDNVSTE	240
LPAL13_350026400	-----MNCVFVRAHTDGIDNVSTE	19
LPMP_352030	VTQREKNAKRAAAASTRAVREGQK QRTATAPLNQ NKAFFGNMNCVFVRAHADGIDNVSTE	240
LbrM.35.2.002170	VTQREKNAKRAAAASTRAVREGQK QRTATAPSNQ NKAFFGNMNCVFVRAHADGIDNVSTE	240
	***** : *****	
N-terminal	GEIYHSHSSSNSNFMYLFDTHPHEEKIGIGMGGQPGYFGWFIDRWLENGTSYGSRCTTFQ	300
LPAL13_350026400	GEIYHSHSSSNSNFMYLFDTHPHEEKIGIGMGGQPGYFGWFIDRWLENGTSYGSRCTTFQ	79
LPMP_352030	GEIYHSHSSSNSNFMYLFDTHPHEEKIGIGMGGQPGYFGWFIDRWLENGTSYGSRCTTFQ	300
LbrM.35.2.002170	GEIYHSHSSSNSNFMYLFDTHPHEEKIGIGMGGQPGYFGWFIDRWLENGTSYGSRCTTFQ	300
	***** : *****	
N-terminal	SPRLSSTESWVVESVEVYAVKKDIVEQLLRRTGNECAGVSCIDCNPD SKADQMLLELNGN	360
LPAL13_350026400	SPRLSSTESWVVESVEVYAVKKDIVEQLLRRTGNECAGVSCIDCNPD SKADQMLLELNGN	139
LPMP_352030	SPRLSSTESWVVESVEVYAVKKDIVEQLLRRTGNECAGVSCIDCNPD SKADQMLLELNGN	360
LbrM.35.2.002170	SPRLSSTESWVVESVEVYAVKKEIVEQLLRRTGNECAGVSCIDCNPD SKADQMLLELNGN	360
	***** : *****	
N-terminal	HEFNRWDRTEC	371
LPAL13_350026400	HEFNRWDRTEC	150
LPMP_352030	HEFNRWDRTEC	371
LbrM.35.2.002170	HEFNLWDRTEC	371



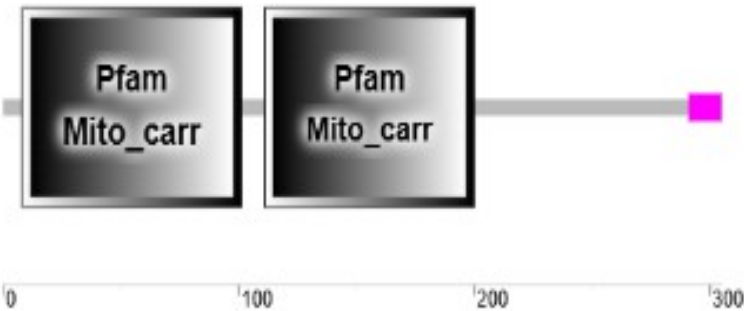
Supplementary Figure 4



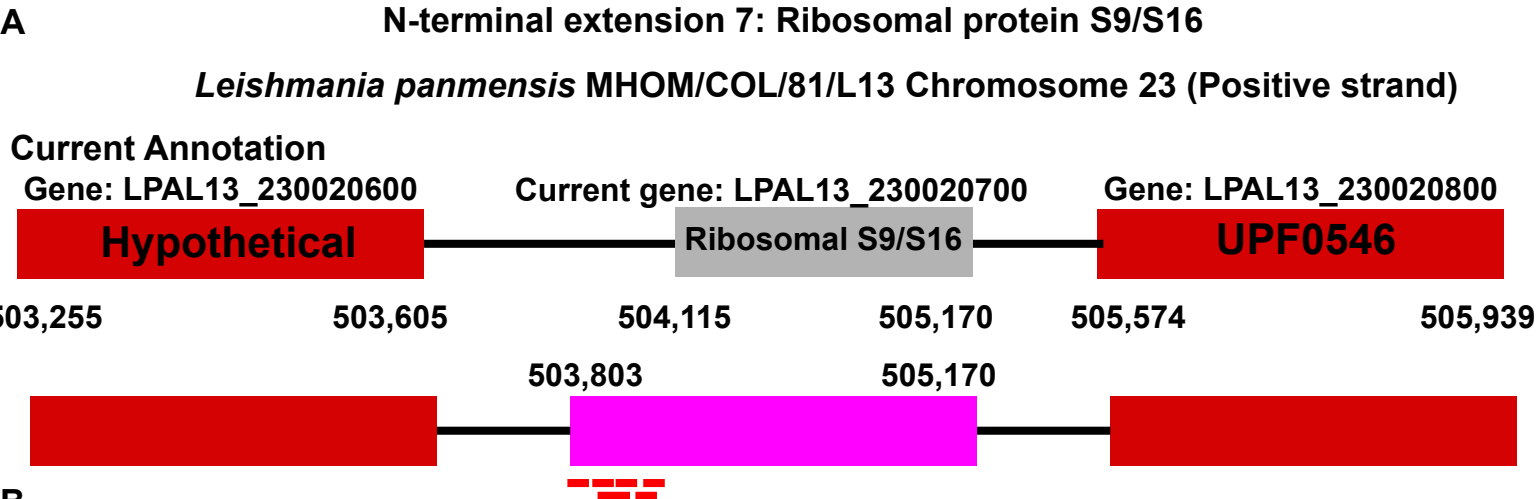
Supplementary Figure 6



C Mitochondrial phosphate transporter



Supplementary Figure 7

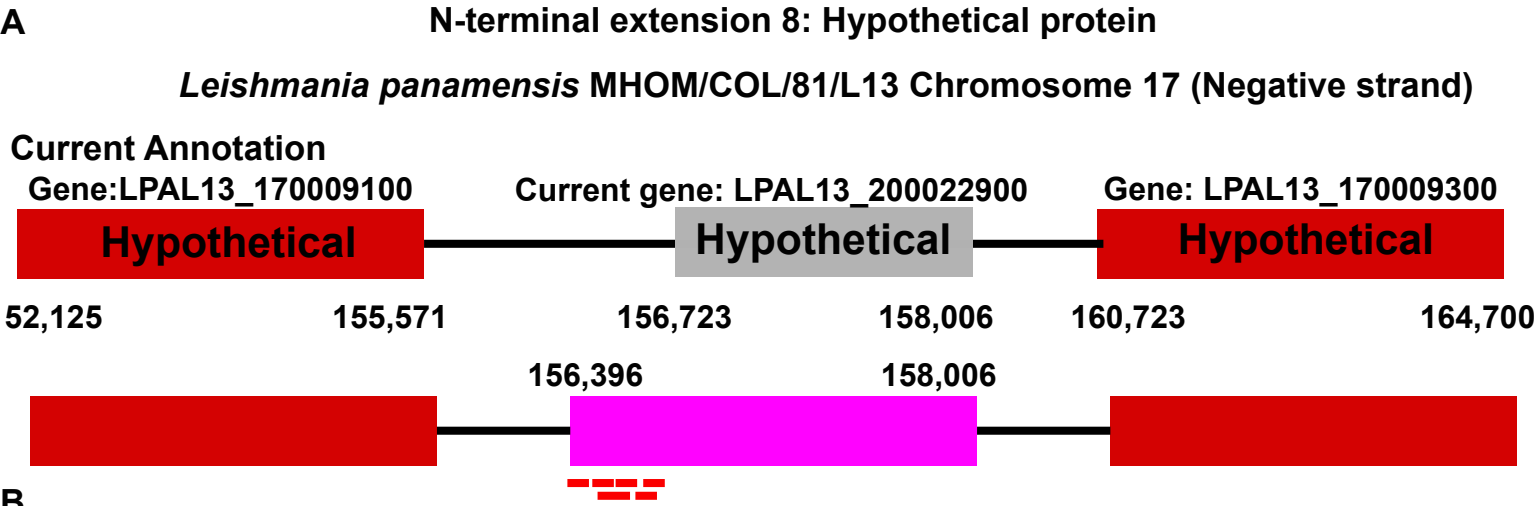


C

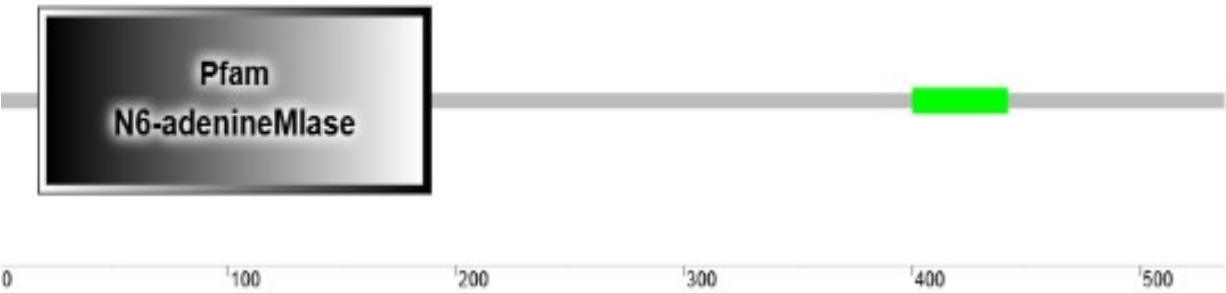
No domain found



Supplementary Figure 8



C N6-adenineMlase domain



Supplementary Figure 10

A N-terminal extension 10: Vacuolar protein sorting-associated protein 16 *Leishmania panamensis* MHOM/COL/81/L13 Chromosome 18 (Positive strand)

Current Annotation

Gene: LPAL13_180013900

Current gene: LPAL13_180014000

Gene: LPAL13_180014100

Hypothetical

Hypothetical

PKAC3

351,792 352,085 358,989 360,905 361,847 362,845

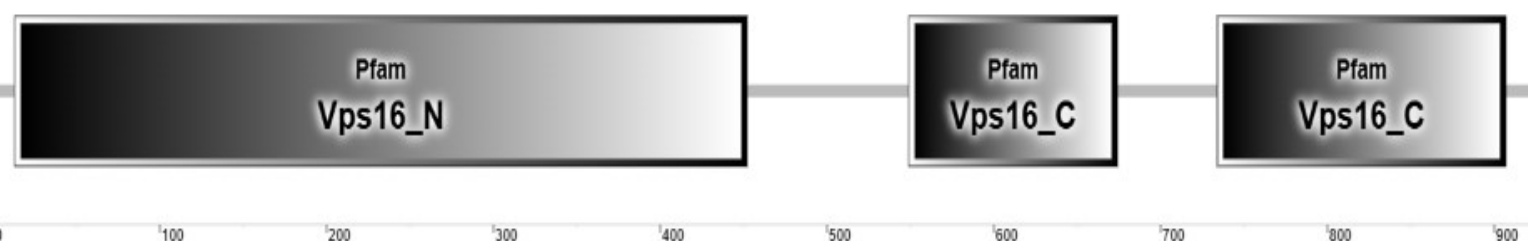
358,131 360,905

B

LbrM.18.2.001170	MPHRRHFDRTSRLGSWISLGTEALFRFAELEDYSNTLPFKFDNSLMAHSGYGGLVALFSP	60
LbrM.18.1170	MPHRRHFDRTSRLGSWISLGTEALFRFAELEDYSNTLPFKFDNSLMAHSGYGGLVALFSP	60
N-terminal	MPHRRHFDRTSRLGSWISLGTEALFRFAELEDYSNTLPFKFDNSLMAHSGYGGLVALFSP	60
LPAL13_180014000	-----	
LbrM.18.2.001170	RACNFSTNENSIFLFHLAGTPLQKRPIQLKAIERVIYMTWNKAADHLIVVLNTGTFVHFY	120
LbrM.18.1170	RACNFSTNENSIFLFHLAGTPLQKRPIQLKAIERVIYMTWNKAADHLIVVLNTGTFVHFY	120
N-terminal	RACNFSTNENSIFLFHLAGTPLQKRPIQLKAIERVIYMTWNKAADHLIVVLNTGTFVHFY	120
LPAL13_180014000	-----	
LbrM.18.2.001170	NYCGAAAAPSLPMEIPIACTSCDNGFVALVDTATEAKLVLVHLGRQKEYTMRELSLPQSI	180
LbrM.18.1170	NYCGAAAAPSLPMEIPIACTSCDNGFVALVDTATEAKLVLVHLGRQKEYTMRELSLPQSI	180
N-terminal	NYCGAAAAPSLPMEIPIACTSCDNGFVALVDTATEAKLVLVHLGRQKEYTIRELSLPQSI	180
LPAL13_180014000	-----	
LbrM.18.2.001170	RQFMTTIALVALESVDKEETKEVFLSYTPWSSNSFICRCLFGASNSSFLELAVPVEGGRV	240
LbrM.18.1170	RQFMTTIALVALESVDKEETKEVFLSYTPWSSNSFICRCLFGASNSSFLELAVPVEGGRV	240
N-terminal	RQFMTTIALVALESVDKEETKEVFLSYTPWSSNSFICRCLFGASNSSFLELAVPVEGGRV	240
LPAL13_180014000	-----	
LbrM.18.2.001170	LGMCRSPTSRAVAFMMLDGSLYSTSSGFSEVSLLRRTDVTLESFLQMTWCGGHCVAYLQR	300
LbrM.18.1170	LGMCRSPTSRAVAFMMLDGSLYSTSSGFSEVSLLRRTDVTLESFLQMTWCGGHCVAYLQR	300
N-terminal	LGMCRSPTSRAVAFMMLDGSLYSTSSGFSEVSLLRHTDVTLESFLQMTWCGGHCVAYLQR	300
LPAL13_180014000	-----MTWCGGHCVAYLQR	14

LbrM.18.2.001170	MQYGGALDEGEDCPCSLFLMNVDPEPDNNDICISDLPPFDACLLPEKDGAWVLSREKLFFLQV	360
LbrM.18.1170	MQYGGALDEGEDCPCSLFLMNVDPEPDNNDICISDLPPFDACLLPEKDGAWVLSREKLFFLQV	360
N-terminal	IQYGGALDEGEDCPCSLFLMNVDPEPDNNDICISDLPPFDACLLPEKDGAWVVSREKLFFLQV	360
LPAL13_180014000	IQYGGALDEGEDCPCSLFLMNVDPEPDNNDICISDLPPFDACLLPEKDGAWVVSREKLFFLQV	76
C	:*****	

Vacuolar protein sorting-associated protein 16



Supplementary Figure 11

A

N-terminal extension 11: Hypothetical

Leishmania panamensis MHOM/COL/81/L13 Chromosome 27 (Negative strand)

Current Annotation

Gene: LPAL13_270018000

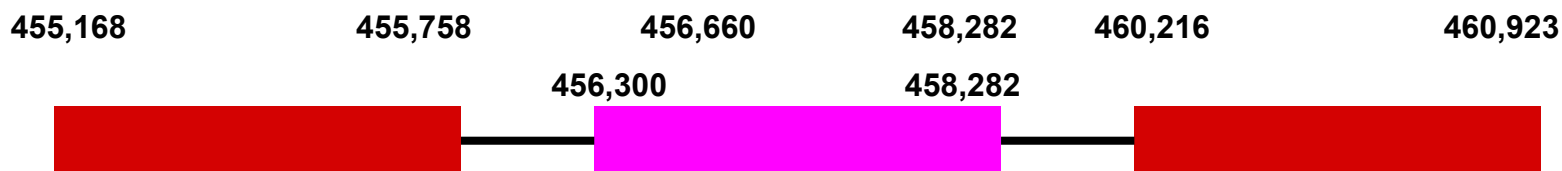
Current gene: LPAL13_270018100

Gene: LPAL13_270018200

Emopamil binding protein

Hypothetical

MRP1



B

LPMP_271090	MRSWLLRCSPLGATAQVVPRAAYALCLHTPHRCVFVRELSTPVTLESSNRSVTPFPARLL	60
LbrM.27.2.001190	MRSWLLRCSPLGATAQVVPRAAYALCLHTPHRCVFVRELSTPVTLESSNRSVTPFPARLL	60
N-terminal	MRSWLLRCSPLGATAQVVPRAAYALCLHTPHRCVFVRELSTPVTLESSNR	SVTPFPARLL 60
LPAL13_270018100	-----	
LPMP_271090	WQFSSKRPRHLVLCVRKPLPAVVPLASEDAFEEWSDAEAAEALPKRTAVVDGAPRTPEDY	120
LbrM.27.2.001190	WQFSSKRPRHLVLCVRKPLPAVVPLASEDAFEEWSDAEAAEALTKRTAAVDGAPRTPEDY	120
N-terminal	WQFSSKRPRHLVLCVRKPLPAVVPLASEDAFEEWSDAEAAEALPK	RTAVVDGAPRTPEDY 120
LPAL13_270018100	-----	
LPMP_271090	MYGRLFLRPYNVAQLLTVLQGWSDLPVVERPRSSLTSLAVPPASTSAKLAKRSNVDVRP	180
LbrM.27.2.001190	MYGRLFLRPYNVAQLLTVLQGWSDLPVVERPRSSLTSLAVPPASTSAKLAKRSNVDVRP	180
N-terminal	MYGRLFLRPYNVAQLLTVLQGWSDLPVVERPRSSLTSLAVPPASTSAKLAKRSNVDVRP	180
LPAL13_270018100	MYGRLFLRPYNVAQLLTVLQGWSDLPVVERPRSSLTSLAVPPASTSAKLAKRSNVDVRP	60

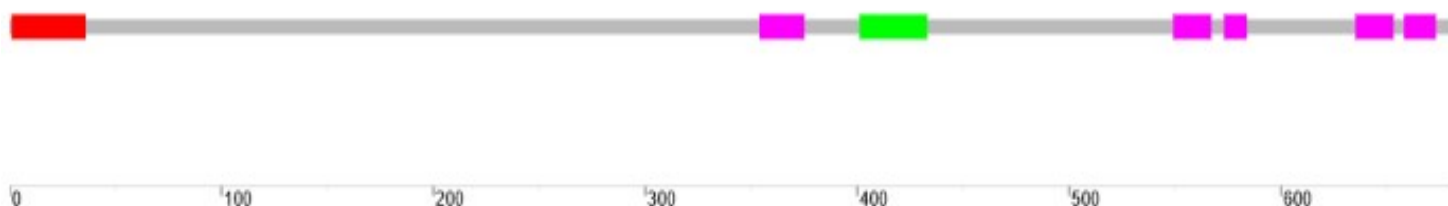
LPMP_271090	REVMLTARLTRKMFSA TLGGSGRATIAEAATHPSADSDPATEEDYPDSVYVDGDVCTLRV	240
LbrM.27.2.001190	REVMLTARLTRKMFSA TLGGSGRATIAEAATHPSADSDPATEEDYPDSVYVDGDVCTLRV	240
N-terminal	REVMLTARLTRKMFSA TLGGSGRATIAEAATHPSADSDPATEEDYPDSVYVDGDVCTLRV	240
LPAL13_270018100	REVMLTARLTRKMFSA TLGGSGRATIAEAATHPSADSDPATEEDYPDSVYVDGDVCTLRV	120

LPMP_271090	VLRDADLILFTVHLESVLSDLFAIEHYSRKLERCNTFDSQPSRVCHRTGARLSSFVRSSA	300
LbrM.27.2.001190	VLRDADLILFTVHLESVLSDLFAIEHYSRKLERCNTFDSQPSRVCHRTGARLSSFVRSSA	300
N-terminal	VLRDADLILFTVHLESVLSDLFAIEHYSRKLERCNTFDSQPSRVCHRTGARLSSFVRSSA	300
LPAL13_270018100	VLRDADLILFTVHLESVLSDLFAIEHYSRKLERCNTFDSQPSRVCHRTGARLSSFVRSSA	180

LPMP_271090	RPPQYLSHRYTPGSRAHGD TMEPRYRSHRPQRSNHGSSHHHNATTA AANTAATGP TESGK	360
LbrM.27.2.001190	RPPQYLSHRYTPGSRAHGD TMEPRYRSHRPQRSNHGSSHHHNATTA AANTAATGP TESGK	360
N-terminal	RPPQYLSHRYTPGSRAHGD TMEPRYRSHRPQRSNHGSSHHHNATTA AANTAATGP TESGK	360
LPAL13_270018100	RPPQYLSHRYTPGSRAHGD TMEPRYRSHRPQRSNHGSSHHHNATTA AANTAATGP TESGK	240
	***** : *****	

C

No domain found



Supplementary Figure 12

A

N-terminal extension 12: Ribosomal protein L2

Leishmania panamensis MHOM/COL/81/L13 Chromosome 27 (Negative strand)

Current Annotation

Gene: LPAL13_080007600

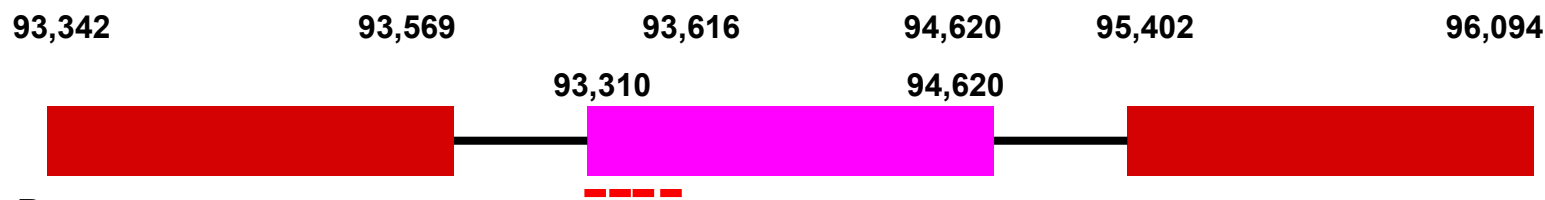
Current gene: LPAL13_080007700

Gene: LPAL13_080007800

Hypothetical

Ribosomal

FESODA



B

LPMP_080290	-----MLRRQLQFFFTIGGVSAVSAAEELTGMGPSSVAAAATGPSLSSTTTL SIVAGA	51
LbrM.08.0320	-----MLRRQLQFFFTIGGVSAVSAAEELTGMGPSSVAAAATGPSLSSTTTL SIVAGA	51
LPAL13_080007700	-----	
N-terminal	MWVLCRACVSQCSAGNFSSSPAACRLCQRRSSRAWGSVAAAATGPSLSSTTTL SIVAGA	60
LPMP_080290	SALIVPRRGVKLVNPIGKQGSQHYGLEPKLEAGKDTQLKHTEMYDGYTDDFGVFKEGPPV	91
LbrM.08.0320	SALIVPRRGVKLVNPIGKQGSQHYGLEPKLEAGKDTQLKHTEMYDGYTDDFGVFKEGPPV	91
LPAL13_080007700	-----MYDGYTDDFGVFKEGPPV	18
N-terminal	SALIVPRRGVKLVNPIGKQGSQHYGLEPKLEAGKDTQLKHTEMYDGYTDDFGVFKEGPPV	120

LPMP_080290	TLRLEYVRS PDHGYSQHILQKDIWSPFQVGANMMSYTPLYYDWKGFSSRDYFGHRS GTNP	121
LbrM.08.0320	TLRLEYVRS PDHGYSQHILQKDIWSPFQVGANMMSYTPLYYDWKGFSSRDYFGHRS GTNP	121
LPAL13_080007700	TLRLEYVRS PDHGYSQHILQKDIWSPFQVGANMMSYTPLYYDWKGFSSRDYFGHRS GTNP	78
N-terminal	TLRLEYVRS PDHGYSQHILQKDIWSPFQVGANMMSYTPLYYDWKGFSSRDYFGHRS GTNP	180

LPMP_080290	GSKVLLGHYRRDEERSWGYRIMVNHKPKQKRI PKWLACVVHNRRKKTFLGFFLYANGAYVA	181
LbrM.08.0320	GSKVLLGHYRRDEERSWGYRIMVNHKPKQKRI PKWLACVVHNRRKKTFLGFFLYANGAYVA	181
LPAL13_080007700	GSKVLLGHYRRDEERSWGYRIMVNHKPKQKRI PKWLACVVHNRRKKTFLGFFLYANGAYVA	138
N-terminal	GSKVLLGHYRRDEERSWGYRIMVNHKPKQKRI PKWLACVVHNRRKKTFLGFFLYANGAYVA	240

LPMP_080290	ELLTYKQLPRIIYNKAFQGCLPTVGQTVSLTEVTY GKEMHSVEMY PGHGGVICRASGTAA	241
LbrM.08.0320	ELLTYKQLPRIIYNKAFQGCLPTVGQTVSLTEVTY GKEMHSVEMY PGHGGVICRASGTAA	241
LPAL13_080007700	ELLTYKQLPRIIYNKAFQGCLPTVGQTVSLTEVTY GKEMHSVEMY PGHGGVICRASGTAA	198
N-terminal	ELLTYKQLPRIIYNKAFQGCLPTVGQTVSLTEVTY GKEMHSVEMY PGHGGVICRASGTAA	300

LPMP_080290	VVLRGSEPNLVPLLLPSKEVRLEFDSTCHAVFGRRAGVMYNKQRFNFSKRSIEENMPHRPKV	301
LbrM.08.0320	VVLRGSEPNLVPLLLPSKEVRLEFDSTCHAVFGRRAGVMYNKQRFNFSKRSIEENMPHRPKV	301
LPAL13_080007700	VVLRGSEPNLVPLLLPSKEVRLEFDSTCHAVFGRRAGVMYNKQRFNFSKRSIEENMPHRPKV	258
N-terminal	VVLRGSEPNLVPLLLPSKEVRLEFDSTCHAVFGRRAGVMYNKQRFNFSKRSIEENMPHRPKV	360

LPMP_080290	HSKTKRVSSHPAGGGNGGSPNLLTPLDWRIHPRNCVKTKYWLSGYILRGRQYNRNQTVAD	361
LbrM.08.0320	HSKTKRVSSHPAGGGNGGSPNLLTPLDWRIHPRNCVKTKYWLSGYILRGRQYNRNQTVAD	361
LPAL13_080007700	HSKTKRVSSHPAGGGNGGSPNLLTPLDWRIHPRNCVKTKYWLSGYILRGRQYNRNQTVAD	318
N-terminal	HSKTKRVSSHPAGGGNGGSPNLLTPLDWRIHPRNCVKTKYWLSGYILRGRQYNRNQTVAD	420

LPMP_080290	LKSKTYSWANRDPVYR	377
LbrM.08.0320	LKSKTYSWANRDPVYR	377
LPAL13_080007700	LKSKTYSWANRDPVYR	334
N-terminal	LKSKTYSWANRDPVYR	436

C

Ribosomal protein L2



Supplementary Figure 13

A

N-terminal extension 13: GP63, leishmanolysin

Leishmania panamensis MHOM/COL/81/L13 Chromosome 10 (Negative strand)

Current Annotation

Gene: LPAL13_100010100

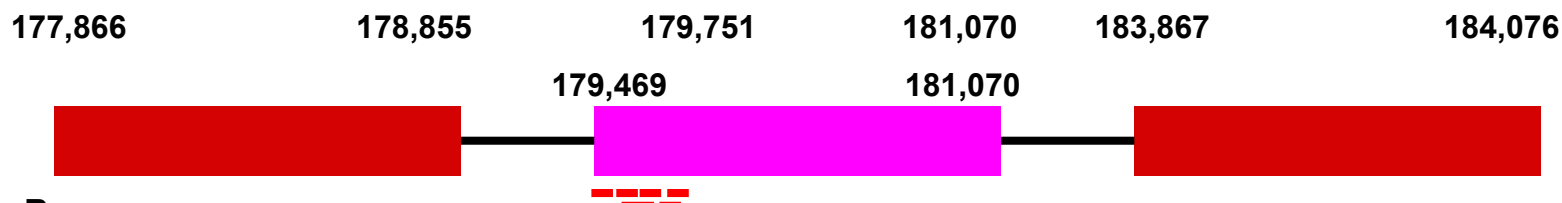
Current gene: LPAL13_100010200

Gene: LPAL13_100010300

GP63

GP63

Leishmanolysin



B

N-terminal	-----	
LPAL13_100010200	-----	
LPMP_100420	MSRDRSSTHRRRSVAARLMRLAAAGLVMAVGAAVWAQAAGHHC IHDRLQTRVLQSVAAQQ	60
N-terminal	-----MADSTSPSVARAADWGTLR	IAVSTADLTDLC 31
LPAL13_100010200	-----	
LPMP_100420	RRPPGSVSALGLPYVSTDPISSAHAVDWALADSTSPSVARAADWGTLRIAVSTADLTDLC	120
N-terminal	SHCTRVGQRVNNHNGEIATCTAEDILTEEK	RDILVSYLIPQALQLHTERLKVQVQGSWK 91
LPAL13_100010200	-----	
LPMP_100420	SHCTRVGQRVNNHNGEIATCTAEDILTEEKRDILVSYLIPQALQLHTERLKVQVQGSWK	180
N-terminal	VTGMTGSICGDYVVPTAHLTVGVSNADFLVLYVASVPSEPGVLAWATICQVFSDKQPAVAV	151
LPAL13_100010200	---MTGSI	CGDYVVPTAHLTVGVSNADFLVLYVASVPSEPGVLAWATICQVFSDKQPAVAV 57
LPMP_100420	VTGMTGSICGDYVVPTAHLTVGVSNADFLVLYVASVPSEPGVLAWATICQVFSDKQPAVAV	240
N-terminal	*****	
N-terminal	INIPPANIHSPYDQVLTRAVAHEVAHALGFSRMYFERAGLLTNASHVRGKFFSVPVMNSS	211
LPAL13_100010200	INIPPANIHSPYDQVLTRAVAHEVAHALGFSRMYFERAGLLTNASHVRGKFFSVPVMNSS	117
LPMP_100420	INIPPANIHSPYDQVLTRAVAHEVAHALGFSRMYFERAGLLTNASHVRGKFFSVPVMNSS	300
N-terminal	*****	
N-terminal	TVVAKAREQYGCSNLTVELEDLGDSRTTASHFKGRNAKDELMAPASAAGYYTALTMAVF	271
LPAL13_100010200	TVVAKAREQYGCSNLTVELEDLGDSRTTASHFKGRNAKDELMAPASAAGYYTALTMAVF	177
LPMP_100420	TVVAKAREQYGCSNLTVELEDLGDSRTTASHLKGNAKDELMAPASAAGYYTALTMAVF	360
N-terminal	*****	
N-terminal	EDLGFYKADFAKVEVMPWAQNASCDFLTKKCMENNITQWPEMFCNTTEMVPQCTTDRRLRL	331
LPAL13_100010200	EDLGFYKADFAKVEVMPWAQNASCDFLTKKCMENNITQWPEMFCNTTEMVPQCTTDRRLRL	237
LPMP_100420	EDLGFYKADYNLAEIMPWAQNASCDFLTKKCMENNITQWPEMFCNTTEMVPQCPTDRRLRL	420
N-terminal	*****	
N-terminal	GTCLIIDVGRPMSMIYQYFTNDSLGRSPFLDYCPVIVGSSNSACDQDPSMASPSLQAFN	391
LPAL13_100010200	GTCLIIDVGRPMSMIYQYFTNDSLGRSPFLDYCPVIVGSSNSACDQDPSMASPSLQAFN	297
LPMP_100420	GTCLIIDVGRPMSMIYQYFTNDSLGRSPFLDYCPVIVGSSNSACDQDPSMASPSLQAFN	480
N-terminal	*****	

C

GP63, leishmanolysin



Supplementary Figure 14

A N-terminal extension 14: NADH-dependent fumarate reductase

Leishmania panamensis MHOM/COL/81/L13 Chromosome 34 (Positive strand)

Current Annotation

Gene: LPAL13_340016100

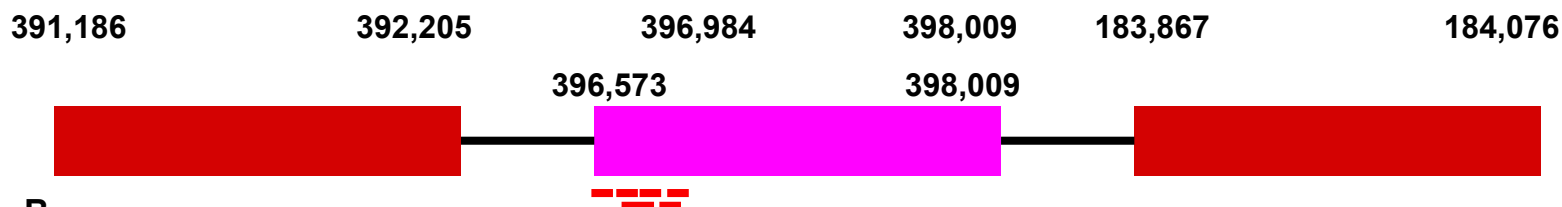
Current gene: LPAL13_100010200

Gene: LPAL13_340016300

NADH-dependent
fumarate reductase

NADH-dependent
fumarate reductase

Pre-mRNA splicing factor
ATP-dependent RNA helicase

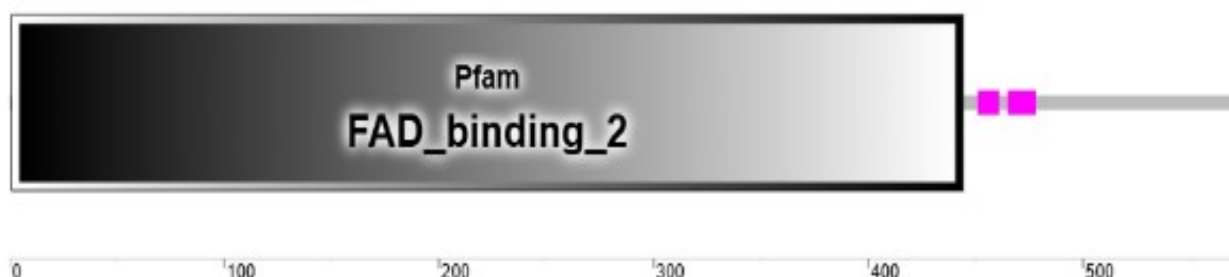


B

N-terminal	-----	
LPAL13_340016200	-----	
LBRM2903_340017200	MRRRNSSANARTSSRTATVGCGRHRHWGSPAVGQKRLVSSLPRRRVLVPVCLGLALLMSF	60
LAMAPH8_000829100	-----	
N-terminal	-----	
LPAL13_340016200	-----	
LBRM2903_340017200	VWVTHRSETSRGNPTSWWRLSSSETKAFSSSTPLPHPTLTLPALDQLNAAESQAAPSDLS	120
LAMAPH8_000829100	-----	
N-terminal	-----	
LPAL13_340016200	-----	
LBRM2903_340017200	LSTTSAPAAMSDIASSLNRVVVIGSGLAGQCAAIEAARHGAKVVIIEKETRLGGNSAKA	15
LAMAPH8_000829100	-----	
N-terminal	-----	
LPAL13_340016200	-----	
LBRM2903_340017200	TSGINAWGTAVQKAAGVHDSGELFEKDTFASGKGGSCQPELVRTLSDHSAEAEIWLSSFG	75
LAMAPH8_000829100	-----	
N-terminal	-----	
LPAL13_340016200	-----	
LBRM2903_340017200	TSGINAWGTAVQKAAGVHDSGELFEKDTFASGKGGSCQPELVRTLSDHSAEAEIWLSSFG	240
LAMAPH8_000829100	TSGINGWGTAVQKAAGVNDSGELFEKDTFVSGKGGTCQAEVLRTLSDHSAESIEWLSSFG	111
N-terminal	-----	
LPAL13_340016200	-----	
LBRM2903_340017200	IPLTALTQLGGASRKRCRAPDNDGTPLEPIGFTIVRALENYIRTNLSDIVRIETNARLI	135
LAMAPH8_000829100	-----	
N-terminal	-----	
LPAL13_340016200	-----	
LBRM2903_340017200	IPLTALTQLGGASRKRCRAPDNDGTPLEPIGFAIVRALENYIRTNLSDIVRIETNARLI	300
LAMAPH8_000829100	IPLTVITQLGGASRKRCRAPDKPDGTPLEPIGFTIVRALENYIRTNLSGTVLIETSARLI	171
N-terminal	-----	
LPAL13_340016200	-----	
LBRM2903_340017200	SLMHSKEDDAVVVQGITYATQTASGEGKIRKLQARAVILATGGFSNDHTANSLLQQYAPQ	195
LAMAPH8_000829100	-----	
N-terminal	-----	
LPAL13_340016200	-----	
LBRM2903_340017200	SLMHSKEDNAV VVQGITYATQTASGEGKIRKLQARAVILATGGFSNDHTANSLLQQYAPQ	58
LAMAPH8_000829100	SLTHRKEGDVEVVRGITYATQTGGGEEQTRELHADAVILATGGFSNDHTPNSLLQQYAPQ	360
N-terminal	-----	
LPAL13_340016200	-----	
LBRM2903_340017200	SLTHRKEGDVEVVRGITYATQTGGGEEQTRELHADAVILATGGFSNDHTPNSLLQQYAPQ	231
LAMAPH8_000829100	-----	
N-terminal	-----	
LPAL13_340016200	-----	
LBRM2903_340017200	LSSFPTTNGVWATGDGVKAARELGVLVDMDKVQLHPTGLLDPKDPSNRTKYLGPALRG	255
LAMAPH8_000829100	LSSFPTTNGVWATGDGVKAARELGVLVDMDKVQLHPTGLLDPKDPSNRTKYLGPALRG	118
N-terminal	-----	
LPAL13_340016200	-----	
LBRM2903_340017200	LSSFPTTNGVWATGDGVKAARELGVELVDMDKVQLHPTGLLDPKDPSNRTKYLGPALRG	420
LAMAPH8_000829100	LSSFPTTNGVWATGDGVKAARELGVALVDMDKVQLHPTGLLDPKDPAKTLFLGPALRG	291

C

NADH-dependent fumarate reductase



Supplementary Figure 15

A

N-terminal extension 15: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 32 (Negative strand)

Current Annotation

Gene: LPAL13_320029300

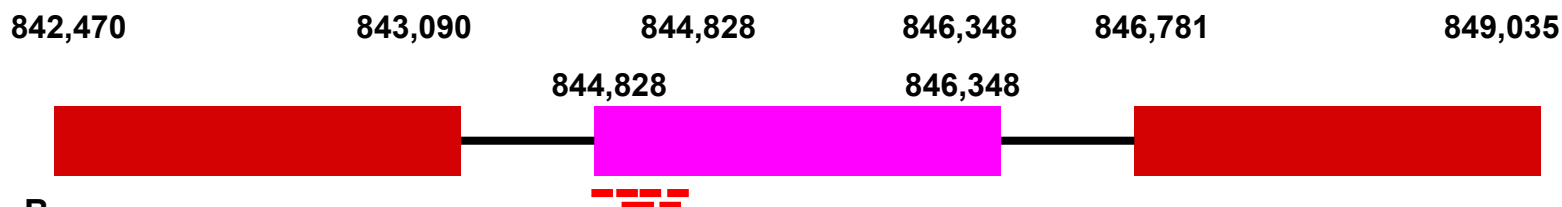
Complex 1 protein
(LYR family)

Current gene: LPAL13_320029400

Hypothetical

Gene: LPAL13_320029500

Hypothetical



B

N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	RHEQHIIHLQOTKLQHYAENERSTSDVIKNLEQHHDQTQIAKLNQQTIELRDELNKACRREQ	480
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	ELHDQVQASNTETQATIAATTEQYNHHQQHISLTHSMAAEREQHESRVAELQRAHAAQV	540
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	AEVQQAHAHQVAELQQRLEVERDHAAANQSTAAECESALQQRLLSELRTSMAAEREQHESR	600
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	MAELQQAHAHQVAELQQAHAHQVAELQQAHAHQVAELQQGRRLNVLRRDDAAEKFWVTSQP	60

LBRM2903_320031300	VAELQRAHATQVAEVQQAHAHQVAEVQQAHAHQVAELQQRRELNVLRDESAEKFWVTSQP	660
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	VDWLKEENESLKVQVREWEEKHTEVTNEKVSADVVKVGEVEEMLSCCKCELQRLKAEYSSL	120

LBRM2903_320031300	VDWLKEENESLKVQVREWEEKHTEVTNEKVSADVVKVGEVEEMLSCCKCELQRLKAEYSSL	19
	*****	720
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	QKTMSKSLEDRDIAVKRLKESVHLTEEAEEANVVRLETIRKELQEVQERLEITDKDRALVV	180

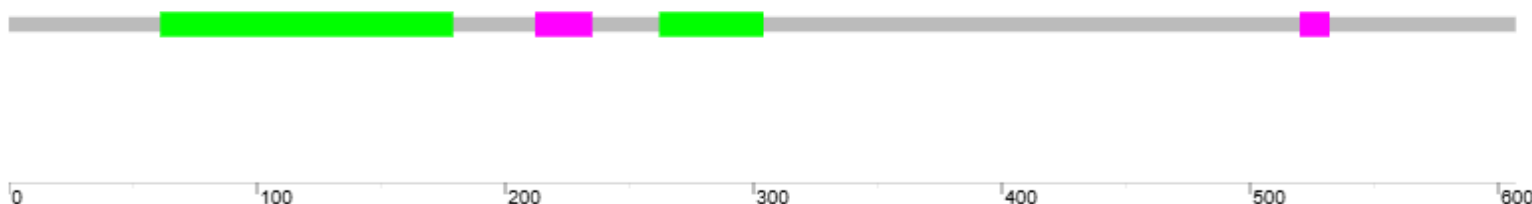
LBRM2903_320031300	QKTMSKSLEDRDIAVKRLKESVHLTEEAEEANVVRLETIRKELQEVQERLEITDKDRALVV	79
	***** : ***** . ***** . *****	780
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	SRYRRATTEKEECADAARRLLTEYKEMAATREKLVAQLAAAEALAAERSREVEELTRAAP	240

LBRM2903_320031300	SRYRRATTEKEECADAARRLLTEYKEMAATREKLVAQLAAAEALAAERSREVEELTRAAP	139
	*****	840
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	AGASLKSSGPRDDALEAVGQKVVQSTVSEKQERIEALVCELEAVTRENKRLRSELEVAQV	300

LBRM2903_320031300	AGASLKSSGPRDDALEAVGQKVVQSTVSEKQERIEALVCELEAVTRENKRLRSELEVAQV	199
	***** : ***** *****	900

C

No domain found



Supplementary Figure 16

A

N-terminal extension 16: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 28 (Negative strand)

Current Annotation

Gene: LPAL13_280038900

Current gene: LPAL13_280039000

End of Chromosome 28

Hypothetical

Hypothetical

1,120,399

1,120,614

1,121,132

1,121,132

1,122,430

1,120,925

1,121,132

B

LPMP_283190	MSQPAKLCTSHNLGNPAENHLPVNNLFQPHNDNIHTEISSVKSKNVAFPKKDTFYEQIDQ	60
LbrM.30.0440	MSQPAKPCTSHNLGNPAENHLPVNNLFQPHNDNIHTEISSVKSKNIAFPKKDTFYEQIDQ	60
LPAL13_280039000	-----	
N-terminal	-----	
LPMP_283190	INSAALSAALPKGEGGEATQRVCGPEGVWRCCVCHKVKDLKGPHLNGKASVRSDCWPCA	120
LbrM.30.0440	TNSAALSAALPKGEGGEATQRVCGPEGVWRCCVCHKVKDLKGPHLNGKASVRSDCWPCA	120
LPAL13_280039000	-----	
N-terminal	-----MGPEGVWRCCVCHKVKDLK GPHLNGKASVRSDCWPCA	37
LPMP_283190	KKTTFVHESSGDGPLEDAGRRAGRVAAAADVERLSVCGEHRTTVFKAPVVPSEAEPEPCM	180
LbrM.30.0440	KKTTFVHESSGDGPLEGAGRPAGRVAAADVERLSVCGEHRTTVFKAPVVPSEAEPEPCM	180
LPAL13_280039000	-----M	1
N-terminal	KKTTTFVHESSGDGPLEDAGRRAGRVAAAADVEKLSVCGEHRTTVFKAPVVPSEAEPEPCM	97
		*
LPMP_283190	LPVTK AGRGQGSAAEGAGLAPLSGNVLWRCVCHKVKDLKGPHLSGKTSVRSDCWPCA KK	240
LbrM.30.0440	LPVTKAGKGQGSAAEGAGLAALSGNVLWRCVCHKVKDLKGPHLSGKTSVRSDCWPCA KK	240
LPAL13_280039000	LPVTKAGRGQGSAAEGAGLAPLSGNVLWRCVCHKVKDLKGPHLSGKTSVRSDCWPCA KK	61
N-terminal	LPVTKAGRGQGSAAEGAGLAPLSGNVLWRCVCHKVKDLKGPHLSGKTSVRSDCWPCA KK	157
	*****:*****.*****	
LPMP_283190	TTFLRDTCAIAGSGAAAEPVSSAPKMPPTAEGATPATSDAKASVLADHNIPPFLQTTACP	300
LbrM.30.0440	TTFLRDTCAIAGSGAAAEVSSAPKTAPTAEAGATPATSDAKASVLAEHNIPPFLQTTACP	300
LPAL13_280039000	TTFLRDTCAIAGSGAAAEPVSSAPKMPPTAEGATPATSDAKASVLADHNIPPFLQTTACP	121
N-terminal	TTFLRDTCAIAGSGAAAEPVSSAPKMPPTAEGATPATSDAKASVLADHNIPPFLQTTACP	117
	***** ***** .*****:*****	

C

No domain found



Supplementary Figure 17

A

N-terminal extension 17: Heat shock protein grpe

Leishmania panamensis MHOM/COL/81/L13 Chromosome 30 (Positive strand)

Current Annotation

Gene: LPAL13_300013000

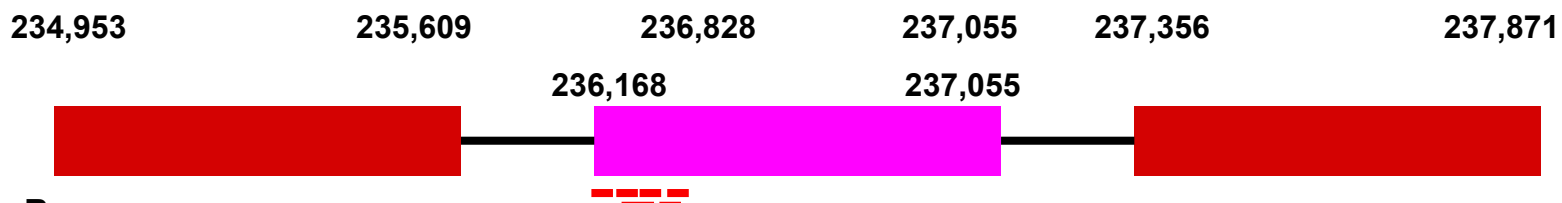
Current gene: LPAL13_300013100

Gene: LPAL13_300013200

co-chaperone GrpE

GRPE

Hypothetical



B

N-terminal	MRKSRR	TDAA	LKTY	IARA	QVLR	VEKK	NSH	IESI	FIYT	FMIV	RFSH	RLII	INDT	LVLC	STRV	60
LPAL13_300013100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
LPMP_300770	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	MIVR	FSHR	LIIN	DTLV	LCSTRV	22
LbrM.30.2.000830	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	MIVR	FSRR	LIIN	DTLV	LCSTRV	22
N-terminal	IPLALS	IPLL	FQLS	TTDS	FL	EHIP	RDQH	KIMY	RRVG	THVT	PLLC	SCCL	IQRK	CATQ	DGAT	120
LPAL13_300013100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
LPMP_300770	IPLALS	IPLL	FQLS	TTDS	FL	EHIP	RDQH	KIMY	RRVG	THVT	PLLC	SCCL	IQRK	CATQ	DGAT	82
LbrM.30.2.000830	IPLALS	IPLL	FQLS	TTDS	FL	EHIP	RDQH	KIMY	RRVG	THVT	PLLC	SCCL	IQRK	CATQ	DGAT	82
N-terminal	TLSV	VDLK	TKY	YEVL	RAQL	RESK	KQIQ	QLQ	SEN	LYTA	ASCEN	IRKAT	QEQ	AKQ	AHND	AVRS 180
LPAL13_300013100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
LPMP_300770	TLSV	VDLK	TKY	YEVL	RAQL	RESK	KQIQ	QLQ	SEN	LYTA	ASCEN	IRKAT	QEQ	AKQ	AHND	AVRS 142
LbrM.30.2.000830	TLSV	VDLK	TKY	YEVL	RAQL	CESK	KQIQ	QLQ	SEN	LYTA	ASCEN	IRKAT	QEQ	AKQ	AHND	AVRS 142
N-terminal	FAQD	MLDV	CDAL	QVV	TRKV	GEYR	QRN	SSIP	QSE	ASILT	GVML	TEE	VALK	VLK	RYGV	TQMN 240
LPAL13_300013100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
LPMP_300770	FAQD	MLDV	CDAL	QVV	TRKV	GEYR	QRN	SSIP	QSE	ASILT	GVML	TEE	VALK	VLK	RYGV	TQMN 202
LbrM.30.2.000830	FAQD	MLDV	CDAL	QVV	TRKV	GEYR	QRN	SSIP	QSE	ASILT	GVML	IEE	VALK	VLK	RYGV	TQMN 202
												**	*****	*****	*****	
N-terminal	TVVG	APFD	ETKE	EKIFT	VPST	LSLQ	EGSV	AEIV	KKGY	HMN	ESVL	RRAE	VGL	SEDP		295
LPAL13_300013100	TVVG	APFD	ETKE	EKIFT	VPST	LSLQ	EGSV	AEIV	KKGY	HMN	ESVL	RRAE	VGL	SEDP		85
LPMP_300770	TVVG	APFD	ETKE	EKIFT	VPST	LSLQ	EGSV	AEIV	KKGY	HMN	ESVL	RRAE	VGL	SEDP		262
LbrM.30.2.000830	TVVG	APFD	EAK	EKIFT	VPST	LSLQ	EGSV	AEIV	KKGY	HMN	ESVL	RRAE	VGL	SEDP		262
	*****	:	*****	:	*****	:	*****	:	*****	:	*****	:	*****	:	*****	

C

Heat shock protein grpe



Supplementary Figure 18

A

N-terminal extension 18: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 26 (Positive strand)

Current Annotation

Gene: LPAL13_260025100

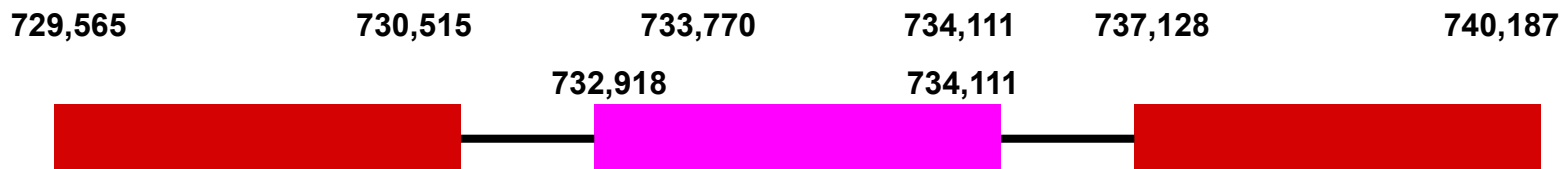
Current gene: LPAL13_260025200

Gene: LPAL13_260025300

Hypothetical

Hypothetical

Serine/threonine
protein phosphatase

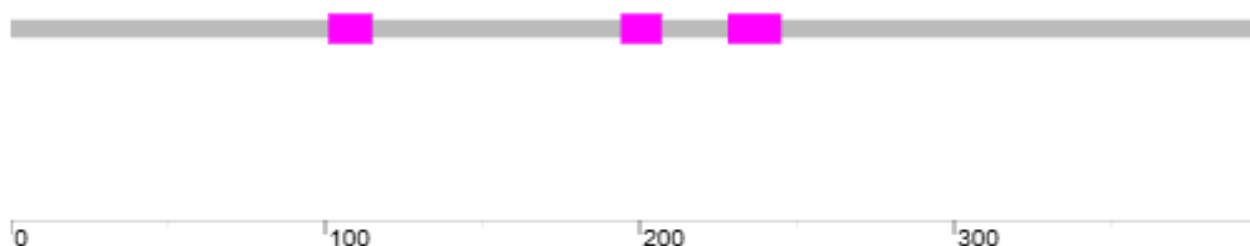


B

N-terminal	MNSCAVMAANGRVETKCIIVSVLAGEEMYFLAAFCWLRSLRGSHSVWCFAA	60
LPAL13_260025200	-----	
LSCM1_04222	-----	
LMARLEM2494_260025000	-----	
N-terminal	ALLCRHLFLSYLCHSFFSSAWELPCTRPRALHPYPLACRGTCVFMCACFY	120
LPAL13_260025200	-----	
LSCM1_04222	-----	
LMARLEM2494_260025000	-----	
N-terminal	SCACLSLFLSLSGGAWHPGHTHTATHIILWCPSGPLPYTLPQVTTTGIQFS	180
LPAL13_260025200	-----	
LSCM1_04222	-----	
LMARLEM2494_260025000	-----	
N-terminal	AARVPDEPWGCTPTPIDISAARDQTIISWLSHAESVLVIEWAEGERARQAQ	240
LPAL13_260025200	-----	
LSCM1_04222	-----MPTPIDVSAARDVTISWLSHAESVLVLEWAEEGRAQQAQ	39
LMARLEM2494_260025000	-----MPTPIDVSAARDVTISWLSHAESVLVLEWAEEGRAQQAQ	39
N-terminal	LLQQ-----EQQSATTADELLAKAAVAGLRCID-VSPHSSSSSLSEVDP	293
LPAL13_260025200	-----	
LSCM1_04222	LQAQSQDVKETQQRPAATTADALLAEAVAAGLRYTGGASSSSCSFSSSADDP	99
LMARLEM2494_260025000	LQAQSQDVKETQQRPAATTADALLAEAVAAGLRYTGGASSSSCSFSSSADDP	99
N-terminal	DDERRAQGLVPLKCDHAPFPFHRSSGVAFALPPSDGSGDTTAMNVAALSR	353
LPAL13_260025200	-----MNVAALSR	8
LSCM1_04222	DEERRTQGLVPLHCDHTPFPPFHRSSGVVFALPPGSGGRASPAVSAAMP	159
LMARLEM2494_260025000	DEERRTQGLVPLHCDHTPFPPFHRSSGVVFALPPGSGGRASPAVSAAMP	159
N-terminal	LIEGAPIMIDSVPVGGIDYYAALQKAWSRAPERPPSLPPLAMVSDVNLHTI	413
LPAL13_260025200	LIEGAPIMIDSVPVGGIDYYAALQKAWSRAPERPPSLPPLAMVSDVNLHTI	68
LSCM1_04222	CGEWAPGVIDKVPVVGADYYAALQKAWARTPEQPRLPPLATESEVNLADI	219
LMARLEM2494_260025000	CGEWAPGVIDKVPVVGADYYAALQKAWARTPEQPRLPPLATESEVNLADI	219
N-terminal	EEMLSGDSEGEELRPPVPLGLIITYFIEDWRDSGLYDIVRKREETLSQQP	473
LPAL13_260025200	EEMLSGDSEGEELRPPVPLGLIITYFIEDWRDSGLYDIVRKREETLSQQP	128
LSCM1_04222	EEVLSGDSDYELRPPVPLGLMISYFTVDWRDSGLYDVVQRREETLLQQS	279
LMARLEM2494_260025000	EEVLSGDSDYELRPPVPLGLMISYFTVDWRDSGLYDVVQRREETLLQQS	279
N-terminal	HKWKP 533	
LPAL13_260025200	HKWKP 188	
LSCM1_04222	SKRGL 339	
LMARLEM2494_260025000	SKRGL 339	

C

No domains found



Supplementary Figure 19

A

N-terminal extension 19: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 35 (Negative strand)

Current Annotation

Gene: LPAL13_350063000

Current gene: LPAL13_350063100

Gene: LPAL13_350063200

Hypothetical

Hypothetical

Hypothetical

1,964,328 1,964,543 1,965,420 1,969,307 1,970,940 1,972,055

1,965,210

1,969,307

B

N-terminal
LPAL13_350063100
LBRM2903_350067000
LTRL590_360064800

MPLCVLPLLTSPVTTGAVMEPIFHEAPRVQEAIRESR **VQTFYIAPRPPNRHLLDAHGGR** 60

-----MGSVIHEAPRVREAVLENPVQAFYIVPRPPYQHSLDAHSGSR 42

N-terminal
LPAL13_350063100
LBRM2903_350067000
LTRL590_360064800

STQGVTDSSSLPRRAPGQLPLPAVRKASAVTQPDSPMFVPVRPLGALSGGAAAVQQRH 120
-----MFVPVRPLGALSGGAAAVQQRH 23
-----MFVPVRPLGALSGGAAAVQQRH 23
LMHGGTGRSGSPRQADLQPLPPAARKSSTATHLDSRSALAPVRPLNALPGCAAAQRCRY 102
: .*****.***.* ***.*: *:

N-terminal
LPAL13_350063100
LBRM2903_350067000
LTRL590_360064800

RSPHSTMEEEAAAAASQTLVRLQVAQPTASLRQDRQGHLLPHEAWQPLILTAVPDHTPQK 180
RSPHSTMEEEAAAAASQTLVRLQVAQPTASLRQDRQGHLLPHEAWQPLILTAVPDHTPQK 83
CSPHSTMEEEAAAAASQTLARLQVAQPTASLRQDRQGHLLPHEAWQPLILTAVPDHTPQK 83
RSPPSATERKAAAAANQTLARLQVAPPSASLRHDRQAHLLSLEAWQPLILTAAPDHAPRQ 162
** *: *.:*****.***.***** *:*****:***.***. *****.***:***:

N-terminal
LPAL13_350063100
LBRM2903_350067000
LTRL590_360064800

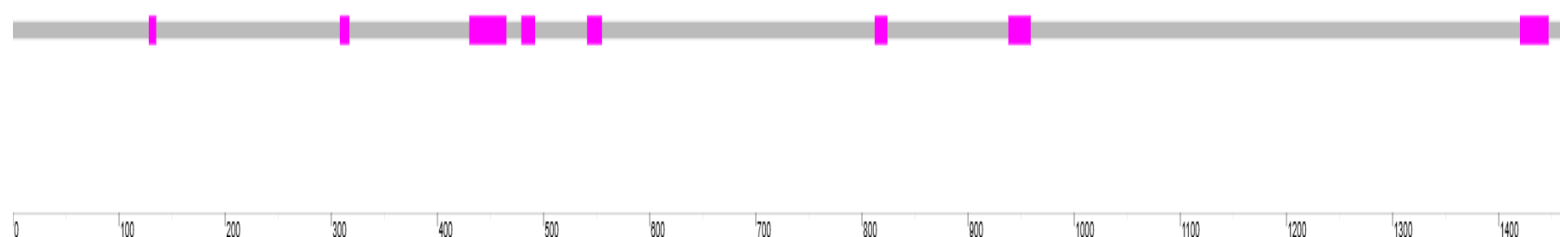
PVASVSSPLHFEFLASGTTLDAPGCD SAGAEGAGTISSRWRLRRGDPRAAQFSLPCEERN 240
PVASVSSPLHFEFLASGTTLDAPGCD SAGAEGAGTISSRWRLRRGDPRAAQFSLPCEERN 143
PVASVSSPLHFEFLASGTTLDAPGCD SAGAEGAGTISSRWRLRRGDRRAAQFSLPCEERN 143
PVASVSSPQRSQFLTFSTWAAPGGSSSGAEGLRKISLRWQLRRGDRGAAPFPPTFGEPD 222
***** : :***: ..* *** .*:***** .** **:***** ** *. . * :

N-terminal
LPAL13_350063100
LBRM2903_350067000
LTRL590_360064800

GYAAGSRQPPHRVLHLLGSAIFNNSPLGTFLPCLNLRMASCHASKTAQNIDREPTSQLSL 300
GYAAGSRQPPHRVLHLLGSAIFNNSPLGTFLPCLNLRMASCHASKTAQNIDREPTSQLSL 203
GYAAGSWQPPHRVLHLLGSAIFNNSPLGTFLPCLNLRMASCHASKTAQNIDREPTSQLSL 203
GHAAENQQHPLOVLHFLGATAFSDSPLCTFLPCLSLRMASSHASTTVQSTDRPSTSRPSL 282
*:** . * * :***:***: *.:*** *****.*****.***.***. ** .**:

C

No domain found



Supplementary Figure 20

A

N-terminal extension 20: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 26 (Negative strand)

Current Annotation

Gene: LPAL13_260012200

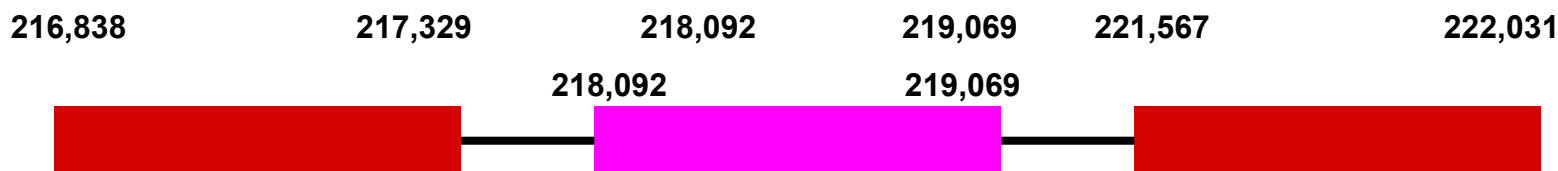
Current gene: LPAL13_260012300

Gene: LPAL13_260012400

RNA recognition motif

Hypothetical

RNA recognition motif



B

N-terminal	MEHSHSQRVS	YDMPQK	QLDYFSSRARTFFAFEQSAQANHLYDKPTFGRIHKIHHRF	QQQP	60
LPAL13_260012300	-----	-----	-----	-----	-----
LPMP_260750	MEHSHSQRVS	YDMPQK	QLDYFSSRARTFFAFEQSAQANHLYDKPTFGRIHKIHHRF	QQQP	60
LbrM.26.2.000780	MEHSHSQRVS	YDMPQK	QLDYFSSRARTFFAFEQSAQANHLYDKPTFGRIHKIHHRF	QQQP	60
N-terminal	ESQEIETAVA	QQGR	FSERYQLHLGEHIPVDSKSHSLIAESTASQSYQTEESQFHKA	PAP	120
LPAL13_260012300	-----	-----	-----	-----	-----
LPMP_260750	ESQEIETAVA	QQGR	FSERYQLHLGEHIPVDSKSHSLIAESTASQSYQTEESQFHKA	PAP	120
LbrM.26.2.000780	ESQEIETAVA	QQGR	LSERYQLYFGEHIPVDSKSHSLIADSTASRSYQTEESQFHKA	PAP	120
N-terminal	KAASQKPPSE	VSSHAPSTRHRYFSVEPKKSSHPRTHREAVVNTIDFNSSYNALPSWH	SSI	180	
LPAL13_260012300	-----	-----	-----	-----	-----
LPMP_260750	KAASQKPPSE	VSSHAPSTRHRYFSVEPKKSSHPRTHREAVVNTIDFNSSYNALPSWH	SSI	180	
LbrM.26.2.000780	KAASQKPPSE	VSSHAQSTRHRYFSVEPKKSSHPRTHREAVVNTIDFNSSYNALPSWH	SSI	180	
N-terminal	SQEQSTNNMNP	AHGDMTQQTEDQPWTSKRGYKQTR	GDHQAPIAELFASRSTLVS	YDPRSE	240
LPAL13_260012300	-----	-----	-----	-----	-----
LPMP_260750	SQEQSTNNMNP	AHGDMTQQTEDQPWTSKRGYKQTRGDHQAPIAELFASRSTLVS	YDPRSE	240	
LbrM.26.2.000780	SQEQSTNNMNP	AHGNMTQQTEDQPWTSKRGYKQTRGDHQAPIAELFASRSTLVSHD	PRSE	240	
N-terminal	MSASFRSQHHE	ALTKPPAQERPA	AALSYPVQPMGRIHPMRKALDRQEPDYSARHPAARGQ	300	
LPAL13_260012300	-----	-----	-----	-----	-----
LPMP_260750	MSASFRSQHHE	ALAKPPAQERPA	AALSYPVQPMGRIHPMRKALDRQEPDYSARHPAARGQ	300	
LbrM.26.2.000780	MSASFRSQHHE	ALAKPPAQERPA	AALSYPVQPMGRIHPMRKALDRQEPDYSARHPAARGQ	300	
N-terminal	ADEYERMRDEE	ENCTFQPSIVNPSRPRKGNVQGP	MHCESESTNLPHASRGDYVQDLYNKM	360	
LPAL13_260012300	-----	-----	-----	-----	-----
LPMP_260750	ADEYERMRDEE	ENCTFQPSIVNPSRPRKGNVQGP	MHCESESTNLPHASRGDYVQDLYNKM	360	
LbrM.26.2.000780	ADEYERMRDEE	ENCTFQPSIVNPSRPRKGNVQGP	TYCESERTNLQHASRGDYEQDLYNKM	360	
N-terminal	HGDADTAKRRK	DSRRAQKEIDDAEIEQNTRRGPRSTFANPRRTAVDCD	TDPEEVFVRLYE	420	
LPAL13_260012300	-----	-----	-----	-----	-----
LPMP_260750	HGDADTAKRRK	DSRRAQKEIDDAEIEQNTRRGPRSTFANPRRTAVDCD	TDPEEVFVRLYE	420	
LbrM.26.2.000780	HGDADTAKRRK	DSRRAQKEIDDAEIERNTRRGPRSTFANPRRTAVDCD	TDPEEVFVRLYE	420	
N-terminal	DAQRYNKEKSE	QERLIELKRQELHDAPHELKKG	NKHKEGTLNDNDNEGAVSGNEKPAEGK	480	
LPAL13_260012300	-----	-----	-----	-----	-----
LPMP_260750	DAQRYNKEKSE	QERLIELKRQELHDAPHELKKG	NKHKEGTLNDNDNEGAVSGNEKPAEGK	480	
LbrM.26.2.000780	DAQRYNKEKSE	QERLIELKRQELHDAPYELKKG	SKHKEGTLNDNDNEGAVSGNEKPAEGK	480	
N-terminal	PTSSIARKSASE	IRQFFERLSQPN	SIKFEKLKEQAEQEKREKEEKEAESKKNEMEKIA	540	
LPAL13_260012300	-----	-----	-----	-----	-----
LPMP_260750	PTSSIARKSASE	IRQFFERLSQPN	SIKFEKLKEQAEQEKREKEEKEAESKKNEMEKIA	540	
LbrM.26.2.000780	PTSSIARKSASE	IRQFFERLSQPN	SIKFEKLKEQAEQEKREKEEKEAESKKNIEKIA	540	
N-terminal	RYKWMIPAKS	FTFSDLQSHNAI	YAS	565	
LPAL13_260012300	-----	-----	-----	-----	-----
LPMP_260750	RYKWMIPAKS	FTFSDLQSHNAI	YAS	565	
LbrM.26.2.000780	RYKWMIPAKS	FTFSDLQSHNAI	YSS	565	

C

No domain found



Supplementary Figure 21

A

N-terminal extension 21: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 29 (Negative strand)

Current Annotation

Gene: LPAL13_290020600

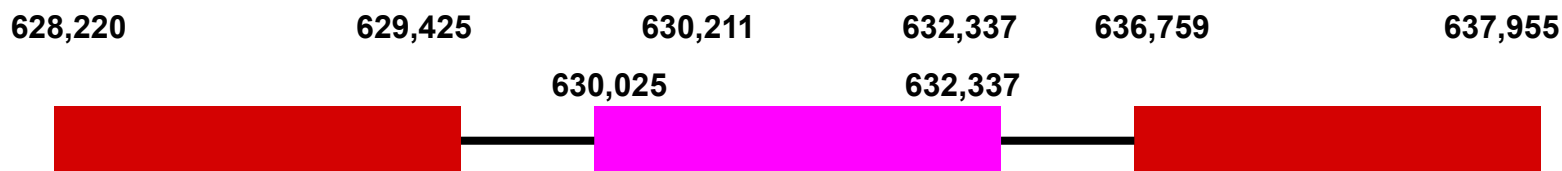
Current gene: LPAL13_290020700

Gene: LPAL13_290020800

XPC-binding domain

Hypothetical

Endomembrane protein 70

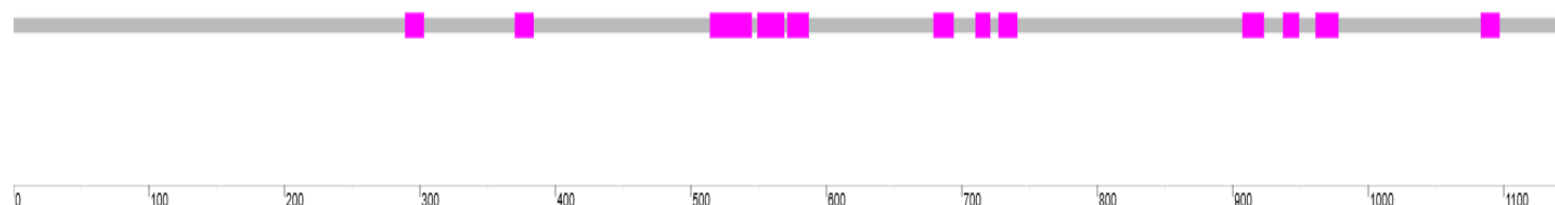


B

LAEL147_000532600	-----MPPPRRSLO	9
LTRL590_290022900	-----MPPPRHSLO	9
N-terminal	MHLHTRAKRECRIPADKRIFSFVSFQLRVKGVTSLICCLVRAYWSFRRCWMPPPRSLO	60
LPAL13_290020700	-----	
LAEL147_000532600	PRFTEQTPSLKAAPELAATHGDTLSLVPPPSASIVWAKAPRVVAKGESLCRAGQAHQVS	69
LTRL590_290022900	PRFTEQTPSLKAALELAATHGDTLSLVPPPSASIVWAKAPRVVTKGESLCRAGQAHQVS	69
N-terminal	PRSTEQASALRAAPGLADAHGDTASLAPTPRFSIPRVKRPREFAAKGESPHRTRQADAHAS	120
LPAL13_290020700	-----	
LAEL147_000532600	PIVSPSHNGRHNTRWTSARGTTETLKSTGAFMGCSAPRSSALTAESDRETTARVTSARSS	129
LTRL590_290022900	PIVSPSHNGRHNTRWTSARGTTETLKSTGASMGCSAPRSSALTAESDRETTARVMSARSS	129
N-terminal	HIVTSSHNGLQATRETSAQGMIATSKSTGAYSGRSSLCNASLASENNRRGGTTRVVCCTRLP	180
LPAL13_290020700	-----	
LAEL147_000532600	VRARSAEPCPCPSSQTFDRAAALRYATAAFAGESEEEALRAP---DHLARATRPASAQAHY	186
LTRL590_290022900	VRARSAEPCPCPSAQTFNRAAALRYATAAFAGESEEEALRAP---DHLARATRPASSQAHY	186
N-terminal	ARARSAEPCQYTSSSLTADRAASLRFAPAWLAGKNGEATEVPCVTRCRARTPRPTSSSLVDH	240
LPAL13_290020700	-----	
LAEL147_000532600	NARPSAYARPQLSEASDAVVVGRQSRVCGSPARDVSYTHSISSPVLHPSGSASFEEAAP	246
LTRL590_290022900	NARPSADARPQLSEASDAVAAGRQSRVCGSPARDVSYTHSISSPVLHPSGSASFEEAAP	246
N-terminal	QTRSRAEARPHSIETSSAIAEELQSRVCGSSTCDISSHTTSSPVLHPSGAASFEEAAP	300
LPAL13_290020700	-----	
LAEL147_000532600	HPSHPRNFAASAAPSREGEEDNKGCSALPQSSSSTTAAGRATRYGTEGPAALDKPWLAVT	306
LTRL590_290022900	HPSHPRNFAASAAPSREGEEDNKGCSALPQSPSSSTTAAGRATRYGTEGPAALDKPWLAVT	306
N-terminal	TPSQPGSVVVSAAPTR-EHGDDKGCASLPQSSSCTPAAGSATHRSTEGPAVLERPWLARP	360
LPAL13_290020700	-----	
LAEL147_000532600	PAHGILKGRGRMNSTTLIVSSTVSSTESTSSSHRAHTPSSVPAKAVISDSSARSLSNPESI	366
LTRL590_290022900	PAHGILKGRGRMNSTTLIVSGAVSSTGSTSSSHRAHTPSSVPAKAVISDSSARSLSNPESI	366
N-terminal	PAHGILKRKGSMSTVRVASSISVAKPPASSCRMHTPSGSPKADVADSSAGSLSNQESV	420
LPAL13_290020700	-----MSSTVRVASSISVAKPPASSCRMHTPSGSPKADVADSSAGSLSNQESV	49
LAEL147_000532600	SAQESARQTRHVTDFEDATEYLDTSSENVVYDDSRLLGRHPEKVECGAAMLSSCTLRDLGI	426
LTRL590_290022900	SAQESARQTRHVTDFEDAMEYLDASENVVYDDSRLLGRHAEKVECEAAMLSSCTLRDLGV	426
N-terminal	GAHESARRTRHVTDFDEASIGYLGTYGSHRVHEESRPRVPPENVVCGTAMLSLSCAASDGGG	480
LPAL13_290020700	GAHESARRTRHVTDFDEASIGYLGTYGSHRVHEESRPRVPPENVVCGTAMLSLSCAASDGGG	109
	.*:*****:*****: **.: .* *:***. *: * *:*****: * *	

C

No domain found



Supplementary Figure 22

A N-terminal extension 22: Zinc finger C-x8-C-x5-C-x3-H type

Leishmania panamensis MHOM/COL/81/L13 Chromosome 22 (Negative strand)

Current Annotation

Gene: LPAL13_220006700

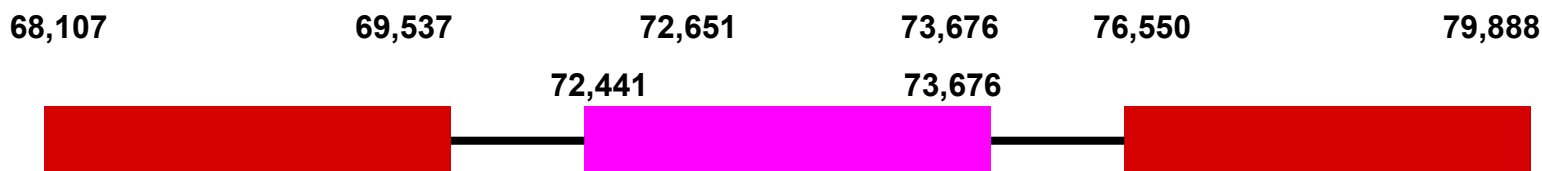
Current gene: LPAL13_220006800

Gene: LPAL13_220006900

DUF2036

Zinc finger

Hypothetical



B

N-terminal MSFTHHFASHSSLPTRVGSASNFMPTGSYGNRNTVCSSLESSMLLRPRQSVRAPQPLLTV 60
LPAL13_220006800 -----
LPMP_220160 -----
LMJSD75_220006800 MSYTSHFGSHSSLPTRVGSAA NSMPAGLYGSRNMACSLES GTLLRPRQSDRASRSPLIC 60

N-terminal SKRPSKHLSGMAWISAIDTASTKLNIPMTAVEPTLAFEDDGLVPGVCRLYMEGRCRQGDR 120
LPAL13_220006800 -----MAWISAIDTASTKLNIPMTAVEPTLAFEDDGLVPGVCRLYMEGRCRQGDR 50
LPMP_220160 -----MAWISAIDTASTKLNIPMTAVEPTLAFEDDGLVPGVCRLYMEGRCRQGDR 50
LMJSD75_220006800 SQRLGKYIAGMSSISAIDTASTKLSIPITAVEPTLAFEDDGLVPGLCRLFMEGRCRQGDR 120
*: *****. *: *****: ***: *****

N-terminal CFQVHANPSVVQQLRRVALNTPSCCPAHGAKCNMEGFPLGLVVVIDPPREKEVGLAVEAK 180
LPAL13_220006800 CFQVHANPSVVQQLRRVALNTPSCCPAHGAKCNMEGFPLGLVVVIDPPREKEVGLAVEAK 110
LPMP_220160 CFQVHANPSVVQQLRRVALNTPSCCPAHGAKCNMEGFPLGLVVVIDPPREKEVGLAVEAK 110
LMJSD75_220006800 CFQVHANPSVVEQLRQEAFTNTPSCCPAHGAKCNMEGFPLGLAVIIDPPREKESGAMVEAH 180
*****: ***: *: *****. *: ***** *

N-terminal VERESGCAAVSPSSGELNTTSTGDDAYNGNVTSTEQRTIALHNVCPTFLWSRYEENG 240
LPAL13_220006800 VERESGCAAVSPSSGELNTTSTGDDAYNGNVTSTEQRTIALHNVCPTFLWSRYEENG 170
LPMP_220160 VERESGCAAVSPSSGELNTTSTGDDAYNGNVTSTEQRTIALHNVCPTFLWSRYEENG 170
LMJSD75_220006800 AARDNGSAAGSLNGETNTADTGGDAYS GHSINNREQ-VPIALHNVCPTFLWSRYEENG 240
. *: *. * * *. * * *: *. * * *. * *: * * *. * * *

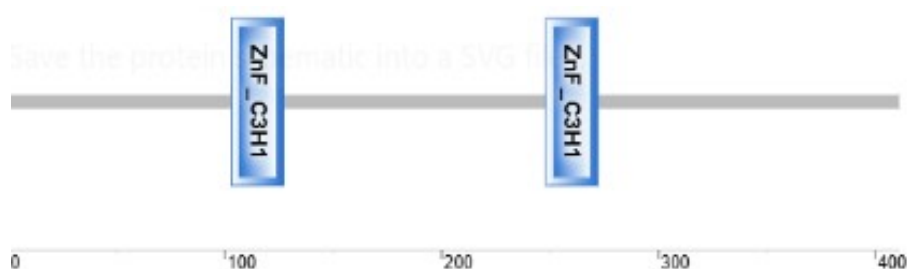
N-terminal GMLLHVPKSKICREHRKGLCRFGNECSFLHLCRQITLGSGEDEPF SRSHTPSCNAPMQGS 300
LPAL13_220006800 GMLLHVPKSKICREHRKGLCRFGNECSFLHLCRQITLGSGEDEPF SRSHTPSCNAPMQGS 230
LPMP_220160 GMLLHVPKSKICREHRKGLCRFGNECSFLHLCRQITLGSGEDEPF SRSHTPSCNAPMQGS 230
LMJSD75_220006800 GMLLHMPRSKVCREHRKGLCRFGNECSFLHVC RQMPIGSGDEELL SHSRTPLRHSTVQGS 300
*****: *: * *: *****: *****: * *: * *: * *: * *: * *: *

N-terminal MQDYSRSLSSATANGSLCHQAHSQSHSTSNLPHFQGSVLVSQSGSYMDCSLGNSQTGSRP 360
LPAL13_220006800 MQDYSRSLSSATANGSLCHQAHSQSHSTSNLPHFQGSVLVSQSGSYMDCSLGNSQTGSRP 290
LPMP_220160 MQDYSRSLSSATANGSLCHQAHSQSHSTSNLPHFQGSVLVSQSGSYMDCSLGNSQTGSRP 290
LMJSD75_220006800 MQDFSHPPSFATASGSLCHHAHSQSYSQANLQHFGSTVMSQNGSYMDGSLGNSQTGSRP 360
***: *: * * * *. * * *: * * *: * * *: * * *: * * *: * * *

N-terminal HFSRIPATSESYGSHQPLLRLPLGGLPNSQRTIGTRGSFTHNPYAEASSFQG 411
LPAL13_220006800 HFSRIPATSESYGSHQPLLRLPLGGLPNSQRTIGTRGSFTHNPYAEASSFQG 351
LPMP_220160 HFSRIPATSESYGSHQPLLRLPLGGLPNSQRTIGTRGSFTHNPYAEASSFQG 351
LMJSD75_220006800 HLSRAPTASESYGGHQPLLRLPLGGVQNSHSSVAARGSF SHNPYAEASSFQS 411
*: * *: * *: * *: * *: * *: * *: * *: * *: * *: * *: * *: *

C

Zinc finger C-x8-C-x5-C-x3-H type



Supplementary Figure 23

A

N-terminal extension 23: glycoprotein 96-92

Leishmania panamensis MHOM/COL/81/L13 Chromosome 28 (Positive strand)

Current Annotation

Gene: LPAL13_280029600

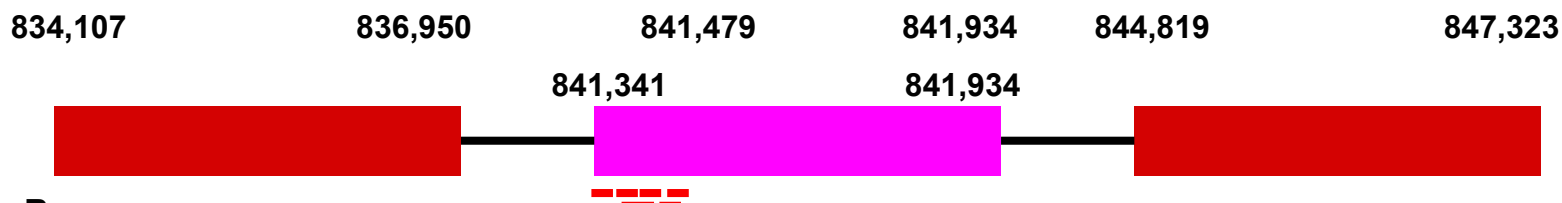
Mannosyl oligosaccharide
glucosidase

Current gene: LPAL13_280029700

Glycoprotein 96-92

Gene: LPAL13_280029800

2,3-bisphosphoglycerate
independent phosphoglycerate
mutase



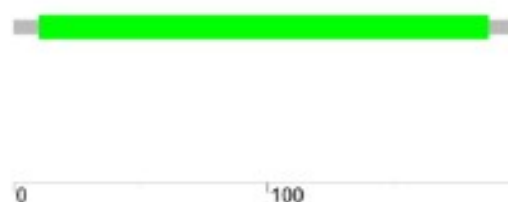
B

N-terminal	-----	
LPMP_282350	MSSAGSDTAVQHVDPEAEVSGTPLNNTSCEEAAAADSFHINGADNDKPLSEIPSTKKRLL	60
LPAL13_280029700	-----	
LbrM.28.2410	MSSAGSDTAVQHVDPEAEVSGTPLNNTSCEEAVATDSFHINGAGKDKPLSEIPSTKKRLL	60
N-terminal	-----	
LPMP_282350	RKENKGGSSAEVARRLKQEEKKLAEKIAKAREAEAQAQAEKANRVRQAEAERRKKRDEKD	120
LPAL13_280029700	-----	
LbrM.28.2410	RKENKGGAAAEVARRLKQEEKRLAEKIAKAREAEAQAQAEKANRVRQAEAERRKKRDEKD	120
N-terminal	-----	
LPMP_282350	ARAQKGVVEERKLKEEQKRQREEEKQRAEMVRKQREESQRKREEIQRQREEMKRRKAE	180
LPAL13_280029700	-----	
LbrM.28.2410	ARAQKDVEERKQREEQKRQREEEKQRAEMVRKQREKSQRKREEIQRQREEMKRRKAE	180
N-terminal	-----MAEEKEAQKRTEKKAEDDFSATRRQRKEEEEQRL	34
LPMP_282350	AEAQKQRLKELQEEHEKKLEEARQHRIAEEKEAQKRTEKKAEDDFSATRRQRKEEEEQRL	240
LPAL13_280029700	-----	
LbrM.28.2410	AEAQKQRLKELQEEHEKQLEGARQHRIAEERETQKRAEKKAEDDFAATRRQRKEEEEQRL	240
N-terminal	RQREEEKQRAEMVRKQREESQRKREELKQKEAKEAEIQRQKEVQAEIQKKREKEQQE	94
LPMP_282350	RQREEEKQRAEMVRKQREESQRKREELKQKEAKEAEIQRQKEVQAEIQKKREKEQQE	300
LPAL13_280029700	-----MVRKQREESQRKREELKQKEAKEAEIQRQKEVQAEIQKKREKEQQE	48
LbrM.28.2410	RQREEEKQRAEMVRKQREESQRKREELKQREAEQAEIKRQKEAQEKLQKRREKEKEE	300
	*****:*:*:*:*****.*:***:*****:*	
N-terminal	LRKKVSERRMKGKTD SKKEQILQQKKMAAAAERERLEEQLRKQKEAEEREIAEKHRRVME	154
LPMP_282350	LRKKVSERRMKGKTD SKKEQILQQKKMAAAAERERLEEQLRKQKEAEEREIAEKHRRVME	360
LPAL13_280029700	LRKKVSERRMKGKTD SKKEQILQQKKMAAAAERERLEEQLRKQKEAEEREIAEKHRRVME	108
LbrM.28.2410	LRKKVSERRMKGKTD SKKEQILQQKKMAAAAERERLEEQLRKQKEAEEREIAEKHRRVME	360

N-terminal	QLEKNYEIVNEEEYERERREREERAREERGMDKVTEEVLVDA	197
LPMP_282350	QLEKNYEIVNEEEYERERREREERAREERGMDKVTEEVLVDA	403
LPAL13_280029700	QLEKNYEIVNEEEYERERREREERAREERGMDKVTEEVLVDA	151
LbrM.28.2410	QLEKNYEIVNEEEYERERREREERAREERRGMDKVTEEVLVDA	403

C

Glycoprotein 96-92



Supplementary Figure 24

A

N-terminal extension 24: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 20 (Positive strand)

Current Annotation

Gene: LPAL13_200014000

Current gene: LPAL13_200014100

Gene: LPAL13_200014200

Hypothetical

Hypothetical

Hypothetical

335,354 336,400 336,697 337,671 338,737 339,060

335,677

337,671

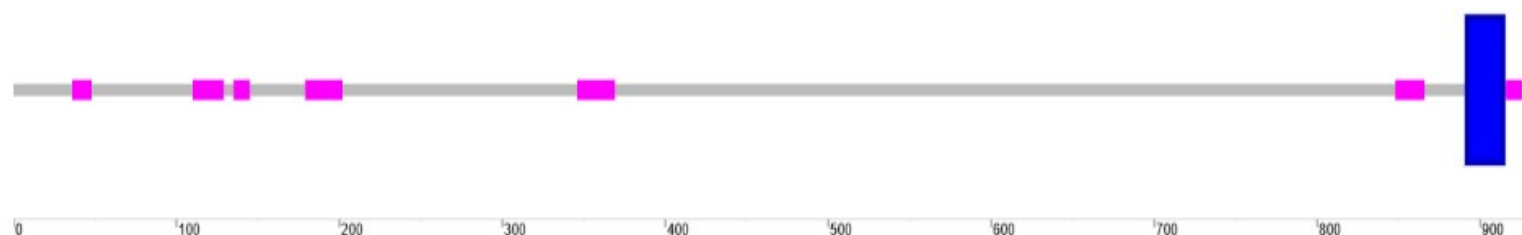
B

N-terminal	ARCPSAAAGGFAAAASAVHDCARARSRCQGGALSLGYHRSRQVVGVSVPVSWGSTAD	91
LPAL13_200014100	-----	
LPMP_200950	NVQPCVLHAVRLLAATAQAHAAVRQLEDLSLQQLQQYTTVLVQDRDVKEERYRLDTTAHR	100
LBRM2903_200015900	NVQPCVLHAVKLLAATAQAHAAVRQLEDLSLHQLQQYTTVLVRDRDVKEERYRLDTTAHR	180
N-terminal	PVTAARWTNVGGCQGNVQGSCGSTSSPASAGAAASPAPTEGG-----CPVMPT	139
LPAL13_200014100	-----	
LPMP_200950	EEADRLWESLFRLEAQQQIIPSRQLDERTSEAVKAMCKAAVEARVVPLQQELQRLRHRLKA	160
LBRM2903_200015900	EEADRLWESLFRLEAQQQIIPSRQLDERTSEAVKAMCKAAVEARVLPQQELQRLRHRLKA	240
N-terminal	LPPPPPPASRVLEQRHLQHFDHVDIEGQGLYWRR-----WCGRLRVSPRSATSSSSSSSS	191
LPAL13_200014100	-----	
LPMP_200950	VALSCPHFHFFFHHQHACSSSVTSNTSTLTCLKDRAYTGDDGAAASECRHRSATSSSSSSSS	220
LBRM2903_200015900	VALSCPHSHFFFHHQHACSSSVTSNTSTLTCLKDRAYAGDDGAAASECRHRSATSSSSSSSS	300
N-terminal	SPLTSSSTASSLGRHERFCRRGRVATTGAPAPTSHALPSATAAGSAGTPKMMREVQQLRRQ	251
LPAL13_200014100	-----	
LPMP_200950	SPLTSSSTASSLGRHERSCRRGRVATTGAPAPTSHALPSATAAGSAGTPKMMREVQQLRRQ	280
LBRM2903_200015900	SPLTSSSTASSLGRHERSCRRGRVATTGAPAPTSHALPSATAAGSAGTPKMMREVQQLRRQ	360
N-terminal	WQHFLRSVPAALAEGTNPFDDGGAEGDHRRRAVSRGQSRLISKGSCRDSSAGRLFSNVKRTSR	311
LPAL13_200014100	-----	
LPMP_200950	WQHFLRSVPAALAEGTNPFDDGGAEGDHRRRAVSRGQSRLISKGSCRDSSAGRLFSNVKRTSR	340
LBRM2903_200015900	WQHFLRSVPAALAEGKNPFDDGGAEGDHRRRAASRGQSRLISKGSCRDSSAGRLFSNVKRTSR	420
N-terminal	VDMASTRGNSPRPFHLAVRHPSPSAPRGTMPLACSSGPTRAPSGASAAAFSSALPASGRR	371
LPAL13_200014100	-----MLPACSSGPTRAPSGASAAAFSSALPASGRR	31
LPMP_200950	VDMASTRGNSPRPFHLAVRHPSPSAPRGTMPLACLSGPTCAPSGASAAAFSSALPASGRR	400
LBRM2903_200015900	VDMASTRGNSPRPFHLAVRHPSPSAPRGTMPLACSSGPTRAPSGASAAAFSSALPASGRR	480

N-terminal	VRWYWLGDAQSHFSTAVVRAENGFAAMKLSNAGPQPMLNGVSPALPWTECHAFDGRDTCW	431
LPAL13_200014100	VRWYWLGDAQSHFSTAVVRAENGFAAMKLSNAGPQPMLNGVSPALPWTECHAFDGRDTCW	91
LPMP_200950	VRWYWLGDAQSHFSTAVVRAENGFAAMKLSNAGPQPMLNGVSPALPWTECHAFDGRDTCW	460
LBRM2903_200015900	VRWYWLGDAQSHFSTAVVRAEKGFAMKLSNAGPQPMLNGVSPALPWTECHAFDGRDTCW	540
	*****:**:*****	

C

Transmembrane domain



Supplementary Figure 25

A

N-terminal extension 25: Metallo-peptidase, Clan MC, Family M14

Leishmania panamensis MHOM/COL/81/L13 Chromosome 33 (Negative strand)

Current Annotation

Gene: LPAL13_330007000

Current gene: LPAL13_330007100

Gene: LPAL13_330007200

Hypothetical

Metallo-peptidase

Hypothetical

48,659 50,323 51,680 56,368 61,434 64,214

51,326

56,368

B

LAEL147_000666300	MNLRSSSRQANQRTSSTSVDNRDSDGDVSVQLRSCALQPRPPVSGGRSSSTSKSTKGAP	60
LMJSD75_330007500	MNLRSSSRQANQRTLSTSVDNRDSDGDVSVQLRSCALQPRPPVSGGRSSSTAKSTKGAP	60
N-terminal	MSLRSSSRRESNQRTGSTSVDRDRDSDGDGLSTQLRSSVLQPRPPVGGVRSSTSKGAKGAR	60
LPAL13_330007100	-----	
LAEL147_000666300	KCSPP-TASVSKRSAAKRLALRTRLPHLRSPPLPASTSGEPTSSSLRFERRSFSSSCVP	120
LMJSD75_330007500	KCSPP-AASVPKRSAAKRLALRTRLPYLRSPPLPASTSGEPTSSSLRFERRSFSSSCVP	120
N-terminal	KCPAPPTASVSKRTAAKRLALRTHLPYLRSPVLLLASAGESTSSSPRCVRRSVSSCSMP	120
LPAL13_330007100	-----MP	2
		: *
LAEL147_000666300	REAATAHKPTYTIIPEALQHVKHLCSVDNRDSDAPLPSGACSGSGARDRRNNRLALPSI	180
LMJSD75_330007500	REAATVHKPTYTIIPEVLQHVKHLCSVDNRDSEKDALPSGACSGSGARDRRNNRLALPSI	180
N-terminal	HETATANRPSYSIIPEALQRVKQLCNGMRDSDRDAPVLMGAGNGSGARERTSRFTSPSF	180
LPAL13_330007100	HETATANRPSYSIIPEALQRVKQLCNGMRDSDRDAPVLMGAGNGSGARERTSRFTSPSF	62
	:*:***.:*:*:*****.***:***:*.:.***:***.: ** .*****:***.***: **:	
LAEL147_000666300	SWLSEDATAVVQDIEMVQGMLFSSLQSGSAADPVSPPTPKRDAAGAQLHHTRSHSWNPQR	240
LMJSD75_330007500	SWLSEDATAVVQDIEMVQGMLFSSLQSGSAADAVSPPTPKRDAAGAQLHHTRSHSWNPQR	240
N-terminal	VELCEDATAVVQDVEMVQGMLFSSLQSGSTADAMRSLTPKRGSTGVQPPQARSKSWNPPS	240
LPAL13_330007100	VELCEDATAVVQDVEMVQGMLFSSLQSGSTADAMRSLTPKRGSTGVQPPQARSKSWNPPS	122
	*.*****:*****:***.: . ****.:*:*. :*:***:	
LAEL147_000666300	ALTFTPTGSGAFLSKKERRKAWALFLHKNTHAFALIVNACRSSLAMRELQVGSVLLTFLY	300
LMJSD75_330007500	GLTFTPAGSGAFMSKKERRKAWALFLHKNTHAFALIVNACRSSLAVRELQVGSVLLTFLY	300
N-terminal	DRPFLHASSGRFLSKKERRKAWAMFLHKNTHAFSLVVNACRSPLAMREPQVGSALLTFLY	300
LPAL13_330007100	DRPFLHASSGRFLSKKERRKAWAMFLHKNTHAFSLVVNACRSPLAMREPQVGSALLTFLY	182
	. * :. ** *:*****:*****:*****:*:*****.***:*** ****.*****	

C

Metallo-peptidase, Clan MC, Family M14



Supplementary Figure 26

A N-terminal extension 26: Flagellar attachment zone protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 20 (Negative strand)

Current Annotation

Gene: LPAL13_200011300

Current gene: LPAL13_200011400

Gene: LPAL13_200011500

FAZ

FAZ

FAZ

244,414 246,948 249,194 249,652 250,428 253,523

249,010

249,652

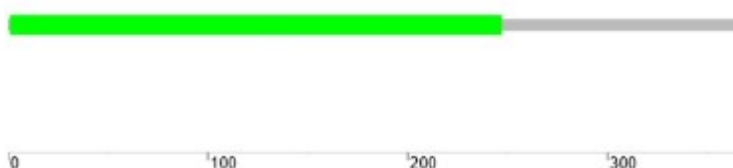
B

N-terminal	-----MCGDNERLAEELDRLQEEAERLAAELEKAQEEAERLA----	37
LPAL13_200011400	-----	
LBRM2903_200013300	GELEKAQADAEAQRAENGKLCGDNERLAEELERLQEEAERLAGELEKAQEEAERLAGELE	660
N-terminal	-----GDLEK AQADAEQRAENG KLCG	59
LPAL13_200011400	-----	
LBRM2903_200013300	KAQADAERQRAENGKLCGDNERLVEELESQEEAERLAGELEKAQADAEAQRAENGKLCG	720
N-terminal	DNERLAEELDRLQEEAERLAAELEKAQEEAERLAGELEK AQADAEQRAENG KLCGDNER	119
LPAL13_200011400	-----	
LBRM2903_200013300	DNERLAEELSLQEEAERLAGELERLQEEAERLAGELEKAQEEAERQRAENGKLCGDNER	780
N-terminal	LAEELSLQEEAERLAAELEKTQEEAERLAGELEK AQEEAEGQRAENG KLCGDNERLAE	179
LPAL13_200011400	-----	
LBRM2903_200013300	LVEELESQEEAERLAGELEKAQEEAERLAGELEKAQADAEAQRAENGKLCGDNERLAE	840
N-terminal	LESLQEEAERLAAELEKTQKDVEKLGSSNQIMVMEKAVARNAAEEAVNELISERSQL	239
LPAL13_200011400	-----MEKAVARNAAEEAVNELISERSQL	25
LBRM2903_200013300	LERLQEEAERLAGELEKAQKDVEKLANQIMVMEKAVARYASAEAVNELISERSQL	900
	***** *:*****	
N-terminal	VVELEKVRFEAYEVCCEREKDGCAVESEFLDVLMELEKVKVKGINDALQAVLRDKECEVKEL	299
LPAL13_200011400	VVELEKVRFEAYEVCCEREKDGCAVESEFLDVLMELEKVKVKGINDALQAVLRDKECEVKEL	85
LBRM2903_200013300	VAELEKVRVEAYEVLCCEREKDGCAVESEFLDVLMELEKVKVKGINDALQAVLRDKECEVKEL	960
	*.*****.***** *****:*****	
N-terminal	RDHNELWEDPSGDMKQVVTRHTKIFDGNWEKIVRDRPEALFAAFVIDSGNACHVPGDRIT	359
LPAL13_200011400	RDHNELWEDPSGDMKQVVTRHTKIFDGNWEKIVRDRPEALFAAFVIDSGNACHVPGDRIT	145
LBRM2903_200013300	RDHNELWEDPSGDMKQVVTRHTKIFDGNWEKIVRDRPEALFAAFVIDSGNACHVPGDRIT	1020

N-terminal	QVNFDHD	366
LPAL13_200011400	QVNFDHD	152
LBRM2903_200013300	QVNFDHD	1027

C

Flagellar attachment zone protein



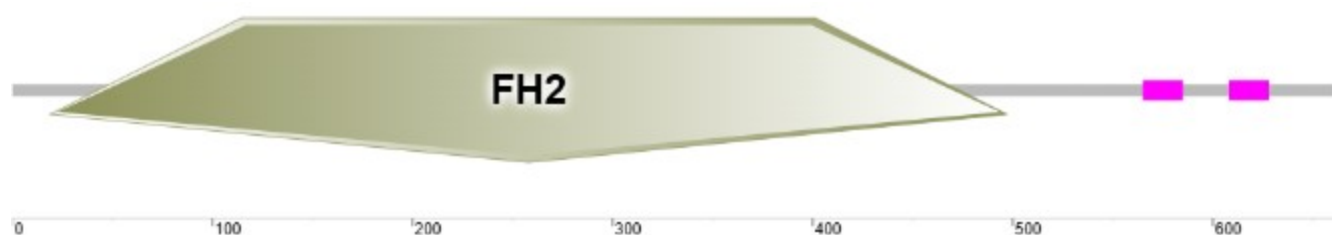
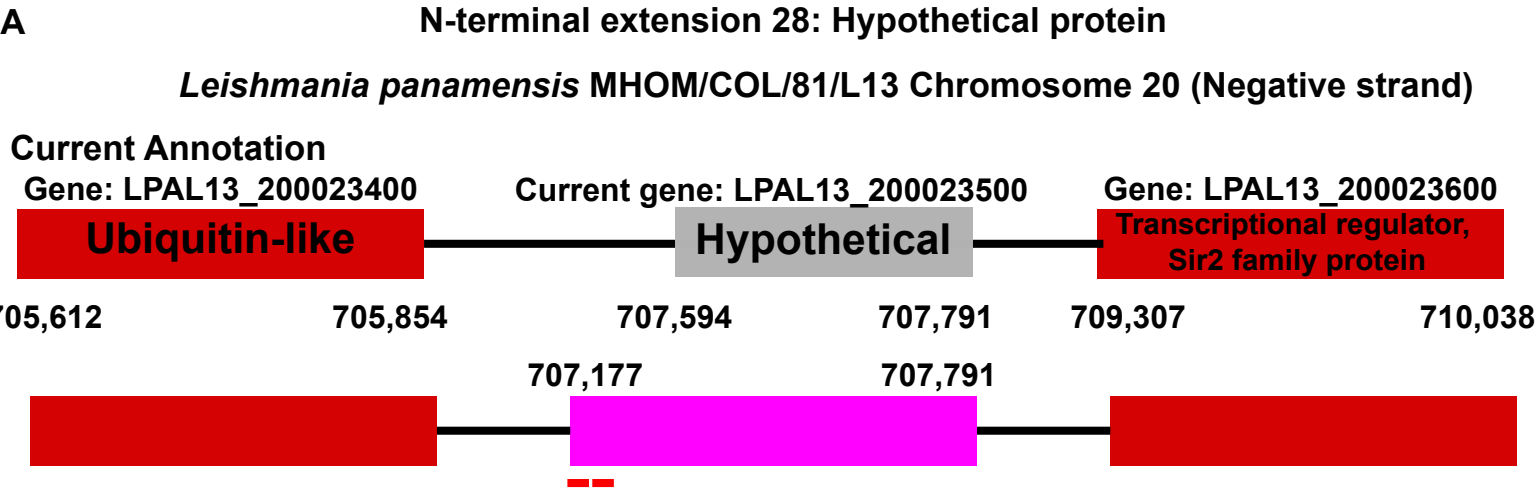
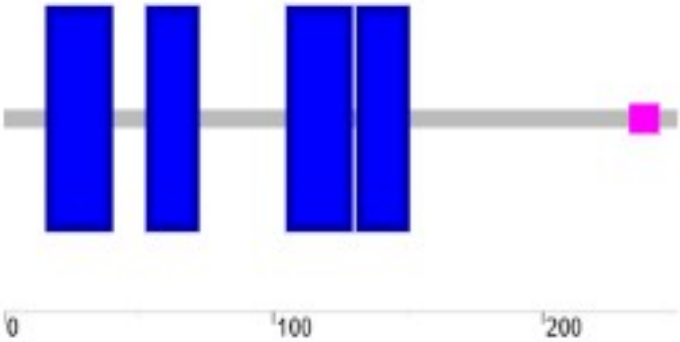


Figure 3B



C

Hypothetical protein; transmembrane region



Supplementary Figure 29

A

N-terminal extension 29: Calcium-transporting ATPase

Leishmania panamensis MHOM/COL/81/L13 Chromosome 07 (Positive strand)

Current Annotation

Gene: LPAL13_070012200

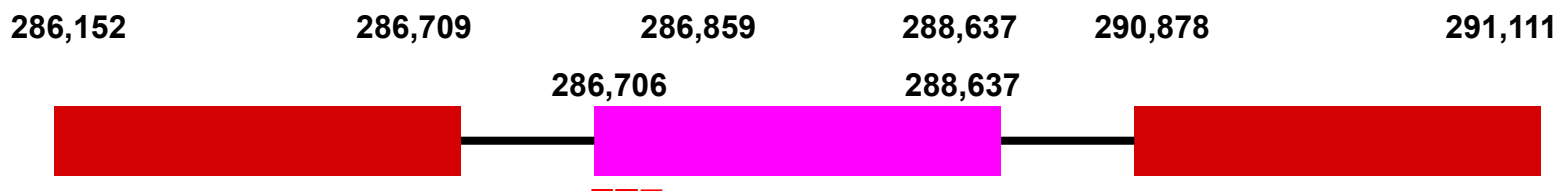
Current gene: LPAL13_070012300

Gene: LPAL13_070012400

Cation transporter/
ATPase, N-terminus

Calcium-transporting
ATPase

Hypothetical

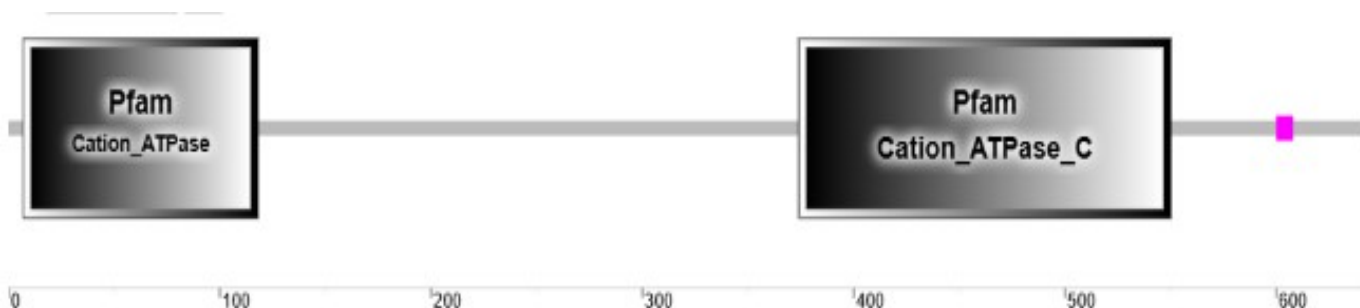


B

LPAL13_070012300	-----	
LPMP_070700	VGERSFGGKLLMESCGAGAPRPTPLQERLNEADLIGRIGLGSAMLLFALLSMMEVLRML	358
N-terminal	-----	
LDHU3_07.0870	VGERSFGGKLLMESRGAGAPRPTPLQERLDELADLIGRIGLGAAMLLFALLSLMEGFRML	360
LPAL13_070012300	-----	
LPMP_070700	QHEPGTSYLHFLDYFLLCVTIIVVAVPEGLPLAVTIALAYSQSKMHDDNNQVRRLRACET	418
N-terminal	-----	
LDHU3_07.0870	QHDSGASCRHFLDYFLLCVAIIVVAVPEGLPLAVTIALAYSQNKMHDDNNQVRRLRACET	420
LPAL13_070012300	-----	
LPMP_070700	MGNATQICSDKTGTLTQNLMSVVQGYVGMQHFIVKRPGLLEPVPLSDMRAASLRRLSEG	478
N-terminal	-----MSEG	4
LDHU3_07.0870	MGNATQICSDKTGTLTQNLMSVVQGYVGMQHFVSVKRPGLPEPVPLSGMRATSLRQLSEG	480
LPAL13_070012300	-----MTEADACDMKSRP	13
LPMP_070700	IAVNSSSEKVVSTTDKEGHRVAPYWQWVADRGNKTDNALLDVFDRVAMTEADACDMKSRP	538
N-terminal	IAVNSSSEKVVSTTDKEGHRVAPYWQWVADRGNKTDNALLDVFDRVAMTEADACDMKSRP	64
LDHU3_07.0870	IAINSSSEKVVSTTDKEGHTVAPYWQWVADKGNKTDNALLDVFDRVAMTEADARDMGSRP	540
	***** ** ***	
LPAL13_070012300	HQRTKACQQRGFTIFPFTSDRKRMSSAVVRQEDGTLHHSVKGGS DRILPLCDRYVNETGD	73
LPMP_070700	HQRTKACQQRGFTIFPFTSDRKRMSSAVVRQEDGTLHHSVKGGS DRILPLCDRYVNETGD	598
N-terminal	HQRTKACQQRGFTIFPFTSDRKRMSSAVVRQEDGTLHHSVKGGS DRILPLCDRYVNETGD	124
LDHU3_07.0870	HQRIREACRQRGFTIFPFTSDRKRMSSAVVRQEDGTLVHHVKGGS DRILPLCDRYVNEAGD	600

C

Calcium-transporting ATPase



Supplementary Figure 30

A

N-terminal extension 30: 60S ribosomal protein L23a

Leishmania panamensis MHOM/COL/81/L13 Chromosome 06 (Positive strand)

Current Annotation

Gene: LPAL13_060011200

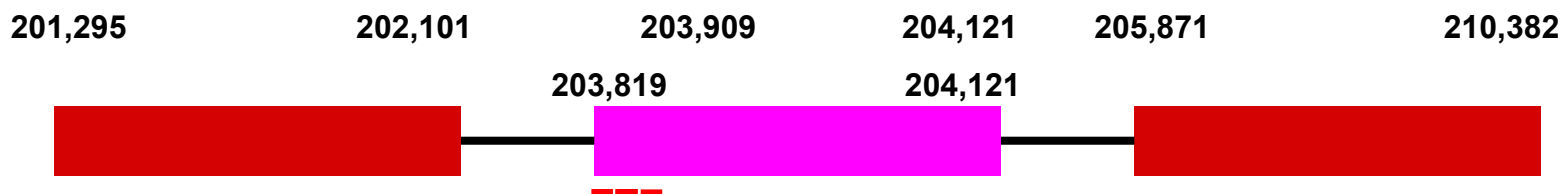
Current gene: LPAL13_060011300

Gene: LPAL13_060011400

Deoxyuridine
triphosphatase

60S ribosomal

Hypothetical



B

LPMP_060560	MACPTEAVLFSTMAAAPKTAKKAAPKDVKATKVVKVTTTRKSYTRPQFRRPHTYRRPAIAK	60
LbrM.06.2.202120	MACPTEAVLFFTMAAAPKTAKKAAPKDVKATKVVKVTTTRKSYTRPQFRRPHTYRRPAIAK	60
LPAL13_060011300	-----	
N-terminal	-----MAK	3
LPMP_060560	PSNRVTVESK DITAFSVIRYPLTTDKAMKKIEENNTLTFIVDACANKTEIKKAMRKLYQV	120
LbrM.06.2.202120	PSNRVTVESK DITAFSVIRYPLTTDKAMKKIEENNTLTFIVDACANKTEIKKAMRKLYQV	120
LPAL13_060011300	-----MKKIEENNTLTFIVDACANKTEIKKAMRKLYQV	33
N-terminal	PSNRVTVESK DITAFSVIRYPLTTDK AMKKIEENNTLTFIVDACANKTEIKKAMRKLYQV	63

LPMP_060560	KAVKVNTLIRPDGLKKAYIRLSAAHDALDTANKIGLV	157
LbrM.06.2.202120	KAVKVNTLIRPDGLKKAYIRLSAAHDALDTANKIGLV	157
LPAL13_060011300	KAVKVNTLIRPDGLKKAYIRLSAAHDALDTANKIGLV	70
N-terminal	KAVKVNTLIRPDGLKKAYIRLSAAHDALDTANKIGLV	100

C

60S ribosomal protein L23a



Supplementary Figure 31

A

N-terminal extension 31: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 01 (Positive strand)

Current Annotation

Gene: LPAL13_010007600

Poly(A) export protein

Current gene: LPAL13_010007700

Hypothetical

Gene: LPAL13_010007800

UPF0041

82,128

83,147

83,993

84,193

84,793

85,086

83,558

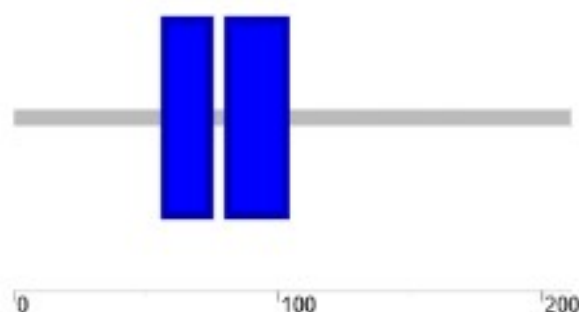
84,193

B

N-terminal	MMSSTVYDFGYELASKQVRVYQTNDVGSVYRALTANLQEYLAYEGIQEEDPTSLKNMFVK	60
LPMP_010340	MMSSTVYDFGYELASKQVRVYQTNDVGSVYRALTANLQEYLAYEGIQEEDPTSLKNMFVK	60
LPAL13_010007700	-----	
LbrM.01.2.000370	MMSSTVYNFGYELASKQVRVYQTNDVGSVYRALTANLQEYLAYEGIQEEDPTSLKNMFVK	60
N-terminal	VLTVGVGVAVYVLCKSHASEVLLAGSFLFFGALVAFQLVCSILQHNGNIIFIGSGRVVED	120
LPMP_010340	VLTVGVGVAVYVLCKSHASEVLLAGSFLFFGALVAFQLVCSILQHNGNIIFIGSGRVVED	120
LPAL13_010007700	-----	
LbrM.01.2.000370	VLTVGFGLAVYVLCKSHASGVLLTGSFLFFGALVAFQLVCSILQHNGNIIFIGSGRVVED	120
N-terminal	QQRGQKPCFRKLKNQRICIRLTQENMFIPVVKFEVQLIGPSRMFSPPTVYSRVEKTVQYG	180
LPMP_010340	QQRGQKPCFRKLKNQRICIRLTQENMFIPVVKFEVQLIGPSRMFSPPTVYSRVEKTVQYG	180
LPAL13_010007700	-----MFIPVVKFEVQLIGPSRMFSPPTVYSRVEKTVQYG	35
LbrM.01.2.000370	QQRGQKPCFRKLKNQRICIRLTQENVFIPVVKFEVQLIGPSRMFSPPTVYSRVEKTVQYG	180
	:*****	
N-terminal	QFFGSTGFFFPPALQELIDGMLEAVASKKQR	211
LPMP_010340	QFFGSTGFFFPPALQELIDGMLEAVASKKQR	211
LPAL13_010007700	QFFGSTGFFFPPALQELIDGMLEAVASKKQR	66
LbrM.01.2.000370	QFFGSTGFFFPPALQELIDGMLEAVASKKQR	211

C

Hypothetical protein; transmembrane region



Supplementary Figure 32

A N-terminal extension 32: 3-hydroxyacyl-CoA dehydrogenase, C-terminal domain

Leishmania panamensis MHOM/COL/81/L13 Chromosome 34 (Positive strand)

Current Annotation

Gene: LPAL13_340007700

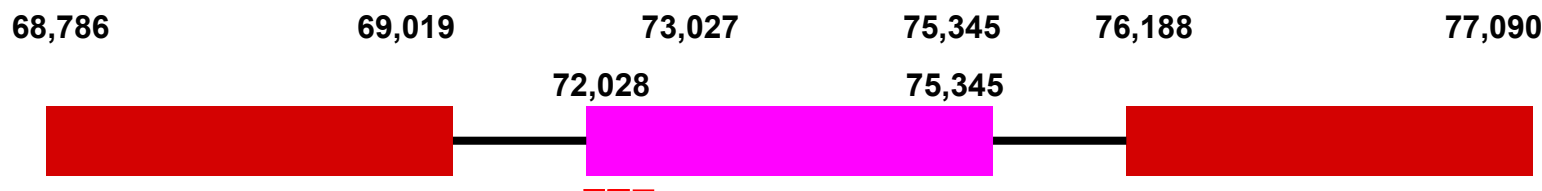
Current gene: LPAL13_340007800

Gene: LPAL13_340007900

Hypothetical

HAD

Hypothetical

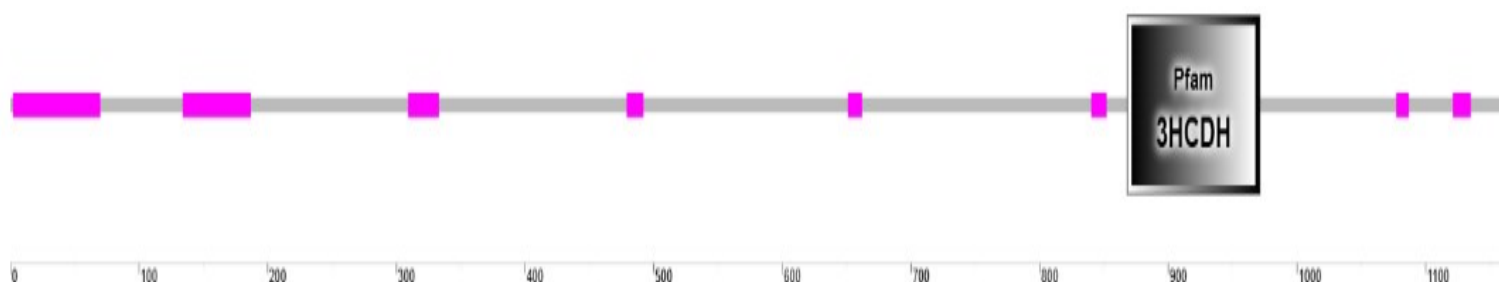


B

N-terminal	-----MAPKAAPAAPK VVPAAPAAFPVAPKA	25
LbrM. 34.0330	VPAAPVAPKVVPAAPVAPKAAPAAPVAPKVVPAAPVAPKAAPAAPVAPKVVPAAPAAAPKA	522
LPAL13_340007800	-----	
LbrM. 34.2.000330	APAAPVAPKVVPAAPVAPKAAPAAPVAPKVVPAAPVAPKAAPAAPVAPKVVPAAPAAAPKA	660
N-terminal	APAAPK VVPAAPAAFPVAPK AVPAAPAAPKAVPAAPKVVPAAPAAAPNVSRWTRWQRR PVAG	85
LbrM. 34.0330	APAAPVAPKAAPAAPVAPKVVPAAPVAPKAAPAAPVAPKVVPAAPNVSRWTRWQRRPVAG	582
LPAL13_340007800	-----	
LbrM. 34.2.000330	APAAPVAPKAAPAAPVAPKVVPAAPVAPKAAPAAPVAPKVVPAAPNVSRWTRWQRRPVAG	720
N-terminal	ASNTLENQR SSSRGAHPQPTERQQADAKHVACVSSVQQFPHRTASERPAAPPPSSPPP	145
LbrM. 34.0330	ASNTLENQRPSQGAHPQPTERQQADAKHVACVPSVQQFPHRTASERPAAPPPSSPPP	642
LPAL13_340007800	-----	
LbrM. 34.2.000330	ASNTLENQRPSQGAHPQPTERQQADAKHVACVPSVQQFPHRTASERPAAPPPSSPPP	780
N-terminal	APSLSTAPLAPPTPPSTSSAHTTIAPPSVSAVAEADSEATDEK LFEALQPSLSTRIEAAV	205
LbrM. 34.0330	APSLSTAPLAPSTPPSTSSAHTTIAPPSVSAVAEADSEATDEKLFEALQPSLSTRIEAAV	702
LPAL13_340007800	-----	
LbrM. 34.2.000330	APSLSTAPLAPSTPPSTSSAHTTIAPPSVSAVAEADSEATDEKLFEALQPSLSTRIEAAV	840
N-terminal	RQGK AAACLLTASHTAQQPQVEQLEQRILRTDTEAHADSSSELIEGGATGDWACAKREEWLL	265
LbrM. 34.0330	RQGKAAYLLTASRTAQQPQVEQLEQRILRTDTEARADSSSELIEGGATGDWACAKREEWLL	762
LPAL13_340007800	-----	
LbrM. 34.2.000330	RQGKAAYLLTASRTAQQPQVEQLEQRILRTDTEARADSSSELIEGGATGDWACAKREEWLL	900
N-terminal	PLPGFISSSIDRHEIPAELGGDDGSNVAECTTARSTANDFSRKATTTAPADAAPLLSALA	325
LbrM. 34.0330	PLPGFISSSIDRHEIPAELGGDDGSNVAECTTERSTANDFSRKETTTAPADAAPLLSALA	822
LPAL13_340007800	-----	
LbrM. 34.2.000330	PLPGFISSSIDRHEIPAELGGDDGSNVAECTTERSTANDFSRKETTTAPADAAPLLSALA	960
N-terminal	PELSESATMERLPIDVWFGADAASCCKGATAPQRPRVTDNSDVCLVVSTSVTPQKYAITV	385
LbrM. 34.0330	PELFESATVERLPIDVWFGADAASCCKGATAPQRPRVTDNSDVCLVVSTSVTPQKYAITV	882
LPAL13_340007800	-----MERLPIDVWFGADAASCCKGATAPQRPRVTDNSDVCLVVSTSVTPQKYAITV	52
LbrM. 34.2.000330	PELFESATVERLPIDVWFGADAASCCKGATAPQRPRVTDNSDVCLVVSTSVTPQKYAITV	1020
	: *****	
N-terminal	QLREPPSSPMACVQAVAGALDTVEAHCNTAVTSHTAASVDSALRVAPAITVTWCALPHCS	445
LbrM. 34.0330	QLREPPSSPMACVQAVAGALDTVEAHCNTAVTSHTATSVDSSALKIAPAITVTWCALPHCS	942
LPAL13_340007800	QLREPPSSPMACVQAVAGALDTVEAHCNTAVTSHTAASVDSALRVAPAITVTWCALPHCS	92
LbrM. 34.2.000330	QLREPPSSPMACVQAVAGALDTVEAHCNTAVTSHTATSVDSSALKIAPAITVTWCALPHCS	1080
	*****:*****:*****	
N-terminal	FFAATQSPTELPLSQRVDYVTAKETVMERFNCLVARFRARVHF AAVVSSGSVLDFGAEVF	505
LbrM. 34.0330	FFAAAQSPAELPLSQRVDYVTAKETVMERFNCLVARFRERVHF AAVVSSGSVLDFGAEVF	1002
LPAL13_340007800	FFAATQSPTELPLSQRVDYVTAKETVMERFNCLVARFRARVHF AAVVSSGSVLDFGAEVF	152
LbrM. 34.2.000330	FFAAAQSPAELPLSQRVDYVTAKETVMERFNCLVARFRERVHF AAVVSSGSVLDFGAEVF	1140
	****:***:*****	

C

3-hydroxyacyl-CoA dehydrogenase, C-terminal domain



Supplementary Figure 33

A

N-terminal extension 33: AAA family ATPase

Leishmania panamensis MHOM/COL/81/L13 Chromosome 09 (Negative strand)

Current Annotation

Gene: LPAL13_090017600

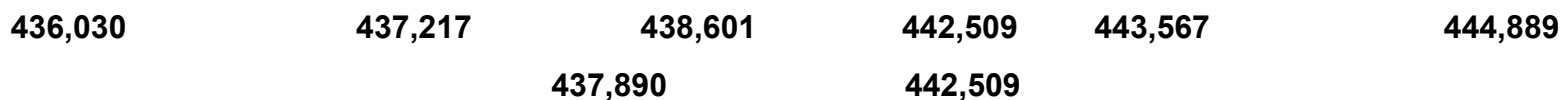
Current gene: LPAL13_090017700

Gene: LPAL13_090017800

Zinc finger

ATPase

Hypothetical



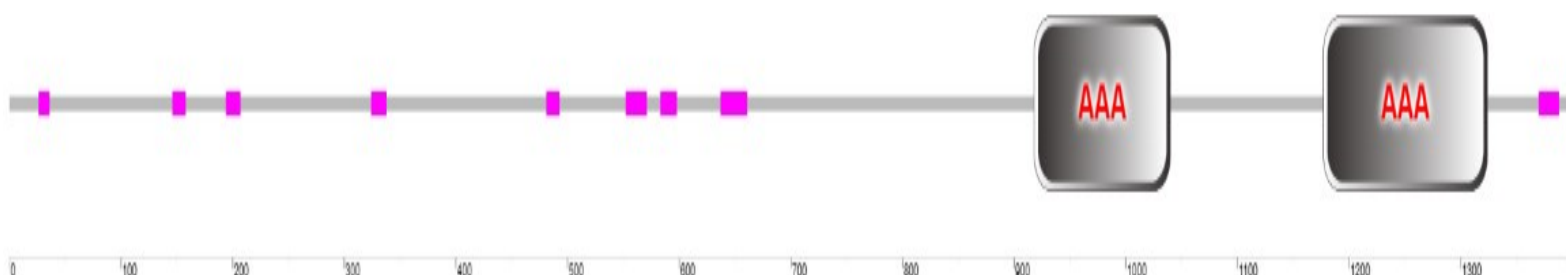
B

N-terminal	MMPPKKKPSTAATR	SSVGAPAEPR	QATSTLAAAASSRPTKPRLP	SQLSLTASVVP	SRGTV	60
LPAL13_090017700	-----	-----	-----	-----	-----	
LPMP_091220	-----	-----	-----	-----	-----	
LBRM2903_090019300	-----	-----	-----	-----	-----	
N-terminal	AVSR	STAPTSLASAAHV	RAFYRTGRFVSAPPR	TLMDLLR	FYVEFFLLCAQPAVPYRTSTA	120
LPAL13_090017700	-----	-----	-----	MDLLRFYVEFFLLCAQPAVPYRTSTA	26	
LPMP_091220	-----	-----	-----	-----	-----	
LBRM2903_090019300	-----	-----	-----	MDLLRFYVEFFLLCAQPAVPYRTSTT	26	
N-terminal	ASVAGAEKAPRSTVS	NGGDCNGNYTAAAKPAAVDIAAQVTTLTFISVPHSVWFFFEAVA	180			
LPAL13_090017700	ASVAGAEKAPRSTVS	NGGDCNGNYTAAAKPAAVDIAAQVTTLTFISVPHSVWFFFEAVA	86			
LPMP_091220	-----	-----	-----	-----	-----	
LBRM2903_090019300	ASVAGAEKAPGSTVS	NGGDCNGNYTAAAKPAAVDIAAQVTTLTFISVPHSVCFEAVA	86			
N-terminal	LFPGDGEAAPLPESGGKS	SAGRKRRRSSVAFNGTVLPLAGDTVLECDSDVQYQPSVMLQ	240			
LPAL13_090017700	LFPGDGEAAPLPESGGKS	SAGRKRRRSSVAFNGTVLPLAGDTVLECDSDVQYQPSVMLQ	146			
LPMP_091220	-----	-----	MLQ	3		
LBRM2903_090019300	LLPGDGEAAPLPESGGKS	SAGRKRRRSSVAFNGTVLPADGDTVLCDDSDVQYQPSVMLQ	146			

N-terminal	RLCEYGALQVPEFSDS	SAYLAAKDVLVYLKHYGYLVSAMTLSAAILRNVELVGLDFRQHC	300			
LPAL13_090017700	RLCEYGALQVPEFSDS	SAYLAAKDVLVYLKHYGYLVSAMTLSAAILRNVELVGLDFRQHC	206			
LPMP_091220	RLCEYGALQVPEFSDS	SAYLAAKDVLVYLKHYGYLVSAMTLSAAILRNVELVGLDFRQHC	63			
LBRM2903_090019300	RLCEYGALQVPEFSDS	SAYLAAKDVLVYLKHYGYLVSAMTLSAAILRNVELVGLDFRQHC	206			
	*****	*****				
N-terminal	VPCMNAITQLVDYLINAQLRKMQLP	PRVRLSERLRLSAKAARTLEYLLVCHCGRYAPGN	360			
LPAL13_090017700	VPCMNAITQLVDYLINAQLRKMQLP	PRVRLSERLRLSAKAARTLEYLLVCHCGRYAPGN	266			
LPMP_091220	VPCMNAITQLVDYLINAQLRKMQLP	PRVRLSERLRLSAKAARTLEYLLVCHCGRYAPGN	123			
LBRM2903_090019300	VPCMNAITQLVDYLINAQLRKMQLP	PRVRLSERLRLSAKAARTLEYLLVCHCGRYAPGN	266			
	*****	*****				

C

AAA family ATPase



Supplementary Figure 34

A

N-terminal extension 34: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 33 (Positive strand)

Current Annotation

Gene: LPAL13_330031500

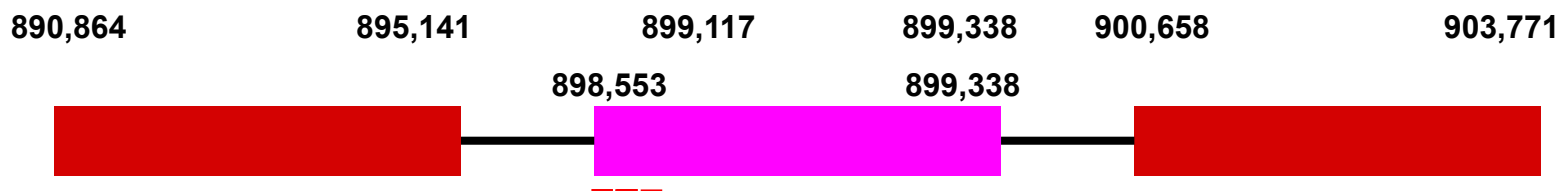
Glycosyl hydrolase

Current gene: LPAL13_330031600

Hypothetical

Gene: LPAL13_330031700

MYND finger

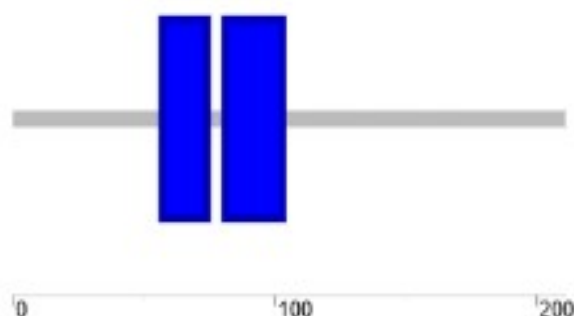


B

N-terminal	-----	
LPAL13_330031600	-----	
LbrM.33.2560	AATSSVEWTSRLGAEHTARVAEELEAARAAADARVQEELEAARAAADARVQEELEAAATSSAE	540
N-terminal	-----	
LPAL13_330031600	-----	
LbrM.33.2560	RTSRLGAEHAARVAEELEAARAAADARVQEELEAAATSSAERTSRLGAEHAARVAEELEAARA	600
N-terminal	-----	
LPAL13_330031600	-----	
LbrM.33.2560	-----MEAARAAADARVQEELEAAATSNVERTR	27
N-terminal	-----	
LPAL13_330031600	-----	
LbrM.33.2560	AADARVQEELEAAATSSAERTSRLGAEHAARVAEELEAARAAADARVQEELEAAATSSAERTS	660
N-terminal	-----	
LPAL13_330031600	-----	
LbrM.33.2560	RLGAEHAARVAEELEAARAAADARVQEELEAAATSNVERTSRLGAEHAARVAEELEAARAAAD	87
N-terminal	-----	
LPAL13_330031600	-----	
LbrM.33.2560	RLGAEHAARVAEELEAARAVADARVQEELEAAATSSAERTSRLGAEHAARVAEELEAARAAAD	720
N-terminal	-----	
LPAL13_330031600	-----	
LbrM.33.2560	ARVQEELEAAATSNVERTSRLGAEHAARVAEELEAARAAADARVQEELEAAVRCVAEALFVEP	147
N-terminal	-----	
LPAL13_330031600	-----	
LbrM.33.2560	ARVQEELEAAATSSAERTSRLGAEHAARVAEELEAARAAADARVQEELEAAVRRVVEALFVEP	780
N-terminal	-----	
LPAL13_330031600	-----	
LbrM.33.2560	FCVTEHFIVENKRAANSVDQVCFAREVEERVVKRQVKEREAMCRLIMEVTQLKAKLAVAE	207
N-terminal	-----	
LPAL13_330031600	-----	
LbrM.33.2560	FCVTEHFIVENKRTVNGVDQVCFARELEERVVKRQVKEREAMCRLIMEVTQLKAKLAVAE	840
N-terminal	-----	
LPAL13_330031600	-----	
LbrM.33.2560	AEKAEMARNRKVAEQEVRRRAEATEQSGLLNGDDSVPRSRKWCWSWCPVCNVMWLVCSS	267
N-terminal	-----	
LPAL13_330031600	-----	
LbrM.33.2560	AEKAEMARNRKVAEQEVRRRAEATEQSGLLNGDDSVPRSRKWCWSWCPVCNVM-----	79
N-terminal	-----	
LPAL13_330031600	-----	
LbrM.33.2560	AEKAEMARNRKVAEQEVRRRAEATEQSGLLNGDDSVPRSRGKWCWSWCPVCNVM-----	900
N-terminal	-----	
LPAL13_330031600	-----	
LbrM.33.2560	*****	

C

Hypothetical protein, transmembrane region



A **N-terminal extension 35: Hypothetical protein**

Leishmania panamensis MHOM/COL/81/L13 Chromosome 25 (Negative strand)

Current Annotation

Gene: LPAL13_250013100 Current gene: LPAL13_250013200 Gene: LPAL13_250013300

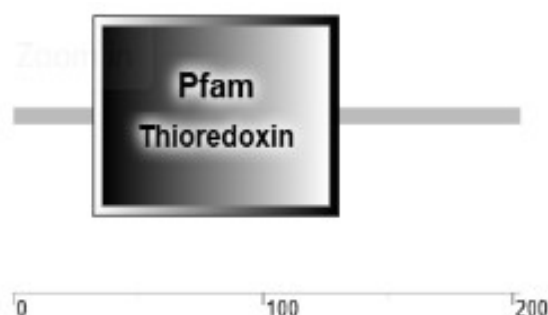
SCAMP family **Hypothetical** **Hypothetical**

258,777 259,856 260,239 260,487 261,322 262,164

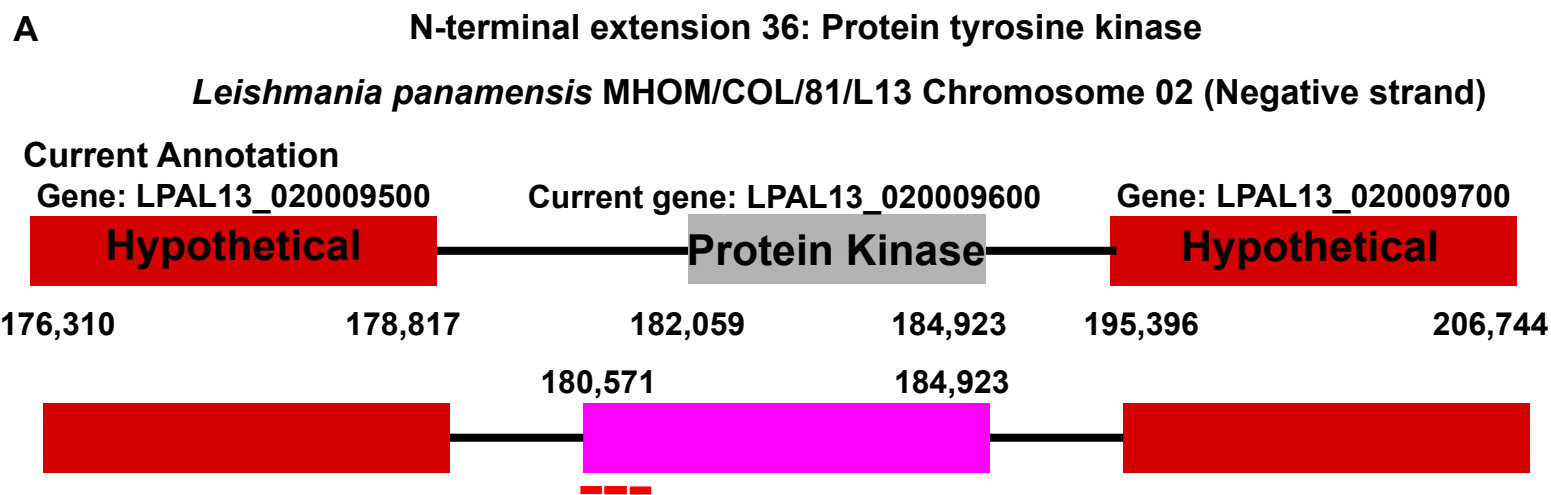
259,942 260,487

Detailed description: The image shows a genomic map of the negative strand of Chromosome 25 from Leishmania panamensis MHOM/COL/81/L13. The map is divided into three main regions corresponding to genes LPAL13_250013100, LPAL13_250013200, and LPAL13_250013300. The first region (258,777 to 259,856) is labeled 'SCAMP family' and is colored red. The second region (260,239 to 260,487) is labeled 'Hypothetical' and is colored grey. The third region (261,322 to 262,164) is labeled 'Hypothetical' and is colored red. Below the main map, a detailed view of the N-terminal extension 35: Hypothetical protein is shown, with coordinates 259,942 to 260,487. This region is colored magenta. The map also includes a scale bar at the bottom with coordinates 258,777, 259,856, 260,239, 260,487, 261,322, and 262,164.

C Thioredoxin_9 domain

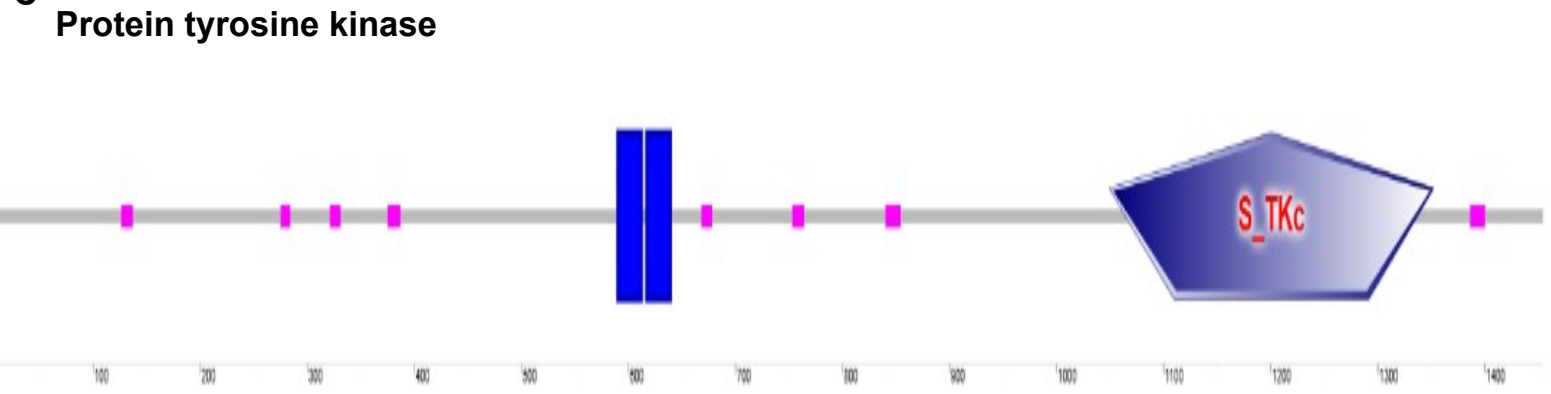


Supplementary Figure 36



B

N-terminal	MHLIGGMRTSGDSGRRESPIIDETNTHPTVACVEATPTLGQTSYAPGMNQVPGVGETGKG	60
LPMP_020450	-----MRTSGDSGRRESPIIDETNTHPTVACVEATPTLGQTSYAPGMNQVPGVGETGKG	54
LPAL13_020009600	-----MRTSGDSGRRESPIIDETNTHPTVACVEATPTLGQTSYAPGMNQVPGVGETGKG	54
LbrM.02.2.000540	-----MRTSGDSGRRESPIIDETNTHPTVACVEATPTLGQTSYAPGMNQVPEVGETGKG	54
N-terminal	PSSIHRKSHGGVAGSMMTVRSRIATSQNNHLSEGMGPQLDAEGPDCEDCEKLGGDGETQH	120
LPMP_020450	PSSIHRKSHGGVAGSMMTVRSRIATSQNNHLSEGMGPQLDAEGPDCEDCEKLGGDGETQH	114
LPAL13_020009600	-----PSSIHRKSHGGVAGSMMTVRSRIATSQNNHLSEGMGPQLDAEGPDCEDCEKLGGDGETQH	114
LbrM.02.2.000540	PSSIHRKSHGGVAGSMMTVRSRIATSQNNHLSEGMGPQLDAEGPDCEDCEKLGGDGETQH	114
N-terminal	SYSLTSRSCRRSDISIDAFPPHRELSGHGGAKGEQVQIDPENIEKSASTPDQAGVDSTRV	180
LPMP_020450	SYSLTSRSCRRSDISIDAFPPHRELSGHGGAKGEQVQIDPENIEKSASTPDQAGVDSTRV	174
LPAL13_020009600	-----SYSLTSRSCRRSDISIDAFPPHRELSGHGGAKGEQVQIDPENIEKSASTPDQAGVDSTRV	174
LbrM.02.2.000540	SYSLTSRSCRRSDISIDAFPPHRELSGHGGAKGEQVQIDPENIEKSASTPDQAGVDSTRV	174
N-terminal	SIDSYNHNASVSTGVAFLTKAEPVVVSTVYNERGAGSRKSSGEAEKSMQSLHQQQLCHFSA	240
LPMP_020450	SIDSYNHNASVSTGVAFLTKAEPVVVSTVYNERGAGSRKSSGEAEKSMQSLHQQQLCHFSA	236
LPAL13_020009600	-----SIDSYNHNASVSTGVAFLTKAEPVVVSTVYNERGAGSRKSSGEAEKSMQSLHQQQLCHFSA	236
LbrM.02.2.000540	SIDSYNHNASVSTGVAFLTKAEPVVVSTVYNERDAGSRKSSGEAEKSMQSLHQQQLCHFSA	236
N-terminal	GKNALRRRSRDTSPTALIASPTVPVVRVEAEFPESGWGGGSGSGDVAEVKVSNSLSAAVA	300
LPMP_020450	GKNALRRRSRDTSPTALIASPTVPVVRVEAEFPESGWGGGSGSGDVAEVKVSNSLSAAVA	296
LPAL13_020009600	-----GKNALRRRSRDTSPTALIASPTVPVVRVEAEFPESGWGGGSGSGDVAEVKVSNSLSAAVA	296
LbrM.02.2.000540	GKNALRRRSRDTSPTALIASPTVPVVRVEAEFPESGWGGGSGSGDVAEVKVPNSLSTAVA	296
N-terminal	CAGRLLDTNLAPSDGVTTNTRESASRSRRSAQFLSEMLGTSEKALGGFSTRREGGSGNMD	360
LPMP_020450	CAGRLLDTNLAPSDGVTTNTRESASRSRRSAQFLSEMLGTSEKALGGFSTRREGGSGNMD	354
LPAL13_020009600	-----CAGRLLDTNLAPSDGVTTNTRESASRSRRSAQFLSEMLGTSEKALGGFSTRREGGSGNMD	354
LbrM.02.2.000540	CAGRLLDTNLAPSDGVTTNTRESASRSRRSAQFLSEVLGSSEKALGAFSTRREGGSGNMD	354
N-terminal	SAAAVSNPLHHHNNTSRRSDTRSTDTHYAYGNGVTGTQSSGARRELPARSVENLAGGSR	420
LPMP_020450	SAAAVSNPLHHHNNTSRRSDTRSTDTHYAYGNGVTGTQSSGARRELPARSVENLAGGSR	416
LPAL13_020009600	-----SAAAVSNPLHHHNNTSRRSDTRSTDTHYAYGNGVTGTQSSGARRELPARSVENLAGGSR	416
LbrM.02.2.000540	SAAAVSNPLHHHNNTSRRSDTRSTDTHYAYGNGVTGTQSSGARRELPARSVENLAGGSR	416
N-terminal	GQYHTDGLADWRSFGSYRGELEWLCPVPSLFYLFANI IKWNELRLQRQSSRASLEENRRL	480
LPMP_020450	GQYHTDGLADWRSFGSYRGELEWLCPVPSLFYLFANI IKWNELRLQRQSSRASLEENRRL	476
LPAL13_020009600	-----GQYHTDGLADWRSFGSYRGELEWLCPVPSLFYLFANI IKWNELRLQRQSSRASLEENRRL	476
LbrM.02.2.000540	GQYHTDGLADWRSFGSYRGELEWLCPVPSLFYLFANI IKWNELRLQRQSSRTSLEENRRL	476
N-terminal	SDASFSLVSNWTPNREQELYMLEDRISFSVFELKGVYLNPLLVRWSKPKLRSLVADVALT	540
LPMP_020450	SDASFSLVSNWTPNREQELYMLEDRISFSVFELKGVYLNPLLVRWSKPKLRSLVADVALT	536
LPAL13_020009600	-----SDASFSLVSNWTPNREQELYMLEDRISFSVFELKGVYLNPLLVRWSKPKLRSLVADVALT	40
LbrM.02.2.000540	SDASFSLVSNWTPNREQELYMLEDRISFSVFELKGVYLNPLLVRWSKPKLRSLVADVALT	536



Supplementary Figure 37

A

N-terminal extension 37: Flagellar-associated PapD

Leishmania panamensis MHOM/COL/81/L13 Chromosome 18 (Positive strand)

Current Annotation

Gene: LPAL13_180009500

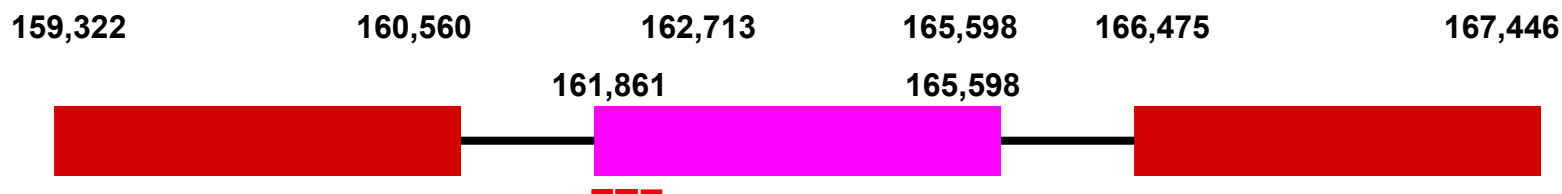
Vacuolar ATP
synthase subunit c

Current gene: LPAL13_180009600

PapD

Gene: LPAL13_180009700

Peroxisomal enoyl-coa
hydratase



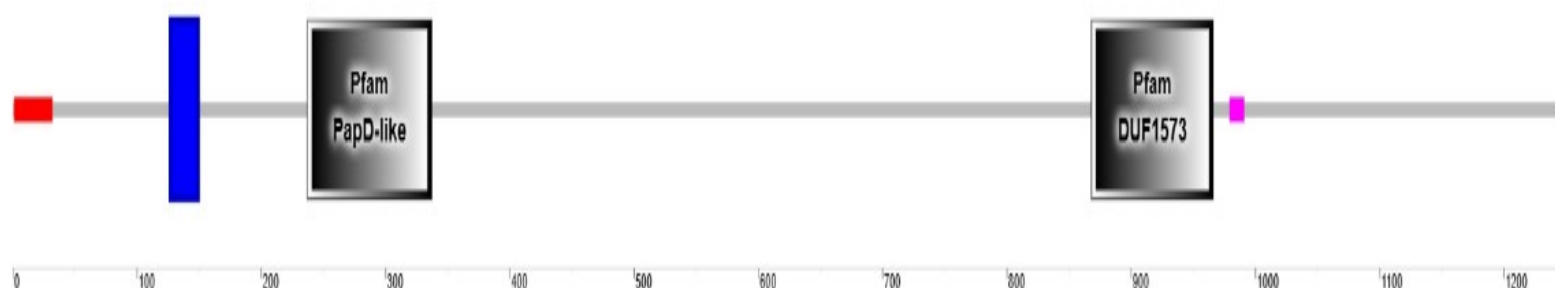
B

N-terminal	MTLMTNKRARMHFKHLNKCLLLSFAPAESALSSSQRRRLWGGCCTEAVVHNDQWVSDT	60
LPAL13_180009600	-----	
LPMP_180570	-----	
LbrM.18.2.000630	-----	
N-terminal	AAKRMMMLGVFTAIKDMIVLSIIKKKTHPHAHPRRTELALAAFSIVPSLRPFVCPRLRAKK	120
LPAL13_180009600	-----	
LPMP_180570	-----	
LbrM.18.2.000630	-----	
N-terminal	NCTTDHSMMYTSLTMLPTITLAWLLPAILSSPTPTFIYRPLCNHKQCSQFLAGLPQNSEM	180
LPAL13_180009600	-----	
LPMP_180570	-----M	1
LbrM.18.2.000630	-----M	1
N-terminal	DFLSFDNGVIK NPFWYK DADDGDCNYSTHRKWRRQPRDAINSARAVYTRYLLSKEK TPFQ	240
LPAL13_180009600	-----	
LPMP_180570	DFLSFDNGVIK NPFWYK DADDGDCNYSTHRKWRRQPRDAINSARAVYTRYLLSKEK TPFQ	61
LbrM.18.2.000630	DFLSFDNGVIK NPFWYK DADDGDCNYSTHRKWRRQPRDTINSARAVYTRYLLSKEK TPFQ	61
N-terminal	FNPETVCFADYDVGKEHKMLVTFNTATVPK TFRVMPIPSRYANMVSIEYTVPPKISPGL	300
LPAL13_180009600	-----MVSIEYTVPPKISPGL	16
LPMP_180570	FNPETVCFADYDVGKEHKMLVTFNTATVPK TFRVMPIPSRYANMVSIEYTVPPKISPGL	121
LbrM.18.2.000630	FNPETVCFADYDVGKEHKMLVTFNTATVPK TFRVMPIPSRYANMVSIEYTVPPKISPGL	121

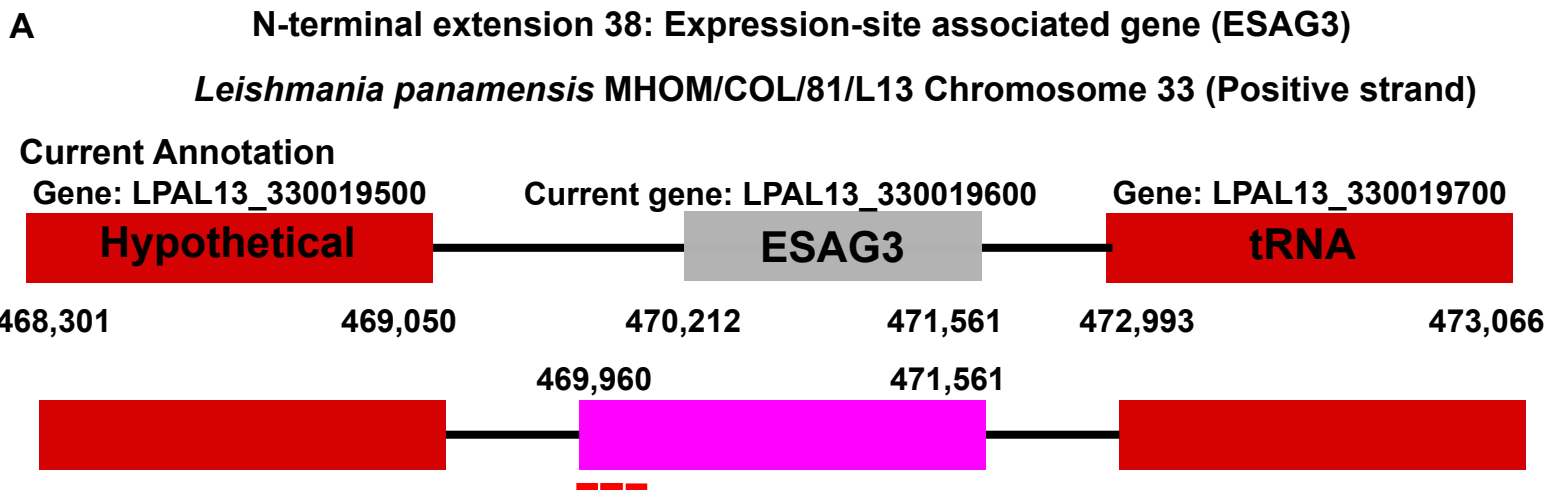
N-terminal	SWNIIVKYRPGDLSDISTAIYVKTDDEGYFAVPLTSSKKAFASFVEPKDVNFGTVIVGEKR	360
LPAL13_180009600	SWNIIVKYRPGDLSDISTAIYVKTDDEGYFAVPLTSSKKAFASFVEPKDVNFGTVIVGEKR	76
LPMP_180570	SWNIIVKYRPGDLSDISTAIYVKTDDEGYFAVPLTSSKKAFASFVEPKDVNFGTVIVGEKR	181
LbrM.18.2.000630	SWNIIVKYRPGDLSDISTAIYVKTDDEGYFAVPLTSSKKAFVFSVEPKGVNFGTVIVGEKR	181
	***** . ***** . *****	

C

Flagellar-associated PapD



Supplementary Figure 38



B

LbrM.33.1540	MAQMFHRGVAHSHRRRLSRLWRRRCAGLFNRRVPLVSAFAVLLVTAAVLLTPRRYARVP	60
LPMP_331390	MAQIFHRGVAHSHRRRLSRSWRRRCAGLFNRRVPLVSAFAVLLVTAAVLLTPRRYARVP	60
N-terminal	-----	
LPAL13_330019600	-----	
LbrM.33.1540	DGSDLAIPIYHСКАAAVYRQNAAFVAPFPRGGGIGVASTATETVPAAVHSRSHREEALEAEI	120
LPMP_331390	DGSDLAIPIYHСКАAAVYRQNAAFVAPFPRGGGIGVASTATETVPTAVHSRSHRQEALEAEI	120
N-terminal	-----MEAEI	5
LPAL13_330019600	-----	
LbrM.33.1540	EVYLANHGIRRERRRTRVRFQIVSNVVDWKLCTTLGSAALAGFSIPVTGFNAAYSHVRRFE	180
LPMP_331390	EVYLANHGIRRERRARVRFQIVSNVVDWKLCTTLGSAALAGFSIPVTGFNAAYSHVRRFE	180
N-terminal	ETYLASHGIRRERRRTRVR FQIVSNVVDWR LCTTLGSAALAGFSIPVTGFPAAYSHIR RFE	65
LPAL13_330019600	-----	
LbrM.33.1540	RYLDFVEREELHDEDIVVTMDSDVYWTGADFLPFLRK FARFSPEQESDLDVAAVRAWEDY	240
LPMP_331390	RYLNFVEREELHDEDIVVTMDSDVYWTGADFLPFLRK FARFSPEKESDLDVAAVRAWEDY	240
N-terminal	SYLNFEVER EELHDEDIVVTMDSDVYWTGADFLPFLGKFARFSPEQESDLDVAAVRAWEDY	125
LPAL13_330019600	-----MDSDVYWTGADFLPFLGKFARFSPEQESDLDVAAVRAWEDY	41
	***** :*****	
LbrM.33.1540	GEKKAPLDMQRLQDEMHN GTAGLKRPLLQMPV VYNADDLCWWGQHSEGFVQCPLAFATL	300
LPMP_331390	GEKKAPLDMQRLQDEMHN DTAGLKRPLLQMPV VYNADDLCWWGQHSEGFVQCPLAFATL	300
N-terminal	GEKKAPLYMQRLQAEMYNGTAGLKRPLLQMPV VYSAENVCWWGQHSEGFVQCPLAYATL	185
LPAL13_330019600	GEKKAPLYMQRLQAEMYNGTAGLKRPLLQMPV VYSAENVCWWGQHSEGFVQCPLAYATL	101
	***** **:* .***** .*: :***** :***	

C No domain found



Supplementary Figure 39

A

N-terminal extension 39: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 32 (Negative strand)

Current Annotation

Gene: LPAL13_320029300

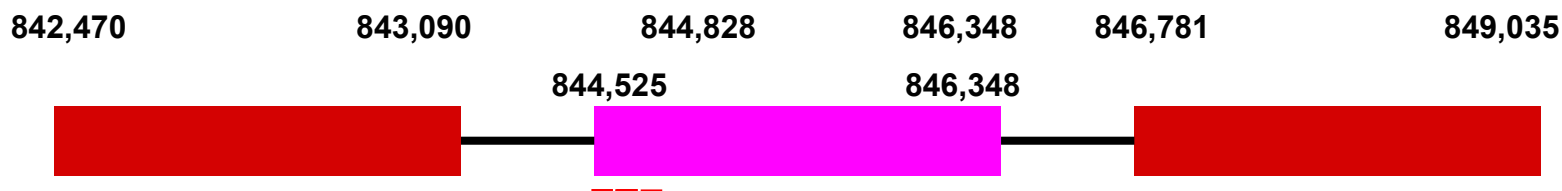
Complex 1 protein (LYR family)

Current gene: LPAL13_320029400

Hypothetical

Gene: LPAL13_320029500

Hypothetical

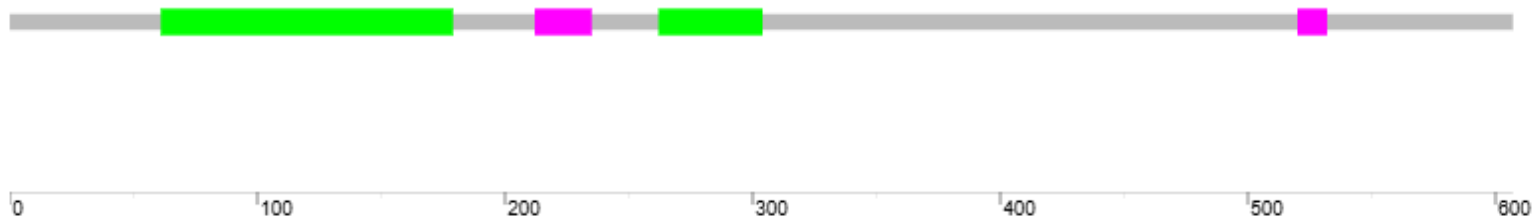


B

N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	RHEQHIHLQQTKLQHYAENERSTSDVIKNLEQHHDQTQIAKLNQQIIELRDELNKACRREQ	480
LPMP_322350	-----	
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	ELHDQVQASNTETQATIAATTEQYNHHQQHISSLTHSMAAEREQHESRVAELQRAHAAQV	540
LPMP_322350	-----	
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	AEVQQAHAHQVAELQQRLEVERDHAAANQSTAAECESALQQRLSELRTSMAAEREQHESR	600
LPMP_322350	-----	
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	MAELQQAHAHQVAELQQAHAHQVAELQQAHAHQVAELQQGR ELNVL RDDAAEKFWVTSQP	60
LPMP_322350	-----	
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	VAELQRAHATQVAEVQQAHAHQVAEVQQAHAHQVAELQQRRELNVLRDESAEKFWVTSQP	660
LPMP_322350	-----	
N-terminal	-----	
LPAL13_320029400	VDWLKEENESLKVQVREWEEK HTEVTNEK VSAVVK VGEVEE MLSCCKCELQRLKAEYSSL	120
LBRM2903_320031300	-----	
LPMP_322350	-----	
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	VDWLKEENESLKVQVREWEEKHTEVTKEKVNNAVVKVGEVEEMLSCCKCELQRLKAEYSSL	720
LPMP_322350	-----	
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	QKTMSKSLED RDI AVKRLKESVHLTEEA EANVVRLET LRKELQEVQERLEITDKDRA LVV	180
LPMP_322350	-----	
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	QKTMSKSLED RDI AVKRLKESVHLTEEA EANVVRLET LRKELQEVQERLEITDKDRA LVV	79
LPMP_322350	-----	
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	QKTMSKSLEERDI AVKRLKESAHLTEEA EANVVRLET LRKELQEVQERLEITDKDRA LVV	780
LPMP_322350	-----	
N-terminal	-----	
LPAL13_320029400	-----	
LBRM2903_320031300	HRGLTTALHENASALTALSTYLSLSGSPVKAAAIAGQMAKILKSVGTYVSAKERNSGTSQ	99
LPMP_322350	-----	

C

No domain found



Supplementary Figure 40

A

N-terminal extension 40: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 17 (Negative strand)

Current Annotation

Gene: LPAL13_170011900

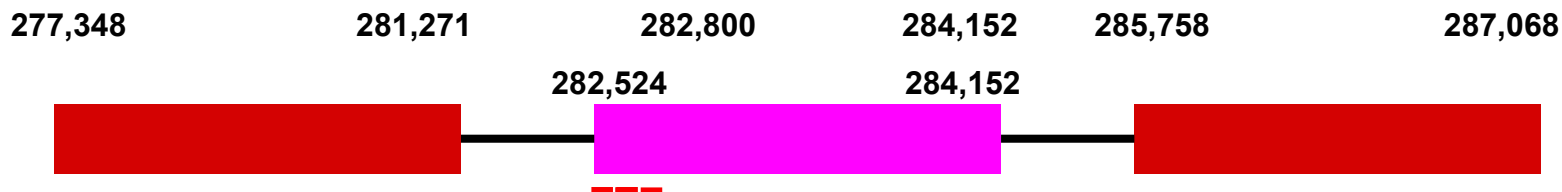
Current gene: LPAL13_170012000

Gene: LPAL13_170012100

EF-hand domain pair

Hypothetical

Hypothetical



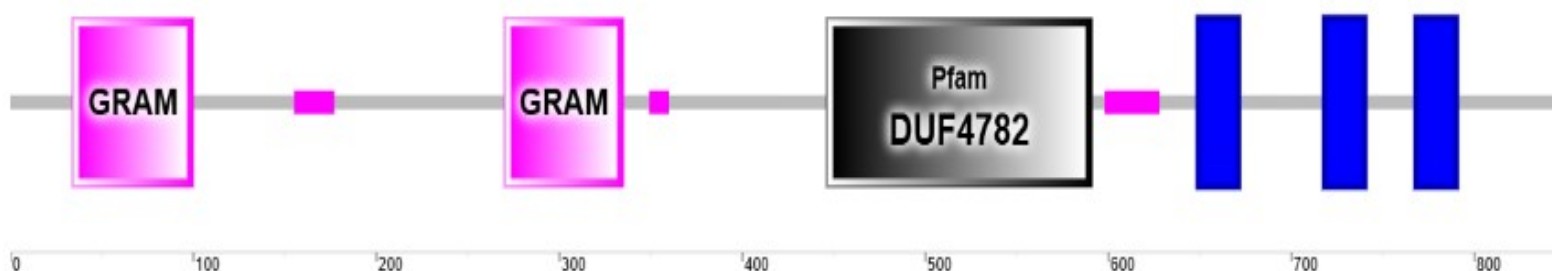
B

N-terminal LPAL13_170012000 LbrM.17.2.000670 LPMP_170640	MLFKASLQTTKRMSNSSTPDAK	VQVVTTSSAEDQLFHQLFPQVRRNEKLVQSCNCGLIRR	60
	-----MSNSSTPDAKVQVVTTSSAEDQLFHQLFPQLRRNEKLVQSCNCGLIRR		48
N-terminal LPAL13_170012000 LbrM.17.2.000670 LPMP_170640	KLVRMGRMYVTPLRICFTSSFIEEPLFILLENVLTLEKASFVCDTIVVVTKTQVEHDFT		120
	-----KLVRMGRMYVTPLRICFTSSFIEEPLFILLENVLTLEKASFVCDTIVVVTKTQVEHDFT		108
	----MGRMYVTPLRICFTSSFIEEPLFILLENVLTLEKASFVCDTIVVVTKTQVEHDFT		56
N-terminal LPAL13_170012000 LbrM.17.2.000670 LPMP_170640	AFISTGVTQMYSLCLKTLWSVREKYTADRARSCLPDDKSDASSATSSLSGRLTTGGNSAAY		180
	-----AFISTGVTQMYSLCLKTLWSVREKYTADRARSCLPDDKSDASSATSSLSGRLTTGGNSAAY		168
	AFISTGVTQMYSLCLKTLWSVREKYTADRARSCLPDDKSDASSATSSLSGRLTTGGNSAAY		116
N-terminal LPAL13_170012000 LbrM.17.2.000670 LPMP_170640	GSGAEARDSQSQDKHPLSASNWLSTNGRQDAEDCTECDRAAVSLRASSVGAPAVVEKQST		240
	-----GSGAEARDSQSQDTHPLSASNWLSTNGRQDAEDCTECDRAAVSLRASSVGAPAVVEKQST		228
	GSGAEARDSQSQDKHPLSASNWLSTNGRQDAEDCTECDRAAVSLRASSVGAPAVVEKQST		176
N-terminal LPAL13_170012000 LbrM.17.2.000670 LPMP_170640	SGLLLERSSSLQNRKSRPQESSNDVQSGTNPEFRRFFPSIPQTETIKDSFTCCYQFGASRL		300
	-----SGLLLERSSSLQNRKSGPQESSNDVQSGTNPEFRRFFPSIPQTETIKDSFTCCYQFGASRL		288
	SGLLLERSSSLQNRKSRPQESSNDVQSGTNPEFRRFFPSIPQTETIKDSFTCCYQFGASRL		236
N-terminal LPAL13_170012000 LbrM.17.2.000670 LPMP_170640	GKMWVTQNFILFVSPMMESRIEIKFSDVEKIEKEQKLVLLDGFYVQLKSGSSLSFSNFTS		360
	--MWVTQNFILFVSPMMESRIEIKFSDVEKIEKEQKLVLLDGFYVQLKSGSSLSFSNFTS		58
	GKMWVTQNFILFVSPMMESRIEIKFSDVEKIEKEQKLVLLDGFYVQLKSGSSLSFSNFTS		348
	GKMWVTQNFILFVSPMMESRIEIKFSDVEKIEKEQKLVLLDGFYVQLKSGSSLSFSNFTS		276

N-terminal LPAL13_170012000 LbrM.17.2.000670 LPMP_170640	RDAALNVIESTFQASKAQONGTKKDTGVSGPLVFKTTTSENDEGKIPAVVSMDAFSQVET		420
	RDAALNVIESTFQASKAQONGTKKDTGVSGPLVFKTTTSENDEGKIPAVVSMDAFSQVET		118
	RDAALNVIESTFQASKAQONGTKKDTGVSGPLVFKTTTSENDEGKIPAVASMDAFSQVET		408
	RDAALNVIESTFQASKAQONGTKKDTGVSGPLVFKTTTSENDEGKIPAVASMDAFSQVET		336

C

Domain in glucosyltransferases, myotubularins and other putative membrane-associated proteins



Supplementary Figure 41

A

N-terminal extension 41: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 35 (Negative strand)

Current Annotation

Gene: LPAL13_350010400

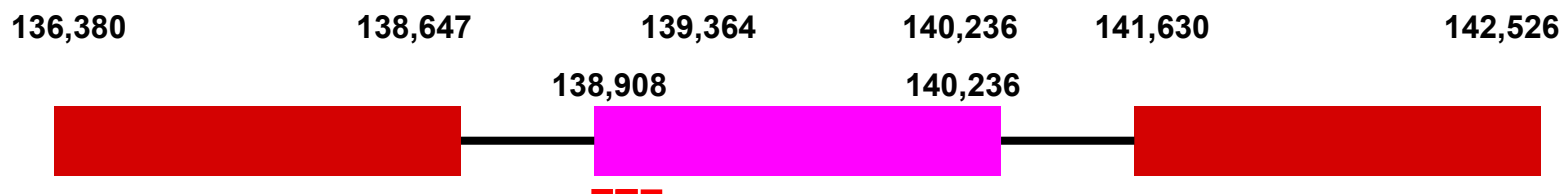
Current gene: LPAL13_350010500

Gene: LPAL13_350010600

Mitochondrial carrier

Hypothetical

Protein phosphatase 2C



B

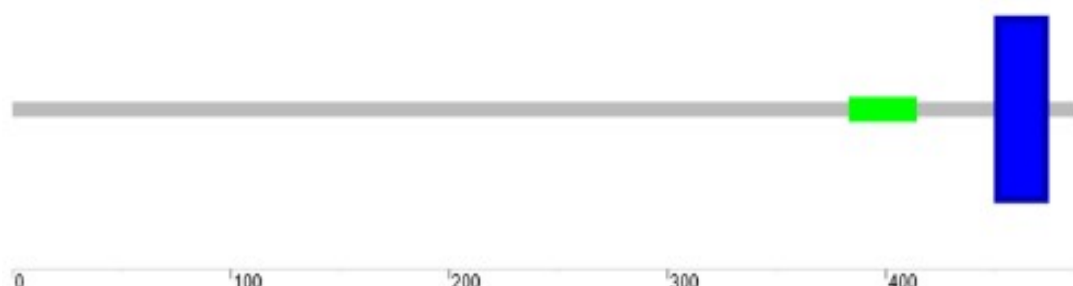
N-terminal	MENIMTEICLVANIIDRLLEANESLRADELLPLTKRLRAAASELSSINPQKQPNLVSSPL	60
LPMP_350520	MENIMTEICLVANIIDRLLEANESLRADELLPLTKRLRAAASELSSINPQKQPNLVSSPL	60
LPAL13_350010500	-----	
LbrM.35.2.000610	MENIMTEICLVANIIDRLLEANESLRADEIVPLTKRLRAAASELSSINSQQQPNLVSSPL	60
N-terminal	PRNVEGLNIMVSRGRQGPSKLQLPRTL AQFTAARRQTLRSHSLSDTCTKVGISKVPHEVS	120
LPMP_350520	PRNVEGLNIMVSRGRQGPSKLQLPRTL AQFTAARRPTLRSHSLSDTCTKVGISKVPHEVS	120
LPAL13_350010500	-----	
LbrM.35.2.000610	PRNVEGLNIMGSRGRQGPSKLQLPRTL AQFTAARRQTPRGHSLSDTCTKVGISKVSYEVS	120
N-terminal	QSICCSLYNLLEGATRLLCASHGHIFVKRGDDMFSIANVSRTL VFPPPPQVHHGCLCSADA	180
LPMP_350520	QSICCSLYNLLEGATRLLCASHGHIFVKRGDDMFSIANVSRTL VFPPPPQVHHGCLCSADA	180
LPAL13_350010500	-----MFSIANVSRTL VFPPPPQVHHGCLCSADA	28
LbrM.35.2.000610	QSICCSLYNLLEGATRLLCASHGHIFVKRGDDMFSIANVSRTL VFPPPPQVHHGCLCSADA	180

N-terminal	EVLGSSIALNRYIDEVGRKRAVLVFPIYKIPIGNGPGE PVATIHVERRDHVSAPFSESE	240
LPMP_350520	EVLGSSIALNRYIDEVGRKRAVLVFPIYKIPIGNGPGE PVATIHVERRDHVSAPFSESE	240
LPAL13_350010500	EVLGSSIALNRYIDEVGRKRAVLVFPIYKIPIGNGPGE PVATIHVERRDHVSAPFSESE	88
LbrM.35.2.000610	EVLGSSIALNRHIDEVGRKRAVLVFPIYKIPIGNGPGE SVATIHVERRDHVSAPFSESE	240
	*****:*****.	
N-terminal	CTLYFASLFCGELMSRIPQFNFLESFYDPSTQHIIAPFEP C SSVLLPPIERG G VLT L GEP	300
LPMP_350520	CTLYFASLFCGELMSRIPQFNFLESFYDPSTQHIIAPFEP C SSVLLPPIERG G VLT L GEP	300
LPAL13_350010500	CTLYFASLFCGELMSRIPQFNFLESFYDPSTQHIIAPFEP C SSVLLPPIERG G VLT L GEP	148
LbrM.35.2.000610	CTLYFASLFCGELMSRIPQFNFLESFYDPSTQHIIAPFEP C SSVLLPPIERG G VLT L GEP	300

N-terminal	GKQSSSEDPEYAKRAVSQ LTRKIKAH SPEILVRRERLPVSN TKPFAPGMLMMP SLLEIQAY	360
LPMP_350520	GKQSSSEDPEYAKRAVSQ LTRKIKAH SPEILVRRERLPVSN TKPFAPGMLMMP SLLEIQAY	360
LPAL13_350010500	GKQSSSEDPEYAKRAVSQ LTRKIKAH SPEILVRRERLPVSN TKPFAPGMLMMP SLLEIQAY	208
LbrM.35.2.000610	GKQSSSEDPEYAKRAVSQ LTRKIEAH SPEILVRRERLPVSN TKPFAPGMLMMP SLLEIQAY	360
	*****:*****	

C

Hypothetical protein; transmembrane region



Supplementary Figure 42

A

N-terminal extension 42: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 33 (Positive strand)

Current Annotation

Gene: LPAL13_330030400

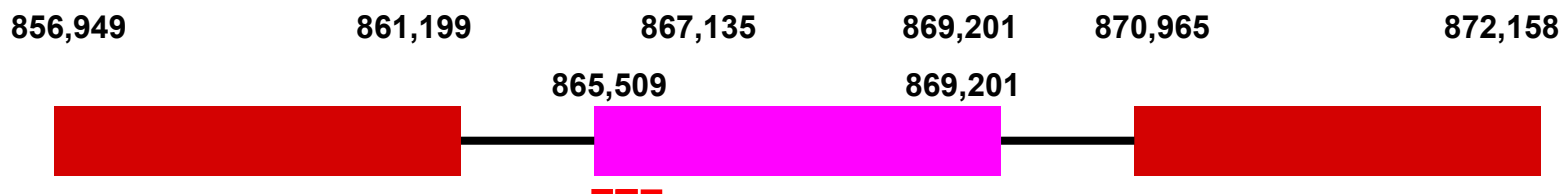
Current gene: LPAL13_330030500

Gene: LPAL13_330030600

Hypothetical

Hypothetical

Hypothetical

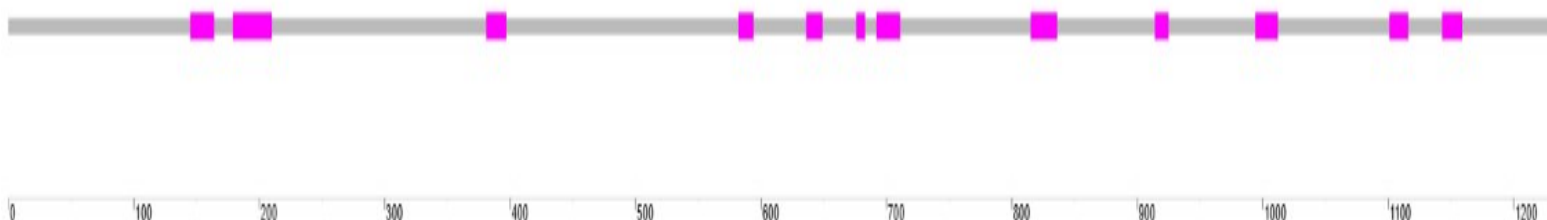


B

N-terminal	AAAVVPPPSTPPPLSPRASPAARHRSSH LAEP LL IQA LARTNHGLAATTAARQPLHPGSR	240
LPMP_332300	AAAVVPPPSTPPPLSPRASPAARHRSSH LAEP LL IQA LARTNHGLAATTAARQPLHPGSR	156
LPAL13_330030500	-----	
LbrM.33.2.002470	AAAVVPPPSTPPPLSPRASPAARHRSSH LAEP LL IQA SARTNHGLAATTAARQPLHPGSR	156
N-terminal	HCEGVH HDEGTQRHACHITHSHCPRPHNWRPAGASSSSSTD LIQA ETRVYAPVAHMGSC	300
LPMP_332300	HCEGVH HDEGTQRHACHITHSHCPRPHNWRPAGASSSSSTD LIQA ETRVYAPVAHMGSC	216
LPAL13_330030500	-----	
LbrM.33.2.002470	HCEGAH HDEGTRRHACHITHSHCPRPHNWRPAGASSSSSTG-L IQAE TRVYA AAVA HMGAC	216
N-terminal	GACKPHAQLLTSLYHSVAGTPSEAYQHCGTSATVVTARERMQTRSTNVLGKGGLAVSSSL	360
LPMP_332300	GACKPHAQLLTSLYHSVAGTPSEAYQHCGTSATVVTARERMQTRSTNVLGKGGLAVSNSL	276
LPAL13_330030500	-----	
LbrM.33.2.002470	GACKPHAPLLTSLYHSVAGTPSEAYQHCGISTTVATARERMQTRSTNVLGKGGLAVSSSL	276
N-terminal	PTRGGDECDQVRNARPDCTFAAPSSSLAISLSADSSSAKH YHR QGIGCSSTTPQEQQ LQPL	420
LPMP_332300	PTRGGDECDQVRNARPDCTFAAPSSSLAISLSADSSSAKH YHR QGIGCSSTTPQEQQ LQPL	336
LPAL13_330030500	-----	
LbrM.33.2.002470	PTRGGDERDQVRNARPDCAFAAPSSSLAISLSADSSSAKH YHR QGIGCSSTTPQEQQ LQPL	336
N-terminal	GQVRVQALLCSTTQGEAVGGRTRCSSPLPSSKQACSENTFQAGIIVGCAPTTAAFR RKGT	480
LPMP_332300	GQVRVQALLCSTTQGEAVGGRTRCSSPLPSSKQACSENTFQAGIIVGCAPTTAAFR RKGT	396
LPAL13_330030500	-----	
LbrM.33.2.002470	GQVRVQALLCSTTQSEAVGGCTRCSSPLPSSKQACSENTFQAGIMVGC ASTSAAFRQKGT	396
N-terminal	SFEAPTTGPHVDSAHLVTPLHDLPAATHQVTSPLRHASVGSSQLRQRTSPCDVLLSKRNA	540
LPMP_332300	SFEAPTTGPHVDSAHLVTPLHDLPAATHQVTSPLRHASVGSSQLRQRTSPCDVLLSKRNA	456
LPAL13_330030500	-----	
LbrM.33.2.002470	SFEAPTTGPHVDSVHLVTPLHDLPAATHQVTSPLRHASVGSSQLRQRTSPCDVLLSKRNA	456
N-terminal	TVMPFVLLRSGSPPEESLHNFEALPLTSDDSLACISASLSPHAVHAVA HGGV GGLVLERV	600
LPMP_332300	TVMPFVLLRSGSPPEESLHNFEALPLTSDDSLACISASLSPHAVHAVA HGGV GGLVLERV	516
LPAL13_330030500	--MPPVLLRSGSPPEESLHNFEALPLTSDDSLACISASLSPHAVHAVA HGGV GGLVLERV	58
LbrM.33.2.002470	TVMPFVLLRSGSPPEESLRNFEALPLTSDDSLACISASLSPHAVHAVA HGGV GGLVLERV	516
	*****;*****	
N-terminal	HDADNAHSEGWSFASAVPSLSHHLLQTIPLSHSGAVPSLSPSSRQVSLSAVHAWRTHGRT	660
LPMP_332300	HDADNAHSEGWSFASAVPSLSHHLLQTIPLSHSGAVPSLSPSSRQVSLSAVHAWRTHGRT	576
LPAL13_330030500	HDADNAHSEGWSFASAVPSLSHHLLQTIPLSHSGAVPSLSPSSRQVSLSAVHAWRTHGRT	118
LbrM.33.2.002470	HDADNAHSEGWSFASAVPSLSHHLLQTIPLSHSGAVPSPSPSSRQVSLSAVHAWRTHGRT	576

C

No domain found



Supplementary Figure 43

A

N-terminal extension 43: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 20 (Positive strand)

Current Annotation

Gene: LPAL13_200038700

Current gene: LPAL13_200038800

Gene: LPAL13_200038900

tRNA

Hypothetical

LicD family

1,245,682 1,245,755 1,250,044 1,252,143 1,252,839 1,253,513

1,246,252

1,253,513

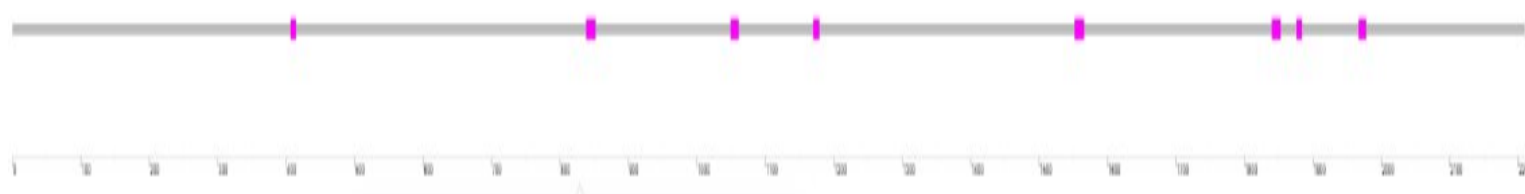
B

N-terminal	AAFCDELDGIIIEK	ILAAPQLNEKVVPLCVNAYRRLKQVRHSWEPAAVKPFTHLIILNALAQ	300
LPMP_203240	AAFCDELDGIIIEK	ILAAPQLNEKVVPLCVNAYRRLKQVRHSWEPAAVKPFTHLIILNALAQ	284
LPAL13_200038800	-----	-----	-----
LbrM.20.2.003110	AAFCDELDGIIIEK	ILAAPQLNEKVVPPCVSAYRRLKQVRHSWEPAAVKPFTHLIILNALAQ	284
N-terminal	TKTNKLLFCPFLHFLQETSYSWWQSSNILWLLTDSGDPFVRADAYAALATTIRVIDVSEQ		360
LPMP_203240	TKTNKLLFCPFLHFLQETSYSWWQSSNILWLLTDSGDPFVRADAYAALATTIRVIDVSEQ		344
LPAL13_200038800	-----	-----	-----
LbrM.20.2.003110	TKTNKLLFCPFLHFLQETSYSWGQSSNILWLLTDSGDPFVRADAYAALATTIRVIDASEQ		344
N-terminal	RLLLADLIEK	LRFSIEEQCSCTTVAILKFVKRLLLHTHFPPTTEELYLLKLLHLCRRHGK	420
LPMP_203240	RLLLADLIEK	LRFSIEEQCSCTTVAILKFVKRLLLHTHFPPTTEELYLLKLLHLCRRHGK	404
LPAL13_200038800	-----	-----	-----
LbrM.20.2.003110	RLLLADLIEK	LRFSIEEQCSCTTVAILKFVKRLLLHTHFPPTTEELYLLKLLHLCRRHGK	404
N-terminal	GLHHDVPAQLELLNLFLCVNVASDSLVSFARELFLVSPHRMVAERAFYVLCRFSRQMFLD		480
LPMP_203240	GLHHDVPAQLELLNLFLCVNVASDSLVSFARELFLVSPHRMVAERAFYVLCRFSRQMFLD		464
LPAL13_200038800	-----	-----	-----
LbrM.20.2.003110	GLHHDVPAQLELLNLFLCVNVASDSLVSFARELFLVSPHRMVAERAFYVLCRFSRQMFLD		464
N-terminal	VRYAMRNATVFTMGDISERLFWMIVRHCIYEVWTAITEETVVPMRDPEMVAFLCRAHVKV		1320
LPMP_203240	VRYAMRNATVFTMGDISERLFWMIVRHCIYEVWTAITEETVVPMRDPEMVAFLCRAHVKV		1282
LPAL13_200038800	----MRNATVFTMGDISERLFWMIVRHCIYEVWTAITEETVVPMRDPEMVAFLCRAHVKV		56
LbrM.20.2.003110	VRYAVRNATVFTMGDISERLFWMIVRHCIYEVWTAITAETVVPMRDLEMVAFLCRAHVKV		1282
	: *****		
N-terminal	GLPLSVQREIHALFTPQLLLYGNTGSEFEDDSLRCVLWLVGNFASNDVHPSVYRGASSLL		1380
LPMP_203240	GLPLSVQREIHALFTPQLLLYGNTGSEFEDDSLRCVLWLVGNFASNDVHPSVYRGASSLL		1342
LPAL13_200038800	GLPLSVQREIHALFTPQLLLYGNTGSEFEDDSLRCVLWLVGNFASNDVHPSVYRGASSLL		112
LbrM.20.2.003110	GLPLSVQREIHALFTPQLLLYGNTGSEFEDDSLRCVLWLVGNFASNDVHPSVYRGASSLL		1342

N-terminal	HASESTDADSGAKPSGRQVLKSLPVAEHNLSQDDARSLSVAIHRVTAQLAQRVLSNTAG		1440
LPMP_203240	HASESTDADSGAKPSGRQVLKSLPVAEHNLSQDDARSLSVAIHRVTAQLAQRVLSNTAG		1402
LPAL13_200038800	HASESTDADSGAKPSGRQVLKSLPVAEHNLSQDDARSLSVAIHRVTAQLAQRVLSNTAG		172
LbrM.20.2.003110	HASESTDADSGAKPSGRQMLKSLPVAEHNLSQDDARSLSVAIHRVTAQLAQRVLSNTAG		1402
	***** : *****		

C

No domain found



Supplementary Figure 44

A

N-terminal extension 44: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 02 (Negative strand)

Current Annotation

Gene: LPAL13_020005500

Current gene: LPAL13_020005600

Gene: LPAL13_020005700

Hypothetical

Hypothetical

Zinc finger

14,881

15,594

17,001

18,041

22,597

25,401

16,881

18,041

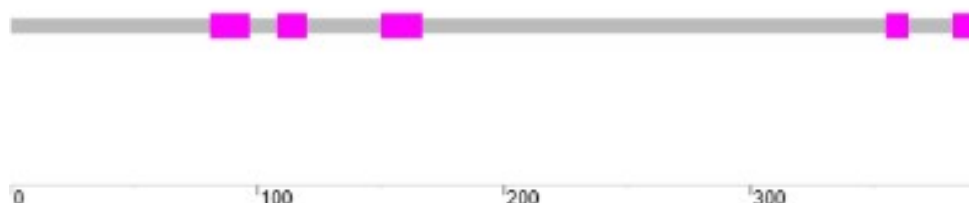
B

N-terminal	MTCLCHVTLP	LTAVRGIQVSP	RRAFFDLFSTK	ALCLSLAAMSTK	TGGMRKPVEEK	ALLSE	60
LPMP_020060	-----	-----	-----	-----	-----	-MSTKTGGMRKPVEEK	20
LPAL13_020005600	-----	-----	-----	-----	-----	-----	13
LbrM.02.0190	-----	-----	-----	-----	-----	-MSTKIGGMRKPVEEK	20

N-terminal	LSRMFHLLKANRKE	QRNGREAATAAA	ASSAGVCTTGAK	ASKRATRDVRRGS	QRRSRRGGS		120
LPMP_020060	LSRMFHLLKANRKE	QRYGREATAAA	ASSAGVCTTGAK	ASKRATRDVRRGS	QRRSRRGGS		80
LPAL13_020005600	LSRMFHLLKANRKE	QRNGREAATAAA	ASSAGVCTTGAK	ASKRATRDVRRGS	QRRSRRGGS		73
LbrM.02.0190	LSRMFHLLKANRKE	QRNGREAATAAA	ASSAGVCTTGAK	ASKRATRDVRRGS	QRRSRRGGS		80
	*****	*****	*****	*****	*****	*****	
N-terminal	IWIVLKG	GFGRSVPTAAQA	ERVDTRANGRALL	SERRRAALKEAE	EAYIQSAWQQAQ	EAE	180
LPMP_020060	IWIVLKG	GFGRSVPTAAQA	ERVDTRANGRALL	SERRRAALKEAE	EAYIQSAWQQAQ	EAE	140
LPAL13_020005600	IWIVLKG	GFGRSVPTAAQA	ERVDTRANGRALL	SERRRAALKEAE	EAYIQSAWQQAQ	EAE	133
LbrM.02.0190	IWIVLKG	GFGRSVPTAAQA	ERVDTRANGRALL	SERRRAALKEAE	EAYIQSAWQQAQ	EAE	140
	*****	*****	*****	*****	*****	*****	
N-terminal	LLTKDGT	PTEEGDAYLAEQ	YAMASRMLCPPT	TGAHLSQLVANHC	SSGLDNAVTGATH	GQP	240
LPMP_020060	LLTKDGT	PTEEGDAYLAEQ	YAMASRMLCPPT	TGAHLSQLVANHC	SSGLDNAVTGATH	GQP	200
LPAL13_020005600	LLTKDGT	PTEEGDAYLAEQ	YAMASRMLCPPT	TGAHLSQLVANHC	SSGLDNAVTGATH	GQP	193
LbrM.02.0190	LLTKDGT	PTEEGDAYLAEQ	YAMASRMLCPRT	TGAHLSQLVSNHC	SSGLDNAVTGATH	GQP	200
	*****	*****	*****	*****	*****	*****	
N-terminal	AYVLTR	SEWEDLCTREAA	ILFRYRTSATPCG	TAEDYFKEQQQ	ARENTYHFATAE	PTARAG	300
LPMP_020060	AYVLTR	SEWEDLCTREAA	ILFRYRTSATPCG	TAEDYFKEQQQ	ARENTYHFATAE	PTARAG	260
LPAL13_020005600	AYVLTR	SEWEDLCTREAA	ILFRYRTSATPCG	TAEDYFKEQQQ	ARENTYHFATAE	PTARAG	153
LbrM.02.0190	AYVLTR	SEWEDLCTREAA	ILFRYRTSATPCG	TAEDYFKEQQQ	ARENTYHFATAE	PTTRAG	260
	*****	*****	*****	*****	*****	*****	
N-terminal	DIVPTK	CLVRIRDSQREK	HTCIMSTAKSVN	YFKSNFGQVLR	KELSGSRLPRG	STADEAAA	360
LPMP_020060	DIVPTK	CLVRIRDSQREK	HTCIMSTAKSVN	YFKSNFGQVLR	KELSGSRLPRG	STADEAAA	320
LPAL13_020005600	DIVPTK	CLVRIRDSQREK	HTCIMSTAKSVN	YFKSNFGQVLR	KELSGSRLPRG	STADEAAA	213
LbrM.02.0190	DIVPTK	CLVRIRDSQREK	HTCILSTPKSVN	YFKSNFGQVLR	KELSGSRLPRG	STADEAAA	320
	*****	*****	*****	*****	*****	*****	
N-terminal	AASANT	SRGNHQATLQ	PGAATSSSSSGK	RRRRR			393
LPMP_020060	AASANT	SRGNHQATLQ	PGAATSSSSSGK	RRRRR			353
LPAL13_020005600	AASANT	SRGNHQATLQ	PGAATSSSSSGK	RRRRR			246
LbrM.02.0190	AASANT	SRGNHQATLQ	PGAATNSSSSGK	RRRRR			353
	*****	*****	*****	*****	*****	*****	

C

No domain found



Supplementary Figure 45

A

N-terminal extension 45: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 20 (Positive strand)

Current Annotation

Gene: LPAL13_200006100

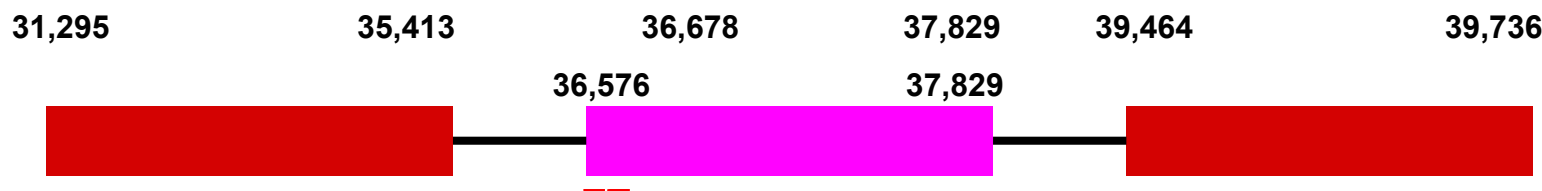
Current gene: LPAL13_200006200

Gene: LPAL13_200006300

Hypothetical

Hypothetical

Regulatory subunit of
type II PKA R-subunit

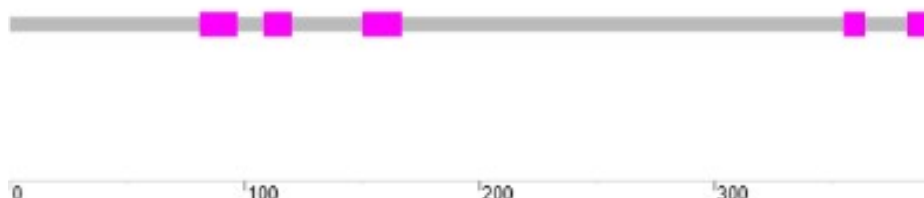


B

N-terminal	MMFFDSSDARPHTLCKTRVQSRVRGGLTTGSGTGPSEDHSGGLADVNPRLSSEHRYSMRA	60
LBRM2903_200005700	-MFFDSSDDRPHLTRKMRVQSRVRGGLTTGSGTGPSEDHSGGLADVNPRLSSEHRYSMRA	59
LPAL13_200006200	-----MPSEDHSGGLADVNPRLSSEHRYSMRA	26
LAMAPH8_000774500	MAFFSSRDDCLHTSCKTPVRPRIRGGFTAGSTGLMPSEHHSGGLADVSPRLSSRQRYSMRA	60
	****.*****.*****.:*****	
N-terminal	GLPNTSHRPQGRRLDPHQFTNISDDAKRAEGRLGRAHVTSTEQQKRADVYYATKQPSVA	120
LBRM2903_200005700	GLPNTSHLPQGRRLDPHQFTNISDDAKRAEGRLGRAHVTSTEQQKRADVYYATKQPSVA	119
LPAL13_200006200	GLPNTSHRPQGRRLDPHQFTNISDDAKRAEGRLGRAHVTSTEQQKRADVYYATKQPSVA	86
LAMAPH8_000774500	GVSSAPRHAQGRRLDPRHFTNVTDDAKRAEGRLGRAHVASSEQQKRADAYYTTRQATVE	120
	*:..: : .*****: :***: :*****: :*:*****. **:*: : *	
N-terminal	QPPGTECNLFLKSYYYTPLSKQDSPSPLPRQRTGFRADAQNTSFQLSEARLRKIKSEHPQ	180
LBRM2903_200005700	QPPGTECNLFLKSYYYTPLSKQDSPSPLPRQRTGFRADAQNTSFQLSEARLRKIKSEHPR	179
LPAL13_200006200	QPPGTECNLFLKSYYYTPLSKQDSPSPLPRQRTGFRADAQNTSFQLSEARLRKIKSEHPQ	146
LAMAPH8_000774500	QPPGAECNLKLYKSYYYTPLSKQDSPSPPPRQTTGFRPDAQSTSLQLAEACLRKIKREHPR	180
	****:****:*****:***** *** ****.***. **:*:** ***** **:	
N-terminal	YKEEVMRALQDQHGDISIVSTEQKISRRAVEEYADGSDARMAHIEASNKYRSTPDLGTP	240
LBRM2903_200005700	YKEEVMRALQDQHGDISIVSTEQKISRRAVEEYADGSDARMAHIEASNKYRSTPDLGTP	239
LPAL13_200006200	YKEEVMRALQDQHGDISIVSTEQKISRRAVEEYADGSDARMAHIEASNKYRSTPDLGTP	206
LAMAPH8_000774500	YEEEVTRALQQQHGDISIVSTAQKISRRIAVEEYADGTDARMAQIEASTKCRGTPDLGSP	240
	*:*** ****:*****:*****:*****:*****:****. * *.*****: *	
N-terminal	SPAIQNSIPYALSEACPPRSDTQLSCASHVRLYPGRGRSSSPPETPVKPCDRHLHDGSAP	300
LBRM2903_200005700	SPAIQNSIPYALSEACPPRADTQLSCASHVRLYPGRGRSSSPPETPVKPCDRHLHDGSAP	299
LPAL13_200006200	SPAIQNSIPYALSEACPPRSDTQLSCASHVRLYPGRGRSSSPPETPVKPCDRHLHDGSAP	266
LAMAPH8_000774500	APAIKRSVPYALSEECPPRADTQLSCTSHVRLYPGRGRSSSPPETSVKPRARHLHDGPAP	300
	:***: .*:***** ****:*****:*****:*****:**** *****. **	
N-terminal	YDSTAVSGQAYPSPPAVGERRNIYAKPTLVHIDRRHRNCVEDLDSLAMKRARARSGTSA	360
LBRM2903_200005700	YDSTAVSGQAYPSPPAVGERRNIYAKPTLVHIDRRHRNCVEDLDSLAMKRARARSGTSA	359
LPAL13_200006200	YDSTAVSGQAYPSPPAVGERRNIYAKPTLVHIDRRHRNCVEDLDSLAMKRARARSGTSA	326
LAMAPH8_000774500	YDSTAVSGQAYPSPPAVGERCNIIYAKPTLVHVDERRHRNCVEDADSLAMKRARARSGASA	360
	*****:*****:*:*****:*****:*****:*****:*	
N-terminal	SQERSDFIFGPGPAPHACKPSLRYRTEARWKAQERSVEERRTGRALYPQSFKSTALW	417
LBRM2903_200005700	SQERSDFIFGPGPAPHACKPSLRYRTEARWKAQERSVEERRTGRALYPQSFKSTALW	416
LPAL13_200006200	SQERSDFIFGPGPAPHACKPSLRYRTEARWKAQERSVEERRTGRALYPQSFKSTALW	383
LAMAPH8_000774500	SQERPDIIFGPGPAPQPRPPSLRYRTEARWKAQERNAEERRTGRALYPQSYQPTSLW	417
	****.*****: . *****. *****: :*. **	

C

No domain found



Supplementary Figure 46

A

N-terminal extension 46: Ankyrin repeats

Leishmania panamensis MHOM/COL/81/L13 Chromosome 19 (Negative strand)

Current Annotation

Gene: LPAL13_190017100

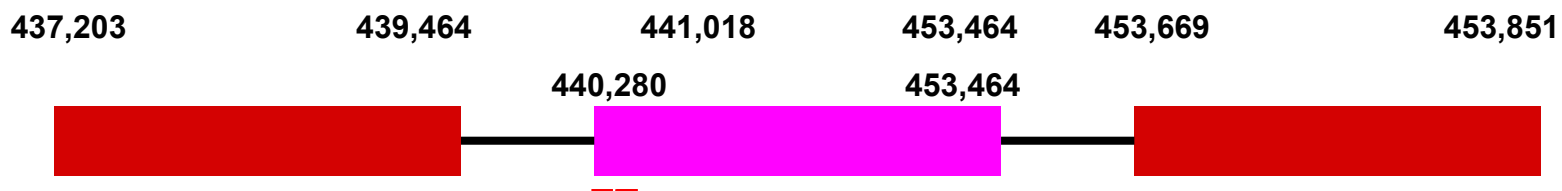
Current gene: LPAL13_190017200

Gene: LPAL13_190017300

Hypothetical

Ankyrin repeats

Hypothetical

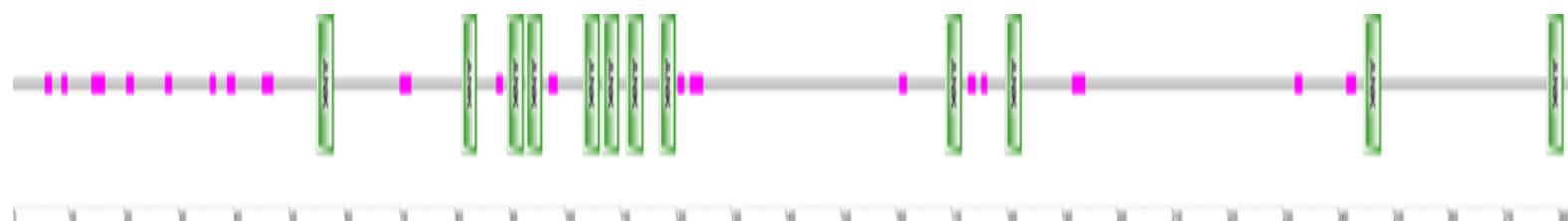


B

N-terminal	-----	
LPAL13_190017200	-----	
LPMP_190990	DLAAAVGSNSTDGSGAWSAGVSVSVIAHEAVMATDQTSTAPSDDDVGMDVLYLGLWKHQQ	1320
LBPM2903_190018900	DLAAAVGSNSTDGSGAWSAGVSVSVIAHEAVMATDQASTAPSDDDVGMDVLYLGLWKHQQ	1320
N-terminal	-----MDEDAAGPCVNAAPVYLRLELPRWRR-PAAAASTNVWLPTITQAC	45
LPAL13_190017200	-----	
LPMP_190990	NSVRAITAMQIAHHHVDEDAAGPCVNAAPVYLRLELPRWRR-PAAAASTNVWLPTITQAC	1380
LBPM2903_190018900	NSVRAITAMQVPHHHVDEDAAGPCVNAAPVYLRLELPRWRRPPAAAASTNVWLPTITQAC	1380
N-terminal	RDDVAIALAKTHQQRQAAAAQIAVANEVSKHAKTALSGETAPPPSPSLLSFPRGCSQV	105
LPAL13_190017200	-----	
LPMP_190990	RDDVAIALAKTHQQRQAAAAQIAVANEVSKHAKTALSGETAPPPSPSLLSFPRGCSQV	1420
LBPM2903_190018900	RDDVAIALAKTHQQRQAAAAQIAAANEASKHAKTAPSGETAPPPSPSLLSFPRGCSQV	1420
N-terminal	SATLVGLGLLLDPSAGTLRLRLNNYTD FEEITLGLRPSSAAEASAVTTSALPLLLYPATL	165
LPAL13_190017200	-----	
LPMP_190990	SATLVGLGLLLDPSAGTLRLRLNNYTD FEEITLGLRPSSAAEASAVTTSALPLLLYPATL	1480
LBPM2903_190018900	SATLVGLGLLLDPSAGTLRLRLNNYTD FEEITLGLRLSSAAEASAVTTSALPLLLYPATL	1480
N-terminal	SLNDGGWRSWCNHQTREWAKLQQQEAQQSGLTTGEGRGESPQALHSALSSSSPLFVSNV	225
LPAL13_190017200	-----	
LPMP_190990	SLNDGGWRSWCNHQTREWAKLQQQEAQQSGLTTGEGRGESPQALHSTLSSSSPLFVSNV	1540
LBPM2903_190018900	SLNDGGWRSWCDHQTREWAKLQQQEAQQSGLTTGEGRGESPQALHSALSSSSPLFVSNV	1540
N-terminal	LRFNFDVAELLFGPPPPHQAVMVTSTDAIVSATGAPHMSQQRVREPIGALAPQSAAPPS	285
LPAL13_190017200	-----MVTSTDAIVSATGAPHMSQQRVREPIGALAPQSAAPPS	39
LPMP_190990	LRFNFDVAELLFGPPPPHQAVMVTSTDAIVSATGAPHMSQQRVREPIGALAPQSAAPPS	1600
LBPM2903_190018900	LRFNFDVAELLFGPPPPHQAVMVTSTDAIVSATGAPHMSKQRVREPIGALAPQSAAPRS	1600
	*****:***** *	
N-terminal	QAYQPIALLDSSVKFTQMLSVLTDVSLRAAAKKGTDKNRQPELTSLDHNDGAAVDEED	345
LPAL13_190017200	QAYQPIALLDSSVKFTQMLSVLTDVSLRAAAKKGTDKNRQPELTSLDHNDGAAVDEED	99
LPMP_190990	QAYQPIALLDSSVKFTQMLSVLTDVSLRAAAKKGTDKNRQPELTSLDHNDGAAVDEED	1660
LBPM2903_190018900	QAYQPIALLDSSVKFTQMLSVLTDVSLRAAAKKGTDKNRQPELTSLYHDDGAAVDEED	1660
	***** *:*****	

C

Ankyrin repeats



Supplementary Figure 47

A N-terminal extension 47: Saccharopine dehydrogenase

Leishmania panamensis MHOM/COL/81/L13 Chromosome 28 (Negative strand)

Current Annotation

Gene: LPAL13_280009100

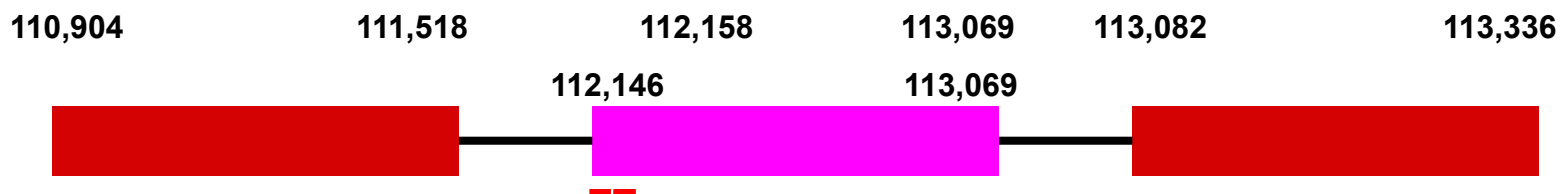
Current gene: LPAL13_280009200

Gene: LPAL13_280009300

Hypothetical

Saccharopine
dehydrogenase

Saccharopine
dehydrogenase



B

LPAL13_280009200	-----	
LPMP_280380	MASKLDIIIVLGATGFTGRLTCRYLARKEELKRWGIAGRSAAKLAALKAE LGIDVPTFVV	60
N-terminal	-----	
LbrM.28.2.000390	MASKLDIIIVLGATGFTGRLTCRYLARKEELKERWGIAGRSAAKLAALKAE LGIDVPTFVV	60
LPAL13_280009200	-----MPVVDACVRNGTHYIDCTGEIPFVRRRAIAAY	31
LPMP_280380	DADQPTTVDAACAQAECIISCMGPYMLVGMPVVDACVRNGTHYIDCTGEIPFVRRRAIAAY	120
N-terminal	-----MLVGMPVVDACVRNGTHYIDCTGEIPFVRRRAIAAY	35
LbrM.28.2.000390	DADQPTTVDAACAQAECIISCMGPYMLVGMPVVDACVRNGTHYIDCTGEIPFVRRRAIAAY	120

LPAL13_280009200	HETAVKKGVAIVPCCGFDCVPADLGNVYVHQEAEEPVKVVCGYFGGNPAGVSNGTMNTVA	91
LPMP_280380	HETAVKKGVAIVPCCGFDCVPADLGNVYVHQEAEEPVKVVCGYFGGNPAGVSNGTMNTVA	180
N-terminal	HETAVKKGVAIVPCCGFDCVPADLGNVYVHQEAEEPVKVVCGYFGGNPAGVSNGTMNTVA	95
LbrM.28.2.000390	HETAVKKGVAIVPCCGFDCVPADLGNVYVHQEAEEPVKVVCGYFGGNPAGVSNGTMNTVA	180

LPAL13_280009200	CVVSNMTKEDMSPLALVSKSDVQPTHPTQHGVWYENGRFTGLSITASC DERLVRRSNSL	151
LPMP_280380	CVVSNMTKEDMSPLALVSKSDVQPTHPTQHGVWYENGRFTGLSITASC DERLVRRSNSL	240
N-terminal	CVVSNMTKEDMSPLALVSKSDVQPTHPTQHGVWYENGRFTGLSITASC DERLVRRSNSL	155
LbrM.28.2.000390	CVVSNMTKEDMSPLALVSKSDVQPTHPTQHGVWYENGRFTGLSITASC DERLVRRSNSL	240

LPAL13_280009200	MGSSAVYMEAMQGSFARVLRVTLTTYVTSIAVMVAPLRRWMIRKYFTGTSIGPSDDAMAK	211
LPMP_280380	MGSSAVYMEAMQGSFARVLRVTLTTYVTSIAVMVAPLRRWMIRKYFTGTSIGPSDDAMAK	300
N-terminal	MGSSAVYMEAMQGSFARVLRVTLTTYVTSIAVMVAPLRRWMIRKYFTGTSIGPSDDAMAK	215
LbrM.28.2.000390	MGSSAVYMEAMQGSFARVLRVTLTTYVASIAVMVAPLRRWMIRKYFTGTSIGPSDDAMAK	300
	***** : *****	
LPAL13_280009200	SNFRCDFVGKTASGKRVKTTMVAKEDAYTATALFLGECAMSALKLARKNSLKGGVLT PAY	271
LPMP_280380	SNFRCDFVGKTASGKRVKTTMVAKEDAYTATALFLGECAMSALKLARKNSLKGGVLT PAY	360
N-terminal	SNFRCDFVGKTASGKRVKTTMVAKEDAYTATALFLGECAMSALKLARKNSLKGGVLT PAY	275
LbrM.28.2.000390	SNFRCDFVGKTASGKRVKTTMAAKEDAYTATALFLGECAMSALKLARKNSLKGGVLT PAY	360
	***** , *****	
LPAL13_280009200	AFGDELVHRCRDAGISINTVIVGDTAEPKKEK	303
LPMP_280380	AFGDELVHRCRDAGISINTVIVGDTAEPKKEK	392
N-terminal	AFGDELVHRCRDAGISINTVIVGDTAEPKKEK	308
LbrM.28.2.000390	AFGDELVHRCRDAGISINTVIVGDTAEPKKEK	392

C

No domain found



Supplementary Figure 48

A

N-terminal extension 48: Hypothetical protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 23 (Negative strand)

Current Annotation

Gene: LPAL13_230020000

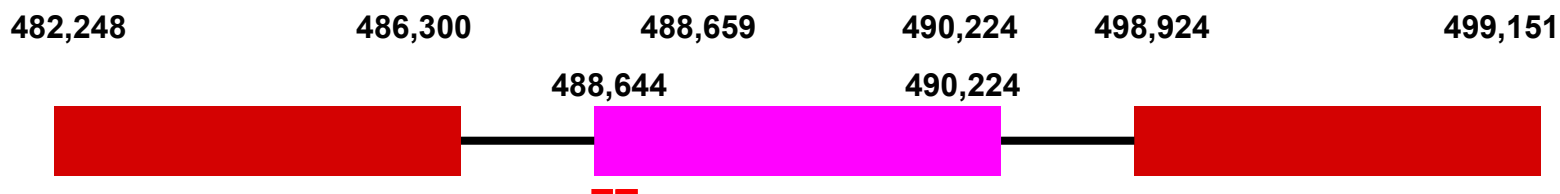
Current gene: LPAL13_230020100

Gene: LPAL13_230020200

Hypothetical

Hypothetical

Hypothetical



B

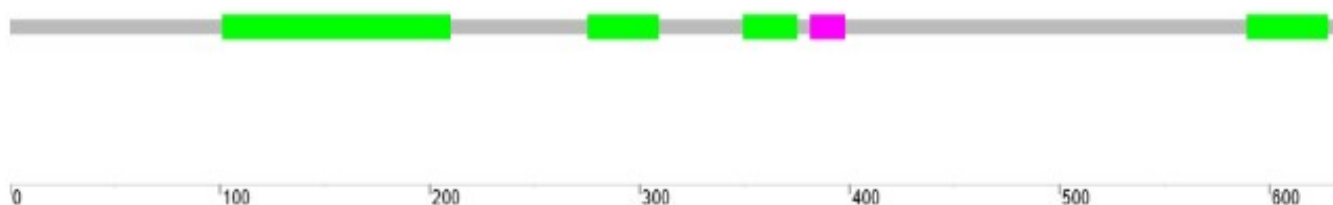
N-terminal	MFYMFKGRRAISNAMTTPSLSSVAMDAANEQLDVMSNVRNTPPTSTEHEVSSASGCKHLS	60
LPAL13_230020100	-----	
LPMP_231270	-----	
LbrM.23.2.001230	-----	
LbrM.23.1230	-----	
N-terminal	DLAATLAPNVERVSAKREAAALRSSTGPIESSYDISAIGHGNFDAVRKEMETQEKIIVTLQ	120
LPAL13_230020100	-----METQEKIIVTLQ	12
LPMP_231270	-----METQEKIIVTLQ	12
LbrM.23.2.001230	-----METQEKIIVTLQ	12
LbrM.23.1230	-----METQEKIIVTLQ	12

N-terminal	RDNEALLREKKEIASRCKKLEHDFEHLEAKHSLLLSAQQDFATRSMHASNDSAKIANLQ	180
LPAL13_230020100	RDNEALLREKKEIASRCKKLEHDFEHLEAKHSLLLSAQQDFATRSMHASNDSAKIANLQ	72
LPMP_231270	RDNEALLREKKEIASRCKKLEHDFEHLEAKHSLLLSAQQDFATRSMHASNDSAKIANLQ	72
LbrM.23.2.001230	RDNEALLREKKEIASRCKKLEHDFEHLEAKHSLLLSAQQDFATRSMHASNDSAKIANLQ	72
LbrM.23.1230	RDNEALLREKKEIASRCKKLEHDFEHLEAKHSLLLSAQQDFATRSMHASNDSAKIANLQ	72

N-terminal	AQIEELQANLETEKRRCAILLQERNDLTRSKGDAPIHVNSAEIANVAVVREEHNRSEDTV	240
LPAL13_230020100	AQIEELQANLETEKRRCAILLQERNDLTRSKGDAPIHVNSAEIANVAVVREEHNRSEDTV	132
LPMP_231270	AQIEELQANLETEKRRCAILLQERNDLTRSKGDAPIHVNSAEIANVAVVREEHNRSEDTV	132
LbrM.23.2.001230	AQVEELQANLETEKRRCAILLQERNDLTRSKGDAPIHVNSAEIANVAVVREEHNRSEDTV	132
LbrM.23.1230	AQVEELQANLETEKRRCAILLQERNDLTRSKGDAPIHVNSAEIANVAVVREEHNRSEDTV	132
	** : *****	
N-terminal	AKLRESQRVHNIQKGTIDALHSEVARLESERRVSHSRENNLLREVDSLRIQVRDLEMALH	300
LPAL13_230020100	AKLRESQRVHNIQKGTIDALHSEVARLESERRVSHSRENNLLREVDSLRIQVRDLEMALH	192
LPMP_231270	AKLRESQRVHNIQKGTIDALHSEVARLESERRVSHSRENNLLREVDSLRIQVRDLEMALH	192
LbrM.23.2.001230	AKLRESQRVHSIQKGTIDALHSEVARLESERRVSHSRENNLLREVDSLRAQVRDLEMALH	192
LbrM.23.1230	AKLRESQRVHSIQKGTIDALHSEVARLESERRVSHSRENNLLREVDSLRAQVRDLEMALH	192
	***** . *****	

C

No domain found



Supplementary Figure 49

A

N-terminal extension 49: RNA binding protein

Leishmania panamensis MHOM/COL/81/L13 Chromosome 28 (Positive strand)

Current Annotation

Gene:LPAL13_280006600

Current gene: LPAL13_280006700

Gene: LPAL13_280006800

Pantothenate kinase subunit

RBP

Phosphatase

35,216

39,595

44,500

45,090

47,342

48,616

43,981

45,090

B

N-terminal	MCGHVRQFHRRGRYIFLPRPPFSCCPHHRRVPRLSLLFSYSLLSYHKAPFIHTCSSVVS	60
LPAL13_280006700	-----	
LPMP_280160	-----	
LBRM2903_280007100	-----	
N-terminal	CVRDTMPSRAVIRKKQRREARRRKAQQGAGASSHCLSSAYLGSDETSPRCSSLPIQLLFS	120
LPAL13_280006700	-----	
LPMP_280160	-----	
LBRM2903_280007100	----MPSRAVIRKKQRREARRRKAQQGAGASSHCFSSAYLGSDETSPRCSSLPIQLLFS	55
N-terminal	KPRAEAQVSRKRAPELSSTNPSSSPSTAYPASASLALPPPRKRKRVEVPPTESMPEGLTR	180
LPAL13_280006700	-----MPEGLTR	7
LPMP_280160	-----MPEGLTR	7
LBRM2903_280007100	KPRAEAQVSRKRAPELSSTNPSSSPSTASPASASLALPPPRKRKRVEVPPTESMPEGLTR	115

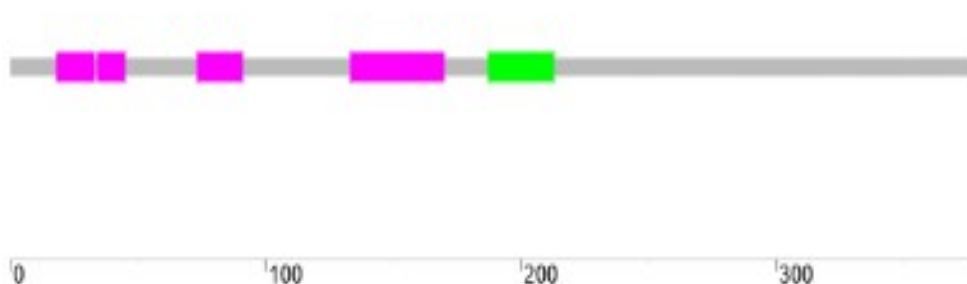
N-terminal	KERRRWETRQQLERQMSRLNSSAVAAKEMIVEAAAQHRDTASDFGNDNAAAASEPKLRHD	240
LPAL13_280006700	KERRRWETRQQLERQMSRLNSSAVAAKEMIVEAAAQHRDTASDFGNDNAAAASEPKLRHD	67
LPMP_280160	KERRRWETRQQLERQMSRLNSSAVAAKEMIVEAAAQHRDTASDFGNDNAAAASEPKLRHD	67
LBRM2903_280007100	KERRRWETRQQLERQMSRLNSSAVAAKEMIVEAAAQHRDTASDFGNDNAAAASEPKLRHD	175

N-terminal	PKFKNGTFWRDRKEKRARTLFLGGIPFSFSVKQVKDFISTVLDFDQGSSDYVDQIGKDAE	300
LPAL13_280006700	PKFKNGTFWRDRKEKRARTLFLGGIPFSFSVKQVKDFISTVLDFDQGSSDYVDQIGKDAE	127
LPMP_280160	PKFKNGTFWRDRKEKRARTLFLGGIPFSFSVKQVKDFISTVLDFDQGSSDYVDQIGKDAE	127
LBRM2903_280007100	PKFKNGTFWRDRKEKRARTLFLGGIPFSFSVKQVKDFISTVLDFDQGSSDYVDQIGKDAE	175

N-terminal	VVDEVDMPLPVKHHSKVKHMYVTMASVSLAGCAAALLDGYKVEGRVLRNFAANKSEREEA	360
LPAL13_280006700	VVDEVDMPLPVKHHSKVKHMYVTMASVSLAGCAAALLDGYKVEGRVLRNFAANKSEREEA	127
LPMP_280160	VVDEVDMPLPVKHHSKVKHMYVTMASVSLAGCAAALLDGYKVEGRVLRNFAANKSEREEA	127
LBRM2903_280007100	VVDEVDIPLPVKHHSKVKHMYVTMASVSLAGCAAALLDGYKVEGRVLRNFAANKSEREEA	175
	***** : *****	
N-terminal	IRRRTVAQRWVYVFPKK	377
LPAL13_280006700	IRRRTVAQR-----	136
LPMP_280160	IRRRTVAQR-----	136
LBRM2903_280007100	IRRRTVAQR-----	184

C

No domain found



Supplementary Figure 50

A

N-terminal extension 50: Glycoprotein 96-92

Leishmania panamensis MHOM/COL/81/L13 Chromosome 28 (Positive strand)

Current Annotation

Gene: LPAL13_280029600

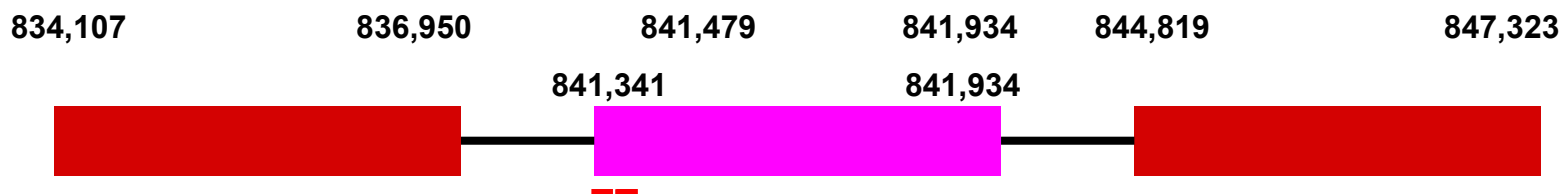
Current gene: LPAL13_280029700

Gene: LPAL13_280029800

Mannosyl oligosaccharide
glucosidase

Glycoprotein

2,3-bisphosphoglycerate-
independent phosphoglycerate
mutase



B

N-terminal	-----	
LPMP_282350	MSSAGSDTAVQHVDPEAEVSGTPLNNTSC EEAAAADSFHINGADNDKPLSEIPSTKKRL	60
LPAL13_280029700	-----	
LbrM.28.2410	MSSAGSDTAVQHVDPEAEVSGTPLNNTSC EEAVATDSFHINGAGKDKPLSEIPSTKKRL	60
N-terminal	-----	
LPMP_282350	RKENKGGSSAEVARRLKQEEKKLAEKIAKAREAEAQA AKEKANRVRQAEAERRKKRDEKD	120
LPAL13_280029700	-----	
LbrM.28.2410	RKENKGGA AEVARRLKQEEKRLAEKIAKAREAEAQA AKEKANRVRQAEAERRRRKRDEKD	120
N-terminal	-----	
LPMP_282350	ARAQKGV EEEKRLKEEQKRQRE EEEKQRAEMVRKQREESQRKREEIQRQRE EEMKRRKAE	180
LPAL13_280029700	-----	
LbrM.28.2410	ARAQKDV EEEKRQREEQKRQRE EEEKQRAEMVRKQREKSQRKREEIQRQRE EEMKRRKAE	180
N-terminal	-----	
LPMP_282350	-----MAEEKEAQKRTEKKAEDDFSATRRQRKE EEEQRL	34
LPAL13_280029700	AEAEKQRLKELQEEHEKKLEEARQHRIAEEKEAQKRTEKKAEDDFSATRRQRKE EEEQRL	240
LbrM.28.2410	AEAEKQRLKELQEEHEKQLEGARQHRIA EERETQKRAEKKAEDDFAATRRQRKE EEEQRL	240
N-terminal	RQRE EEEKQRAEMVRKQREESQRKREELKQKEAKEAE EIKRQRKEVQAE LQKKREKEQQE	94
LPMP_282350	RQRE EEEKQRAEMVRKQREESQRKREELKQKEAKEAE EIKRQRKEVQAE LQKKREKEQQE	300
LPAL13_280029700	-----MVRKQREESQRKREELKQKEAKEAE EIKRQRKEVQAE LQKKREKEQQE	48
LbrM.28.2410	RQRE EEEKQRAEMVRKQREESQRKREELKQRE AQEA EIKRQRKEAQEKLQKRREKEKEE	300
	*****: **:***:*****.* :***:****: :*	
N-terminal	LRKKVSERRMKGKTD SKKEQILQQKKMAAAAEERERLEEQLRKQKEAEEREIAEKHRRVME	154
LPMP_282350	LRKKVSERRMKGKTD SKKEQILQQKKMAAAAEERERLEEQLRKQKEAEEREIAEKHRRVME	360
LPAL13_280029700	LRKKVSERRMKGKTD SKKEQILQQKKMAAAAEERERLEEQLRKQKEAEEREIAEKHRRVME	108
LbrM.28.2410	LRKKVSERRMKGKTD SKKEQILQQKKMAAAAEERERLEEQLRKQKEAEEREIAAKHRRVME	360

N-terminal	QLEKNYEIVNEE EYERERREREERAREERGGM D KVTEEVLVDA	197
LPMP_282350	QLEKNYEIVNEE EYERERREREERAREERGGM D KVTEEVLVDA	403
LPAL13_280029700	QLEKNYEIVNEE EYERERREREERAREERGGM D KVTEEVLVDA	151
LbrM.28.2410	QLEKNYEIVNEE EYERERREREERAREERRGMDKVTEEVLVDA	403

C

No domain found

