

## ПРИЛОЖЕНИЯ

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«Фосфолипазы А2 человека: функциональный и эволюционный анализ»

### Приложение 1

Список организмов, белковые последовательности которых были использованы  
для поиска гомологов фосфолипаз А2

№ п/п	Полное название вида	Сокращенное название вида	Таксон
1	<i>Pongo abelii</i>	pon	Млекопитающие
2	<i>Mus musculus</i>	mus	
3	<i>Sus scrofa</i>	sus	
4	<i>Canis lupus familiaris</i>	can	
5	<i>Bos taurus</i>	bos	
6	<i>Gallus gallus</i>	gal	Птицы
7	<i>Chelonia midas</i>	che	Рептилии
8	<i>Anolis carolinensis</i>	ano	
9	<i>Ophiophagus hannah</i>	ophi	
10	<i>Vipera berus</i>	vip	
11	<i>Xenopus laevis</i>	xen	Земноводные
12	<i>Danio rerio</i>	dan	Рыбы
13	<i>Ciona intestinalis</i>	cio	Личиночнохордовые
14	<i>Drosophila melanogaster</i>	dro	Насекомые
15	<i>Apis mellifera</i>	api	
16	<i>Bombyx mori</i>	bomb	
17	<i>Argiope bruennichi</i>	argi	Паукообразные
18	<i>Centruroides sculpturatus</i>	cen	
19	<i>Ixodes scapularis</i>	ixo	Клещи
20	<i>Daphnia pulex</i>	dap	Жаброногие
21	<i>Strongylocentrotus purpuratus</i>	str	Иглокожие
22	<i>Mytilus coruscus</i>	myt	Моллюски
23	<i>Octopus bimaculoides</i>	oct	
24	<i>Trichinella pseudospiralis</i>	trichi	Круглые черви
25	<i>Caenorhabditis elegans</i>	cae	
26	<i>Macrostomum lignano</i>	mac	Плоские черви
27	<i>Capitella teleta</i>	cap	Кольчатые черви
28	<i>Dimorphilus gyrocolliatus</i>	dim	
29	<i>Hydra vulgaris</i>	hid	Стрекающие
30	<i>Nematostella vectensis</i>	nem	
31	<i>Amphimedon queenslandica</i>	amp	Губки
32	<i>Trichoplax adhaerens</i>	tricho	Пластинчатые

## Приложение 2

### Аминокислотные последовательности фосфолипаз A2 человека

>Hom\_NP\_000919\_1\_Gr1B  
MKLLVLAVLLTVAAADSGISPRAVWQFRMKIKCVIPGSDPFLEYNNYGCYCGLGSGTVPVDELKCCQTH  
DNCYDQAKKLDSCFKLLDNPYHTYSYSCSGSAITCSSKNKECEAFICNCDRNAAICFSKAPYNKAHKNL  
DTKKYCQS

>Hom\_AAH05919\_1\_Gr2A  
MKTLLLLLAVIMIFGLLQAHGNLVNFHRMIKLTGKEAALSYGFGCHCGVGGRGSPKDATDRCCVTHDCC  
YKRLKRGCGTKFLSYKFSNSGSRITCAKQDSCRSQLECDKAAATCFARNKTTYNKKYQYYSNKHCRGS  
TPRC

>Hom\_NP\_001354898\_1\_Gr2C  
MKVIAIILTLFLFCSPTSSFWQFQRRVKHITGRSAFFSYGYGCYCGLDKGI PVDDTDRHSPSSPSPE  
KLKEFSCQPVLSYQFHVINGAVVCGCTLPGASCHCRLLKACECDKQSVHCFKESLPTYEKNFKQFSSQP  
RCGRHKPWC

>Hom\_NP\_036532\_1\_Gr2D  
MELALLCGLVVMAGVIPIQGGIILNLMKMKVQVTGKMPILSYWPGYCHCGLGGRGQPKDATDWCCQTHDCC  
YDHLKTQGCSTYKDYRYNFSQGNIHCSDKGSWCEQQLCACDKEVAFCLKRNLDYQKRLRFYWRPHCRG  
QTPGC

>Hom\_Q9NZK7\_1\_Gr2E  
MKSPHVLVFLCLLVALVTGNLVQFGVMIEKMTGKSALQYNDYGCYCGIGGSHWPVDQTDWCCHAHDCCYG  
RLEKLGCEPKLEKYLFSVSEGI FICAGRITCQRLTCECDKRAALCFRRNLGTYNRKYAHYPNKLCTGPTP  
PC

>Hom\_NP\_001347798\_1\_Gr2F  
MKKFFTVAIILAGSVLSTAHGSLNLMKAMVEAVTGRSAILS FVGYGCYCGLGGRGQPKDEVDWCCHAHDC  
YQELFDQGCHPYVDHYDHTIENNTEIVCSDLNKECDKQTCMCDKNMVLCLMNQTYREEYRGLNVYCCG  
PTPNCSTIYEPPEEVTCSHQSPAPPAPP

>Hom\_NP\_056530\_2\_Gr3  
MGVQAGLFGMLGFLGVALGGS PALRWYRTSCHLTKAVPGNPLGYLSFLAKDAQGLALIHARWDAHRRLQS  
CSWEDEPELTAAYGALCAHETAWGSFIHTPGPELQRALATLQSQWEACRALEES PAGARKKRAAGQSGVP  
GGGHQREKRGWTPGTLWCVGVD SAGNSSELGVFQGPDLCCREHRCRCPQNI SPLQYNYGIRNYRFHTISH  
CDCDTRFQQCLQNHDSISDIVGVAFFNVLEIPCFVLEEQEACVAWYWWGGCRMYGTVPLARLQPRTFYN  
ASWSSRATSPTPSSRSPAPPKPRQKQLHRKGPPHKGSKRPSKANTTALQDPMVSPRLDVAPTGLQGPQG  
GLKPOGARWVCRSFRRLDQCEHQIGPREIEFQLLNSAQEPLFHCNCTRRLARFLRLHSPPEVTNMLWEL  
LGTTCFKLAPPLDCVEGKNCSDRDPRAIRVSARHLRRLQQRHQLQDKGTDERQPPWSEPLRGPMSFYNQ  
LQLTQAARRPDRQQKWSQ

>Hom\_NP\_077734\_2\_Gr4A  
MSFIDPYQHIIVEHQYSHKFTVVVLRATKVTGKAFGDMLDTPDPYVELFISTTPDSRKRTRHFNNINPV  
WNETFEFILDPNQENVLEITLMDANYVMDETLGTATFTVSSMKVGEKKEVFFIFNQVTEMVLEMSLEVCS  
CPDLRFSMALCDQEKTFRQQRKEHIRESMKLLGPKNSEGLHSARDVPVAILGSGGGFRAMVGFSGVMK  
ALYESGILD CATYVAGLSGSTWYMWSTLYSHPDFPEKGPEEINEELMKNVSHNPLLLLPQKVKRYVESLW  
KKKSSGQPVTFDI FGMLIGETLIHNRMNTLSSLKEKVNTAQCLPLFTCLHVKPDVSELMFADWVEFS  
PYEIGMAKYGTMAPDLFGSKFFMGTVVVKYEENPLHFLMGVWGSAFSILFNRLVGVSGSQSRGSTMEEE  
LENITTKHIVSNDS SDSDESHEPKGTENEDAGSDYQSDNQASWIHRMIMALVSDSALFNTREGRAGKVH  
NFMLGLNLNTSYPLSPLSDFATQDSFDDDELDAAVADPDEFERIYEPLDVKSKKIHVVDSGLTFNLPYPL  
ILRPQRGVDLIISFDFSARPSDSSPPFKELLALAEKWAKMNLKPFKIDPYVFDREGLKECYVFKPNPDM  
EKDCPTIIHFVLANINFRKYRAPGVPRETEEEKEIADFIDDDPESPFSTFNFQYPNQAFKRLHDLMHFN  
TLNNIDVIKEAMVESIEYRRQNP SRCSVSLSNVEARRFFNKEFLSKPKA

>Hom\_NP\_005081\_1\_Gr4B  
MAEAALEAVRSELREFPAAARELCVPLAVPYLDKPPPLH FYRDWVCPNRPICIRNALQHWPALQKWSLP  
YFRATVGGSTEVSVAVTPDGYADAVRGDRFMMPAERRLPLSFVLDVLEGRAQHPGVLYVQKQCSNLPSEL  
QLLPDLESHVPWASEALGMPDAVNFWLGEAAAVTSLHKDHYENLYCVS GEEKHFLFHPPSDRPFIPYEL  
YTPATYQLTEEGTFKVVDDEEAMEKAESVRTCLLTVRVLQAHRLPSKDLVTPSDCYVTLWLPTACSHRLQT  
RTVKNSSSPVWNQSFHRIHRQLKNVMELKVFDQDLVTGDDPVL SVLFDAGTLRAGEFRRESFSLSPQGE  
GRLEVEFRLQSLADRGWLVSNGLVARELSCLHVQLEETGDQKSSEHRVQLVVP GSCEGPQEASVGTGT  
FRFHCPACWEQELSIRLQDAPEEQKAPLSALPSGQVVRLVFPPTSQEPLMRVELKKEAGLRELAVRLGFG  
PCAEQEAFLSRRKQVVAALRQALQLDGLQDEDEIPVVAIMATGGGIRAMTSLYGQLAGLKLGLLDCVVS  
YITGASGSTWALANLYEDPEWSQKDLAGPTELLKTVTKNKLGLV LAPSQQLQRYRQELAEARARLGYPSCF  
NLWALINEALLHDEPHDKLSDQREALSHGQNPLPIYCALNTKGQSLTTFEFGWCEFSPEYVGFPKYGA  
FIPSELFGEFFMGQLMKRLPESRICFLEGIWSNLYAANLQDSLYWASEPSQFWDWRWRNQNANLDKEQVP  
LLKIEEPPSTAGRIAEFFTDLLTWRPLAQATHNFLRGLHFHKDYFQHPHFSTWKATTL DGLPNQLTPSEP

HLCLLDVGYLINTSCLPLLQPTRDVDLILSLDYNLHGAFQQLQLLGRFCQEQQGIPFPPISPSPEEQIQPR  
ECHTFSDPTCPGAPAVLHFPLVSDSFREYSAPGVRRTPEEAAAGEVNLSSSDSPYHYTKVYTYSQEDVDKIL  
LHLTHYNVCNNQEQLLEALRQAVQRRRQRRPH

>Hom\_CAG33097\_1\_Gr4C

MGSSEVSIIPGLQKEEKAVERRRRLHVLKALKKLRIEADEAPVVAVLGS GGGLRAHIAACGLVSEMKEQG  
LLDAVTYLAGVSGSTWAISSLYTNDGDMEALEADLKHFRTRQEWDLAKSLQKTIQAARSENYSLTDFWAY  
MVISKQTRRELPESHLSNMKKPVEEGTLPYPIFAAIDNDLQPSWQEARAPETWFEEFPHHAGFPALGAFVS  
ITHFSGKFKKGRVLRTHPERDLTFLRGLWGSALGNTEVIREYIFDQLRNLTLKGLWRRAVANAKSIGHLI  
FARLLRLQESSQGEHPPPEDEGGEPEHTWLTEMLNWTRTSLEKQEQPHEDPERKGSLSNLMDFVKKGTGI  
CASKWEWGTTHNFLYKHGGIRDKIMSSRKHHLVDAGLAINTPFPLVLPPTREVHLILSFDFSAGDPFET  
IRATTDYCRHKIPFPQVEEAELDLWSKAPASCYILKGETGPVVMHFPLFNIDACGGDIGAWSDTYDTFK  
LADTYTLDDVVLLLALAKKNVRENKKILRELMNVAGLYYPKDSARSCCLA

>Hom\_Q86XP0\_2\_Gr4D

MESLSPGGPPGHPYQGEASTCWQLTVRVLEARNLRWADLLSEADPYVILQLSTAPGMKFKTKTLTDTSHF  
VWNEAFRFLIQSQVKNVLELSIYDEDSVTEDDICFKVLYDISEVLPGKLLRKTFSQSPQGEELDVEFLM  
EETSDRPENLITNKVIVARELSCLDVHLDSTGSTAVVADQDKLELELVLKGSYEDTQTSFLGTASAFRFH  
YMAALETELSGRLRSSRNGWNGDNSAGYLTVPLRPLTIGKEVTMDVPAPNAPGVRLQLKAEGCPEELAV  
HLGFNLCAEEQAFLSRRKQVAKALKQALQLDRDLQEDEVVVGIMATGGGARAMTSLYGHLLALQKGLGL  
LDCVTFYFSGISGSTWTMAHLYGDPEWSQRDLGPIRYAREHLAKSKLEVFSPERLASRRELELRAEQGH  
PTTFVDLWALVLESMLHGQVMDQKLSGQRAALERGQNPPLPLYLSLNVKENNLETDFKEWVEFSPYEVGF  
LKYGAFVPPPELFGSEFFMGRMLRRIPEPRICFLEAIWSNIFSLNLLDAWYDLTSSGESWKQHIKDKTRSL  
EKEPLTTSGTSSRLEASWLQPGTALAQAQFKGFLTGRPLHQRSNPLQLQLHQDYCSHKDFSTWADYQLD  
SMPSQLTPKEPRLCLVDAAYFINTSSPSMFRPGRRLDILSFDYLSAPFEALQQTELYCRARGLPFPRV  
EPSPQDQHQPRechLFSDPACPEAPILLHFPLVNASFKDHSAPGVQRSAPAEQQGGQVDLTGATCPYTLN  
MTYKEEDFERLLRLSDYNVQTSQGAAILQALRTALKHRTLEARPPRAQT

>Hom\_Q3MJ16\_4\_Gr4E

MSLQASEGCPGLGTNVFVQSPQTDDEEGSRSGRSFSEFEDTQDLDTPLGPPFCPMAPWGSEEGSLPCHLL  
TVRVIRMKNVQRADMLSQTDCEVSLWLPTASQKLRTRTISNCPNPEWNESEFNQIQSRVKNVLELSVCD  
EDTVPDDHLLTVLYDLTKLCFRKKTHTVKFPLNPQGMEELEVEFLLEESPPETLVNGLVSRQVSCLE  
EVHAQSRRRRKREKMKDLLVMNESFENTQVRVPCLEPCCPTSACFQTAACFHYPKYFQSQVHVEVPKSH  
WSCGLCCRSRKKGPISQPLDCLSDGQVMTLPVGESYELHMKSTPCPETLDVRLGFSLCPAELEFLQKRKV  
VVAKALKQVLQLEEDLQEDEVPLIAIMATGGGTRSMTSMYGHLLGLQKLNLLDCASYITGLSGATWTMAT  
LYRDPDWSSKNLEPAIFEARHVVKDKLPSLFPDQLRKFQBELRQRSQEGYRVTFDFWGLLIETCLGDE  
RNECKLSDQRAALSCGQNPPIYLTINVKDDVSNQDFREWFEFSPYEVGLQKYGAFIPSELFGSEFFMGR  
LVKRIPESTRICYMLGLWSSIFSLNLLDAWNLSHTSEEFHRWTRKVDIEDEPIPEIPKCDANILETT  
VVIPGSWLSNSFREILTHRSFVSEFHNFLSGLQLHTNYLQNGQFSRWKDTVLDGFPNQLTESANHLCLLD  
TAFVFNSSYPPLLRPERKADLIHNLNYCAGSQTKPLKQTCEYCTVQNIFFPKYELPDENENLKECYLMEN  
PQEPDAPIVTFPPLINDTFRKYKAPGVERSPEELEQQQVDIYGPKTPYATKELTYTEATFDKLVKLESEYN  
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>Hom\_Q68DD2\_3\_Gr4F

MLWALWPRWLADKMLPLLGAVALLQKREKRGPLWRHWRRETYPPYDLQVKVLRATNIRGTDLLSKADCYVQ  
LWLPTASPSPAQTRIVANCSDEWNETFHYQIHGAVKNVLELTLYDKDILGSDQLSLLFLDLRSLKCGQP  
HKHTFPLNHQDSQELQVEFVLEKSQVPASEVITNGVLVAHPCRLRIQGTLRGDGTAPREEYGSRLQLLAVP  
GAYEKPQLLPLQPPTPEGLPPTFTFHVNPVLSRHLVELMELLAAVQSGPSAELEAQTSLGEGGILLSS  
LPLGQEEQCSVALGEGQEVALSMMKVMSSGDLRLGLFDLSDGEQEFDRRKQVVS KALQOVLGLSEALD  
SGQVPVAVLGS GGTRAMSSLYGSLAGLQELGLLDVTYLSGVSGSTWCISTLYRDPAWSQVALQGP  
IE  
RAQVHVCSKMGALSTERLQYTTQELGVRERSGHSVSLIDLWGLLVEYLLYQEEENPAKLSDQQA  
VROGQ  
NPYPIYTSVNVRTNLSGEDFAEWCEFTPYEVGFPKYGAIVPTELFGSELFMGRLLQLQPEPRICYLQGMW  
GSAFATSLDEIFLKTAGSGLSFLWEYRGSVNITDDCQKPLHNPSRLRTRLLTPQGPFSQAVLDI  
FTSRF  
TSAQSFNFTRGLCLHKDYVAGREFVAWKDTHPDAFPNQLTPMRDCLYLVDGGFAINSFPPLALLP  
QRAVD  
LILSFDYSLEAPFEVLKMTKEYCLDRGIPFPSIEVGPEDMEEARECYLFAKAEDPRSPIVLH  
FPLVNRFT  
RTHLAPGVERQTAEEKAFGDFVINRPDTPYGMNFYEPQDFYRLVALSRYNVLLNNVETL  
KCALQLALDR  
HQARERAGA

>Hom\_NP\_000920\_1\_Gr5

MKGLLPLAWFLACSVPAVQGGLLDLKSMIEKVTGKNALTNYGFGYGCYCGWGRGT  
PKDGTDWCCWAHDHC  
YGRLEEKGCNIRTQSYKYRFAWGVVTCPEPGPFCHVNLACDRKLVYCLKRNLSYNPQYQYFP  
NIICLS

>Hom\_AIS72444\_1\_Gr6E

MFPREKTWNISFAGCGFLGYYYVGVASCLREHAPFLVANATHIYGASAGALTATALVTGVCLGEAGAKFI  
EVSKEARKRFLGPLHPSFNLVKIIRSFLKVLPAWSHEHASGRLGISLTRVSDGENV  
IISHFNKDELIIQ  
ANVCSGFI  
PVYCGLIPPSLQGVRYVDGGISDNLPLYELKNTITVSPFSGESDFCPQDSSTNIHEL  
RVNT  
SIQFNLRNLYRLSKALFPPEPLVLRMCKQGYRDLRFLQRNGLLNRPNPLALPPARPHG  
PEDKQAVE  
SAQAEDYSQLPGEHDHLEHLPARLNEALLEACVEPTDLTLTSLNMLPVRLATAMMPY  
TLPLESALSFTI

RLEEWLPDVPEDIRWMKEQTGSI CQYLVMRAKRKLGRHLP SRLPEQVELRRVQSLPSVPLSCAAYREALP  
GWMRNNLSLGDALAKWEECQRQLLLGLFCTNVAFPEALRMRAPADPAPAPADPASPQHQLAGPAPLLST  
PAPEARPVIGALGL

>Hom\_AAH65195\_1\_Gr6D

MYDAERGWSLSFAGCGFLGFYHVGATRCLSEHAPHLLRDARMLFGASAGALHCVGVLSGIPLEQTLQVLS  
DLVRKARSRNIGIFHPSFNLSKFLRQGLGKCLPANVHQLISGKIGISLTRVSDGENVLVSDFRSKDEVVD  
ALVCSCFMPFYSGLIPPSFRGVRYVDGGVSDNVFPIDAKTTITVSPFYGEYDICKPKVKTNLFHVDITKL  
SLRLCTGNLYLLSRAFVPPDLKVLGEICLRGYLDAFRFLEEKGICNRPQGLKSSSEGMDEPVAMP SWAN  
MSLDSSPESAAALAVRLEGDELDDHLRLSILPWDESILDTLSPRLATALSEEMKDKGGYMSKICNLLPIRI  
MSYVMLPCTLPVESAIIVQRLVTLWLPDMPDDVLWLQWVTSQVFTRVLMCLLPASRSQMPVSSQQASPCT  
PEQDWPCWTPCSPEGCPAETKAEATPRSILRSSLNFFLGNKVPAGAELSTFFPSFSLEKSL

>Hom\_AAH20746\_1\_Gr6F

MKHINLSFAACGLGIYHLGAASALCRHGKLVKDVKAFAFAGASAGSLGASVLLTAPEKIEECNQFTYKFA  
EEIRRQSFQAVTPGYDFMARLRSGMESILPPSAHELAQNRLHVSITNAKTRENHLVSTFSSREGLIKVLL  
ASSFVPIYAGLKLVEYKQKQWVDGGLTNALPILPVGRTVTISPFSGRLDISPQDKGQLDLVYVNIQDIM  
LSLANLVRLNQLFPPSKRKMESLYQCGFDDTVKFLLENWFE

>Hom\_NP\_001159586\_1\_Gr6C

MGTSSHGLATNSSGAKVAERDGFQDVLAPGEGSAGRICGAQVFPVQVLGVMIGAGVAVVVAVLILLV  
VRRLRVPKTPAPDGPYRFRKRDKVLFYGRKIMRKSQSTSSLVDTSVSATSRRPRMRKLLKMLNIAKKIL  
RIQKETPTLQRKEPPPVALEADLTEGDLANSHLPSEVLYMLKNVRVLGHFEKPLFLELCRHMVFQRLGQG  
DYVFRPGQPDASIYVVDGGLLELCLPGPDGKCEVVEVPGDSVNSLLSILDVITGHQHPQRTVSARAAR  
DSTVLRPLVEAFSAVFTKYPELVRVVQIIMVRLQRVTFALHNYLGLTNEFSHEIQPLRFLPSPGLPT  
RTSPVRGSKRMVSTSATDEPRETPGRPPDPTGAPLPGPTGDPVKPTSLETPSAPLLSRCVSMPGDISGLQ  
GGPRSDFDMAYERGRISVSLQEEASGGSLAAPARTPTQEPREQPAGACEYSYCEDESATGGCFPGPYQGR  
QTSSIFEAAKQELAKLMRIEDPSLLNSRVLLHHAKAGTIIARQGDQDVS LHFVWGLHVVYQRMIDKAED  
VCLFVAQPGELVGLAVLTGEPLIFTLRAQRDCTFLRISKSDFYEIMRAQPSVVLAAHTVAARMSPFVR  
QMDFAIDWTAVEAGRALYRQGDSDCTYIVLNGRLRSVIQRGSGKELVGEYGRGDLIGVVEALTRQPR  
TTVHAVRDELAKLPEGLTGHIKRRYPQVTRLIHLLSQKILGNLQQLQGFPGSGLVPPHSELTPAS  
NLATVAIILPVAEVPMAVFTLELQHALQAIGPTLLNNDIIRARLGASALDSIQEFRLSGWLAQQEDAHR  
IVLYQTDASLTPWTVRCLRQADCILIVGLGDQEP TLGQLEQMLENTAVRALKQLVLLHREGAGPTRTVE  
WLNMRSWCSGHLHLRCPRLFSRRSPAKLHELVEYKVFSTRADRHSDFSRLARVLTGNTIALVLGGGGARG  
CSHIGVLKALEEAGVPVDLVGGTSIGSFIGALYAEERSASRTKQRAREWAKSMTSVLEPVLDTYPVTSM  
FTGSANRSIHRVFDQKQIEDLWLPYFNVTDDITASAMRVHKDGLWRYVRASMTLSGYLPPLCDPKDGH  
LLMDGGYINNLPADIARSMGAKTVIAIDVGSQDETDLSTYGDLSLGGWLLWKRLNPWADKVKVPDMAEIQ  
SRLAYVSCVRQLEVVKSSSYCEYL RPPIDCFKTMDFGKFDQIYDVGYQYKAVFGGWSRGNVIEKMLTDR  
RSTDLNESRRADVLAFPSGFTDLAEIVSRIEPPTSYSVSDGCADGEESDCLTEYEEDAGPDCSRDEGGSP  
EGASPSTASEMEEKSLRQRCLPQEPG SATDA

>Hom\_NP\_001242936\_1\_Gr6B

MSINLTVDIYIYLLSNARSVCGKQRSKQLYFLSPKHYWRI SHISLQRGFHTNIIRCKWTKSEAHSCSKH  
CYSPSNHGLHIGILKLSAPKGLTKVNICMSRIKSTLNSVSKAVFGNQNEMISRLAQFKPSSQILRKVS  
DSGWLKQKNIKQAIKSLKYSKSAEKSPFPPEEKSHIIDKEEDIGKRS LFHYTSSITTKFGDSFYFLSNH  
INSYFKRKEKMSQKENEHFRDKSELEDDKVEEGKLRSPDPGILAYKPGSESVHTVVKPTSPSAIPDLVQ  
VSTKQSIANFLSRPTEGVQALVGGYIGGLVPLKLYDSKQSEEQEPAKTDQAVSKDRNAEKKRSLIQR  
EKI IARVSIIDNRTRALVQALRRITDPKLCITRVEELTFHLEFPPEGKGVAVKERIIPYLLRLRQIKDET  
QAAVREILALIGYVDPVKGRGIRILSIDGGGTRGVVALQTLRKLVELTQKPVHQLFDYICGVSTGAILAF  
MLGLFHMPLDECEELYRKLGSDFVSNVIVGTVKMSWSHAFYDSQTWENILKDRMGSMIETARNPTCP  
KVAAVSTIVNRGITPKAFVFRNYGHFPGINSHYLGCCQYKMWQAIRASSAAPGYFAEYALGNDLHQDGG  
LLNNSALAMHECKCLWDPVPLECIVSLGTGRYESDVRNTVYTS LKTKLSNVINSATDTEEVHIMLDGL  
LPPDITYFRFPVCMENIPLDESRNEKLDQIQLEGLK YIERNEQKMKKVAKILSQEKTTLQKINDWIKLKT  
DMEGLPFFSKL

>Hom\_AAD30424\_1\_Gr6A

MQFFGRLVNTSSGVTNLFSNPFVKEVAVADYTS SDRVREEGQLILFQNTPNRTWDCVLVNPNSQSGR  
LFQLELEADALVNHFQYSSQLLPFYESSQVLHTEVLQHLTDLIRNHPSWSVAHLAVELGIRECFHHSRI  
ISCANCAENEECTPLHLACRKGDEILVELVQYCHTQMDVTDYKGETVFHYAVQGDNSQVLQLLGRNAV  
AGLNQVNNQGLTPLHLACQLGKQEMVRVLLCNARCINMGPNQYPIHSAMKFSQKGAEMIISMDSSQIH  
SKDPYRGASPLHWAKNAEMARMLLRGCNVNSTSSAGNTALHVAVMRNRFDAIVLLTHGANADARGEHG  
NTPLHLAMSKDNVEMIKALIVFGAEVDPNDFGETPTFLASKIGRLVTRKAILTLRLTVGAEYCFPPHIG  
VPAEQGSAAPHHPFSLERAQPPPISLNNLELQDLMHISRARKPAFILGSMRDEKRTHDHLLCLDGGGVK  
LII IQLLIAIEKASGVATKDLFDWVAGTSTGGILALAILHKSMA YMRGMYFRMKDEVFRGSRPYESGPL  
EEFLKREFGEHTKMTDVRI PKVMLTGTLSDRQPAELHLFRNYDAPETVREPRFNQVNL RPPAQPSDQLV  
WRAARSSGAAPTYFRPNGRFLDGGLLANNPTLDAMTEIHEYNDLIRKQGANKVKILSIVVSLGTGRSPQ  
VPVTCVDVFRPSNPWELAKTVFGAKELGKVVDCCTDPDGRAVDRARAWCEMVGIIQYFRLNPQLGTDIML  
DEVSDTVLVNALWETEVIYEHREEFQKLIQ LLLSP

>Hom\_NP\_001161829\_1\_Gr7A  
MVPPKLVHVLFCCLGCLAVVYFFDWQYINPVAHMKSSAWVNKIQVLMMAAASFQGTKIPRGNPYSVGCSDL  
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GEKYPLVVFHSHGLGAFRTLYSAIGIDLASHGFI VAAVEHRDRSASATYFQKQSAAEIGDKSWLYLRTLK  
QEEETHIRNEQVRQRAKECSQALSLLIDIDHGKPKVKNALDLKFDMEQLKDSIDREKIAVIGHSGGATVI  
QTLSEDQRFRCGIALDAWMFPLGDEVYSRIPQPLFFINSEYFQYPANIKMKKCYSPDKERKMITIRGSV  
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NINTTNQHIMLQNSSGIEKYN  
>Hom\_NP\_000428\_2\_Gr7B  
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RCGGLLFNLAVGSCLPVSWSNGPFKTKDSGYPLIIFSHGLGAFRTLYSAFCMELASRGFVAVPEHRDRS  
AATTFYCKQAPEENQPTNESLQEEWIPFRVVEEGEKEFHVRNPQVHQVSECLRVLKIILQEVTAGQTVFN  
ILPGGLDMLTKGNIDMSRVAVMGHSFGGATAILALAKETQFRCAVALDAWMFPLERDFYPKARGPVFFI  
NTEKFQTMESVNLKMKKICAQHEQSRIITVLSVHRSQTDFAFVTGNLIGKFFSTETRGSGLDPYEQEVMV  
RAMLAFLQKHLDLKEDYNQWNNLIEGIGPSLTPGAPHHLSSL  
>Hom\_CAG33017\_1\_Gr8A  
MSQGDSNPAAIPHAEDIQGDWRMSQHNRVFLDCKDKEPDVLFVGDMSVQLMQQYEIWRELFSPHALNF  
FGIGGDTTRHVLWRLKNGELENIKPKVIVVWVGTNNHENTAEVAGGIEAIVQLINTRQPQAKIIVLGLL  
PRGEKPNPLRQKNAKVNQLLVSLPKLANVQLLDTDGGFVHSDGAISCHDMDFLHLTGGGYAKICKPLH  
ELIMQLLEETPEEKQTTIA  
>Hom\_CAG28554\_1\_Gr8B  
MSGEENPASKPTPVQDVQDGRWMSLHHRFVADSKDKEPEVVFVIGDSLVLQMLHQCEIWRELFSPHALNF  
GIGGDTQHVLWRLNENGELEHIRPKIVVWVGTNNHGHHTAEQVTGGIKAIQVLVNERQPQARVVVLGGLP  
RGQHPNPLREKNRQVNELVRAALAGHPRAHFLDADPGFVHSDGTISHHDMYDYLHLSRLGYTPVCRALHS  
LLRLLAQDQGGAPLLEPAP  
>Hom\_CAG33166\_1\_Gr10  
MGPLPVCLPIMLLLLLPSLLLLLPGPGSGEASRIIRVHRRGILELAGTVGCVGPRTPPIAYMKYGCFCG  
LGGHGQPRDAIDWCCHGHDCYTRAEEAGCSPKTERYSWQCVNQSVLCGPAENKCCQELLCKCDQEIANCL  
AQTEYNLKYLFYFPQFLCEPDSPKCD  
>Hom\_NP\_110448\_2\_Gr12A  
MALLSRPALTLTLLMAAVVRCQEQAQTDDWRATLKTIRNGVHKIDTYLNAALDLLGGEDGLCQYKCSDG  
SKPFPYRKYKPSPPNGCGSPLFGVHLNIGIPSLTKCCNQHRCYETCGKSKNDCDEEFQYCLSKICRDVQ  
KTLGLTQHVQACETTVELLFDSDVIHLGCKPYLDSQRAACRCHYEETDL  
>Hom\_NP\_115951\_2\_Gr12B  
MKLASGFLVLWLSLGGGLAQSDTSPDTEESYSDWGLRHLRGSFESVNSYFDSFLELLGGKNGVCQYRCRY  
GKAPMPRPGYKQPEPNGCGSYFLGLKVPESMDLGI PAMTKCCNQLDVCYDTCGANKYRCDAKFRWCLHSI  
CSDLKRSGLFVSKVEAACDSLVDTVFNTVWTLGCRPFMNSQRAACICAEKEEEL  
>Hom\_NP\_036452\_1\_Gr phospholipase A2 group XV isoform 1 precursor [Homo sapiens]  
MGLHLRPYRVGLLPDGLLFLLLLMLLADPALPAGRHPVVLVPGDLGNQLEAKLDKPTVVHYLCSKKTE  
SYFTIWLNLLELLLPVIIDCWIDNIRLVYNKTSRATQFPDGDVVRVPGFGKTFSLFLDPSKSSVGSYFHT  
MVESLVGWGYTRGEDVRGAPYDWRRAPNENGPYFLALREMIEMYQLYGGPVVLVAHSMGNMYTLYFLQR  
QPQAWKDKYIRAFVSLGAPWGGVAKTLRVLASGDNNRIPVIGPLKIREQQRSVAVSTSWLLPYNYTWSPEK  
VFVQTPTINYTLRDRYKFFQDIFGFDGWLMRQDTEGLVEATMPPGVQLHCLYGTGVPTPDSFYYESFPDR  
DPKICFGDGDGTVNLKSAQCQAWQSRQEHQVLLQELPGSEHIEMLANATTLAYLKRVLGPG  
>Hom\_AAI03809\_1\_Gr PLA2G16 protein, partial [Homo sapiens]  
RPAQQKQSRGVWRRSFLMTINPCSPCLRHLRSEIEPGLGPHREGRCVRPLHWAIYVGDGYVHVLAPP  
SEVAGAGAAASVMSALTDKAIIVK KELLYDVAGSDKYQVNNKHDDKYSPLPCSKI IQRAEELVQEVLYKLT  
SENCEHFVNELRYGVARSDQVRDVI IAASVAGMGLAAMSLIGVMFSRNRKQKQ

## Приложение 3

## Характеристика белков PLA2 человека

Белок/ген	Альтернативное название	Субстраты	Активность	Классификация	Масса, кДа	Каталитические остатки	GenBank
pla2g1b/PLA2G1B	Панкреатическая PLA2	ФХ, ФЭ	PLA2	Секреторная	14	His/Asp	NP_000919.1
pla2g2a/PLA2G2A	Непанкреатическая PLA2, синовиальная PLA2	ФХ, ФГ, ФЭ, ФС	PLA2	Секреторная	14	His/Asp	AAH05919.1
pla2g2c/PLA2G2C		ФХ, ФЭ	PLA2	Секреторная	15	His/Asp	NP_001354898.1
pla2g2d/PLA2G2D		ФГ, ФЭ, ФХ	PLA2	Секреторная	14	His/Asp	NP_036532.1
pla2g2e/PLA2G2E		ФХ, ФЭ	PLA2	Секреторная	14	His/Asp	Q9NZK7.1
pla2g2f/PLA2G2F		ФХ, ФЭ	PLA2	Цитозольная	16	His/Asp	NP_001347798.1
pla2g3/PLA2G3		ФХ, ФЭ	PLA2	Цитозольная	55	His/Asp	NP_056530.2
pla2g4a/PLA2G4A	cPLA2 $\alpha$	ФХ, ФЭ, ФИ	PLA1, PLA2, лизо-PLA1	Цитозольная	85	Ser/Asp	NP_077734.2
pla2g4b/JMJD7-PLA2G4B	cPLA2 $\beta$	ФХ, ФЭ	PLA, лизо-PLA	Цитозольная	110	Ser/Asp	NP_005081.1
pla2g4c/PLA2G4C	cPLA2 $\gamma$	ФХ	PLA1, PLA2	Цитозольная	61	Ser/Asp	CAG33097.1
pla2g4d/PLA2G4D	cPLA2 $\delta$	ФХ, ФЭ	PLA2, лизо-PLA	Цитозольная	91	Ser/Asp	Q86XP0.2
pla2g4e/PLA2G4E	cPLA2 $\epsilon$	ФХ, ФЭ	PLA2, лизо-PLA	Цитозольная	95	Ser/Asp	Q3MJ16.4
pla2g4f/PLA2G4F	cPLA2 $\zeta$	ФХ, ФЭ	PLA2, лизо-PLA	Цитозольная	95	Ser/Asp	Q68DD2.3
pla2g5/PLA2G5		ФХ, ФЭ	PLA2	Секреторная	14	His/Asp	NP_000920.1
pla2g6e/PNPLA2	PNPLA2, iPLA2 $\zeta$ , desnutrin, ATGL, PEDF-R, TTS-2.2	ФХ, ТГ	PLA2, ТГ гидролаза, трансацилаза	Цитозольная	55	Ser/Asp	AIS72444.1
pla2g6d/PNPLA3	PNPLA3, iPLA2 $\epsilon$ , adiponutrin	ФХ, ТГ, ретинилпальмитат	PLA2, ТГ гидролаза, трансацилаза, ретинилпальмитат липаза	Цитозольная	52	Ser/Asp	AAH65195.1
pla2g6f/PNPLA4	PNPLA4, iPLA2 $\mu$ , gene sequence-2 (GS2)	ФХ, ТГ	PLA2, ТГ гидролаза, ретинилэстер гидролаза, ацилглицерол и ретинол трансацилаза	Цитозольная	27	Ser/Asp	AAH20746.1
pla2g6c/PNPLA6	PNPLA6, iPLA2 $\delta$ , NTE	ФХ, лизоФХ, фенилвалерат (для эстеразы)	PLA2, лизофосфолипазная, эстераза	Цитозольная	146	Ser/Asp	NP_001159586.1
pla2g6b/PNPLA8	PNPLA8, iPLA2 $\gamma$	ФЭ, ФХ, лизоФХ	PLA1, PLA2, лизофосфолипазная, трансацилаза	Цитозольная	90	Ser/Asp	NP_001242936.1
pla2g6a/PLA2G6	PLA2G6, iPLA2 $\beta$ , PNPLA9	ФХ, лизоФХ	PLA2, лизофосфолипазная, трансацилаза, ацилCoA тиюэстераза	Цитозольная	85	Ser/Asp	AAD30424.1
pla2g7a/PLA2G7	PAF-AH, PAFAH, Lp-PLA2, LDL-PLA2, PAFAD, platelet-activating factor acetylhydrolase	PAF, ФХ, оксФХ	PLA2; PLA1; трансацилазная активность; PAF ацетилгидролаза; N-связанное гликозилирование	Секреторная	44	Ser/His/Asp	NP_001161829.1
pla2g7b/PAFAH2	PAF-AH2, platelet-activating factor acetylhydrolase 2	PAF	PLA2, PAF ацетилгидролаза	Секреторная	40		NP_000428.2

**Окончание приложения 3**

Белок/ген	Альтернативное название	Субстраты	Активность	Классификация	Масса, кДа	Каталитические остатки	GenBank
pla2g8a/ <i>PAFAH1B2</i>	PAF-АН-I- $\alpha$ 1 субъединица, <i>PAFAH1B2</i>	PAF	PAF ацетил-гидролаза	Секреторная	30	Ser/His/Asp	CAG33017.1
pla2g8b/ <i>PAFAH1B3</i>	PAF-АН-I- $\beta$ 1 субъединица, <i>PAFAH1B3</i>	PAF	PAF ацетил-гидролаза	Секреторная	30	Ser/His/Asp	CAG28554.1
pla2g10/ <i>PLA2G10</i>		ФХ, ФЭ	PLA2	Секреторная	14	His/Asp	CAG33166.1
pla2g12a/ <i>PLA2G12A</i>		ФГ	PLA2	Секреторная	19	His/Asp	NP_110448.2
pla2g12b/ <i>PLA2G12B</i>		–	Каталитически неактивен	Секреторная	19	His/Asp	NP_115951.2
pla2g15/ <i>PLA2G15</i>	LPLA2, ACS, LLPL	ФХ, ФЭ, ФС, С-1 керамид	PLA2 (Ca <sup>2+</sup> независимая), PLA1, трансацилаза, 1-О-ацилцерамид синтаза (ACS)	Лизосомная	45	Ser/His/Asp	NP_036452.1
pla2g16/ <i>PLA2G16</i>	AdPLA, PLAAT3, HRASLS3, HREV107, HREV107-3, MGC118754 или H-REV107-1	ФХ, ФЭ, диацил-ФЭ	PLA2 и PLA1 (Ca <sup>2+</sup> независимые), N-ацил ФЭ ацилтрансфераза	Цитозольная	18	His/Cys	AAI03809.1

Примечание. ФХ – фосфатидилхолин; лизоФХ – лизофосфатидилхолин; оксФХ – окисленный фосфатидилхолин; ФЭ – фосфатидилэтанолламин; ФГ – фосфатидилглицерол; ФИ – фосфатидилинозитол; ФС – фосфатидилсерин; ТГ – триглицерид.

## Приложение 4

### Связь между активностью PLA2 и заболеваниями человека

Группы заболеваний (код МКБ указан в скобках)	Заболевания (код МКБ указан в скобках)	Фосфолипазы A2, вовлеченные в развитие заболевания
Некоторые бактериальные зоонозы (A20–A28)	Сибирская язва (A22)	PLA2G2A (Miki et al., 2022)
	Сепсис неуточненный (A41.9)	PLA2G2A (Quach et al., 2014), PLA2G7 (Graham et al., 1994; Sorensen et al., 1994)
Другие бактериальные болезни (A30–A49)	Бактериальная инфекция неуточненной локализации (A49)	PLA2G2A (Rintala et al., 2001)
	Острый гепатит В (B16)	PLA2G5 (Zeissig et al., 2012), PLA2G2C (Zeissig et al., 2012), PLA2G4C (Xu S. et al., 2012), PLA2G6D (Trepo et al., 2011b)
Вирусный гепатит (B15–B19)	Острый гепатит С (B17.1)	PLA2G4C (Xu S. et al., 2012), PLA2G6D (Trepo et al., 2011b)
	Хронический вирусный гепатит В (с дельта-агентом/без дельта-агента) (B18.0/18.1)	PLA2G2A (Zhu et al., 2017) PLA2G6D (PNPLA3) (iPLA2ε) (Viganò et al., 2013; Dong X.C., 2019)
	Болезнь, вызванная вирусом иммунодефицита человека (ВИЧ) (B20–B24)	PLA2G1B (Pothlichet et al., 2020); PLA2G3 (Limou et al., 2008)
Протозойные болезни (B50–B64)	Малярия неуточненная (B54)	PLA2G2A (Vadas et al., 1992, 1993; Dacheux et al., 2019), PLA2G2F (Guillaume et al., 2015; Dacheux et al., 2019), PLA2G3 (Guillaume et al., 2015; Dacheux et al., 2019), PLA2G5 (Guillaume et al., 2015; Dacheux et al., 2019), PLA2G10 (Guillaume et al., 2015; Dacheux et al., 2019)
Бактериальные, вирусные и другие инфекционные агенты (B95–B98)	<i>Staphylococcus aureus</i> как причина болезней, классифицированных в других рубриках (B95.6)	PLA2G2A (Miki et al., 2022)
	<i>Escherichia coli</i> ( <i>E. coli</i> ) как причина болезней, классифицированных в других рубриках (B96.2)	PLA2G2A (Miki et al., 2022)
Злокачественные новообразования органов пищеварения (C15–C26)	Злокачественное новообразование пищевода (C15)	PLA2G2A (Menschikowski et al., 2013), PLA2G4A (Zhao et al., 2018)
	Злокачественное новообразование желудка {рак желудка} (C16)	PLA2G2A (Yamashita S.-I. et al., 1994; Leung et al., 2002; Chen X. et al., 2003; Wang X. et al., 2013), PLA2G4A (Liao et al., 2021)
	Злокачественное новообразование тонкого кишечника (C17)	PLA2G2A (Wendum et al., 2003), PLA2G4A (Wendum et al., 2003)
	Злокачественное новообразование ободочной кишки {колоректальный рак} (C18)	PLA2G1B (Abbenhardt et al., 2013), PLA2G2A (Tribler et al., 2007; Buhmeida et al., 2009), PLA2G2D (Mounier et al., 2008), PLA2G2F (Mounier et al., 2008), PLA2G3 (Mounier et al., 2008; Hoefl et al., 2010; Kazama et al., 2015), PLA2G4A (Wendum et al., 2003), PLA2G4C (Olsen et al., 2016), PLA2G5 (Mounier et al., 2008), PLA2G6A (Hoefl et al., 2010), PLA2G7 (Denizot et al., 2003, 2004a, b; Mathonnet et al., 2006), PLA2G10 (Tribler et al., 2007; Kazama et al., 2015), PLA2G16 (Xie et al., 2019)
	Злокачественное новообразование печени и внутрипеченочных желчных протоков (C22)	PLA2G2A (Ying et al., 1994), PLA2G6D (PNPLA3) (iPLA2ε) (Hassan et al., 2013; Friedrich et al., 2014; Yang J. et al., 2019)
Злокачественное новообразование поджелудочной железы (C25)	PLA2G1B (Quach et al., 2014; Goonesekere et al., 2018), PLA2G2A (Yamashita S.-I. et al., 1994; Kashiwagi et al., 1999), PLA2G4A (Kashiwagi et al., 1999), PLA2G16 (Xia et al., 2020)	



## Продолжение приложения 4

Группы заболеваний (код МКБ указан в скобках)	Заболевания (код МКБ указан в скобках)	Фосфолипазы А2, вовлеченные в развитие заболевания
Злокачественные новообразования органов дыхания и грудной клетки (С30–С39)	Злокачественное новообразование бронхов и легкого (С34)	PLA2G1B (Liu Y. et al., 2016), PLA2G2A (Yamashita S.-I. et al., 1994; Kupert et al., 2011), PLA2G4A (Wendum et al., 2003)
	Сухой синдром (Шегрена) (С35.0)	PLA2G7 (Nezos et al., 2021)
Злокачественные новообразования костей и суставных хрящей (С40–С41)	Злокачественное новообразование костей и суставных хрящей других и неуточненных локализаций {остеосаркома, рак остеогенный} (С41)	PLA2G16 (Liang et al., 2015; Li L. et al., 2016)
Меланома и другие злокачественные новообразования кожи (С43–С44)	Злокачественная меланома кожи (С43)	PLA2G2A (Kawamata et al., 1997), PLA2G4A (Chovatiya et al., 2019), PLA2G6A (Kvaskoff et al., 2011)
Злокачественные новообразования мезотелиальной и мягких тканей (С45–С49)	Злокачественное новообразование периферических нервов и вегетативной нервной системы (С47)	PLA2G2A (Kawamata et al., 1997)
	Злокачественное новообразование других типов соединительной и мягких тканей (С49)	PLA2G10 (Tan et al., 2020)
Злокачественное новообразование молочной железы (С50–С50)	Злокачественное новообразование молочной железы (С50)	PLA2G2A (Brglez et al., 2014), PLA2G5 (Menschikowski et al., 2016), PLA2G4A (Caiazza et al., 2010), PLA2G4C (Tian G. et al., 2011), PLA2G10 (Pucer et al., 2013)
Злокачественные новообразования женских половых органов (С51–С58)	Злокачественное новообразование шейки матки (С53)	PLA2G5 (Lyu et al., 2019)
	Злокачественное новообразование яичника (С56)	PLA2G2A (Gorovetz et al., 2006), PLA2G3 (Ray et al., 2021), PLA2G16 (Sers et al., 2002; Nazarenko et al., 2007)
Злокачественные новообразования мужских половых органов (С60–С63)	Злокачественное новообразование предстательной железы (С61)	PLA2G2A (Faas et al., 1996; Graff et al., 2001; Jiang et al., 2002; Sved et al., 2004; Dong Q. et al., 2006; Oleksowicz et al., 2012; Ozturk et al., 2020), PLA2G4A (Patel M.I. et al., 2008), PLA2G5 (Menschikowski et al., 2016), PLA2G7 (Vainio et al., 2011), PLA2G16 (Jarrard et al., 2019)
Злокачественные новообразования глаза, головного мозга и других отделов центральной нервной системы (С69–С72)	Злокачественное новообразование головного мозга (С71)	PLA2G2A (Martin et al., 2017), PLA2G5 (Wu et al., 2019)
Злокачественные новообразования лимфоидной, кровяной и родственных им тканей (С81–С96)	Диффузная крупно-В-клеточная лимфома (С83.3)	PLA2G7 (Zheng et al., 2021)
	Множественная миелома (С90.0)	PLA2G4A (Mahammad et al., 2021)
	Острый миелобластный лейкоз (AML) (С92.0)	PLA2G4A (Bai et al., 2020)
	Лейкоз неуточненного клеточного типа (С95)	PLA2G5 (Menschikowski et al., 2016)
Доброкачественные новообразования (D10–D36)	Ободочной кишки неуточненной части {семейный аденоматозный полипоз} (D12.6)	PLA2G2A (Kennedy et al., 1998)
Гемолитические анемии (D55–D59)	Гемолитико-уремический синдром (D59.3)	PLA2G7 (Xu H. et al., 2000)
Нарушения свертываемости крови, пурпура и другие геморрагические состояния (D65–D69)	Геморрагическое состояние неуточненное {геморрагический диатез} (D69.9)	PLA2G4A (Faioni et al., 2014)

#### Продолжение приложения 4

Группы заболеваний (код МКБ указан в скобках)	Заболевания (код МКБ указан в скобках)	Фосфолипазы A2, вовлеченные в развитие заболевания
Другие болезни крови и кроветворных органов (D70–D77)	Другие уточненные нарушения белых кровяных клеток (D72.8)	PLA2G1B (Pothlichet et al., 2020)
Сахарный диабет (E10–E14)	Сахарный диабет I типа (E10)	PLA2G7A (Wootton et al., 2006)
	Сахарный диабет II типа (E11)	PLA2G2A (Monroy-Muñoz et al., 2017; Khajeniazi et al., 2019), PLA2G4A (Vogel et al., 2018), PLA2G5 (Wootton et al., 2007; Murakami et al., 2011), PLA2G6A (PNPLA9) (iPLA2β) (Yan et al., 2015), PLA2G6E (PNPLA2) (iPLA2ζ) (Schoenborn et al., 2006), PLA2G6F (PNPLA4) (iPLA2η) (Kienesberger et al., 2009; Wilson P.A. et al., 2006), PLA2G7 (Hatoum et al., 2010; Nelson et al., 2011; Waegner et al., 2011)
Нарушения других эндокринных желез (E20–E35)	Синдром поликистоза яичников (E28.2)	PLA2G7 (Karasawa, 2015)
Ожирение и другие виды избыточности питания (E65–E68)	Ожирение (E66)	PLA2G1B (Wilson S.G. et al., 2006; Cash et al., 2011), PLA2G2E (Sato et al., 2014), PLA2G5 (Sato et al., 2014), PLA2G4A (Vogel et al., 2018), PLA2G6D (PNPLA3) (iPLA2ε) (Lake et al., 2005; Johansson et al., 2009; Kollerits et al., 2009; Huang et al., 2010), PLA2G16 (Wang C.-Y. et al., 2018)
Нарушения обмена веществ (E70–E90)	Болезнь накопления липидов неуточненная {в статье: Болезнь хранения нейтральных липидов} (E75.6)	PLA2G4E (Murakami et al., 2011)
	Нарушения обмена липопротеидов и другие липидемии (E78)	PLA2G1B (Yang L.-S. et al., 2020)
	Недостаточность липопротеидов {Танжерская болезнь} (E78.6)	PLA2G7 (Hofmann et al., 1989)
	Кистозный фиброз {муковисцидоз} (E84)	PLA2G2A (Pernet et al., 2014)
Шизофрения, шизотипические состояния и бредовые расстройства (F20–F29)	Шизофрения (F20)	PLA2G4A (Schaeffer et al., 2012; Nadalin, Buretić-Tomljanović, 2018), PLA2G4C (Yu et al., 2005; Xu H. et al., 2012), PLA2G6A (PNPLA9) (iPLA2β) (Smesny et al., 2005), PLA2G12A (Yang G. et al., 2016; Hui et al., 2018)
Нарушения психологического развития (F80–F89)	Детский аутизм (F84.0)	PLA2G4A (Qasem et al., 2017), PLA2G4C (Liu S. et al., 2016)
	Болезнь Паркинсона (G20)	PLA2G6A (Paisan-Ruiz et al., 2009; Yamashita et al., 2017; Guo et al., 2018)
Экстрапирамидные и другие двигательные нарушения (G20–G26)	Болезнь Галлервордена–Шпатца (G23.0)	PLA2G6A (Gregory et al., 2008)
	Другие дегенеративные болезни нервной системы (G30–G32)	Болезнь Альцгеймера (G30)
Другие дегенеративные болезни нервной системы, не классифицированные в других рубриках (G31) – Детская (инфантильная) нейроаксональная дистрофия {INAD}, {болезнь Зейтельбергера}		PLA2G6A (PNPLA9) (iPLA2β) (Khateeb et al., 2006; Morgan et al., 2006; Gregory et al., 2008; Tonelli et al., 2010; Salih et al., 2013; Illingworth et al., 2014; Guo et al., 2018), PLA2G6B (PNPLA8) (iPLA2γ) (Gregory et al., 2008)

## Продолжение приложения 4

Группы заболеваний (код МКБ указан в скобках)	Заболевания (код МКБ указан в скобках)	Фосфолипазы А2, вовлеченные в развитие заболевания
Демиелинизирующие болезни центральной нервной системы (G35–G37)	Рассеянный склероз (G35)	PLA2G7 (Osoegawa et al., 2004)
Эпизодические и пароксизмальные расстройства (G40–G47)	Эпилепсия (G40)	PLA2G4A (Gattaz et al., 2011)
Болезни нервно- мышечного синапса и мышц (G70–G73)	Митохондриальная миопатия, не классифицированная в других рубриках (G71.3)	PLA2G6B (PNPLA8) (iPLA2γ) (Saunders et al., 2015)
Болезни век, слезных путей и глазницы (H00–H06)	Блефарит (H01.0)	PLA2G2A (Song et al., 1999)
	Другие болезни слезной железы: синдром сухого глаза (H04.1)	PLA2G1B (Quach et al., 2014), PLA2G2A (Aho et al., 2002; Chen D. et al., 2009)
Болезни конъюнктивы (H10–H13)	Конъюнктивит (H10)	PLA2G2A (Patel D.S. et al., 2017)
	Острый атопический конъюнктивит (H10.1)	PLA2G2A (Peuravuori et al., 2004)
Болезни сосудистой оболочки и сетчатки (H30–H36)	Дегенерация макулы и заднего полюса / Дегенерация Кунта–Юниуса (H35.3)	PLA2G12A (Wang V.M. et al., 2012)
	Наследственные ретинальные дистрофии (H35.5)	PLA2G5 (Bin et al., 2015)
	Диабетическая ретинопатия (E10–E14 с общим четвертым знаком .3) {Диа- бетический макулярный отек} (36.0)	PLA2G7 (Staurengi et al., 2015)
Зрительные расстройства и слепота (H53–H54)	Амавроз Лебера (H53.0)	PLA2G5 (Sergouniotis et al., 2011), PLA2G6C (Kmoch et al., 2015)
Болезни, характеризующиеся повышенным кровяным давлением (I10–I15)	Эссенциальная (первичная) гипертен- зия {первичная гипертония} (I10)	PLA2G7 (Celovska et al., 2021)
	Гипертензивная болезнь сердца (гипертоническая болезнь сердца с преимущественным поражением сердца) (I11)	PLA2G7 (Lv et al., 2021)
Ишемическая болезнь сердца (I20–I25)	Острый инфаркт миокарда (I21)	PLA2G2A (Exeter et al., 2012), PLA2G4A (Hartiala et al., 2012), PLA2G5 (Ishikawa et al., 2005), PLA2G7 (Serebruany et al., 1998; Zhang M.M. et al., 2019; Tao et al., 2020; Sun L. et al., 2021)
	Ишемическая болезнь сердца (I20–I25)	PLA2G2A (Kugiyama et al., 1999; Mallat et al., 2010), PLA2G4A (McHowat et al., 1998), PLA2G5 (Mallat et al., 2010; Vargas-Alarcon et al., 2014), PLA2G7 (Iadecola, Alexander, 2001; Sun L. et al., 2021), PLA2G10 (Mallat et al., 2010), PLA2G15 (Packard et al., 2000)
Другие болезни сердца (I30–I52)	Синдром Барта – Кардиомиопатия (I42.0)	PLA2G6E (VIE) (PNPLA2ζ) (Fischer et al., 2007), PLA2G7 (Ichihara et al., 1998)
	Сердечная недостаточность (I50)	PLA2G4B (Moon et al., 2017), PLA2G6E (Moon et al., 2017)
Цереброваскулярные болезни (I60–I69)	Внутричерепное кровоизлияние (I61)	PLA2G7 (Yoshida et al., 1998)
	Инфаркт мозга (ишемический инсульт) (I63)	PLA2G2A (Smith et al., 2021), PLA2G7 (Satoh et al., 1992; Liu Y. et al., 2021)
Болезни артерий, артериол и капилляров (I70–I79)	Атеросклероз (I70)	PLA2G2A (Menschikowski et al., 1995; Hurt-Camejo et al., 2001; Murakami et al., 2011; Sun C.-Q. et al., 2016), PLA2G3 (Sato et al., 2008), PLA2G5 (Quach et al., 2014), PLA2G7 (Macphee, Suckling, 2002; Cojocararu et al., 2010), PLA2G10 (Gora et al., 2009)

#### Продолжение приложения 4

Группы заболеваний (код МКБ указан в скобках)	Заболевания (код МКБ указан в скобках)	Фосфолипазы A2, вовлеченные в развитие заболевания
Грипп и пневмония (J09–J18)	Пневмония без уточнения возбудителя (J18)	PLA2G2A (Masuda et al., 2005), PLA2G5 (Hurley, McCormick, 2008)
Другие болезни верхних дыхательных путей (J30–J39)	Хронический синусит {в статье «хронический риносинусит»} (J32)	PLA2G2E (Liu Z. et al., 2007)
Хронические болезни нижних дыхательных путей (J40–J47)	Другая хроническая обструктивная легочная болезнь (J44)	PLA2G2D (Takabatake et al., 2005; Igarashi et al., 2009)
	Астма (J45)	PLA2G2A (Calabrese et al., 2000; Hallstrand et al., 2011), PLA2G2D (Quach et al., 2014), PLA2G4A (Sokolowska et al., 2007, 2010), PLA2G5 (Munoz et al., 2007), PLA2G7 (Tsukioka et al., 1996; Kuczia et al., 2019), PLA2G10 (Hallstrand et al., 2011; Henderson et al., 2011)
Другие респираторные болезни, поражающие главным образом интерстициальную ткань (J80–J84)	Синдром респираторного расстройства (дистресса) у взрослого {Острый респираторный дистресс-синдром (ОРДС, ORDS)} (J80)	PLA2G2A (Nakos et al., 2005; Kitsioulis et al., 2009), PLA2G5 (Ohtsuki et al., 2006; De Luca et al., 2011b), PLA2G7 (Grissom et al., 2003), PLA2G10 (Touqui, Alaoui-El-Azher, 2001), aiPLA2 (peroxiredoxin 6) (Yang D. et al., 2018)
Болезни пищевода, желудка и двенадцатиперстной кишки (K20–K31)	Язва желудка (K25)	PLA2G2A (Faioni et al., 2014)
	Пептическая язва неуточненной локализации (K27)	PLA2G4A (Faioni et al., 2014)
	Полип желудка и двенадцатиперстной кишки (K31.7)	PLA2G4A (Umeno et al., 2010)
Неинфекционный энтерит и колит (K50–K52)	Болезнь Крона (регионарный энтерит) (K50)	PLA2G2A (Minami et al., 1992–1994), PLA2G4A (Brooke et al., 2014), PLA2G7 (Kald et al., 1996)
	Язвенный колит (K51)	PLA2G2A (Minami et al., 1992–1994; Haapamaki et al., 1997); PLA2G2E (Yang S.-K. et al., 2013; Quach et al., 2014)
Другие болезни кишечника (K55–K64)	Язва кишечника (K63.3)	PLA2G4A (Adler et al., 2008)
Болезни брюшины (K65–K67)	Перитонит (K67)	PLA2G2A (Buchler et al., 1989a)
Болезни печени (K70–K77)	Алкогольная болезнь печени (K70)	PLA2G6D (Romeo et al., 2008; Yuan et al., 2008; Tian et al., 2010; Zhang Y. et al., 2018)
	Алкогольный гепатит (K70.1)	PLA2G6D (Beaudoin et al., 2017)
	Фиброз или цирроз печени (K74)	PLA2G6D (Stickel et al., 2011; Krawczyk et al., 2011; Trepo et al., 2011a; Buch et al., 2015; Kupcinkas et al., 2017)
	Фиброз печени (K74.0)	PLA2G6D (Rotman et al., 2010; Trepo et al., 2011b; Kupcinkas et al., 2017)
	Жировая печень (дегенерация печени), не классифицированная в других рубриках {неалкогольная жировая болезнь печени; стеатоз печени} (K76.0)	PLA2G6D (PNPLA3) (iPLA2ε) (Romeo et al., 2008; Hotta et al., 2010; Rotman et al., 2010; Speliotis et al., 2011; Trepo et al., 2011b; Hernaez et al., 2013; Kitamoto et al., 2013; Wang X. et al., 2016; Chung et al., 2018; Namjou et al., 2019), PLA2G7 (Colak et al., 2012)
Болезни желчного пузыря, желчевыводящих путей и поджелудочной железы (K80–K87)	Острый панкреатит (K85)	PLA2G2A (Buchler et al., 1989b; Talvinen et al., 2009), PLA2G1B (Kurihara et al., 1995; Phillips et al., 2016)
	Другие хронические панкреатиты (K86.1)	PLA2G1B (Ewers et al., 2022), PLA2G7 (Ma et al., 2017)
Дерматит и экзема (L20–L30)	Атопический дерматит (L20)	PLA2G2A (Quach et al., 2014), PLA2G2F (Murakami et al., 2002)
Папулосквамозные нарушения (L40–L45)	Псориаз (L40)	PLA2G2A (Forster et al., 1985), PLA2G2F (Yamamoto et al., 2015), PLA2G4D (Cheung et al., 2016), PLA2G7 (Kiluk et al., 2020)

#### Продолжение приложения 4

Группы заболеваний (код МКБ указан в скобках)	Заболевания (код МКБ указан в скобках)	Фосфолипазы А2, вовлеченные в развитие заболевания
Крапивница и эритема (L50–L54)	Крапивница (L50)	PLA2G4A (Escobar et al., 2021)
Болезни придатков кожи (L60–L75)	Розацеа {глазная Розацеа} (L71)	PLA2G2A (Kari et al., 2005)
Артропатии (M00–M25)	Ревматоидный артрит неуточненный (M06.9)	PLA2G2A (Pruzanski et al., 1988; Jamal et al., 1998; Leistad et al., 2004; Masuda et al., 2005), PLA2G2F (Urazov et al., 2022), PLA2G4A (Leistad et al., 2004), PLA2G5 (Leistad et al., 2004; Masuda et al., 2005; Boilard et al., 2010), PLA2G10 (Masuda et al., 2005)
	Юношеский (ювенильный) артрит (M08)	PLA2G7 (Tselepis et al., 1999)
Системные поражения соединительной ткани (M30–M36)	Слизисто-кожный лимфонулярный синдром (Кавасаки) (M30.3)	PLA2G7 (Minami et al., 2005)
	Системная красная волчанка (M32)	PLA2G7 (Cederholm et al., 2004)
	Болезнь Бехчета (M35.2)	PLA2G7 (Orem et al., 2013)
Гломерулярные болезни (N00–N08)	Нефротический синдром (N0.4)	PLA2G7 (Xu H. et al., 1998)
Почечная недостаточность (N17–N19)	Хроническая болезнь почек неуточненная (N18.9)	PLA2G1B (Peuravuori et al., 1993)
Болезни мужских половых органов (N40–N51)	Мужское бесплодие (N46)	PLA2G2A (Takayama et al., 1991), PLA2G8A/PLA2G8B (Selvam et al., 2019), PLA2G10 (Sato et al., 2011)
Отеки, протеинурия и гипертензивные расстройства во время беременности, родов и в послеродовом периоде (O10–O16)	Преэклампсия (O14)	PLA2G2A (Pulkkinen et al., 1993), PLA2G7 (Besenboeck et al., 2016)
	Гипертензия у матери неуточненная (O16)	PLA2G7 (Besenboeck et al., 2016)
Медицинская помощь матери в связи с состоянием плода, амниотической полости и возможными трудностями родоразрешения (O30–O48)	Плацентарные нарушения (O43)	PLA2G6A (Beharier et al., 2020)
Осложнения родов и родоразрешения (O60–O75)	Преждевременные роды и родоразрешение (O60)	PLA2G2A (Pulkkinen et al., 1993), PLA2G4D (Liu G.-J. et al., 2017)
	Послеродовое кровотечение (O72)	PLA2G7 (Li Y. et al., 2021b)
Дыхательные и сердечно-сосудистые нарушения, характерные для перинатального периода (P20–P29)	Дыхательное расстройство у новорожденного (дистресс) (P22)	PLA2G5 (De Luca et al., 2013), PLA2G10 (De Luca et al., 2013)
	Неонатальная аспирация мекония (P24.0)	PLA2G1B (De Luca et al., 2011a)
Другие врожденные аномалии (пороки развития) мозга (Q04)	Другие редукционные деформации мозга (Лизэнцефалия) (Q04.3)	PLA2G7 (Arai et al., 2002)
Симптомы и признаки, относящиеся к системе пищеварения и брюшной полости (R10–R19)	Гепатомегалия и спленомегалия, не классифицированные в других рубриках (R16)	PLA2G6E (VIE) (PNPLA2Z) (Fischer et al., 2007)
Травмы, захватывающие несколько областей тела (T00–T07)	Множественные травмы неуточненные (T07)	PLA2G7 (Sorensen et al., 1994)
Термические и химические ожоги (T20–T32)	Термические и химические ожоги неуточненной локализации (T30)	PLA2G2A (Nakae et al., 1995)

## Окончание приложения 4

Группы заболеваний (код МКБ указан в скобках)	Заболевания (код МКБ указан в скобках)	Фосфолипазы A2, вовлеченные в развитие заболевания
Токсическое действие веществ, преимущественно немедицинского назначения (T51–T65)	Токсическое действие других неорганических веществ (T57): Мышьяка и его соединений (T57.0)	PLA2G2C (Konkel, 2015), PLA2G4C (Argos et al., 2015)
Другие и неуточненные эффекты воздействия внешних причин (T66–T78)	Анафилаксия – Анафилактический шок неуточненный (T78.2)	PLA2G7 (Vadas et al., 2008; Есакова и др., 2015)
	Ангионевротический отек (T78.3)	PLA2G4A (Escobar et al., 2021)
Временные обозначения новых диагнозов неясной этиологии или для использования в чрезвычайных ситуациях (U00–U49)	COVID-19, вирус идентифицирован (U07.1)	PLA2G2A (Bock, Ortea, 2020; Snider et al., 2021), PLA2G4A (Bock, Ortea, 2020; Theken et al., 2021), PLA2G7 (Li Y. et al., 2021a)
	Состояние после COVID-19 (U09)	PLA2G4C (Bohnacker et al., 2022)
	Мультисистемный воспалительный синдром, связанный с COVID-19 неуточненный {MIS-C} (U10.9)	PLA2G2A (Diorio et al., 2021)

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## Приложение 5

### Белковые последовательности гомологов PLA2 у животных

>Hom\_NP\_056530\_2\_Gr3

MGVQAGLFGMLGFLGVVALGGSPALRWYRTSCHLTKAVPGNPLGYLSFLAKDAQGLALIHARWDAHRRLQSCSWEDEPELTAAYGALCAHETAWGSFIHTPGPELQRALATLQSQWEACRALEESPAGARKKRAAGQSGVPGGGHQREKRGTWMPGTLWCGVGDSDAGNSSELGVFQGPDLCCREHDCRPQNI SPLQYNYGIRNYRFHTISHCDCDTRFQQCLQNHDSISDIVGVAFFNVLEIPCFVLEEQEACVAWYWWGGCRMYGTVPFLARLQPRTFYNASWSSRATSPTPSSSRPAPPKPRQKQHLRKGPPHQGSKRPSKANTTALQDPMVSPRLDVAPTGLQGPQGGLKPQGARWVCRSFRRLHDQCEHQIGPREIEFQLLNSAQEPLFHCNCTRRLARFLRLHSPPEVTNMLWELLGTTCFKLAPPLDCVEGKNCSDRPAIRVSARHLRRLQQRRLQDQKGTDERQWPWSEPLRGPMSFYNQCLQLTQAARRPDRQKSWSQ

>Pon\_XP\_002831066\_2\_Gr3

MGVLVLAGLFGMLGFLGGSPALCWYRTSCHLTKVPGNPLGYLSFLAKDAQGLALIHARWDAHRRLQACSWEDEPELTAAYGALCAHETARGSFHTPGPELQRALATLQSQWEACQAPEESPAGARKKRAAGQSGVPGGGPQREKRGTWMPGTLWCGVGDSDARNSELGVFQGPDLCCREHDCRPQNI SPLQYNYGIRNYRFHTISHCDCDIRFQQCLQNHDSISDIVGVAFFNVLEIPCFVLEEQEACVAWYWWGGCRITYGTVPFLARLQPRTFYNASWSRATSPTPSSSRPAPPKPRQKQHLRKGPPHQGSKRPSKNTTALQDPMVSPRLDVAPTGLQGPQRGLKPPQGARVCRSFRRLHDQCEHQIGPQEIKFQLLNSAQEPLFHCNCTRRLARFLRLHSPPEVTNMLWELLGTTCFKLAPPLDCVEGKDCSRDPAIKVSARHLRRLQQRRLQDQKGTDERQWPWSEPLRGPVSYFNQCLQLTQAARRPDGQKSWSQ

>>Mus\_NP\_766379\_2\_Gr3

MGVLVLLGVLAFLEGSHTRHWDSTSCHLVQPIPGNPLGSLFLGKDAQGLALFQAFWDTHHRLQVCIRQDESELITAFRALCAHEPLQHSFIQTTPGALQRALATLQSQWEACQRSQDSPTGAREKRAIEQSGAPDREHRRRRRGWTIPGTLWCGVGNASENASELGVFHGPDLCREHDQCPQTISPLQYNYGIRNYRFHTISHCDCDARFQQCLQNHDSISDIMGVAFFNVLEIPCFVLKEQEACVAVNWWGGCRAYGSTPLAHLRPRTYYNASWKAATSYTPSPQSPAPSKHPQKRGPPQQTQARRHSTTTTTTTPFQTPAISSRPDMPRGQPGVPHLGFQDGPKHQSAHRVCRSLRHLHDQCEHQIKPQETKFHLLNSAQMPLFHCNCTRRLARFLRLHSPAGTDKVDLLGTTCFKLAPQLDCAEGKGCSDRHRAIKVSARHLRQLHKSRLHFRDKGTGGALAQVPEPPGSTMSFYSQCLQVQTQAIWRRRGQKFWSS

>Rat\_NP\_001099485\_1\_Gr3

MGVLGILLGVLAFLVVPEGSHTLHWDSTSCHLVRSISGSPLGSLFLGKDAQGLALFQALWDAHRRLQVCIRQDESELIAAFRALCAHEPLRHAFIHTPGPELQRALATLQSQWEACRSEASPTGAREKRETEHRGAPAGEHQRRRRGTIPGTLWCGVGNASENASELGMFHGPDFCCREHDQCPQTISPLQYNYGIRNYRFHTISHCDCDARFQQCLRSQGDSIADIMGVAFFNVLEIPCFVLKEQETCVAWHWWGGCRITYGSLPLAHLQPRTYYNASWKAATPLTPSPQSPAPSWKRGPPQTPARHSTTTTTPPLQTPAISSRPDMMIPRGQPGVSHPLQDGPKRQGAHRVCRSLRHLHDQCEHQIKPQETKFHLLNSAQTPLFHCNCTRRLARFLRHSLPANTNKVWELLGTTCFKLAPQLNCPGKGCSDRHRAIKVSARHLRQLHQNGLHFWDKGTGEVLAQPLEPPGTLMSFYSQCLQLTQAIWRRPGGQKFWSS

>Bos\_NP\_001074379\_1\_Gr3

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>Sus\_XP\_003133023\_2\_Gr3

MGVLVLLGVLVFLGRTLGGSPALHWDSTSCHLARPIGRPLRSLSFLGKDAQGLALFHAWDGHGRLQVCSRQDEPELTAAYGALCAGEITRGSFIHTPGPELQRALATLQSQWEACRGAESPAGTREKRAAGQNGVPGIGRQWVKRGWTVPGTLWCGVGDSDAGNSSELGVFQGPDLCCREHDCRPHNVSPFYNYGIRNYRFHTISHCNCDFARFQQCLQDQDSDVSDIMGVAFFNVLAIPCFVLEEQEACVEWYWWGGCRRYGSPFARLQPRTFYNASWSSPATSLTPSPQNPALSRPQPMQHPQWPSEWKESKSPSKTNATALQAPVASPGSDRASTVQLEVTHPGFQGTGGRKPPGAHRACRSFRHLHDQCEHQIGPQETKFQLFNSAHEPLFHCNCTRRLARFLRLHGPPVVASMLWELPGMTCFKLAPPLDCAEGKGCPRDPRAFVKVSARHLRRLQQRRLQDQGTGTGDNQVWPSEDQGAPISFYNRCLQLT

>Gal\_XP\_015130838\_2\_Gr3

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DSAGNSSELGTGLFRDPDRCCREHDCGAQIAALQFNFGIRNYRPHTVSHCCDAAFRCLRALNDTISD  
LIGVTFDFLLEVPFCVLRRAEQCVRWHWWGCCERYAVVPMATMVRQSPYGTVAAPAVGSSACGAQPGAVG  
AAERCEAVPASAAGRRGLRGLCRAYRHLDRCEHRIAPREAKYGLRNGGARTLFHCNCTRRMVRSLRRAR  
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GDALYERCRRVALEQGMGAPQHAPR

>Ano\_XP\_016852564\_1\_Gr3

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HWWGGCKEYGFVPLAHLVQSHYQPPVPTTQQPSLATRPSPHGRRRGKGRKRRPHLEPASASAPALTPAH  
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>Xen\_XP\_041421615\_1\_Gr3

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WFWWGGCKKSDLVKAEQKQAVFNYPHPSGLQASIASLHGDTLAPTSPTYTQAPLVFSTVFGGIKRRR  
RLLNKQLQGYTFKGFQKFRERDSQKNSERDNQDLDPKANLIPKVSNVHTQKHKQKWTBINSRHTDLSQ  
EQGEAIKAQQIGAESALALKTKVSKDSAYRDMEEETLKHKKHEKDRSKRKQRARRMKKQRRSSPGKTRNL  
INNPSNGSGEVTPMYRAK

>Api\_XP\_016768685\_2\_Gr3

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CPITISPKECIHGICNNSPFTRSHCCDAKFRRLCLQNLNSEVANTLALFFNVIQVTCFKERRPCSQWQS  
CLLVWMNSTRYEYINSPRDYTYKMFYKMLQTMREILKQKQLSSWHMSFD

>Dro\_AAM52696\_1\_Gr3

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VQRGGSGKETDPCLEEVHRKAFRLDNKRF

>Argi\_KAF8767946\_1\_Gr3

MISRRLRQWVTLTLLTAATGTETHRPWLRTIGNDFVCTRVLPDGEVERRIQKGRISAIETTVELPPEST  
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NARKFNELGYNAAADRCCRDHDHCPYTIIEGFTSQFNFFNFRFHTISHCDDERFRACLKLSGTAAGNMVG  
KLEFFNVQTKCFLFKHVKKCTKRSWWGKCLKYEKDKTAFLRDALKY

>Ixo\_XP\_029846875\_2\_Gr3

MTFVRALLLTATALTALSASEKSLYHWEEDVPGFSRTRVLSGDERERRVHYGRLTAVETSVDLDQDNALV  
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PSTNDTFRILRSARDVGADWKELLDLRLRRKCRKLRQIRLALREQQGTAGKSHPDETSVDTEYAESF  
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>Hom\_NP\_000919\_1\_Gr1B

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>Pon\_XP\_002823895\_2\_Gr1B

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DNKKYCQS

>Mus\_NP\_035237\_1\_Gr1B

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DTGKFC

>Rat\_NP\_113773\_1\_Gr1B

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>Sus\_NP\_001004037\_1\_Gr1B  
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DTKKYC  
>Gal\_NP\_001138961\_1\_Gr1B  
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TSKHCK  
>Aphi\_Q9DF56\_1\_Gr1B  
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ENKELDIATRCQ  
>Xen\_NP\_001120440\_1\_Gr1B  
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KKFC  
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EAPMKSHCKQFSQI IHSTTSLGCAPIE AQKQACHCIAINRNQDEL  
>Vip\_P31854\_2\_Gr2A  
MRTLWIVAVWLMGVEGNLFQFGNMINHVMGKH AVWSYLSYGCYCGWGGQGKPDATDRCCFVHDCCYGRA  
NGCDPKLSTYSYNFQNGNIVCGNKYGCLRHI CECDRVAAICFQKNMNTYNKKYKNYSSNCQENS DKC  
>Vip\_Q1RP79\_1\_Gr2E  
MRILWIVAVCLIGVEGNLFQFAKMINGKLGAF SVWNYISYGCYCGWGGQGT PKDATDRCCFVHDCCYGRV  
RGCNPKLAIYAYSFKKGNIVCGKNNGLRDI CECDRVAA NCFHQNQNTYNKNYKFLSSSRQRQTSEQC  
>Xen\_XP\_031762319\_1\_Gr2  
MAAWLLLLLLSVCLVLIGTQGSLLFEFGHMILLV TRRAPIRSAYFYGCHCGFGGQGPPTDEIDWCCHVHDC  
CFGRTANMGCNPKWKRYDFHFVNGTVTCNSTENSECAQQACECDREAALCFKHNDKYGWQYRVYGRHKC  
VGTAPEC

### Приложение 6

Сходство каталитических доменов sPLA2 (типы фосфолипаз А2 G1, G2, G3, G5, G10, G12)

	1b	2a	2c	2d	2e	2f	3	5	10	12a	12b
1b	0.0										
2a	2e-05	0.0									
2c	>1	2e-13	0.0								
2d	2e-08	2e-38	2e-14	0.0							
2e	3e-08	3e-30	1e-15	3e-24	0.0						
2f	1e-05	2e-10	>1	2e-20	5e-16	0.0					
3	>1	>1	>1	>1	>1	>1	0.0				
5	2e-03	1e-31	>1	6e-33	1e-29	1e-14	>1	0.0			
10	4e-08	1e-18	>1	2e-23	2e-25	2e-14	>1	9e-13	0.0		
12a	>1	>1	>1	>1	>1	>1	>1	>1	>1	0.0	
12b	>1	>1	>1	>1	>1	>1	>1	>1	>1	4e-48	0.0

В первом столбце таблицы и в первой сверху строке таблицы приведены белки sPLA2. В остальных ячейках приведено E-value сходства их каталитических доменов.

### Приложение 7

Сходство каталитических доменов cPLA2 (тип G4)

	4a	4b	4c	4d	4e	4f
4a	0.0					
4b	2e-65	0.0				
4c	2e-43	8e-36	0.0			
4d	5e-72	1e-177	2e-44	0.0		
4e	5e-81	2e-144	4e-27	4e-80	0.0	
4f	1e-89	2e-139	8e-36	1e-71	5e-126	0.0

### Приложение 8

Сходство каталитических доменов iPLA2 (G6 тип фосфолипаз А2)

	6a (pn9)	6b (pn8)	6c (pn6)	6d (pn3)	6e (pn2)	6f (pn4)
6a (pn9)	0.0					
6b (pn8)	4e-12	0.0				
6c (pn6)	>1	>1	0.0			
6d (pn3)	>1	>1	>1	0.0		
6e (pn2)	>1	>1	>1	4e-91	0.0	
6f (pn4)	>1	>1	>1	2e-47	2e-42	0.0

### Приложение 9

Сходство каталитических доменов PLA2 фактора активации тромбоцитов (тип G7)

	7b
7a	7e-103

### Приложение 10

Сходство каталитических доменов PLA2 фактора активации тромбоцитов (тип G8)

	8b
8a	3e-102

## Приложение 11

### Филогенетическое дерево sPLA2 (типы фосфолипаз A2 G1, G2, G3, G5, G10, G12)

((((((((((((Hom\_AA05919\_1\_Gr2A\_млекопитающие:0.0391271437,Pon\_XP\_002811439\_1\_Gr2\_млекопитающие:0.0502045523)96.5/100:0.1691925001,(Rat\_AAK52061\_1\_Gr2A\_млекопитающие:0.1494058409,Mus\_NP\_001076000\_1\_Gr2\_млекопитающие:0.2610329922)99.1/100:0.3105351707)87.4/99:0.1650972355,Sus\_XP\_020953258\_1\_Gr2\_млекопитающие:0.4782785883)88.9/99:0.1740960248,Bos\_NP\_001069288\_1\_Gr2\_млекопитающие:0.3721812634)98.4/100:0.3788905625,(Ano\_XP\_008123939\_2\_Gr2\_рептилии:0.8106970409,(Vip\_Q1RP79\_1\_Gr2E\_рептилии:0.4074754767,Vip\_P31854\_2\_Gr2A\_рептилии:0.2157276719)100/100:0.738706971)0/9:0.0238872306)87.1/52:0.1218613712,((((((Hom\_NP\_001354898\_1\_Gr2C\_млекопитающие:0.0967039977,Pon\_XP\_024095556\_1\_Gr2\_млекопитающие:0.0980546155)95.5/100:0.1789235929,Sus\_XP\_020951133\_1\_Gr2\_млекопитающие:0.7416257203)80.1/96:0.1235566445,(Bos\_DAA32246\_1\_Gr2C\_млекопитающие:0.3198137792,Can\_XP\_022269536\_1\_Gr2\_млекопитающие:0.1673733369)85.6/99:0.1203174655)82.2/97:0.1048944309,(Rat\_NP\_062075\_1\_Gr2C\_млекопитающие:0.0681597694,Mus\_NP\_032894\_2\_Gr2C\_млекопитающие:0.0775985006)95.3/100:0.2491076148)100/100:1.156841622,Gal\_NP\_001264843\_1\_Gr2\_птицы:0.7344575014)46.1/75:0.152504547,((((Pon\_XP\_002811422\_1\_Gr2\_млекопитающие:0.0203342114,(Hom\_NP\_073730\_3\_Gr2F\_млекопитающие:2.021E-6,Hom\_XP\_011540257\_1\_Gr2F\_млекопитающие:0.4271753783)81/100:0.0132085511)99.2/100:0.147823484,(Rat\_NP\_001103057\_1\_Gr2\_млекопитающие:0.0640639367,Mus\_NP\_036175\_2\_Gr2F\_млекопитающие:0.0501253573)100/100:0.2224268164)97.3/97:0.1028217029,Can\_XP\_022269549\_2\_Gr2\_млекопитающие:0.1466578879)89/79:0.0736853763,Bos\_XP\_024833118\_1\_Gr2\_млекопитающие:0.3477975216)73.9/75:0.0363990677,Sus\_NP\_001231803\_1\_Gr2\_млекопитающие:0.0881810247)100/100:1.525596537)82.4/63:0.2234877542,((((Pon\_XP\_002811436\_1\_Gr5\_млекопитающие:0.0412735092,Hom\_NP\_000920\_1\_Gr5\_млекопитающие:0.0238380228)97.4/100:0.178012284,(Sus\_XP\_013854492\_1\_Gr5\_млекопитающие:0.1201433241,Bos\_NP\_001179981\_1\_Gr5\_млекопитающие:0.270989298)97.8/100:0.170986568)31.3/91:0.0455093468,Can\_XP\_038516030\_1\_Gr5\_млекопитающие:0.3080549965)75.7/96:0.0472642724,(Rat\_NP\_058870\_1\_Gr5\_млекопитающие:0.1106432022,Mus\_NP\_001116426\_1\_Gr5\_млекопитающие:0.0654904409)96.1/99:0.1830894128)100/99:0.8985189333,Gal\_NP\_001264973\_1\_Gr5\_птицы:1.0113594111)37.7/86:0.1643191187,((((Hom\_NP\_036532\_1\_Gr2D\_млекопитающие:0.0193628682,Pon\_XP\_002811431\_1\_Gr2\_млекопитающие:0.0655409158)99.4/100:0.2124406513,(Can\_XP\_038513891\_1\_Gr2\_млекопитающие:0.2100486912,Bos\_AA102125\_1\_Gr2D\_млекопитающие:0.9233972627)79.5/97:0.0618777756)64.2/96:0.078343773,Sus\_NP\_001231624\_1\_Gr2\_млекопитающие:0.2395458884)97.1/99:0.3011246568,(Mus\_NP\_035239\_1\_Gr2D\_млекопитающие:0.0137974598,Rat\_NP\_001013446\_1\_Gr2\_млекопитающие:0.0811556357)91/100:0.1598803133)99.5/100:0.5951508158)73/76:0.2116712521)37.5/32:0.1613749506)79.6/60:0.1330345011,(Gal\_XP\_024998310\_1\_Gr2\_птицы:0.8265665455,((((Pon\_XP\_009232505\_2\_Gr2\_млекопитающие:0.0259738447,Hom\_Q9NZK7\_1\_Gr2E\_млекопитающие:0.0232553863)98.4/100:0.1373336883,(Rat\_XP\_038965607\_1\_Gr2\_млекопитающие:0.0313895271,Mus\_NP\_036174\_1\_Gr2E\_млекопитающие:0.0817755002)93.5/89:0.1028502584)82.6/64:0.0403128242,Sus\_XP\_020951132\_1\_Gr2\_млекопитающие:0.0669387899)90.2/64:0.0508857504,Bos\_NP\_001179015\_1\_Gr2\_млекопитающие:0.0581624905)74.9/64:0.0263494203,Can\_XP\_038513892\_1\_Gr2\_млекопитающие:0.1293262361)99.5/100:0.5893166872)95.3/100:0.3825066579)84.7/90:0.2235484953,(Xen\_XP\_031762319\_1\_Gr2\_земноводные:0.0249339257,Xen\_KAE8594670\_1\_Gr2A\_земноводные:0.1321125045)100/100:1.423372768)55.9/86:0.2127700146,Ophi\_ETE60513\_1\_Gr2A\_рептилии:1.3380977067)70.1/93:0.125901404,((((Hom\_NP\_000919\_1\_Gr1B\_млекопитающие:0.0114888315,Pon\_XP\_002823895\_2\_Gr1B\_млекопитающие:0.0182888523)99.1/100:0.1117449433,Can\_NP\_001003320\_1\_Gr1B\_млекопитающие:0.1164438046)29.2/95:0.0369143031,(Mus\_NP\_035237\_1\_Gr1B\_млекопитающие:0.0583192401,Rat\_NP\_113773\_1\_Gr1B\_млекопитающие:0.1443851913)99/100:0.1507418981)38/95:0.0316828128,(Sus\_NP\_001004037\_1\_Gr1B\_млекопитающие:0.1319724356,Bos\_NP\_777071\_2\_Gr1B\_млекопитающие:0.2083873374)92.6/100:0.0994430367)91.8/95:0.0912694539,(Gal\_NP\_001138961\_1\_Gr1B\_птицы:0.4008314485,Dan\_NP\_001107095\_1\_Gr1\_рыбы:0.9409707155)44.1/93:0.160568068,Xen\_NP\_001120440\_1\_Gr1\_земноводные:0.4990047805)54.3/88:0.1362758908)68.7/81:0.0850378801,Ano\_XP\_003226051\_1\_Gr1\_рептилии:0.2056448859)93.7/91:0.3697825214,Aphi\_Q9DF56\_1\_Gr1B\_рептилии:0.6442068169)99.2/100:0.799425116)52/78:0.2538739863,((((Hom\_CAG33166\_1\_Gr10\_млекопитающие:0.2207584679,Can\_XP\_005622132\_2\_Gr1\_млекопитающие:0.3499847862)76.3/80:0.0717970447,(Mus\_AAG43522\_1\_Gr10\_млекопитающие:0.0090125148,Rat\_EDL96169\_1\_Gr10\_млекопитающие:0.1022153508)100/100:0.2881005041)62.1/80:0.0716424182,Sus\_XP\_020941842\_1\_Gr1\_млекопитающие:0.1237179239)91.7/80:0.2327268017,Bos\_XP\_002698051\_2\_Gr1\_млекопитающие:0.2821179299)99.6/100:0.8051188879,Xen\_XP\_031749614\_1\_Gr1\_земноводные:0.8654166294)77.5/54:0.1487705945,(((Dan\_NP\_001002350\_1\_Gr1\_рыбы:0.7827668882,Ano\_XP\_008106080\_1\_Gr1\_рептилии:1.0598993801)74.2/68:0.276208437,Gal\_NP\_001171686\_1\_Gr1\_птицы:0.2579838813)18.9/30:0.2662819842,Ophi\_ETE72123\_1\_Gr10\_рептилии:0.5365606424)92.6/94:0.3800557039)74.6/97:0.4299702388)74.8/98:0.3741363152,((Argi\_KAF8786928\_1\_Gr2D\_пауки:1.5479257176,Argi\_KAF8773397\_1\_Gr10\_пауки:1.8905964986)81.1/98:0.4650049308,(((Argi\_KAF8789992\_1\_Gr10\_пауки:0.830649318,Ixo\_EEC10682\_1\_Gr10\_клещи:1.0096579312):0.9443006257,Api\_XP\_006559708\_2\_Gr1\_насекомые:1.0343914024)98.3/100:0.4011536044,Dro\_ACD99484\_1\_Gr1B\_насекомые:1.



2488392005)76.2/95:1.150216597)99.2/100:0.2750803401)7.5/38:0.594175049,((((((((Hom NP\_056530\_2\_Gr3\_млекопитающие:0.0316569705,Pon\_XP\_002831066\_2\_Gr3\_млекопитающие:0.0264113949)99.4/100:0.1206435955,(Bos NP\_001074379\_1\_Gr3\_млекопитающие:2.5982E-6,Sus\_XP\_003133023\_2\_Gr3\_млекопитающие:2.5982E-6)99.9/100:0.1558046885)96.1/99:0.1326403948,(Mus NP\_766379\_2\_Gr3\_млекопитающие:0.0749873462,Rat NP\_001099485\_1\_Gr3\_млекопитающие:0.0804577938)93.3/100:0.0999690311)99/100:0.4004614843,Gal\_XP\_015130838\_2\_Gr3\_птицы:0.8750770747)81.4/95:0.1022792134,Apo\_XP\_016852564\_1\_Gr3\_рептилии:0.4122488823)67.7/95:0.199964372,Xen\_XP\_041421615\_1\_Gr3\_земноводные:0.6121334937)93.4/99:0.3450601703,Dan NP\_001032489\_1\_Gr3\_рыбы:1.0443176064)89.4/100:0.3523232498,((Nem\_EDO41374\_1\_Gr3\_стрекающие:0.9598525629,((Api\_XP\_016768685\_2\_Gr3\_насекомые:0.7643130959,(Mac\_PAA94326\_1\_Gr3\_плоские черви:0.5156624791,Mac\_PAA67274\_1\_Gr3\_плоские черви:0.8730880395)99.4/100:0.8682479243)78.6/95:0.1935633271,Hyd\_XP\_002157393\_1\_Gr3\_стрекающие:1.6858431213)16.2/52:0.0877375395,Trichi\_KRY78816\_1\_Gr3\_круг черви:1.2319762274)21.4/58:0.1921904337)82.8/78:0.1991919434,(((Bomb\_XP\_012546104\_1\_Gr3\_насекомые:0.754907254,Dro\_AAM52696\_1\_Gr3\_насекомые:1.3214901772)71.3/96:0.152299656,Dap\_XP\_046450014\_1\_Gr3\_рачки:0.6851594305)94.1/96:0.1938048949,((Cen\_XP\_023215651\_1\_Gr3\_пауки:0.3848642287,Argi\_KAF8767946\_1\_Gr3\_пауки:0.4510735354)43/80:0.0847978024,Ixo\_XP\_029846875\_2\_Gr3\_клещи:0.5937675065)75.9/77:0.1052632031)98.8/94:0.2915895676,(((Cen\_EL91706\_1\_Gr3\_кольч черви:0.685676935,Nem\_XP\_001639593\_2\_Gr3\_стрекающие:1.1943707735)89.7/99:0.2490169039,Oct\_XP\_014780088\_1\_Gr3\_головоногие:0.8422184689)52.9/57:0.1740384543,Myt\_CAC5421460\_1\_Gr3\_головоногие:1.0716495649)39.9/57:0.0437563142,Str\_XP\_011678633\_1\_Gr3\_иглокожие:1.3780557492)88/79:0.143796654)81.8/75:0.1304730804)84.8/63:0.1738144908)97.9/99:1.484873764,((((((((Hom NP\_110448\_2\_Gr12A\_млекопитающие:2.5E-6,Pon\_XP\_024102309\_1\_Gr12A\_млекопитающие:0.0074168061)98.2/100:0.0571523188,Sus\_XP\_003129303\_1\_Gr12A\_млекопитающие:0.0480541523)71.5/88:0.0106347561,(Bos NP\_001091532\_1\_Gr12A\_млекопитающие:0.0563227165,Can\_XP\_038300289\_1\_Gr12A\_млекопитающие:0.0247812925)74.3/91:0.0075331136)87.5/97:0.0472643441,(Mus NP\_075685\_2\_Gr12A\_млекопитающие:2.779E-6,Rat\_XP\_006232066\_2\_Gr12A\_млекопитающие:0.0518345153)96.8/100:0.078653592)94.7/100:0.0986964045,((Gal NP\_001376446\_1\_Gr12A\_птицы:0.1250256631,Xen\_OCT97128\_1\_Gr12A\_земноводные:0.3388259158)69.5/72:0.0256643918,Apo\_XP\_003221839\_2\_Gr12A\_рептилии:0.1750567346)52.2/71:0.0435185783)92.7/98:0.207573116,Dan NP\_001076268\_1\_Gr12A\_рыбы:0.5226937176)92.4/97:0.3681614875,((((((((Hom NP\_115951\_2\_Gr12B\_млекопитающие:0.0072869246,Pon\_XP\_002820875\_3\_Gr12B\_млекопитающие:2.5982E-6)94.3/100:0.0364572648,Can\_XP\_038518262\_1\_Gr12B\_млекопитающие:0.0409584345)86.7/98:0.0225226852,Sus\_XP\_005671110\_1\_Gr12B\_млекопитающие:0.0633917483)56.5/90:0.0059940361,(Bos\_XP\_002698920\_1\_Gr12B\_млекопитающие:0.041174118,(Mus NP\_076019\_2\_Gr12B\_млекопитающие:0.0155964223,Rat\_XP\_346132\_5\_Gr12B\_млекопитающие:0.0225536742)100/98:0.1193415447)34.3/95:0.0120053791)97.5/91:0.1437750127,((Gal\_XP\_004942085\_1\_Gr12B\_птицы:0.1757694833,Apo\_XP\_003218588\_2\_Gr12B\_рептилии:0.1556957429)91/100:0.0734323985,Xen\_XP\_018080875\_1\_Gr12B\_земноводные:0.208913957)78.4/98:0.0863455556)93.9/92:0.2256092053,Dan\_XP\_005156576\_1\_Gr12B\_рыбы:0.3267490708)99.5/100:0.7375325839)100/100:1.010137661,Ixo\_EEC00403\_1\_Gr12A\_клещи:1.0588354991)9.8/30:0.0901763363,((Cen\_XP\_023229534\_1\_Gr12A\_пауки:0.9087109195,Tricho\_XP\_002107843\_1\_Gr12A\_пластинчатые:1.4987313973)80.5/47:0.2319128168,(Ixo\_XP\_002408157\_3\_Gr12A\_клещи:1.3309929911,Trichi\_KRX97399\_1\_Gr12A\_круг черви:2.1393608389)22.4/57:0.5628054807)0/28:0.0349597413)86.3/38:0.1640979762,((((Nem\_XP\_001625002\_2\_Gr12A\_стрекающие:0.369655661,Hyd\_XP\_047128241\_1\_Gr12A\_стрекающие:1.1603604956)79.9/99:0.2718950463,Str\_XP\_003728278\_2\_Gr12A\_иглокожие:2.537078161)37.3/52:0.1492196811,((Oct\_XP\_014769949\_1\_Gr12A\_головоногие:1.1057339629,Mac\_PAA74353\_1\_Gr12A\_плоские черви:1.2793634637)83.1/90:0.3227574856,Myt\_CAC5409284\_1\_Gr12A\_головоногие:0.8727498309)25.2/74:0.0896320478)84.3/69:0.2798857982,((Bomb\_XP\_004931802\_2\_Gr12A\_насекомые:0.2949732433,Api\_XP\_393116\_2\_Gr12\_насекомые:0.3453533818)51/99:0.1372895757,Dro NP\_001261903\_1\_Gr12A\_насекомые:0.4384969057)97.2/100:0.6985099942,(Dap\_XP\_046453849\_1\_Gr12A\_рачки:0.598219593,Dap\_XP\_046453801\_1\_Gr12A\_рачки:0.7138586386)97.6/100:0.6447861505)95.4/100:0.4417746137)86/63:0.2342322846,Can\_EL91152\_1\_Gr12A\_кольч черви:1.3059881059)70.4/66:0.0967187612)29.1/40:0.1704357712,Din\_CAD5115962\_1\_Gr12A\_кольч черви:1.3097733773)97.8/100:1.57778551)96.5/100:0.594175049);