

Figure legend for Supplementary Material

Fig. S1. Sequence alignment of P2X receptor sequences from basal fungi and other select species. For abbreviations, see Fig. 1 legend.

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                *           20           *           40           *           60           *           80
AmaP2X : M-----KRRGCELDEIFAYNT-----FKTVKVRDRR--LGLLHYTLIILGIMGYIVA-TIIVKQL--Y : 52
SpuP2X : M-----GSYISRLRTVDPDVLFGYTT-----YKVVVKVDKRY--LGLLYYTSVICIFAYII-YSIFAQEL--Y : 57
BdeP2X : M-----GARISVLKKNVDLDSYFSYDT-----SKVVRIKDYR--LGVAYYIMMIAIIVYIV-YTLVVNGS--Y : 57
DdiP2X : M-----GFSFDWDDIFQYST-----VKIVRIRDRR--LGIHLHSFLVGVIVAYIVVYSIAIKKG--Y : 52
CowP2X : M-----SESKPTLRSRVATTLGEGFRAVVAYET-----AKVVEVRSLK--LGGFNRFVQLAILGYVIGYTIIVYQKG--Y : 65
AquP2X : M-----SAASACRWLGSTTVSVLFEYDT-----PKFVHIRNKK--VGLLNRLVQLAIVGYIIGYGIVWENG--A : 60
StpuP2X : MTEVIDIQHESSSGTMSGVGTIISSAVASFFEYDT-----PKIVHIKSKK--VGLINRLQLVVIIGYIIGWVLVYKKG--Y : 72
SroP2X : M-----AGGEGKFSCTQAALSVEYDT-----LKTVHIKSKK--VGLIFRILQLVILGYIIGYAIIWQKGCY : 61
HsaP2X2 : M-----AAAQPKYPAGATARRLARGCWSALWDYET-----PKVIVVRNRR--LGVLYRAVQLLILLYFVWYVFIIVQKS--Y : 67
DreP2X2 : M-----GCLEFLKDFFLGFWDYET-----PKVMVVKDKK--LGVIIYRAVQFLVITYFIWYVFIISQKA--Y : 56
OtaP2X : M----DHRHAHRRKTVSTVPTVTSRGHGTVVHDAEERGDPIVAARGAVLRSRRGCLG-----RG--Y : 57

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                *           100           *           120           *           140           *           160           *
AmaP2X : LSTEEVTGGSVRITLPPNLT--TPDYC-----RTNADKAP-----CVFLTAGQVMP-QQEAAAMFIT : 109
SpuP2X : LKKSPPVAGFVRASAKLDVNLSAPLPSYCNIAAPPVTTNNIFKN-----C-----LRWTAQQIVFPYDGELESVFLTT : 124
BdeP2X : LDKGPPVAGSIRISAQLPDMSQLPIPSYC-----TSTAKISG-----C-----LFWTSEQIVYVYFSGELDTIFLTT : 118
DdiP2X : LFTEV-PIGSVRTSLKGPNTFASNL-TYC-----SNQQHNGSTYPTPLEC-----NYWDEQLALFP-VGQDSTFTCTT : 118
CowP2X : QTQAP-LQSTLTTKVKNVGFACQSTDSAGGRYGGRGAAIGVTTCPVIGVDPGNTTEL----SLWDSTDYVIP-ANEHDALFILT : 144
AquP2X : QDKEP-VQSVVTTKVKGVSVLN-----ATRQFMTDCNEW----PILDHVDLIVP-AQEPNSFFVVT : 115
StpuP2X : QSTDE-VMSAVTTKMKGVAYTN-----ITGEPNLNVKDTTPYNRIWDVSDYVIP-PQQTNAFFVMT : 131
SroP2X : QAADQ-AVSTVYSKVKGVAVTCNDLN-----VTSIRNCSDSDI----RVWDTADYVIP-PQESNAAFIVT : 120
HsaP2X2 : QESETGPESSIIITKVKGITTSEH-----KVDVVEEYVVKP-PEGGSVFSIIT : 112
DreP2X2 : QETETRPESVYTEMRGVALLGD-----AVQDTTEYVRP-SEGGDVISTIL : 101
OtaP2X : QRTSR-AVGNIGLKVKGQATLRDATTGAT-----LVYDANDLVMY---EPGFFIAT : 105

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                180           *           200           *           220           *           240           *
AmaP2X : RLTAATNASAL-----PESCVVPPGTPPGLTLDPAQLP-----QFPKA : 146
SpuP2X : RVTIARTPTP--S-----AMSCDFET-----ACRPPTYDELLMQTNT : 160
BdeP2X : RASIVSTP-P--P-----PVQCGSYLNATSS----LCTPPPYTTL---KS : 153
DdiP2X : RVRLSKQEA-----NCNFTDP-----TCKF-----VDEPG : 143
CowP2X : NSIVTPEQKQ--TTCAEDPQYAQA-----CTDDSECT--KYSSTRNGIMTGRCVNS-----TCEIYAWAPLELDSLS : 207
AquP2X : NLWATCNQKY--GVCPELSTIPDA-----VCLTNDSCPPGIIYRTGNGVTTGECTGFNE-----TCQIRGWCPVEDENDT : 183
StpuP2X : NMIIITPGQSK--SECPEIPNA-----ECSGPEDCQADMPIINGNGIMTGRCVNYTY--PDGNVTLTCEIRAWCPVEFDEIP : 203
SroP2X : NSVQTSNQTQPPGGWPEDPDASTKGSQRAYTCEKNADCEAVRFSRNGAVSGKCDLTK-----RCMVYGWGPVELSKDD : 196
HsaP2X2 : RVEATHSQTQ--GTCPEsirVHNA-----TCLSDADCVAGELDMLGNLRTGRCVPPYQGPSK-----TCEVFGWCPVE--DGA : 182
DreP2X2 : RKEVTHDQTQ--GTCAEHYSVANA-----NCTRSDCIQGESDFDGHGQRTGRCIRYYNYTFK-----TCEIKSWCPIE--EYA : 171
OtaP2X : ALATTL-QAR--GRCPGMEDE-----TCEDASACVVGTF--SPSGRMTGQCVAATALKDEDGKVVKRCEVEGWCPGEPEKDE : 177

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      260          *          280          *          300          *          320          *          340
AmaP2X : GAALYY-----AAAVEDYTIMVEHTVIRGYKTDI-----S--SRNGDLKGIIMMDSTGTPIRAYAPSNI SRDEQQAIARDVKGAP : 217
SpuP2X : TVSTYY-----IANVENVTLRVDHGVVRVHYDSSLGLGSR--IPSKEMEGRMLKGC SGNDKNYLSHLNWDQDYRR----- : 229
BdeP2X : LRKTTY-----IANVENITLQIDHSVRIQTAGSLGAATYDT--IAAVEMKGMKMLKGC TGNSDNYLPQLRFDSEYRA----- : 222
DdiP2X : SAKNIY-----IADIESFTILIDHTMYASSSGS-----Q--FNAVDLHGYILN--QDGDEVQIDANGTSIG----- : 200
CowP2X : PQSGSV-----IEQAGNFTVFIKNNVRFKAFGI-----S--RTNVDI-----GNTSAAAYLANCRWNKE----- : 258
AquP2X : LTDEGP-----IIDTKDFTVLVKNSISFPKLDSE-----SYRVRNIPE-----RANNKSYLSGCQFDPD----- : 236
StpuP2X : VTNKSI-----LSDAARFTVLIKNSIQFPKFNV-----S--KRNI--L-----EDSNSTYLNKQCHYSSR----- : 253
SroP2X : DASQVLGYPRQMPQVKNFMTMFIKNTIFFPHFQR-----K--FGNTGL-----GNSSASYLKSCLWNES----- : 252
HsaP2X2 : SVSQFL-----GTMAPNFTILIKNSIHYPKFHF-----S--KGNI-----ADRTDGYLKRCTFHEA----- : 231
DreP2X2 : VVREPA-----LEQAINFTVFIKNAIHFPKFKV-----L--RGNI-----KPNKPKKLLRCHYHPE----- : 220
OtaP2X : VTV-----LENVGNFTVFTTRISVEFFPGIPD-----EDGEGNMLWTNLNGTK----- : 218

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          *          360          *          380          *          400          *          420
AmaP2X : VVVRPAN--IAGDI FTVRDVLNAA-----GITSLDALSVSPSAYPGETLRHSGVVVIVMIEYANELLHPRV--IRYN--YHIST : 290
SpuP2X : --DSNTS--NHLDTFSIRDLLISANCDNTGAMIDMEGPATADGAANGETLRNSGFVISIPIVYQNRGDFRKAEEITYR--YIPAQ : 308
BdeP2X : --SNQYN--TSLDVVSVNDVLESACWAGIGNQTGLDSASTANGAYVGEAWRSSGMVISTPIAYTNRLTVGQQGYIKYS--YIPSI : 301
DdiP2X : -----VS--GKPDIMTIGQLLSFG-----GVSLDQASPVDSNV---SIRYDGVVLFVFIITYSNTYTYTSD--FKYV--YSVQQ : 265
CowP2X : -----TD--YYCPIFKLGLDVEAS-----GWK---I--EDMLVLGGVIGVNLDWTCNFDNDESE--CRPV--FSISR : 314
AquP2X : -----SEMGLFCPIFSLKQIVDMI-----NSSDGY--ESLATKGAVVGLAISWDCNLDSPH--CVPK--YSARR : 297
StpuP2X : -----TD--QFCPVFPLDTIAKEI-----GED---F--NSLAYLGA VVGVIVHWDCNLDKSLDN--CRPS--YTFRR : 309
SroP2X : -----TD--RYCPVFRIEDILSAA-----GVK---SFEQDVMAGAVITVQIRYDCNLDKNVET--CAPE--YRFTR : 310
HsaP2X2 : -----SD--LYCPIFKLGFIVEKA-----GES---F--TELAHKGGVIGVVIINWDCDLDPASE--CNPK--YSFRR : 287
DreP2X2 : -----TN--PYCPVFSLGFIAAQA-----REK---F--SEL CRTGGIIGVFINWKCDFVDVPSA--CIPT--YSFRR : 276
OtaP2X : -----PT--LGWNLWTINDLLESG-----GMS---V--KEVARKGWDGRVDVEFDCNLDRGIDA--CAPKTPYTLKQ : 276

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          *          440          *          460          *          480          *          500          *
AmaP2X : MT-----GAEAK-----QVSLIQVPGNGT---APILQQWSRHGIRIKFVQTGKVGEFELIAVLTSLVAS : 346
SpuP2X : ID-----GTEFK-----VLETKHNPDG-----SLTYLNRHGIRLVFDQAGQIGQFDMIALLTALVAA : 360
BdeP2X : VN-----GSEFT-----ILQSQLNADG-----SITYIDRHGIRIVFAQTGSIGVVSFLALTIINFAAG : 353
DdiP2X : IA-----NTIYD-----VPETIILES-----IHSRLLYKRHGIRVIFIQTGTIGSFHFQTLTLLTLVSG : 318
CowP2X : IDDPTS--TSPGYNFR-----YADYYTLPSPTDPSISVPHRDLIKAYGIRLIFVVS GEGGKFDVAAL TMSLGSG : 381
AquP2X : LDNPNAQISNGFNFR-----YPRYYRDQNGDD-----VRDVWKVYGIKFEIVVTGEGRKFSFTTLVLALGST : 359
StpuP2X : LDNRNALIAPGYNFR-----YSINYK--ENDTD-----YRTQTKAYGILFQVIVS GEAGKFDVVP LILNIASG : 370
SroP2X : IDEPNNTLSNGFNFR-----FARYAIGE-----VPSRDLYKVYGLRFVIVSGTAGKFDVFP LLVTFGSG : 370
HsaP2X2 : LDPKHVPASSGYNFR-----FAKYK--INGTT-----TRTLIKAYGIRIDVIVHGQAGKFS LIPTI INLATA : 348
DreP2X2 : LDMRKNLPSSGYYYR-----FAKYH--KDGVE-----YRSLIKAYGIRLDVIVHGHAGRFS LIPTI INTVTA : 337
OtaP2X : VMHPNT--LSEGFNIRWISGQNVGEP SAQAGVVYSNETANGPGKD-----VRLLVKGYGPRIRFEVTG VGRKFDWLT LSTTVGAG : 354

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          520          *          540          *          560          *          580          *
AmaP2X : LALFRLAVMLVEIIMLYFL-PQRDTYRSYKYDITEDFSILRSTHEHTHPRHHHSVLSPPMRTASAPPLSAPSALAARSVLIPKPA : 430
SpuP2X : MALLRIATLIVEVLMLTVM-PQRNLYSQAKFESTEDFSIDRLSEK-----VGKDDLKVRT : 416
BdeP2X : LGLLSVATLICDMLLYVF-PRKEKYAACKIQQTEEFNLAVARTSI-----V----- : 400
DdiP2X : LGLLAVATTVVDQLAIRLL-PQRKSYSSLKFQVTESMSNPMKKRITT-----DEGEDVLYTR : 374
CowP2X : LALLGLATLLCDFFMTHFF-AKKDYREKKFELVDDLPLDQTF SRL-----VGG----- : 430
AquP2X : IALLAIATTVDVIALYLL-KKGTYYREKKYQKVAKED----- : 396
StpuP2X : LALLSLASIMADICVLYLL-KKRFLYRQKKFQLVDDIPYEDADDGDR-----SE----- : 418
SroP2X : LGLLSLATIVADLLVTKCL-RNAEFYYDRKYEIVNEDE----- : 407
HsaP2X2 : LTSVGVGSFLCDWILLTFM-NKNKVYSHKKFDKVCTPSHPSGSGWPVT-----LARVLGQAPP : 404
DreP2X2 : MTSVGICSIICDWIMLTFI-DKNEVFSEKKFDDVSKQP----- : 374
OtaP2X : VAFLGIASLVVNAVMMYCSGPKSKQYESWLF AEFHDTPYGSTEEAT----- : 400

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          600          *          620          *          640          *          660
AmaP2X : SVATGSI SVSETSPSSVFGAESC VGSAVGMVNGSAVGSRSRSTLVNAATPAGSPLAKGVAVGDRVQPGP : 501
SpuP2X : TQPLSGRPDDEPDKKVEDIDIGAAMQLYGP NKV----- : 450
BdeP2X : ----- : -
DdiP2X : IEGL----- : 378
CowP2X : -----PRRSEVAVVPSTSTSVG SVQGGNTASEKSPLLQEDQRHTWS : 472
AquP2X : -----EESVTLKALNHSQEKSP LLREKRKE--- : 421
StpuP2X : ----- : -
SroP2X : -----VEGEAINVTIRQKPEEDTPLLH----- : 429
HsaP2X2 : EPGHRSEDQHPSPPSGQEGQQAECGPAFPPLRPCPI SAPSEQMVDTPASEPAQASTPTDPKGLAQL---- : 471
DreP2X2 : -----SQPITTDFTLTSYGSTHSDLS DGVPL---- : 400
OtaP2X : ----- : -

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