

Supplementary materials

IsPETase	-----MNFR-----ASRLMQAAVLGGLMAVSAA	24
SbIipase	-----MPPDC--VL-----PRRLAAAAALLASATLVPLS	26
RgDLH	-----MFGKLPFAR-----ASLAVGALLLSAA	22
RdPETase	-----MNFTTL-----WRRHARACA--LAASVV----	21
AqPET_hydrolase	-----MKTT-V-----S--RIKALS--LAAAL----	17
MsPET_hydrolase	-----MRNSTTTRPRSSIISTLARLA--VTAVLAGGA	29
MesCutinase	-----MPSPTTIRPRSLVRAVAGLT--TAVLLATGG	29
MgCutinase	-----MRSPTTTRTHTLRSVARFA--VAAVLAAGG	29
Mca β Hydrolase	-----MAAVLAAGG	9
MmLipaseT	-----MRSTTTTRPRSL-TLLARLA--MTAVLAAGG	28
MaCutinase	-----MPVSTTTRPRSVLSRIGRTA--MAAVLVAGG	29
Mea β Hydrolase	-----MSSATTTTRTRPLAGRVARLA--LAATLSATA	29
MaLipaseT	-----MPTTIRSRTSVRALARLA--VAALLATGG	27
McCutinase	-----MRSPTTTRPRSAVRTVAGLA--MAAVLAAGG	29
MefCutinase	-----MSSPTTTRPRPAVRLAGLA--VAAVLATAG	29
DmLipaseT	-----MSNGYS---ACPAPYDHRGMRKHASLLA-ALPVLLAACG--TTTSTLTTP	44
CcLipase	MPLVATLGLALAAGSLAPSASAAAGDPATVETPPVV--SQRAIDEHAA--TEPQLSLD	54
PmDLH	-----MVLNRPRSP--RWRRLGVV--VATLALTG	26
AaPET_hydrolase	-----MRKRLTGAA--LA-IALGA	16
SsLipase	-----	0
Ssa β Hydrolase	-----MR-----LRRLIPSLI--PV--LALS	17
Asa β Hydrolase	-----MRN-P-----VKHLLTAAT--LVATLVAA	21
AmLipaseT	-----MR-----LRALFPAMA--L--LAASA	17
AoCutinase	-----MR-----IRSIFCALS--T--SALLL	17
Ksa β Hydrolase	-----MLEGRYMK---TVRFNTAAAVFTSALLSSQ	27
Kaa β Hydrolase	-----MK-----LDILKPLIVTLVAGMLSSA	21
AxCutinase	-----MKTTTTLI---KSTLC-----IISLSFSL	21
OaLipase	-----MN-----KSILKKLSFGTSVLLVSMN	21
AeDLH	-----MSSI K---RKLASLFAF-SAAMLLSTS	24
HsCutinase	-----MKTQSIG---KTLFSVVA--ASALLFSTS	24
MdCutinase	-----	0
PyLipaseT	-----MKHNMH---KLALSLLA--TGALMFSSA	23
TaCutinase_est2	-----MRGSHH	6
TcCutinase_2	-----	0
TcCutinase_1	-----	0
TfCutinase	-----	0
Stsa β Hydrolase	-----	0
PsLipase	-----	0
MmaLipaseT	-----	0
HpDLH	-----MPFNK-----KSVLALCG--AGALLFSMS	22

IsPETase	AT-----AQTNPYARGPNPTAASLEA-SAGPFTVRSFTVSRP	60
SbIipase	AA-----AQTNPYQRGPDPTTRDLED-SRGPFRYASTNVRSP	62
RgDLH	AV-----AQTNPYQRGPDPTVSSLEA-TRGPFSTSSFTVSRP	58
RdPETase	-L-----AMSATSGWAQQTGPDPTSASLNA-TAGPFAVSTATVT--	58
AqPET_hydrolase	-----AAATLATPALSQTSAPTSASLNA-SSGPLSVSTASVT--	53
MsPET_hydrolase	ALAV-----PAA-AQAADNPYERGPAPTSATLEA-SRGPATSSFSVSSL	72
MesCutinase	VLAA-----ASG-AQAADNPYERGPNPPTAILEA-SRGPATASQTVSSL	72
MgCutinase	VLAP-----SPA-AQAAANPYERGPAPTSAMLEA-SRGPATSSTRVSSL	72
Mca β Hydrolase	VVAT-----SSA-AQ-AANPYERGPAPTHAILEA-SRGPATSSLNVSSL	51
MmLipaseT	VLAT-----SSA-AQ-AANPYERGPAPTNAILEA-SRGPATSSTTVSSL	70
MaCutinase	ALAA-----SSGPAQAADNPYERGPAPTVALLEA-SRGPFTTASQNVSSL	73
Mea β Hydrolase	AVAA-----P-A-AAQAASPYERGPNPPTVALLEA-SRGPATSSQSVSSW	71
MaLipaseT	ALAV-----PVA--ANAASPYERGPAPTNAILEA-SRGPATSSINVSSL	69
McCutinase	VLAT-----SPG-AQAAENPYERGPAPTSAILLEA-SRGPATSSQSVSSW	72
MefCutinase	AFAA-----PPA-AQAAANPYERGPAPTVALLEA-SRGPATASQSVSSL	72
DmLipaseT	AVTP-----Q-TLSGAATNPYERGPAPTALLEA-ARGPYATASTTVPRS	87
CcLipase	APAA-----L-PPVTIAASPYERGPAPTVASILEA-ARGPFAVAQTTVSRF	97
PmDLH	GLTG-----T-QVAAAQDNPYQRGPDPTQSIIEA-PRGPFSVAETRV-S	68
AaPET_hydrolase	ATFA-----G-PAASAAENPYERGPDPPTSSIEA-PTGPFSTAETTVS-S	58
SsLipase	--LT-----G-PGARAADNPYERGPAPTASILEA-SRGPYSVSETSVSSL	41
Ssa β Hydrolase	-LAG-----V-TPATAAEAYRRGPDPTTAGIEA-PRGPFTAETTTVRS	59
Asa β Hydrolase	LVAV-----P-AGPALAANPYERGPAPTASILEA-SLGSFAIAQVTVAR	64
AmLipaseT	-VAA-----P-PAALAAASPYERGPAPTASVEA-ARGPFATATATV--S	57
AoCutinase	VGAT-----A-PAAQAANPYERGPAPTISSIQA-SRGPATASVTVAR	60
Ksa β Hydrolase	VFAITDDPVPDPVDPVDPSS-----SGTVRGPDPPTLSALESTRSGPYSVRTEVNSL	78
Kaa β Hydrolase	AFAITPSPTPTPDPTPNPSPDPGSCSGAECYIRGNPTVRALIEA-DDGPYSVRTNVSSF	80
AxCutinase	AFGGSGGGGSTG---DDLPLPDTCTSNCGYELGNPNSLSFVSA-AQGPQPVSTVSVSSS	76
OaLipase	ALSWTPSPTPNP---DPIPDPTPCQDDCDFTRGNPTPSSLEA-STGPYSVATRSVASS	76
AeDLH	VWSMNP-----DVPDTCCEGDCGYARGPDPTESFLEA-DSGPYTIATSNVSSL	71
HsCutinase	VMASNPPTPPP-----PPPSEPTDPGAGSPYQRGPNPTTSFLEG-SRGQYRVATSNVSSF	78
MdCutinase	-----ES-SSGPFSVRTSNVSSF	17
PyLipaseT	ALASNPA-----PDTGSGDSSSQYQIGPDPTVSFLEA-SSGPFSVRTSNVSSL	71
TaCutinase_est2	-HHH-----HGSAPAQAANPYERGPNPTESMLEA-RSGPFSVSEERASRF	49

TcCutinase_2	-----MANPYERGNPTDALLEA-RSGPFSVSEERASRF	33
TcCutinase_1	-----MANPYERGNPTDALLEA-SSGPFSVSEENVSR	33
TfCutinase	-----ANPYERGNPTDALLEA-SSGPFSVSEENVSR	32
Sts α _ β Hydrolase	-----AANPYERGPAPTNASIEA-SRGPYATSQTSVSSL	33
PsLipase	-----APLPDTP-----GAPFPVAVNF--DRSGPYTVSSQSEGP-	32
MmaLipaseT	-----MANPYERGPDPTESSIEA-VRGPFAVAQTTVSR	33
HpDLH	ALANNPA-----PTDPGDSGGGSAYQRGPDPSVSFLEA-DRGQYSVRSRVS	70

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IsPETase	--SGYGAGTVVYPTNA-GGTVGAIIV--PGYTARQSSIKWWGPRLASHGFVVITIDTNS	115
Sblipase	--SGYGAGTIYYPTDV-SGSVGAVAVV--PGYLARQSSIRWWGPRLASHGFVVITLDTRS	117
RgDLH	--SGYGAGTVVYPTNA-GGKVGAIIV--PGYTARQSSINWWGPRLASHGFVVITIDTNS	113
RdPETase	SPVGFGGGTIYYPTI--AGQYGVVALS--PGFTATQSSVAVLGRRIATHGFVVITINTNS	114
AqPET_hydrolase	LPRGFGGGTIYYPTV--AAKYGVIAIS--PGFTATQSSIAWLGRRIATHGFVVITINTNT	109
MsPET_hydrolase	LVSFGGGGVVYPTSTSEGTFGAIVAS--PGFTASWSSLDWLGPRIASHGFFVIGIETNT	130
MesCutinase	SVSGFGGGVIYYPTSTSEGTFGAIVAS--PGFTAYWSSISWLGPRLASHGFVVIGIETNS	130
MgCutinase	SVSGFGGGVIYYPTSTSEGTFGAIVAS--PGYTASWSSIDWLGPRLASHGFFVIGIETNS	130
Mca β Hydrolase	-VSGFGGGVIYYPTSTSQTFGAIVAS--PGYTAAWSSIDWLGPRIASHGFFVIGIETNS	108
MmLipaseT	-VSGFGGGVIYYPTTTTAGTFGAIVAS--PGYTASWSSLDWLGPRIASHGFFVIGIDTIT	127
MaCutinase	SVTGFGGGVIYYPTDTSQTFGAIVAS--PGYTAAWSSISWLGPRIASHGFVVIGIETNS	131
Mea β Hydrolase	SVTGFGGGVIYYPTTTSEGTFGAIVAS--PGYTASWSSISWLGPRLASHGFVVIGIETNS	129
MaLipaseT	SVTGFGGGVIYYPTSTAEGTFGAIVAS--PGYTASWSSISWLGPRIASHGFVVIGIETNT	127
McCutinase	SVTGFGGGVIYYPTSTAEGTFGAIVAS--PGYTAAWSSISWLGPRIASHGFVVIGIETNS	130
MefCutinase	SVTGFGGGVIYYPTSTAEGTFGAIVAS--PGYTAAWSSIDWLGPRIASHGFFVIGIETNT	130
DmLipaseT	SVSDFGGGATIIYPTSTADGTFGGVAIS--PGYTGTQASVAVLGRRIASHGFVVIVITDLS	145
CcLipase	AASGFGGGTIYPTSTAEGTFGAIVAS--PGYTAAQSSISWLGPRLASQGFVVITIDTNS	155
PmDLH	LVSFGGGGVVYPTDTSQTFGAIVAS--PGYTADQSSMSWYGPRLASQGFVVITIDTNS	126
AaPET_hydrolase	LVSFGGGGVVYPTSTAEGTGALIAIS--PGFTATQSSISWMGRRLASQGFVVITIDTNT	116
SsLipase	AVSFGGGGTIIYPTSTADGTFGAVAVS--PGYTGTQSSIAWLGPRLASQGFVVITIDTLT	99
Ssa β Hydrolase	SASGFGGGTIYYPTSTAEGTFGAIVAS--PGFTGTQSSISWYGPRLASHGFVVITIDTNS	117
Asa β Hydrolase	-VSGFGGGTIYYPTSTAEGTFGAIVAS--PGFTASQSSVAVYGPRLASQGFVVITIDTLS	122
AmLipaseT	SVSFGGGGVVYPTSTAEGTFGAIVAS--PGFTATQSSVAVLGPRLASQGFVVITINTLS	115
AoCutinase	SVSFGGGGTIIYPTSTAEGTFGAIVAS--PGFTASQSSVSWLGPRLASQGFVVITIDTNS	118
Ksa β Hydrolase	SASGFGGGTIHYPTNA-GENMGAIAVI--PGYVSYESSIEWWGPRLASWGFVVITIDTNT	135
Kaa β Hydrolase	-VSGFGGGTIHYPVGT-SGEMAAIAVI--PGYVSYESSIRWWGSRRLASWGFVVITIDTNT	136
AxCutinase	-VDGFGGGTIYYPSNI-SQEMAAISIA--PGFTNTQSAIAWWGPLLASHGFVVITIDTNS	132
OaLipase	-VSGFGGGTLHYPTNT-TGTMGAIIV--PGFLQESSIDFWGPKLASHGFVVITISANS	132
AeDLH	-VRGFGGGTIYYPVNA-EGTMAAIVVI--PGYMSYQSSISFWGPRLASHGFFVMTIDTNR	127
HsCutinase	-VSGFGGGTIHYPSNA-SGEMAAIVVI--PGYVSESSIQWWGPKLASYGFFVMTIDTNS	134
MdCutinase	-VSGFGGGTIHYPTGT-TGTMAAIVVI--PGFASAESSIAWWGPKLASHGFVVMTIDTNS	73
PyLipaseT	-VSGFGGGTIHYPTGV-NRPMAAIVVI--PGFVSAESSIDWWGPKLASYGFFVMTIGTNS	127
TaCutinase_est2	GADGFGGGTIYYPRE--NNTYGAIAS--PGYTGTQSSIAWLGERIASHGFFVIAIDTNT	105
TcCutinase_2	GADGFGGGTIYYPRE--NNTYGAVAS--PGYTGTQASVAVLGERIASHGFFVITIDTNT	89
TcCutinase_1	SASGFGGGTIYYPRE--NNTYGAVAS--PGYTGTQASVAVLGERIASHGFFVITIDTIT	89
TfCutinase	SASGFGGGTIYYPRE--NNTYGAVAS--PGYTGTQASVAVLGERIASHGFFVITIDTIT	88
Sts α _ β Hydrolase	VASGFGGGTIYYPTSTADGTFGAVVIS--PGFTAYQSSIAWLGPRLASQGFVVITIDTNT	91
PsLipase	-----SRIYRPRDLQGGVHPVILWNGTGAGPSTYAGLLSHWASHGFVVAASSTN	86
MmaLipaseT	QADGFGGGTIYYPTDTSQTFGAIVAS--PGFTAGQESIAWLGPRIASQGFVVITIDTIT	91
HpDLH	-VSGFGGGTIYYPTGT-TGTMGAVVVI--PGFVSAESSIDWWGPKLASYGFFVMTIDTNT	126

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W159 S160



IsPETase	TLDQPSSRSSQQAALRQVASLNGTSSSPIYGVKVDATARMGVMGWSMGGGSLISAANNPS	175
Sblipase	TSDQPASRASQQAALRQVVALSETRSSPIYGVKVDPNRLAVMGWSMGGGGLISARDNPS	177
RgDLH	TLDQPSSRSSQQAALRQVVALSAGTSSSPIYKNVDATRLGVMGWSMGGGSLISAKNNPS	173
RdPETase	TLDQPASRANQLIAALNYVANS--ASTTVRSRVDASRAVGGHSMGGGSLIAAQNNPS	171
AqPET_hydrolase	TLDQPDSRATQLVAALNHVLNS---SGTAVRSRIDPARLAVAGHSMGGGSLIAARDNPT	166
MsPET_hydrolase	RLDQPASRGRQLLAALDYLQVR---SSVRGRIDATRLAVAGHSMGGGGSLEAAVSRPS	185
MesCutinase	TLDQPDSRGRQLLAALDYLQVR---SSVTRIDGTRLAVAGHSMGGGGSLEASVSRPS	185
MgCutinase	RFDQPASRGRQLLAALDYLQVR---SSVRSRVDGSRRLAVSGHSMGGGGSLEAAAERPS	185
Mca β Hydrolase	RLDQPASRGRQLLAALDYLQVR---SSVRSRVDGSRRLAVAGHSMGGGGSLEAAASRPS	163
MmLipaseT	RLDQPSSRGRQLLAALDYLQVR---SSVRSRIDSSRLAVAGHSMGGGGSLEAAASRPS	182
MaCutinase	RLDQPDSRGRQLLAALDYLQVR---SSVTRIDGTRLAVAGHSMGGGGSLEAAASRPS	186
Mea β Hydrolase	RFDQPDSRGRQLLAALDYLQVR---SSVRSRIDASRQAVAGHSMGGGGSLEAASSRPS	184
MaLipaseT	RLDQPDSRGRQLLAALDYLQVR---SSVRSRIDSSRLAVAGHSMGGGGSLEAAASRPS	182
McCutinase	RLDQPDSRGRQLLAALDYLQVR---SSVRSRIDGTRLAVAGHSMGGGGSLEAAVSRPS	185
MefCutinase	RLDQPDSRGRQLLAALDYLQVR---SSVRSRIDASRLAVSGHSMGGGGSLEAAVSRPS	185
DmLipaseT	RYDYPSSRGDQLRAALRYLTTS---SAVRTRVDATRLAVMGHSMGGGGALEAAKDNPA	200
CcLipase	RYDQPSSRGDQLRAALRYLTGS---SSVRSRIDASRLAVMGHSMGGGGALEAAKDNPA	210
PmDLH	RYDQPASRGDQLLAALDYLQVR---SSVRSRIDGQRLGVMGWSMGGGGSLEAADRRP	181
AaPET_hydrolase	IYDQPASRGDQLLAALDYLQVR---SPSTVRSKIDPSRLAVAGHSMGGGGSLEASVSRPS	173
SsLipase	TLDQPDSRGRQLLAALDYLQVR---SSVRSRVDSTRIGVMGWSMGGGGSLEAAKSRRPS	154
Ssa β Hydrolase	TLDAPDSRATQLLAALDYLQVR---STVTRIDASRLGVMGWSMGGGGSLEAAEQRP	172
Asa β Hydrolase	TLDSPASRGTLAALDYLQVR---SAVRTRIDATRLGVMGWSMGGGGSLEAASRTRPA	177
AmLipaseT	TLDQPDSRGRQLLAALDYLQVR---SSVRSRIDASRLGVMGWSMGGGGSLEAASRTRPS	170
AoCutinase	TLDQPDSRGTQLLAALDYLQVR---SSVRSRVDATRLGVMGWSMGGGGSLEAASRTRPT	173
Ksa β Hydrolase	IYDQPDSRADQLSAALDHLIDSGSSSPIISGLVDASRLGVIGWSMGGGGLTKLATE-RN	194
Kaa β Hydrolase	IYDQPDSRANQLSAALDYLQVR---SSVRSRVDATRLGVMGWSMGGGGSLEAASRTRPT	195

AxCutinase	RFDQPDSRSRQLDSALS YLISQSDSSSSSISGLVDENRLATMGFSMGGGSLQSASR-NR	191
OaLipase	GFDQPASRATQLGRALDYVINQSGNSNPISGMVDTTRLGVVWWSMGGGGALQLASG-DR	191
AeDLH	ISDQPPSRRDQIEAALEYLVDQSNSSRSPPINGMVDPNRLGAVGWSMGGGGTLRLAAD-DG	186
HsCutinase	GFDQPPSRARQINSALDYLDQNNSRNSPVRGMIDTQRLGVIGWSMGGGGTIRVAGE-GR	193
MdCutinase	GFDQPPGSRATQINNALDYLDQNSSSSPINGMVDTSRLGAVGWSMGGGGTLRVAAE-GR	132
PyLipaseT	GFDQPPSRARQINNALDYLVAQNTNSRSPVNGMIDTNRLGAMGWSMGGGGTLRVAAE-GR	186
TaCutinase_est2	TLDQPDSRARQLNAALDYMLTD---ASSAVNRNRIDASRLAVMGHSMGGGGTLRLASQRPD	162
TcCutinase_2	TLDQPDSRARQLNAALDYMIND---ASSAVRSRIDSSRLAVMGHSMGGGGTLRLASQRPD	146
TcCutinase_1	TLDQPDSRAEQLNAALNHMINR---ASSTVRSRIDSSRLAVMGHSMGGGGTLRLASQRPD	146
TfCutinase	TLDQPDSRAEQLNAALNHMINR---ASSTVRSRIDSSRLAVMGHSMGGGGTLRLASQRPD	145
Stsα _β Hydrolase	TLDQPDSRGRQLLSALDYLTQR----SSVRTRVDATRLGVMGHSMGGGGSLEAAKSRTS	146
PsLipase	-----AGTGREMLACLDYLVRENDTPYGTYSGLNTGRVGTSGHSQGGGGSIMAGQD-TR	140
MmaLipaseT	RLDQPDSRGRQLQAALDHLRTN----SVVRNRIDPNRMAMVGHSMGGGGALSAAANNTS	146
HpDLH	GFDQPPSRARQINNALDYLVSQNSRSSSPVRGMIDTNRLGVIGWSMGGGGTLRVASE-GR	185

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W185

D206 I208 N212

IsPETase	LKAAAPQAPWDSST-----NFSSVTVPPTLI FACENDSIAPVNSSALPIYDSMSR-NAKQF	229
SbLipase	LKAAVPFAPWHNTA-----NFSGVQVPTLVIACENDTVAPISRHASSFYNSFSSSLAKAY	232
RgDLH	LRAAAPQAPWAQ-E-----SFSSVTVPPTLIVSCENDSIAPNSSHSFPFYNQMTN-NKKAN	226
RdPETase	LKAILPLTPWNLSST-----NFSGVQVPTLIVGADGDAVAPVASHARPPFYASLPSTVRKAY	226
AqPET_hydrolase	LKASYPMTFOWNISS-----NFSTVRVPPTMIIGADGDTVAPVGHARPPFYASLPSTFKAY	221
MsPET_hydrolase	LQAAVPIAPWNTDK-----TWGDVRVPPTLIVGGESDSVAPVSSHAVPPFYNSIPAASEKAY	240
MesCutinase	LQAAIPLAPWNTTK-----SWSSVRVPPTLIIGGEYDTVAPVSSHSEPPFYSSIPAASEKAY	240
MgCutinase	LQAAVPLAPWNLDK-----TWGLRVPTLIVGGETDTIAPVSSHSEPPFYNSIPASSEKAY	240
Mca _β Hydrolase	LQAAVPLAPWNLDK-----TWSDVRVPPTLIIGGESDSVAPVSSHSEPPFYNSIPAASEKAY	218
MmLipaseT	LQAAVPLAPWNLT-----NWSNLRVPPTLIIGGESDSVASVATHSEPPFYNSIPAASEKAY	237
MaCutinase	LQAAVPLAPWNLDK-----TWNTLQVPTLIIGGENDSVAPVATHSIPFYNSIPAASEKAY	241
Mea _β Hydrolase	LQAAVPLAPWNLDK-----SWSELRVPTLIIGGESDSVASVSSHHSIPFYNSIPAASEKAY	239
MaLipaseT	LQAAIPLAPWNLDK-----TWSDVRVPPTLIIGGESDSVAPVASHSIPFYNSIPASSEKAY	237
McCutinase	LQAAVPLAPWNLDK-----TWSDVRVPPTLIIGGESDSIAPVSSHSEPPFYSSIPASSEKAY	240
MefCutinase	LQAAVPLAPWNLDK-----TWSDVRVPPTLIIGGESDSIAPVSSHSEPPFYNSIPASSEKAY	240
DmLipaseT	LKAAIPLTPWNTDK-----SWPELTTPTLIFGAQNDSVAPVSSHAI PFYTSLASTLPKAY	255
CcLipase	LQAAIPLTPWNTDK-----TWPEVQTPTLIIGAQNDSVASVTTTHAEFPYENLPGLDKAY	265
PmDLH	LQAAIPLTGWNLRK-----NFSSVRVPPTLVVGAENDSVAPVSSHSEPPFYASLPSTLDKAY	236
AaPET_hydrolase	LQAAIPLAPWNTDK-----TWNTDQVPTPIIGGESDSVAPVSSHAEPPFYTSLTAPDKAY	228
SsLipase	LQAAIPLTPWNLDK-----SWPEVTTPTLIVGADGDSIAPVSSHAEPPFYGLSRSSLDKAY	209
Ssa _β Hydrolase	LQAAIPLTPWNTDK-----TWPGVQTPTLIVGAENDSTAPVSSHSEPPFYTSMPSTMDKAY	227
Asa _β Hydrolase	LQAAIPLAPYHTTK-----NWSDTVPPTLIIGAENDSVAPVSSHAEPPFYTSLPASSDKAY	232
AmLipaseT	LQAAIPLAPWHTTK-----NWSSTRVPPTMIIGAESDSTAPVSSHSEPPFYTSMTSAPDKAY	225
AoCutinase	LQAAIPLAPWHTTK-----SWTTRVPPTMIIGAENDTVAPVSSHAEPPFYTSLTAAAPDKAY	228
Ksa _β Hydrolase	LKAIIPQAPWYSGF-----NSFDRITPTPTMIACESDAIAPVGHASPPFYNDIPNSTAKAF	250
Kaa _β Hydrolase	LKAAIPQAPWYSGF-----NSFNRIITPTPTLIACELDVVAPVGHASPPFYNRIPSSSTAKAF	251
AxCutinase	LSAAVPLAPWNSSG-----NSFNQIAPVTMIMACENDSTANVSSHASPPFYNTIPTSTDKAF	247
OaLipase	LSAAIPIAPWNQGG-----NRFDQIETPTLVIACENDVVASVNSHASPPFYNRIPSTTDKAY	247
AeDLH	IQAAGIPLAPWNTSS-----LGRSIEPTPTLIFACERDSIAPVRSHASPPFYNAIPSSTDKAY	242
HsCutinase	IKAAIPLAPWDTSN-----FPSRQVAAPTLLIFACESDTVARVGHASPPFYNSISGIDKAF	249
MdCutinase	LKAAIPLAPWDSSS-----TQFRSITAPPTLIFACENDAIAPVRSHADPPFYNAIPSSTDKAF	188
PyLipaseT	IKAAIPLAPWDTS-----F--RSNRTPTLIFACGSDSIAPVRTHASPPFYNQIPTSTPKIF	240
TaCutinase_est2	LKAAIPLTPWHLNK-----SWRDITVPPTLIIGAEYDTIASVTLHSPFYNSIPSPTDKAY	217
TcCutinase_2	LKAAIPLTPWHLNK-----NWSSVRVPPTLIIGADLDTIAPVLTARPPFYNSLPSTISKAY	201
TcCutinase_1	LKAAIPLTPWHLNK-----NWSSVTVPPTLIIGADLDTIAPVATHAKPPFYNSLPSTISKAY	201
TfCutinase	LKAAIPLTPWHLNK-----NWSSVTVPPTLIIGADLDTIAPVATHAKPPFYNSLPSTISKAY	200
Stsα _β Hydrolase	LKAAIPLTGWNTDK-----TWPELRTPTLVVGAADGDTVAPVATHSKPPFYESLPGLDKAY	201
PsLipase	VRTTAPITQPPYTLGLGHSASRQQRPQMGPMFLMSGGGDTIAFPYLNQAPVYRRANV--PVFW	198
MmaLipaseT	LEAAIPLQGWHTRK-----NWSSVRTPTLVVGAQLDTIAPVSSHSEAFYNSLPSPDLKAY	201
HpDLH	IKAAIPLAPWDTS-----YYASRSQAPTLLIFACESDVIAPVLQHASPPFYNSLPSSIDKAF	241

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H237 S238

IsPETase	LEINGGSHSCANSNGNS---NQALIGKKGVAWMKRFMDNDTRYSTFACENPNSTRVSDF--	284
SbLipase	LEINNGSHTCANTGNS---NQALIGKYGVAWIKRFVDNDTRYSPFLCGAPHQADLRSSRL	289
RgDLH	LVINGGSHSCANSNGNS---DAGLIGKYGVAWMKRFMDDDTRYSKFLCGAEHQADLSKRAV	283
RdPETase	GELNMGASHSTPTSGVN-----TPIGRYGVWTKRFVGDTRYSTFLCGAEHQAYATATVF	281
AqPET_hydrolase	GELNGATHFAPNT-TS-----TPIGRYAVAWMKRFVGDTRYSPFLCGAQHTSYATGLVF	275
MsPET_hydrolase	LELNNASHFFPQT-TN-----TPLAKQMVSWLKRFDNDTRYDQFLCPGPSPGV-----AI	289
MesCutinase	LELNGESHFFPQS-AD-----ALVGKQMVSWLKRFDNDTRYEPFLCPGPSPGL-----DV	289
MgCutinase	LELNGAGHFFPQS-VN-----TPTAKQMVSWLKRFDNDTRYEQFLCPGPSTGL-----AI	289
Mca _β Hydrolase	LELNNASHFFPQS-VN-----TPTAKQMVSWLKRFDVDDTRYEQFLCPGPSPGL-----AI	267
MmLipaseT	LELNNASHFFPQT-TN-----TPTAKQMVSWLKRFDVDDTRYDQFLCPGPSPGL-----AV	286
MaCutinase	LELNGASHFFPQT-VN-----TPTARQAVAWLKRFDNDTRYEQFLCPGPSPGS-----AI	290
Mea _β Hydrolase	LELNGASHFFPQT-TN-----TPTARQMVAWLKRFDVDDTRYEQFLCPGPSTGS-----AI	288
MaLipaseT	LELNGASHFFPQT-VN-----TPTAKQTVAWLKRFDVDDTRYEQFLCPGPSTGS-----AI	286
McCutinase	LELNGASHFFPQT-VN-----TPTAKQMVAWLKRFDNDTRYEQFLCPGPSPGF-----EI	289
MefCutinase	LELNGASHFFPQT-VN-----TPTARQAVAWLKRFDVDDTRYEQFLCPGPSPGS-----AV	289
DmLipaseT	LELRGASHGAPTS-TN-----TTIARQSIAWLKRFDVDDDERYAQFLCPPPSGT-----AI	305
CcLipase	LELRGASHFAPNT-SN-----TTIARQSIAWLKRFDVDDDERYAQFLCPPPSGT-----AI	314

