

Appendix A

Accession numbers for the proteins used for the lineup in Figure 3.

WP_082159544.1	Hypothetical protein [Micromonospora sp. HK10]	
WP_098188151.1	Hypothetical protein [Bacillus pseudomycooides]	Related Information
WP_028591995.1	Hypothetical protein [Paenibacillus panacisoli]	
WP_069829738.1	Hypothetical protein [Algibacter aquaticus]	Related Information
WP_080055297.1	Hypothetical protein [Spirosoma aerolatum]	
WP_103381118.1	Hypothetical protein [Pseudonocardia dioxanivorans]	
ESZ39647.1	Hypothetical protein X732_15330 [Mesorhizobium sp. L2C066B000]	
WP_029077494.1	Hypothetical protein [Bradyrhizobium sp. th.b2]	
WP_040135141.1	Hypothetical protein [Pseudoalteromonas piratica]	Related Information
ABX84114.1	Hedgehog [Nematostella vectensis]	
XP_022667503.1	Indian Hedgehog protein-like [Varroa destructor]	Related Information
ABX89897.1	Hedgehog1 [Nematostella vectensis]	Related Information
ABX89898.1	Hedgehog2 [Nematostella vectensis]	Related Information
NP_001034065.1	Hedgehog [Drosophila melanogaster]	Related Information
XP_007124731.1	Sonic Hedgehog protein [Physeter catodon]	

Appendix B

BLAST Multiple alignment input (ncbi.nlm.nih.gov) for Hh/DD-peptidase domains used for the lineup in Figure 4

>Algibacter

LKLKERVPMKEYDVVGRISGKILRGTPFEDELIKNNQKIVFKDEEGTGADHYMTSKLSEKLNLL
ADLVIQEWGANIKLRVTEAWDEDNEHASKSIHYEGRGADITTSRDRSSKLGRRLARLAVEVGLDW
VFYEDNSHVHVSMKK

>Bacillus

LNLGEKVPNKKESDVVGPIITGVIRGNPDFNTLVRSNNQDIQFKDEEGTGADFLMTSRLSDKLNT
LAILVNQEWPNIKLRVTEAWDEDNEHSSGSTHYEGRAADITTSRDRGNKLGRLAQLAVDAGFD
WVYYENKYHIHVSVKK

>Bradyrhizobium

LTQGQKVPNASETATCGAIAKKIKRTDPEFATLVSNQNASIVFKDEEGTGADRMMSRLQAKLD
ALASLVSAEWAGVKLRVTEAWDENDEHLPTALHYEGRAADITTQPPDGAKLGRLARLAVNAG
CDWVFYEDTSHVHVSVKKA

>Pseudonocardia dioxanivorans

VPLGEH
VPARAEADASGAATGVVAAGSPEFDALVRLDDPTVVVKDEEGSGADRMMPRLAELVGVLA
HVAQAFPGRRRLRLTEAWDPDGEHSHSLHYEGRAADLTVDDRDRAKLGRLAALAVQTGFDWV
LHENDHVHVSVRAG

>Mesorhizobium

LSQGQKVPNASELVTCPITKKITRTDPEFAGLVNTNAKIVFKDEENTGADRMMPRLKSKLDS
LANVVASEWPGAKLRVTEAWDEDNEHADASLHYEGRAADLTTPNPDGAKLGRLARLAVDAG
CDWVFFEDSSHIHVSVKAG

>Micromonospora

LSLGERVPNVGEASVVGPIAGKVVRGSPEFNALVKNDNPDIVFKDEEKTDADRMMPRLRDMV
NELAALVVKWPGKCLRVTGWDENNEHTAESTHYEGRAVDMTVSDLDAAKLGRLARLAVD
AGFDWVVFYENALHVVHASVKK

>Nematostella Hh1

LYFKQRPDPVDEFSLGASGRPQGKITRNSSKFNKL VACYNTDIVFKDEERTGADRLMSKRCREKL
RNLATKVKQKWKGVKLRVTEAWDEDGQHSLDSLHYEGRAVDISTSDKDPKKLPDLGSLAVDAG
FDWVYYYDRRSSIHASVRS

>Nematostella Hh2

MKIREHIPDTSETSLQASGPSRKIKRGSNGYKELITNADPNIVFREDKAGNNRRMSKRCERKLKILS
SLVRKEWIGDVKVRVIRAYDDGTSKKRHHGPHSLHFSGRALDITTSDEKRDKL PMLGRLAYRAGF
DWVYRAKAYIHASVKS

>Nematostella vectensis hedgling

LSQGSSYPYSKTEVSVC GGIRDVILRNSARFRKILVRNADTEVVFENDDCRRTTARAKSKLDVLAS
RVRQEWAGRKLKVIKAWTDQRTAQDPASLHYEGRALRLQLDNNDRSMLSRLAGLALASGFDW
VSYPLNSDYIHASVIR

>Paenibacillus panacisoli

LSVGQKVPDMLESQAAGPFTDAVHRGSNEFKNFVYNNNPLIVYDDEERGHSHHYMTKDLADQ
LNRLAELVAAEWSGIKLMVIDGWSDPDVRPPHNNRLYHEGRAADLTVSDLDTSKLGRLGWLAV
DAGFDFVHYESQDHIHVAVKV

>Pseudoalteromonas piratica

LKKGQRWPQSSEIKSSGEARQTLSCGSSLRDCMNKSANNLPVFKFEEGNFTDVQASEKLCAAIMDL
NKLVMKEWPGKTLRVTEAYDQDGEHAKFSLHNEGRAADMTVSDRDLKKLGRLGFLATKAGFS
WVYYEHNHIIHASVKR

>spirosoma

LTLGQKVPDRAEKDSLASGPFNKAILRGTPEFATLVENKNEKVVFKNEEGDGSDRMMPVLKTH
VDRDLVRSEWGAGVSLRVTEAWDDTGEHSSSHSLHYEGRAVDLTTSDLDKSKLGRLGRLAVD
AGFNWVYYENLLHIIHASVTKA

>Varroa destructor Hh

LVVKQYVPNTAEQNEIAAGRAKGAISRTSMAFRKLVPNYNTDIRFLDDEGTGADRIMTQRCRDK
LDTLAVSVMTQWPGVKLRVIESWDEYSHHKSGSLHYEGRAVDFTTDDRHHQAKYGMLARLAVE
AGFDWVYYETKRHHVASVKP

>Drosophila Hh

KQTIPNLSEYTNSASGPLEGVIRRDSPKFKDLVPNYNRDILFRDEEGTGADRLMSKRCCKEKLNVLA
YSVMNEWPGIRLLVTESWDEDYHHGQESLHYEGRAVTIATSDRDQSKYGMLARLAVEAGFDWV
SYVSRRIHCVKS

>Sperm Whale Shh

LAYKQFIPNVAEKTGASGRYEGKITRNSERFKELTPNYNPDIIIFKDEENTGADRLMTQRCCKDKL
NALAISVMNQWPGVKLRVTEGWDEDGHHSEESLHYEGRAVDITTSRDRSKYGMLARLAVEAG
FDWVYYESKAHIIHCSVKA