

Panel A

Species	Strain	Gene Name	Sequence
<i>Paenibacillus borealis</i>	DSM 13188	PBOR_03375	MRKLSYLI ILA GV LIMLYPKGSEWYNDRQQQKLLLEEAEQAYSEIVP SASAPAGADLSKPY
<i>Paenibacillus sp.</i>	FSL P4-0081	P40081_03675	MRKLSYLI ILA GV LIMLYPKGSEWYNDRQQQKLLLEEAEQAYSEIVP SASAPASADLSKPY
<i>Paenibacillus sp.</i>	FSL R5-0912	R50912_03350	MRKLSYLI ILA GV LIMLYPKGSEWYNDRQQQKLLLEEAEQAYSEIVP SASAPASADLSKPY
<i>Paenibacillus sp.</i>	FSL R7-0273	R70723_02905	MRKLSYLI ILA GV LIMLYPKGSEWYNDRQQAKLLEEAEQAYSELAPAPGPDLOKPYAEVT
<i>Paenibacillus sp.</i>	FSL H7-0357	H70357_03230	MRKFSYLI IIA GV LVMLYPKGSEWYNDRQQEKLLKEAEQAYSELAPSSPEPDLKKQYAEVT
<i>Streptococcus pyogenes</i>	MGAS10750 (serotype M4)	MGAS10750_Spy0118	MKKQSKRHRNLQNIALIVVFLI GLT ILLYPQISRIYYTIESNYQSKQFDREKSTLHQEDI
<i>Streptococcus pyogenes</i>	MGAS10750 (serotype M4)	MGAS10750_Spy0119	MLKKNQSLSLRERLIQVMFPLLFLMG CLIV LYPLMSNYYRVKQNAVTSFESAKVIVNK
<i>Streptococcus pneumoniae</i>	Hungary19A 6	SPH_0576	MVKTKKQKRNNLLGCVVFFI GM AVMAYPLVSRLYRVE SNQQIADFDKEKATLDEADIDE
<i>Streptococcus pneumoniae</i>	Hungary19A 6	SPH_0577	MDNSRRSRKKGTKKKKHPILLIIFLV GF AVAIYPLVSRYYYRIESNEVIKEFDETVSQM
<i>Streptococcus pneumoniae</i>	Taiwan19F-14	SPT_0505	MAKTKKQKRNNLLGCVVFFI GM AVMAYPLVSRLYRVE SNQQIADFDKEKATLDEADIDE
<i>Streptococcus pneumoniae</i>	Taiwan19F-14	SPT_0506	MV GL AVAMYPLVSRYYYRIESNEVIKEFDETVSQMDKAEERWRLAQAFNATLKPSEIL
<i>Streptococcus pneumoniae</i>	TCH8431/19A	HMPREF0837_10762	MAKTKKQKRNNLLGCVVFFI GM AVMAYPLVSRLYRVE SNQQIADFDKEKATLDEADIDE
<i>Streptococcus pneumoniae</i>	TCH8431/19A	HMPREF0837_10763	MSKRSYRKKSVKKKKNPFI LL IFLV GL AVAMYPLVSRYYYRIESNEVIKEFDETVSQM
<i>Streptococcus pneumoniae</i>	670-6B	SP670_0544	MVTKKQKRNNLLGCVVFFI GM AVMAYPLVSRLYRVE SNQQIADFDKEKATLDEADIDE
<i>Streptococcus pneumoniae</i>	ST556	MYY_0537	MKKKKNPFI LL IFLV GL AVAMYPLVSRYYYRIESNEVIKEFDETVSQMDKAEERWRL
<i>Streptococcus pneumoniae</i>	A026	T308_02250	MAKTKKQKRNNLLGCVVFFI GM AVMAYPLVSRLYRVE SNQQIADFDKEKATLDEADIDE
<i>Streptococcus pneumoniae</i>	A026	T308_02255	MSKRSYRKKSVKKKKNPFI LL IFLV GL AVAMYPLVSRYYYRIESNEVIKEFDETVSQM
<i>Streptococcus agalactiae</i>	2603 (serotype V)	SAG1405	MGGK FQ KNLKKSVVLRNRMNVGLI LL FLV GLL ITSY PF IS NW YNIKANNQVTFNFDNQ TQ
<i>Streptococcus agalactiae</i>	2603 (serotype V)	SAG1406	MKTKKI IKKTKKKKSNL PF I LL FLI GLS ILLYPVVSR FY YTI ES NNQ TQ DFERAAK LSQ
<i>Streptococcus agalactiae</i>	09mas018883	BSA_14860	MGGK FQ KNLKKSVVLRNRMNVGLI LL FLV GLL ITSY PF IS NW YNIKANNQVTFNFDNQ TQ
<i>Streptococcus agalactiae</i>	09mas018883	BSA_14870	MKTKNIN KK TKKKSNL PF I LL FLI GLS ILLYPVVSR FY YTI ES NNQ TQ DFERAAK LSQ
<i>Streptococcus agalactiae</i>	NGBS061	EN72_07795	MGG R FQ KNLKKSVVLRNRMNVGLI LL FLV GLL ITSY PF IS NW YNIKANNQVTFNFDNQ TQ
<i>Streptococcus agalactiae</i>	NGBS061	EN72_07800	MKTKNI IKKTKKKKSNL PF I LL FLI GLS ILLYPVVSR FY YTI ES NNQ TQ DFERAAK LSQ
<i>Streptococcus agalactiae</i>	CNCTC 10/84	W903_1421	MGG R FQ KNLKKSVVLRNRMNVGLI LL FLV GLL ITSY PF IS NW YNIKANNQVTFNFDNQ TQ
<i>Streptococcus agalactiae</i>	CNCTC 10/84	W903_1422	MKTKKI IKKTKKKKSNL PF I LL FLI GLS ILLYPVVSR FY YTI ES NNQ TQ DFERAAK LSQ
<i>Streptococcus agalactiae</i>	NEM316 (serotype III)	gbs1475	MGGK FQ KNLKKSVVLRNRMNVGLI LL FLV GLL ITSY PF IS NW YNIKANNQVTFNFDNQ TQ
<i>Streptococcus agalactiae</i>	NEM316 (serotype III)	gbs1476	MKTKNIN KK TKKKSNL PF I LL FLI GLS ILLYPVVSR FY YTI ES NNQ TQ DFERAAK LSQ
<i>Streptococcus suis</i>	05ZYH33	SSU05_2097	MMKR SQ LRK GI SKQ SI LLK LL FL FL GL VV TL YP WI SQ Y YR Y DS YK I Q S F Y E Q AQ Q LP S E
<i>Streptococcus suis</i>	05ZYH33	SSU05_2098	MI Q KK SG TT KK KK SN IP F Y LV FL IG F G IL LY PH V S N F Y Y R Y ES D Q L T S F D Q E K KT L A
<i>Streptococcus suis</i>	05ZYH33	SSU98_2100	MMKR SQ LRK GI SKQ SI LLK LL FL FL GL VV TL YP WI SQ Y YR Y DS YK I Q S F Y E Q AQ Q LP S E
<i>Streptococcus suis</i>	05ZYH33	SSU98_2101	MI Q KK SG TT KK KK SN IP F Y LV FL IG F G IL LY PH V S N F Y Y R Y ES D Q L T S F D Q E K KT L A
<i>Streptococcus suis</i>	BM407	SSUBM407_1951	MMKR SQ LRK GI SKQ SI LLK LL FL FL GL VV TL YP WI SQ Y YR Y DS YK I Q S F Y E Q AQ Q LP S E
<i>Streptococcus suis</i>	P1/7	SSU1882	MMKR SQ LRK GI SKQ SI LLK LL FL FL GL VV TL YP WI SQ Y YR Y DS YK I Q S F Y E Q AQ Q LP S E
<i>Streptococcus suis</i>	P1/7	SSU1883	MI Q KK SG TT KK KK SN IP F Y LV FL IG F G IL LY PH V S N F Y Y R Y ES D Q L T S F D Q E K KT L A
<i>Streptococcus suis</i>	SC84	SSUSC84_1903	MMKR SQ LRK GI SKQ SI LLK LL FL FL GL VV TL YP WI SQ Y YR Y DS YK I Q S F Y E Q AQ Q LP S E
<i>Streptococcus suis</i>	SC84	SSUSC84_1904	MI Q KK SG TT KK KK SN IP F Y LV FL IG F G IL LY PH V S N F Y Y R Y ES D Q L T S F D Q E K KT L A
<i>Streptococcus suis</i>	A7	SSUA7_1912	MMKR SQ LRK GI SKQ SI LLK LL FL FL GL VV TL YP WI SQ Y YR Y DS YK I Q S F Y E Q AQ Q LP S E
<i>Streptococcus suis</i>	A7	SSUA7_1913	MI Q KK SG TT KK KK SN IP F Y LV FL IG F G IL LY PH V S N F Y Y R Y ES D Q L T S F D Q E K KT L A
<i>Streptococcus suis</i>	GZ1	SSGZ1_1904	MMKR SQ LRK GI SKQ SI LLK LL FL FL GL VV TL YP WI SQ Y YR Y DS YK I Q S F Y E Q AQ Q LP S E
<i>Lactobacillus casei</i>	ATCC 334	LSEI_0457	MTKRTRRPLGLIDIVIGCLLLAG F GVLCY P FAS D AY V SY Q N Q V I DRYR Q Q E ARK N Q M V L
<i>Streptococcus anginosus</i>	SA1	DK43_00940	MK F FN LL T N L T I I A G IL I IS Y P IS Q I Y Y N Y Q T K E V K D F SS A Q L T S E D V T E R I K L A
<i>Streptococcus equi subsp. zooepidemicus</i>	H70	SZO_18280	MVKNNSAI KK Q S FL T GF V FP LL FL GL L I AS Y PL LS H Y Y R V Q N R AV Q AF E TAK R Q V D S
<i>Streptococcus suis</i>	SC070731	NJAUSS_1931	MI Q KK SG TT KK KK SN IP F Y LV FL IG F G IL LY PH V S N F Y Y R Y ES D Q L T S F D Q E K KT L A
<i>Streptococcus suis</i>	SC070731	NJAUSS_1930	MK LL FL GL VV TL YP WI SQ Y YR Y DS YK I Q S F Y E Q AQ Q LP S E EV L K R L E HAR A Y N Q T L E
<i>Streptococcus suis</i>	S735	YYK_09080	MI Q KK SG TT KK KK SN IP F Y LV FL IG F G IL LY PH V S N F Y Y R Y ES D Q L T S F D Q E K KT L A
<i>Streptococcus suis</i>	S735	YYK_09075	MMKR SQ LRK GI SKQ SI LLK LL FL FL GL VV TL YP WI SQ Y YR Y DS YK I Q S F Y E Q AQ Q LP S E
<i>Streptococcus suis</i>	JS14	SSUJS14_2054	MI Q KK SG TT KK KK SN IP F Y LV FL IG F G IL LY PH V S N F Y Y R Y ES D Q L T S F D Q E K KT L A
<i>Streptococcus suis</i>	JS14	SSUJS14_2053	MMKR SQ LRK GI SKQ SI LLK LL FL FL GL VV TL YP WI SQ Y YR Y DS YK I Q S F Y E Q AQ Q LP S E
<i>Lactobacillus casei</i>	BL23	LCABL_05230	MTKRTRRPLGLIDIVIGCLLLAG F GVLCY P FAS D AY V SY Q N Q V I DRYR Q Q E ARK N Q M V L
<i>Lactobacillus casei</i>	Zhang	LCAZH_0487	MTKRTRRPLGLIDIVIGCLLLAG F GVLCY P FAS D AY V SY Q N Q V I DRYR Q Q E ARK N Q M V L
<i>Lactobacillus casei</i>	BD-II	LCBD_0521	MTKRTRRPLGLIDIVIGCLLLAG F GVLCY P FAS D AY V SY Q N Q V I DRYR Q Q E ARK N Q M V L
<i>Lactobacillus casei</i>	LC2W	LC2W_0523	MTKRTRRPLGLIDIVIGCLLLAG F GVLCY P FAS D AY V SY Q N Q V I DRYR Q Q E ARK N Q M V L
<i>Lactobacillus casei</i>	LOCK919	LOCK919_0549	MTKRTRRPLGLIDIVIGCLLLAG F GVLCY P FAS D AY V SY Q N Q V I DRYR Q Q E ARK N Q M V L
<i>Lactobacillus casei</i>	LOCK919	LOCK919_p16	MTKRTRRPLGLIDIVIGCLLLAG F GVLCY P FAS D AY V SY Q N Q V I DRYR Q Q E ARK N Q M V L
<i>Lactobacillus casei</i>	12A	LCA12A_2465	MTKRTRRPLGLIDIVIGCLLLAG F GVLCY P FAS D AY V SY Q N Q V I DRYR Q Q E ARK N Q M V L
<i>Lactobacillus rhamnosus</i>	GG	LGG_00441	MTKRTRRPLGLIDIVIGCLLLAG F GVLCY P FAS D AY V SY Q N Q V I DRYR Q Q E ARK N Q M V L
<i>Lactobacillus rhamnosus</i>	GG	LRHM_0425	MTKRTRRPLGLIDIVIGCLLLAG F GVLCY P FAS D AY V SY Q N Q V I DRYR Q Q E ARK N Q M V L
<i>Lactobacillus paracasei subsp. paracasei</i>	8700 2	LBPG_02641	MTKRTRRPLGLIDIVIGCLLLAG F GVLCY P FAS D AY V SY Q N Q V I DRYR Q Q E ARK N Q M V L
<i>Lactobacillus paracasei</i>	N1115	AF91_01535	MTKRTRRPLGLIDIVIGCLLLAG F GVLCY P FAS D AY V SY Q N Q V I DRYR Q Q E ARK N Q M V L

<i>Clostridium novyi</i>	-	NT01CX_0210	MIKKRISIVIFIGILIFIYPKISELYYTNKQKRIIRKYDNLIEKFNKTKKQIENKDI
<i>Coprococcus catus</i>	-	CC1_21250	MRKLIKLIGLFMVFFIGVLYPAVSDIYTKYRTNESIEEFYQKYQIDETESEKKSTDSE
<i>Macrococcus caseolyticus</i>	JCSC5402	MCCL_0366	MKPEKKTKNRISNVI FGLIFFAGFSILYPMISAVVYDYEASNEVDFNKEVELLSDQQ
<i>Streptococcus suis</i>	GZ1	SSGZ1_1905	MIQKKS GKTTK KKKSNIPFYL VFLIGFGILLYPHVSNFY YRYESDQLTNSFDQEKKTLA
<i>Fingoldia magna</i>	ATCC 29328	FMG_0189	MWKKIKHN FVFLIFLLGF GVMMPVISRLY YRVDSANQVKEFDKAVKGLSKEELAKRLA
<i>Fingoldia magna</i>	ATCC 29328	FMG_0190	MKSKLKENLKYVLI FLVGF AVAMYPLISRLYR IEANSEVHDFDTNAKMDKKEIDRRRI
<i>Eubacterium limosum</i>	KIST612	ELI_4237	MIILVFLLGVLIMGYPPFSNWNQILQNRLITEYNI SSEALTPEDKDAEYNKREYNQNL
<i>Coriobacterium glomerans</i>	PW2	Corgl_0469	MAKRRKGR LFASIIAALVFFVGVGCILYPYVSDWYQKYLQSKVIRNQEI IQEKDRSSLE
<i>Trueperella pyogenes</i>	TP8	X956_01065	MGVVLVGLALIPVVS THYNNYKQREFALKYGNNVQNI DTSEREALEAREY NKRLPG
<i>Trueperella pyogenes</i>	TP6375	CQ11_06630	MNPDQTPAPT PRRSNRRATIAIGVLLGILALIPVVS THYNNYKQREFALKYGNNVQNI

Panel B

