

S.dysgalactiae -TAAAAAACAGAAAGGAAGTCTGCAATGGCCCAAC--ACAACAT--TAACATAATT 55
 S.pyogenes -AAAAAACAGAAAGGAAGTCA-ATGATGGTAAAAAC--ACAACACT--TAGCAAATT 53
 S.lutetiensis ---AAAAAACACAGGAGGAAGCTAAGATATGAACATGAC--ACAACACT--TTACAAGTT 53
 S.gallolyticus ---AAAAAACACAGGAGGAAGCTAAGAT--GAACATGAC--ACAACACT--TTACAAGTT 51
 S.agalactiae --AGAAAAATTATGAGAAAGGATGACTAGTAAATGACT--AAAAATTATTTACCAATT 56
 S.equi -TAAAAAACAGAAAGGAAATCC--AAGATGAAGCAAAC--ACAGCATA--TGATAAATT 54
 S.iniae AAAAAATAACTGAAAGGAAGTCCACA--TGACACAC--A-AACACTTAGCATCACTT 55
 S.uberis ----AAAAAACAGAAAGGAAGTCCAAAGT--AATGAAC--ACAACATGAAGCAAAT 50
 F.nucleatum ----AAATCAAAGGAGGAAGTTCGCAATGAAGCAAATACTAACACAACATATGAGATATT 56
 L.garvieae ----AAAAAACAGAAAGGAAGTCCAAAGT--AGCAAAAC--ACTTCCATGACAGCTC 42
 E.faecalis ---GGAAAATACATGACACAATTTACTA---ACGTAAA--AGAAATGCACCAATCA--T 49
 S.pasteurianus --AAAAAACACAGGAGGAAGCTAAGAT---GAACAACACACAATTC--TTACAAGTT 52
 L.lactis -AAAAAAATTAAGAAAGGAGTCCGCAT---GAAAAAC--ACAACAAT--CAACAGCTC 50
 S.parauberis AAAAAATACATGAGGAAAGTGTAGAT---GACAAAC--ACAATGATAAATCAATTAATT 54
 E.casseliflavus -----GGAGGAACAATCATGAAACTATTTATTC--CATTGCAAGTGAATCAT 46



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S.dysgalactiae GGCAAAGCTGG **CATAGATAAG--TTGTGTTTATGGATTG-----GCATAGATACGACTTT** 108
 S.pyogenes GGCAAAGCTGG **CATAGATAAG--TTGTGTTTATCAATTG-----GCATAGATACGACTTT** 106
 S.lutetiensis GGCAAAGCTGG **CATAGATAAG--TTGTGTTTATGTTGTT-----GCATAGATACGACTTT** 108
 S.gallolyticus GGCAAAGCTGG **CATAGATAAG--TTGTGTTTATGTTT-----GCATAGATACGACTTT** 105
 S.agalactiae GGCAAAGCTGG **CATAGATAAG--TTGTGTTTATGGT-----GCATAGATACGACTTT** 108
 S.equi GGCAAAGCTGG **CATAGATAAG--TTGTGTTTATGGTTA-----GCATAGATACGACTTT** 108
 S.iniae GGCAAAGCTGG **CATAGATAAG--TTGTGTTTATGGAGC-----GCATAGATACGACTTT** 107
 S.uberis GGCAAAGCTGG **CATAGATAAG--TTGTGTTTATGCATC-----GCATAGATACGACTTT** 104
 F.nucleatum GGCAAAGCTGG **CATAGATAAG--TTGTGTTTATGGTTAG-----GCATAGATACGACTTT** 111
 L.garvieae ATTTCTTTTGG **GCAGATAAG--TTGTGTTTATGCTTA-----GCATAGATACGACTTT** 94
 E.faecalis GGCAAAGCTGG **CATAGATAAG--TTGTGTTTATGATTC-----GCATAGATACGACTTT** 102
 S.pasteurianus GGCAAAGCTGG **CATAGATAAG--TTGTGTTTATGTTT-----GCATAGATACGACTTT** 106
 L.lactis TTTATTTTGG **GCAGATAAG--TTGTGTTTATGCAATG-----GCATAGATACGACTTT** 104
 S.parauberis GGCAAAGCTGG **CATAGATAAG--TTGTGTTTATGATTG-----GCATAGATACGACTTT** 108
 E.casseliflavus GGCAAAGCTGG **CATAGATAAG--TTGTGTTTATGGACCTCATTCCATAGATACGACTTT** 103



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S.dysgalactiae T--AGAGTACTTCTAAAAGG--**TATCATG**---CGCTA---AGATTGGATT--- 151
 S.pyogenes T--AGAGTACTTCTAAAAGA--**TATCATG**---CGCTG---ACATTGGATT--- 149
 S.lutetiensis T--GGAGTACTTCTAAAAG--**TATCATG**---CGCTA---ATCTTAGTTACAA-G 153
 S.gallolyticus T--GGAGTACTTCTAAAAG--**TATCATG**---CGCTA---ATCTTAGTTACAAAG 151
 S.agalactiae T--GGAGTACTTCTAAAAG--**TATCATG**---CGCTG---GTCTAGTCTAACAA-- 153
 S.equi T--AGAGTACTTCTAAAAGG--**TATCATG**---CGCTG---ACATTGGATTCA-- 153
 S.iniae T--AGAGTACTTCTAAAAG--**TATCATG**---CGCTG---ATTTTGGATTGA-- 151
 S.uberis T--AGAGTACTTCTAAAAG--**TATCATG**---CGCTA---ATACTCTGAT--- 145
 F.nucleatum T--AGTGTACTCTAAAAG--**TATCATG**TCAGCGATATAGAAATCCTTAATATATAT 165
 L.garvieae T--GAGTACTTCTAAAAG--**TATCATG**---CGCTG---CCCGTAT--- 127
 E.faecalis AGAAGACTTATCTAAAAGTG--**TATCATG**---CTG---GTTATATTCAA-G 147
 S.pasteurianus T--GGAGTACTTCTAAAAG--**TATCATG**---CGCTA---ATCTTAGTTACAGGA 152
 L.lactis T--GAGTACTTCTAAAAG--**TATCATG**---CGCTG---CCGGATTCAA-- 137
 S.parauberis T--AGAGTACTTCTAAAATAC--**TATCATG**---CGCTA---GTCTTAGTATCA-- 153
 E.casseliflavus TTAGAGAACCTCTAAAAGTGCTG--**TATCATG**---TGGTA---GTTGAATTT--- 149



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S.dysgalactiae -CACAAAGAGC-GCCTAGTAG--TCA-TTACTAAGTGCCTTTT 188
 S.pyogenes -CACAAAGAGC-GCCTAGTAA--TCA-TTACTAAGTGCCTTTT 186
 S.lutetiensis ATAAAAAGC-GTGTAGTAA--GCAATTAAGTGCCTTTTTC 192
 S.gallolyticus ATAAAAAGC-GTGTAGTAA--GCAATTAAGTGCCTTTTTC 190
 S.agalactiae -ATAGAGAGC-GCAAGTAAAG-TTATTTATCAGGCGCTTTT 192
 S.equi --AAAAAGC-GCCTAGTAG--CTGATTAAGTGCCTTTTTC 190
 S.iniae --CAAAAAGC-GCCTAGTAT--CTGTTTACTAAGTGCCTTTT 188
 S.uberis --AAAAAGC-GCTTAGTAGACTCTGACTGGGTGCCTTTT 184
 F.nucleatum GGATAAAAGCTGCATGTAATGATTAAGTGCCTTTTTC 207
 L.garvieae --AAAAAGC--CGGTTAAA--TTGCCCGGCTTTTTC 158
 E.faecalis AAGAAAAACAGCACATAGAGGACCATCTATGTGGTGTTC 189
 S.pasteurianus TAAAAAGGC-GTGTAGTAA--TTTACTAGACGCTTTTTC 191
 L.lactis ---AGAAGACC-GATAGTAAA--AACTATCTGGTCTTTTTC 173
 S.parauberis ---AAAAAGC-GCTTAGTAA--TTTACTTTGCGCTTTTTC 188
 E.casseliflavus ---ATCGCCGCATAGGACA--AGCTTCTATGCGGCTTTT 183



Abbreviation	species	Acc. number	downstream protein	Protein annotation
S.agalactiae	<i>Streptococcus agalactiae</i> NEM316	NC_004368.1	Gbs1262	putative ABC transport system substrate-binding protein
S.equi	<i>Streptococcus equi</i> subsp. equi 4047	emb FM204883.1	SEQ_1412	putative exported protein
S.iniae	<i>Streptococcus iniae</i> strain ISNO	gb CP007587.1	DW64_03725	peptide ABC transporter substrate-binding protein
S.uberis	<i>Streptococcus uberis</i> 0140J	emb AM946015.1	SUB1110	putative exported protein
S.gallolyticus	<i>Streptococcus gallolyticus</i> subsp. gallolyticus ATCC 43143	dbj AP012053.1	SGGB_0836	putative ABC transport system substrate-binding
S.pyogenes	<i>Streptococcus pyogenes</i> M1 GAS	gb AE004092.2	M5005_Spy_0743	ABC transporter substrate-binding protein
F.nucleatum	<i>Fusobacterium nucleatum</i> subsp. animalis 7_1	gb CP007062.1	FSDG_01183	tryptophan synthase beta chain
L.garvieae	<i>Lactococcus garvieae</i> ATCC 49156	dbj AP009332.1	LCGT_0748	amino acid transporter protein
E.faecalis	<i>Enterococcus faecalis</i> str. Symbioflor	emb HF558530.1	YP_007152865.1	ABC transporter, substrate binding protein
L.lactis	<i>Lactococcus lactis</i> subsp. cremoris KW2	gb CP004484.1	kw2_1881	amino acid permease
S.lutetiensis	<i>Streptococcus lutetiensis</i> 033	gb CP003025.1	KE3_0731	putative ABC transport system substrate-binding protein
S.pasteurianus	<i>Streptococcus pasteurianus</i> ATCC 43144	dbj AP012054.1	SGPB_0721	putative ABC transport system substrate-binding protein
S.parauberis	<i>Streptococcus parauberis</i> KCTC 11537	NC_015558	STP_0962	putative ABC transport system
S.dysgalactiae	<i>Streptococcus dysgalactiae</i> subsp. equisimilis RE378	NC_018712	GGG_1139	ABC transporter, substrate binding protein
E.casseliflavus	<i>Enterococcus casseliflavus</i> EC20	NC_020995	ECBG_00979	ABC transporter, substrate binding protein