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Cloning, Expression, and Functional Characterization of Secondary Amino Acid Transporters of *Lactococcus lactis*

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Supplementary Table S1. Primers used in this study.

Primer name	Sequence ^a	Gene/region
lysQ-fw	gcgaaac catgg aaaatcaaatcaggtaagcgc	<i>lysQ</i>
lysQ-rv	gcgaaat ctaga atattgatgtctatttcgacttactgc	<i>lysQ</i>
lysP-fw	gcgaaac catgg aaaattcttcaactcaactactgagacgc	<i>lysP</i>
lysP-rv	gcgaaat ctaga tacattagctaaagagcttttgg	<i>lysP</i>
0376-fw	gcgaaac catgg aagacattcaaaagaatcatgaagccc	<i>llmg_0376</i>
0376-rv	gcgaaat ctagac gcttttcaatgaattttcagagactgc	<i>llmg_0376</i>
0375-fw	gcgaaac catgg atacaaatcaaatgatgaaaacatacaaaaacagcc	<i>llmg_0375</i>
0375-rv	gcgaaat ctaga agcagaaactgaagaagaaactacagc	<i>llmg_0375</i>
2011-fw	gcgaaat catg aaaattctacaggcttgaagtcttc	<i>llmg_2011</i>
2011-rv	gcgaaact gcag gtggtttaacataaactgttcgtcagc	<i>llmg_2011</i>
1452-fw	gcgaaac catgg acacaaaaaaattagatggttaccg	<i>llmg_1452</i>
1452-rv	gcgaaat ctaga gcttttctcatagatagagtcc	<i>llmg_1452</i>
brnQ-fw	gcgaaat catga aggagaaactagctggtaaa	<i>brnQ</i>
brnQ-rv	gcgaaact gcag cccaggagtggttactaatg	<i>brnQ</i>
arcD1-fw	gcgaaac catgg acgcagaaaataaaaaaggaattggcc	<i>arcD1</i>
arcD1-rv	gcgaaat ctaga ctttgtcaaatagcattcccacc	<i>arcD1</i>
arcD2-fw	gcgaaac catgg aaaacaagaaaacaaaagg	<i>arcD2</i>
arcD2-rv	gcgaaat ctaga tctcatcaattatttctccattcacc	<i>arcD2</i>
yrfD-fw	gcgaaac catgg aaaatgaaaggaaaaatttagtctg	<i>yrfD</i> (IL1403)
yrfD-rv	gcgaaat ctaga ggacggaatgaaaccataacc	<i>yrfD</i> (IL1403)
lysQ-fl1-fw	gcgaaat ctaga cttgcttgcctgtatttgc	upstream <i>lysQ</i>
lysQ-fl1-rv	gcgaaaggat cca ataagcaaggactgctcc	<i>lysQ</i>
lysQ-fl2-fw	gcgaaag aattc cttttatgctgttctagca	<i>lysQ</i>
lysQ-fl2-rv	gcgaaact gcag agcatcaagacctggtgaac	downstream <i>lysQ</i>
lysP-fl1-fw	gcgaaact gcag acgaccgacaaatcgctccc	upstream <i>lysP</i>
lysP-fl1-rv	gcgaaa agatct ttaagggcgttttacttgcg	<i>lysP</i>
lysP-fl2-fw	gcgaaa agatct gaccttttagtaacgttagg	<i>lysP</i>
lysP-fl2-rv	gcgaaa agctt ttagagaactcctcaaaagcgg	downstream <i>lysP</i>
2011-fl1-fw	gcgaaact gcaga agtccaatgcaactctccg	upstream <i>llmg_2011</i>
2011-fl1-rv	gcgaaaggat cca aatagtctgatccaatcgc	<i>llmg_2011</i>
2011-fl2-fw	gcgaaaggat cca aatccttggacattgtccg	<i>llmg_2011</i>

2011-fl2-rv	gcgaaag cgccg cttaagctgaatggtcactcgc	downstream <i>llmg_2011</i>
1452-fl1-fw	gcgaaact gcag tgacaccagaggaaatgtcc	upstream <i>llmg_1452</i>
1452-fl1-rv	gcgaaag gatcc caataaatgcgacggtaaacc	<i>llmg_1452</i>
1452-fl2-fw	gcgaaag gatcc cttaccttcattgctcgtcg	<i>llmg_1452</i>
1452-fl2-rv	gcgaaag cgccg cggtgatctcgcgaacatttcc	downstream <i>llmg_1452</i>

^a Restriction sites are shown in bold

Supplementary Table S2

	Species	<i>Lactococcus lactis</i>		<i>Lactococcus lactis</i>		<i>Lactococcus lactis</i>		<i>Lactococcus lactis</i>	
	Subspecies	<i>lactis</i>		<i>lactis</i>		<i>cremoris</i>		<i>cremoris</i>	
	Strain	II1403		KF147		MG1363		SK11	
Structural class/ superfamily/family	Transporter	id	gi	id	gi	id	gi	id	gi
ST2/APC/AAT	HisP	LYSQ	15672348	LYSQ	281490913	LYSQ	125623255	LACR0412	116511225
ST2/APC/AAT	LysP	LYSP	15674175	LYSP	281492849	LLMG2477	125625233	LACR2505	116513141
ST2/APC/AAT	SerP1	YDGC	15672338	YDGC	281490903	LLMG0376	125623245	LACR0402	116511215
ST2/APC/AAT	SerP2	YDGB	15672337	YDGB	281490902	LLMG0375	125623244	LACR0401	116511214
ST2/APC/AAT		YIBG	15672791	YIBG	281491304	LLMG1747	125624537	LACR0868	116511625
ST2/APC/AAT	FywP	YSJA	15673804	YSJA	281492435	LLMG2011	125624786	LACR2012	116512699
ST2/APC/CAT	BcaP	CTRA	15672093	YBBD	281490574	CTRA	125622997	LACR0097	116510929
ST2/APC/CAT		YAGE	15672050	YAGE	281490542	LLMG0081	125622960	LACR0060	116510893
ST2/APC/APA	ArcD1	ARCD1	15674017	ARCD1	281492638	ARCD1	125625073	LACR2320	116512981
ST2/APC/APA	ArcD2	ARCD2	15674013	ARCD2	281492634	ARCD2	125625069	LACR2316	116512977
ST2/APC/GGA	GadC	GADC	15673273	GADC	281491811	GADC	125624008	LACR1412	116512133
ST2/APC/GGA		YSHA	30024056	YSHA	281492403	LLMG1993	125624770	LACR1995	116512683
ST2/APC/GGA	AcaP	YLCA	15673092	YLCA	281491609	LLMG1452	125624260	-	-
ST2/APC/GGA	AguD	YRFD	15673681	YRFD	281492281	-	-	-	-
ST2../LIVCS	BrnQ	-	-	BRNQ	281491140	BRNQ	125623510	LACR0712	116511480