

SEQUENCE LISTING

<110> Nestec S.A.

<120> Natural derivative of the *Lactobacillus johnsonii* strain CNCM I-1225 deficient in D-lactic acid production

<150> EP11160146.4

<151> 2011-03-29

<160> 9

<170> BiSSAP 1.0

<210> 1

<211> 1080

<212> DNA

<213> *Lactobacillus johnsonii*

<220>

<221> source

<222> 1..1080

<223> /mol_type="DNA"

/organism="Lactobacillus johnsonii"

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tgaagttgaa tacactgaca agcttttagc ccctgaaact gctaaattag ctaaggggtgc 180

tgacgggtgtt gttgtttacc aacaattaga ctacactcct gaaactcttc aagcttttagc 240

tgatgctggc gtaactaaga tgtcattacg taacgttggt gttgacaaca tcgacatgga 300

caaggctaaa gaattaggct ttgaaatcac taacgttcct gtatactctc ctgacgcaat 360

tgctgaacat gctgcaattc aagctgctcg cgtactacgt caagataagc gtatggatga 420

aaagatggct aagcgcgact tacgctgggc acctactatt ggtcgtgaag ttcgtgacca 480

agttgttggg gttgtaggta ctggtcacat cggcgaagta tttatgaaga ttatggaagg 540

ctttggcgca aaagttattg cttacgatat cttcaagaac ccagaacttg aaaagaaggg 600

ttactacgtt gactcacttg atgacttata caagcaagct gatgtaattt cacttcacgt 660

tccagatggt ccagcaaagc ttcacatgat taatgatgaa tcaatcgcta agatgaaaga 720

tggcggttgta atcgtaaact gctcacgtgg tccacttggt gacactgacg ctgttatccg 780
 cggccttagat tctggtaaga tctttgggtt cgtaatggac acttacgaag gtgaagttgg 840
 tgtatttaac gaagattggg aaggtaaaga attcccagat gctcgtttag ctgacttaat 900
 cgatcgcca aatgtattgg taactccaca tactgctttc tacactactc atgctgtacg 960
 taacatggta actaaagcat ttgacaacaa cttaaagatg atcaacggtg aaaaaccaga 1020
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<210> 2

<211> 337

<212> PRT

<213> *Lactobacillus johnsonii*

<220>

<221> SOURCE

<222> 1..337

<223> /mol_type="protein"

/organism="Lactobacillus johnsonii"

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Asp	Lys	Leu	Leu	Ala	Pro	Glu	Thr	Ala	Lys	Leu	Ala	Lys	Gly	Ala	Asp
		35					40					45			
Gly	Val	Val	Val	Tyr	Gln	Gln	Leu	Asp	Tyr	Thr	Pro	Glu	Thr	Leu	Gln
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Ala	Leu	Ala	Asp	Ala	Gly	Val	Thr	Lys	Met	Ser	Leu	Arg	Asn	Val	Gly
65				70					75					80	
Val	Asp	Asn	Ile	Asp	Met	Asp	Lys	Ala	Lys	Glu	Leu	Gly	Phe	Glu	Ile
			85					90					95		
Thr	Asn	Val	Pro	Val	Tyr	Ser	Pro	Asp	Ala	Ile	Ala	Glu	His	Ala	Ala
		100						105					110		
Ile	Gln	Ala	Ala	Arg	Val	Leu	Arg	Gln	Asp	Lys	Arg	Met	Asp	Glu	Lys
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Arg	Asp	Gln	Val	Val	Gly	Val	Val	Gly	Thr	Gly	His	Ile	Gly	Gln	Val
145				150					155					160	
Phe	Met	Lys	Ile	Met	Glu	Gly	Phe	Gly	Ala	Lys	Val	Ile	Ala	Tyr	Asp
			165					170					175		
Ile	Phe	Lys	Asn	Pro	Glu	Leu	Glu	Lys	Lys	Gly	Tyr	Tyr	Val	Asp	Ser
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Leu Asp Asp Leu Tyr Lys Gln Ala Asp Val Ile Ser Leu His Val Pro
 195 200 205
 Asp Val Pro Ala Asn Val His Met Ile Asn Asp Glu Ser Ile Ala Lys
 210 215 220
 Met Lys Asp Gly Val Val Ile Val Asn Cys Ser Arg Gly Pro Leu Val
 225 230 235 240
 Asp Thr Asp Ala Val Ile Arg Gly Leu Asp Ser Gly Lys Ile Phe Gly
 245 250 255
 Phe Val Met Asp Thr Tyr Glu Gly Glu Val Gly Val Phe Asn Glu Asp
 260 265 270
 Trp Glu Gly Lys Glu Phe Pro Asp Ala Arg Leu Ala Asp Leu Ile Asp
 275 280 285
 Arg Pro Asn Val Leu Val Thr Pro His Thr Ala Phe Tyr Thr Thr His
 290 295 300
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 <213> Lactobacillus johnsonii

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 gctaaattag ctaaggggtgc tgacgggtgtt gttgtttacc aacaattaga ctacactcct 180
 gaaactcttc aagcttttagc tgatgctggc gtaactaaga tgtcattacg taacgttggt 240
 gttgacaaca tcgacatgga caaggctaaa gaattaggct ttgaaatcac taacgttcct 300
 gtatactctc ctgacgcaat tgctgaacat gctgcaattc aagctgctcg cgtactacgt 360
 caagataagc gtatggatga aaagatggct aagcgcgact tacgctgggc acctactatt 420
 ggtcgtgaag ttcgtgacca agttgttggt gttgtaggta ctggtcacat cgggtcaagta 480
 tttatgaaga ttatggaagg ctttggcgca aaagttattg cttacgatat cttcaagaac 540
 ccagaacttg aaaagaaggg ttactacgtt gactcacttg atgacttata caagcaagct 600
 gatgtaattt tacttcacgt tccagatggt ccagcaaacg ttcacatgat taatgatgaa 660

tcaatcgcta agatgaaaga tggcggttgta atcgtaaact gctcacgtgg tccacttggt	720
gacactgacg ctgttatccg cggccttagat tctggtaaga tctttgggtt cgtaatggac	780
acttacgaag gtgaagttgg tgtatttaac gaagattggg aaggtaaaga attcccagat	840
gctcgtttag ctgacttaat cgatcgcca aatgtattgg taactccaca tactgctttc	900
tacactactc atgctgtacg taacatggta actaaagcat ttgacaacaa cttaaagatg	960
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<213> *Lactobacillus johnsonii*

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gctaaattag ctaaggggtgc tgacgggtgtt gttgtttacc aacaattaga ctacactcct	180
gaaactcttc aagcttttagc tgatgctggc gtaactaaga tgtcattacg taacgttggt	240
gttgacaaca tcgacatgga caaggctaaa gaattaggct ttgaaatcac taacgttcct	300
gtatactctc ctgacgcaat tgctgaacat gctgcaattc aagctgctcg cgtactacgt	360
caagataagc gtatggatga aaagatggct aagcgcgact tacgctgggc acctactatt	420
ggtcgtgaag ttcgtgacca agttgttggt gttgtagata ctggtcacat cggccaagta	480
tttatgaaga ttatggaagg ctttggcgca aaagttattg cttacgatat cttcaagaac	540
ccagaacttg aaaagaaggg ttactacgtt gactcacttg atgacttata caagcaagct	600
gatgtaattt cacttcacgt tccagatggt ccagcaaacg ttcacatgat taatgatgaa	660
tcaatcgcta agatgaaaga tggcggttgta atcgtaaact gctcacgtgg tccacttggt	720

gacactgacg ctgttatccg cggcttagat tctggtaaga tctttgggtt cgtaatggac 780
 acttacgaag gtgaagttgg tgtatttaac gaagattggg aaggtaaaga attcccagat 840
 gctcgtttag ctgacttaat cgatcgcca aatgtattgg taactccaca tactgctttc 900
 tacactactc atgctgtacg taacatggta actaaagcat ttgacaacaa cttaaagatg 960
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<210> 8

<211> 337

<212> PRT

<213> Lactobacillus johnsonii

<220>

<221> SOURCE

<222> 1..337

<223> /mol_type="protein"

/organism="Lactobacillus johnsonii"

<400> 8

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 Asp Lys Leu Leu Ala Pro Glu Thr Ala Lys Leu Ala Lys Gly Ala Asp
 35 40 45
 Gly Val Val Val Tyr Gln Gln Leu Asp Tyr Thr Pro Glu Thr Leu Gln
 50 55 60
 Ala Leu Ala Asp Ala Gly Val Thr Lys Met Ser Leu Arg Asn Val Gly
 65 70 75 80
 Val Asp Asn Ile Asp Met Asp Lys Ala Lys Glu Leu Gly Phe Glu Ile
 85 90 95
 Thr Asn Val Pro Val Tyr Ser Pro Asp Ala Ile Ala Glu His Ala Ala
 100 105 110
 Ile Gln Ala Ala Arg Val Leu Arg Gln Asp Lys Arg Met Asp Glu Lys
 115 120 125
 Met Ala Lys Arg Asp Leu Arg Trp Ala Pro Thr Ile Gly Arg Glu Val
 130 135 140
 Arg Asp Gln Val Val Gly Val Val Gly Thr Gly His Ile Gly Gln Val
 145 150 155 160
 Phe Met Lys Ile Met Glu Gly Phe Gly Ala Lys Val Ile Ala Tyr Asp
 165 170 175
 Ile Phe Lys Asn Pro Glu Leu Glu Lys Lys Gly Tyr Tyr Val Asp Ser
 180 185 190
 Leu Asp Asp Leu Tyr Lys Gln Ala Asp Val Ile Leu Leu His Val Pro
 195 200 205
 Asp Val Pro Ala Asn Val His Met Ile Asn Asp Glu Ser Ile Ala Lys

210	215	220
Met Lys Asp Gly Val Val Ile Val Asn Cys Ser Arg Gly Pro Leu Val		
225	230	235
Asp Thr Asp Ala Val Ile Arg Gly Leu Asp Ser Gly Lys Ile Phe Gly		240
	245	250
Phe Val Met Asp Thr Tyr Glu Gly Glu Val Gly Val Phe Asn Glu Asp		255
	260	265
Trp Glu Gly Lys Glu Phe Pro Asp Ala Arg Leu Ala Asp Leu Ile Asp		270
	275	280
Arg Pro Asn Val Leu Val Thr Pro His Thr Ala Phe Tyr Thr Thr His		285
	290	295
Ala Val Arg Asn Met Val Thr Lys Ala Phe Asp Asn Asn Leu Lys Met		300
305	310	315
Ile Asn Gly Glu Lys Pro Asp Ser Pro Val Ala Leu Asp Lys Asn Lys		320
	325	330
		335
Phe		

<210> 9

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<213> Lactobacillus johnsonii

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<221> SOURCE

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	20	25
Asp Lys Leu Leu Ala Pro Glu Thr Ala Lys Leu Ala Lys Gly Ala Asp		30
	35	40
Gly Val Val Val Tyr Gln Gln Leu Asp Tyr Thr Pro Glu Thr Leu Gln		45
	50	55
Ala Leu Ala Asp Ala Gly Val Thr Lys Met Ser Leu Arg Asn Val Gly		60
65	70	75
Val Asp Asn Ile Asp Met Asp Lys Ala Lys Glu Leu Gly Phe Glu Ile		80
	85	90
Thr Asn Val Pro Val Tyr Ser Pro Asp Ala Ile Ala Glu His Ala Ala		95
	100	105
Ile Gln Ala Ala Arg Val Leu Arg Gln Asp Lys Arg Met Asp Glu Lys		110
	115	120
Met Ala Lys Arg Asp Leu Arg Trp Ala Pro Thr Ile Gly Arg Glu Val		125
	130	135
Arg Asp Gln Val Val Gly Val Val Asp Thr Gly His Ile Gly Gln Val		140

145		150		155		160
Phe Met Lys Ile Met Glu Gly Phe Gly Ala Lys Val Ile Ala Tyr Asp						
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Ile Phe Lys Asn Pro Glu Leu Glu Lys Lys Gly Tyr Tyr Val Asp Ser						
	180		185		190	
Leu Asp Asp Leu Tyr Lys Gln Ala Asp Val Ile Ser Leu His Val Pro						
	195		200		205	
Asp Val Pro Ala Asn Val His Met Ile Asn Asp Glu Ser Ile Ala Lys						
	210		215		220	
Met Lys Asp Gly Val Val Ile Val Asn Cys Ser Arg Gly Pro Leu Val						
225		230		235		240
Asp Thr Asp Ala Val Ile Arg Gly Leu Asp Ser Gly Lys Ile Phe Gly						
	245		250		255	
Phe Val Met Asp Thr Tyr Glu Gly Glu Val Gly Val Phe Asn Glu Asp						
	260		265		270	
Trp Glu Gly Lys Glu Phe Pro Asp Ala Arg Leu Ala Asp Leu Ile Asp						
	275		280		285	
Arg Pro Asn Val Leu Val Thr Pro His Thr Ala Phe Tyr Thr Thr His						
	290		295		300	
Ala Val Arg Asn Met Val Thr Lys Ala Phe Asp Asn Asn Leu Lys Met						
305		310		315		320
Ile Asn Gly Glu Lys Pro Asp Ser Pro Val Ala Leu Asp Lys Asn Lys						
	325		330		335	
Phe						