

10029WO01 sequence listing.txt
SEQUENCE LISTING

<110> TORAY INDUSTRIES, INC.

<120> Polypeptide having D-lactate dehydrogenase activity, polynucleotide encoding the same polypeptide and method for producing D-lactate

<130> 10029

<160> 60

<170> PatentIn version 3.1

<210> 1

<211> 326

<212> PRT

<213> Limulus polyphemus

<400> 1

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Gly Ile Asp Leu Leu Lys Glu Lys Cys Asp Val Glu Ile Tyr Asp Gln
20 25 30

Pro Met Pro Ile Pro Arg Asp Ala Leu Ile Lys Gly Val Gln Gly Lys
35 40 45

Asp Ala Leu Tyr Cys Leu Leu Thr Asp Lys Ile Asp Lys Asp Val Met
50 55 60

Asp Ala Ala Gly Pro Gln Leu Lys Val Ile Ala Thr Met Ser Val Gly
65 70 75 80

Phe Asp His Ile Asp Leu Asn Glu Cys Lys Ala Arg Asn Ile Ala Val
85 90 95

Ser Asn Thr Pro Asp Val Ser Thr Asp Ser Val Ala Glu Leu Thr Val
100 105 110

Thr Leu Leu Leu Val Cys Gly Arg Arg Ile Met Asp Ser Ala Asn Ala
115 120 125

Ile Lys Asn Gly Glu Trp Ile Tyr Ser Trp Ser Pro Leu Trp Leu Cys
130 135 140

Gly Arg Gly Leu Thr Asn Ser Thr Ile Gly Ile Val Gly Met Gly Arg
145 150 155 160

Ile Gly Gln Ala Val Met Lys Arg Leu Leu Pro Phe Gly Val Lys Lys
165 170 175

Val Leu Tyr Tyr Asp Leu Phe His Pro Ile Lys Pro Ala Glu Asp Met
180 185 190

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Gly Ala Gln Tyr Val Glu Phe Glu Glu Leu Leu Lys Glu Ser Asp Phe
195 200 205

Val Val Ala Met Cys Asn Leu Ser Glu Gln Thr Lys Glu Leu Phe Asn
210 215 220

Ala Lys Ala Phe Ser Gln Met Lys Pro Thr Ala Val Phe Val Asn Thr
225 230 235 240

Ser Arg Gly Gly Val Val Gln Gln Asp Asp Leu Tyr Glu Ala Leu Lys
245 250 255

Asn Gly Lys Ile Arg Ala Ala Gly Leu Asp Val Met Ile Pro Glu Pro
260 265 270

Leu Pro Arg Asp His Lys Leu Thr Thr Leu Pro Asn Ile Val Leu Leu
275 280 285

Pro His Val Gly Ser Ala Glu Glu Ala Ala Arg Ile Glu Met Ala Thr
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Thr Pro Val Pro Met Pro
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<210> 2
<211> 326
<212> PRT
<213> Limulus polyphemus

<400> 2

Met Ser Lys Pro Lys Val Phe Val Thr Arg Pro Asp Val Pro Gln Ala
1 5 10 15

Gly Ile Asp Leu Leu Lys Glu Lys Cys Asp Val Glu Ile Tyr Asp Gln
20 25 30

Pro Met Pro Ile Pro His Asp Ala Leu Ile Lys Gly Val Gln Gly Lys
35 40 45

Asp Ala Leu Tyr Cys Leu Leu Thr Asp Lys Ile Asp Lys Asp Val Met
50 55 60

Asp Ala Ala Gly Pro Gln Leu Lys Val Ile Ala Thr Met Ser Val Gly
65 70 75 80

Tyr Asp His Ile Asp Leu Asn Glu Cys Lys Ala Arg Asn Ile Val Val
85 90 95

Ser Asn Thr Pro Asp Val Ser Thr Asp Ser Val Ala Glu Leu Thr Val
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110

Thr Leu Leu Leu Val Val Gly Arg Arg Ile Phe Asp Ser Ala Cys Ala
 115 120 125

Ile Lys Asn Gly Glu Trp Ile Tyr Ser Trp Ser Pro Leu Trp Leu Cys
 130 135 140

Gly Arg Gly Leu Thr Asn Ser Thr Val Gly Ile Val Gly Met Gly Arg
 145 150 155 160

Ile Gly Gln Ala Val Met Lys Arg Leu Leu Pro Phe Gly Val Lys Lys
 165 170 175

Ile Leu Tyr Phe Asp Leu Phe His Pro Ile Lys Pro Ala Glu Asp Met
 180 185 190

Gly Ala Gln Phe Val Glu Phe Glu Glu Leu Leu Lys Glu Ser Asp Phe
 195 200 205

Val Val Ala Met Cys Asn Leu Ser Glu Glu Thr Lys Glu Ile Phe Asn
 210 215 220

Ala Lys Ala Phe Ser Leu Met Lys Pro Thr Ala Val Phe Ile Asn Thr
 225 230 235 240

Ser Arg Gly Gly Val Val Gln Gln Asp Asp Leu Tyr Glu Ala Leu Lys
 245 250 255

Asn Gly Val Ile Arg Gly Ala Gly Leu Asp Val Met Val Pro Glu Pro
 260 265 270

Leu Pro Arg Asp His Lys Leu Thr Thr Leu Pro Asn Ile Ile Leu Leu
 275 280 285

Pro His Val Gly Ser Ala Glu Glu Ala Ala Arg Thr Glu Met Ala Thr
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Thr Pro Val Gln Met Pro
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<210> 3
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 <212> DNA
 <213> Limulus polyphemus

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ttaattaaag gagttcaggg taaggatgct ctttattgtc ttctcacgga caaaattgac	180
aaggatgtga tggatgcagc aggacccag ctaaaggtaa tagcgacat gtctgttga	240
tttgaccata ttgaccttaa cgaatgtaag gcaagaaata ttgcggtcag caacactccc	300
gatgtttcca ctgactccgt agctgagctg actgtcacac tattgttggg ttgtggcaga	360
agaatcatgg attctgcaaa cgctattaaa aatggagagt ggatctactc ttggagtcca	420
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agtcgcggag gagttgttca acaagatgac ctctatgagg ccctcaagaa tggcaagatc	780
cgtgtgcag ggcttgacgt aatgattcct gagcctctac cccgggatca caagcttact	840
actttacca acatagtctt tcttccacat gttggcagtg ctgaggaagc agcaagaata	900
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actcctgttc ccatgccata a	981

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 <213> *Limulus polyphemus*

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tatgaccata ttgaccttaa tgaatgtaag gcaagaaata tagttgtaag taacactcct	300
gacgtatcca ctgactcagt agcagaactt actgttacac ttttattggg tgttggtaga	360
agaatttttg attctgcctg tgccattaaa aatggagagt ggattttactc atggagtcct	420
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attggtcaag cagtcatgaa gagacttcta ccgtttggag ttaagaaaat tttatacttt	540
gacctgtttc atccaatcaa gcctgcagaa gatatgggag ctgagtttgt tgaatttgaa	600
gagctgttga aagaatctga ttttgtagtt gccatgtgta atctgtctga ggaaacaaag	660
gagatattta acgccaaggc tttcagtcta atgaagccta ctgcagtttt tataaatacc	720
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acactaccaa acataattct tctcccgcac gttggcagtg ctgaggaagc agcaagaaca	900

10029W001 sequence listing.txt

gaaatggcaa ctctggcagc caaaaacatc ctttccgttt tagatgggaa gccacttttg 960
actccagttc aaatgccata a 981

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<212> DNA
<213> *Saccharomyces cerevisiae*

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gagggtggtac cgcacgccc aaatgcatgc aagtaacctt ttcaaagtaa tatctcatal 180
atgtttcatg agggtaacaa catgcgactg ggtgagcata tgttccgctg atgtgatgtg 240
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ttatttacct atctctaaac ttcaacacct tatatcataa ctaatatctt ttgagataag 360
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<210> 6
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<212> DNA
<213> *Saccharomyces cerevisiae*

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tcggacatgc atattcccca attggatata gaaaattaac gtaaggcagt atcttttcac 240
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ctacccgtgg tggatgacct aaagcagtaa tattggttgg aattatctcc cagacggcac 420
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<210> 7
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 <213> *Saccharomyces cerevisiae*

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<210> 9
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<220>
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<400> 9
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<210> 10
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<220>
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<400> 10
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<220>
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<210> 12
 <211> 24
 <212> DNA
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<220>
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<400> 12
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<210> 13
 <211> 24
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 <213> Artificial

<220>
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<400> 13
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<210> 14
 <211> 24
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10029w001 sequence listing.txt

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<220>
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<220>
<223> primer

<400> 15
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<210> 16
<211> 24
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 16
aacatcgga gtgttgctga ccgc                24

<210> 17
<211> 26
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 17
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<210> 18
<211> 24
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 18
tacgtcagga gtgttactta caac            24

<210> 19
<211> 26
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 19
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10029WO01 sequence listing.txt

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<211> 30
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 21
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<210> 22
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<212> DNA
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<220>
<223> primer

<400> 22
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<210> 23
<211> 30
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<220>
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<400> 23
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<212> DNA
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<220>
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caaaccaaag gtatt 75

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10029W001 sequence listing.txt

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caagcccaaa gtatt 75

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<211> 60
<212> DNA
<213> Artificial

<220>
<223> primer

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<210> 28
<211> 80
<212> DNA
<213> Artificial

<220>
<223> primer

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ctgtgcggtt ttccacaccg 80

<210> 29
<211> 24
<212> DNA
<213> Artificial

<220>
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<400> 29
gacaattctg gttaggtcca agag 24

<210> 30
<211> 24
<212> DNA
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<220>
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<400> 30
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10029W001 sequence listing.txt

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<220>
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ccgcggccgc ttaatatcca acagcaatag c                31

<210> 33
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<213> Artificial

<220>
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<400> 33
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<210> 34
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<220>
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<400> 34
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<210> 35
<211> 22
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<213> Artificial

<220>
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<400> 35
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10029W001 sequence listing.txt

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caaaccaaag gtatt 75

<210> 37
<211> 22
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 37
atgtctgccc ctaagaagat cg 22

<210> 38
<211> 24
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 38
ttaagcaagg attttcttaa cttc 24

<210> 39
<211> 75
<212> DNA
<213> Artificial

<220>
<223> primer

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caaaccaaag gtatt 75

<210> 40
<211> 68
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 40
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ttcatggg 68

<210> 41
<211> 37
<212> DNA
<213> Artificial

<220>

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<223> primer
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<210> 42
<211> 99
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<213> Artificial

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<223> primer
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atgtatgcta tacgaagtta tcctttgctg tgttctacc 99

<210> 43
<211> 68
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cagtatgt 68

<210> 44
<211> 50
<212> DNA
<213> Artificial

<220>
<223> primer
<400> 44
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<210> 45
<211> 69
<212> DNA
<213> Artificial

<220>
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gccctcgga 69

<210> 46
<211> 50
<212> DNA
<213> Artificial

<220>
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10029w001 sequence listing.txt

<400> 46
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<220>
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 tattcattca tccctcacta tcg 83

<210> 48
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<220>
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<400> 48
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<210> 49
 <211> 20
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<220>
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<400> 49
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<210> 50
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 <212> DNA
 <213> Artificial

<220>
 <223> primer

<400> 50
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 <211> 80
 <212> DNA
 <213> Artificial

<220>
 <223> primer

<400> 51
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 gaatagatct ggtgaccttg 80

10029w001 sequence listing.txt

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<210> 52
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<220>
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aagagtctcc agctgaagct tcgtacgctg                                         90

<210> 53
<211> 40
<212> DNA
<213> Artificial

<220>
<223> primer

<400> 53
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<210> 54
<211> 38
<212> DNA
<213> Artificial

<220>
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<400> 54
actcgcggcc gctctagaca ccaactttga agataggg                               38

<210> 55
<211> 64
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<220>
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cggg                                           64

<210> 56
<211> 64
<212> DNA
<213> Artificial

<220>
<223> primer

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<210> 57
<211> 35

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10029w001 sequence listing.txt

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<220>
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<210> 58
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acgg 64

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