

LT109W01-2016-05-26-SequenceListing
SEQUENCE LISTING

<110> LanzaTech New Zealand Limited
<120> GENETICALLY ENGINEERED MICROORGANISMS FOR THE PRODUCTION OF
CHORISMATE-DERIVED PRODUCTS
<130> LT109W01
<150> US 62/167,101
<151> 2015-05-27
<160> 11
<170> PatentIn version 3.5
<210> 1
<211> 165
<212> PRT
<213> Escherichia coli
<400> 1

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Asp Ser Met Thr Lys Arg Phe Glu Gln Gln Gly Lys Thr Val Ser Val
35 40 45

Thr Met Ile Arg Glu Gly Phe Val Glu Gln Asn Glu Ile Pro Glu Glu
50 55 60

Leu Pro Leu Leu Pro Lys Glu Ser Arg Tyr Trp Leu Arg Glu Ile Leu
65 70 75 80

Leu Cys Ala Asp Gly Glu Pro Trp Leu Ala Gly Arg Thr Val Val Pro
85 90 95

Val Ser Thr Leu Ser Gly Pro Glu Leu Ala Leu Gln Lys Leu Gly Lys

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100

105

110

Thr Pro Leu Gly Arg Tyr Leu Phe Thr Ser Ser Thr Leu Thr Arg Asp
115 120 125

Phe Ile Glu Ile Gly Arg Asp Ala Gly Leu Trp Gly Arg Arg Ser Arg
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Ala Ser Pro Leu Tyr
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<213> Escherichia coli

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<211> 476
<212> PRT
<213> Pseudomonas aeruginosa

<400> 3

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Thr Phe Glu Arg Ala Ile Gly Gln Ala Gln Ala Leu Asp Arg Pro Val

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20

25

30

Leu Val Ala Ala Ser Phe Glu Ile Asp Pro Leu Asp Pro Leu Gln Val
35 40 45

Phe Gly Ala Trp Asp Asp Arg Gln Thr Pro Cys Leu Tyr Trp Glu Gln
50 55 60

Pro Glu Leu Ala Phe Phe Ala Trp Gly Cys Ala Leu Glu Leu Gln Gly
65 70 75 80

His Gly Glu Gln Arg Phe Ala Arg Ile Glu Glu Asn Trp Gln Leu Leu
85 90 95

Cys Ala Asp Ala Val Val Glu Gly Pro Leu Ala Pro Arg Leu Cys Gly
100 105 110

Gly Phe Arg Phe Asp Pro Arg Gly Pro Arg Glu Glu His Trp Gln Ala
115 120 125

Phe Ala Asp Ala Ser Leu Met Leu Ala Gly Ile Thr Val Leu Arg Glu
130 135 140

Gly Glu Arg Tyr Arg Val Leu Cys Gln His Leu Ala Lys Pro Gly Glu
145 150 155 160

Asp Ala Leu Ala Leu Ala Ala Tyr His Cys Ser Ala Leu Leu Arg Leu
165 170 175

Arg Gln Pro Ala Arg Arg Arg Pro Ser Gly Pro Thr Ala Gly Ala Gln
180 185 190

Gly Asp Ala Ser Ala Gln Glu Arg Arg Gln Trp Glu Ala Lys Val Ser
195 200 205

Asp Ala Val Ser Ser Val Arg Gln Gly Arg Phe Gly Lys Val Val Leu

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210

215

220

Ala Arg Thr Gln Ala Arg Pro Leu Gly Asp Ile Glu Pro Trp Gln Val
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Ile Glu His Leu Arg Leu Gln His Ala Asp Ala Gln Leu Phe Ala Cys
245 250 255

Arg Arg Gly Asn Ala Cys Phe Leu Gly Ala Ser Pro Glu Arg Leu Val
260 265 270

Arg Ile Arg Ala Gly Glu Ala Leu Thr His Ala Leu Ala Gly Thr Ile
275 280 285

Ala Arg Gly Gly Asp Ala Gln Glu Asp Ala Arg Leu Gly Gln Ala Leu
290 295 300

Leu Asp Ser Ala Lys Asp Arg His Glu His Gln Leu Val Val Glu Ala
305 310 315 320

Ile Arg Thr Ala Leu Glu Pro Phe Ser Glu Val Leu Glu Ile Pro Asp
325 330 335

Ala Pro Gly Leu Lys Arg Leu Ala Arg Val Gln His Leu Asn Thr Pro
340 345 350

Ile Arg Ala Arg Leu Ala Asp Ala Gly Gly Ile Leu Arg Leu Leu Gln
355 360 365

Ala Leu His Pro Thr Pro Ala Val Gly Gly Tyr Pro Arg Ser Ala Ala
370 375 380

Leu Asp Tyr Ile Arg Gln His Glu Gly Met Asp Arg Gly Trp Tyr Ala
385 390 395 400

Ala Pro Leu Gly Trp Leu Asp Gly Glu Gly Asn Gly Asp Phe Leu Val

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405

410

415

Ala Leu Arg Ser Ala Leu Leu Thr Pro Gly Arg Gly Tyr Leu Phe Ala
420 425 430

Gly Cys Gly Leu Val Gly Asp Ser Glu Pro Ala His Glu Tyr Arg Glu
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<212> DNA
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<210> 5
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<212> PRT
<213> Pseudomonas aeruginosa

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<400> 5

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Met Asp Tyr Val Lys Ala Ala Ser Arg Phe Lys Ala Ser Glu Ala Ala
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Ile Pro Ala Pro Glu Arg Val Ala Ala Met Leu Pro Glu Arg Ala Arg
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Trp Ala Glu Glu Asn Gly Leu Asp Ala Pro Phe Val Glu Gly Leu Phe
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Gln Thr Arg Gly Ala Ala
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<212> PRT
<213> Escherichia coli

<400> 7

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Leu Pro Pro Val Ala Leu Leu Glu Lys Phe Pro Ala Thr Glu Asn Ala
20 25 30

Ala Asn Thr Val Ala His Ala Arg Lys Ala Ile His Lys Ile Leu Lys

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35

40

45

Gly Asn Asp Asp Arg Leu Leu Val Val Ile Gly Pro Cys Ser Ile His
50 55 60

Asp Pro Val Ala Ala Lys Glu Tyr Ala Thr Arg Leu Leu Ala Leu Arg
65 70 75 80

Glu Glu Leu Lys Asp Glu Leu Glu Ile Val Met Arg Val Tyr Phe Glu
85 90 95

Lys Pro Arg Thr Thr Val Gly Trp Lys Gly Leu Ile Asn Asp Pro His
100 105 110

Met Asp Asn Ser Phe Gln Ile Asn Asp Gly Leu Arg Ile Ala Arg Lys
115 120 125

Leu Leu Leu Asp Ile Asn Asp Ser Gly Leu Pro Ala Ala Gly Glu Phe
130 135 140

Leu Asp Met Ile Thr Pro Gln Tyr Leu Ala Asp Leu Met Ser Trp Gly
145 150 155 160

Ala Ile Gly Ala Arg Thr Thr Glu Ser Gln Val His Arg Glu Asp Ala
165 170 175

Ser Gly Leu Ser Cys Pro Val Gly Phe Lys Asn Gly Thr Asp Gly Thr
180 185 190

Ile Lys Val Ala Ile Asp Ala Ile Asn Ala Ala Gly Ala Pro His Cys
195 200 205

Phe Leu Ser Val Thr Lys Trp Gly His Ser Ala Ile Val Asn Thr Ser
210 215 220

Gly Asn Gly Asp Cys His Ile Ile Leu Arg Gly Gly Lys Glu Pro Asn

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225 230 235 240

Tyr Ser Ala Lys His Val Ala Glu Val Lys Glu Gly Leu Asn Lys Ala
245 250 255

Gly Leu Pro Ala Gln Val Met Ile Asp Phe Ser His Ala Asn Ser Ser
260 265 270

Lys Gln Phe Lys Lys Gln Met Asp Val Cys Ala Asp Val Cys Gln Gln
275 280 285

Ile Ala Gly Gly Glu Lys Ala Ile Ile Gly Val Met Val Glu Ser His
290 295 300

Leu Val Glu Gly Asn Gln Ser Leu Glu Ser Gly Glu Pro Leu Ala Tyr
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<210> 8

<211> 1053

<212> DNA

<213> Escherichia coli

<400> 8

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gaagaattaa aagatgaatt agaaaatagta atgagagtat attttgaaaa acctagaact 300

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<211> 6561

<212> DNA

<213> Artificial sequence

<220>

<223> Synthetic nucleic acid

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 35 40 45

Glu Glu Glu Val Ile Lys Val Asn Leu Lys Asn Leu Lys Asp Lys Ser
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Ile Lys Asp Glu Thr Lys Ile Phe Leu Lys Asn Val Met Glu Ile Ser
 65 70 75 80

Arg Asn Ile Gln Lys Arg Glu Phe Lys Gln Ser Ser Lys Ser Ser Glu
 85 90 95

Ile Lys Pro Lys Gly Gln Asn Ser Asp Leu Phe Lys Ile Gly Phe Gln
 100 105 110

Gly Val Pro Ala Ser Phe Ser His Glu Ala Leu Leu Glu Tyr Phe Gly
 115 120 125

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Ala Leu Lys Asn Gly Ala Ile Lys Tyr Gly Val Leu Pro Ile Glu Asn
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Ser Ser Thr Gly Gly Ile Pro Gln Val Tyr Asp Leu Ile Gly Glu Tyr
165 170 175

Asp Phe Tyr Ile Val Gly Glu Lys Cys Ile Glu Val Asn His Asn Leu
180 185 190

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

His Ser Gln Ala Phe Met Gln Ser Ser Lys Phe Leu Glu Lys His Lys
210 215 220

Asn Trp Lys Leu Asn Pro Tyr Phe Asn Thr Ala Arg Ser Ala Lys Tyr
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Ile Ser Glu Gln Asn Val Lys Ser Lys Ala Ala Ile Ala Ser Lys Asn
245 250 255

Ala Ala Lys Leu Tyr Gly Leu Asp Ile Ile Glu Lys Asn Ile Asn Tyr
260 265 270

Asn Ser Asn Asn Tyr Thr Arg Phe Ile Ile Ile Gly Lys Asn Ile Glu
275 280 285

Ser Asp Lys Gln Arg Asp Lys Ile Ser Ile Leu Ile Thr Leu Pro His
290 295 300

Glu Pro Gly Thr Leu Tyr Asn Val Leu Lys Tyr Phe His Glu Asn Asn
305 310 315 320

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Leu Asn Met Thr Lys Ile Glu Ser Arg Pro Ile Ile Asn Lys Ser Trp
 325 330 335

Gln Tyr Phe Phe Tyr Ile Asp Phe Asn Gly Asn Ile Met Asp Lys Asp
 340 345 350

Thr Arg Tyr Ala Leu Asn Gly Ile Glu Glu Glu Ser Ala Tyr Phe Lys
 355 360 365

Leu Leu Gly Asn Tyr Lys Gly Asp Cys Phe
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