

OP19-0166_Sequencing list

<110> ONCOTAG DIAGNOSTICS CO., LTD.
 <120> METHOD FOR DIAGNOSIS OF BILE DUCT CANCER USING METHIONYL-TRNA SYNTHETASE IN BILE DUCT CELL
 <130> OP19-0166/PCT/SG
 <150> KR 10-2017-0059318
 <151> 2017-05-12
 <150> PCT/KR 2018/005443
 <151> 2018-05-11
 <160> 21
 <170> KoPatentIn 3.0
 <210> 1
 <211> 900
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Amino acid sequence of methionyl-tRNA synthetase

<400> 1
 Met Arg Leu Phe Val Ser Asp Gly Val Pro Gly Cys Leu Pro Val Leu
 1 5 10 15
 Ala Ala Ala Gly Arg Ala Arg Gly Arg Ala Glu Val Leu Ile Ser Thr
 20 25 30
 Val Gly Pro Glu Asp Cys Val Val Pro Phe Leu Thr Arg Pro Lys Val
 35 40 45
 Pro Val Leu Gln Leu Asp Ser Gly Asn Tyr Leu Phe Ser Thr Ser Ala
 50 55 60
 Ile Cys Arg Tyr Phe Phe Leu Leu Ser Gly Trp Glu Gln Asp Asp Leu
 65 70 75 80
 Thr Asn Gln Trp Leu Glu Trp Glu Ala Thr Glu Leu Gln Pro Ala Leu
 85 90 95
 Ser Ala Ala Leu Tyr Tyr Leu Val Val Gln Gly Lys Lys Gly Glu Asp
 100 105 110
 Val Leu Gly Ser Val Arg Arg Ala Leu Thr His Ile Asp His Ser Leu
 115 120 125
 Ser Arg Gln Asn Cys Pro Phe Leu Ala Gly Glu Thr Glu Ser Leu Ala
 130 135 140
 Asp Ile Val Leu Trp Gly Ala Leu Tyr Pro Leu Leu Gln Asp Pro Ala
 145 150 155 160
 Tyr Leu Pro Glu Glu Leu Ser Ala Leu His Ser Trp Phe Gln Thr Leu
 165 170 175
 Ser Thr Gln Glu Pro Cys Gln Arg Ala Ala Glu Thr Val Leu Lys Gln
 180 185 190
 Gln Gly Val Leu Ala Leu Arg Pro Tyr Leu Gln Lys Gln Pro Gln Pro
 195 200 205
 Ser Pro Ala Glu Gly Arg Ala Val Thr Asn Glu Pro Glu Glu Glu Glu
 210 215 220

OP19-0166_Sequencing list

Leu Ala Thr Leu Ser Glu Glu Glu Ile Ala Met Ala Val Thr Ala Trp
 225 230 235 240
 Glu Lys Gly Leu Glu Ser Leu Pro Pro Leu Arg Pro Gln Gln Asn Pro
 245 250 255
 Val Leu Pro Val Ala Gly Glu Arg Asn Val Leu Ile Thr Ser Ala Leu
 260 265 270
 Pro Tyr Val Asn Asn Val Pro His Leu Gly Asn Ile Ile Gly Cys Val
 275 280 285
 Leu Ser Ala Asp Val Phe Ala Arg Tyr Ser Arg Leu Arg Gln Trp Asn
 290 295 300
 Thr Leu Tyr Leu Cys Gly Thr Asp Glu Tyr Gly Thr Ala Thr Glu Thr
 305 310 315 320
 Lys Ala Leu Glu Glu Gly Leu Thr Pro Gln Glu Ile Cys Asp Lys Tyr
 325 330 335
 His Ile Ile His Ala Asp Ile Tyr Arg Trp Phe Asn Ile Ser Phe Asp
 340 345 350
 Ile Phe Gly Arg Thr Thr Thr Pro Gln Gln Thr Lys Ile Thr Gln Asp
 355 360 365
 Ile Phe Gln Gln Leu Leu Lys Arg Gly Phe Val Leu Gln Asp Thr Val
 370 375 380
 Glu Gln Leu Arg Cys Glu His Cys Ala Arg Phe Leu Ala Asp Arg Phe
 385 390 395 400
 Val Glu Gly Val Cys Pro Phe Cys Gly Tyr Glu Glu Ala Arg Gly Asp
 405 410 415
 Gln Cys Asp Lys Cys Gly Lys Leu Ile Asn Ala Val Glu Leu Lys Lys
 420 425 430
 Pro Gln Cys Lys Val Cys Arg Ser Cys Pro Val Val Gln Ser Ser Gln
 435 440 445
 His Leu Phe Leu Asp Leu Pro Lys Leu Glu Lys Arg Leu Glu Glu Trp
 450 455 460
 Leu Gly Arg Thr Leu Pro Gly Ser Asp Trp Thr Pro Asn Ala Gln Phe
 465 470 475 480
 Ile Thr Arg Ser Trp Leu Arg Asp Gly Leu Lys Pro Arg Cys Ile Thr
 485 490 495
 Arg Asp Leu Lys Trp Gly Thr Pro Val Pro Leu Glu Gly Phe Glu Asp
 500 505 510
 Lys Val Phe Tyr Val Trp Phe Asp Ala Thr Ile Gly Tyr Leu Ser Ile
 515 520 525
 Thr Ala Asn Tyr Thr Asp Gln Trp Glu Arg Trp Trp Lys Asn Pro Glu
 530 535 540
 Gln Val Asp Leu Tyr Gln Phe Met Ala Lys Asp Asn Val Pro Phe His
 545 550 555 560
 Ser Leu Val Phe Pro Cys Ser Ala Leu Gly Ala Glu Asp Asn Tyr Thr
 565 570 575
 Leu Val Ser His Leu Ile Ala Thr Glu Tyr Leu Asn Tyr Glu Asp Gly

OP19-0166 Sequencing list

580

585

590

Lys Phe Ser Lys Ser Arg Gly Val Gly Val Phe Gly Asp Met Ala Gln
595 600 605

Asp Thr Gly Ile Pro Ala Asp Ile Trp Arg Phe Tyr Leu Leu Tyr Ile
610 615 620

Arg Pro Glu Gly Gln Asp Ser Ala Phe Ser Trp Thr Asp Leu Leu Leu
625 630 635 640

Lys Asn Asn Ser Glu Leu Leu Asn Asn Leu Gly Asn Phe Ile Asn Arg
645 650 655

Ala Gly Met Phe Val Ser Lys Phe Phe Gly Gly Tyr Val Pro Glu Met
660 665 670

Val Leu Thr Pro Asp Asp Gln Arg Leu Leu Ala His Val Thr Leu Glu
675 680 685

Leu Gln His Tyr His Gln Leu Leu Glu Lys Val Arg Ile Arg Asp Ala
690 695 700

Leu Arg Ser Ile Leu Thr Ile Ser Arg His Gly Asn Gln Tyr Ile Gln
705 710 715 720

Val Asn Glu Pro Trp Lys Arg Ile Lys Gly Ser Glu Ala Asp Arg Gln
725 730 735

Arg Ala Gly Thr Val Thr Gly Leu Ala Val Asn Ile Ala Ala Leu Leu
740 745 750

Ser Val Met Leu Gln Pro Tyr Met Pro Thr Val Ser Ala Thr Ile Gln
755 760 765

Ala Gln Leu Gln Leu Pro Pro Ala Cys Ser Ile Leu Leu Thr Asn
770 775 780

Phe Leu Cys Thr Leu Pro Ala Gly His Gln Ile Gly Thr Val Ser Pro
785 790 795 800

Leu Phe Gln Lys Leu Glu Asn Asp Gln Ile Glu Ser Leu Arg Gln Arg
805 810 815

Phe Gly Gly Gly Gln Ala Lys Thr Ser Pro Lys Pro Ala Val Val Glu
820 825 830

Thr Val Thr Thr Ala Lys Pro Gln Gln Ile Gln Ala Leu Met Asp Glu
835 840 845

Val Thr Lys Gln Gly Asn Ile Val Arg Glu Leu Lys Ala Gln Lys Ala
850 855 860

Asp Lys Asn Glu Val Ala Ala Glu Val Ala Lys Leu Leu Asp Leu Lys
865 870 875 880

Lys Gln Leu Ala Val Ala Glu Gly Lys Pro Pro Glu Ala Pro Lys Gly
885 890 895

Lys Lys Lys Lys
900

<210> 2
<211> 11
<212> PRT
<213> Artificial Sequence

OP19-0166_Sequencing list

<220>
<223> amino acid sequence of 8A12 VL CDR1

<400> 2
Lys Ala Ser Gln Asp Ile Asn Ser Tyr Leu Ser
1 5 10

<210> 3
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> nucleotide sequence of 8A12 VL CDR1

<400> 3
aaggcgagtc aggacattaa tagctattta agc

33

<210> 4
<211> 7
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid sequence of 8A12 VL CDR2

<400> 4
Arg Ala Asn Arg Leu Val Asp
1 5

<210> 5
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> nucleotide sequence of 8A12 VL CDR2

<400> 5
cgtgcaaaca gattggtaga t

21

<210> 6
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid sequence of 8A12 VL CDR3

<400> 6
Leu Gln Tyr Asp Glu Phe Pro Arg Thr
1 5

<210> 7
<211> 27
<212> DNA
<213> Artificial Sequence

OP19-0166_Sequencing list

<220>
 <223> nucleotide sequence of 8A12 VL CDR3

<400> 7
 ctacagtatg atgagtttcc tcggacg 27

<210> 8
 <211> 6
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> amino acid sequence of 8A12 VH CDR1

<400> 8
 Ser Glu Tyr Ala Trp Thr
 1 5

<210> 9
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> nucleotide sequence of 8A12 VH CDR1

<400> 9
 agtgagtatg cctggacc 18

<210> 10
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> amino acid sequence of 8A12 VH CDR2

<400> 10
 Tyr Ile Asn Tyr Asn Gly Asn Thr Asn Leu Asn Pro Ser Leu Lys Ser
 1 5 10 15

<210> 11
 <211> 48
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> nucleotide sequence of 8A12 VH CDR2

<400> 11
 tacataaaact acaatggcaa cactaactta aatccatctc tcaaaagt 48

<210> 12
 <211> 10
 <212> PRT
 <213> Artificial Sequence

OP19-0166_Sequencing list

<220>
<223> amino acid sequence of 8A12 VH CDR3

<400> 12
Ser Leu Trp Pro Arg Gly Trp Phe Ala Tyr
1 5 10

<210> 13
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> nucleotide sequence of 8A12 VH CDR3

<400> 13
tcactttggc ccaggggctg gtttgcttac

30

<210> 14
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> amino acid sequence of 8A12 VL

<400> 14
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Met Tyr Ala Ser Leu Gly
1 5 10 15
Glu Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Asp Ile Asn Ser Tyr
20 25 30
Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ser Pro Lys Thr Leu Met
35 40 45
Tyr Arg Ala Asn Arg Leu Val Asp Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Gln Asp Tyr Ser Leu Thr Ile Ser Ser Leu Glu Tyr
65 70 75 80
Glu Asp Met Gly Ile Tyr Tyr Cys Leu Gln Tyr Asp Glu Phe Pro Arg
85 90 95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 15
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> nucleotide sequence of 8A12 VL

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atcacttgca aggcgagtc ggacattaat agctatttaa gctgggtcca gcagaaacca

60

120

OP19-0166_Sequencing list

gggaaatctc ctaagaccct gatgtatcgt gcaaacagat tggtagatgg ggtcccatca 180
 aggttcagtg gcagtggatc tggccaagat tattctctca ccatcagcag cctggaatat 240
 gaagatatgg gaatttatta ttgtctacag tatgatgagt ttcctcggac gttcggtgga 300
 ggcaccaagc tggaaatcaa a 321

<210> 16
 <211> 119
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> amino acid sequence of 8A12 VH

<400> 16
 Asp Val Lys Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln
 1 5 10 15
 Ser Leu Ser Leu Thr Cys Thr Val Thr Gly Tyr Ser Ile Thr Ser Glu
 20 25 30
 Tyr Ala Trp Thr Trp Ile Arg Gln Phe Pro Gly Asn Lys Leu Glu Trp
 35 40 45
 Met Gly Tyr Ile Asn Tyr Asn Gly Asn Thr Asn Leu Asn Pro Ser Leu
 50 55 60
 Lys Ser Arg Ile Ser Ile Ile Arg Asp Thr Ser Lys Asn Gln Phe Phe
 65 70 75 80
 Leu Gln Leu Asn Ser Val Thr Thr Glu Asp Thr Ala Thr Tyr Tyr Cys
 85 90 95
 Ala Arg Ser Leu Trp Pro Arg Gly Trp Phe Ala Tyr Trp Gly Gln Gly
 100 105 110
 Thr Leu Val Thr Val Ser Ala
 115

<210> 17
 <211> 357
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> nucleotide sequence of 8A12 VH

<400> 17
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 acctgcactg tcaactggcta ttcaatcacc agtgagtatg cctggacctg gatccggcag 120
 tttccaggaa acaaactgga atggatgggc tacataaact acaatggcaa cactaactta 180
 aatccatctc tcaaaagtcg aatctctatc attcgagaca catccaagaa ccagttcttc 240
 ctgcagttga attctgtgac aactgaggac acagccacat attactgtgc aagatcactt 300
 tggcccaggg gctggtttgc ttactggggc caagggactc tggtcactgt ctctgca 357

OP19-0166_Sequencing list

<210> 18
 <211> 213
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Light chain of 8A12 IgG

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 Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Met Tyr Ala Ser Leu Gly
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 Glu Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Asp Ile Asn Ser Tyr
 20 25 30
 Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ser Pro Lys Thr Leu Met
 35 40 45
 Tyr Arg Ala Asn Arg Leu Val Asp Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Gln Asp Tyr Ser Leu Thr Ile Ser Ser Leu Glu Tyr
 65 70 75 80
 Glu Asp Met Gly Ile Tyr Tyr Cys Leu Gln Tyr Asp Glu Phe Pro Arg
 85 90 95
 Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Ala Asp Ala Ala Pro
 100 105 110
 Thr Val Ser Ile Phe Pro Pro Ser Ser Glu Gln Leu Thr Ser Gly Gly
 115 120 125
 Ala Ser Val Val Cys Phe Leu Asn Asn Phe Tyr Pro Lys Asp Ile Asn
 130 135 140
 Val Lys Trp Lys Ile Asp Gly Ser Glu Arg Gln Asn Gly Val Leu Asn
 145 150 155 160
 Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser Arg
 165 170 175
 Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu Arg His Asn Ser Tyr Thr
 180 185 190
 Cys Glu Ala Thr His Lys Thr Ser Thr Ser Pro Ile Val Lys Ser Phe
 195 200 205
 Asn Arg Asn Glu Cys
 210

<210> 19
 <211> 449
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Heavy chain of 8A12 IgG

<400> 19
 Asp Val Lys Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Gln
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 Ser Leu Ser Leu Thr Cys Thr Val Thr Gly Tyr Ser Ile Thr Ser Glu
 20 25 30

OP19-0166_Sequencing list

Tyr Ala Trp Thr Trp Ile Arg Gln Phe Pro Gly Asn Lys Leu Glu Trp
 35 40 45
 Met Gly Tyr Ile Asn Tyr Asn Gly Asn Thr Asn Leu Asn Pro Ser Leu
 50 55 60
 Lys Ser Arg Ile Ser Ile Ile Arg Asp Thr Ser Lys Asn Gln Phe Phe
 65 70 75 80
 Leu Gln Leu Asn Ser Val Thr Thr Glu Asp Thr Ala Thr Tyr Tyr Cys
 85 90 95
 Ala Arg Ser Leu Trp Pro Arg Gly Trp Phe Ala Tyr Trp Gly Gln Gly
 100 105 110
 Thr Leu Val Thr Val Ser Ala Ala Lys Thr Thr Ala Pro Ser Val Tyr
 115 120 125
 Pro Leu Ala Pro Val Cys Gly Asp Thr Thr Gly Ser Ser Val Thr Leu
 130 135 140
 Gly Cys Leu Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Leu Thr Trp
 145 150 155 160
 Asn Ser Gly Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu
 165 170 175
 Gln Ser Asp Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Thr Ser Ser
 180 185 190
 Thr Trp Pro Ser Gln Ser Ile Thr Cys Asn Val Ala His Pro Ala Ser
 195 200 205
 Ser Thr Lys Val Asp Lys Lys Ile Glu Pro Arg Gly Pro Thr Ile Lys
 210 215 220
 Pro Cys Pro Pro Cys Lys Cys Pro Ala Pro Asn Leu Leu Gly Gly Pro
 225 230 235 240
 Ser Val Phe Ile Phe Pro Pro Lys Ile Lys Asp Val Leu Met Ile Ser
 245 250 255
 Leu Ser Pro Ile Val Thr Cys Val Val Val Asp Val Ser Glu Asp Asp
 260 265 270
 Pro Asp Val Gln Ile Ser Trp Phe Val Asn Asn Val Glu Val His Thr
 275 280 285
 Ala Gln Thr Gln Thr His Arg Glu Asp Tyr Asn Ser Thr Leu Arg Val
 290 295 300
 Val Ser Ala Leu Pro Ile Gln His Gln Asp Trp Met Ser Gly Lys Glu
 305 310 315 320
 Phe Lys Cys Lys Val Asn Asn Lys Asp Leu Pro Ala Pro Ile Glu Arg
 325 330 335
 Thr Ile Ser Lys Pro Lys Gly Ser Val Arg Ala Pro Gln Val Tyr Val
 340 345 350
 Leu Pro Pro Pro Glu Glu Glu Met Thr Lys Lys Gln Val Thr Leu Thr
 355 360 365
 Cys Met Val Thr Asp Phe Met Pro Glu Asp Ile Tyr Val Glu Trp Thr
 370 375 380
 Asn Asn Gly Lys Thr Glu Leu Asn Tyr Lys Asn Thr Glu Pro Val Leu

OP19-0166_Sequencing list

385 390 395 400
 Asp Ser Asp Gly Ser Tyr Phe Met Tyr Ser Lys Leu Arg Val Glu Lys
 405 410 415
 Lys Asn Trp Val Glu Arg Asn Ser Tyr Ser Cys Ser Val Val His Glu
 420 425 430
 Gly Leu His Asn His His Thr Thr Lys Ser Phe Ser Arg Thr Pro Gly
 435 440 445
 Lys

<210> 20
 <211> 30
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> 8A12 antibody epitope

<400> 20
 Lys Gln Gly Asn Ile Val Arg Glu Leu Lys Ala Gln Lys Ala Asp Lys
 1 5 10 15
 Asn Glu Val Ala Ala Glu Val Ala Lys Leu Leu Asp Leu Lys
 20 25 30

<210> 21
 <211> 174
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> AIMP3(Aminoacyl tRNA synthetase complex-interacting
 multifunctional protein 3)

<400> 21
 Met Ala Ala Ala Ala Glu Leu Ser Leu Leu Glu Lys Ser Leu Gly Leu
 1 5 10 15
 Ser Lys Gly Asn Lys Tyr Ser Ala Gln Gly Glu Arg Gln Ile Pro Val
 20 25 30
 Leu Gln Thr Asn Asn Gly Pro Ser Leu Thr Gly Leu Thr Thr Ile Ala
 35 40 45
 Ala His Leu Val Lys Gln Ala Asn Lys Glu Tyr Leu Leu Gly Ser Thr
 50 55 60
 Ala Glu Glu Lys Ala Ile Val Gln Gln Trp Leu Glu Tyr Arg Val Thr
 65 70 75 80
 Gln Val Asp Gly His Ser Ser Lys Asn Asp Ile His Thr Leu Leu Lys
 85 90 95
 Asp Leu Asn Ser Tyr Leu Glu Asp Lys Val Tyr Leu Thr Gly Tyr Asn
 100 105 110
 Phe Thr Leu Ala Asp Ile Leu Leu Tyr Tyr Gly Leu His Arg Phe Ile
 115 120 125
 Val Asp Leu Thr Val Gln Glu Lys Glu Lys Tyr Leu Asn Val Ser Arg

140

Ser Val Val Phe Ile Lys Asn Arg Leu Tyr Thr Asn Ser His
165 170