

FA1535-17177_Sequence listing
SEQUENCE LISTING

<110> Astellas Pharma Inc.
<120> NOVEL ANTI-HUMAN MUC1 ANTIBODY FAB FRAGMENT
<130> A17011A00
<150> JP2016-224811
<151> 2016-11-18
<160> 15
<170> PatentIn version 3.5
<210> 1
<211> 669
<212> DNA
<213> Artificial Sequence

<220>
<223> DNA encoding P10-1 Fab heavy chain fragment

<400> 1
caggtgcagc tgggtgcagtc tggcgccgaa gtgaagaaac caggcgccag cgtgaaggtg 60
tcctgcaagg ccagcggcta caccttcacc aactacggcc tgagctgggt gcgccaggct 120
cctggacagg gactggaatg gatgggagcag aaccaccctg gcagcggcat catctaccac 180
aacgagaagt tccggggcag agtgaccctg accgccgacc ggagcaccag caccgcctac 240
atggaactga gcagcctgcg gagcaggagc accgccgtgt actactgtgc cagaagcagc 300
ggcaccagag gctttgccta ttggggacag ggcaccctcg tgaccgtgtc ctcagcctcc 360
accaagggcc catcgggtctt ccccctggca ccctcctcca agagcacctc tggggggcaca 420
gcggccctgg gctgcctggc caaggactac ttccccgaac cggtgacggc gtcgtggaac 480
tcaggcgccc tgaccagcgg cgtgcacacc ttcccggctg tcctacagtc ctcaggactc 540
tactccctta gtagcgtggc gaccgtgccc tccagcagct tgggcaccca gacctacatc 600
tgcaacgtga atcacaagcc cagcaacacc aaggtggaca agaaagttga gcccaaattc 660
tgtgactga 669

<210> 2
<211> 222
<212> PRT
<213> Artificial Sequence

<220>
<223> P10-1 Fab heavy chain fragment

<400> 2
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn Tyr
20 25 30
Gly Leu Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met

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35

40

45

Gly Glu Asn His Pro Gly Ser Gly Ile Ile Tyr His Asn Glu Lys Phe
50 55 60

Arg Gly Arg Val Thr Leu Thr Ala Asp Arg Ser Thr Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Ser Ser Gly Thr Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro
115 120 125

Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly
130 135 140

Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn
145 150 155 160

Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln
165 170 175

Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser
180 185 190

Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser
195 200 205

Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp
210 215 220

<210> 3
<211> 669
<212> DNA
<213> Artificial sequence

<220>
<223> DNA encoding P10-2 Fab heavy chain fragment

<400> 3
caggtgcagc tgggtgcagtc tggcgccgaa gtgaagaaac caggcgccag cgtgaaggtg 60
tcctgcaagg ccagcggcta caccttcacc aactacggcc tgagctgggt gcgccaggct 120
cctggacagg gactggaatg gatgggagcag aaccaccctg gcagcggcat catctaccac 180
aacgagaagt tccggggcag agtgaccctg accgccgacc ggagcaccag caccgcctac 240
atggaactga gcagcctgcg gagcgaggac accgccgtgt actactgtgc cagaagcagc 300
ggcaccagag gctttgacta ttggggacag ggcaccctcg tgaccgtgtc ctcagcctcc 360

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accaagggcc catcggtctt ccccttgga ccctcctcca agagcacctc tgggggcaca	420
gcggccctgg gctgcctggg caaggactac ttccccgaac cggtgacggt gtcgtggaac	480
tcaggcgccc tgaccagcgg cgtgcacacc ttcccggtg tcctacagtc ctcaggactc	540
tactccctta gtagcgtggg gaccgtgccc tccagcagct tgggcaccca gacctacatc	600
tgcaacgtga atcacaagcc cagcaacacc aaggtggaca agaaagttga gcccaaattc	660
tgtgactga	669

<210> 4
 <211> 222
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> P10-2 Fab heavy chain fragment

<400> 4

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn Tyr
 20 25 30

Gly Leu Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Glu Asn His Pro Gly Ser Gly Ile Ile Tyr His Asn Glu Lys Phe
 50 55 60

Arg Gly Arg Val Thr Leu Thr Ala Asp Arg Ser Thr Ser Thr Ala Tyr
 65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95

Ala Arg Ser Ser Gly Thr Arg Gly Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110

Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val Phe Pro
 115 120 125

Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly
 130 135 140

Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn
 145 150 155 160

Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln
 165 170 175

Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser

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180

185

190

Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser
195 200 205

Asn Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp
210 215 220

<210> 5
<211> 660
<212> DNA
<213> Artificial Sequence

<220>
<223> DNA encoding antibody light chain

<400> 5
gacgtcgtga tgaccagac ccctctgagc ctgagcgtga cacctggaca gcctgccagc 60
atcagctgca gatccagcca gagcatcgtg cacagcaacg gcaacaccta cctggaatgg 120
tatctgcaga agcccggcca gagccccag ctgctgatct acaggggtgtc caaccggttc 180
agcggcgtgc ccgacagatt ttctggcagc ggctccggca ccgacttcac cctgaagatc 240
tcccgggtgg aagccgagga cgtgggcgtg tactactgtt ttcaaggcag ccacggcccc 300
tggacctttg gccaggggaac aaagctggaa atcaagcgta cgggtggctgc accatctgtc 360
ttcatcttcc cgccatctga tgagcagttg aaatctggaa ctgcctctgt tgtgtgcctg 420
ctgaataact tctatcccag agaggccaaa gtacagtgga aggtggataa cgccctccaa 480
tcgggtaact cccaggagag tgtcacagag caggacagca aggacagcac ctacagcctg 540
agcagcacc tgacgctgag caaagcagac tacgagaaac acaaagtcta cgcctgcgaa 600
gtcaccatc agggcctgag ctgcccgtc acaaagagct tcaacagggg agagtgttag 660

<210> 6
<211> 219
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody light chain

<400> 6

Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Pro Gly
1 5 10 15

Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser
20 25 30

Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45

Pro Gln Leu Leu Ile Tyr Arg Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60

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Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Phe Gln Gly
85 90 95

Ser His Gly Pro Trp Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105 110

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
115 120 125

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
130 135 140

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
145 150 155 160

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
165 170 175

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
180 185 190

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
195 200 205

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 7
<211> 354
<212> DNA
<213> Artificial Sequence

<220>
<223> DNA encoding P10-1 Fab heavy chain variable region

<400> 7	
caggtgcagc tgggtgcagtc tggcgccgaa gtgaagaaac caggcgccag cgtgaaggtg	60
tcctgcaagg ccagcggcta caccttcacc aactacggcc tgagctgggt gcgccaggct	120
cctggacagg gactggaatg gatgggagag aaccaccctg gcagcggcat catctaccac	180
aacgagaagt tccggggcag agtgaccctg accgccgacc ggagcaccag caccgcctac	240
atggaactga gcagcctgcg gagcgaggac accgccgtgt actactgtgc cagaagcagc	300
ggcaccagag gctttgccta ttggggacag ggcaccctcg tgaccgtgtc ctca	354

<210> 8
<211> 118
<212> PRT
<213> Artificial Sequence

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<220>

<223> P10-1 Fab heavy chain variable region

<400> 8

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn Tyr
20 25 30

Gly Leu Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Glu Asn His Pro Gly Ser Gly Ile Ile Tyr His Asn Glu Lys Phe
50 55 60

Arg Gly Arg Val Thr Leu Thr Ala Asp Arg Ser Thr Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Ser Ser Gly Thr Arg Gly Phe Ala Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 9

<211> 354

<212> DNA

<213> Artificial Sequence

<220>

<223> DNA encoding P10-2 Fab heavy chain variable region

<400> 9

caggtgcagc tgggtgcagtc tggcgccgaa gtgaagaaac caggcgccag cgtgaagggtg 60

tcctgcaagg ccagcggcta caccttcacc aactacggcc tgagctgggt gcgccaggct 120

cctggacagg gactggaatg gatgggagcag aaccaccctg gcagcggcat catctaccac 180

aacgagaagt tccggggcag agtgaccctg accgccgacc ggagcaccag caccgcctac 240

atggaactga gcagcctgcg gagcgaggac accgccgtgt actactgtgc cagaagcagc 300

ggcaccagag gctttgacta ttggggacag ggcaccctcg tgaccgtgtc ctca 354

<210> 10

<211> 118

<212> PRT

<213> Artificial Sequence

<220>

<223> P10-2 Fab heavy chain variable region

<400> 10

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Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asn Tyr
20 25 30

Gly Leu Ser Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Glu Asn His Pro Gly Ser Gly Ile Ile Tyr His Asn Glu Lys Phe
50 55 60

Arg Gly Arg Val Thr Leu Thr Ala Asp Arg Ser Thr Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Arg Ser Ser Gly Thr Arg Gly Phe Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Leu Val Thr Val Ser Ser
115

<210> 11
<211> 339
<212> DNA
<213> Artificial Sequence

<220>
<223> DNA encoding antibody light chain variable region

<400> 11
gacgtcgtga tgaccagac ccctctgagc ctgagcgtga cacctggaca gcctgccagc 60
atcagctgca gatccagcca gagcatcgtg cacagcaacg gcaacaccta cctggaatgg 120
tatctgcaga agcccggcca gagccccag ctgctgatct acagggtgtc caaccggttc 180
agcggcgtgc ccgacagatt ttctggcagc ggctccggca ccgacttcac cctgaagatc 240
tcccgggtgg aagccgagga cgtgggcgtg tactactgtt ttcaaggcag ccacggcccc 300
tggacctttg gccaggaac aaagctggaa atcaagcgt 339

<210> 12
<211> 113
<212> PRT
<213> Artificial Sequence

<220>
<223> Antibody light chain variable region

<400> 12

Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Ser Val Thr Pro Gly
1 5 10 15

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Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser
20 25 30

Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45

Pro Gln Leu Leu Ile Tyr Arg Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Phe Gln Gly
85 90 95

Ser His Gly Pro Trp Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105 110

Arg

<210> 13
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Heavy chain signal sequence

<400> 13

Met Glu Trp Ser Trp Val Phe Leu Phe Phe Leu Ser Val Thr Thr Gly
1 5 10 15

Val His Ser

<210> 14
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Light chain signal sequence

<400> 14

Met Ser Val Pro Thr Gln Val Leu Gly Leu Leu Leu Leu Trp Leu Thr
1 5 10 15

Asp Ala Arg Cys
20

<210> 15
<211> 20
<212> PRT

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<213> Artificial Sequence

<220>

<223> Tandem repeat sequence of an extracellular domain of MUC1

<400> 15

His	Gly	Val	Thr	Ser	Ala	Pro	Asp	Thr	Arg	Pro	Ala	Pro	Gly	Ser	Thr
1				5					10					15	

Ala	Pro	Pro	Ala
			20