

# SEQUENCE LISTING

<110> Autolus Limited

<120> VECTORS

<130> P113572PCT

<150> GB 1718088.6

<151> 2017-11-01

<160> 23

<170> PatentIn version 3.5

<210> 1

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> StrepTag synthetic peptide

<400> 1

Tyr Ser His Pro Gln Phe Glu Lys  
1 5

<210> 2

<211> 241

<212> PRT

<213> Artificial Sequence

<220>

<223> eGFP sequence encoded by vector 1

<400> 2

Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu  
1 5 10 15

Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly  
20 25 30

Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile  
35 40 45

Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr  
50 55 60

Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys  
65 70 75 80

Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu  
85 90 95

Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu

| 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Lys | Phe | Glu | Gly | Asp | Thr | Leu | Val | Asn | Arg | Ile | Glu | Leu | Lys | Gly |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ile | Asp | Phe | Lys | Glu | Asp | Gly | Asn | Ile | Leu | Gly | His | Lys | Leu | Glu | Tyr |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Asn | Tyr | Asn | Ser | His | Asn | Val | Tyr | Ile | Met | Ala | Asp | Lys | Gln | Lys | Asn |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Gly | Ile | Lys | Val | Asn | Phe | Lys | Ile | Arg | His | Asn | Ile | Glu | Asp | Gly | Ser |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |
| Val | Gln | Leu | Ala | Asp | His | Tyr | Gln | Gln | Asn | Thr | Pro | Ile | Gly | Asp | Gly |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Pro | Val | Leu | Leu | Pro | Asp | Asn | His | Tyr | Leu | Ser | Thr | Gln | Ser | Ala | Leu |
|     |     | 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Ser | Lys | Asp | Pro | Asn | Glu | Lys | Arg | Asp | His | Met | Val | Leu | Leu | Glu | Phe |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Val | Thr | Ala | Ala | Gly | Ile | Thr | Leu | Gly | Met | Asp | Glu | Leu | Tyr | Lys | Arg |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |

Ala

<210> 3  
 <211> 18  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> 2A sequence encoded by vector 1

<400> 3

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Gly | Arg | Gly | Ser | Leu | Leu | Thr | Cys | Gly | Asp | Val | Glu | Glu | Asn | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

Gly Pro

<210> 4  
 <211> 20  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> signal peptide sequence encoded by vector 1

<400> 4

Met Ser Gly Trp Ser Cys Ile Ile Leu Phe Leu Val Ala Thr Ala Thr  
1 5 10 15

Gly Val His Ser  
20

<210> 5

<211> 109

<212> PRT

<213> Artificial Sequence

<220>

<223> Kappa chain sequence encoded by vector 1

<400> 5

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu  
1 5 10 15

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

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln  
35 40 45

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser  
50 55 60

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu  
65 70 75 80

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser  
85 90 95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys Arg Ala  
100 105

<210> 6

<211> 237

<212> PRT

<213> Artificial Sequence

<220>

<223> mTagBFP2 sequence encoded by vector 2

<400> 6

Met Val Ser Lys Gly Glu Glu Leu Ile Lys Glu Asn Met His Met Lys  
1 5 10 15

Leu Tyr Met Glu Gly Thr Val Asp Asn His His Phe Lys Cys Thr Ser

20

25

30

Glu Gly Glu Gly Lys Pro Tyr Glu Gly Thr Gln Thr Met Arg Ile Lys  
 35 40 45

Val Val Glu Gly Gly Pro Leu Pro Phe Ala Phe Asp Ile Leu Ala Thr  
 50 55 60

Ser Phe Leu Tyr Gly Ser Lys Thr Phe Ile Asn His Thr Gln Gly Ile  
 65 70 75 80

Pro Asp Phe Phe Lys Gln Ser Phe Pro Glu Gly Phe Thr Trp Glu Arg  
 85 90 95

Val Thr Thr Tyr Glu Asp Gly Gly Val Leu Thr Ala Thr Gln Asp Thr  
 100 105 110

Ser Leu Gln Asp Gly Cys Leu Ile Tyr Asn Val Lys Ile Arg Gly Val  
 115 120 125

Asn Phe Thr Ser Asn Gly Pro Val Met Gln Lys Lys Thr Leu Gly Trp  
 130 135 140

Glu Ala Phe Thr Glu Thr Leu Tyr Pro Ala Asp Gly Gly Leu Glu Gly  
 145 150 155 160

Arg Asn Asp Met Ala Leu Lys Leu Val Gly Gly Ser His Leu Ile Ala  
 165 170 175

Asn Ala Lys Thr Thr Tyr Arg Ser Lys Lys Pro Ala Lys Asn Leu Lys  
 180 185 190

Met Pro Gly Val Tyr Tyr Val Asp Tyr Arg Leu Glu Arg Ile Lys Glu  
 195 200 205

Ala Asn Asn Glu Thr Tyr Val Glu Gln His Glu Val Ala Val Ala Arg  
 210 215 220

Tyr Cys Asp Leu Pro Ser Lys Leu Gly His Lys Leu Asn  
 225 230 235

<210> 7

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> signal peptide sequence encoded by vector 2

<400> 7

Met Glu Thr Asp Thr Leu Ile Leu Trp Val Leu Leu Leu Leu Val Pro  
1 5 10 15

Gly Ser Thr Gly  
20

<210> 8  
<211> 98  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> CH1 sequence encoded by vector 2

<400> 8

Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys  
1 5 10 15

Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr  
20 25 30

Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser  
35 40 45

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser  
50 55 60

Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr  
65 70 75 80

Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys  
85 90 95

Lys Val

<210> 9  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> CD19TM sequence encoded by vector 2

<400> 9

Ala Val Thr Leu Ala Tyr Leu Ile Phe Cys Leu Cys Ser Leu Val Gly  
1 5 10 15

Ile Leu His Leu  
20

<210> 10  
<211> 19  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> dCD19 sequence encoded by vector 2

<400> 10

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

Thr Arg Arg

<210> 11  
<211> 111  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> CD79a sequence encoded by vector 1

<400> 11

Leu Trp Met His Lys Val Pro Ala Ser Leu Met Val Ser Leu Gly Glu  
1 5 10 15

Asp Ala His Phe Gln Cys Pro His Asn Ser Ser Asn Asn Ala Asn Val  
20 25 30

Thr Trp Trp Arg Val Leu His Gly Asn Tyr Thr Trp Pro Pro Glu Phe  
35 40 45

Leu Gly Pro Gly Glu Asp Pro Asn Gly Thr Leu Ile Ile Gln Asn Val  
50 55 60

Asn Lys Ser His Gly Gly Ile Tyr Val Cys Arg Val Gln Glu Gly Asn  
65 70 75 80

Glu Ser Tyr Gln Gln Ser Cys Gly Thr Tyr Leu Arg Val Arg Gln Pro  
85 90 95

Pro Pro Arg Pro Phe Leu Asp Met Gly Glu Gly Thr Lys Asn Arg  
100 105 110

<210> 12  
<211> 131  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> CD79b sequence encoded by vector 2

<400> 12

Ala Arg Ser Glu Asp Arg Tyr Arg Asn Pro Lys Gly Ser Ala Cys Ser  
1 5 10 15

Arg Ile Trp Gln Ser Pro Arg Phe Ile Ala Arg Lys Arg Gly Phe Thr  
20 25 30

Val Lys Met His Cys Tyr Met Asn Ser Ala Ser Gly Asn Val Ser Trp  
35 40 45

Leu Trp Lys Gln Glu Met Asp Glu Asn Pro Gln Gln Leu Lys Leu Glu  
50 55 60

Lys Gly Arg Met Glu Glu Ser Gln Asn Glu Ser Leu Ala Thr Leu Thr  
65 70 75 80

Ile Gln Gly Ile Arg Phe Glu Asp Asn Gly Ile Tyr Phe Cys Gln Gln  
85 90 95

Lys Cys Asn Asn Thr Ser Glu Val Tyr Gln Gly Cys Gly Thr Glu Leu  
100 105 110

Arg Val Met Gly Phe Ser Thr Leu Ala Gln Leu Lys Gln Arg Asn Thr  
115 120 125

Leu Lys Asp  
130

<210> 13

<211> 230

<212> PRT

<213> Artificial Sequence

<220>

<223> mKate2 sequence encoded by vector 3

<400> 13

Ser Glu Leu Ile Lys Glu Asn Met His Met Lys Leu Tyr Met Glu Gly  
1 5 10 15

Thr Val Asn Asn His His Phe Lys Cys Thr Ser Glu Gly Glu Gly Lys  
20 25 30

Pro Tyr Glu Gly Thr Gln Thr Met Arg Ile Lys Ala Val Glu Gly Gly  
35 40 45

Pro Leu Pro Phe Ala Phe Asp Ile Leu Ala Thr Ser Phe Met Tyr Gly  
50 55 60

Ser Lys Thr Phe Ile Asn His Thr Gln Gly Ile Pro Asp Phe Phe Lys  
65 70 75 80

Gln Ser Phe Pro Glu Gly Phe Thr Trp Glu Arg Val Thr Thr Tyr Glu  
85 90 95

Asp Gly Gly Val Leu Thr Ala Thr Gln Asp Thr Ser Leu Gln Asp Gly  
100 105 110

Cys Leu Ile Tyr Asn Val Lys Ile Arg Gly Val Asn Phe Pro Ser Asn  
115 120 125

Gly Pro Val Met Gln Lys Lys Thr Leu Gly Trp Glu Ala Ser Thr Glu  
130 135 140

Thr Leu Tyr Pro Ala Asp Gly Gly Leu Glu Gly Arg Ala Asp Met Ala  
145 150 155 160

Leu Lys Leu Val Gly Gly Gly His Leu Ile Cys Asn Leu Lys Thr Thr  
165 170 175

Tyr Arg Ser Lys Lys Pro Ala Lys Asn Leu Lys Met Pro Gly Val Tyr  
180 185 190

Tyr Val Asp Arg Arg Leu Glu Arg Ile Lys Glu Ala Asp Lys Glu Thr  
195 200 205

Tyr Val Glu Gln His Glu Val Ala Val Ala Arg Tyr Cys Asp Leu Pro  
210 215 220

Ser Lys Leu Gly His Arg  
225 230

<210> 14  
<211> 19  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> mutated signal sequence, mutation 1

<400> 14

Met Glu Thr Asp Thr Leu Ile Leu Trp Val Leu Leu Leu Val Pro Gly  
1 5 10 15

Ser Thr Gly

<210> 15

<211> 18  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> mutated signal sequence, mutation 2

<400> 15

Met Glu Thr Asp Thr Leu Ile Leu Trp Val Leu Leu Val Pro Gly Ser  
1 5 10 15

Thr Gly

<210> 16  
<211> 17  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> mutated signal sequence, mutation 3

<400> 16

Met Glu Thr Asp Thr Leu Ile Leu Trp Val Leu Val Pro Gly Ser Thr  
1 5 10 15

Gly

<210> 17  
<211> 16  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> mutated signal sequence, mutation 4

<400> 17

Met Glu Thr Asp Thr Leu Ile Leu Trp Leu Val Pro Gly Ser Thr Gly  
1 5 10 15

<210> 18  
<211> 15  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> mutated signal sequence, mutation 5

<400> 18

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

<210> 19

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

<220>  
<223> mutated signal sequence, mutation 6

<400> 19

Met Glu Thr Asp Thr Leu Ile Leu Val Pro Gly Ser Thr Gly  
1 5 10

<210> 20  
<211> 13  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> mutated signal sequence, mutation 7

<400> 20

Met Glu Thr Asp Thr Leu Leu Val Pro Gly Ser Thr Gly  
1 5 10

<210> 21  
<211> 4  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> n-region from the signal peptide sequence

<400> 21

Met Glu Thr Asp  
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<210> 22  
<211> 10  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> h-region from the signal peptide sequence

<400> 22

Thr Leu Ile Leu Trp Val Leu Leu Leu Val  
1 5 10

<210> 23  
<211> 5  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> c-region from the signal peptide sequence

<400> 23

|     |     |     |     |     |
|-----|-----|-----|-----|-----|
| Pro | Gly | Ser | Thr | Gly |
| 1   |     |     |     | 5   |