

SEQUENCE LISTING

<110> Technische Universiteit Eindhoven

<120> Bioluminescent biosensor for detecting and quantifying biomolecules or ligands in solution

<130> 77659PC

<150> US62/635053

<151> 2018-02-26

<160> 27

<170> BiSSAP 1.3.6

<210> 1

<211> 11

<212> PRT

<213> *Oplophorus gracilirostris*

<220>

<223> SBIT with K(d) of 190 μ M

<400> 1

Val Thr Gly Tyr Arg Leu Phe Glu Glu Ile Leu
1 5 10

<210> 2

<211> 11

<212> PRT

<213> *Oplophorus gracilirostris*

<220>

<223> SBIT with K(d) of 2.5 μ M

<400> 2

Val Thr Gly Tyr Arg Leu Phe Glu Lys Glu Ser
1 5 10

<210> 3

<211> 11

<212> PRT

<213> *Oplophorus gracilirostris*

<220>

<223> SBIT with K(d) of 0.18 μ M

<400> 3

Val Thr Gly Tyr Arg Leu Phe Glu Lys Ile Ser
1 5 10

<210> 4

<211> 12

<212> PRT

<213> Artificial Sequence

<220>
 <223> HIV1-p17-antibody binding epitope
 <400> 4
 Glu Leu Asp Arg Trp Glu Lys Ile Arg Leu Arg Pro
 1 5 10
 <210> 5
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Trastuzumab binding mimitope
 <400> 5
 Gln Leu Gly Pro Tyr Glu Leu Trp Glu Leu Ser His
 1 5 10

<210> 6
 <211> 407
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> NB-LUMABS-1

<400> 6
 Met Gly Ser Ser His His His His His Ser Ser Gly Leu Val Pro
 1 5 10 15
 Arg Gly Ser His Met Val Thr Gly Tyr Arg Leu Phe Glu Glu Ile Leu
 20 25 30
 Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 35 40 45
 Ser Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 50 55 60
 Gly Ser Val Phe Thr Leu Glu Asp Phe Val Gly Asp Trp Glu Gln Thr
 65 70 75 80
 Ala Ala Tyr Asn Leu Asp Gln Val Leu Glu Gln Gly Gly Val Ser Ser
 85 90 95
 Leu Leu Gln Asn Leu Ala Val Ser Val Thr Pro Ile Gln Arg Ile Val
 100 105 110
 Arg Ser Gly Glu Asn Ala Leu Lys Ile Asp Ile His Val Ile Ile Pro
 115 120 125
 Tyr Glu Gly Leu Ser Ala Asp Gln Met Ala Gln Ile Glu Glu Val Phe
 130 135 140
 Lys Val Val Tyr Pro Val Asp Asp His His Phe Lys Val Ile Leu Pro
 145 150 155 160
 Tyr Gly Thr Leu Val Ile Asp Gly Val Thr Pro Asn Met Leu Asn Tyr
 165 170 175
 Phe Gly Arg Pro Tyr Glu Gly Ile Ala Val Phe Asp Gly Lys Lys Ile
 180 185 190
 Thr Val Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg
 195 200 205
 Leu Ile Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
 210 215 220
 Ser Gly Gly Gly Thr Glu Leu Asp Arg Trp Glu Lys Ile Arg Leu Arg
 225 230 235 240
 Pro Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser

245 250 255
 Gly Gly Ser Gly Ala Glu Ala Ala Lys Glu Ala Ala Ala Lys Glu
 260 265 270
 Ala Ala Ala Lys Glu Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala
 275 280 285
 Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 290 295 300
 Gly Ser Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala
 305 310 315 320
 Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys
 325 330 335
 Glu Ala Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 340 345 350
 Ser Gly Gly Ser Gly Gly Ser Gly Gly Glu Leu Asp Arg Trp Glu Lys
 355 360 365
 Ile Arg Leu Arg Pro Thr Ser Gly Gly Ser Cys Gly Gly Ser Val Thr
 370 375 380
 Gly Tyr Arg Leu Phe Glu Lys Glu Ser Gly Gly Ser Gly Gly Ser Trp
 385 390 395 400
 Ser His Pro Gln Phe Glu Lys
 405

<210> 7
 <211> 407
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> NB-LUMABS-2

<400> 7
 Met Gly Ser Ser His His His His His Ser Ser Gly Leu Val Pro
 1 5 10 15
 Arg Gly Ser His Met Val Thr Gly Tyr Arg Leu Phe Glu Glu Ile Leu
 20 25 30
 Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 35 40 45
 Ser Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 50 55 60
 Gly Ser Val Phe Thr Leu Glu Asp Phe Val Gly Asp Trp Glu Gln Thr
 65 70 75 80
 Ala Ala Tyr Asn Leu Asp Gln Val Leu Glu Gln Gly Gly Val Ser Ser
 85 90 95
 Leu Leu Gln Asn Leu Ala Val Ser Val Thr Pro Ile Gln Arg Ile Val
 100 105 110
 Arg Ser Gly Glu Asn Ala Leu Lys Ile Asp Ile His Val Ile Ile Pro
 115 120 125
 Tyr Glu Gly Leu Ser Ala Asp Gln Met Ala Gln Ile Glu Glu Val Phe
 130 135 140
 Lys Val Val Tyr Pro Val Asp Asp His His Phe Lys Val Ile Leu Pro
 145 150 155 160
 Tyr Gly Thr Leu Val Ile Asp Gly Val Thr Pro Asn Met Leu Asn Tyr
 165 170 175
 Phe Gly Arg Pro Tyr Glu Gly Ile Ala Val Phe Asp Gly Lys Lys Ile
 180 185 190
 Thr Val Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg
 195 200 205
 Leu Ile Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
 210 215 220
 Ser Gly Gly Gly Thr Glu Leu Asp Arg Trp Glu Lys Ile Arg Leu Arg

225 230 235 240
 Pro Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser
 245 250 255
 Gly Gly Ser Gly Ala Glu Ala Ala Lys Glu Ala Ala Lys Glu
 260 265 270
 Ala Ala Ala Lys Glu Ala Ala Lys Glu Ala Ala Lys Glu Ala
 275 280 285
 Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 290 295 300
 Gly Ser Gly Gly Ser Gly Ala Glu Ala Ala Lys Glu Ala Ala Ala
 305 310 315 320
 Lys Glu Ala Ala Lys Glu Ala Ala Lys Glu Ala Ala Lys
 325 330 335
 Glu Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 340 345 350
 Ser Gly Gly Ser Gly Gly Ser Gly Gly Glu Leu Asp Arg Trp Glu Lys
 355 360 365
 Ile Arg Leu Arg Pro Thr Ser Gly Gly Ser Gly Gly Ser Val Thr Gly
 370 375 380
 Tyr Arg Leu Phe Glu Lys Glu Ser Gly Gly Ser Cys Gly Gly Ser Trp
 385 390 395 400
 Ser His Pro Gln Phe Glu Lys
 405

<210> 8
 <211> 408
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> NB-LUMABS-3

<400> 8
 Met Gly Ser Ser His His His His His Ser Ser Gly Leu Val Pro
 1 5 10 15
 Arg Gly Ser His Met Val Thr Gly Tyr Arg Leu Phe Glu Glu Ile Leu
 20 25 30
 Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 35 40 45
 Ser Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 50 55 60
 Gly Ser Val Phe Thr Leu Glu Asp Phe Val Gly Asp Trp Glu Gln Thr
 65 70 75 80
 Ala Ala Tyr Asn Leu Asp Gln Val Leu Glu Gln Gly Gly Val Ser Ser
 85 90 95
 Leu Leu Gln Asn Leu Ala Val Ser Val Thr Pro Ile Gln Arg Ile Val
 100 105 110
 Arg Ser Gly Glu Asn Ala Leu Lys Ile Asp Ile His Val Ile Ile Pro
 115 120 125
 Tyr Glu Gly Leu Ser Ala Asp Gln Met Ala Gln Ile Glu Glu Val Phe
 130 135 140
 Lys Val Val Tyr Pro Val Asp Asp His His Phe Lys Val Ile Leu Pro
 145 150 155 160
 Tyr Gly Thr Leu Val Ile Asp Gly Val Thr Pro Asn Met Leu Asn Tyr
 165 170 175
 Phe Gly Arg Pro Tyr Glu Gly Ile Ala Val Phe Asp Gly Lys Lys Ile
 180 185 190
 Thr Val Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg
 195 200 205
 Leu Ile Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser

210 215 220
 Ser Gly Gly Gly Thr Glu Leu Asp Arg Trp Glu Lys Ile Arg Leu Arg
 225 230 235 240
 Pro Gly Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Gly Ser
 245 250 255
 Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu
 260 265 270
 Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala
 275 280 285
 Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 290 295 300
 Gly Ser Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala
 305 310 315 320
 Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys
 325 330 335
 Glu Ala Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 340 345 350
 Ser Gly Gly Ser Gly Gly Ser Gly Gly Glu Leu Asp Arg Trp Glu Lys
 355 360 365
 Ile Arg Leu Arg Pro Thr Ser Gly Gly Ser Cys Gly Gly Ser Val Thr
 370 375 380
 Gly Tyr Arg Leu Phe Glu Lys Glu Ser Gly Gly Ser Cys Gly Gly Ser
 385 390 395 400
 Trp Ser His Pro Gln Phe Glu Lys
 405

<210> 9
 <211> 407
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> NB-LUMABS-4

<400> 9
 Met Gly Ser Ser His His His His His Ser Ser Gly Leu Val Pro
 1 5 10 15
 Arg Gly Ser His Met Val Thr Gly Tyr Arg Leu Phe Glu Glu Ile Leu
 20 25 30
 Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 35 40 45
 Ser Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 50 55 60
 Gly Ser Val Phe Thr Leu Glu Asp Phe Val Gly Asp Trp Glu Gln Thr
 65 70 75 80
 Ala Ala Tyr Asn Leu Asp Gln Val Leu Glu Gln Gly Gly Val Ser Ser
 85 90 95
 Leu Leu Gln Asn Leu Ala Val Ser Val Thr Pro Ile Gln Arg Ile Val
 100 105 110
 Arg Ser Gly Glu Asn Ala Leu Lys Ile Asp Ile His Val Ile Ile Pro
 115 120 125
 Tyr Glu Gly Leu Ser Ala Asp Gln Met Ala Gln Ile Glu Glu Val Phe
 130 135 140
 Lys Val Val Tyr Pro Val Asp Asp His His Phe Lys Val Ile Leu Pro
 145 150 155 160
 Tyr Gly Thr Leu Val Ile Asp Gly Val Thr Pro Asn Met Leu Asn Tyr
 165 170 175
 Phe Gly Arg Pro Tyr Glu Gly Ile Ala Val Phe Asp Gly Lys Lys Ile
 180 185 190
 Thr Val Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg

195 200 205
 Leu Ile Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
 210 215 220
 Ser Gly Gly Gly Thr Glu Leu Asp Arg Trp Glu Lys Ile Arg Leu Arg
 225 230 235 240
 Pro Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser
 245 250 255
 Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu
 260 265 270
 Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala
 275 280 285
 Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 290 295 300
 Gly Ser Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala
 305 310 315 320
 Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys
 325 330 335
 Glu Ala Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 340 345 350
 Ser Gly Gly Ser Gly Gly Ser Gly Gly Glu Leu Asp Arg Trp Glu Lys
 355 360 365
 Ile Arg Leu Arg Pro Thr Ser Gly Gly Ser Cys Gly Gly Ser Val Thr
 370 375 380
 Gly Tyr Arg Leu Phe Glu Lys Ile Ser Gly Gly Ser Gly Gly Ser Trp
 385 390 395 400
 Ser His Pro Gln Phe Glu Lys
 405

<210> 10
 <211> 407
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> NB-LUMABS-5

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

180 185 190
 Thr Val Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg
 195 200 205
 Leu Ile Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
 210 215 220
 Ser Gly Gly Gly Thr Glu Leu Asp Arg Trp Glu Lys Ile Arg Leu Arg
 225 230 235 240
 Pro Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser
 245 250 255
 Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu
 260 265 270
 Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala
 275 280 285
 Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 290 295 300
 Gly Ser Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala
 305 310 315 320
 Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys
 325 330 335
 Glu Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 340 345 350
 Ser Gly Gly Ser Gly Gly Ser Gly Gly Glu Leu Asp Arg Trp Glu Lys
 355 360 365
 Ile Arg Leu Arg Pro Thr Ser Gly Gly Ser Cys Gly Gly Ser Val Thr
 370 375 380
 Gly Tyr Arg Leu Phe Glu Glu Ile Leu Gly Gly Ser Gly Gly Ser Trp
 385 390 395 400
 Ser His Pro Gln Phe Glu Lys
 405

<210> 11
 <211> 407
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> NB-LUMABS-6

<400> 11
 Met Gly Ser Ser His His His His His Ser Ser Gly Leu Val Pro
 1 5 10 15
 Arg Gly Ser His Met Val Thr Gly Tyr Arg Leu Phe Glu Lys Glu Ser
 20 25 30
 Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 35 40 45
 Ser Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 50 55 60
 Gly Ser Val Phe Thr Leu Glu Asp Phe Val Gly Asp Trp Glu Gln Thr
 65 70 75 80
 Ala Ala Tyr Asn Leu Asp Gln Val Leu Glu Gln Gly Gly Val Ser Ser
 85 90 95
 Leu Leu Gln Asn Leu Ala Val Ser Val Thr Pro Ile Gln Arg Ile Val
 100 105 110
 Arg Ser Gly Glu Asn Ala Leu Lys Ile Asp Ile His Val Ile Ile Pro
 115 120 125
 Tyr Glu Gly Leu Ser Ala Asp Gln Met Ala Gln Ile Glu Glu Val Phe
 130 135 140
 Lys Val Val Tyr Pro Val Asp Asp His His Phe Lys Val Ile Leu Pro
 145 150 155 160
 Tyr Gly Thr Leu Val Ile Asp Gly Val Thr Pro Asn Met Leu Asn Tyr

165 170 175
 Phe Gly Arg Pro Tyr Glu Gly Ile Ala Val Phe Asp Gly Lys Lys Ile
 180 185 190
 Thr Val Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg
 195 200 205
 Leu Ile Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
 210 215 220
 Ser Gly Gly Gly Thr Glu Leu Asp Arg Trp Glu Lys Ile Arg Leu Arg
 225 230 235 240
 Pro Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser
 245 250 255
 Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu
 260 265 270
 Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala
 275 280 285
 Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 290 295 300
 Gly Ser Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala
 305 310 315 320
 Lys Glu Ala Ala Lys Glu Ala Ala Lys Glu Ala Ala Ala Lys
 325 330 335
 Glu Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 340 345 350
 Ser Gly Gly Ser Gly Gly Ser Gly Gly Glu Leu Asp Arg Trp Glu Lys
 355 360 365
 Ile Arg Leu Arg Pro Thr Ser Gly Gly Ser Cys Gly Gly Ser Val Thr
 370 375 380
 Gly Tyr Arg Leu Phe Glu Lys Glu Ser Gly Gly Ser Gly Gly Ser Trp
 385 390 395 400
 Ser His Pro Gln Phe Glu Lys
 405

<210> 12
 <211> 407
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> NB-LUMABS-7

<400> 12
 Met Gly Ser Ser His His His His His Ser Ser Gly Leu Val Pro
 1 5 10 15
 Arg Gly Ser His Met Val Thr Gly Tyr Arg Leu Phe Glu Lys Glu Ser
 20 25 30
 Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 35 40 45
 Ser Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 50 55 60
 Gly Ser Val Phe Thr Leu Glu Asp Phe Val Gly Asp Trp Glu Gln Thr
 65 70 75 80
 Ala Ala Tyr Asn Leu Asp Gln Val Leu Glu Gln Gly Gly Val Ser Ser
 85 90 95
 Leu Leu Gln Asn Leu Ala Val Ser Val Thr Pro Ile Gln Arg Ile Val
 100 105 110
 Arg Ser Gly Glu Asn Ala Leu Lys Ile Asp Ile His Val Ile Ile Pro
 115 120 125
 Tyr Glu Gly Leu Ser Ala Asp Gln Met Ala Gln Ile Glu Glu Val Phe
 130 135 140
 Lys Val Val Tyr Pro Val Asp Asp His His Phe Lys Val Ile Leu Pro

145 150 155 160
 Tyr Gly Thr Leu Val Ile Asp Gly Val Thr Pro Asn Met Leu Asn Tyr
 165 170 175
 Phe Gly Arg Pro Tyr Glu Gly Ile Ala Val Phe Asp Gly Lys Lys Ile
 180 185 190
 Thr Val Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg
 195 200 205
 Leu Ile Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
 210 215 220
 Ser Gly Gly Gly Thr Glu Leu Asp Arg Trp Glu Lys Ile Arg Leu Arg
 225 230 235 240
 Pro Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser
 245 250 255
 Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu
 260 265 270
 Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala
 275 280 285
 Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 290 295 300
 Gly Ser Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala
 305 310 315 320
 Lys Glu Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys
 325 330 335
 Glu Ala Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 340 345 350
 Ser Gly Gly Ser Gly Gly Ser Gly Gly Glu Leu Asp Arg Trp Glu Lys
 355 360 365
 Ile Arg Leu Arg Pro Thr Ser Gly Gly Ser Cys Gly Gly Ser Val Thr
 370 375 380
 Gly Tyr Arg Leu Phe Glu Lys Ile Ser Gly Gly Ser Gly Gly Ser Trp
 385 390 395 400
 Ser His Pro Gln Phe Glu Lys
 405

<210> 13
 <211> 407
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> TRAS-NB-LUMABS-1

<400> 13
 Met Gly Ser Ser His His His His His Ser Ser Gly Leu Val Pro
 1 5 10 15
 Arg Gly Ser His Met Val Thr Gly Tyr Arg Leu Phe Glu Glu Ile Leu
 20 25 30
 Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 35 40 45
 Ser Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 50 55 60
 Gly Ser Val Phe Thr Leu Glu Asp Phe Val Gly Asp Trp Glu Gln Thr
 65 70 75 80
 Ala Ala Tyr Asn Leu Asp Gln Val Leu Glu Gln Gly Gly Val Ser Ser
 85 90 95
 Leu Leu Gln Asn Leu Ala Val Ser Val Thr Pro Ile Gln Arg Ile Val
 100 105 110
 Arg Ser Gly Glu Asn Ala Leu Lys Ile Asp Ile His Val Ile Ile Pro
 115 120 125
 Tyr Glu Gly Leu Ser Ala Asp Gln Met Ala Gln Ile Glu Glu Val Phe

130 135 140
 Lys Val Val Tyr Pro Val Asp Asp His His Phe Lys Val Ile Leu Pro
 145 150 155 160
 Tyr Gly Thr Leu Val Ile Asp Gly Val Thr Pro Asn Met Leu Asn Tyr
 165 170 175
 Phe Gly Arg Pro Tyr Glu Gly Ile Ala Val Phe Asp Gly Lys Lys Ile
 180 185 190
 Thr Val Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg
 195 200 205
 Leu Ile Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
 210 215 220
 Ser Gly Gly Gly Thr Gln Leu Gly Pro Tyr Glu Leu Trp Glu Leu Ser
 225 230 235 240
 His Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser
 245 250 255
 Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu
 260 265 270
 Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala
 275 280 285
 Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 290 295 300
 Gly Ser Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala
 305 310 315 320
 Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys
 325 330 335
 Glu Ala Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 340 345 350
 Ser Gly Gly Ser Gly Gly Ser Gly Gly Gln Leu Gly Pro Tyr Glu Leu
 355 360 365
 Trp Glu Leu Ser His Thr Ser Gly Gly Ser Cys Gly Gly Ser Val Thr
 370 375 380
 Gly Tyr Arg Leu Phe Glu Lys Glu Ser Gly Gly Ser Gly Gly Ser Trp
 385 390 395 400
 Ser His Pro Gln Phe Glu Lys
 405

<210> 14
 <211> 407
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> TRAS-NB-LUMABS-2

<400> 14
 Met Gly Ser Ser His His His His His Ser Ser Gly Leu Val Pro
 1 5 10 15
 Arg Gly Ser His Met Val Thr Gly Tyr Arg Leu Phe Glu Lys Glu Ser
 20 25 30
 Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 35 40 45
 Ser Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 50 55 60
 Gly Ser Val Phe Thr Leu Glu Asp Phe Val Gly Asp Trp Glu Gln Thr
 65 70 75 80
 Ala Ala Tyr Asn Leu Asp Gln Val Leu Glu Gln Gly Gly Val Ser Ser
 85 90 95
 Leu Leu Gln Asn Leu Ala Val Ser Val Thr Pro Ile Gln Arg Ile Val
 100 105 110
 Arg Ser Gly Glu Asn Ala Leu Lys Ile Asp Ile His Val Ile Ile Pro

115 120 125
 Tyr Glu Gly Leu Ser Ala Asp Gln Met Ala Gln Ile Glu Glu Val Phe
 130 135 140
 Lys Val Val Tyr Pro Val Asp Asp His His Phe Lys Val Ile Leu Pro
 145 150 155 160
 Tyr Gly Thr Leu Val Ile Asp Gly Val Thr Pro Asn Met Leu Asn Tyr
 165 170 175
 Phe Gly Arg Pro Tyr Glu Gly Ile Ala Val Phe Asp Gly Lys Lys Ile
 180 185 190
 Thr Val Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg
 195 200 205
 Leu Ile Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
 210 215 220
 Ser Gly Gly Gly Thr Gln Leu Gly Pro Tyr Glu Leu Trp Glu Leu Ser
 225 230 235 240
 His Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser
 245 250 255
 Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu
 260 265 270
 Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala
 275 280 285
 Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 290 295 300
 Gly Ser Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala
 305 310 315 320
 Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys
 325 330 335
 Glu Ala Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 340 345 350
 Ser Gly Gly Ser Gly Gly Ser Gly Gly Gln Leu Gly Pro Tyr Glu Leu
 355 360 365
 Trp Glu Leu Ser His Thr Ser Gly Gly Ser Cys Gly Gly Ser Val Thr
 370 375 380
 Gly Tyr Arg Leu Phe Glu Lys Ile Ser Gly Gly Ser Gly Gly Ser Trp
 385 390 395 400
 Ser His Pro Gln Phe Glu Lys
 405

<210> 15
 <211> 407
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> TRAS-NB-LUMABS-3

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

100 105 110
 Arg Ser Gly Glu Asn Ala Leu Lys Ile Asp Ile His Val Ile Ile Pro
 115 120 125
 Tyr Glu Gly Leu Ser Ala Asp Gln Met Ala Gln Ile Glu Glu Val Phe
 130 135 140
 Lys Val Val Tyr Pro Val Asp Asp His His Phe Lys Val Ile Leu Pro
 145 150 155 160
 Tyr Gly Thr Leu Val Ile Asp Gly Val Thr Pro Asn Met Leu Asn Tyr
 165 170 175
 Phe Gly Arg Pro Tyr Glu Gly Ile Ala Val Phe Asp Gly Lys Lys Ile
 180 185 190
 Thr Val Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg
 195 200 205
 Leu Ile Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
 210 215 220
 Ser Gly Gly Gly Thr Gln Leu Gly Pro Tyr Glu Leu Trp Glu Leu Ser
 225 230 235 240
 His Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser
 245 250 255
 Gly Gly Ser Gly Ala Glu Ala Ala Lys Glu Ala Ala Lys Glu
 260 265 270
 Ala Ala Lys Glu Ala Ala Lys Glu Ala Ala Lys Glu Ala
 275 280 285
 Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 290 295 300
 Gly Ser Gly Gly Ser Gly Ala Glu Ala Ala Lys Glu Ala Ala Ala
 305 310 315 320
 Lys Glu Ala Ala Lys Glu Ala Ala Lys Glu Ala Ala Lys
 325 330 335
 Glu Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 340 345 350
 Ser Gly Gly Ser Gly Gly Ser Gly Gly Gln Leu Gly Pro Tyr Glu Leu
 355 360 365
 Trp Glu Leu Ser His Thr Ser Gly Gly Ser Cys Gly Gly Ser Val Thr
 370 375 380
 Gly Tyr Arg Leu Phe Glu Glu Ile Leu Gly Gly Ser Gly Gly Ser Trp
 385 390 395 400
 Ser His Pro Gln Phe Glu Lys
 405

<210> 16
 <211> 56
 <212> PRT
 <213> streptococcus

<220>
 <223> Protein G

<220>
 <221> BINDING
 <222> 24
 <223> photocrosslinker p-benzoyl-l-phenylalanine (BPA)

<400> 16
 Met Thr Phe Lys Leu Ile Ile Asn Gly Lys Thr Leu Lys Gly Glu Ile
 1 5 10 15
 Thr Ile Glu Ala Val Asp Ala Xaa Glu Ala Glu Lys Ile Phe Lys Gln
 20 25 30
 Tyr Ala Asn Asp Tyr Gly Ile Asp Gly Glu Trp Thr Tyr Asp Asp Ala
 35 40 45

Thr Lys Thr Phe Thr Val Thr Glu
50 55

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

<220>
<223> Anti-CRP169 binding epitope

<400> 17
Val Gly Ala Glu Ala Ser Ile Ile Leu Gly Gln Glu Gln Asp Ser Phe
1 5 10 15
Gly

<210> 18
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Anti-CRP36 binding epitope

<400> 18
Tyr Ser Phe Thr Val Gly Gly Ser Glu Ile Leu Phe Glu Val Pro Glu
1 5 10 15
Val

<210> 19
<211> 158
<212> PRT
<213> *Oplophorus gracilirostris*

<220>
<223> LBiT

<400> 19
Val Phe Thr Leu Glu Asp Phe Val Gly Asp Trp Glu Gln Thr Ala Ala
1 5 10 15
Tyr Asn Leu Asp Gln Val Leu Glu Gln Gly Gly Val Ser Ser Leu Leu
20 25 30
Gln Asn Leu Ala Val Ser Val Thr Pro Ile Gln Arg Ile Val Arg Ser
35 40 45
Gly Glu Asn Ala Leu Lys Ile Asp Ile His Val Ile Ile Pro Tyr Glu
50 55 60
Gly Leu Ser Ala Asp Gln Met Ala Gln Ile Glu Glu Val Phe Lys Val
65 70 75 80
Val Tyr Pro Val Asp Asp His His Phe Lys Val Ile Leu Pro Tyr Gly
85 90 95
Thr Leu Val Ile Asp Gly Val Thr Pro Asn Met Leu Asn Tyr Phe Gly
100 105 110
Arg Pro Tyr Glu Gly Ile Ala Val Phe Asp Gly Lys Lys Ile Thr Val
115 120 125
Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg Leu Ile
130 135 140

Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
145 150 155

<210> 20
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> semi-flexible linker

<400> 20
Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
1 5 10 15
Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala
20 25 30
Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala
35 40 45
Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
50 55 60
Ser Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys
65 70 75 80
Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu
85 90 95
Ala Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser
100 105 110
Gly Gly Ser Gly Gly Ser Gly Gly
115 120

<210> 21
<211> 462
<212> PRT
<213> Artificial Sequence

<220>
<223> pG-NB-LUMABS-17

<220>
<221> BINDING
<222> 254
<223> photocrosslinker p-benzoyl-L-phenylalanine (BPA)

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

Tyr Glu Gly Leu Ser Ala Asp Gln Met Ala Gln Ile Glu Glu Val Phe
 130 135 140
 Lys Val Val Tyr Pro Val Asp Asp His His Phe Lys Val Ile Leu Pro
 145 150 155 160
 Tyr Gly Thr Leu Val Ile Asp Gly Val Thr Pro Asn Met Leu Asn Tyr
 165 170 175
 Phe Gly Arg Pro Tyr Glu Gly Ile Ala Val Phe Asp Gly Lys Lys Ile
 180 185 190
 Thr Val Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg
 195 200 205
 Leu Ile Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
 210 215 220
 Gly Gly Ser Gly Gly Ser Met Thr Phe Lys Leu Ile Ile Asn Gly Lys
 225 230 235 240
 Thr Leu Lys Gly Glu Ile Thr Ile Glu Ala Val Asp Ala Xaa Glu Ala
 245 250 255
 Glu Lys Ile Phe Lys Gln Tyr Ala Asn Asp Tyr Gly Ile Asp Gly Glu
 260 265 270
 Trp Thr Tyr Asp Asp Ala Thr Lys Thr Phe Thr Val Thr Glu Gly Thr
 275 280 285
 Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 290 295 300
 Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala
 305 310 315 320
 Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala
 325 330 335
 Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 340 345 350
 Ser Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys
 355 360 365
 Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu
 370 375 380
 Ala Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser
 385 390 395 400
 Gly Gly Ser Gly Gly Ser Gly Gly Val Gly Ala Glu Ala Ser Ile Ile
 405 410 415
 Leu Gly Gln Glu Gln Asp Ser Phe Gly Gly Gly Ser Gly Gly Ser Cys
 420 425 430
 Thr Ser Gly Gly Ser Val Thr Gly Tyr Arg Leu Phe Glu Lys Glu Ser
 435 440 445
 Gly Gly Ser Gly Gly Ser Trp Ser His Pro Gln Phe Glu Lys
 450 455 460

<210> 22
 <211> 462
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> pG-NB-LUMABS-11

<220>
 <221> BINDING
 <222> 254
 <223> photocrosslinker p-benzoyl-L-phenylalanine (BPA)

<400> 22
 Met Gly Ser Ser His His His His His Ser Ser Gly Leu Val Pro
 1 5 10 15
 Arg Gly Ser His Met Val Thr Gly Tyr Arg Leu Phe Glu Glu Ile Leu

20 25 30
 Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 35 40 45
 Ser Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 50 55 60
 Gly Ser Val Phe Thr Leu Glu Asp Phe Val Gly Asp Trp Glu Gln Thr
 65 70 75 80
 Ala Ala Tyr Asn Leu Asp Gln Val Leu Glu Gln Gly Gly Val Ser Ser
 85 90 95
 Leu Leu Gln Asn Leu Ala Val Ser Val Thr Pro Ile Gln Arg Ile Val
 100 105 110
 Arg Ser Gly Glu Asn Ala Leu Lys Ile Asp Ile His Val Ile Ile Pro
 115 120 125
 Tyr Glu Gly Leu Ser Ala Asp Gln Met Ala Gln Ile Glu Glu Val Phe
 130 135 140
 Lys Val Val Tyr Pro Val Asp Asp His His Phe Lys Val Ile Leu Pro
 145 150 155 160
 Tyr Gly Thr Leu Val Ile Asp Gly Val Thr Pro Asn Met Leu Asn Tyr
 165 170 175
 Phe Gly Arg Pro Tyr Glu Gly Ile Ala Val Phe Asp Gly Lys Lys Ile
 180 185 190
 Thr Val Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg
 195 200 205
 Leu Ile Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
 210 215 220
 Gly Gly Ser Gly Gly Ser Met Thr Phe Lys Leu Ile Ile Asn Gly Lys
 225 230 235 240
 Thr Leu Lys Gly Glu Ile Thr Ile Glu Ala Val Asp Ala Xaa Glu Ala
 245 250 255
 Glu Lys Ile Phe Lys Gln Tyr Ala Asn Asp Tyr Gly Ile Asp Gly Glu
 260 265 270
 Trp Thr Tyr Asp Asp Ala Thr Lys Thr Phe Thr Val Thr Glu Gly Thr
 275 280 285
 Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 290 295 300
 Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala
 305 310 315 320
 Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala
 325 330 335
 Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 340 345 350
 Ser Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys
 355 360 365
 Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu
 370 375 380
 Ala Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser
 385 390 395 400
 Gly Gly Ser Gly Gly Ser Gly Gly Tyr Ser Phe Thr Val Gly Gly Ser
 405 410 415
 Glu Ile Leu Phe Glu Val Pro Glu Val Gly Gly Ser Gly Gly Ser Cys
 420 425 430
 Thr Ser Gly Gly Ser Val Thr Gly Tyr Arg Leu Phe Glu Lys Glu Ser
 435 440 445
 Gly Gly Ser Gly Gly Ser Trp Ser His Pro Gln Phe Glu Lys
 450 455 460

<210> 23

<211> 12

<212> PRT

<213> Artificial Sequence

<220>
<223> Cetuximab binding meditope with monovalent K(d) of 61 nM

<400> 23
Cys Val Phe Asp Leu Gly Thr Arg Arg Leu Arg Cys
1 5 10

<210> 24
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> Cetuximab binding meditope with monovalent Kd of 270 nM

<400> 24
Cys Gln Phe Asp Leu Ser Thr Arg Arg Leu Lys Cys
1 5 10

<210> 25
<211> 407
<212> PRT
<213> Artificial Sequence

<220>
<223> CTX-NB-LUMABS-1

<220>
<221> BINDING
<222> 379
<223> photocrosslinker p-azido-l-phenylalanine (pAzF)

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

195 200 205
 Leu Ile Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
 210 215 220
 Ser Gly Gly Gly Thr Cys Val Phe Asp Leu Gly Thr Arg Arg Leu Arg
 225 230 235 240
 Cys Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser
 245 250 255
 Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu
 260 265 270
 Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala
 275 280 285
 Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 290 295 300
 Gly Ser Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala
 305 310 315 320
 Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys
 325 330 335
 Glu Ala Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 340 345 350
 Ser Gly Gly Ser Gly Gly Ser Gly Gly Cys Val Phe Asp Leu Gly Thr
 355 360 365
 Arg Arg Leu Arg Cys Thr Ser Gly Gly Ser Xaa Gly Gly Ser Val Thr
 370 375 380
 Gly Tyr Arg Leu Phe Glu Lys Glu Ser Gly Gly Ser Gly Gly Ser Trp
 385 390 395 400
 Ser His Pro Gln Phe Glu Lys
 405

<210> 26
 <211> 407
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CTX-NB-LUMABS-2

<220>
 <221> BINDING
 <222> 396
 <223> photocrosslinker p-azido-l-phenylalanine (pAzF)

<400> 26
 Met Gly Ser Ser His His His His His Ser Ser Gly Leu Val Pro
 1 5 10 15
 Arg Gly Ser His Met Val Thr Gly Tyr Arg Leu Phe Glu Glu Ile Leu
 20 25 30
 Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 35 40 45
 Ser Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 50 55 60
 Gly Ser Val Phe Thr Leu Glu Asp Phe Val Gly Asp Trp Glu Gln Thr
 65 70 75 80
 Ala Ala Tyr Asn Leu Asp Gln Val Leu Glu Gln Gly Gly Val Ser Ser
 85 90 95
 Leu Leu Gln Asn Leu Ala Val Ser Val Thr Pro Ile Gln Arg Ile Val
 100 105 110
 Arg Ser Gly Glu Asn Ala Leu Lys Ile Asp Ile His Val Ile Ile Pro
 115 120 125
 Tyr Glu Gly Leu Ser Ala Asp Gln Met Ala Gln Ile Glu Glu Val Phe
 130 135 140

Lys Val Val Tyr Pro Val Asp Asp His His Phe Lys Val Ile Leu Pro
 145 150 155 160
 Tyr Gly Thr Leu Val Ile Asp Gly Val Thr Pro Asn Met Leu Asn Tyr
 165 170 175
 Phe Gly Arg Pro Tyr Glu Gly Ile Ala Val Phe Asp Gly Lys Lys Ile
 180 185 190
 Thr Val Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg
 195 200 205
 Leu Ile Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
 210 215 220
 Ser Gly Gly Gly Thr Cys Val Phe Asp Leu Gly Thr Arg Arg Leu Arg
 225 230 235 240
 Cys Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser
 245 250 255
 Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu
 260 265 270
 Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala
 275 280 285
 Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 290 295 300
 Gly Ser Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala
 305 310 315 320
 Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys
 325 330 335
 Glu Ala Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 340 345 350
 Ser Gly Gly Ser Gly Gly Ser Gly Gly Cys Val Phe Asp Leu Gly Thr
 355 360 365
 Arg Arg Leu Arg Cys Thr Ser Gly Gly Ser Gly Gly Ser Val Thr Gly
 370 375 380
 Tyr Arg Leu Phe Glu Lys Glu Ser Gly Gly Ser Xaa Gly Gly Ser Trp
 385 390 395 400
 Ser His Pro Gln Phe Glu Lys
 405

<210> 27
 <211> 407
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> CTX-NB-LUMABS-3

<220>
 <221> BINDING
 <222> 379
 <223> photocrosslinker p-azido-l-phenylalanine (pAzF)

<400> 27
 Met Gly Ser Ser His His His His His Ser Ser Gly Leu Val Pro
 1 5 10 15
 Arg Gly Ser His Met Val Thr Gly Tyr Arg Leu Phe Glu Glu Ile Leu
 20 25 30
 Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 35 40 45
 Ser Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 50 55 60
 Gly Ser Val Phe Thr Leu Glu Asp Phe Val Gly Asp Trp Glu Gln Thr
 65 70 75 80
 Ala Ala Tyr Asn Leu Asp Gln Val Leu Glu Gln Gly Gly Val Ser Ser

85 90 95
 Leu Leu Gln Asn Leu Ala Val Ser Val Thr Pro Ile Gln Arg Ile Val
 100 105 110
 Arg Ser Gly Glu Asn Ala Leu Lys Ile Asp Ile His Val Ile Ile Pro
 115 120 125
 Tyr Glu Gly Leu Ser Ala Asp Gln Met Ala Gln Ile Glu Glu Val Phe
 130 135 140
 Lys Val Val Tyr Pro Val Asp Asp His His Phe Lys Val Ile Leu Pro
 145 150 155 160
 Tyr Gly Thr Leu Val Ile Asp Gly Val Thr Pro Asn Met Leu Asn Tyr
 165 170 175
 Phe Gly Arg Pro Tyr Glu Gly Ile Ala Val Phe Asp Gly Lys Lys Ile
 180 185 190
 Thr Val Thr Gly Thr Leu Trp Asn Gly Asn Lys Ile Ile Asp Glu Arg
 195 200 205
 Leu Ile Thr Pro Asp Gly Ser Met Leu Phe Arg Val Thr Ile Asn Ser
 210 215 220
 Ser Gly Gly Gly Thr Cys Gln Phe Asp Leu Ser Thr Arg Arg Leu Lys
 225 230 235 240
 Cys Gly Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Gly Ser
 245 250 255
 Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu
 260 265 270
 Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala
 275 280 285
 Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly Ser Gly
 290 295 300
 Gly Ser Gly Gly Ser Gly Ala Glu Ala Ala Ala Lys Glu Ala Ala Ala
 305 310 315 320
 Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys Glu Ala Ala Ala Lys
 325 330 335
 Glu Ala Ala Ala Lys Ala Gly Ser Gly Gly Ser Gly Gly Ser Gly Gly
 340 345 350
 Ser Gly Gly Ser Gly Gly Ser Gly Gly Cys Gln Phe Asp Leu Ser Thr
 355 360 365
 Arg Arg Leu Lys Cys Thr Ser Gly Gly Ser Xaa Gly Gly Ser Val Thr
 370 375 380
 Gly Tyr Arg Leu Phe Glu Lys Glu Ser Gly Gly Ser Gly Gly Ser Trp
 385 390 395 400
 Ser His Pro Gln Phe Glu Lys
 405