SEQUENCE LISTING

<110> SANOFI

<120> BISPECIFIC ANTIBODIES SPECIFICALLY BINDING TO CD3 AND CD123

<130> FR2016/016

<160> 85

<170> PatentIn version 3.5

<210> 1
<211> 207
<212> PRT
<213> Homo sapiens

<400> 1

Met Gln Ser Gly Thr His Trp Arg Val Leu Gly Leu Cys Leu Leu Ser
1 5 10 15

Val Gly Val Trp Gly Gln Asp Gly Asn Glu Glu Met Gly Gly Ile Thr
20 25 30

Gln Thr Pro Tyr Lys Val Ser Ile Ser Gly Thr Thr Val Ile Leu Thr
35 40 45

Cys Pro Gln Tyr Pro Gly Ser Glu Ile Leu Trp Gln His Asn Asp Lys
50 55 60

Asn Ile Gly Gly Asp Glu Asp Asp Lys Asn Ile Gly Ser Asp Glu Asp
65 70 75 80

His Leu Ser Leu Lys Glu Phe Ser Glu Leu Glu Gln Ser Gly Tyr Tyr
85 90 95

Val Cys Tyr Pro Arg Gly Ser Lys Pro Glu Asp Ala Asn Phe Tyr Leu
100 105 110

Tyr Leu Arg Ala Arg Val Cys Glu Asn Cys Met Glu Met Asp Val Met
115 120 125

Ser Val Ala Thr Ile Val Ile Val Asp Ile Cys Ile Thr Gly Gly Leu
130 135 140

Leu Leu Leu Val Tyr Tyr Trp Ser Lys Asn Arg Lys Ala Lys Ala Lys
145 150 155 160

Pro Val Thr Arg Gly Ala Gly Ala Gly Gly Arg Gln Arg Gly Gln Asn
165 170 175

Lys Glu Arg Pro Pro Pro Val Pro Asn Pro Asp Tyr Glu Pro Ile Arg
180 185 190

Lys Gly Gln Arg Asp Leu Tyr Ser Gly Leu Asn Gln Arg Arg Ile
195 200 205

<210> 2
<211> 198
<212> PRT
<213> Macaca fascicularis

<400> 2

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

Ile Gly Val Trp Gly Gln Asp Gly Asn Glu Glu Met Gly Ser Ile Thr
20 25 30

Gln Thr Pro Tyr Gln Val Ser Ile Ser Gly Thr Thr Val Ile Leu Thr
35 40 45

Cys Ser Gln His Leu Gly Ser Glu Ala Gln Trp Gln His Asn Gly Lys
50 55 60

Asn Lys Glu Asp Ser Gly Asp Arg Leu Phe Leu Pro Glu Phe Ser Glu
65 70 75 80

Met Glu Gln Ser Gly Tyr Tyr Val Cys Tyr Pro Arg Gly Ser Asn Pro
85 90 95

Glu Asp Ala Ser His His Leu Tyr Leu Lys Ala Arg Val Cys Glu Asn
100 105 110

Cys Met Glu Met Asp Val Met Ala Val Ala Thr Ile Val Ile Val Asp
115 120 125

Ile Cys Ile Thr Leu Gly Leu Leu Leu Leu Val Tyr Tyr Trp Ser Lys
130 135 140

Asn Arg Lys Ala Lys Ala Lys Pro Val Thr Arg Gly Ala Gly Ala Gly
145 150 155 160

Gly Arg Gln Arg Gly Gln Asn Lys Glu Arg Pro Pro Pro Val Pro Asn
165 170 175

Pro Asp Tyr Glu Pro Ile Arg Lys Gly Gln Gln Asp Leu Tyr Ser Gly
180 185 190

Leu Asn Gln Arg Arg Ile
195

<210> 3
<211> 340
<212> PRT
<213> Homo sapiens

<220>
<221> DOMAIN
<222> (1)..(104)
<223> extracellular domain of human CD3 epsilon

<220>
<221> MISC_FEATURE
<222> (105)..(340)
<223> His-tagged FC-Fusion

<400> 3

Asp Gly Asn Glu Glu Met Gly Gly Ile Thr Gln Thr Pro Tyr Lys Val
1 5 10 15

Ser Ile Ser Gly Thr Thr Val Ile Leu Thr Cys Pro Gln Tyr Pro Gly
20 25 30

Ser Glu Ile Leu Trp Gln His Asn Asp Lys Asn Ile Gly Gly Asp Glu
35 40 45

Asp Asp Lys Asn Ile Gly Ser Asp Glu Asp His Leu Ser Leu Lys Glu
50 55 60

Phe Ser Glu Leu Glu Gln Ser Gly Tyr Tyr Val Cys Tyr Pro Arg Gly
65 70 75 80

Ser Lys Pro Glu Asp Ala Asn Phe Tyr Leu Tyr Leu Arg Ala Arg Val
85 90 95

Cys Glu Asn Cys Met Glu Met Asp Gly Ser Asp Lys Thr His Thr Cys
100 105 110

Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu
115 120 125

Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu
130 135 140

Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys
145 150 155 160

Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys
165 170 175

Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu
180 185 190

Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys
195 200 205

Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys
210 215 220

Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser
225 230 235 240

Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys
245 250 255

Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln
260 265 270

Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly
275 280 285

Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln
290 295 300

Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn
305 310 315 320

His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly His His His His
325 330 335

His His His His
340

<210> 4
<211> 333
<212> PRT
<213> Macaca fascicularis

<220>
<221> Domain
<222> (1)..(95)
<223> extracellular domain of Macaca fascicularis CD3epsilon protein

<220>
<221> MISC_FEATURE
<222> (96)..(333)
<223> Fc fusion

<400> 4

Asp Gly Asn Glu Glu Met Gly Ser Ile Thr Gln Thr Pro Tyr Gln Val
1 5 10 15

Ser Ile Ser Gly Thr Thr Val Ile Leu Thr Cys Ser Gln His Leu Gly
20 25 30

Ser Glu Val Gln Trp Gln His Asn Gly Lys Asn Lys Glu Asp Ser Gly
35 40 45

Asp Arg Leu Phe Leu Pro Glu Phe Ser Glu Met Glu Gln Ser Gly Tyr
50 55 60

Tyr Val Cys Tyr Pro Arg Gly Ser Asn Pro Glu Asp Ala Ser His His
65 70 75 80

Leu Tyr Leu Lys Ala Arg Val Cys Glu Asn Cys Met Glu Met Asp Gly
85 90 95

Ser Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu
100 105 110

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

Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser
130 135 140

His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu
145 150 155 160

Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr
165 170 175

Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn
180 185 190

Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro
195 200 205

Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln
210 215 220

Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val
225 230 235 240

Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val
245 250 255

Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro
260 265 270

Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr
275 280 285

Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val
290 295 300

Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu
305 310 315 320

Ser Pro Gly Ser Ala Trp Ser His Pro Gln Phe Glu Lys
325 330

<210> 5
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR1-H of the so-called "hz20G6" anti-CD3 antibody

<400> 5

Gly Phe Thr Phe Thr Lys Ala Trp
1 5

<210> 6
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR2-H of the so-called "hz20G6" anti-CD3 antibody

<400> 6

Ile Lys Asp Lys Ser Asn Ser Tyr Ala Thr
1 5 10

<210> 7
<211> 12
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR3-H of the so-called "hz20G6" anti-CD3antibody

<400> 7

Arg Gly Val Tyr Tyr Ala Leu Ser Pro Phe Asp Tyr
1 5 10

<210> 8
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> CDR3-L of the so-called "hz20G6" anti-CD3 antibodies

<400> 8

Gly Gln Gly Thr Gln Tyr Pro Phe Thr
1 5

<210> 9
<211> 121
<212> PRT
<213> Artificial Sequence

<220>
<223> VH1d of humanized "20G6" anti-CD3 antibody

<400> 9

Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln Pro Gly Arg
1 5 10 15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Thr Lys Ala
20 25 30

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

Ala Gln Ile Lys Asp Lys Ser Asn Ser Tyr Ala Thr Tyr Tyr Ala Asp
50 55 60

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

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

Tyr Cys Arg Gly Val Tyr Tyr Ala Leu Ser Pro Phe Asp Tyr Trp Gly
100 105 110

Gln Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 10
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> VL1c of humanized "20G6" anti-CD3 antibody.

<400> 10

Asp Ile 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 Lys Ser Ser Gln Ser Leu Val His Asn
20 25 30

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

Pro Gln Ser Leu Ile Tyr Lys 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 Gly Gln Gly
85 90 95

Thr Gln Tyr Pro Phe Thr Phe Gly Ser Gly Thr Lys Val Glu Ile Lys
100 105 110

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

<220>
<223> CDR1-L of the VL1c variant of the humanized "20G6" anti-CD3 antibody.

<400> 11

Gln Ser Leu Val His Asn Asn Ala Asn Thr Tyr
1 5 10

<210> 12
<211> 378
<212> PRT
<213> Homo sapiens

<400> 12

Met Val Leu Leu Trp Leu Thr Leu Leu Leu Ile Ala Leu Pro Cys Leu
1 5 10 15

Leu Gln Thr Lys Glu Asp Pro Asn Pro Pro Ile Thr Asn Leu Arg Met
20 25 30

Lys Ala Lys Ala Gln Gln Leu Thr Trp Asp Leu Asn Arg Asn Val Thr
35 40 45

Asp Ile Glu Cys Val Lys Asp Ala Asp Tyr Ser Met Pro Ala Val Asn
50 55 60

Asn Ser Tyr Cys Gln Phe Gly Ala Ile Ser Leu Cys Glu Val Thr Asn
65 70 75 80

Tyr Thr Val Arg Val Ala Asn Pro Pro Phe Ser Thr Trp Ile Leu Phe
85 90 95

Pro Glu Asn Ser Gly Lys Pro Trp Ala Gly Ala Glu Asn Leu Thr Cys
100 105 110

Trp Ile His Asp Val Asp Phe Leu Ser Cys Ser Trp Ala Val Gly Pro
115 120 125

Gly Ala Pro Ala Asp Val Gln Tyr Asp Leu Tyr Leu Asn Val Ala Asn
130 135 140

Arg Arg Gln Gln Tyr Glu Cys Leu His Tyr Lys Thr Asp Ala Gln Gly
145 150 155 160

Thr Arg Ile Gly Cys Arg Phe Asp Asp Ile Ser Arg Leu Ser Ser Gly
165 170 175

Ser Gln Ser Ser His Ile Leu Val Arg Gly Arg Ser Ala Ala Phe Gly
180 185 190

Ile Pro Cys Thr Asp Lys Phe Val Val Phe Ser Gln Ile Glu Ile Leu
195 200 205

Thr Pro Pro Asn Met Thr Ala Lys Cys Asn Lys Thr His Ser Phe Met
210 215 220

His Trp Lys Met Arg Ser His Phe Asn Arg Lys Phe Arg Tyr Glu Leu
225 230 235 240

Gln Ile Gln Lys Arg Met Gln Pro Val Ile Thr Glu Gln Val Arg Asp
245 250 255

Arg Thr Ser Phe Gln Leu Leu Asn Pro Gly Thr Tyr Thr Val Gln Ile
260 265 270

Arg Ala Arg Glu Arg Val Tyr Glu Phe Leu Ser Ala Trp Ser Thr Pro
275 280 285

Gln Arg Phe Glu Cys Asp Gln Glu Glu Gly Ala Asn Thr Arg Ala Trp
290 295 300

Arg Thr Ser Leu Leu Ile Ala Leu Gly Thr Leu Leu Ala Leu Val Cys
305 310 315 320

Val Phe Val Ile Cys Arg Arg Tyr Leu Val Met Gln Arg Leu Phe Pro
325 330 335

Arg Ile Pro His Met Lys Asp Pro Ile Gly Asp Ser Phe Gln Asn Asp
340 345 350

Lys Leu Val Val Trp Glu Ala Gly Lys Ala Gly Leu Glu Glu Cys Leu
355 360 365

Val Thr Glu Val Gln Val Val Gln Lys Thr
370 375

<210> 13
<211> 378
<212> PRT
<213> Macaca fascicularis

<400> 13

Met Thr Leu Leu Trp Leu Thr Leu Leu Leu Val Ala Thr Pro Cys Leu
1 5 10 15

Leu Arg Thr Lys Glu Asp Pro Asn Ala Pro Ile Arg Asn Leu Arg Met
20 25 30

Lys Glu Lys Ala Gln Gln Leu Met Trp Asp Leu Asn Arg Asn Val Thr
35 40 45

Asp Val Glu Cys Ile Lys Gly Thr Asp Tyr Ser Met Pro Ala Met Asn
50 55 60

Asn Ser Tyr Cys Gln Phe Gly Ala Ile Ser Leu Cys Glu Val Thr Asn
65 70 75 80

Tyr Thr Val Arg Val Ala Ser Pro Pro Phe Ser Thr Trp Ile Leu Phe
85 90 95

Pro Glu Asn Ser Gly Thr Pro Arg Ala Gly Ala Glu Asn Leu Thr Cys
100 105 110

Trp Val His Asp Val Asp Phe Leu Ser Cys Ser Trp Val Val Gly Pro
115 120 125

Ala Ala Pro Ala Asp Val Gln Tyr Asp Leu Tyr Leu Asn Asn Pro Asn
130 135 140

Ser His Glu Gln Tyr Arg Cys Leu His Tyr Lys Thr Asp Ala Arg Gly
145 150 155 160

Thr Gln Ile Gly Cys Arg Phe Asp Asp Ile Ala Pro Leu Ser Arg Gly
165 170 175

Ser Gln Ser Ser His Ile Leu Val Arg Gly Arg Ser Ala Ala Val Ser
180 185 190

Ile Pro Cys Thr Asp Lys Phe Val Phe Phe Ser Gln Ile Glu Arg Leu
195 200 205

Thr Pro Pro Asn Met Thr Gly Glu Cys Asn Glu Thr His Ser Phe Met
210 215 220

His Trp Lys Met Lys Ser His Phe Asn Arg Lys Phe Arg Tyr Glu Leu
225 230 235 240

Arg Ile Gln Lys Arg Met Gln Pro Val Arg Thr Glu Gln Val Arg Asp
245 250 255

Thr Thr Ser Phe Gln Leu Pro Asn Pro Gly Thr Tyr Thr Val Gln Ile
260 265 270

Arg Ala Arg Glu Thr Val Tyr Glu Phe Leu Ser Ala Trp Ser Thr Pro
275 280 285

Gln Arg Phe Glu Cys Asp Gln Glu Glu Gly Ala Ser Ser Arg Ala Trp
290 295 300

Arg Thr Ser Leu Leu Ile Ala Leu Gly Thr Leu Leu Ala Leu Leu Cys
305 310 315 320

Val Phe Leu Ile Cys Arg Arg Tyr Leu Val Met Gln Arg Leu Phe Pro
325 330 335

Arg Ile Pro His Met Lys Asp Pro Ile Gly Asp Thr Phe Gln Gln Asp
340 345 350

Lys Leu Val Val Trp Glu Ala Gly Lys Ala Gly Leu Glu Glu Cys Leu
355 360 365

Val Ser Glu Val Gln Val Val Glu Lys Thr
370 375

<210> 14
<211> 519
<212> PRT
<213> Homo sapiens

<220>
<221> DOMAIN
<222> (1)..(284)
<223> extracellular domain of human CD123

<220>
<221> MISC_FEATURE
<222> (285)..(519)
<223> His tagged Fc-Fusion

<220>
<221> MISC_FEATURE
<222> (514)..(519)
<223> His Tag

<400> 14

Thr Lys Glu Asp Pro Asn Pro Pro Ile Thr Asn Leu Arg Met Lys Ala
1 5 10 15

Lys Ala Gln Gln Leu Thr Trp Asp Leu Asn Arg Asn Val Thr Asp Ile
20 25 30

Glu Cys Val Lys Asp Ala Asp Tyr Ser Met Pro Ala Val Asn Asn Ser
35 40 45

Tyr Cys Gln Phe Gly Ala Ile Ser Leu Cys Glu Val Thr Asn Tyr Thr
50 55 60

Val Arg Val Ala Asn Pro Pro Phe Ser Thr Trp Ile Leu Phe Pro Glu
65 70 75 80

Asn Ser Gly Lys Pro Trp Ala Gly Ala Glu Asn Leu Thr Cys Trp Ile
85 90 95

His Asp Val Asp Phe Leu Ser Cys Ser Trp Ala Val Gly Pro Gly Ala
100 105 110

Pro Ala Asp Val Gln Tyr Asp Leu Tyr Leu Asn Val Ala Asn Arg Arg
115 120 125

Gln Gln Tyr Glu Cys Leu His Tyr Lys Thr Asp Ala Gln Gly Thr Arg
130 135 140

Ile Gly Cys Arg Phe Asp Asp Ile Ser Arg Leu