

SEQUENCE LISTING

<110> UNIVERSITY OF CONNECTICUT
LYNES, Michael

<120> Metallothionein antibodies and their use

<130> 19-1213-PCT

<150> US 62/874,340

<151> 2019-07-15

<160> 25

<170> PatentIn version 3.5

 $\langle 210 \rangle$ 1

$\langle 211 \rangle$ 13

<212> PRT

<213> Artificial Sequence

 $\langle 220 \rangle$

<223> Synthetic peptide

$\langle 400 \rangle$ 1

Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu
1 5 10

 $\langle 210 \rangle \quad 2$

$\langle 211 \rangle$ 3

<212> PRT

<213> Artificial Sequence

$\langle 220 \rangle$

<223> Synthetic peptide

<400> 2

Lys Val Ser
1

 $\langle 210 \rangle \quad 3$

<211> 9

<212> PRT

<213> Artificial Sequence

$\langle 220 \rangle$

<223> Synthetic peptide

 $\langle 220 \rangle$

<221> MISC_FEATURE
<222> (9)..(9)
<223> Xaa can be A or T

<400> 3

Phe Gln Gly Ser His Val Pro Phe Xaa
1 5

<210> 4
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 4

Gly Phe Ser Leu Ser Arg Tyr Gly
1 5

<210> 5
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 5

Ile Trp Ser Gly Gly Ser
1 5

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

<220>
<223> Synthetic peptide

<400> 6

Trp Leu Leu Pro Gly Tyr
1 5

<210> 7
<211> 112

<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 7

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu 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 Phe Gln Gln Arg Pro Gly Gln Ser
35 40 45

Pro Arg Leu 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 Phe Gln Gly
85 90 95

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

<210> 8
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 8

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu 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 Arg Pro Gly Gln Ser
35 40 45

Pro Arg Leu 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 Phe Gln Gly
85 90 95

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

<210> 9
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 9

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Leu 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 Arg Pro Gly Gln Ser
35 40 45

Pro Arg Leu 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 Leu Gly Ile Tyr Tyr Cys Phe Gln Gly
85 90 95

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

<210> 10
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 10

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
100 105

<210> 11
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 11

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

Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Arg Tyr
20 25 30

Gly Val Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
35 40 45

Gly Val Ile Trp Ser Gly Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
50 55 60

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

Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala
85 90 95

Arg Trp Leu Leu Pro Gly Tyr Phe Asp Val Trp Gly Gln Gly Thr Thr
100 105 110

Val Thr Val Ser Ser
115

<210> 12
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 12

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

Thr Leu Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Arg Tyr
20 25 30

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

Gly Val Ile Trp Ser Gly Gly Ser Thr Asp Tyr Asn Pro Ser Leu Lys
50 55 60

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

Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala
85 90 95

Arg Trp Leu Leu Pro Gly Tyr Phe Asp Val Trp Gly Gln Gly Thr Thr
100 105 110

Val Thr Val Ser Ser
115

<210> 13
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 13

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

Thr Leu Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Arg Tyr
20 25 30

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

Gly Val Ile Trp Ser Gly Gly Ser Thr Asp Tyr Asn Pro Ser Phe Lys
50 55 60

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

Lys Leu Ser Ser Leu Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala
85 90 95

Arg Trp Leu Leu Pro Gly Tyr Phe Asp Val Trp Gly Gln Gly Thr Thr
100 105 110

Val Thr Val Ser Ser
115

<210> 14
<211> 117
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 14

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

Thr Leu Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Arg Tyr
20 25 30

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

Gly Val Ile Trp Ser Gly Gly Ser Thr Asp Tyr Asn Ala Ala Phe Lys
50 55 60

Ser Arg Leu Ser Ile Ser Lys Asp Asn Ser Lys Asn Gln Val Phe Phe
65 70 75 80

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

Arg Trp Leu Leu Pro Gly Tyr Phe Asp Val Trp Gly Gln Gly Thr Thr
100 105 110

Val Thr Val Ser Ser
115

<210> 15
<211> 117
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 15

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

Ser Leu Arg Leu Ser Cys Ala Val Ser Gly Phe Ser Leu Ser Arg Tyr
20 25 30

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

Ser Val Ile Trp Ser Gly Gly Ser Thr Asp Tyr Ala Asp Ser Val Lys
50 55 60

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

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

Arg Trp Leu Leu Pro Gly Tyr Phe Asp Val Trp Gly Gln Gly Thr Thr
100 105 110

Val Thr Val Ser Ser
115

<210> 16

<211> 330

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 16

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

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

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

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

Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
165 170 175

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

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

Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
210 215 220

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

Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
245 250 255

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

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

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

Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
305 310 315 320

Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
325 330

<210> 17
<211> 37
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 17

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

Ser Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu Phe Ile Ala Trp Leu
20 25 30

Val Lys Gly Arg Gly
35

<210> 18
<211> 33
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 18

His Ala Asp Gly Ser Phe Ser Asp Glu Met Asn Thr Ile Leu Asp Asn
1 5 10 15

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

Asp

<210> 19
<211> 95
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 19

Met Ala Ala Ala Arg Leu Cys Leu Ser Leu Leu Leu Leu Ser Thr Cys
1 5 10 15

Val Ala Leu Leu Leu Gln Pro Leu Leu Gly Ala Gln Gly Ala Pro Leu
20 25 30

Glu Pro Val Tyr Pro Gly Asp Asn Ala Thr Pro Glu Gln Met Ala Gln
35 40 45

Tyr Ala Ala Asp Leu Arg Arg Tyr Ile Asn Met Leu Thr Arg Pro Arg
50 55 60

Tyr Gly Lys Arg His Lys Glu Asp Thr Leu Ala Phe Ser Glu Trp Gly
65 70 75 80

Ser Pro His Ala Ala Val Pro Arg Glu Leu Ser Pro Leu Asp Leu
85 90 95

<210> 20
<211> 97
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 20

Met Leu Gly Asn Lys Arg Leu Gly Leu Ser Gly Leu Thr Leu Ala Leu
1 5 10 15

Ser Leu Leu Val Cys Leu Gly Ala Leu Ala Glu Ala Tyr Pro Ser Lys
20 25 30

Pro Asp Asn Pro Gly Glu Asp Ala Pro Ala Glu Asp Met Ala Arg Tyr
35 40 45

Tyr Ser Ala Leu Arg His Tyr Ile Asn Leu Ile Thr Arg Gln Arg Tyr
50 55 60

Gly Lys Arg Ser Ser Pro Glu Thr Leu Ile Ser Asp Leu Leu Met Arg
65 70 75 80

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

Trp

<210> 21

<211> 97

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 21

Met Val Phe Val Arg Arg Pro Trp Pro Ala Leu Thr Thr Val Leu Leu
1 5 10 15

Ala Leu Leu Val Cys Leu Gly Ala Leu Val Asp Ala Tyr Pro Ile Lys
20 25 30

Pro Glu Ala Pro Gly Glu Asp Ala Ser Pro Glu Glu Leu Asn Arg Tyr
35 40 45

Tyr Ala Ser Leu Arg His Tyr Leu Asn Leu Val Thr Arg Gln Arg Tyr
50 55 60

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

Asp Gly Glu Asp Arg Pro Val Arg Ser Arg Ser Glu Gly Pro Asp Leu
85 90 95

Trp

<210> 22
<211> 87
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 22

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

Leu Phe Pro Ile Ser Trp Gln Met Pro Val Glu Ser Gly Leu Ser Ser
20 25 30

Glu Asp Ser Ala Ser Ser Glu Ser Phe Ala Ser Lys Ile Lys Arg His
35 40 45

Gly Glu Gly Thr Phe Thr Ser Asp Leu Ser Lys Gln Met Glu Glu Glu
50 55 60

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

Gly Ala Pro Pro Pro Ser Gly
85

<210> 23
<211> 119
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 23

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

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

Arg Tyr Gly Val His Trp Val Arg Gln Ser Pro Val Lys Gly Leu Glu
35 40 45

Trp Leu Gly Val Ile Trp Ser Gly Gly Ser Thr Asp Tyr Asn Ala Ala
50 55 60

Phe Ile Ser Arg Leu Ser Ile Asn Lys Asp Asn Ser Lys Ser Gln Val
65 70 75 80

Phe Phe Lys Met His Ser Leu Gln Thr Tyr Asp Thr Ala Arg Tyr Tyr
85 90 95

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

Thr Thr Val Thr Val Ser Ser
115

<210> 24

<211> 117

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide

<400> 24

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

Ser Leu Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Ser Arg Tyr
20 25 30

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

Gly Val Ile Trp Ser Gly Gly Ser Thr Asp Tyr Asn Ala Ala Phe Ile
50 55 60

Ser Arg Leu Ser Ile Asn Lys Asp Asn Ser Lys Ser Gln Val Phe Phe
65 70 75 80

Lys Met His Ser Leu Gln Thr Tyr Asp Thr Ala Arg Tyr Tyr Cys Ala
85 90 95

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

Val Thr Val Ser Ser
115

<210> 25
<211> 112
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic peptide

<400> 25

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

Asp Gln 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 Lys Leu 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 Leu Gly Ile Tyr Tyr Cys Phe Gln Gly
85 90 95

Ser His Val Pro Phe Ala Phe Gly Ser Gly Thr Lys Leu Glu Ile Glu
100 105 110