

SEQUENCE LISTING

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<120> THERAPEUTIC PEPTIDES AND METHODS FOR TREATING AUTOIMMUNE RELATED DISEASE

<130> SOP0-00401W0

<140> PCT/US19/12425

<141> 2019-01-04

<150> 62/614,262

<151> 2018-01-05

<160> 32

<210> 1

<211> 260

<212> PRT

<213> Mus musculus

<400> 1

Met Ile Glu Thr Tyr Ser Gln Pro Ser Pro Arg Ser Val Ala Thr Gly
1 5 10 15

Leu Pro Ala Ser Met Lys Ile Phe Met Tyr Leu Leu Thr Val Phe Leu
20 25 30

Ile Thr Gln Met Ile Gly Ser Val Leu Phe Ala Val Tyr Leu His Arg
35 40 45

Arg Leu Asp Lys Val Glu Glu Glu Val Asn Leu His Glu Asp Phe Val
50 55 60

Phe Ile Lys Lys Leu Lys Arg Cys Asn Lys Gly Glu Gly Ser Leu Ser
65 70 75 80

Leu Leu Asn Cys Glu Glu Met Arg Arg Gln Phe Glu Asp Leu Val Lys
85 90 95

Asp Ile Thr Leu Asn Lys Glu Glu Lys Lys Glu Asn Ser Phe Glu Met
100 105 110

Gln Arg Gly Asp Glu Asp Pro Gln Ile Ala Ala His Val Val Ser Glu
115 120 125

Ala Asn Ser Asn Ala Ala Ser Val Leu Gln Trp Ala Lys Lys Gly Tyr
130 135 140

Tyr Thr Met Lys Ser Asn Leu Val Met Leu Glu Asn Gly Lys Gln Leu
145 150 155 160

Thr Val Lys Arg Glu Gly Leu Tyr Tyr Val Tyr Thr Gln Val Thr Phe
165 170 175

Cys Ser Asn Arg Glu Pro Ser Ser Gln Arg Pro Phe Ile Val Gly Leu
180 185 190

Trp Leu Lys Pro Ser Ser Gly Ser Glu Arg Ile Leu Leu Lys Ala Ala
195 200 205

Asn Thr His Ser Ser Ser Gln Leu Cys Glu Gln Gln Ser Val His Leu
210 215 220

Gly Gly Val Phe Glu Leu Gln Ala Gly Ala Ser Val Phe Val Asn Val
225 230 235 240

Thr Glu Ala Ser Gln Val Ile His Arg Val Gly Phe Ser Ser Phe Gly
245 250 255

Leu Leu Lys Leu
260

<210> 2
<211> 261
<212> PRT
<213> Homo sapiens

<400> 2

Met Ile Glu Thr Tyr Asn Gln Thr Ser Pro Arg Ser Ala Ala Thr Gly
1 5 10 15

Leu Pro Ile Ser Met Lys Ile Phe Met Tyr Leu Leu Thr Val Phe Leu
20 25 30

Ile Thr Gln Met Ile Gly Ser Ala Leu Phe Ala Val Tyr Leu His Arg
35 40 45

Arg Leu Asp Lys Ile Glu Asp Glu Arg Asn Leu His Glu Asp Phe Val
50 55 60

Phe Met Lys Thr Ile Gln Arg Cys Asn Thr Gly Glu Arg Ser Leu Ser
65 70 75 80

Leu Leu Asn Cys Glu Glu Ile Lys Ser Gln Phe Glu Gly Phe Val Lys
85 90 95

Asp Ile Met Leu Asn Lys Glu Glu Thr Lys Lys Glu Asn Ser Phe Glu
100 105 110

Met Gln Lys Gly Asp Gln Asn Pro Gln Ile Ala Ala His Val Ile Ser
115 120 125

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

Tyr Tyr Thr Met Ser Asn Asn Leu Val Thr Leu Glu Asn Gly Lys Gln
145 150 155 160

Leu Thr Val Lys Arg Gln Gly Leu Tyr Tyr Ile Tyr Ala Gln Val Thr
165 170 175

Phe Cys Ser Asn Arg Glu Ala Ser Ser Gln Ala Pro Phe Ile Ala Ser
180 185 190

Leu Cys Leu Lys Ser Pro Gly Arg Phe Glu Arg Ile Leu Leu Arg Ala
195 200 205

Ala Asn Thr His Ser Ser Ala Lys Pro Cys Gly Gln Gln Ser Ile His
210 215 220

Leu Gly Gly Val Phe Glu Leu Gln Pro Gly Ala Ser Val Phe Val Asn
225 230 235 240

Val Thr Asp Pro Ser Gln Val Ser His Gly Thr Gly Phe Thr Ser Phe
245 250 255

Gly Leu Leu Lys Leu

<210> 3
<211> 4
<212> PRT
<213> Mus musculus

<400> 3

Lys Gly Tyr Tyr
1

<210> 4
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 4

Lys Lys Gly Tyr Tyr Thr
1 5

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

<220>
<223> Synthetic Peptide

<400> 5

Ala Lys Lys Gly Tyr Tyr Thr Met
1 5

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

<220>
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<400> 6

Ala Glu Lys Gly Tyr Tyr Thr Met
1 5

<210> 7
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<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Peptide

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Val	Leu	Gln	Trp	Ala	Lys	Lys	Gly	Tyr	Tyr	Thr	Met	Lys	Ser	Lys
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<210> 8

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 8

Val	Leu	Gln	Trp	Ala	Glu	Lys	Gly	Tyr	Tyr	Thr	Met	Ser	Asn	Asn
1				5					10					15

<210> 9

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 9

Asn	Ala	Ala	Ser	Val	Leu	Gln	Trp	Ala	Lys	Lys	Gly	Tyr	Tyr	Thr	Met
1				5					10						15

Lys	Ser	Asn	Leu	Val	Met	Leu	Glu
			20				

<210> 10

<211> 17

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 10

Ile	Ser	Gln	Ala	Val	His	Ala	Ala	His	Ala	Glu	Ile	Asn	Glu	Ala	Gly
1				5					10					15	

Arg

<210> 11
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 11

Gly	Leu	Gln	Trp	Ala	Lys	Lys	Gly	Tyr	Tyr	Thr	Met	Lys	Ser	Asn
1				5				10						15

<210> 12
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 12

Val	Gly	Gln	Trp	Ala	Lys	Lys	Gly	Tyr	Tyr	Thr	Met	Lys	Ser	Asn
1				5				10						15

<210> 13
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 13

Val	Leu	Gly	Trp	Ala	Lys	Lys	Gly	Tyr	Tyr	Thr	Met	Lys	Ser	Asn
1				5				10						15

<210> 14
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 14

Val	Leu	Gln	Gly	Ala	Lys	Lys	Gly	Tyr	Tyr	Thr	Met	Lys	Ser	Asn
1				5				10						15

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

<220>
<223> Synthetic Peptide

<400> 15

Val	Leu	Gln	Trp	Gly	Lys	Lys	Gly	Tyr	Tyr	Thr	Met	Lys	Ser	Asn
1				5					10					15

<210> 16
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 16

Val	Leu	Gln	Trp	Ala	Gly	Lys	Gly	Tyr	Tyr	Thr	Met	Lys	Ser	Asn
1				5					10					15

<210> 17
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 17

Val	Leu	Gln	Trp	Ala	Lys	Gly	Gly	Tyr	Tyr	Thr	Met	Lys	Ser	Asn
1				5					10					15

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

<220>
<223> Synthetic Peptide

<400> 18

Val	Leu	Gln	Trp	Ala	Lys	Lys	Gly	Gly	Tyr	Thr	Met	Lys	Ser	Asn
1				5					10					15

<210> 19

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

<220>
<223> Synthetic Peptide

<400> 19

Val	Leu	Gln	Trp	Ala	Lys	Lys	Gly	Tyr	Gly	Thr	Met	Lys	Ser	Asn
1				5					10					15

<210> 20
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 20

Val	Leu	Gln	Trp	Ala	Lys	Lys	Gly	Tyr	Tyr	Gly	Met	Lys	Ser	Asn
1				5					10					15

<210> 21
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 21

Val	Leu	Gln	Trp	Ala	Lys	Lys	Gly	Tyr	Tyr	Thr	Gly	Lys	Ser	Asn
1				5					10					15

<210> 22
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 22

Ile	Ser	Gln	Ala	Val	His	Ala	Ala	His	Ala	Glu	Ile	Asn	Glu	Ala	Gly
1				5					10					15	

Arg

<210> 23
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 23

Tyr	Val	Gln	Gly	Lys	Ala	Asn	Leu	Lys	Ser	Lys	Leu	Met	Tyr	Thr
1				5					10					15

<210> 24
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 24

Trp	Ala	Lys	Lys	Gly	Tyr	Tyr	Thr	Met	Lys
1				5					10

<210> 25
<211> 13
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 25

Val	Leu	Gln	Trp	Ala	Lys	Lys	Gly	Tyr	Tyr	Thr	Met	Lys
1				5					10			

<210> 26
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 26

Ala	Ala	Ser	Val	Leu	Gln	Trp	Ala	Lys	Lys	Gly	Tyr	Tyr	Thr	Met	Lys
1				5					10					15	

Ser Asn Leu Val Val Leu Glu Asn
20

<210> 27
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 27

Lys Gly Tyr Tyr Thr Met
1 5

<210> 28
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 28

Ala Glu Lys Gly Tyr Tyr
1 5

<210> 29
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 29

Ala Lys Lys Gly Tyr Tyr
1 5

<210> 30
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Peptide

<400> 30

Ala Lys Gly Tyr Tyr Thr

1

5

<210> 31

<211> 15

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 31

Tyr	Lys	Asn	Val	Lys	Gln	Met	Ala	Tyr	Trp	Leu	Thr	Gly	Lys	Ser
1				5					10					15

<210> 32

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic Peptide

<400> 32

Ala	Ala	Ser	Val	Leu	Gln	Trp	Ala	Lys	Lys	Gly	Tyr	Tyr	Thr	Met	Lys
1				5					10					15	

Ser	Asn	Leu	Val	Met	Leu	Glu	Asn
							20