

2015012276  
SEQUENCE LISTING

<110> Xigen Inflammation Ltd.  
<120> New use of cell-permeable peptide inhibitors of the JNK signal transduction pathway for the treatment of various diseases  
<130> CX01P048W02  
<160> 105  
<170> PatentIn version 3.3  
<210> 1  
<211> 19  
<212> PRT  
<213> Artificial  
<220>  
<223> Description of sequence: Peptide L-IB1(s) (see Table 1)  
<400> 1

Arg Pro Lys Arg Pro Thr Thr Leu Asn Leu Phe Pro Gln Val Pro Arg  
1 5 10 15

Ser Gln Asp

<210> 2  
<211> 19  
<212> PRT  
<213> Artificial  
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<223> Description of sequence: Peptide D-IB1(s) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(19)  
<223> all amino acids are D-amino acids

<400> 2

Asp Gln Ser Arg Pro Val Gln Pro Phe Leu Asn Leu Thr Thr Pro Arg  
1 5 10 15

Lys Pro Arg

<210> 3  
 <211> 19  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Description of sequence: Peptide L-IB (generic) (s) (see Table 1)

<220>  
 <221> misc\_feature  
 <223> Description of sequence: general  
 formula: NH<sub>2</sub>-Xnb-Xna-RPTTLXLLLLXXXXXQD-Xnb-COOH (see Table 1)

<220>  
 <221> VARIANT  
 <222> (1)..(1)  
 <223> Xaa is Xnb as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<220>  
 <221> REPEAT  
 <222> (1)..(1)  
 <223> Xaa is Xnb as defined in the general formula, wherein n is 0-5, 5-10, 10-15, 15-20, 20-30 or more for Xnb

<220>  
 <221> VARIANT  
 <222> (2)..(2)  
 <223> Xaa is Xna as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue except serine and threonine

<220>  
 <221> REPEAT  
 <222> (2)..(2)  
 <223> Xaa is Xna as defined in the general formula, wherein n is 0 or 1

<220>  
 <221> VARIANT  
 <222> (8)..(8)  
 <223> Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<220>  
 <221> VARIANT  
 <222> (10)..(16)  
 <223> Xaa represents an amino acid residue, preferably selected from

any (native) amino acid residue;

<220>

<221> REPEAT

<222> (19)..(19)

<223> Xaa is Xnb as defined in the general formula, wherein n is 0-5, 5-10, 10-15, 15-20, 20-30 or more for Xnb

<220>

<221> VARIANT

<222> (19)..(19)

<223> Xaa is Xnb as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<400> 3

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Xaa | Arg | Pro | Thr | Thr | Leu | Xaa | Leu | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |

Gln Asp Xaa

<210> 4

<211> 19

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: Peptide D-IB (generic) (s) (see Table 1)

<220>

<221> misc\_feature

<223> Description of sequence: general formula:  
NH<sub>2</sub>-Xnb-DQXXXXXXXXLXLTPR-Xna-Xnb-COOH,

<220>

<221> MUTAGEN

<222> (1)..(19)

<223> all amino acids are D-amino acids

<220>

<221> VARIANT

<222> (1)..(11)

<223> Xaa is Xnb as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<220>

- <221> REPEAT  
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 <223> Xaa is Xnb as defined in the general formula, wherein n is 0-5, 5-10, 10-15, 15-20, 20-30 or more for Xnb
- <220>  
 <221> VARIANT  
 <222> (4)..(10)  
 <223> Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;
- <220>  
 <221> VARIANT  
 <222> (12)..(12)  
 <223> Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;
- <220>  
 <221> REPEAT  
 <222> (18)..(18)  
 <223> Xaa is Xna as defined in the general formula, wherein n is 0 or 1
- <220>  
 <221> VARIANT  
 <222> (18)..(18)  
 <223> Xaa is Xna as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue except serine and Threonine
- <220>  
 <221> VARIANT  
 <222> (18)..(18)  
 <223> Xaa is Xna as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue except serine and threonine
- <220>  
 <221> REPEAT  
 <222> (19)..(19)  
 <223> Xaa is Xnb as defined in the general formula, wherein n is 0-5, 5-10, 10-15, 15-20, 20-30 or more for Xnb
- <220>  
 <221> VARIANT  
 <222> (19)..(19)  
 <223> Xaa is Xnb as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;
- <400> 4

Xaa Asp Gln Xaa Xaa Xaa Xaa Xaa Xaa Xaa Leu Xaa Leu Thr Thr Pro



<223> General formula: NH<sub>2</sub>-Xnb-RKKRRQRRR-Xnb-COOH (see Table 1)

<220>

<221> VARIANT

<222> (1)..(1)

<223> Xaa is Xnb as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<220>

<221> REPEAT

<222> (1)..(1)

<223> Xaa is Xnb as defined in the general formula, wherein n is 0-5, 5-10, 10-15, 15-20, 20-30 or more for Xnb

<220>

<221> VARIANT

<222> (11)..(11)

<223> Xaa is Xnb as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<220>

<221> REPEAT

<222> (11)..(11)

<223> Xaa is Xnb as defined in the general formula, wherein n is 0-5, 5-10, 10-15, 15-20, 20-30 or more for Xnb

<400> 7

|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Arg | Lys | Lys | Arg | Arg | Gln | Arg | Arg | Arg | Xaa |
| 1   |     |     |     | 5   |     |     |     |     |     | 10  |

<210> 8

<211> 11

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: Peptide D-generic-TAT (s) (see Table 1)

<220>

<221> misc\_feature

<223> General formula: NH<sub>2</sub>-Xnb-RRRQRRKKR-Xnb-COOH

<220>

<221> MUTAGEN

<222> (1)..(10)

<223> all amino acids are D-amino acids

&lt;220&gt;

&lt;221&gt; VARIANT

&lt;222&gt; (1)..(1)

<223> Xaa is Xnb as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

&lt;220&gt;

&lt;221&gt; REPEAT

&lt;222&gt; (1)..(1)

<223> Xaa is Xnb as defined in the general formula, wherein n is 0-5, 5-10, 10-15, 15-20, 20-30 or more for Xnb

&lt;220&gt;

&lt;221&gt; VARIANT

&lt;222&gt; (11)..(11)

<223> Xaa is Xnb as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

&lt;220&gt;

&lt;221&gt; REPEAT

&lt;222&gt; (11)..(11)

<223> Xaa is Xnb as defined in the general formula, wherein n is 0-5, 5-10, 10-15, 15-20, 20-30 or more for Xnb

&lt;400&gt; 8

Xaa Arg Arg Arg Gln Arg Arg Lys Lys Arg Xaa  
1 5 10

&lt;210&gt; 9

&lt;211&gt; 31

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: L-TAT-IB1 (s) (see Table 1)

&lt;400&gt; 9

Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Arg Pro Lys Arg  
1 5 10 15

Pro Thr Thr Leu Asn Leu Phe Pro Gln Val Pro Arg Ser Gln Asp  
20 25 30

&lt;210&gt; 10

&lt;211&gt; 29

<212> PRT  
 <213> Artificial

<220>  
 <223> Description of sequence: Peptide L-TAT (generic) (s) (see Table 1)

<220>  
 <221> misc\_feature  
 <223> Description of sequence: General formula:  
 NH2-Xnb-RKKRRQRRR-Xnb-Xna-RPTTLXLXXXXXXQD-Xnb-COOH

<220>  
 <221> VARIANT  
 <222> (1)..(1)  
 <223> Xaa is Xnb as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<220>  
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 <222> (1)..(1)  
 <223> Xaa is Xnb as defined in the general formula, wherein n is 0-5, 5-10, 10-15, 15-20, 20-30 or more for Xnb

<220>  
 <221> VARIANT  
 <222> (11)..(11)  
 <223> Xaa is Xnb as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<220>  
 <221> REPEAT  
 <222> (11)..(11)  
 <223> Xaa is Xnb as defined in the general formula, wherein n is 0-5, 5-10, 10-15, 15-20, 20-30 or more for Xnb

<220>  
 <221> VARIANT  
 <222> (12)..(12)  
 <223> Xaa is Xna as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue except serine and Threonine

<220>  
 <221> REPEAT  
 <222> (12)..(12)  
 <223> Xaa is Xna as defined in the general formula, wherein n is 0 or 1

<220>



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<221> VARIANT  
<222> (18)..(18)  
<223> Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<220>  
<221> VARIANT  
<222> (20)..(26)  
<223> Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<220>  
<221> VARIANT  
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<223> Xaa is Xnb as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<220>  
<221> REPEAT  
<222> (29)..(29)  
<223> Xaa is Xnb as defined in the general formula, wherein n is 0-5, 5-10, 10-15, 15-20, 20-30 or more for Xnb

<400> 10

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Arg | Lys | Lys | Arg | Arg | Gln | Arg | Arg | Arg | Xaa | Xaa | Arg | Pro | Thr | Thr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Xaa | Leu | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Gln | Asp | Xaa |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |

<210> 11  
<211> 31  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: Peptid D-TAT-IB1 (s) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(31)  
<223> all amino acids are D-amino acids

<400> 11

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Gln | Ser | Arg | Pro | Val | Gln | Pro | Phe | Leu | Asn | Leu | Thr | Thr | Pro | Arg |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

Lys Pro Arg Pro Pro Arg Arg Arg Gln Arg Arg Lys Lys Arg Gly  
                   20                                  25                                  30

<210> 12

<211> 29

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: Peptid: D-TAT (generic) (s) (see Table 1)

<220>

<221> misc\_feature

<223> General formula:

NH<sub>2</sub>-Xnb-DQXXXXXXXXLXLTPR-Xna-Xnb-RRRQRRKKR-Xnb-COOH,

<220>

<221> MUTAGEN

<222> (1)..(19)

<223> all amino acids are D-amino acids

<220>

<221> VARIANT

<222> (1)..(1)

<223> Xaa is Xnb as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<220>

<221> REPEAT

<222> (1)..(1)

<223> Xaa is Xnb as defined in the general formula, wherein n is 0-5, 5-10, 10-15, 15-20, 20-30 or more for Xnb

<220>

<221> VARIANT

<222> (4)..(10)

<223> Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<220>

<221> VARIANT

<222> (12)..(12)

<223> Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<220>

<221> VARIANT  
 <222> (18)..(18)  
 <223> Xaa is Xna as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue except serine and threonine

<220>  
 <221> REPEAT  
 <222> (18)..(18)  
 <223> Xaa is Xna as defined in the general formula, wherein n is 0 or 1

<220>  
 <221> VARIANT  
 <222> (19)..(19)  
 <223> Xaa is Xnb as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<220>  
 <221> REPEAT  
 <222> (19)..(19)  
 <223> Xaa is Xnb as defined in the general formula, wherein n is 0-5, 5-10, 10-15, 15-20, 20-30 or more for Xnb

<220>  
 <221> VARIANT  
 <222> (29)..(29)  
 <223> Xaa is Xnb as defined in the general formula, wherein Xaa represents an amino acid residue, preferably selected from any (native) amino acid residue;

<220>  
 <221> REPEAT  
 <222> (29)..(29)  
 <223> Xaa is Xnb as defined in the general formula, wherein n is 0-5, 5-10, 10-15, 15-20, 20-30 or more for Xnb

<400> 12

Xaa Asp Gln Xaa Xaa Xaa Xaa Xaa Xaa Xaa Leu Xaa Leu Thr Thr Pro  
 1 5 10 15

Arg Xaa Xaa Arg Arg Arg Gln Arg Arg Lys Lys Arg Xaa  
 20 25

<210> 13  
 <211> 29  
 <212> PRT  
 <213> Artificial

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<220>

<223> Description of sequence: peptide IB1-long (see Table 1)

<400> 13

Pro Gly Thr Gly Cys Gly Asp Thr Tyr Arg Pro Lys Arg Pro Thr Thr  
1 5 10 15

Leu Asn Leu Phe Pro Gln Val Pro Arg Ser Gln Asp Thr  
20 25

<210> 14

<211> 27

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: Peptide IB2-long (see Table 1)

<400> 14

Ile Pro Ser Pro Ser Val Glu Glu Pro His Lys His Arg Pro Thr Thr  
1 5 10 15

Leu Arg Leu Thr Thr Leu Gly Ala Gln Asp Ser  
20 25

<210> 15

<211> 29

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: Peptide derived from c-Jun (see Table 1)

<400> 15

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

Leu Asn Leu Ala Asp Pro Val Gly Asn Leu Lys Pro His  
20 25

<210> 16

<211> 29

<212> PRT

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<213> Artificial

<220>

<223> Description of sequence: Peptide derived from ATF2 (see Table 1)

<400> 16

Thr Asn Glu Asp His Leu Ala Val His Lys His Lys His Glu Met Thr  
1 5 10 15

Leu Lys Phe Gly Pro Ala Arg Asn Asp Ser Val Ile Val  
20 25

<210> 17

<211> 23

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: Peptide L-IB1 (see Table 1)

<400> 17

Asp Thr Tyr Arg Pro Lys Arg Pro Thr Thr Leu Asn Leu Phe Pro Gln  
1 5 10 15

Val Pro Arg Ser Gln Asp Thr  
20

<210> 18

<211> 23

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: Peptide D-IB1 (see Table 1)

<220>

<221> MUTAGEN

<222> (1)..(23)

<223> all amino acids are D-amino acids

<400> 18

Thr Asp Gln Ser Arg Pro Val Gln Pro Phe Leu Asn Leu Thr Thr Pro  
1 5 10 15

Arg Lys Pro Arg Tyr Thr Asp  
20

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

<220>  
<223> Description of sequence: Peptide L-IB (generic) (see Table 1)

<220>  
<221> VARIANT  
<222> (1)..(1)  
<223> Xaa is selected from any amino acid residue,

<220>  
<221> VARIANT  
<222> (7)..(7)  
<223> Xaa is selected from any amino acid residue,

<220>  
<221> VARIANT  
<222> (9)..(15)  
<223> Xaa is selected from any amino acid residue,

<220>  
<221> VARIANT  
<222> (18)..(18)  
<223> Xaa is selected from serine or threonine,

<220>  
<221> VARIANT  
<222> (19)..(19)  
<223> Xaa is selected from any amino acid residue,

<400> 19

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Arg | Pro | Thr | Thr | Leu | Xaa | Leu | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Gln |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |

Asp Xaa Xaa

<210> 20  
<211> 19  
<212> PRT

<213> Artificial

<220>

<223> Description of sequence: Peptide D-IB (generic) (see Table 1)

<220>

<221> MUTAGEN

<222> (1)..(19)

<223> all amino acids are D-amino acids

<220>

<221> VARIANT

<222> (1)..(1)

<223> Xaa is selected from any amino acid residue

<220>

<221> VARIANT

<222> (2)..(2)

<223> Xaa is selected from serine or threonine

<220>

<221> VARIANT

<222> (5)..(11)

<223> Xaa is selected from any amino acid residue

<220>

<221> VARIANT

<222> (13)..(13)

<223> Xaa is selected from any amino acid residue

<220>

<221> VARIANT

<222> (19)..(19)

<223> Xaa is selected from any amino acid residue

<400> 20

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Xaa | Asp | Gln | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Leu | Xaa | Leu | Thr | Thr |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |

Pro Arg Xaa

<210> 21

<211> 17

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: Peptide L-generic-TAT (see Table 1)

<220>

<221> VARIANT

<222> (1)..(17)

<223> Xaa is selected from any amino acid residue

<400> 21

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Xaa | Xaa | Xaa | Arg | Lys | Lys | Arg | Arg | Gln | Arg | Arg | Arg | Xaa | Xaa | Xaa |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |     |

Xaa

<210> 22

<211> 17

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: Peptide D-generic-TAT (see Table 1)

<220>

<221> MUTAGEN

<222> (1)..(17)

<223> all amino acids are D-amino acids

<220>

<221> VARIANT

<222> (1)..(17)

<223> Xaa is selected from any amino acid residue

<400> 22

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Xaa | Xaa | Xaa | Arg | Arg | Arg | Gln | Arg | Arg | Lys | Lys | Arg | Xaa | Xaa | Xaa |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |     |

Xaa

<210> 23

<211> 35

<212> PRT

<213> Artificial



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<220>

<223> Description of sequence: Peptide L-TAT-IB1 (see Table 1)

<400> 23

Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Pro Pro Asp Thr Tyr Arg  
1 5 10 15

Pro Lys Arg Pro Thr Thr Leu Asn Leu Phe Pro Gln Val Pro Arg Ser  
20 25 30

Gln Asp Thr  
35

<210> 24

<211> 42

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: Peptide L-TAT IB (generic) (see Table 1)

<220>

<221> VARIANT

<222> (1)..(40)

<223> Xaa is selected from any amino acid residue

<220>

<221> VARIANT

<222> (41)..(41)

<223> Xaa is selected from serine or threonine

<220>

<221> VARIANT

<222> (42)..(42)

<223> Xaa is selected from any amino acid residue

<400> 24

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Arg Lys Lys Arg Arg Gln Arg Arg Arg  
1 5 10 15

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Arg Pro Thr Thr Leu Xaa Leu Xaa  
20 25 30

Xaa Xaa Xaa Xaa Xaa Xaa Gln Asp Xaa Xaa

35

40

<210> 25  
 <211> 35  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Description of sequence: Peptide D-TAT-IB1 (see Table 1)

<220>  
 <221> MUTAGEN  
 <222> (1)..(35)  
 <223> all amino acids are D-amino acids

<400> 25

Thr Asp Gln Ser Arg Pro Val Gln Pro Phe Leu Asn Leu Thr Thr Pro  
 1 5 10 15

Arg Lys Pro Arg Tyr Thr Asp Pro Pro Arg Arg Arg Gln Arg Arg Lys  
 20 25 30

Lys Arg Gly  
 35

<210> 26  
 <211> 42  
 <212> PRT  
 <213> Artificial

<220>  
 <223> Description of sequence: Peptide D-TAT IB (generic) (see Table 1)

<220>  
 <221> MUTAGEN  
 <222> (1)..(42)  
 <223> all amino acids are D-amino acids

<220>  
 <221> VARIANT  
 <222> (1)..(1)  
 <223> Xaa is selected from any amino acid residue

<220>  
 <221> VARIANT

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<222> (2)..(2)

<223> Xaa is selected from serine or threonine

<220>

<221> VARIANT

<222> (3)..(42)

<223> Xaa is selected from any amino acid residue

<400> 26

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Xaa | Xaa | Asp | Gln | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Leu | Xaa | Leu | Thr | Thr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Arg | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Arg | Arg | Arg | Gln | Arg | Arg |
|     |     |     | 20  |     |     |     |     |     | 25  |     |     |     |     | 30  |     |

|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Lys | Arg | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa | Xaa |
|     |     |     | 35  |     |     |     |     |     | 40  |     |

<210> 27

<211> 30

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: chimeric peptide sequence L-TAT-IB1(s1)  
(see Table 1)

<400> 27

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Lys | Lys | Arg | Arg | Gln | Arg | Arg | Arg | Pro | Pro | Arg | Pro | Lys | Arg | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Thr | Leu | Asn | Leu | Phe | Pro | Gln | Val | Pro | Arg | Ser | Gln | Asp |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |

<210> 28

<211> 30

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: chimeric peptide sequence L-TAT-IB1(s2)  
(see Table 1)

<220>

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<221> VARIANT  
<222> (11)..(11)  
<223> Xaa is selected from glycine or proline

<220>  
<221> REPEAT  
<222> (11)..(11)  
<223> Xaa is Xnc as defined in the general formula, wherein n is 0-5,  
5-10, 10-15, 15-20, 20-30 or more for Xnc

<400> 28

Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Xaa Arg Pro Lys Arg Pro  
1 5 10 15

Thr Thr Leu Asn Leu Phe Pro Gln Val Pro Arg Ser Gln Asp  
20 25 30

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

<220>  
<223> Description of sequence: chimeric peptide sequence L-TAT-IB1(s3)  
(see Table 1)

<220>  
<221> VARIANT  
<222> (10)..(10)  
<223> Xaa is selected from glycine or proline

<220>  
<221> REPEAT  
<222> (10)..(10)  
<223> Xaa is Xnc as defined in the general formula, wherein n is 0-5,  
5-10, 10-15, 15-20, 20-30 or more for Xnc

<400> 29

Arg Lys Lys Arg Arg Gln Arg Arg Arg Xaa Arg Pro Lys Arg Pro Thr  
1 5 10 15

Thr Leu Asn Leu Phe Pro Gln Val Pro Arg Ser Gln Asp  
20 25

<210> 30

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<211> 30  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: chimeric peptide sequence D-TAT-IB1(s1)  
(see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(30)  
<223> all amino acids are D-amino acids

<400> 30

Asp Gln Ser Arg Pro Val Gln Pro Phe Leu Asn Leu Thr Thr Pro Arg  
1 5 10 15

Lys Pro Arg Pro Pro Arg Arg Arg Gln Arg Arg Lys Lys Arg  
20 25 30

<210> 31  
<211> 30  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: chimeric peptide sequence D-TAT-IB1(s2)  
(see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(30)  
<223> all amino acids are D-amino acids

<220>  
<221> VARIANT  
<222> (20)..(20)  
<223> Xaa is selected from glycine or proline

<220>  
<221> REPEAT  
<222> (20)..(20)  
<223> Xaa is Xnc as defined in the general formula, wherein n is 0-5,  
5-10, 10-15, 15-20, 20-30 or more for Xnc

<400> 31

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Asp Gln Ser Arg Pro Val Gln Pro Phe Leu Asn Leu Thr Thr Pro Arg  
1 5 10 15

Lys Pro Arg Xaa Arg Arg Arg Gln Arg Arg Lys Lys Arg Gly  
20 25 30

<210> 32  
<211> 29  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: chimeric peptide sequence D-TAT-IB1(s3)  
(see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(29)  
<223> all amino acids are D-amino acids

<220>  
<221> VARIANT  
<222> (20)..(20)  
<223> Xaa is selected from glycine or proline

<220>  
<221> REPEAT  
<222> (20)..(20)  
<223> Xaa is Xnc as defined in the general formula, wherein n is 0-5,  
5-10, 10-15, 15-20, 20-30 or more for Xnc

<400> 32

Asp Gln Ser Arg Pro Val Gln Pro Phe Leu Asn Leu Thr Thr Pro Arg  
1 5 10 15

Lys Pro Arg Xaa Arg Arg Arg Gln Arg Arg Lys Lys Arg  
20 25

<210> 33  
<211> 13  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: L-IB1(s1) (see Table 1)

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<400> 33

Thr Leu Asn Leu Phe Pro Gln Val Pro Arg Ser Gln Asp  
1 5 10

<210> 34

<211> 13

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: L-IB1(s2) (see Table 1)

<400> 34

Thr Thr Leu Asn Leu Phe Pro Gln Val Pro Arg Ser Gln  
1 5 10

<210> 35

<211> 13

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: L-IB1(s3) (see Table 1)

<400> 35

Pro Thr Thr Leu Asn Leu Phe Pro Gln Val Pro Arg Ser  
1 5 10

<210> 36

<211> 13

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: L-IB1(s4) (see Table 1)

<400> 36

Arg Pro Thr Thr Leu Asn Leu Phe Pro Gln Val Pro Arg  
1 5 10

<210> 37

<211> 13

<212> PRT

<213> Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: L-IB1(s5) (see Table 1)

&lt;400&gt; 37

|     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Arg | Pro | Thr | Thr | Leu | Asn | Leu | Phe | Pro | Gln | Val | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |

&lt;210&gt; 38

&lt;211&gt; 13

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: L-IB1(s6) (see Table 1)

&lt;400&gt; 38

|     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Lys | Arg | Pro | Thr | Thr | Leu | Asn | Leu | Phe | Pro | Gln | Val |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |

&lt;210&gt; 39

&lt;211&gt; 13

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: L-IB1(s7) (see Table 1)

&lt;400&gt; 39

|     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Pro | Lys | Arg | Pro | Thr | Thr | Leu | Asn | Leu | Phe | Pro | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |

&lt;210&gt; 40

&lt;211&gt; 12

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: L-IB1(s8) (see Table 1)

&lt;400&gt; 40

|     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Asn | Leu | Phe | Pro | Gln | Val | Pro | Arg | Ser | Gln | Asp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |



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<210> 41  
<211> 12  
<212> PRT  
<213> Artificial

<220>

<223> Description of sequence: L-IB1(s9) (see Table 1)

<400> 41

|     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Leu | Asn | Leu | Phe | Pro | Gln | Val | Pro | Arg | Ser | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |

<210> 42  
<211> 12  
<212> PRT  
<213> Artificial

<220>

<223> Description of sequence: L-IB1(s10) (see Table 1)

<400> 42

|     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Thr | Leu | Asn | Leu | Phe | Pro | Gln | Val | Pro | Arg | Ser |
| 1   |     |     |     | 5   |     |     |     |     |     | 10  |     |

<210> 43  
<211> 12  
<212> PRT  
<213> Artificial

<220>

<223> Description of sequence: L-IB1(s11) (see Table 1)

<400> 43

|     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Thr | Thr | Leu | Asn | Leu | Phe | Pro | Gln | Val | Pro | Arg |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |

<210> 44  
<211> 12  
<212> PRT  
<213> Artificial

<220>

<223> Description of sequence: L-IB1(s12) (see Table 1)

<400> 44

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Arg Pro Thr Thr Leu Asn Leu Phe Pro Gln Val Pro  
1 5 10

<210> 45  
<211> 12  
<212> PRT  
<213> Artificial

<220>

<223> Description of sequence: L-IB1(s13) (see Table 1)

<400> 45

Lys Arg Pro Thr Thr Leu Asn Leu Phe Pro Gln Val  
1 5 10

<210> 46  
<211> 12  
<212> PRT  
<213> Artificial

<220>

<223> Description of sequence: L-IB1(s14) (see Table 1)

<400> 46

Pro Lys Arg Pro Thr Thr Leu Asn Leu Phe Pro Gln  
1 5 10

<210> 47  
<211> 12  
<212> PRT  
<213> Artificial

<220>

<223> Description of sequence: L-IB1(s15) (see Table 1)

<400> 47

Arg Pro Lys Arg Pro Thr Thr Leu Asn Leu Phe Pro  
1 5 10

<210> 48  
<211> 11  
<212> PRT  
<213> Artificial

<220>

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<223> Description of sequence: L-IB1(s16) (see Table 1)

<400> 48

|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Leu | Phe | Pro | Gln | Val | Pro | Arg | Ser | Gln | Asp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |

<210> 49

<211> 11

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: L-IB1(s17) (see Table 1)

<400> 49

|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Asn | Leu | Phe | Pro | Gln | Val | Pro | Arg | Ser | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |

<210> 50

<211> 11

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: L-IB1(s18) (see Table 1)

<400> 50

|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Leu | Asn | Leu | Phe | Pro | Gln | Val | Pro | Arg | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |

<210> 51

<211> 11

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: L-IB1(s19) (see Table 1)

<400> 51

|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Thr | Leu | Asn | Leu | Phe | Pro | Gln | Val | Pro | Arg |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |

<210> 52

<211> 11

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<212> PRT  
<213> Artificial

<220>

<223> Description of sequence: L-IB1(s20) (see Table 1)

<400> 52

|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Thr | Thr | Leu | Asn | Leu | Phe | Pro | Gln | Val | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |

<210> 53  
<211> 11  
<212> PRT  
<213> Artificial

<220>

<223> Description of sequence: L-IB1(s21) (see Table 1)

<400> 53

|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Pro | Thr | Thr | Leu | Asn | Leu | Phe | Pro | Gln | Val |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |

<210> 54  
<211> 11  
<212> PRT  
<213> Artificial

<220>

<223> Description of sequence: L-IB1(s22) (see Table 1)

<400> 54

|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Arg | Pro | Thr | Thr | Leu | Asn | Leu | Phe | Pro | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |

<210> 55  
<211> 11  
<212> PRT  
<213> Artificial

<220>

<223> Description of sequence: L-IB1(s23) (see Table 1)

<400> 55

|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Lys | Arg | Pro | Thr | Thr | Leu | Asn | Leu | Phe | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |

<210> 56  
 <211> 11  
 <212> PRT  
 <213> Artificial

<220>

<223> Description of sequence: L-IB1(s24) (see Table 1)

<400> 56

|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Pro | Lys | Arg | Pro | Thr | Thr | Leu | Asn | Leu | Phe |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |

<210> 57  
 <211> 10  
 <212> PRT  
 <213> Artificial

<220>

<223> Description of sequence: L-IB1(s25) (see Table 1)

<400> 57

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Phe | Pro | Gln | Val | Pro | Arg | Ser | Gln | Asp |
| 1   |     |     |     | 5   |     |     |     |     | 10  |

<210> 58  
 <211> 10  
 <212> PRT  
 <213> Artificial

<220>

<223> Description of sequence: L-IB1(s26) (see Table 1)

<400> 58

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Leu | Phe | Pro | Gln | Val | Pro | Arg | Ser | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |

<210> 59  
 <211> 10  
 <212> PRT  
 <213> Artificial

<220>

<223> Description of sequence: L-IB1(s27) (see Table 1)

&lt;400&gt; 59

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Asn | Leu | Phe | Pro | Gln | Val | Pro | Arg | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |

&lt;210&gt; 60

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: L-IB1(s28) (see Table 1)

&lt;400&gt; 60

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Leu | Asn | Leu | Phe | Pro | Gln | Val | Pro | Arg |
| 1   |     |     |     | 5   |     |     |     |     | 10  |

&lt;210&gt; 61

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: L-IB1(s29) (see Table 1)

&lt;400&gt; 61

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Thr | Leu | Asn | Leu | Phe | Pro | Gln | Val | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |

&lt;210&gt; 62

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: L-IB1(s30) (see Table 1)

&lt;400&gt; 62

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Thr | Thr | Leu | Asn | Leu | Phe | Pro | Gln | Val |
| 1   |     |     |     | 5   |     |     |     |     | 10  |

&lt;210&gt; 63

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: L-IB1(s31) (see Table 1)

&lt;400&gt; 63

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Pro | Thr | Thr | Leu | Asn | Leu | Phe | Pro | Gln |
| 1   |     |     |     | 5   |     |     |     | 10  |     |

&lt;210&gt; 64

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: L-IB1(s32) (see Table 1)

&lt;400&gt; 64

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Arg | Pro | Thr | Thr | Leu | Asn | Leu | Phe | Pro |
| 1   |     |     |     | 5   |     |     |     | 10  |     |

&lt;210&gt; 65

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: L-IB1(s33) (see Table 1)

&lt;400&gt; 65

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Lys | Arg | Pro | Thr | Thr | Leu | Asn | Leu | Phe |
| 1   |     |     |     | 5   |     |     |     | 10  |     |

&lt;210&gt; 66

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: L-IB1(s34) (see Table 1)

&lt;400&gt; 66

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Pro | Lys | Arg | Pro | Thr | Thr | Leu | Asn | Leu |
| 1   |     |     |     | 5   |     |     |     | 10  |     |

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<210> 67  
<211> 13  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s1) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(13)  
<223> all amino acids are D-amino acids

<400> 67

Gln Pro Phe Leu Asn Leu Thr Thr Pro Arg Lys Pro Arg  
1 5 10

<210> 68  
<211> 13  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s2) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(13)  
<223> all amino acids are D-amino acids

<400> 68

Val Gln Pro Phe Leu Asn Leu Thr Thr Pro Arg Lys Pro  
1 5 10

<210> 69  
<211> 13  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s3) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(13)



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<223> all amino acids are D-amino acids

<400> 69

Pro Val Gln Pro Phe Leu Asn Leu Thr Thr Pro Arg Lys  
1 5 10

<210> 70

<211> 13

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: D-IB1(s4) (see Table 1)

<220>

<221> MUTAGEN

<222> (1)..(13)

<223> all amino acids are D-amino acids

<400> 70

Arg Pro Val Gln Pro Phe Leu Asn Leu Thr Thr Pro Arg  
1 5 10

<210> 71

<211> 13

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: D-IB1(s5) (see Table 1)

<220>

<221> MUTAGEN

<222> (1)..(13)

<223> all amino acids are D-amino acids

<400> 71

Ser Arg Pro Val Gln Pro Phe Leu Asn Leu Thr Thr Pro  
1 5 10

<210> 72

<211> 13

<212> PRT

<213> Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: D-IB1(s6) (see Table 1)

&lt;220&gt;

&lt;221&gt; MUTAGEN

&lt;222&gt; (1)..(13)

&lt;223&gt; all amino acids are D-amino acids

&lt;400&gt; 72

|     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Ser | Arg | Pro | Val | Gln | Pro | Phe | Leu | Asn | Leu | Thr | Thr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |

&lt;210&gt; 73

&lt;211&gt; 13

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: D-IB1(s7) (see Table 1)

&lt;220&gt;

&lt;221&gt; MUTAGEN

&lt;222&gt; (1)..(13)

&lt;223&gt; all amino acids are D-amino acids

&lt;400&gt; 73

|     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Gln | Ser | Arg | Pro | Val | Gln | Pro | Phe | Leu | Asn | Leu | Thr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |

&lt;210&gt; 74

&lt;211&gt; 12

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: D-IB1(s8) (see Table 1)

&lt;220&gt;

&lt;221&gt; MUTAGEN

&lt;222&gt; (1)..(12)

&lt;223&gt; all amino acids are D-amino acids

&lt;400&gt; 74

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Pro Phe Leu Asn Leu Thr Thr Pro Arg Lys Pro Arg  
1 5 10

<210> 75  
<211> 12  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s9) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(12)  
<223> all amino acids are D-amino acids

<400> 75

Gln Pro Phe Leu Asn Leu Thr Thr Pro Arg Lys Pro  
1 5 10

<210> 76  
<211> 12  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s10) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(12)  
<223> all amino acids are D-amino acids

<400> 76

Val Gln Pro Phe Leu Asn Leu Thr Thr Pro Arg Lys  
1 5 10

<210> 77  
<211> 12  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s11) (see Table 1)

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<220>  
<221> MUTAGEN  
<222> (1)..(12)  
<223> all amino acids are D-amino acids

<400> 77

Pro Val Gln Pro Phe Leu Asn Leu Thr Thr Pro Arg  
1 5 10

<210> 78  
<211> 12  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s12) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(12)  
<223> all amino acids are D-amino acids

<400> 78

Arg Pro Val Gln Pro Phe Leu Asn Leu Thr Thr Pro  
1 5 10

<210> 79  
<211> 12  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s13) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(12)  
<223> all amino acids are D-amino acids

<400> 79

Ser Arg Pro Val Gln Pro Phe Leu Asn Leu Thr Thr  
1 5 10

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<210> 80  
<211> 12  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s14) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(12)  
<223> all amino acids are D-amino acids

<400> 80

Gln Ser Arg Pro Val Gln Pro Phe Leu Asn Leu Thr  
1 5 10

<210> 81  
<211> 12  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s15) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(12)  
<223> all amino acids are D-amino acids

<400> 81

Asp Gln Ser Arg Pro Val Gln Pro Phe Leu Asn Leu  
1 5 10

<210> 82  
<211> 11  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s16) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(11)

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<223> all amino acids are D-amino acids

<400> 82

Phe Leu Asn Leu Thr Thr Pro Arg Lys Pro Arg  
1 5 10

<210> 83

<211> 11

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: D-IB1(s17) (see Table 1)

<220>

<221> MUTAGEN

<222> (1)..(11)

<223> all amino acids are D-amino acids

<400> 83

Pro Phe Leu Asn Leu Thr Thr Pro Arg Lys Pro  
1 5 10

<210> 84

<211> 11

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: D-IB1(s18) (see Table 1)

<220>

<221> MUTAGEN

<222> (1)..(11)

<223> all amino acids are D-amino acids

<400> 84

Gln Pro Phe Leu Asn Leu Thr Thr Pro Arg Lys  
1 5 10

<210> 85

<211> 11

<212> PRT

<213> Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: D-IB1(s19) (see Table 1)

&lt;220&gt;

&lt;221&gt; MUTAGEN

&lt;222&gt; (1)..(11)

&lt;223&gt; all amino acids are D-amino acids

&lt;400&gt; 85

Val Gln Pro Phe Leu Asn Leu Thr Thr Pro Arg

1 5 10

&lt;210&gt; 86

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: D-IB1(s20) (see Table 1)

&lt;220&gt;

&lt;221&gt; MUTAGEN

&lt;222&gt; (1)..(11)

&lt;223&gt; all amino acids are D-amino acids

&lt;400&gt; 86

Pro Val Gln Pro Phe Leu Asn Leu Thr Thr Pro

1 5 10

&lt;210&gt; 87

&lt;211&gt; 11

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: D-IB1(s21) (see Table 1)

&lt;220&gt;

&lt;221&gt; MUTAGEN

&lt;222&gt; (1)..(11)

&lt;223&gt; all amino acids are D-amino acids

&lt;400&gt; 87

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Arg Pro Val Gln Pro Phe Leu Asn Leu Thr Thr  
1 5 10

<210> 88  
<211> 11  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s22) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(11)  
<223> all amino acids are D-amino acids

<400> 88

Ser Arg Pro Val Gln Pro Phe Leu Asn Leu Thr  
1 5 10

<210> 89  
<211> 11  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s23) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(11)  
<223> all amino acids are D-amino acids

<400> 89

Gln Ser Arg Pro Val Gln Pro Phe Leu Asn Leu  
1 5 10

<210> 90  
<211> 11  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s24) (see Table 1)



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<220>  
<221> MUTAGEN  
<222> (1)..(11)  
<223> all amino acids are D-amino acids

<400> 90

Asp Gln Ser Arg Pro Val Gln Pro Phe Leu Asn  
1 5 10

<210> 91  
<211> 10  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s25) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(10)  
<223> all amino acids are D-amino acids

<400> 91

Asp Gln Ser Arg Pro Val Gln Pro Phe Leu  
1 5 10

<210> 92  
<211> 10  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s26) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(10)  
<223> all amino acids are D-amino acids

<400> 92

Gln Ser Arg Pro Val Gln Pro Phe Leu Asn  
1 5 10

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<210> 93  
<211> 10  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s27) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(10)  
<223> all amino acids are D-amino acids

<400> 93

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Arg | Pro | Val | Gln | Pro | Phe | Leu | Asn | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |

<210> 94  
<211> 10  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s28) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(10)  
<223> all amino acids are D-amino acids

<400> 94

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Pro | Val | Gln | Pro | Phe | Leu | Asn | Leu | Thr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |

<210> 95  
<211> 10  
<212> PRT  
<213> Artificial

<220>  
<223> Description of sequence: D-IB1(s29) (see Table 1)

<220>  
<221> MUTAGEN  
<222> (1)..(10)

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<223> all amino acids are D-amino acids

<400> 95

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Val | Gln | Pro | Phe | Leu | Asn | Leu | Thr | Thr |
| 1   |     |     |     | 5   |     |     |     | 10  |     |

<210> 96

<211> 10

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: D-IB1(s30) (see Table 1)

<220>

<221> MUTAGEN

<222> (1)..(10)

<223> all amino acids are D-amino acids

<400> 96

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Gln | Pro | Phe | Leu | Asn | Leu | Thr | Thr | Pro |
| 1   |     |     |     | 5   |     |     |     | 10  |     |

<210> 97

<211> 10

<212> PRT

<213> Artificial

<220>

<223> Description of sequence: D-IB1(s31) (see Table 1)

<220>

<221> MUTAGEN

<222> (1)..(10)

<223> all amino acids are D-amino acids

<400> 97

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Pro | Phe | Leu | Asn | Leu | Thr | Thr | Pro | Arg |
| 1   |     |     |     | 5   |     |     |     | 10  |     |

<210> 98

<211> 10

<212> PRT

<213> Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: D-IB1(s32) (see Table 1)

&lt;220&gt;

&lt;221&gt; MUTAGEN

&lt;222&gt; (1)..(10)

&lt;223&gt; all amino acids are D-amino acids

&lt;400&gt; 98

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Phe | Leu | Asn | Leu | Thr | Thr | Pro | Arg | Lys |
| 1   |     |     |     | 5   |     |     |     |     | 10  |

&lt;210&gt; 99

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: D-IB1(s33) (see Table 1)

&lt;220&gt;

&lt;221&gt; MUTAGEN

&lt;222&gt; (1)..(10)

&lt;223&gt; all amino acids are D-amino acids

&lt;400&gt; 99

|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Leu | Asn | Leu | Thr | Thr | Pro | Arg | Lys | Pro |
| 1   |     |     |     | 5   |     |     |     |     | 10  |

&lt;210&gt; 100

&lt;211&gt; 10

&lt;212&gt; PRT

&lt;213&gt; Artificial

&lt;220&gt;

&lt;223&gt; Description of sequence: D-IB1(s34) (see Table 1)

&lt;220&gt;

&lt;221&gt; MUTAGEN

&lt;222&gt; (1)..(10)

&lt;223&gt; all amino acids are D-amino acids

&lt;400&gt; 100

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Leu Asn Leu Thr Thr Pro Arg Lys Pro Arg  
1 5 10

<210> 101  
<211> 21  
<212> DNA  
<213> Artificial

<220>  
<223> Description of sequence: ap-1 doubled labeled probe (see p. 66)

<400> 101  
cgcttgatga gtcagccgga a 21

<210> 102  
<211> 2953  
<212> DNA  
<213> Artificial

<220>  
<223> description of sequence: rat IB1 cDNA sequence and its predicted amino acid sequence (see Figure 1)

<220>  
<221> CDS  
<222> (108)..(2252)

<400> 102  
ccgccccagc tcagtccgaa ccccgcgggcg gcggcggcct cctccacacg cctccacctc 60

cgccgcccgc gccgcccgc cgcctcccg cgccgctctc cgcccgg atg gcc agg 116  
Met Ala Arg  
1

ctg agc ccg gga atg gcg gag cga gag agc ggc ctg agc ggg ggt gcc 164  
Leu Ser Pro Gly Met Ala Glu Arg Glu Ser Gly Leu Ser Gly Gly Ala  
5 10 15

gcg tcc cca ccg gcc gct tcc cca ttc ctg gga ctg cac atc gcg tcg 212  
Ala Ser Pro Pro Ala Ala Ser Pro Phe Leu Gly Leu His Ile Ala Ser  
20 25 30 35

cct ccc aat ttc agg ctc acc cat gat atc agc ctg gag gag ttt gag 260  
Pro Pro Asn Phe Arg Leu Thr His Asp Ile Ser Leu Glu Glu Phe Glu  
40 45 50

gat gaa gac ctt tcg gag atc act gat gag tgt ggc atc agc ctg cag 308  
Asp Glu Asp Leu Ser Glu Ile Thr Asp Glu Cys Gly Ile Ser Leu Gln  
55 60 65

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| tgc | aaa | gac | acc | ttg | tct | ctc | cgg | ccc | ccg | cgc | gcc | ggg | cta | ctg | tct | 356 |
| Cys | Lys | Asp | Thr | Leu | Ser | Leu | Arg | Pro | Pro | Arg | Ala | Gly | Leu | Leu | Ser |     |
|     | 70  |     |     |     |     |     | 75  |     |     |     |     | 80  |     |     |     |     |
| gcg | ggt | agc | agc | ggt | agc | gcg | ggg | agc | cgg | ctg | cag | gcg | gag | atg | ctg | 404 |
| Ala | Gly | Ser | Ser | Gly | Ser | Ala | Gly | Ser | Arg | Leu | Gln | Ala | Glu | Met | Leu |     |
|     | 85  |     |     |     |     |     | 90  |     |     |     | 95  |     |     |     |     |     |
| cag | atg | gac | ctg | atc | gac | gcg | gca | agt | gac | act | ccg | ggc | gcc | gag | gac | 452 |
| Gln | Met | Asp | Leu | Ile | Asp | Ala | Ala | Ser | Asp | Thr | Pro | Gly | Ala | Glu | Asp |     |
| 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |     | 115 |     |
| gac | gaa | gag | gac | gac | gac | gag | ctc | gct | gcc | caa | cgg | cca | gga | gtg | ggg | 500 |
| Asp | Glu | Glu | Asp | Asp | Asp | Glu | Leu | Ala | Ala | Gln | Arg | Pro | Gly | Val | Gly |     |
|     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     | 130 |     |     |
| cct | tcc | aaa | gcc | gag | tct | ggc | cag | gag | ccg | gcg | tct | cgc | agc | cag | ggt | 548 |
| Pro | Ser | Lys | Ala | Glu | Ser | Gly | Gln | Glu | Pro | Ala | Ser | Arg | Ser | Gln | Gly |     |
|     |     |     | 135 |     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |
| cag | ggc | cag | ggc | ccc | ggc | aca | ggc | tgc | gga | gac | acc | tac | cgg | ccc | aag | 596 |
| Gln | Gly | Gln | Gly | Pro | Gly | Thr | Gly | Cys | Gly | Asp | Thr | Tyr | Arg | Pro | Lys |     |
|     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     |
| agg | cct | acc | acg | ctc | aac | ctt | ttc | ccg | cag | gtg | ccg | cgg | tct | cag | gac | 644 |
| Arg | Pro | Thr | Thr | Leu | Asn | Leu | Phe | Pro | Gln | Val | Pro | Arg | Ser | Gln | Asp |     |
|     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     |     |
| acg | ctg | aat | aat | aac | tct | tta | ggc | aaa | aag | cac | agt | tgg | cag | gac | cgt | 692 |
| Thr | Leu | Asn | Asn | Asn | Ser | Leu | Gly | Lys | Lys | His | Ser | Trp | Gln | Asp | Arg |     |
| 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |     |
| gtg | tct | cga | tca | tcc | tcc | cct | ctg | aag | aca | ggg | gag | cag | acg | cct | cca | 740 |
| Val | Ser | Arg | Ser | Ser | Ser | Pro | Leu | Lys | Thr | Gly | Glu | Gln | Thr | Pro | Pro |     |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |     |     |
| cat | gaa | cat | atc | tgc | ctg | agt | gat | gag | ctg | ccg | ccc | cag | ggc | agt | cct | 788 |
| His | Glu | His | Ile | Cys | Leu | Ser | Asp | Glu | Leu | Pro | Pro | Gln | Gly | Ser | Pro |     |
|     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |     |     |     |
| gtt | ccc | acc | cag | gat | cgt | ggc | act | tcc | acc | gac | agc | cct | tgt | cgc | cgt | 836 |
| Val | Pro | Thr | Gln | Asp | Arg | Gly | Thr | Ser | Thr | Asp | Ser | Pro | Cys | Arg | Arg |     |
|     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |     |     |     |     |
| act | gca | gcc | acc | cag | atg | gca | cct | cca | agt | ggt | ccc | cct | gcc | act | gca | 884 |
| Thr | Ala | Ala | Thr | Gln | Met | Ala | Pro | Pro | Ser | Gly | Pro | Pro | Ala | Thr | Ala |     |
|     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |     |     |     |     |
| cct | ggt | ggc | cgg | ggc | cac | tcc | cat | cga | gat | cgg | tcc | ata | tca | gca | gat | 932 |
| Pro | Gly | Gly | Arg | Gly | His | Ser | His | Arg | Asp | Arg | Ser | Ile | Ser | Ala | Asp |     |
| 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |     |     | 275 |     |

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|   |      |
|---|------|
| gtg cgg ctc gag gcg act gag gag atc tac ctg acc cca gtg cag agg | 980  |
| Val Arg Leu Glu Ala Thr Glu Glu Ile Tyr Leu Thr Pro Val Gln Arg |      |
| 280 285 290   |      |
| ccc cca gac cct gca gaa ccc acc tcc acc ttc ttg cca ccc act gag | 1028 |
| Pro Pro Asp Pro Ala Glu Pro Thr Ser Thr Phe Leu Pro Pro Thr Glu |      |
| 295 300 305   |      |
| agc cgg atg tct gtc agc tcg gat cct gac cct gcc gct tac tct gta | 1076 |
| Ser Arg Met Ser Val Ser Ser Asp Pro Asp Pro Ala Ala Tyr Ser Val |      |
| 310 315 320   |      |
| act gca ggg cga ccg cac cct tcc atc agt gaa gag gat gag ggc ttc | 1124 |
| Thr Ala Gly Arg Pro His Pro Ser Ile Ser Glu Glu Asp Glu Gly Phe |      |
| 325 330 335   |      |
| gac tgt ctg tca tcc cca gag caa gct gag cca cca ggt gga ggg tgg | 1172 |
| Asp Cys Leu Ser Ser Pro Glu Gln Ala Glu Pro Pro Gly Gly Gly Trp |      |
| 340 345 350 355   |      |
| cgg gga agc ctc ggg gag cca cca ccg cct cca cgg gcc tca ctg agc | 1220 |
| Arg Gly Ser Leu Gly Glu Pro Pro Pro Pro Pro Arg Ala Ser Leu Ser |      |
| 360 365 370   |      |
| tcg gac acc agc gca ctg tcc tac gac tct gtc aag tac aca ctg gtg | 1268 |
| Ser Asp Thr Ser Ala Leu Ser Tyr Asp Ser Val Lys Tyr Thr Leu Val |      |
| 375 380 385   |      |
| gtg gat gag cat gcc cag ctt gag ttg gtg agc ctg cgg cca tgt ttt | 1316 |
| Val Asp Glu His Ala Gln Leu Glu Leu Val Ser Leu Arg Pro Cys Phe |      |
| 390 395 400   |      |
| gga gat tac agt gac gaa agc gac tct gcc act gtc tat gac aac tgt | 1364 |
| Gly Asp Tyr Ser Asp Glu Ser Asp Ser Ala Thr Val Tyr Asp Asn Cys |      |
| 405 410 415   |      |
| gcc tct gcc tcc tcg ccc tac gag tca gcc att ggt gag gaa tat gag | 1412 |
| Ala Ser Ala Ser Ser Pro Tyr Glu Ser Ala Ile Gly Glu Glu Tyr Glu |      |
| 420 425 430 435   |      |
| gag gcc cct caa ccc cgg cct ccc acc tgc ctg tca gag gac tcc aca | 1460 |
| Glu Ala Pro Gln Pro Arg Pro Pro Thr Cys Leu Ser Glu Asp Ser Thr |      |
| 440 445 450   |      |
| ccg gat gag cct gac gtc cac ttc tct aag aag ttt ctg aat gtc ttc | 1508 |
| Pro Asp Glu Pro Asp Val His Phe Ser Lys Lys Phe Leu Asn Val Phe |      |
| 455 460 465   |      |
| atg agt ggc cgc tct cgt tcc tcc agt gcc gag tcc ttt ggg ctg ttc | 1556 |
| Met Ser Gly Arg Ser Arg Ser Ser Ser Ala Glu Ser Phe Gly Leu Phe |      |
| 470 475 480   |      |

|   |      |
|---|------|
| tcc tgt gtc atc aat ggg gag gag cat gag caa acc cat cgg gct ata | 1604 |
| Ser Cys Val Ile Asn Gly Glu Glu His Glu Gln Thr His Arg Ala Ile |      |
| 485 490 495   |      |
| ttc agg ttt gtg cct cgg cat gaa gat gaa ctt gag ctg gaa gtg gac | 1652 |
| Phe Arg Phe Val Pro Arg His Glu Asp Glu Leu Glu Leu Glu Val Asp |      |
| 500 505 510 515   |      |
| gac cct ctg ctg gtg gag ctg cag gca gaa gac tat tgg tat gag gcc | 1700 |
| Asp Pro Leu Leu Val Glu Leu Gln Ala Glu Asp Tyr Trp Tyr Glu Ala |      |
| 520 525 530   |      |
| tat aac atg cgc act gga gcc cgt ggt gtc ttt cct gcc tac tat gcc | 1748 |
| Tyr Asn Met Arg Thr Gly Ala Arg Gly Val Phe Pro Ala Tyr Tyr Ala |      |
| 535 540 545   |      |
| att gag gtc acc aag gag cct gag cac atg gca gcc ctt gcc aaa aac | 1796 |
| Ile Glu Val Thr Lys Glu Pro Glu His Met Ala Ala Leu Ala Lys Asn |      |
| 550 555 560   |      |
| agc gac tgg att gac cag ttc cgg gtg aag ttc ctg ggc tct gtc cag | 1844 |
| Ser Asp Trp Ile Asp Gln Phe Arg Val Lys Phe Leu Gly Ser Val Gln |      |
| 565 570 575   |      |
| gtt cct tat cac aag ggc aat gat gtc ctc tgt gct gct atg caa aag | 1892 |
| Val Pro Tyr His Lys Gly Asn Asp Val Leu Cys Ala Ala Met Gln Lys |      |
| 580 585 590 595   |      |
| atc gcc acc acc cgc cgg ctc acc gtg cac ttt aac ccg ccc tcc agc | 1940 |
| Ile Ala Thr Thr Arg Arg Leu Thr Val His Phe Asn Pro Pro Ser Ser |      |
| 600 605 610   |      |
| tgt gtc ctt gaa atc agc gtt agg ggt gtc aag ata ggt gtc aaa gct | 1988 |
| Cys Val Leu Glu Ile Ser Val Arg Gly Val Lys Ile Gly Val Lys Ala |      |
| 615 620 625   |      |
| gat gaa gct cag gag gcc aag gga aat aaa tgt agc cac ttt ttc cag | 2036 |
| Asp Glu Ala Gln Glu Ala Lys Gly Asn Lys Cys Ser His Phe Phe Gln |      |
| 630 635 640   |      |
| cta aaa aac atc tct ttc tgt ggg tac cat cca aag aac aac aag tac | 2084 |
| Leu Lys Asn Ile Ser Phe Cys Gly Tyr His Pro Lys Asn Asn Lys Tyr |      |
| 645 650 655   |      |
| ttt ggg ttt atc act aag cac cct gct gac cac cgg ttt gcc tgc cat | 2132 |
| Phe Gly Phe Ile Thr Lys His Pro Ala Asp His Arg Phe Ala Cys His |      |
| 660 665 670 675   |      |
| gtc ttt gtg tct gaa gat tcc acc aaa gcc ctg gca gag tct gtg ggg | 2180 |
| Val Phe Val Ser Glu Asp Ser Thr Lys Ala Leu Ala Glu Ser Val Gly |      |
| 680 685 690   |      |



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cgt gca ttt cag cag ttc tac aag caa ttt gtg gaa tat acc tgt cct 2228
Arg Ala Phe Gln Gln Phe Tyr Lys Gln Phe Val Glu Tyr Thr Cys Pro
          695                700                705

aca gaa gat atc tac ttg gag tag cagcaacccc cctctctgca gcccctcagc 2282
Thr Glu Asp Ile Tyr Leu Glu
          710

cccaggccag tactaggaca gctgactgct gacaggatgt tgtactgcca cgagagaatg 2342

ggggagtgag ggctgttggg gtcggggggc aggggttttg ggagaggcag atgcagttta 2402

ttgtaatata tggggttaga ttaatctatg gaggacagta caggctctct cggggctggg 2462

gaagggcagg gctgggggtgg gggtcaggca tctggccaca aagggggtccc ctagggacag 2522

aggcgctgca ccatcctggg cttgtttcat actagaggcc ctggctttct ggctcttggg 2582

tcctgccttg acaaagccca gccacctgga agtgtcacct tcccttgtcc acctcaccca 2642

gtgccctgag ctcatgctga gccaagcac ctccgaagga ctttcagta aggaaatggc 2702

aacatgtgac agtgagaccc tgttctcatc tgtggggctc cggcagctcc gacccccagc 2762

ctggccagca cgctgaccct ggcaagcttg tgtgttcaaa gaaggagagg gccacagcaa 2822

gccctgcctg ccagggaagg ttccctctca gctggcccca gccaaactggt cactgtcttg 2882

tcacctggct actactatta aagtgccatt tcttgtctga aaaaaaaaaa aaaaaaaaaa 2942

aaaaactcga g 2953

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<210> 103  
 <211> 714  
 <212> PRT  
 <213> Artificial

<220>  
 <223> description of sequence: Protein encoded by Exon-Intron Boundary  
 of the rIB1 Gene - Splice donor

<400> 103

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Met Ala Arg Leu Ser Pro Gly Met Ala Glu Arg Glu Ser Gly Leu Ser
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Gly Gly Ala Ala Ser Pro Pro Ala Ala Ser Pro Phe Leu Gly Leu His
          20          25          30

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Ile Ala Ser Pro Pro Asn Phe Arg Leu Thr His Asp Ile Ser Leu Glu  
35 40 45

Glu Phe Glu Asp Glu Asp Leu Ser Glu Ile Thr Asp Glu Cys Gly Ile  
50 55 60

Ser Leu Gln Cys Lys Asp Thr Leu Ser Leu Arg Pro Pro Arg Ala Gly  
65 70 75 80

Leu Leu Ser Ala Gly Ser Ser Gly Ser Ala Gly Ser Arg Leu Gln Ala  
85 90 95

Glu Met Leu Gln Met Asp Leu Ile Asp Ala Ala Ser Asp Thr Pro Gly  
100 105 110

Ala Glu Asp Asp Glu Glu Asp Asp Asp Glu Leu Ala Ala Gln Arg Pro  
115 120 125

Gly Val Gly Pro Ser Lys Ala Glu Ser Gly Gln Glu Pro Ala Ser Arg  
130 135 140

Ser Gln Gly Gln Gly Gln Gly Pro Gly Thr Gly Cys Gly Asp Thr Tyr  
145 150 155 160

Arg Pro Lys Arg Pro Thr Thr Leu Asn Leu Phe Pro Gln Val Pro Arg  
165 170 175

Ser Gln Asp Thr Leu Asn Asn Asn Ser Leu Gly Lys Lys His Ser Trp  
180 185 190

Gln Asp Arg Val Ser Arg Ser Ser Ser Pro Leu Lys Thr Gly Glu Gln  
195 200 205

Thr Pro Pro His Glu His Ile Cys Leu Ser Asp Glu Leu Pro Pro Gln  
210 215 220

Gly Ser Pro Val Pro Thr Gln Asp Arg Gly Thr Ser Thr Asp Ser Pro  
225 230 235 240

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Cys Arg Arg Thr Ala Ala Thr Gln Met Ala Pro Pro Ser Gly Pro Pro  
245 250 255

Ala Thr Ala Pro Gly Gly Arg Gly His Ser His Arg Asp Arg Ser Ile  
260 265 270

Ser Ala Asp Val Arg Leu Glu Ala Thr Glu Glu Ile Tyr Leu Thr Pro  
275 280 285

Val Gln Arg Pro Pro Asp Pro Ala Glu Pro Thr Ser Thr Phe Leu Pro  
290 295 300

Pro Thr Glu Ser Arg Met Ser Val Ser Ser Asp Pro Asp Pro Ala Ala  
305 310 315 320

Tyr Ser Val Thr Ala Gly Arg Pro His Pro Ser Ile Ser Glu Glu Asp  
325 330 335

Glu Gly Phe Asp Cys Leu Ser Ser Pro Glu Gln Ala Glu Pro Pro Gly  
340 345 350

Gly Gly Trp Arg Gly Ser Leu Gly Glu Pro Pro Pro Pro Pro Arg Ala  
355 360 365

Ser Leu Ser Ser Asp Thr Ser Ala Leu Ser Tyr Asp Ser Val Lys Tyr  
370 375 380

Thr Leu Val Val Asp Glu His Ala Gln Leu Glu Leu Val Ser Leu Arg  
385 390 395 400

Pro Cys Phe Gly Asp Tyr Ser Asp Glu Ser Asp Ser Ala Thr Val Tyr  
405 410 415

Asp Asn Cys Ala Ser Ala Ser Ser Pro Tyr Glu Ser Ala Ile Gly Glu  
420 425 430

Glu Tyr Glu Glu Ala Pro Gln Pro Arg Pro Pro Thr Cys Leu Ser Glu  
435 440 445

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Asp Ser Thr Pro Asp Glu Pro Asp Val His Phe Ser Lys Lys Phe Leu  
450 455 460

Asn Val Phe Met Ser Gly Arg Ser Arg Ser Ser Ser Ala Glu Ser Phe  
465 470 475 480

Gly Leu Phe Ser Cys Val Ile Asn Gly Glu Glu His Glu Gln Thr His  
485 490 495

Arg Ala Ile Phe Arg Phe Val Pro Arg His Glu Asp Glu Leu Glu Leu  
500 505 510

Glu Val Asp Asp Pro Leu Leu Val Glu Leu Gln Ala Glu Asp Tyr Trp  
515 520 525

Tyr Glu Ala Tyr Asn Met Arg Thr Gly Ala Arg Gly Val Phe Pro Ala  
530 535 540

Tyr Tyr Ala Ile Glu Val Thr Lys Glu Pro Glu His Met Ala Ala Leu  
545 550 555 560

Ala Lys Asn Ser Asp Trp Ile Asp Gln Phe Arg Val Lys Phe Leu Gly  
565 570 575

Ser Val Gln Val Pro Tyr His Lys Gly Asn Asp Val Leu Cys Ala Ala  
580 585 590

Met Gln Lys Ile Ala Thr Thr Arg Arg Leu Thr Val His Phe Asn Pro  
595 600 605

Pro Ser Ser Cys Val Leu Glu Ile Ser Val Arg Gly Val Lys Ile Gly  
610 615 620

Val Lys Ala Asp Glu Ala Gln Glu Ala Lys Gly Asn Lys Cys Ser His  
625 630 635 640

Phe Phe Gln Leu Lys Asn Ile Ser Phe Cys Gly Tyr His Pro Lys Asn  
645 650 655

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Asn Lys Tyr Phe Gly Phe Ile Thr Lys His Pro Ala Asp His Arg Phe  
660 665 670

Ala Cys His Val Phe Val Ser Glu Asp Ser Thr Lys Ala Leu Ala Glu  
675 680 685

Ser Val Gly Arg Ala Phe Gln Gln Phe Tyr Lys Gln Phe Val Glu Tyr  
690 695 700

Thr Cys Pro Thr Glu Asp Ile Tyr Leu Glu  
705 710

<210> 104  
<211> 711  
<212> PRT  
<213> Homo sapiens

<220>  
<223> description of sequence: human IB1 protein sequence

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Pro Ala Ala Ser Pro Phe Leu Gly Leu His Ile Ala Ser Pro Pro Asn  
20 25 30

Phe Arg Leu Thr His Asp Ile Ser Leu Glu Glu Phe Glu Asp Glu Asp  
35 40 45

Leu Ser Glu Ile Thr Asp Glu Cys Gly Ile Ser Leu Gln Cys Lys Asp  
50 55 60

Thr Leu Ser Leu Arg Pro Pro Arg Ala Gly Leu Leu Ser Ala Gly Gly  
65 70 75 80

Gly Gly Ala Gly Ser Arg Leu Gln Ala Glu Met Leu Gln Met Asp Leu  
85 90 95

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Ile Asp Ala Thr Gly Asp Thr Pro Gly Ala Glu Asp Asp Glu Glu Asp  
100 105 110

Asp Asp Glu Glu Arg Ala Ala Arg Arg Pro Gly Ala Gly Pro Pro Lys  
115 120 125

Ala Glu Ser Gly Gln Glu Pro Ala Ser Arg Gly Gln Gly Gln Ser Gln  
130 135 140

Gly Gln Ser Gln Gly Pro Gly Ser Gly Asp Thr Tyr Arg Pro Lys Arg  
145 150 155 160

Pro Thr Thr Leu Asn Leu Phe Pro Gln Val Pro Arg Ser Gln Asp Thr  
165 170 175

Leu Asn Asn Asn Ser Leu Gly Lys Lys His Ser Trp Gln Asp Arg Val  
180 185 190

Ser Arg Ser Ser Ser Pro Leu Lys Thr Gly Glu Gln Thr Pro Pro His  
195 200 205

Glu His Ile Cys Leu Ser Asp Glu Leu Pro Pro Gln Ser Gly Pro Ala  
210 215 220

Pro Thr Thr Asp Arg Gly Thr Ser Thr Asp Ser Pro Cys Arg Arg Ser  
225 230 235 240

Thr Ala Thr Gln Met Ala Pro Pro Gly Gly Pro Pro Ala Ala Pro Pro  
245 250 255

Gly Gly Arg Gly His Ser His Arg Asp Arg Ile His Tyr Gln Ala Asp  
260 265 270

Val Arg Leu Glu Ala Thr Glu Glu Ile Tyr Leu Thr Pro Val Gln Arg  
275 280 285

Pro Pro Asp Ala Ala Glu Pro Thr Ser Ala Phe Leu Pro Pro Thr Glu  
290 295 300

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Ser Arg Met Ser Val Ser Ser Asp Pro Asp Pro Ala Ala Tyr Pro Ser  
305 310 315 320

Thr Ala Gly Arg Pro His Pro Ser Ile Ser Glu Glu Glu Glu Gly Phe  
325 330 335

Asp Cys Leu Ser Ser Pro Glu Arg Ala Glu Pro Pro Gly Gly Gly Trp  
340 345 350

Arg Gly Ser Leu Gly Glu Pro Pro Pro Pro Arg Ala Ser Leu Ser  
355 360 365

Ser Asp Thr Ser Ala Leu Ser Tyr Asp Ser Val Lys Tyr Thr Leu Val  
370 375 380

Val Asp Glu His Ala Gln Leu Glu Leu Val Ser Leu Arg Pro Cys Phe  
385 390 395 400

Gly Asp Tyr Ser Asp Glu Ser Asp Ser Ala Thr Val Tyr Asp Asn Cys  
405 410 415

Ala Ser Val Ser Ser Pro Tyr Glu Ser Ala Ile Gly Glu Glu Tyr Glu  
420 425 430

Glu Ala Pro Arg Pro Gln Pro Pro Ala Cys Leu Ser Glu Asp Ser Thr  
435 440 445

Pro Asp Glu Pro Asp Val His Phe Ser Lys Lys Phe Leu Asn Val Phe  
450 455 460

Met Ser Gly Arg Ser Arg Ser Ser Ser Ala Glu Ser Phe Gly Leu Phe  
465 470 475 480

Ser Cys Ile Ile Asn Gly Glu Glu Gln Glu Gln Thr His Arg Ala Ile  
485 490 495

Phe Arg Phe Val Pro Arg His Glu Asp Glu Leu Glu Leu Glu Val Asp  
500 505 510

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Asp Pro Leu Leu Val Glu Leu Gln Ala Glu Asp Tyr Trp Tyr Glu Ala  
515 520 525

Tyr Asn Met Arg Thr Gly Ala Arg Gly Val Phe Pro Ala Tyr Tyr Ala  
530 535 540

Ile Glu Val Thr Lys Glu Pro Glu His Met Ala Ala Leu Ala Lys Asn  
545 550 555 560

Ser Asp Trp Val Asp Gln Phe Arg Val Lys Phe Leu Gly Ser Val Gln  
565 570 575

Val Pro Tyr His Lys Gly Asn Asp Val Leu Cys Ala Ala Met Gln Lys  
580 585 590

Ile Ala Thr Thr Arg Arg Leu Thr Val His Phe Asn Pro Pro Ser Ser  
595 600 605

Cys Val Leu Glu Ile Ser Val Arg Gly Val Lys Ile Gly Val Lys Ala  
610 615 620

Asp Asp Ser Gln Glu Ala Lys Gly Asn Lys Cys Ser His Phe Phe Gln  
625 630 635 640

Leu Lys Asn Ile Ser Phe Cys Gly Tyr His Pro Lys Asn Asn Lys Tyr  
645 650 655

Phe Gly Phe Ile Thr Lys His Pro Ala Asp His Arg Phe Ala Cys His  
660 665 670

Val Phe Val Ser Glu Asp Ser Thr Lys Ala Leu Ala Glu Ser Val Gly  
675 680 685

Arg Ala Phe Gln Gln Phe Tyr Lys Gln Phe Val Glu Tyr Thr Cys Pro  
690 695 700

Thr Glu Asp Ile Tyr Leu Glu  
705 710



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<210> 105  
<211> 2136  
<212> DNA  
<213> Homo sapiens

<220>  
<223> description of sequence: nucleic acid sequence encoding human IB1 protein

<400> 105  
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cggccgggag cggggccgcc caaggccgag tccggccagg agccggcgtc ccgcggccag 420  
ggccagagcc aaggccagag ccaggggccc ggacgcgggg acacgtaccg gcccgaagcgg 480  
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cactcgcac gagaccgaat ccactaccag gccgatgtgc gactagaggc cactgaggag 840  
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|--|------|
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| tcgccctatg agtcggccat cggagaggaa tatgaggagg ccccgcggcc ccagccccct  | 1320 |
| gcctgcctct ccgaggactc cacgcctgat gaacccgacg tccatttctc caagaaattc  | 1380 |
| ctgaacgtct tcatgagtgg ccgctccgc tcctccagtg ctgagtcctt cgggctgttc   | 1440 |
| tcctgcatca tcaacgggga ggagcaggag cagaccacc gggccatatt caggtttgtg   | 1500 |
| cctcgacacg aagacgaact tgagctggaa gtggatgacc ctctgctagt ggagctccag  | 1560 |
| gctgaagact actggtacga ggcctacaac atgcgcactg gtgcccgggg tgtctttcct  | 1620 |
| gcctattacg ccatcgaggt caccaaggag cccgagcaca tggcagccct ggccaaaaac  | 1680 |
| agtgactggg tggaccagtt ccgggtgaag ttcttgggct cagtccaggt tccctatcac  | 1740 |
| aagggaatg acgtcctctg tgctgctatg caaaagattg ccaccaccg ccggctcacc    | 1800 |
| gtgcacttta acccgccctc cagctgtgtc ctggagatca gcgtgcgggg tgtgaagata  | 1860 |
| ggcgtcaagg ccgatgactc ccaggaggcc aagggaata aatgtagcca ctttttccag   | 1920 |
| ttaaaaaaca tctctttctg cggatatcat ccaaagaaca acaagtactt tgggttcac   | 1980 |
| accaagcacc ccgccacca ccggtttgcc tgccacgtct ttgtgtctga agactccacc   | 2040 |
| aaagccctgg cagagtccgt ggggagagca ttccagcagt tctacaagca gtttgtggag  | 2100 |
| tacacctgcc ccacagaaga tatctacctg gagtag                            | 2136 |