

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT3650159

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| <b>SUBMISSION TYPE:</b>   | NEW ASSIGNMENT                      |                       |
| <b>NATURE OF CONVEYANCE:</b>  | ASSIGNMENT                          |                       |
| <b>CONVEYING PARTY DATA</b>   |                                     |                       |
|   | <b>Name</b>                         | <b>Execution Date</b> |
|   | WING-SZE LO                         | 12/21/2012            |
| <b>RECEIVING PARTY DATA</b>   |                                     |                       |
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| <b>State/Country:</b>   | CHINA                               |                       |
| <b>PROPERTY NUMBERS Total: 1</b>  |                                     |                       |
|   | <b>Property Type</b>                | <b>Number</b>         |
|   | Application Number:                 | 14619722              |
| <b>CORRESPONDENCE DATA</b>  |                                     |                       |
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| <b>ATTORNEY DOCKET NUMBER:</b>  | ATYR-083/02US PANGU                 |                       |
| <b>NAME OF SUBMITTER:</b>   | MARK E. ROGEL                       |                       |
| <b>SIGNATURE:</b>   | /Mark E. Rogel/                     |                       |
| <b>DATE SIGNED:</b>   | 12/09/2015                          |                       |
| <b>Total Attachments: 4</b>   |                                     |                       |
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# ASSIGNMENT

# PATENT

Wing-Sze Lo, having a post office address of Room 815, Sui Ming House, Siu Sai Wan Estate, Chai Wan, Hong Kong, China, (referred to as "Assignor") has made invention(s) (the "Invention(s)") set forth in applications for patent of the United States, and which are:

| Application No.                 | Title  | International Filing Date |
|---------------------------------|--|---------------------------|
| PCT/US2011/033988<br>13/643,755 | INNOVATIVE DISCOVERY OF THERAPEUTIC, DIAGNOSTIC, AND ANTIBODY COMPOSITIONS RELATED TO PROTEIN FRAGMENTS OF CYSTEINYL-tRNA SYNTHETASE           | April 26, 2011            |
| PCT/US2011/034205<br>13/643,738 | INNOVATIVE DISCOVERY OF THERAPEUTIC, DIAGNOSTIC, AND ANTIBODY COMPOSITIONS RELATED TO PROTEIN FRAGMENTS OF ISOLEUCYL tRNA SYNTHETASES          | April 27, 2011            |
| PCT/US2011/034207<br>13/643,750 | INNOVATIVE DISCOVERY OF THERAPEUTIC, DIAGNOSTIC, AND ANTIBODY COMPOSITIONS RELATED TO PROTEIN FRAGMENTS OF THREONYL-tRNA SYNTHETASES           | April 27, 2011            |
| PCT/US2011/034387<br>13/643,753 | INNOVATIVE DISCOVERY OF THERAPEUTIC, DIAGNOSTIC, AND ANTIBODY COMPOSITIONS RELATED TO PROTEIN FRAGMENTS OF ALANYL-tRNA SYNTHETASES             | April 28, 2011            |
| PCT/US2011/034388<br>13/643,745 | INNOVATIVE DISCOVERY OF THERAPEUTIC, DIAGNOSTIC, AND ANTIBODY COMPOSITIONS RELATED TO PROTEIN FRAGMENTS OF ASPARAGINYL tRNA SYNTHETASES        | April 28, 2011            |
| PCT/US2011/034626<br>13/693,229 | INNOVATIVE DISCOVERY OF THERAPEUTIC, DIAGNOSTIC, AND ANTIBODY COMPOSITIONS RELATED TO PROTEIN FRAGMENTS OF VALYL-tRNA SYNTHETASES              | April 29, 2011            |
| PCT/US2011/034838<br>13/696,042 | INNOVATIVE DISCOVERY OF THERAPEUTIC, DIAGNOSTIC, AND ANTIBODY COMPOSITIONS RELATED TO PROTEIN FRAGMENTS OF ARGINYL-tRNA SYNTHETASES            | May 2, 2011               |
| PCT/US2011/035056<br>13/696,044 | INNOVATIVE DISCOVERY OF THERAPEUTIC, DIAGNOSTIC, AND ANTIBODY COMPOSITIONS RELATED TO PROTEIN FRAGMENTS OF METHIONYL-tRNA SYNTHETASES          | May 3, 2011               |
| PCT/US2011/035053<br>13/696,046 | INNOVATIVE DISCOVERY OF THERAPEUTIC, DIAGNOSTIC, AND ANTIBODY COMPOSITIONS RELATED TO PROTEIN FRAGMENTS OF PHENYLALANYL-ALPHA-tRNA SYNTHETASES | May 3, 2011               |
| PCT/US2011/034840<br>13/696,047 | INNOVATIVE DISCOVERY OF THERAPEUTIC, DIAGNOSTIC, AND ANTIBODY COMPOSITIONS RELATED TO PROTEIN FRAGMENTS OF SERYL-tRNA SYNTHETASES              | May 2, 2011               |
| PCT/US2011/035250<br>13/696,048 | INNOVATIVE DISCOVERY OF THERAPEUTIC, DIAGNOSTIC, AND ANTIBODY COMPOSITIONS RELATED TO PROTEIN FRAGMENTS OF GLUTAMYL-PROLYL-tRNA SYNTHETASES    | May 4, 2011               |

PATENT

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| PCT/US2011/036684<br>13/698,577 | INNOVATIVE DISCOVERY OF THERAPEUTIC,<br>DIAGNOSTIC, AND ANTIBODY COMPOSITIONS<br>RELATED TO PROTEIN FRAGMENTS OF LEUCYL-<br>TRNA SYNTHETASES    | May 16, 2011 |
| PCT/US2011/038240<br>13/700,410 | INNOVATIVE DISCOVERY OF THERAPEUTIC,<br>DIAGNOSTIC, AND ANTIBODY COMPOSITIONS<br>RELATED TO PROTEIN FRAGMENTS OF<br>GLUTAMINYL-TRNA SYNTHETASES | May 26, 2011 |
| PCT/US2011/038813<br>13/700,998 | INNOVATIVE DISCOVERY OF THERAPEUTIC,<br>DIAGNOSTIC, AND ANTIBODY COMPOSITIONS<br>RELATED TO PROTEIN FRAGMENTS OF LYSYL-<br>TRNA SYNTHETASES     | June 1, 2011 |

WHEREAS, Pangu BioPharma Limited, having its principal place of business at 18/F, Edinburgh Tower, The Landmark, 15 Queen's Road Central, Hong Kong, Special Administrative Region of the People's Republic of China, (the "Assignee"), is desirous of acquiring the entire right, title, and interest in: the invention(s); the applications for patent identified in the table above; the right to file applications for patent of the United States or other countries on the invention(s); any application(s) for patent of the United States or other countries claiming priority to these application(s); any provisionals or other right to recover damages, including royalties, for prior infringements of these applications; and any patent(s) of the United States or other countries that may be granted therefor or thereon.

NOW, THEREFORE, for good and sufficient consideration, the receipt of which is hereby acknowledged, and to the extent that the Assignor has not done so already via a prior agreement with the Assignee, or if the Assignor has already done so via a prior agreement with the Assignee then in confirmation of any obligation to do so in said prior agreement, the Assignor has sold, assigned, transferred, and set over, and by these presents does sell, assign, transfer, and set over, unto the Assignee, its successors, legal representatives, and assigns, the Assignor's entire right, title, and interest in:

- (a) the invention(s);
- (b) the applications for patent identified in the table above;
- (c) the right to file applications for patent of the United States or other countries on the invention(s), including all rights under the Hague Convention, the Paris Convention for the Protection of Industrial Property, and under the Patent Cooperation Treaty;
- (d) any application(s) for patent of the United States or other countries claiming the invention(s);
- (e) any application(s) for patent of the United States or other countries claiming priority to the applications for patent identified in the table above or any application(s) for patent claiming the invention(s), including any division(s), continuation(s), and continuation(s)-in-part;

- (f) any provisional or other right to recover damages, including royalties, for prior infringements of any application for patent identified in the preceding paragraphs (b)-(e); and
- (g) any patent(s) of the United States or other countries that may be granted for or on any application for patent identified in the preceding paragraphs (b) - (e), including any reissue(s) and extension(s) of said patent(s).

The above-granted rights, titles, and interests are to be held and enjoyed by the Assignee, for its own use and behalf and the use and behalf of its successors, legal representatives, and assigns, as fully and entirely as the same would have been held and enjoyed by the Assignor had this sale and assignment not been made.

The Assignor hereby represents to the Assignee, its successors, legal representatives, and assigns, that, at the time of execution and delivery of these presents, or if applicable, at such time said prior agreement was executed, the Assignor is the sole and lawful owner of the entire right, title, and interest in and to the Invention(s), that the Invention(s) are unencumbered, except, if applicable, by obligation to assign in accordance with said prior agreement, and that the Assignor has good and full right and lawful authority to sell and convey the same in the manner set forth herein.

The Assignor hereby covenants and agrees to and with the Assignee, its successors, legal representatives, and assigns, that the Assignor will sign all papers and documents, take all lawful oaths, and do all acts necessary or required to be done in connection with any and all proceedings for the procurement, maintenance, enforcement and defense of the Invention(s), said applications, and said patents, including interference proceedings, without charge to the Assignee, its successors, legal representatives, and assigns, but at the cost and expense of the Assignee, its successors, legal representatives, and assigns.

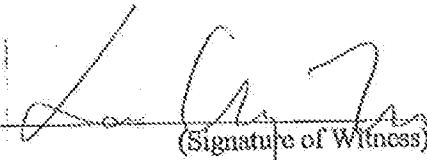
The Assignor hereby requests the Commissioner of Patents to issue said patents of the United States to the Assignee for the sole use and behalf of the Assignee, its successors, legal representatives, and assigns.

Date: 21 Dec 2012

By:   
Wing-Sze Lo

I certify that I know or have satisfactory evidence that Wing-Sze Lo signed this instrument of his/her own free will, as a voluntary act for the uses and purposes mentioned in the instrument.

Date 21 Dec 2012 Signed at Hong Kong  
(Type or Print)

Lau Ching Fui   
(Type or Print Name of Witness) (Signature of Witness)