

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT6582562

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
Name		Execution Date
ELESZTO GENETIKA, INC.		12/21/2020
RECEIVING PARTY DATA		
Name:	ANTHEIA, INC.	
Street Address:	1430 O'BRIEN DRIVE	
Internal Address:	SUITE A	
City:	MENLO PARK	
State/Country:	CALIFORNIA	
Postal Code:	94304	
PROPERTY NUMBERS Total: 28		
Property Type	Number	
Patent Number:	10190141	
Patent Number:	10487345	
Patent Number:	10662453	
Patent Number:	10119155	
Application Number:	61911759	
Application Number:	62050399	
Application Number:	16213037	
Application Number:	61985742	
Application Number:	62094376	
Application Number:	16657183	
Application Number:	62014367	
Application Number:	62355022	
Application Number:	62433431	
Application Number:	62514104	
Application Number:	16312895	
Application Number:	62438540	
Application Number:	62438588	
Application Number:	62438601	
Application Number:	62438695	

Property Type	Number
Application Number:	62438702
Application Number:	62469006
Application Number:	16312776
Application Number:	62556022
Application Number:	16754003
Application Number:	62599113
Application Number:	62636389
Application Number:	62954040
Application Number:	62954074

CORRESPONDENCE DATA

Fax Number: (650)493-6811

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 6504939300

Email: mpham@wsgr.com

Correspondent Name: WILSON SONSINI GOODRICH & ROSATI

Address Line 1: 650 PAGE MILL RD

Address Line 4: PALO ALTO, CALIFORNIA 94304

ATTORNEY DOCKET NUMBER: 47840-715-724.US

NAME OF SUBMITTER: MAI PHAM

SIGNATURE: /Mai Pham/

DATE SIGNED: 03/03/2021

Total Attachments: 14

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Intellectual Property Purchase and Assignment Agreement

This Intellectual Purchase and Assignment Agreement (the "Agreement") is made and effective as of 21st day of December 2020 (the "Effective Date") by and between Eleszto Genetika, Inc., a Delaware corporation with a place of business at 1881 Grove Ave, Radford, Virginia 24141 ("Eleszto Genetika") and Antheia, Inc., a California corporation, with a place of business at 1430 O'Brien Drive, Suite A, Menlo Park, CA 94025 ("Antheia"). The Eleszto Genetika and Antheia may be referred to individually as a "Party" or collectively as the "Parties."

WHEREAS the Eleszto Genetika desires to sell, assign and transfer to Antheia all of its right, title, and interest in and to the "Intellectual Property" (as such term is defined in this Agreement below); and

WHEREAS Antheia desires to buy and acquire all of Eleszto Genetika's right, title, and interest in and to the Intellectual Property; and

WHEREAS each Party is duly authorized and capable of entering into this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants and agreements set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Assignment of Intellectual Property.

1.1 Effective as of the Effective Date, the Eleszto Genetika sells, transfers, conveys, assigns, and delivers to the Antheia, and the Antheia accepts and assumes all right, title, and interest of the Eleszto Genetika in and to the following:

- (a) the intellectual property specified in **Appendix A** hereto, all patents that issue from such applications, and all continuations, continuations-in-part, divisionals, extensions, substitutions, restorations, reissues, re-examinations, renewals, and foreign counterparts of any of the foregoing (collectively, the "Patents");
- (b) all precursors, portions, and works in progress with respect thereto and all inventions, works of authorship, mask works, technology, information, know-how, materials, and tools relating thereto or to the development, support, or maintenance thereof;
- (c) all copyrights, patent rights, trade secret rights, trademark rights, mask works rights, and all other intellectual property rights and all business, contract rights, and goodwill in, incorporated, or embodied in, used to develop, or related to any of the foregoing; and
- (d) any registrations and applications for registrations of the foregoing ((a), (b), (c), and (d) shall be referred to herein collectively as the "**Intellectual Property**").

1.2 **Appendix B** memorializes this Assignment and may be used for recording purposes.

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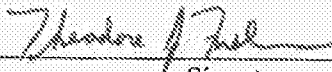
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IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first above written.

For Eleszto Genetika, Inc.

For Antheia, Inc.



Signature



Signature

Name: Theodore J. Fisher

Name: Christina Smolke

Title: Secretary

Title: CEO

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APPENDIX A
PATENT TABLE

Country	Appl. No. (Filing Date) Publ. No. (Pub. Date)	Patent No. (Grant Date)	Title	Status
US	62/438,540 (23-Dec-2016)	N/A	Compositions and Methods for Making Benzylisoquinoline Alkaloids, Morphinan Alkaloids, Thebaine, and Derivatives Thereof	EXP
US	62/438,601 (23-Dec-2016)	N/A	Compositions and Methods for Making Benzylisoquinoline Alkaloids, Morphinan Alkaloids, Thebaine, and Derivatives Thereof	EXP
US	62/438,702 (23-Dec-2016)	N/A	Compositions and Methods for Making Benzylisoquinoline Alkaloids, Morphinan Alkaloids, Thebaine, and Derivatives Thereof	EXP
US	62/438,588 (23-Dec-2016)	N/A	Compositions and Methods for Making Benzylisoquinoline Alkaloids, Morphinan Alkaloids, Thebaine, and Derivatives Thereof	EXP
US	62/438,695 (23-Dec-2016)	N/A	Compositions and Methods for Making Benzylisoquinoline Alkaloids, Morphinan Alkaloids, Thebaine, and Derivatives Thereof	EXP
US	62/469,006 (09-Mar-2017)	N/A	Compositions and Methods for Making Benzylisoquinoline Alkaloids, Morphinan Alkaloids, Thebaine, and Derivatives Thereof	EXP
US	16/312,776 (21-Dec-2018)		Compositions and Methods for Making Benzylisoquinoline Alkaloids, Morphinan Alkaloids, Thebaine, and Derivatives Thereof	PEN
AU	2017290594 (28-Dec-2018)		Compositions and Methods for Making Benzylisoquinoline Alkaloids, Morphinan Alkaloids, Thebaine, and Derivatives Thereof	PEN
CA	3,029,263 (21-Dec-2018)		Compositions and Methods for Making Benzylisoquinoline Alkaloids, Morphinan Alkaloids, Thebaine, and Derivatives Thereof	PEN
EP	17735761.3 (28-Jan-2019)		Compositions and Methods for Making Benzylisoquinoline Alkaloids, Morphinan Alkaloids, Thebaine, and Derivatives Thereof	PEN
HK	19130765.1 (11-Oct-2019)		Compositions and Methods for Making Benzylisoquinoline Alkaloids, Morphinan Alkaloids, Thebaine, and Derivatives Thereof	PEN
IL	263947 (24-Dec-2018)		Compositions and Methods for Making Benzylisoquinoline Alkaloids, Morphinan Alkaloids, Thebaine, and Derivatives Thereof	PEN
WO	PCT/US17/039589 (27-Jun-2017) WO/2018/005553 (04-Jan-2018)	N/A	Compositions and Methods for Making Benzylisoquinoline Alkaloids, Morphinan Alkaloids, Thebaine, and Derivatives Thereof	NATL
US	62/556,022 (08-Sep-2017)	N/A	Microorganisms and Methods in the Fermentation of Benzylisoquinoline Alkaloids	EXP
US	16/754,003 (06-Apr-2020)		Microorganisms and Methods in the Fermentation of Benzylisoquinoline Alkaloids	PEN
AU	2018329823 (08-Apr-2020)		Microorganisms and Methods in the Fermentation of Benzylisoquinoline Alkaloids	PEN
CA	3,078,818 (08-Apr-2020)		Microorganisms and Methods in the Fermentation of Benzylisoquinoline Alkaloids	PEN
EP	18853877.1 (07-Apr-2020)		Microorganisms and Methods in the Fermentation of Benzylisoquinoline Alkaloids	PEN
WO	PCT/US18/049693 (06-Sep-2018) WO/2019/051046 (14-Mar-2019)	N/A	Microorganisms and Methods in the Fermentation of Benzylisoquinoline Alkaloids	NATL
US	62/355,022 (27-Jun-2016)	N/A	Polynucleotides and Polypeptides Useful for Making Alkaloid Compounds	EXP
US	62/433,431 (13-Dec-2016)	N/A	Polynucleotides and Polypeptides Useful for Making Alkaloid Compounds	EXP
US	62/514,104 (02-Jun-2017)	N/A	Polynucleotides and Polypeptides Useful for Making Alkaloid Compounds	EXP
US	16/312,895 (21-Dec-2018) US 2019-0194269 (27-Jun-2019)		Polynucleotides and Polypeptides Useful for Making Alkaloid Compounds	PEN
AU	2017289304		Polynucleotides and Polypeptides Useful for Making Alkaloid Compounds	PEN

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Country	Appl. No. (Filing Date) Publ. No. (Pub. Date)	Patent No. (Grant Date)	Title	Status
	(28-Dec-2018)			
CA	3,028,817 (20-Dec-2018)		Polynucleotides and Polypeptides Useful for Making Alkaloid Compounds	PEN
EP	17818778.7 (24-Jan-2018)		Polynucleotides and Polypeptides Useful for Making Alkaloid Compounds	PEN
WO	PCT/CA17/050779 (27-Jun-2017) WO/2018/000089 (04-Jan-2018)	N/A	Polynucleotides and Polypeptides Useful for Making Alkaloid Compounds	NATL
US	62/954,040 (27-Dec-2019)	N/A	Modified Cells or Microorganisms and Methods for the Preparation of Thebaine	PEN
US	62/954,074 (27-Dec-2019)	N/A	Effect of Opioid Biosynthesis-Related Gene Overexpression on Thebaine and Intermediate Production	PEN
US	61/911,759 (04-Dec-2013)	N/A	Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	EXP
US	62/050,399 (15-Sep-2014)	N/A	Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	EXP
US	15/101,474 (03-Jun-2016)	10,190,141 (29-Jan-2019)	Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	GRA
US	16/213,037 (07-Dec-2018) US2019/0241919 (08-Aug-2019)		Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	PEN
AU	2014360597 (24-May-2016)	2014360597 (14-May-2020)	Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	GRA
AU-D1	2020200131 (08-Jan-2020)		Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	PEN
BR	BR 112016012595-9 (02-Jun-2016)		Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	PEN
CA	2,932,448 (02-Jun-2016)		Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	PEN
CN	2014800715591 (29-Jun-2016)		Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	PEN
EP	14867017.7 (26-May-2016) EP		Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	PEN
HK	17103744.4 (12-Apr-2017)		Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	PEN
IL	245970 (01-Jun-2016)	245970 (01-Apr-2020)	Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	GRA
IL-D1	271289 (09-Dec-2019)		Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	PEN
IN	201617019229 (02-Jun-2016)		Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	PEN
JP	2016-536954 (01-Jun-2016)	JP6783655 (26-Oct-2020)	Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	GRA
KR	10-2016-7017344 (28-Jun-2016)		Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	PEN
KR-D1	10-2019-7025315 (28-Aug-2019)	10-2018240 (29-Aug-2019)	Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	GRA
MX	MX/a/2016/007176 (02-Jun-2016)	364825 (08-May-2019)	Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	GRA
RU	2016124228 (20-Jun-2016)	2729065 (04-Aug-2020)	Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	GRA

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Country	Appl. No. (Filing Date) Publ. No. (Pub. Date)	Patent No. (Grant Date)	Title	Status
RU	2020124813 (27-Jul-2020)		Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	PEN
WO	PCT/CA14/051164 (03-Dec-2014) WO/2015/081437 (11-Jun-2015)	N/A	Compositions and Methods for Making (R)-Reticuline and Precursors Thereof	NATL
US	62/094,376 (19-Dec-2014)	N/A	Improved Methods for Making and Using Polynucleotide Sequences in the Synthesis of Alkaloid Compounds	EXP
US	61/985,742 (29-Apr-2014)	N/A	Improved Methods for Making and Using Polynucleotide Sequences in the Synthesis of Alkaloid Compounds	EXP
US	15/307,616 (28-Oct-2016)	10,487,345 (26-Nov-2019)	Improved Methods for Making and Using Polynucleotide Sequences in the Synthesis of Alkaloid Compounds	GRA
US	16/657,183 (18-Oct-2019)		Improved Methods for Making and Using Polynucleotide Sequences in the Synthesis of Alkaloid Compounds	Pet for Revival Pending
AU	2015252707 (03-Nov-2015)	2015252707 (14-Nov-2019)	Improved Methods for Making and Using Polynucleotide Sequences in the Synthesis of Alkaloid Compounds	GRA
CA	2,946,771 (24-Oct-2016)		Improved Methods for Making and Using Polynucleotide Sequences in the Synthesis of Alkaloid Compounds	PEN
EP	15785253.4 (22-Nov-2016) EP3137618 (08-Mar-2017)	N/A	Improved Methods for Making and Using Polynucleotide Sequences in the Synthesis of Alkaloid Compounds	WTHD
WO	PCT/CA15/050346 (27-Apr-2015) WO/2015/164960 (05-Nov-2015)	N/A	Improved Methods for Making and Using Polynucleotide Sequences in the Synthesis of Alkaloid Compounds	NATL
US	62/014,367 (19-Jun-2014)	N/A	Compositions and Methods for Making (S)-Noroclaudaurine and (S)-Norlaudanosoline and Synthesis Intermediates Thereof	EXP
US	15/319,568 (16-Dec-2016)	10,119,155 (06-Nov-2018)	Compositions and Methods for Making (S)-Noroclaudaurine and (S)-Norlaudanosoline and Synthesis Intermediates Thereof	GRA
US	16/122,050 (05-Sep-2018)	10,662,453 (26-May-2020)	Compositions and Methods for Making (S)-Noroclaudaurine and (S)-Norlaudanosoline and Synthesis Intermediates Thereof	GRA
AU	2015278205 (16-Dec-2016)		Compositions and Methods for Making (S)-Noroclaudaurine and (S)-Norlaudanosoline and Synthesis Intermediates Thereof	PEN
CA	2,952,638 (16-Dec-2016)	N/A	Compositions and Methods for Making (S)-Noroclaudaurine and (S)-Norlaudanosoline and Synthesis Intermediates Thereof	ABD
EP	15810408.3 (11-Jan-2017)	EP3158073 (23-Oct-2019)	Compositions and Methods for Making (S)-Noroclaudaurine and (S)-Norlaudanosoline and Synthesis Intermediates Thereof	GRA
ES	15810408.3 (11-Jan-2017)	EP3158073 (23-Oct-2019)	Compositions and Methods for Making (S)-Noroclaudaurine and (S)-Norlaudanosoline and Synthesis Intermediates Thereof	GRA
FR	15810408.3 (11-Jan-2017)	EP3158073 (23-Oct-2019)	Compositions and Methods for Making (S)-Noroclaudaurine and (S)-Norlaudanosoline and Synthesis Intermediates Thereof	GRA
DE	15810408.3 (11-Jan-2017)	EP3158073 (23-Oct-2019)	Compositions and Methods for Making (S)-Noroclaudaurine and (S)-Norlaudanosoline and Synthesis Intermediates Thereof	GRA
UK	15810408.3 (11-Jan-2017)	EP3158073 (23-Oct-2019)	Compositions and Methods for Making (S)-Noroclaudaurine and (S)-Norlaudanosoline and Synthesis Intermediates Thereof	GRA
WO	PCT/CA15/050542 (12-Jun-2015)	N/A	Compositions and Methods for Making (S)-Noroclaudaurine and (S)-Norlaudanosoline and Synthesis Intermediates Thereof	NATL
US	62/599,113 (15-Dec-2017)	N/A	Purine Permeases and Methods of Using	EXP
WO	PCT/CA2018/051604 (14-Dec-2018)	N/A	Purine Permeases and Methods of Using	No Nat'l Filing
US	62/636,389 (28-Feb-2018)	N/A	Alkaloid Biosynthesis Facilitating Proteins and Methods of Use	EXP
WO	PCT/CA2019/050239	N/A	Alkaloid Biosynthesis Facilitating Proteins and Methods of Use	No Nat'l

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Country	Appl. No. (Filing Date)	Patent No. (Grant Date)	Title	Status
	Publ. No. (Pub. Date) (28-Feb-2019)			Filing

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APPENDIX B

PATENT ASSIGNMENT

WHEREAS, **Eleszto Genetika, Inc.**, a Delaware Corporation with a place of business at 1881 Grove Ave, Radford, Virginia 24141 (hereinafter referred to as "ASSIGNOR") is the owner of the patents and applications, and the inventions set forth therein, set forth in **Appendix A**.

WHEREAS, **Antheia, Inc.**, a Delaware Corporation having offices at 1430 O'Brien Drive, Suite A in Menlo Park, CA 94025 (hereinafter referred to as "ASSIGNEE") is desirous of acquiring the full right, title and interest in and to said patents and applications, and the inventions set forth therein, in **Appendix A**.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by ASSIGNOR and ASSIGNEE, ASSIGNOR has sold, assigned, transferred and set over, and by these presents hereby sells, assigns, transfers and sets over to ASSIGNEE all of ASSIGNOR's right, title and interest in and to said patents and applications in **Appendix A**; all patents which may issue from said applications in the United States and countries foreign thereto; all divisions, continuations (in whole and in part), reissues, extensions, renewals, reexaminations, foreign counterparts, and any and all rights to collect past damages for infringement of any and all patents of the United States and countries and regions foreign thereto which may be published, of said applications and patents; and the right to claim for any of said applications the full benefits and priority rights under the Patent Cooperation Treaty, the Paris Convention and any other international agreement; such right, title, and interest to be held and enjoyed by ASSIGNEE, its successors and assigns, to the full end of the term or terms for which any and all such Letters Patents may be granted as fully and entirely as would have been held and enjoyed by ASSIGNOR had this Assignment not been made.

ASSIGNOR hereby covenants that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment.

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ASSIGNOR further covenants that ASSIGNEE will, at ASSIGNEE's reasonable request and expense, promptly execute and deliver to ASSIGNEE or its legal representative any and all papers, instruments or affidavits required to effect, evidence, or perfect the assignment and ownership of said patents and said equivalents in the United States or in any foreign country which may be necessary or desirable to carry out the purposes hereof.

Agreed to by Assignor:

Eleszto Genetika, Inc.

By: Theodore J. Fisher

Name: Theodore J. Fisher
Title: Secretary

Received and Agreed to by Assignee:

Antheia, Inc.

By: Christina Smolke

Name: Christina Smolke
Title: CEO

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