## 504500874 08/11/2017

# PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ARKANSAS	02/27/2017

## **RECEIVING PARTY DATA**

Name:	BIOVENTURES, LLC	
Street Address:	4301 W. MARKHAM STREET	
City:	LITTLE ROCK	
State/Country:	ARKANSAS	
Postal Code:	72205	

## **PROPERTY NUMBERS Total: 1**

Property Type	Number
Patent Number:	9556245

## **CORRESPONDENCE DATA**

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ATTORNEY DOCKET NUMBER:	110.018US5	
NAME OF SUBMITTER:	HUGH MCTAVISH	
SIGNATURE:	/Hugh McTavish/	
DATE SIGNED:	08/11/2017	

### **Total Attachments: 24**

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PATENT 504500874 REEL: 043533 FRAME: 0463

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## UNITED STATES PATENT ASSIGNMENT

- 1. WHEREAS, the Board of Trustees of the University of Arkansas, a University, with offices at 2404 North University Avenue, Little Rock, Arkansas 72207 ("Assignor"), is the owner of the entire right, title, and interest in and to certain letters patent and patent applications throughout the world and the inventions disclosed therein; and
- 2. WHEREAS, BIOVENTURES, LLC, an Arkansas limited liability company, with offices at 4301 W. Markham St., #831, Little Rock, Arkansas 72205-7199 ("Assignee"), is desirous of acquiring said right, title and interest of Assignor;
- NOW, THEREFORE, in consideration of the sum of one dollar (\$1.00) and 3. other good and valuable consideration by Assignee to Assignor in hand paid, receipt of all of which is hereby acknowledged. Assignor has agreed to and does hereby sell, assign and transfer unto Assignee, its successors and assigns, all of Assignor's right, title and interest in and throughout the world, in and to said letters patent and patent application and all reissues thereof and reexamination certificates therefore, and the inventions disclosed therein, including Assignor's full right to sue for and recover all damages recoverable from past infringements of said letters patent; including specifically, without limiting the generality of the foregoing, the worldwide letters patent and patent applications listed in Appendix A; and Assignor has further agreed to and does hereby sell, assign and transfer unto Assignee, its successors and assigns, all of Assignor's right, title and interest in and throughout the world in and to said inventions, any other patent applications (including provisional, non-provisional, divisional, continuing, or reissue applications) based in whole or in part on said worldwide letters patent or patent applications or in whole or in part on said inventions, and any and all letter patent (including extensions thereof) of any country which have been or may be granted on any of the aforesaid patent applications or on said inventions or any part thereof; including, specifically, without limiting the generality of the foregoing, the worldwide letters patent and patent applications listed in Appendix A.
- 4. TO BE HELD AND ENJOYED BY Assignee, its successors and assigns, to the full ends of the respective terms for which said patents have been or may be granted, as fully and entirely as the same would have been held and enjoyed by Assignor had this sale and assignment not been made.
- 5. AND Assignor hereby authorizes and requests the Patent Offices of the countries wherein said patent applications are filed to issue any and all letters patent which may be granted upon said foreign country patent applications to Assignee, its successors and assigns.
- 6. AND Assignor hereby agrees to execute without further consideration any further lawful documents and any further assurances, and any provisional, non-provisional, divisional, continuing, reissue or other applications for patents of any country, that may be deemed necessary by said Assignee, its successors or

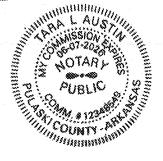
assigns fully to secure its interest as aforesaid in and to said inventions or any part thereof, and in and to said several patents or any of them.

7. AND Assignor covenants that Assignor has granted no right or license to make, use or sell said inventions to anyone except said Assignee, that prior to the execution of this deed, Assignor's right, title, and interest in said inventions has not been otherwise encumbered, and that Assignor has not executed and will not execute any instrument in conflict herewith.

ASSIGNOR (BOARD OF TRUSTEES OF THE UNIVERSITY OF ARKANSAS) Ву: Title: **ACKNOWLEDGMENT** COUNTY OF Puluski On this 22day of Forward 2017, before me, a Notary Public, personally appeared to me to be the person described, in and who executed, the foregoing assignment and acknowledged that he/she executed said instrument as his/her free act and deed. In Testimony Whereof, I have hereunto set my hand and affixed my official seal the day and year first above written.

My Commission Expires:

10-7-20 ISEAL



# ASSIGNEE (BIOVENTURES, LLC)

By: Title	Nancy M. Glav
Date	e:2/22/14
ACKNO'	WLEDGMENT
STATE OF AVAISAS	
) \$8	S
COUNTY OF WWW.	
On this $22$ day of $26000$ personally appeared $10000$	_, 2017, before me, a Notary Public,
to me to be the person described, in a	and who executed, the foregoing e/she executed said instrument as his/her
In Testimony Whereof, I have seal the day and year first above writt	nereunto set my hand and affixed my official en.
Win MOU	
Notary Public	

ALISON M. GILL MY COMMESION # 12376150 EXPIRES: April 15, 2020 Pulaski County

My Commission Expires:

## **APPENDIX A**

Docket 110.001US1, U.S. Utility Patent

Patent No. 7,465,537

Issued December 16, 2008

Serial No. 11/119,587

COMPOUNDS AND METHODS FOR INHIBITING HEPATITIS C VIRUS REPLICATION

Inventors: Raney, Kevin D. et al.

Filed: May 1, 2005 UAMS reference I04-09

Docket Number 110.001US2, U.S. Utility Patent Application

Serial No.12/291,473

Title: COMPOUNDS AND METHODS FOR INHIBITING HEPATITIS C VIRUS

REPLICATION

Inventors: Raney, Kevin D. et al.

Filed: November 10, 2008 UAMS reference I04-09

Docket: 110.002US1

U.S. utility patent no 7,211,427

Issued May 1, 2007

Applicant: Jeanne Y. Wei and Xiaomin Zhang

Filed: September 13, 2005 Serial No.: 11/225,270

Title: P49/STRAP IS A NOVEL PROTEIN INVOLVED IN GENE REGULATION AND

**CELL PROLIFERATION** UAMS reference I04-20

Docket:

110.002US2, U.S. utility patent

Patent No.

7,498,411

Issued

March 3, 2009

Applicant:

Jeanne Y. Wei and Xiaomin Zhang

Filed:

March 22, 2007

Serial No.:

11/726,699

Title: P49/STRAP IS A NOVEL PROTEIN INVOLVED IN GENE REGULATION AND

**CELL PROLIFERATION** UAMS reference I04-20

Docket:

110.002US3, U.S. utility patent application

Applicant:

Serial No.:

Jeanne Y. Wei and Xiaomin Zhang

Filed:

September 11, 2008

12/283,347

Title: P49/STRAP IS A NOVEL PROTEIN INVOLVED IN GENE REGULATION AND

**CELL PROLIFERATION** UAMS reference I04-20

Docket Number: 110.003US1, U.S. Utility Patent Application

Title: Therapy with Clostridium Perfringens Enterotoxin to Treat Ovarian and Uterine

Cancer

Inventor: Alessandro D. Santin

Filed: October 12, 2005 Serial No.: 11/248,702 UAMS Disclosure I04-13

Docket 110.003US2, U.S. Utility Patent Application.

Title: Therapy with Clostridium Perfringens Enterotoxin to Treat Ovarian and Uterine

Cancer

Inventor: Alessandro D. Santin

Filed: June 24, 2009 Serial No.: 12/456,907

Docket: 110.004CA1, Canadian Patent Application

IMMUNOTHERAPY OF EPITHELIAL TUMORS USING INTRALESIONAL

INJECTION OF ANTIGENS THAT INDUCE A DELAYED TYPE

HYPERSENSITIVITY REACTION

Canadian Patent Application No. 2,276,219

Inventors: Thomas Dag Horn et al.

Applicant: Board of Trustees of the University of Arkansas

Docket: 110.004US1, U.S. Utility Patent

IMMUNOTHERAPY OF EPITHELIAL TUMORS USING INTRALESIONAL

INJECTION OF ANTIGENS THAT INDUCE A DELAYED TYPE

HYPERSENSITIVITY REACTION

Applicant: Thomas Dag Horn et al.

Serial No. 09/344,357 U.S. Patent No. 6,350,451 Issued February 26, 2002

Docket Number 110.004US3 U.S. Utility Patent Application

Title: IMMUNOTHERAPY OF EPITHELIAL TUMORS USING INTRALESIONAL

INJECTION OF ANTIGENS THAT INDUCE A DELAYED TYPE HYPERSENSITIVITY

**REACTION** 

Inventors: Thomas Dag Horn and Sandra Marchese Johnson

Filed February 21, 2005. Serial No. 11/061,996.

Docket 110,004US4, U.S. utility patent application.

Inventors: Thomas Dag Horn and Sandra Marchese Johnson

Serial No.: 12/077,508 Filed: March 19, 2008

Title: IMMUNOTHERAPY OF EPITHELIAL TUMORS USING INTRALESIONAL INJECTION OF ANTIGENS THAT INDUCE A DELAYED TYPE HYPERSENSITIVITY REACTION

Docket 110.006US1, U.S. Utility patent application

Title: EFFICIENT GENE SUPPRESSION USING A TRANSFER RNA PROMOTER IN

HERPES VIRUS VECTORS TO DELIVER SMALL INTERFERENCE RNAS

Inventor: Yuzhi Chen Serial No. 11/327,232 Filed: January 7, 2006 UAMS Disclosure I05-07

Docket: 110.010AU1

Australian Patent Application No. 2006279441

Inventor: Cherng-ju Kim

Based on International Application No. PCT/US2006/032147

Filed: August 17, 2006

Title: DRUG-SURFACTANT COMPLEXES FOR SUSTAINED RELEASE

UAMS Disclosure: I05-32

Docket: 110.010CA1

Canadian Patent Application No. 2,618,076

Inventor: Cherng-ju Kim

Based on International Application No. PCT/US2006/032147

Filed: August 17, 2006

Title: DRUG-SURFACTANT COMPLEXES FOR SUSTAINED RELEASE

UAMS Disclosure: I05-32

Docket: 110.010EP1

European Patent Application No. 06801741.7

Inventor: Cherng-ju Kim

Based on International Application No. PCT/US2006/032147

Filed: August 17, 2006

Title: DRUG-SURFACTANT COMPLEXES FOR SUSTAINED RELEASE

UAMS Disclosure: I05-32

Docket: 110.010KR1

Korean Patent Application No. 10-2008-7006425

Inventor: Cherng-ju Kim

Based on International Application No. PCT/US2006/032147

Filed: August 17, 2006

Title: DRUG-SURFACTANT COMPLEXES FOR SUSTAINED RELEASE

UAMS Disclosure: I05-32

Docket: 110.010US1 Applicant: Cherng-ju Kim

Filed: August 17, 2005 Serial No: 11/207,126

Title: DRUG-SURFACTANT COMPLEXES FOR SUSTAINED RELEASE

UAMS Disclosure: I05-32

Docket: 110.010US2, U.S. utility patent application

Applicant: Cherng-ju Kim Filed: October 22, 2009 Serial No: 12/589,327

Title: DRUG-SURFACTANT COMPLEXES FOR SUSTAINED RELEASE

UAMS Disclosure: I05-32

Our ref.: 110.010TW1, Taiwan patent application.

Inventor: Cherng-ju Kim

Applicant: Board of Trustees of the University of Arkansas Based on International Application No. PCT/US2006/032147

Filed: August 17, 2006

Title: DRUG-SURFACTANT COMPLEXES FOR SUSTAINED RELEASE

Docket 110.017US1, U.S. utility patent application

Title: METHODS OF IDENTIFYING GLUCOCORTICOIDS WITHOUT THE

DETRIMENTAL SIDE EFFECTS OF BONE LOSS

Inventors: Bellido, Teresita et al. Filed: September 27, 2005

Serial No.: 11/236,042

Docket 110.018CA1

Canadian patent application no. 2,443,617

based on International Patent Application No. PCT/US02/11734 Applicant: The Board of Trustees of the University of Arkansas

Inventors: Timothy J. O'Brien et al. International Filing Date: 17 April 2001

Title: REPEAT SEQUENCES OF THE CA125 GENE AND THEIR USE FOR DIAGNOSTIC

AND THERAPEUTIC INTERVENTIONS

Docket 110.018EP1

European patent no. EP 1414477

European patent application no. EP 02723852.6

based on International Patent Application No. PCT/US02/11734 Applicant: The Board of Trustees of the University of Arkansas

Inventors: Timothy J. O'Brien et al. International Filing Date: 17 April 2001

Title: REPEAT SEQUENCES OF THE CA125 GENE AND THEIR USE FOR DIAGNOSTIC

AND THERAPEUTIC INTERVENTIONS

Docket 110.018EP2

European patent no. EP2340845

European Patent Application No. 10012943.6

Applicant: The Board of Trustees of the University of Arkansas

Inventors: Timothy J. O'Brien et al. International Filing Date: 17 April 2001

Title: REPEAT SEQUENCES OF THE CA125 GENE AND THEIR USE FOR DIAGNOSTIC

AND THERAPEUTIC INTERVENTIONS

Divisional of European patent application no. EP 02723852.6

Docket 110.018JP1

Japanese Patent Application No. 2002-582205

Corresponding to PCT Application No. PCT/US02/11734

Inventors: Timothy J. O'Brien et al.

Applicant: The Board of Trustees of the University of Arkansas

Title: REPEAT SEQUENCES OF THE CA125 GENE AND THEIR USE FOR DIAGNOSTIC

AND THERAPEUTIC INTERVENTIONS

Docket 110.018MX1

Mexican Patent No. 292867.

Issued December 1, 2011

Mexican Patent Application No. PA/a/2003/009510

National Stage of PCT Application No. PCT/US02/11734

Inventors: Timothy J. O'Brien et al.

Applicant: The Board of Trustees of the University of Arkansas

Title: REPEAT SEQUENCES OF THE CA125 GENE AND THEIR USE FOR DIAGNOSTIC

AND THERAPEUTIC INTERVENTIONS

Docket 110.018MX3

Mexican patent no. 292867

Mexican Patent Application No. PA/a/2005/005237

National Stage of PCT Application No. PCT/US03/37041, filed Nov. 17, 2003

Inventors: Timothy J. O'Brien et al.

Applicant: The Board of Trustees of the University of Arkansas

Title: CA125 GENE AND ITS USE FOR DIAGNOSTIC AND THERAPEUTIC

INTERVENTIONS

Priority claimed from US 60/427,045, filed Nov. 15, 2002.

PCT/US03/37041

Docket 110.018MX4

Mexican Patent Application No. MX/a/2010/011665

Inventors: Timothy J. O'Brien et al.

Applicant: The Board of Trustees of the University of Arkansas

Title: REPEAT SEQUENCES OF THE CA125 GENE AND THEIR USE FOR DIAGNOSTIC

AND THERAPEUTIC INTERVENTIONS

Docket 110.018MX5

Mexican Patent No. 313010

Issue 05 September 2013

Mexican Patent Application No. MX/a/2010/013271

International Filing Date April 12, 2002

Inventors: Timothy J. O'Brien et al.

Applicant: The Board of Trustees of the University of Arkansas

Title: REPEAT SEQUENCES OF THE CA125 GENE AND THEIR USE FOR DIAGNOSTIC

AND THERAPEUTIC INTERVENTIONS

Docket:110.018US1

Inventors: Timothy J. O'Brien et al.

Serial No: 09/956,738 Filed: September 27, 2001

Title: REPEAT SEQUENCES OF THE CA125 GENE AND THEIR USE FOR DIAGNOSTIC

AND THERAPEUTIC INTERVENTIONS

U.S. Patent No. 7,309,760

Docket 110.018US2,

U.S. Patent No. 8,124,728

Issued February 28, 2012

Inventors: Timothy J. O'Brien et al.

Serial No.: 10/475,117 Filed: March 1, 2004

Title: REPEAT SEQUENCES OF THE CA125 GENE AND THEIR USE FOR DIAGNOSTIC

AND THERAPEUTIC INTERVENTIONS

Docket 110.018US3

Inventors: Timothy J. O'Brien et al.

Serial No.: 10/715,066 Filed: November 17, 2003

Title: CA125 GENE AND ITS USE FOR DIAGNOSTIC AND THERAPEUTIC

INTERVENTIONS

Docket 110.018US4, U.S. utility patent application.

Inventors: Timothy J. O'Brien et al.

Serial No.: 11/975,668 Filed: October 19, 2007

Title: REPEAT SEQUENCES OF THE CA125 GENE AND THEIR USE FOR DIAGNOSTIC

AND THERAPEUTIC INTERVENTIONS

Docket 110.018US5

Inventors: Timothy J. O'Brien et al.

Serial No.: 12/455,366 Filed: June 1, 2009

Title: CA125 GENE AND ITS USE FOR DIAGNOSTIC AND THERAPEUTIC INTERVENTIONS

Docket 110.019US1, U.S. Utility Patent

U.S. Patent No. 8,021,672

Title: DEVELOPMEMNT OF A CHALMYDIA SP. VACCINE STRAIN

Inventor: Catherine M. O'Connell

Filed: February 20, 2007 Serial No.: 11/708,620 UAMS Disclosure I06-11

Docket 110.020WO1, International PCT Patent Application

International application no. PCT/US08/004589

Title: FUSION PROTEIN OF COLLAGEN-BINDING DOMAIN AND PARATHYROID

**HORMONE** 

Inventors: Osamu Matsushita, Robert C. Gensure, and Joshua Sakon

Filed: April 9, 2008 Disclosure UAF 06-31

Docket 110.021US1, U.S. Patent

U.S. Patent No. 8,097,242 Issue date: January 17, 2012 Serial Number 11/973,132

Title: TARGET PEPTIDES FOR OVARIAN CANCER IMMUNOTHERAPY

Inventor: Alessandro D. Santin

Filed: October 5, 2007

Docket 110.021WO1, International PCT Patent Application

International Application No. PCT/US2007/021560

Title: TARGET PEPTIDES FOR OVARIAN CANCER IMMUNOTHERAPY

Inventor: Alessandro D. Santin

Filed: October 5, 2007

Docket No. 110.022CA1,

Canadian patent application no. 2,670,107

based on

International Application No. PCT/US07/024300

Title: Multi-Epitope Peptide-Loaded Dendritic Cell Immunotherapy for Cancer

Inventors: Martin J. Cannon, Kristina L. Bondurant, Timothy J. O'Brien

International Filing date: November 21, 2007

Docket No. 110.022EP1, European patent application no 07862173.7

based on International Application No. PCT/US07/024300

Title: Multi-Epitope Peptide-Loaded Dendritic Cell Immunotherapy for Cancer

Inventors: Martin J. Cannon, Kristina L. Bondurant, Timothy J. O'Brien

International Filing date: November 21, 2007

Docket No. 110.022EP2,

European patent application No. 12155731.8

Divisional of

European patent application No. 07862173.7

Title: Multi-Epitope Peptide-Loaded Dendritic Cell Immunotherapy for Cancer

Inventors: Martin J. Cannon, Kristina L. Bondurant, Timothy J. O'Brien

International Filing date: November 21, 2007

Priority date: November 22, 2006

Docket 110.022US1, U.S Patent Application

Title: MULTI-EPITOPE PEPTIDE-LOADED DENDRITIC CELL IMMUNOTHERAPY FOR

**CANCER** 

Inventors: Martin J. Cannon, Kristina L Bondurant, Timothy J. O'Brien

Filed: November 21, 2007 Serial No. 11/986,352

Docket 110.022US2, U.S Patent Application

Title: MULTI-EPITOPE PEPTIDE-LOADED DENDRITIC CELL IMMUNOTHERAPY FOR

**CANCER** 

Inventors: Martin J. Cannon, Kristina L Bondurant, Timothy J. O'Brien

Filed: October 27, 2010 Serial No. 12/913,174

**UAMS 107-09** 

Docket Number 110.022WO1, International Patent Application

Title: MULTI-EPITOPE PEPTIDE-LOADED DENDRITIC CELL IMMUNOTHERAPY FOR

**CANCER** 

Inventors: Martin J. Cannon, Kristina L. Bondurant, Timothy J. O'Brien

International Application No. PCT/US07/024300

Filed: November 21, 2007 UAMS Disclosure I07-09

Docket 110.024US1, U.S. Utility Patent Application

Title: OVEREXPRESSION OF MAMMAGLOBIN B IN OVARIAN AND ENDOMETRIAL

TUMORS - A NEW DIAGNOSTIC AND THERAPEUTIC MARKER

Inventor: Alessandro D. Santin

Filed: February 21, 2006 Serial No. 11/709,014 UAMS Disclosure I07-23

Docket 110.025US1

U.S. Utility Patent No. 9,289,403

Issued March 22, 2016

Title: USE OF MODAFINIL TO TREAT SPASTICITY

Inventor: Edgar Garcia-Rill

Filed: March 9, 2007 Serial No.: 11/716,218 UAMS Disclosure I07-25

Docket 110.025WO1,

International Patent Application No. PCT/US2008/002964 Title: USE OF MODAFINIL TO TREAT SPASTICITY

Inventor: Edgar Garcia-Rill

Filed: March 5, 2008

Docket 110.026DE1, German national stage application, based on

International Application No. PCT/US2008/004392

Title: NON-SPECIFIC DELAYED-TYPE HYPERSENSITIVITY RESPONSE TO TREAT

HERPES SIMPLEX VIRUS INFECTION

Inventors: Hugh McTavish, Thomas Dag Horn, and Sandra Marchese Johnson

Filed: April 4, 2008. Priority Date April 4, 2007

Applicants: Hugh McTavish, and the Board of Trustees of the University of Arkansas

Docket 110.026KR1, Korean national stage application, based on

International Application No. PCT/US2008/004392

Title: NON-SPECIFIC DELAYED-TYPE HYPERSENSITIVITY RESPONSE TO TREAT

HERPES SIMPLEX VIRUS INFECTION

Inventors: Hugh McTavish, Thomas Dag Horn, and Sandra Marchese Johnson

Filed: April 4, 2008. Priority Date April 4, 2007

Applicants: Hugh McTavish, and the Board of Trustees of the University of Arkansas

Docket 110.026US1, U.S. Utility Patent Application

Title: NON-SPECIFIC DELAYED-TYPE HYPERSENSITIVITY RESPONSE TO TREAT

HERPES SIMPLEX VIRUS INFECTION

Inventors: Hugh McTavish, Thomas Dag Horn, and Sandra Marchese Johnson

Filed: October 1, 2009 Serial No. 12/450,586 UAMS Disclosure I07-29

Docket 110.026US2,

U.S. Patent No. 9,205,065

Title: NON-SPECIFIC DELAYED-TYPE HYPERSENSITIVITY RESPONSE TO TREAT

HERPES SIMPLEX VIRUS INFECTION

Inventors: Hugh McTavish, Thomas Dag Horn, and Sandra Marchese Johnson

Filed: April 19, 2015 Serial No. 14/690,459 UAMS Disclosure I07-29

Docket 110.026US3, U.S. Patent No. Application

Title: NON-SPECIFIC DELAYED-TYPE HYPERSENSITIVITY RESPONSE TO TREAT

HERPES SIMPLEX VIRUS INFECTION

Inventors: Hugh McTavish, Thomas Dag Horn, and Sandra Marchese Johnson

Filed: December 6, 2015 Serial No. 14/960,402 UAMS Disclosure I07-29

Docket No. 110.026WO1. International Patent Application

Title: NON-SPECIFIC DELAYED-TYPE HYPERSENSITIVITY RESPONSE TO TREAT

HERPES SIMPLEX VIRUS INFECTION

Inventors: Hugh McTavish, Thomas Dag Horn, and Sandra Marchese Johnson

Filed: April 4, 2008

International Application No. PCT/US2008/004392

Docket 110.027US1, U.S. Utility Patent

Title: METHODS AND KITS FOR ASSAYING ACETYL TRANSFERASE OR

DEACETYLASE ACTIVITY Inventors: Alan J. Tackett et al.

Filed: June 12, 2007 Serial No. 11/811,886

U.S. Patent No. 7,670,795

Issued March 2, 2010

**UAMS Disclosure I07-35** 

Docket 110.027US2, U.S. Utility Patent Application

Title: METHODS AND KITS FOR ASSAYING ACETYL TRANSFERASE OR

DEACETYLASE ACTIVITY Inventors: Alan J. Tackett et al.

Filed: October 12, 2009 Serial No.: 12/587,776 UAMS Disclosure I07-35

Docket 110.029CA1, Canadian patent application

based on International Patent Application No. PCT/US08/011213

Title: INHIBITION OF DENDRITIC CELL-DRIVEN REGULATORY T CELL ACTIVATION

AND POTENTIATION OF TUMOR ANTIGEN-SPECIFIC T CELL RESPONSES BY

**INTERLEUKIN-15** 

Inventors: Martin J. Cannon, Kellie Kozak, and Timothy J. O'Brien

Filed: September 27, 2008 UAMS Disclosure I08-03

Docket 110.029EP1,

European patent application no. 08834390.0

based on International Patent Application No. PCT/US08/011213

Title: INHIBITION OF DENDRITIC CELL-DRIVEN REGULATORY T CELL ACTIVATION AND POTENTIATION OF TUMOR ANTIGEN-SPECIFIC T CELL RESPONSES BY

INTERLEUKIN-15 AND MAP KINASE INHIBITOR Inventors: Martin J. Cannon, Kellie Kozak, and Timothy J. O'Brien

Filed: September 27, 2008 UAMS Disclosure I08-03

Docket 110.029US1, U.S. Utility Patent Application

Title: INHIBITION OF DENDRITIC CELL-DRIVEN REGULATORY T CELL ACTIVATION

AND POTENTIATION OF TUMOR ANTIGEN-SPECIFIC T CELL RESPONSES BY

**INTERLEUKIN-15** 

Inventors: Martin J. Cannon, Kellie Kozak, and Timothy J. O'Brien

Serial No.: 12/286,122 Filed: September 27, 2008 UAMS Disclosure I08-03

Docket 110.029US2, U.S. Utility Patent Application

Title: INHIBITION OF DENDRITIC CELL-DRIVEN REGULATORY T CELL ACTIVATION

AND POTENTIATION OF TUMOR ANTIGEN-SPECIFIC T CELL RESPONSES BY

**INTERLEUKIN-15** 

Inventors: Martin J. Cannon, Kellie Kozak Vaidya, and Timothy J. O'Brien

Filed: September 30, 2013 Serial No. 14/040,850 UAMS Disclosure I08-03

Docket 110.029WO1, International Patent Application

Title: INHIBITION OF DENDRITIC CELL-DRIVEN REGULATORY T CELL ACTIVATION

AND POTENTIATION OF TUMOR ANTIGEN-SPECIFIC T CELL RESPONSES BY

**INTERLEUKIN-15** 

Inventors: Martin J. Cannon, Kellie Kozak, and Timothy J. O'Brien

Filed: September 27, 2008 UAMS Disclosure I08-03

Docket 110.030US1, U.S. Utility Patent Application

Title: CB2 RECEPTOR MODULATORS IN NEURODEGENERATIVE DISEASES AND

APPLICATIONS OF THE SAME

Inventors: Paul L. Prather and John P. Crow

Serial No. 11/867,689 Filed: October 5, 2007

Docket 110.030US2, U.S. Utility Patent Application

Title: CB2 RECEPTOR MODULATORS IN NEURODEGENERATIVE DISEASES AND

APPLICATIONS OF THE SAME

Inventors: Paul L. Prather and John P. Crow

Serial No. 13/853,913

Filed: March 29, 2013

Docket 110.031US1, U.S. Utility Patent Application Title: INHIBITION OF CANCER METASTASIS

Inventors: Behjatolah M. Karbassi et al.

Filed: March 30, 2007 Serial No. 11/694,370

Docket 110.031US2, U.S. Utility Patent Application Title: INHIBITION OF CANCER METASTASIS

Inventors: Bejatolah M. Karbassi and Thomas Kieber-Emmons

Filed: October 4, 2008 UAMS Disclosure 2009-06

Docket 110.031US3, U.S. Utility Patent Application Title: INHIBITION OF CANCER METASTASIS

Inventors: Behjatolah M. Karbassi et al.

Filed: April 5, 2012 Serial No. 13/440,137 UAMS Disclosure 2009-06

Docket 110.033US1, U.S. Utility Patent Application

Title: PREPARATION METHOD OF BIODEGRADABLE MICRO-PARTICLES

CONTAINING DRUGS Inventor: Cherng-ju Kim Filed: July 31, 2008

Docket: 110.033WO1, International patent application

Inventor: Cherng-ju Kim Filed: July 23, 2009

International Application No. PCT/US09/004273

Title: PREPARATION METHOD FOR BIODEGRADABLE MICRO-PARTICLES

**CONTAINING DRUGS** 

Docket: 110.034USA

Patentability Opinion on UAMS Disclosure 2009-11 Inventors: Cristian Gragniello and Ossama Al-Mefty.

Title: THE UTILIZATION OF FLUORESCINE FOR IDENTIFICATION AND

PRESERVATION OF THE FACIAL NERVE AND SEMICIRCLULAR CANALS FOR SAFE

**MASTOIDECTOMY** 

Docket 110.034PRV, U.S. Provisional Patent Application

Title: UTILIZATION OF FLUORESCENT DYE FOR IDENTIFICATION AND

PRESERVATION OF THE FACIAL NERVE AND SEMICIRCULAR CANALS FOR SAFE

MASTOIDECTOMY

Inventors: Cristian Gragnaniello and Ossama Al-Mefty

Filed: March 24, 2009 Serial No. 61/210,905 UAMS Disclosure 2009-11

Docket 110.035PRV, U.S. Provisional Patent Application Title: TUMOR SIMULATION FOR SURGERY TRAINING

Inventor: Cristian Gragnaniello

Filed: April 16, 2009 Serial No.: 61/212,874 UAMS Disclosure 2009-20

Docket 110.035PRV2, U.S. Provisional Patent Application Title: TUMOR SIMULATION FOR SURGERY TRAINING

Inventor: Cristian Gragnaniello

Filed: May 4, 2009 Serial No.: Unassigned UAMS Disclosure 2009-20

Docket 110.036PRV, U.S. Provisional Patent Application Title: NEW METHYLPHENIDATE FORMULATIONS

Inventor: Cherng-ju Kim Filed: July 13, 2009 Serial No.: 61/270,752 UAMS Disclosure 2009-22

Docket 110.037PRV, U.S. Provisional Patent Application

Title: ALPHA-MELANOCYTE STIMULATING HORMONE (α-MSH) AS

ANTI-INFLAMMATORY AGENT FOR THE TREATMENT OF ALLERGIC CONTACT

DERMATITIS

Inventors: Cheryl Armstrong and John Ansel

Filed: November 9, 2009 Serial No.: 61/280,820 UAMS Disclosure 2009-28

Docket 110.037US1, U.S. Utility Patent Application

Title: ALPHA-MELANOCYTE STIMULATING HORMONE AS TOPICAL ANTI-INFLAMMATORY AGENT FOR THE TREATMENT OF ALLERGIC CONTACT

DERMATITIS AND ECZEMA

Inventors: Mandip Singh Sachdeva, Cheryl Armstrong, and John Ansel.

Filed: November 9, 2010 Serial No.: 12/942,369 UAMS Disclosure 2009-28

Docket 110.038PRV, U.S. Provisional Patent Application

Title: HUMAN PAPILLOMA VIRUS PEPTIDE-SPECIFIC T-CELL

RESPONSE FOR

TREATMENT OF WARTS

Inventors: Mayumi Nakagawa, Kevin Kim, and Thomas Horn

Filed: April 9, 2010 Serial No.: 61/342,174 UAMS Disclosure 2010-09

Docket 110.038US1, U.S. Utility Patent Application

Title: HUMAN PAPILLOMA VIRUS PEPTIDE-SPECIFIC T-CELL RESPONSE FOR

TREATMENT OF WARTS

Inventors: Mayumi Nakagawa, Kevin Kim, and Thomas Horn

Filed: April 7, 2011 Serial No.: 13/066,128 UAMS Disclosure 2010-09

Docket 110.038US2, U.S. Utility Patent Application

Title: HUMAN PAPILLOMA VIRUS PEPTIDE-SPECIFIC T-CELL RESPONSE FOR

TREATMENT OF WARTS

Inventors: Mayumi Nakagawa, Kevin Kim, and Thomas Horn

Filed: August 11, 2011 Serial No.: 13/136,801 UAMS Disclosure 2010-09

Docket: 110.039USA

Patentability Opinion on UAMS Disclosure 2011-12

Inventor: Cherng-ju Kim

Title: BIODEGRADABLE MICROSPHERES MANUFACTURING PROCESS

Docket 110.039PRV, U.S. Provisional Patent Application

Title: SEMI-CONTINUOUS PROCESS OF PREPARING MICROSPHERES CONTAINING

**DRUGS** 

Inventor: Cherng-ju Kim Filed: April 9, 2009 Serial No.: 61/492,410 UAMS Disclosure 2011-12

Docket 110.040US1,

U.S. Utility Patent No. 8,367,366

Issued February 5, 2013

Title: METHODS AND KITS FOR QUANTITATIVE METHYLTRANSFERASE AND

**DEMETHYLASE MEASUREMENTS** 

Inventors: Alan J. Tackett, Lauren P. Blair, and Nathan L. Avaritt

Filed: December 4, 2010 Serial No. 12/960,486 UAMS Disclosure 2011-07

Docket 110.041PRV, U.S. Provisional Patent Application

Title: NEW MARKERS PROVIDE POTENTIAL FOR EARLY DIAGNOSIS AND OPTIONS OF OVARIAN CANCE PATIENT THERAPY AFTER OR DURING CHEMOTHERAPY

Inventors: Timothy O'Brien, John Beard, and Wilbur C. Hitt

Filed: June 17, 2011 Serial No. Unassigned

Docket 110.041PRV2, U.S. Provisional Patent Application

Title: NEW MARKERS FOR EARLY DIAGNOSIS OF OVARIAN CANCER, MONITORING

DURING THERAPY, AND NEW THERAPY OPTIONS DURING AND AFTER

**CHEMOTHERAPY** 

Inventors: Timothy O'Brien, John Beard, and Wilbur C. Hitt

Filed: September 12, 2011 Serial No.: 61/573,759 UAMS Disclosure 2010-09

Docket 110.041WO1, PCT Patent Application

Title: NEW MARKERS FOR EARLY DIAGNOSIS OF OVARIAN CANCER, MONITORING

DURING THERAPY, AND NEW THERAPY OPTIONS DURING AND AFTER

**CHEMOTHERAPY** 

Inventors: Timothy O'Brien, John Beard, and Wilbur C. Hitt

Filed: June 18, 2012

International Application No.: PCT/US12/43027

UAMS Disclosure 2011-32

Docket 110.041EP1,

European Patent Application No. 12800956.0

Title: NEW MARKERS FOR EARLY DIAGNOSIS OF OVARIAN CANCER, MONITORING

DURING THERAPY, AND NEW THERAPY OPTIONS DURING AND AFTER

**CHEMOTHERAPY** 

Inventors: Timothy O'Brien, John Beard, and Wilbur C. Hitt Based on International Application No.: PCT/US12/43027

Filed: June 18, 2012

UAMS Disclosure 2011-32

Docket 110.041US1, U.S. patent application

Serial No. 14/107,751

Filed Dec. 16, 2013

Title: NEW MARKERS FOR EARLY DIAGNOSIS OF OVARIAN CANCER, MONITORING

DURING THERAPY, AND NEW THERAPY OPTIONS DURING AND AFTER

CHEMOTHERAPY

Inventors: Timothy O'Brien, John Beard, and Wilbur C. Hitt

UAMS Disclosure 2011-32

Docket 110.042PRV, U.S. Provisional Patent Application

Title: CHONDROITIN SULFATE SULFOTRANSFERASES AND PROTEOGLYCANS AS CANCER BIOMARKERS: USE OF EXPRESSION AND METHYLATION STATUS

Inventors: Behjatolah Karbassi et al.

Filed: October 1, 2011 Serial No.: 61/626,646 UAMS Disclosure 2011-29

Docket No.: 110.042US1, U.S. utility patent application.

Inventors: Behjatolah Karbassi, Thomas Kieber-Emmons, Aiwei Yao-Borengasser, Damir

Herman, Fariba Jousheghany, and Craig Anthony Cooney

Title: CHONDROITIN SULFATE SULFOTRANSFERASES AND PROTEOGLYCANS AS

CANCER BIOMARKERS: USE OF EXPRESSION AND METHYLATION STATUS

Serial No.

13/573,653

Filed:

October 1, 2012

UAMS Disclosure 2011-29

Docket 110.043PRV1, U.S. Provisional Patent Application

Title: USE OF THE AMINOALKYLINDOLE JWH-073-M4 AND RELATED COMPOUNDS AS PERIPHERALLY RESTRICTED NEUTRAL CB1 RECEPTOR ANTAGONISTS FOR

THE TREATMENT OF OBESITY AND OBESITY-RELATED DISEASES Inventors: Paul L. Prather, William E. Fantegrossi, Lisa K. Brents, Jeffery Moran

Filed: January 9, 2012 Serial No.: 61/584,803

Docket 110.043PRV2, U.S. Provisional Patent Application

Title: USE OF THE AMINOALKYLINDOLE JWH-073-M4 AND RELATED COMPOUNDS AS PERIPHERALLY RESTRICTED NEUTRAL CB1 RECEPTOR ANTAGONISTS FOR THE TREATMENT OF OBESITY AND OBESITY-RELATED DISEASES

Inventors: Paul L. Prather, William E. Fantegrossi, Lisa K. Brents, Jeffery Moran, Laura P.

James, Anna Radominska-Pandya

Filed: January 15, 2012 Serial No.: 61/586,823

Docket 110.043CA1

Canadian patent application no. 2,860,415

National stage application of

International Application No.: PCT/US13/020706

Title: USE OF THE AMINOALKYLINDOLE JWH-073-M4 AND RELATED COMPOUNDS AS PERIPHERALLY RESTRICTED NEUTRAL CB1 RECEPTOR ANTAGONISTS FOR THE TREATMENT OF OBESITY AND OBESITY-RELATED DISEASES

Inventors: Paul L. Prather, Thomas E. Prisinzano, William E. Fantegrossi, Lisa K. Brents,

Jefferey Moran, Anna Radominska-Pandya, Tamara Vasiljevik

International filing date: January 8, 2013

UAMS reference No. 2012-11 KU reference No. 15KU006L

Docket 110.043US1, U.S. Patent No. 9,416,103 Issued August 16, 2016 Serial No. 14/370,951

National stage application of

International Application No.: PCT/US13/020706

Title: USE OF THE AMINOALKYLINDOLE JWH-073-M4 AND RELATED COMPOUNDS AS PERIPHERALLY RESTRICTED NEUTRAL CB1 RECEPTOR ANTAGONISTS FOR

THE TREATMENT OF OBESITY AND OBESITY-RELATED DISEASES

Inventors: Paul L. Prather, Thomas E. Prisinzano, William E. Fantegrossi, Lisa K. Brents, Jeffery

Moran, Anna Radominska-Pandya, Tamara Vasiljevik

International filing date: January 8, 2013

UAMS reference No. 2012-11 KU reference No. 15KU006L

Docket 110.043WO1, PCT Patent Application

Title: USE OF THE AMINOALKYLINDOLE JWH-073-M4 AND RELATED COMPOUNDS AS PERIPHERALLY RESTRICTED NEUTRAL CB1 RECEPTOR ANTAGONISTS FOR THE TREATMENT OF OBESITY AND OBESITY-RELATED DISEASES

Inventors: Paul L. Prather, Thomas E. Prisinzano, William E. Fantegrossi, Lisa K. Brents, Jeffery

Moran, Tamara Vasiljevik, Anna Radominska-Pandya

Filed: January 8, 2013

International Application No.: PCT/US13/020706

Docket 110.044PRV

Title: ADENO-ASSOCIATED VIRUS "X" ONCOGENE

Inventor: Paul L. Hermonat Serial No. 61/901,995 Filed: Nov. 8, 2013 UAMS 2013-21

Docket 110.044EP1

European patent application no. 14878814.4

Regional phase of:

Title: ADENO-ASSOCIATED VIRUS "X" ONCOGENE

Inventor: Paul L. Hermonat

International Application No. PCT/US14/64705 International filing date: November 8, 2014

Priority date: November 8, 2013

UAMS 2013-21

Docket 110.044WO1, International PCT patent application Title: ADENO-ASSOCIATED VIRUS "X" ONCOGENE

Inventor: Paul L. Hermonat

International Application No. PCT/US14/64705

International filing date: November 8, 2014

Priority date: November 8, 2013

UAMS 2013-21

Docket 110.044US1, U.S. utility patent application

Serial No. 15/035,228 Filed: May 7, 2016

Title: ADENO-ASSOCIATED VIRUS "X" ONCOGENE

Inventor: Paul L. Hermonat U.S. national stage of

International Application No. PCT/US14/64705 International filing date: November 8, 2014

Priority date: November 8, 2013

UAMS 2013-21

Docket 110.045US1, U.S. Utility Patent Application

Title: HUMAN PAPILLOMA VIRUS DOMINANT CD4 T CELL EPITOPES AND USES

**THEREOF** 

Inventors: Mayumi Nakagawa and Alessandro D. Santin

Serial No. 12/284,704 Filed: Sept. 24, 2008

Docket 110.046US1, U.S. Utility Patent Application

Title: HPV E6 PROTEIN T CELL EPITOPES AND USES THEREOF

Inventors: Mayumi Nakagawa

Serial No. 12/286,822 Filed: October 2, 2008

Docket 110.046US2, U.S. Utility Patent

U.S. Patent No. 8,926,961 Issued January 6, 2015

Title: HPV E6 PROTEIN T CELL EPITOPES AND USES THEREOF

Inventors: Mayumi Nakagawa

Serial No. 13/136,557 Filed: August 4, 2011

Docket 110.046US3, U.S. Utility Patent Application

Title: HPV E6 PROTEIN T CELL EPITOPES AND USES THEREOF

Inventors: Mayumi Nakagawa

Serial No. 14/566,604 Filed: December 10, 2014

Docket 110.047PRV3, U.S. Utility Provisional Patent Application Title: HUMAN PAPILLOMA VIRUS THERAPEUTIC VACCINE

Inventor: Mayumi Nakagawa

Serial No. 61/890,306

Filed: October 13, 2013

UAMS 2014-1

Docket 110.047PRV2, U.S. Utility Provisional Patent Application Title: HUMAN PAPILLOMA VIRUS THERAPEUTIC VACCINE

Inventor: Mayumi Nakagawa

Serial No. 61/890,130 Filed: October 11, 2013

UAMS 2014-1

Docket 110.047PRV1, U.S. Utility Provisional Patent Application Title: HUMAN PAPILLOMA VIRUS THERAPEUTIC VACCINE

Inventors: Mayumi Nakagawa and Byeong S. Chang

Serial No. 61/887,425 Filed: October 6, 2013

UAMS 2014-1

Docket 110.047US1, U.S. utility patent application.

Serial No. 15/028,760 Filed April 12, 2016

Title: HUMAN PAPILLOMA VIRUS THERAPEUTIC VACCINE

Inventor: Mayumi Nakagawa and Byeong S. Chang

National stage of

International Application No. PCT/US14/60198 International filing date: October 11, 2014

UAMS 2014-1

Docket 110.047WO1

Title: HUMAN PAPILLOMA VIRUS THERAPEUTIC VACCINE

Inventors: Mayumi Nakagawa and Byeong S. Chang International Application No. PCT/US14/60198

Filed: October 11, 2014

Priority date: October 13, 2013

UAMS 2014-1

Docket 110.047AU1

Australian national phase of:

International Application No. PCT/US14/60198

Title: HUMAN PAPILLOMA VIRUS THERAPEUTIC VACCINE

Inventors: Mayumi Nakagawa and Byeong S. Chang

Filed: October 11, 2014

UAMS 2014-1

Docket 110.047CA1

Canadian Patent Application No. 2,927,126

Title: HUMAN PAPILLOMA VIRUS THERAPEUTIC VACCINE

Inventors: Mayumi Nakagawa and Byeong S. Chang

Applicant: The Board of Trustees of the University of Arkansas

National stage of

International Application No. PCT/US14/60198

Filed: October 11, 2014

UAMS 2014-1

Docket 110.047EP1

European Patent Application No. 14853002.5

Title: HUMAN PAPILLOMA VIRUS THERAPEUTIC VACCINE

Inventors: Mayumi Nakagawa and Byeong S. Chang

Applicant: The Board of Trustees of the University of Arkansas

European regional stage of

International Application No. PCT/US14/60198

Filed: October 11, 2014

UAMS 2014-1

Docket 110.047KR1

Korean Patent Application No. 10-2016-7011884

Title: HUMAN PAPILLOMA VIRUS THERAPEUTIC VACCINE

Inventors: Mayumi Nakagawa and Byeong S. Chang

Applicant: The Board of Trustees of the University of Arkansas

European regional stage of

International Application No. PCT/US14/60198

Filed: October 11, 2014

UAMS 2014-1

Docket 110.047JP1

Japanese Patent Application No. JP2016-547987

Title: HUMAN PAPILLOMA VIRUS THERAPEUTIC VACCINE

Inventors: Mayumi Nakagawa and Byeong S. Chang

Applicant: The Board of Trustees of the University of Arkansas

European regional stage of

International Application No. PCT/US14/60198

Filed: October 11, 2014

UAMS 2014-1

110.048US1, U.S. patent

Title: Monoclonal antibodies which identify the glycoprotein carrying the CA125 epitope

Inventor: Timothy J. O'Brien Filed September 9, 2002 Serial No. 10/237,920 Patent No. 7,064,188

Issue date: June 20, 2006

Docket 110.049PRV, U.S. provisional patent application

Inventors: Nakagawa, Mayumi

Title: RECALL ANTIGEN FOR PROMOTING T-HELPER TYPE 1 RESPONSE

Serial No. 62/120,978 Filed: February 26, 2015 UAMS reference 2015-12

Docket 110.049PRV2, U.S. provisional patent application

Inventors: Nakagawa, Mayumi

Title: RECALL ANTIGEN FOR PROMOTING T-HELPER TYPE 1 RESPONSE

Serial No. 62/271,124 Filed: December 22, 2015 UAMS Reference 2016-06

Docket 110.049WO1, PCT International Patent Application

Inventors: Nakagawa, Mayumi

Title: RECALL ANTIGEN FOR PROMOTING T-HELPER TYPE 1 RESPONSE

International Application No. PCT/US16/19719 International filing date: February 26, 2016

Priority date: February 26, 2015 UAMS Reference 2015-12, 2016-06

Docket 110.050PRV, U.S. provisional patent application Inventors: Nakagawa, Mayumi; and Al-Ola Abdallah Title: A Treatment Vaccine for Prostate Cancer Serial No. 62/120,991

Filed: February 26. 2015 UAMS reference 2015-13

Docket 110.050WO1, PCT International Patent Application

Inventors: Nakagawa, Mayumi; and Al-Ola Abdallah

Title: A TREATMENT VACCINE FOR PROSTATE CANCER

International Application No. PCT/US16/19739 International filing date: February 26, 2016

Priority date: February 26, 2015

UAMS reference 2015-13

RECORDED: 08/11/2017