PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT3572525

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
ALBERT EINSTEIN COLLEGE OF MEDICINE OF YESHIVA UNIVERSITY	09/09/2015

RECEIVING PARTY DATA

Name:	COM AFFILIATION, INC.
Street Address:	1300 MORRIS PARK AVENUE
City:	BRONX
State/Country:	NEW YORK
Postal Code:	10461

PROPERTY NUMBERS Total: 25

Property Type	Number
Application Number:	62047242
PCT Number:	US1455393
Application Number:	14487221
Application Number:	62051214
Application Number:	14390113
Application Number:	62059226
Application Number:	62061772
Application Number:	62064251
Application Number:	62066216
Application Number:	14396102
Application Number:	62069516
PCT Number:	US1462614
Application Number:	62074382
Application Number:	62074702
PCT Number:	US1464046
Application Number:	62076099
Application Number:	14399335
Application Number:	14399557
Application Number:	62078506
Application Number:	14546830

Property Type	Number
Application Number:	62080663
Application Number:	62082781
Application Number:	62083417
Application Number:	62084124
PCT Number:	US1469191

CORRESPONDENCE DATA

Fax Number: (212)336-8001

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.

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ATTORNEY DOCKET NUMBER:	96700/2153
NAME OF SUBMITTER:	ALAN D. MILLER
SIGNATURE:	/Alan D. Miller/
DATE SIGNED:	10/16/2015

Total Attachments: 47
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EXECUTION COPY

PATENT ASSIGNMENT

This Patent Assignment (this "Assignment") is made as of September 9, 2015, by ALBERT EINSTEIN COLLEGE OF MEDICINE OF YESHIVA UNIVERSITY (also known as ALBERT EINSTEIN COLLEGE OF MEDICINE OF YESHIVA UNIVERSITY, A DIVISION OF YESHIVA UNIVERSITY (hereinafter, "Yeshiva")), having a principal place of business at 1300 Morris Park Avenue, Bronx, New York 10461, U.S.A. (hereinafter "ASSIGNOR") to COM Affiliation, Inc., having a principal place of business at 1300 Morris Park Avenue, Bronx, New York 10461, U.S.A. (hereinafter "ASSIGNEE").

WHEREAS, ASSIGNEE and Yeshiva are parties to that certain Joint Collaboration Agreement, dated as of the date hereof (the "JCA");

WHEREAS, the JCA provides for the execution and delivery of this Assignment by ASSIGNOR to ASSIGNEE;

WHEREAS, ASSIGNOR, is the assignee of the entire right, title and interest to, or is an assignee of an undivided interest in the entirety of, the United States patents, United States patent applications and foreign patents and patent applications identified in Schedule A attached hereto (hereafter the "Patents");

WHEREAS, the United States Government retains certain rights in the Patents as set forth in 35 U.S.C. §200 *et. seq.* and applicable regulations, and has approved this Assignment pursuant to 37 CFR §401.14(k);

WHEREAS, ASSIGNOR desires to assign all of its rights, titles and interests in and to the Patents to COM Affiliation, Inc., having a principal place of business at 1300 Morris Park Avenue, Bronx, New York 10461, U.S.A. (hereinafter "ASSIGNEE"); and

WHEREAS, ASSIGNEE desires to purchase or acquire all of ASSIGNORS rights, titles and interests in and to the Patents;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto, intending to be legally bound, agree as follows:

1. ASSIGNOR hereby assigns and transfers unto ASSIGNEE, and ASSIGNEE hereby accepts, all of ASSIGNOR's rights, titles and interests in and to the Patents in all countries where such rights, titles and interests exist, including any continuations, divisionals, renewals,

continuations-in-part, reissues, reexaminations, post-issuance proceedings and extensions or substitutes thereof, together with all preliminary invention records with respect thereto and all claims that may be obtained therefrom and all income and royalties due or payable now or hereafter.

2. From and after the date hereof, ASSIGNOR shall, without further consideration, execute and deliver such instruments of transfer, conveyance, assignment and assumption, provide such material and information and take such other action as may reasonably be necessary, proper or advisable to consummate or give effect to the transactions contemplated hereunder and under the JCA and to fulfill its obligations under this Assignment.

3. Nothing in this Assignment, express or implied, is intended to or shall be construed to modify, expand, supersede or limit in any way the terms, conditions or obligations of the JCA. To the extent that any provision of this Assignment conflicts with or is inconsistent with the terms of the JCA, the JCA shall control and govern.

4. This Assignment shall be governed by, and construed in accordance with, the laws of the United States or the appropriate foreign jurisdiction in respect to patent issues, and in all other respects, including as to validity (except for issues of patent validity), interpretation and effect, by the laws of the State of New York, without giving effect to the conflict of laws rules thereof.

5. This Assignment may be executed in any number of counterparts, each of which when so executed shall be deemed to be an original and all of which taken together shall constitute one and the same agreement.

[Remainder of page intentionally left blank; signature page follows]

IN WITNESS WHEREOF, ASSIGNOR and ASSIGNEE have caused these presents to be executed by their respective duly authorized officers or agents as of the date first above written.

ASSIGNOR:

ALBERT EINSTEIN COLLEGE OF MEDICINE OF YESHIVA UNIVERSITY

By: _____
Name: Andrew J. Lauer
Title: Secretary

ASSIGNEE:

COM AFFILIATION, INC.

By: _____
Name: Steven M. Safyer, M.D.
Title: President

IN WITNESS WHEREOF, ASSIGNOR and ASSIGNEE have caused these presents to be executed by their respective duly authorized officers or agents as of the date first above written.

ASSIGNOR:

ALBERT EINSTEIN COLLEGE OF MEDICINE OF YESHIVA UNIVERSITY

By: _____
Name: Andrew J. Lauer
Title: Secretary

ASSIGNEE:

COM AFFILIATION, INC.

By: _____
Name: Steven M. Safyer, M.D.
Title: President

Schedule A

Patents and Patent Applications

Title	Application Number	Patent Issued Number
GENE FOR L-PHENYLANINE DEHYDRIGENASE	08/461,990	US 5,851,810
RECOMBINANT MYCOBACTERIA	08/463,942	US 5,854,055[1]
PEPTIDES WHICH BIND TO ANTI-DOUBLE STRANDED DNA ANTIBODY	08/531,832	US 6,001,964
THYROID SODIUM/IODIDE SYMPORTER AND NUCLEIC ACID ENCODING SAME	08/595,553	US 6,391,579
REP-MAX PROTEIN HAVING ANTI-ONCOGENIC ACTIVITY AND USES THEREOF	08/609,046	US 5,811,298
POLYCYSTIC KIDNEY DISEASE PKD2 GENE AND USES THEREOF	08/651,999	US 6,031,088
METHOD OF COMPOUNDS FOR INHIBITING LIPID BIOSYNTHESIS OF BACTERIA AND PLANTS	08/700,306	US 5,837,480
MYCOBACTERIAL SPECIES-SPECIFIC REPORTER MYCOBACTERIOPHAGES	08/705,557	US 6,300,061[2]
HUMAN PROSTAGLANDIN TRANSPORTER	08/706,936	US 5,792,851
HEMOGLOBIN CROSSLINKERS	08/720,250	US 5,750,725
PANCREATIC B-CELLS FOR ALLOGENEIC TRANSPLANTATION WITHOUT IMMUNOSUPPRESSION	08/732,155	US 6,156,306
Methods and Composition for Transforming Cells	08/743,796	US 5,928,914[3]
RECOMBINANT MYCOBACTERIA AUXOTROPHIC FOR DIAMINOPIMELATE	08/747,177	US 6,221,364
METHOD FOR DETECTING HEMOLYSIS	08/746,635	US 6,989,240
ANTIMYCOBACTERIAL COMPOUNDS AND METHOD OF USING SAME	08/766,273	US 5,837,732[4]

[1] This patent is jointly owned with Whitehead Institute for Biomedical Research and the Board of Trustees of the Leland Stanford Junior University.
[2] This patent is jointly owned with University of Pittsburgh Cathedral of Learning.
[3] This patent is jointly owned with MIT.
[4] This patent is jointly owned with the Research Foundation of the City University of New York.

Title	Application Number	Patent Issued Number
METHOD OF SIMULTANEOUSLY ENHANCING ANALGESIC POTENCY AND ATTENUATING DEPENDENCE LIABILITY CAUSED BY ENDOGENOUS OPIOD AGONISTS	08/782,452	US RE,36,547
GENE THERAPY FOR ALLEVIATING ERECTILE DYSFUNCTION	08/799,144	US 6,150,338
VECTOR CONSTRUCTS FOR THE SELECTION AND IDENTIFICATION OF OPEN READING FRAMES	08/816,721	US 5,981,182
AN EMBCAB OPERON OF MYCOBACTERIA AND MUTANTS THEROF	08/822,586	US 6,015,890
PEPTIDES FOR THE TREATMENT AND DIAGNOSIS OF SYSTEMIC LUPUS ERYTHEMATOSUS	08/833,838	US 6,932,970
TM4 CONDITIONAL SHUTTLE PHASMIDS AND USES THEREOF	08/938,059	US 5,972,700
INHIBITORS OF NUCLEOSIDE METABOLISM	08/949,388	US 5,985,848[5]
A METHOD FOR DETECTING ARTHROPODS	08/971,384	US 5,997,846
MYCOBACTERIOPHAGES AND USES THEREOF	09/014,560	US 5,968,733[6]
TRANSITION-STATE INHIBITORS FOR NUCLEOSIDE HYDROLASE AND TRANSFERASE REACTIONS	09/017,097	US 6,121,296
HEMOGLOBIN CROSSLINKERS	09/018,284	US 6,017,943
GENE THERAPY FOR ALLEVIATING ERECTILE DYSFUNCTION	10-535822	JP 4158163
L5 SHUTTLE PHASMIDS	09/075,904	US 5,994,137[7]
HUMAN PROSTAGLANDIN TRANSPORTER	US 09/132,423	
INHIBITORS OF NUCLEOSIDE METABOLISM	2305760.00	CA 2,305,760
INHIBITORS OF NUCLEOSIDE METABOLISM	6109456.20	HK 1089159
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	AT 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	BE 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	CY 1023308

[5] This patent is jointly owned with Victoria Link Limited.
[6] This patent is jointly owned with Whitehead Institute for Biomedical Research and the Board of Trustees of the Leland Stanford Junior University.
[7] This patent is jointly owned with University of Pittsburgh Cathedral of Learning.

Title	Application Number	Patent Issued Number
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	DK 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	EP 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	FI 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	FR 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	DE 69831499
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	GR 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	IE 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	IT 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	LU 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	MC 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	NL 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	PT 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	ES 2249844
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	SE 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	CH 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	98953516.60	GB 1023308
INHIBITORS OF NUCLEOSIDE METABOLISM	09/172,321	US 6,066,722[8]
INHIBITORS OF NUCLEOSIDE METABOLISM	10866/99	AU 749098
INHIBITORS OF NUCLEOSIDE METABOLISM	2000-515909	JP 4451983
INHIBITORS OF NUCLEOSIDE METABOLISM	1020007003944	KR 1006374790000
INHIBITORS OF NUCLEOSIDE METABOLISM	ZL200510092066.9	CN 100393722
INHIBITORS OF NUCLEOSIDE METABOLISM	ZL98811489.5	CN 1220695
VISUALIZATION OF RNA IN LIVING CELLS	09/177,268	US 6,203,986
THE INIB, INIA AND INIC GENES OF MYCOBACTERIA AND METHODS OF USE	09/177,349	US 6,268,201
Methods and Composition for Transforming Cells	09/293,303	US 6,534,314[9]

[8] This patent is jointly owned with Victoria Link Limited.

Title	Application Number	Patent Issued Number
ONE STEP ALLELIC EXCHANGE IN MYCOBACTERIA USING IN VITRO GENERATED CONDITIONAL TRANSDUCING PHAGES	09/350,048	US 6,271,034
DIM MUTANTS OF MYCOBACTERIA AND USES THEREOF	09/350,326	US 6,290,966
POLYCYSTIC KIDNEY DISEASE PKD2 GENE AND USES THEREOF	09/385,752	US 6,228,591
MYCOBACTERIAL SPECIES-SPECIFIC REPORTER MYCOBACTERIOPHAGES	09/426,436	US 6,225,066[10]
INHIBITORS OF NUCLEOSIDE METABOLISM	09/496,741	US 6,228,847[11]
METHODS FOR DIAGNOSING AND TREATING OF BREAST CANCER	09/519,959	US 6,821,725[12]
GENE THERAPY FOR REGULATING BLADDER SMOOTH MUSCLE TONE	09/531,968	US 6,239,117
GENE THERAPY FOR REGULATING PENILE SMOOTH MUSCLE TONE	09/532,138	US 6,271,211
METHOD OF ENHANCING RELAXATION OF PENILE SMOOTH MUSCLE BY INTRODUCTION OF DNA ENCODING MAXI-K POTASSIUM CHANNEL PROTEIN	09/531,969	US 7,030,096
3H,5H-PYRROLO[3,2-d] PYRIMIDIN-4-ONE DERIVATIVES AND PROCESS OF PREPARING SAME	2005108316.60	CN 100344630
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE METABOLISM	917509.20	EP 1165564
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE METABOLISM	514660.00	NZ 514660
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE METABOLISM	808441.60	CN 1196704
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE METABOLISM	2368095.00	CA 2368095
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE METABOLISM	1020017012816	KR 1007551100000
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE METABOLISM	2000-611706	JP 4430247

[9] This patent is jointly owned with MIT.
[10] This patent is jointly owned with University of Pittsburgh.
[11] This patent is jointly owned with Victoria Link Limited.
[12] This patent is jointly owned with Rutgers, the State University of New Jersey.

Title	Application Number	Patent Issued Number
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE METABOLISM	38469/00	AU 776540
PROCESS OF PREPARING 3H, 5H-PYRROLO [3,2-d] PYRIMIDIN-4-ONE DERIVATIVES	CN 200610148465.70	
One Step Allelic Exchange in Mycobacteria Using in vitro generated conditional Transducing Phages	PCT/US00/40311	US 6,271,034
Drosophila recombination-associated protein and methods for use	09/621,377	US 6,534,643
Drosophila recombination-associated protein and methods for use	63612/00	AU 780837
POLYCYSTIC KIDNEY DISEASE PKD2 GENE AND USES THEREOF	09/753,008	US 7,083,915
INHIBITORS OF NUCLEOSIDE METABOLISM	09/820,276	US 6,492,347[13]
NOVEL GLUCOSE TRANSPORTER/SENSOR PROTEIN AND USES THEREOF	09/886,954	US 7,001,735
INSERTIONAL MUTATIONS IN MYCOBACTERIA	09/898,762	US 6,752,994
IniB, IniA and IniC Genes of Mycobacteria and Methods of use	09/918,951	US 6,821,769 B2
MEMORY TESTS USING ITEM-SPECIFIC WEIGHTED MEMORY MEASUREMENTS AND USES THEREOF	09/924,375	US 6,689,058
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE METABOLISM	09/958,219	US 6,693,193
THYROID SODIUM/IODIDE SYMPORTER AND NUCLEIC ACID ENCODING SAME	09/995,007	US 6,803,199
Improved Inhibitors of ADP-Ribosyl Transferases Cyclases, and Hygdrolases	10/158,636	US 7,022,680 B2
SIZE ENHANCED HEMOGLOBINS: SURFACE DECORATION AND CROSSLINKING OF THE PROTEIN WITH POLYOXY ALKYLENE GLYCOLS	10/198,732	US 7,019,117
Drosophila recombination-associated protein and methods for use	10/031,893	US 6,830,910
METHOD FOR DETECTING CHITIN-CONTAINING ORGANISMS.	10/200,984	US 6,875,421
METHOD FOR TREATING A DEMYELINATING CONDITION	10/223,068	US 7,470,718
INHIBITORS OF NUCLEOSIDE METABOLISM	10/268,652	US 6,803,455
SIR2 PRODUCTS AND ACTIVITIES	10/301,514	US 6,987,091[14]

[13] This patent is jointly owned with Victoria Link Limited.

Title	Application Number	Patent Issued Number
Gene Therapy for Alleviating Erectile Dysfunction	61468/98	AU 745637
PROTEIN TYROSINE PHOSPHATASE SUBSTRATE-TRAPPING DOUBLE MUTANT AND USES THEREOF	10/340,288	US 8,071,348
MEMORY ASSESSMENT BY RETRIEVAL SPEED AND USES THEREOF	10/350,155	US 7,314,444
ATTENUATED MYCOBACTERIUM TUBERCULOSIS VACCINES	10/351,452	US 7,722,861
Drosophila recombination-associated protein and methods for use	10/353,174	US 6,858,716
A METHOD OF INHIBITING CELL PROLIFERATION USING AN ANTI-ONCOGENE PROTEIN	10/424,630	US 6,897,197
INHIBITION OF HIV-1 VIRION PRODUCTION BY A TRANSDOMINANT MUTANT OF INTEGRASE INTERACTOR 1 (INI1)/ HSNF5	10/624,080	US 7,326,416
INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES AND NUCLEOSIDASES	538368.00	NZ 538368
INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES AND NUCLEOSIDASES	2496698.00	CA 2496698
INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES AND NUCLEOSIDASES	3824354.70	CN 100379750
INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES AND NUCLEOSIDASES	2003258911.00	AU 2003258911
INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES AND NUCLEOSIDASES	2005107714.00	RU 2330042
INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES AND NUCLEOSIDASES	20037929049.00	EP 1539783
INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES AND NUCLEOSIDASES	BR 0313664-7	
INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES AND NUCLEOSIDASES	1020057002959	KR 10010812260000
INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES AND NUCLEOSIDASES	200501034-3	SG 110552
INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES AND NUCLEOSIDASES	680/DELNP/2005	IN 244827

[14] This patent is jointly owned with Johns Hopkins University.

Title	Application Number	Patent Issued Number
METHODS OF APPLYING IONIZATION RADIATION FOR THERAPY OF INFECTIONS	10/704,469	US 7,651,689
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE METABOLISM	10/737,724	US 7,022,852[15]
MODIFIED HEMOGLOBIN AND METHOD OF MAKING SAME	ID W00 2005 01622	
MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME	3799982.80	FR 1585538
MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME	3799982.80	DE 1585538
MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME	3799982.80	IT 1585538
MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME	3799982.80	ES 2360215
MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME	3799982.80	GB 1585538
MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME	2003299700.00	AU 2003299700
MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME	200380109157.80	CN 1741812
MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME	1020057011737	KR 10010861380000
MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME	PA/A/2005/006702	MX 274545
MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME	3799982.80	EP 1585538
MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME	JP 2004-563778	
MODIFIED HEMOGLOBIN MOLECULE AND METHODS OF MAKING SAME	BR PI0317721-1	
Pegylated Non-Hypertensive Hemoglobins, Methods of Preparing Same, and uses thereof	10/741,496	US 7,084,112
MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME	PI20034947	MY-135256-A
MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME	TW 92136572.00	
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES	1020057014266	KR 1011851200000
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES	4706902.60	EP 1590360
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES	3313/DELNP/2005	IN 231852

[15] This patent is jointly owned with Victoria Link Limited.

Title	Application Number	Patent Issued Number
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES	AU 2004208968.00	
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES	200504607-3	SG 113994
Thyroid Sodium/Iodide Symporter and Nucleic Acid Encoding Same	97903839.5	EP 0888370
RADIOLABELED ANTIBODIES FOR TREATMENT OF TUMORS	10/775,869	US 7,402,385
MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME.	4250032.00	SA 1859
A NOVEL SAITOHIN GENE AND USES OF SAME	10/495,545	US 7,314,733
GENE TRANSFER FOR REGULATING SMOOTH MUSCLE TONE	HK 5109323.40	
OPEN HALF VOLUME QUADRATURE TRANSVERSE ELECTROMAGNETIC COIL FOR HIGH FIELD MAGNETIC RESONANCE IMAGING	10/845,953	US 6,980,003
INHIBITORS OF NUCLEOSIDE METABOLISM	10/932,841	US 7,211,653[16]
THYROID SODIUM/IODIDE SYMPORTER AND NUCLEIC ACID ENCODING SAME	10/937,239	US 7,320,863
METHODS FOR DIAGNOSIS AND TREATMENT OF BREAST CANCER	10/961,615	US 7,303,740[17]
UNIVERSAL RED BLOOD CELLS, METHODS OF PREPARING SAME, AND USES THEREOF	11/004,052	US 7,521,174
POLYCYSTIC KIDNEY DISEASE PKD2 GENE AND USES THEREOF	11/040,384	US 7,294,465
5H-PYRROLO[3,2-D] PYRIMIDINE INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES AND NUCLEOSIDASES	10/524,995	US 7,553,839[18]
METHODS FOR DIAGNOSING AND TREATING PEDIATRIC NEOPLASMS	11/101,164	US 7,816,089
ATTENUATED MYCOBACTERIUM TUBERCULOSIS VACCINES	11/109,056	US 7,758,874[19]
CAGED LIGANDS AND USES THEREOF	10/532,009	US 8,076,318

[16] This patent is jointly owned with Victoria Link Limited.
[17] This patent is jointly owned with Rutgers, the State University of New Jersey.
[18] This patent is jointly owned with Victoria Link Limited.
[19] This patent is jointly owned with the President and Fellows of Harvard College.

Title	Application Number	Patent Issued Number
PEPTIDES FOR DETECTING ANTI-DOUBLE STRANDED DNA ANTIBODY AND USES THEREOF	11/129,260	US 7,517,657
USE OF MYCOBACTERIAL VACCINES IN CD4+ OR CD8+ LYMPHOCYTE-DEFICIENT MAMMALS	10/542,958	US 8,084,041
ISOLATION, GENE EXPRESSION AND CHEMOTHERAPEUTIC RESISTANCE OF MOTILE CANCER CELLS	CA 2576702.00	
METHOD FOR IDENTIFYING METASTASIS IN MOTILE CELLS	5807467.50	EP 1784646
METHOD FOR IDENTIFYING METASTASIS IN MOTILE CELLS	5807467.50	FR 1784646
METHOD FOR IDENTIFYING METASTASIS IN MOTILE CELLS	5807467.50	DE 1784646
METHOD FOR IDENTIFYING METASTASIS IN MOTILE CELLS	5807467.50	IE 1784646
METHOD FOR IDENTIFYING METASTASIS IN MOTILE CELLS	5807467.50	CH 1784646
METHOD FOR IDENTIFYING METASTASIS IN MOTILE CELLS	5807467.50	GB 1784646
CERAMIDE DERIVATIVES AS MODULATORS OF IMMUNITY AND AUTOIMMUNITY	200580028988.10	CN 101010086
CERAMIDE DERIVATIVES AS MODULATORS OF IMMUNITY AND AUTOIMMUNITY	11/211,653	US 7,772,380
CERAMIDE DERIVATIVES AS MODULATORS OF IMMUNITY AND AUTOIMMUNITY	JP 2012-152661	
CERAMIDE DERIVATIVES AS MODULATORS OF IMMUNITY AND AUTOIMMUNITY	NZ 553320.00	
CERAMIDE DERIVATIVES AS MODULATORS OF IMMUNITY AND AUTOIMMUNITY	2007-530141	JP 5226311
CERAMIDE DERIVATIVES AS MODULATORS OF IMMUNITY AND AUTOIMMUNITY	1020077003168	KR 1013771160000
CERAMIDE DERIVATIVES AS MODULATORS OF IMMUNITY AND AUTOIMMUNITY	PCT/US05/30330	
BIOLOGICAL MARKERS FOR LONGEVITY AND DISEASES AND USES THEREOF	11/229,327	US 7,491,543
SIR2 PRODUCTS AND ACTIVITIES	11/248,523	US 7,432,246[20]

[20] This patent is jointly owned with The John Hopkins University.

Title	Application Number	Patent Issued Number
ANTIGENS TARGETED BY PREVALENT PATHOGENIC T CELLS IN TYPE 1 DIABETES AND USES THEREOF	10/557,273	US 8,758,767[21]
MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME	10/538,976	US 7,501,499
Inhibitors of ADP-Ribosyl Transferases Cyclases, and Hygdrolases and uses thereof	11/294,932	US 7,504,489 B2
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE METABOLISM	11/297,954	US 7,211,677[22]
SIR2 REGULATION	10/560,676	US 8,383,653
MYCOBACTERIAL MUTANTS AFFECTING HOST APOPTOSIS	2597698.00	CA 2,597,698
MYCOBACTERIAL MUTANTS AFFECTING HOST APOPTOSIS	2006204907.00	AU 2006204907
MYCOBACTERIAL MUTANTS AFFECTING HOST APOPTOSIS	EP 6733693.30	
METHODS OF APPLYING IONIZATION RADIATION FOR THERAPY OF HIV INFECTION	2606022.00	CA 2,606,022
METHODS OF APPLYING IONIZATION RADIATION FOR THERAPY OF HIV INFECTION	2007/08539	ZA 2007/08539
METHOD FOR IDENTIFYING ACETYLTRANSFERASE SUBSTRATES	10/574,307	US 7,745,163
VITAMIN K FOR PREVENTION AND TREATMENT OF SKIN RASH SECONDARY TO ANTI-EGFR THERAPY	EP 11189225.30	
VITAMIN K FOR PREVENTION AND TREATMENT OF SKIN RASH SECONDARY TO ANTI-EGFR THERAPY	AU 2006236633.00	AU2006236633
Method of Identifying Responders to Treatment with Insulin Sensitizers	US 10/578,811[23]	
TRANSITION STATE STRUCTURE OF 5'-METHYLTHIOADENOSINE/ SADENOSYLHOMOCYSTEINE NUCLEOSIDASES	CA 2615549.00	
TRANSITION STATE STRUCTURE OF 5'-METHYLTHIOADENOSINE/ SADENOSYLHOMOCYSTEINE NUCLEOSIDASES	EP 6788712.50	
Interleukin-10 Compositions for the Treatment of Adenocarcinomas	11/598,002	US 7,939,056[24]

[21] This patent is jointly owned with University Technologies International Inc. and University of Virginia Patent Foundation.

[22] This patent is jointly owned with Victoria Link Limited.

[23] This patent application is jointly owned with Merck Sharp & Dohme Corp.

Title	Application Number	Patent Issued Number
MYCOBACTERIAL SecA2 MUTANTS	7717990.10	EP 1981964[25]
MYCOBACTERIAL SecA2 MUTANTS	7717990.10	FR 1981964[26]
MYCOBACTERIAL SecA2 MUTANTS	7717990.10	DE 1981964[27]
MYCOBACTERIAL SecA2 MUTANTS	7717990.10	GB 1981964[28]
MYCOBACTERIAL SECA2 MUTANTS	200780007413.00	CN 101395265[29]
MYCOBACTERIAL SecA2 MUTANTS	2008/06387	ZA 2008/06387[30]
MYCOBACTERIAL SecA2 MUTANTS	IN 6437/DELNP/2008[31]	
MYCOBACTERIAL SecA2 MUTANTS	BR PI0706532-9[32]	
ANTIGENS TARGETED BY PATHOGENIC AI4 T CELLS IN TYPE 1 DIABETES AND USES THEREOF	11/658,457	US 8,318,670[33]
ISOLATION, GENE EXPRESSION, AND CHEMOTHERAPEUTIC RESISTANCE OF MOTILE CANCER CELLS	11/659,514	US 8,298,756
PROCESS FOR PREPARING INHIBITORS OF NUCLEOSIDE METABLISM	11/716,100	US 7,405,297[34]
INHIBITORS OF NUCLEOSIDE METABOLISM	11/728,730	US 7,390,890[35]
MELANIN NANOSHELLS FOR PROTECTION AGAINST RADIATION AND ELECTRONIC PULSES	11/732,130	US 8,586,090
CERAMIDE DERIVATIVES AS MODULATORS OF IMMUNITY AND AUTOIMMUNITY	11/785,988	US 8,022,043
PROSTAGLANDIN TRANSPORTER INHIBITORS	EP 7794912.10	
METHODS AND COMPOSTIONS FOR INHIBITION OF BCL6 REPRESSION	10/582,662	US 7,919,578[36]
MYCOBACTERIAL MUTANTS AFFECTING HOST APOPTOSIS	11/794,506	US 8,394,388
MYCOBACTERIA EXPRESSING HIV-1 AND MALARIA ANTIGENS	11/794,373	US 7,998,471[37]

[24] This patent is jointly owned with MIT and The Brigham and Women's Hospital.
[25] This patent is jointly owned with the University of North Carolina at Chapel Hill.
[26] This patent is jointly owned with the University of North Carolina at Chapel Hill.
[27] This patent is jointly owned with the University of North Carolina at Chapel Hill.
[28] This patent is jointly owned with the University of North Carolina at Chapel Hill.
[29] This patent is jointly owned with the University of North Carolina at Chapel Hill.
[30] This patent is jointly owned with the University of North Carolina at Chapel Hill.
[31] This patent application is jointly owned with the University of North Carolina at Chapel Hill.
[32] This patent application is jointly owned with the University of North Carolina at Chapel Hill.
[33] This patent is jointly owned with the Jackson Laboratory.
[34] This patent is jointly owned with Victoria Link Limited.
[35] This patent is jointly owned with Victoria Link Limited.
[36] This patent is jointly owned with the ICAHN School of Medicine at Mount Sinai.

Title	Application Number	Patent Issued Number
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	PCT/NZ2007/000261	E011359
ACYCLIC AMINE INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES AND HYDROLASES	200780040294.90	CN 101528749
ACYCLIC AMINE INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES AND HYDROLASES	EP 20110158228	
INHIBITION OF MEMBRANE FUSION PROTEINS	11/918,835	US 8,003,332
PEGYLATED ALBUMIN AND USES THEREOF	11/921,064	US 8,741,832
USES OF PEGYLATED ALBUMIN	11/921,689	US 8,071,546[38]
Methods for Evaluating Patients	11/953,360	US 8,048,635[39]
EFFECT OF BRI PROTEINS ON A-BETA PRODUCTION	US 11/921,976	
AZETIDINE ANALOGUES OF NUCLEOSIDASE AND PHOSPHORYLASE INHIBITORS	CN 200780047863.20	
TRANSITION STATE STRUCTURE OF 5'-METHYLTHIOADENOSINE/ S-ADENOSYLHOMOCYSTEINE NUCLEOSIDASES	11/988,651	US 8,541,567
METASTASIS SPECIFIC SPLICE VARIANTS OF MENA AND USES THEREOF IN DIAGNOSIS, PROGNOSIS AND TREATMENT OF TUMORS	CA 2676179.00[40]	
METASTASIS SPECIFIC SPLICE VARIANTS OF MENA AND USES THEREOF IN DIAGNOSIS, PROGNOSIS AND TREATMENT OF TUMORS	EP 8713370.80[41]	
ASSAYS FOR S100 INHIBITORS	11/989,901	US 8,236,791
NON ITERATIVE SHIMMING IN MAGNETIC RESONANCE IMAGING IN THE PRESENCE OF HIGH LIPID LEVELS	12/080,510	US 7,609,060
AN INTRACELLULAR DOMAIN OF A MAMMALIAN FAT1 (FAT1IC)	12/150,176	US 8,586,534
MYCOBACTERIAL SecA2 MUTANTS	12/087,628	US 8,101,191[42]
RESTORATION OF NUCLEIC ACID FROM DEGRADED OR FORMALIN-FIXED AND PARAFFIN-EMBEDDED TISSUE AND USES THEREOF	12/087,951	US 8,497,067

[37] This patent is jointly owned with Beth Israel Deaconess Medical Center, Inc. and Duke University.
[38] This patent is jointly owned with La Jolla Bioengineering Institute.
[39] This patent is jointly owned with Biogen Idec MA Inc.
[40] This patent application is jointly owned with Ifo-Regina Elena Cancer Institute and MIT.
[41] This patent application is jointly owned with Ifo-Regina Elena Cancer Institute and MIT.
[42] This patent is jointly owned with the University of North Carolina at Chapel Hill.

Title	Application Number	Patent Issued Number
ANALOGUES OF COFORMYCIN AND THEIR USE FOR TREATING PROTOZOAN PARASITE INFECTIONS	12/223,746	US 8,394,950[43]
METHODS OF TREATING CANCER USING INHIBITORS OF 5'-METHYLTHIOADENOSINE PHOSPHORYLASE	12/224,073	US 8,916,571
RADIOSYNTHESIS AS AN ALTERNATIVE ENERGY UTILIZATION PROCESS IN MELANIZED ORGANISMS AND USES THEREOF	12/225,990	US 8,652,827
INHIBITION OF SKP2-CYCLIN A INTERACTION	12/226,935	US 8,173,604
PROSTAGLANDIN TRANSPORTER INHIBITORS	12/227,267	US 8,227,466
COMPOSITIONS FOR SUSTAINED RELEASE OF NITRIC OXIDE, METHODS OF PREPARING SAME AND USES THEREOF	12/227,657	US 8,333,997
BIOLOGICAL MARKERS FOR LONGEVITY AND DISEASES AND USES THEREOF	12/315,845	US 8,399,258
COMPOUNDS AND METHODS FOR DETECTING RICIN AND USES THEREOF	12/308,447	US 8,536,319
VITAMIN K FOR PREVENTION AND TREATMENT OF SKIN RASH SECONDARY TO ANTI-EGFR THERAPY (BEING PROSECUTED BY TALON)	11/886,803	US 7,745,494
DETECTION OF THE NUCLEOLAR CHANNEL SYSTEM OF HUMAN ENDOMETRIUM AND USES THEREOF	12/321,603	US 7,846,680
ACYCLIC AMINE INHIBITORS OF 5'-METHYTIOADENOSINE PHOSPHORYLASE AND NUCLEOSIDASE	12/310,597	US 8,383,636[44]
ACYCLIC AMINE INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES AND HYDROLASES	12/310,708	US 8,853,224[45]
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	PCT/NZ2007/000261	EP 2057165
MULTI-MICRORNA METHODS AND COMPOSITIONS	12/312,616	US 8,114,982
SMALL MOLECULE INHIBITORS OF BCL6	12/312,800	US 8,338,464[46]

[43] This patent is jointly owned with Victoria Link Limited.
[44] This patent is jointly owned with Victoria Link Limited.
[45] This patent is jointly owned with Victoria Link Limited.

Title	Application Number	Patent Issued Number
FUSED PYRIMIDINES AS INHIBITORS OF NUCLEOSIDE PHOSPHORYLASES AND NUCLEOSIDASES	12/455,537	US 8,173,662[47]
AZETIDINE ANALOGUES NUCLEOSIDASE AND PHOSPHORYLASE INHIBITORS	12/448,397	US 8,283,345[48]
REGULATION OF LIPID DROPLET FORMATION BY MODULATION OF FIT1 AND FIT2 AND USES THEREOF	12/448,840	US 8,129,121[49]
METASTASIS SPECIFIC SPLICE VARIANTS OF MENA AND USES THEREOF IN DIAGNOSIS, PROGNOSIS AND TREATMENT OF TUMORS	12/462,324	US 8,603,738[50]
SECOND GENERATION LOW OXYGEN AFFINITY PEGYLATED HEMOGLOBINS AS OXYGEN-CARRYING PLASMA EXPANDERS	12/449,832	US 8,697,645
MYCOBACTERIAL MUTANTS INDUCING IL-12	12/450,193	US 8,591,918
METHODS AND COMPOSITIONS FOR TREATING BACTERIAL INFECTIONS BY INHIBITING QUORUM SENSING	EP 9814909.90	
TREATMENT OF AUTISM SPECTRUM DISORDERS WITH AGENTS THAT ACTIVATE THE LOCUS COERULEUS-NORADRENERGIC SYSTEM	12/589,854	US 8,470,546
METHODS FOR DETERMINING CYTOSINE METHYLATION IN DNA AND USES THEREOF	12/451,431	US 8,642,294[51]
TREATMENT OF TYPE 2 DIABETES, METABOLIC SYNDROME, MYOCARDIAL INJURY AND NEURODEGENERATION WITH HUMANIN AND ANALOGS THEREOF	12/451,524	US 8,309,525[52]
Bacterial Vaccines with Cell Wall-Associated Ceramide-Like Glycolipids and Uses Thereof	US 12/684,685	

[46] This patent is jointly owned with the University of Maryland and University Health Network.
[47] This patent is jointly owned with Victoria Link Limited.
[48] This patent is jointly owned with Victoria Link Limited.
[49] This patent is jointly owned with the Trustees of Columbia University in the City of New York.
[50] This patent is jointly owned with Ifo-Regina Elena Cancer Institute and MIT.
[51] This patent is jointly owned with the Research Foundation of State University of New York.
[52] This patent is jointly owned with The Regents of the University of California.

Title	Application Number	Patent Issued Number
USE OF GAMMA SECRETASE INHIBITORS AND NOTCH PATHWAY INHIBITORS FOR TREATMENT AND PREVENTION OF RENAL DISEASE	12/733,339	US 8,377,886
Vitamin K for Prevention and Treatment of Skin Rash Secondary to Anti-EGFR Therapy	12/788,015	US 8,283,382
KETOCONAZOLE-DERIVATIVE ANTAGONIST OF HUMAN PREGNANE X RECEPTOR AND USES THEREOF	12/735,368	US 8,669,260
3-HYDROXYPYRROLIDINE INHIBITORS OF 5'-METHYLTHIOADENOSINE PHOSPHORYLASE AND NUCLEOSIDASE	EP 10800093.60	
FENRETINIDE DERIVATIVES AND USES THEREOF AS THERAPEUTIC, DIAGNOSTIC AND IMAGING AGENTS	12/735,544	US 8,460,635
TUMOR MICROENVIRONMENT OF METASTASIS (TMEM) AND USES THEREOF IN DIAGNOSIS, PROGNOSIS AND TREATMENT OF TUMORS	12/804,779	US 8,642,277[53]
PROSTAGLANDIN TRANSPORTER INHIBITORS AND USES THEREOF	AU 2010298720.00	
PROSTAGLANDIN TRANSPORTER INHIBITORS AND USES THEREOF	EP 10819142.00	
PROSTAGLANDIN TRANSPORTER INHIBITORS AND USES THEREOF	CA 2811154.00	
ANTI-PEPTIDE ANTIBODIES THAT CROSS REACT WITH PROTECTIVE ANTIGEN OF BACILLUS ANTHRACIS AND USES THEREOF	12/924,813	US 8,187,611
METHODS FOR DETERMINING CHEMOTHERAPEUTIC AGENTS TARGETING ALPHA-GLUCAN PATHWAYS AND USES THEREOF	12/925,633	US 8,455,214[54]
METHODS AND COMPOSITIONS FOR INHIBITION OF BCL6 REPRESSION	12/737,122	US 8,791,075
SAPORIN-L1 INHIBITORS AND USES THEREOF	12/932,051	US 8,884,000[55]
METHODS AND COMPOSITIONS FOR INHIBITION OF BCL6 REPRESSION	12/932,304	US 8,703,503[56]

[53] This patent is jointly owned with MIT and Cornell University.
[54] This patent is jointly owned with Plant Bioscience Ltd.
[55] This patent is jointly owned with Victoria Link Limited.
[56] This patent is jointly owned with the ICAHN School of Medicine at Mount Sinai.

Title	Application Number	Patent Issued Number
METHOD FOR SUPPRESSING CANCER, INCREASING WEIGHT LOSS AND/OR INCREASING INSULIN SENSITIVITY	EP 11759819.30	
SOLID STATE SYNTHESIS HYDROXYL RADICALS FOR HIGH THROUGHPUT STRUCTURE DETERMINATION OF PROTEINS AND NUCLEIC ACIDS BY OXIDATIVE FOOTPRINTING	US 13/063,833	
Prevention of Chemotherapy-Induced Damage in the Hematopoietic Microenviornment by Neuroprotection	PCT/US11/051640	
Methods for Evaluating Patients	US 13/239,769[57]	
MITOCHONDRIAL INHIBITORS TO TREAT HUMAN DISEASE	13/263,083	US 8,581,005
METHODS FOR DETERMINING AGENTS THAT TREAT OR PREVENT OBESITY AND/OR OBESITY RELATED DISEASES AND METHODS FOR TREATMENT THEREWITH	13/298,370	US 8,632,979[58]
3-HYDROXYPYRROLIDINE INHIBITORS OF 5'-METHYLTHIOADENOSINE PHOSPHORYLASE AND NUCLEOSIDASE	US 13/383,772[59]	
Functional Evaluation Of Site-Specific DNA Methylation	13/349,745	US 8,993,242
RADIOBACTERIA FOR THERAPY OF CANCER	PCT/US12/23785	
PROSTAGLANDIN TRANSPORTER INHIBITORS AND USES THEREOF	13/394,857	US 8,952,150
MYOSIN-IIA S1943 PHOSPHORYLATION AS A MARKER OF TUMOR INVASION	13/419,805	US 8,541,181
ORAL ADMINISTRAION OF MELANIN FOR PROTECTION AGAINST RADIATION	JP 2014-501148	
ORAL ADMINSTRATION OF MELANIN FOR PROTECTION AGAINST RADIATION	CA 2867832.00	
Inhibition of Macrophage Synthesized WNT7B to Inhibit Tumor Angionesis and Metastasis	PCT/US2012/031488[60]	
MICRORNA AFFINITY ASSAY AND USES THEREOF	13/500,083	US 8,846,350

[57] This patent application is jointly owned with Biogen Idec MA Inc.
[58] This patent is jointly owned with University of Lausanne.
[59] This patent application is jointly owned with Victoria Link Limited.
[60] This patent application is jointly owned with Cincinnati Children's Hospital.

Title	Application Number	Patent Issued Number
CELL EXTRACT PROMOTED CLONING	13/526,930	US 8,609,374
Composicao Farmaceutica Para Controle De Vaso-Oclusao E Seus Usos	BR 0181200235291	
FIDGETIN-LIKE 2 AS A TARGET TO ENHANCE WOUND HEALING	13/553,155	US 8,853,181
PROSTAGLANDIN TRANSPORTER INHIBITORS	US 13/555,4082	
Process for Preparing Inhibitors of Nucleoside Metabolism	5070237	JP 5070237
METHODS OF SUPPRESSING CANCER, INCREASING WEIGHT LOSS AND/OR INCREASING INSULIN SENSITIVITY	US 13/583,122	
Diagnosis of Fungal Infections with a Urine Lateral Flow Device	US 13/511,2643	
METHODS OF PREPARING TARGETED APTAMER PRODRUGS	US 13/643,408	
MIR27B IS A NOVEL TARGET FOR TREATMENT OF LIVER FIBROSIS	13/707,055	US 8,729,046
SIR2 REGULATION	13/747,543	US 8,835,467
LIGANDS AND METHODS FOR LABELING BIOMOLECULES IN VIVO	US 13/813,163	
METHOD FOR QUANTITATIVE ASSESSMENT OF VOLUMETRIC IMAGE FROM A SUBJECT AND USES THEREOF	US 13/775,312	
NOVEL CELLULAR TARGETS FOR HIV INFECTION	PCT/US13/28160	
METHOD OF ENHANCING EFFICACY OF BLOOD TRANSFUSIONS	EP 13764824.204	
METHOD OF ENHANCING EFFICACY OF BLOOD TRANSFUSIONS	13/794,978	US 8,859,4995
METHOD OF ENHANCING EFFICACY OF BLOOD TRANSFUSIONS	ZA 2014/076166	
METHOD OF ENHANCING EFFICACY OF BLOOD TRANSFUSIONS	JP 2015-5017317	

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[61] This patent application is jointly owned with Universidade Estadual de Campinas.
[62] This patent is jointly owned with New York University.
[63] This patent is jointly owned with Johns Hopkins University.
[64] This patent application is jointly owned with The Regents of the University of California.
[65] This patent is jointly owned with The Regents of the University of California.
[66] This patent application is jointly owned with The Regents of the University of California.
[67] This patent application is jointly owned with The Regents of the University of California.

Title	Application Number	Patent Issued Number
METHOD OF ENHANCING EFFICACY OF BLOOD TRANSFUSIONS	IN 2089/ MUMNP/2014[68]	
METHOD OF ENHANCING EFFICACY OF BLOOD TRANSFUSIONS	CL 2464-2014[69]	
METHOD OF ENHANCING EFFICACY OF BLOOD TRANSFUSIONS	BR112014023200-8[70]	
METHOD OF ENHANCING EFFICACY OF BLOOD TRANSFUSIONS	MX/A/2014/011186[71]	
METHOD OF ENHANCING EFFICACY OF BLOOD TRANSFUSIONS	PCT/US13/30355[72]	
Modified Glycolipids and Methods of Making and Using the Same	US 13/803,972[73]	
BIOLOGICAL MARKERS FOR LONGEVITY AND DISEASES AND USE THEREOF	13/832,832	US 8,703,496
GENE TRANSFER FOR REGULATING SMOOTH MUSCLE TONE	US 13/845,324	
Ceramide-Like Glycolipid-Associated Bacterial Vaccines and Uses Thereof	US 13/808,495[74]	
METHOD FOR INHIBITING METASTASIS BY USING ANTI-CCL3 ANTIBODIES	13/860,109	US 8,716,235
Trypanocidal Nanoparticles and Uses Thereof	US 61/813,773	
METHODS, ASSAYS AND COMPOUNDS FOR TREATING BACTERIAL INFECTIONS BY INHIBITING METHYLTHIOINOSINE PHOSPHORYLASE	US 13/884,298[75]	
CONSTRUCTS AND METHODS TO IDENTIFY ANTIBODIES THAT TARGET GLYCANS	US 13/885,203	
MATERIALS AND METHODS FOR THE PREVENTION AND TREATMENT OF CANCER	US 13/991,091	
HUMAN BETAV-TUBULIN ANTIBODY AND METHODS OF USE	US 13/912,266	

[68] This patent application is jointly owned with The Regents of the University of California.
[69] This patent application is jointly owned with The Regents of the University of California.
[70] This patent application is jointly owned with The Regents of the University of California.
[71] This patent application is jointly owned with The Regents of the University of California.
[72] This patent application is jointly owned with The Regents of the University of California.
[73] This patent application is jointly owned with Vaccinex, Inc.
[74] This patent application is jointly owned with Vaccinex, Inc.
[75] This patent application is jointly owned with Victoria Link Limited.

Title	Application Number	Patent Issued Number
METHODS AND ASSAYS FOR TREATING FILOVIRIDAE INFECTIONS	US 13/979,179[76]	
RADIOBACTERIA FOR THERAPY OF CANCER	US 13/985,087	
Alternatively Spliced mRNA Isoforms as Prognostic Indicators for Metastatic Cancer	US 14/000,995[77]	
TARGET DIRECTED TO ADIPOCYTES, METHODS AND ASSAYS FOR TREATMENT OF OBESITY	US 14/001,685	
ORAL ADMINSTRATION OF MELANIN FOR PROTECTION AGAINST RADIATION	US 14/005,601	
Two Novel Regulators of Human Cell Migration as Therapeutic Targets of Metastatic Disease and Fibrosis	US 61/885,676	
SEROLOGIC TEST FOR THE RAPID DIAGNOSIS OF ACTIVE TUBERCULOSIS	PCT/US13/64203	
ANTIBODIES TO HUMAN B7X FOR TREATMENT OF METASTATIC CANCER	US 14/050,512[78]	
MELANIN NANOSHELLS FOR PROTECTION AGAINST RADIATION AND ELECTRONIC PULSES	US 14/059,960	
HUMAN INVASION SIGNATURE FOR PROGNOSIS OF METASTATIC RISK	US 14/115,928	
METASTASIS SPECIFIC SPLICE VARIANTS OF MENA AND USES THEREOF IN DIAGNOSIS, PROGNOSIS AND TREATMENT OF TUMORS	US 14/074,089[79]	
IDENTIFICATION AND USE OF NEW TUMOR-PROMOTING GENE IN HEMATOLOGICAL MALIGNANCIES	PCT/US13/70227[80]	
REGENERATION OF CORONARY ARTERY BY CORONARY ENDOTHELIAL SPECIFIC PROGENITOR CELLS	PCT/US13/70911	
METHOD FOR MEASURING SOMATIC DNA MUTATIONAL PROFILES	US 14/123,251	

[76] This patent application is jointly owned with Whitehead Institute for Biomedical Research and President and Fellows of Harvard College.
[77] This patent application is jointly owned with MIT and Montefiore Medical University.
[78] This patent application is jointly owned with Sloan-Kettering Institute for Cancer Research.
[79] This patent application is jointly owned with Ifo-Regina Elena Cancer Institute and MIT.
[80] This patent application is jointly owned with British Columbia Cancer Agency.

Title	Application Number	Patent Issued Number
GUT BARRIER DYSFUNCTION TREATMENT AND PREVENTION	PCT/US13/72709	
METHODS FOR HIGH THROUGHPUT RECEPTOR:LIGAND IDENTIFICATION	PCT/US13/73275	
ASSAY FOR INHIBITORS OF EQUILIBRATIVE OR CONCENTRATIVE NUCLEOSIDE TRANSPORTERS	PCT/US14/10626	
METHODS AND COMPOSITIONS FOR RAPID FUNCTIONAL ANALYSIS OF GENE VARIANTS	US 14/150,207	
STROMAL CELL THERAPY IN TREATMENT OF RADIATION INJURY	US 14/131,776	
SMALL-MOLECULE BINDING SITE ON PRO-APOPTOTIC BAX REGULATES INHIBITION OF BAX ACTIVITY	PCT/US14/11213	
TARGETS FOR DIAGNOSIS, PROGNOSIS AND THERAPY OF ACUTE MYELOID LEUKEMIA AND MYELODYSPLASTIC SYNDROMES	US 14/236,118	
A SELECTIVE HIGH-AFFINITY IMMUNE STIMULATORY REAGENT AND USES THEREOF	PCT/US14/15235	
HHLA2 AS A NOVEL INHIBITOR OF HUMAN IMMUNE SYSTEM AND USES THEREOF	PCT/US14/15308	
PHOSPHOCOFILIN: COFILIN CO-LOCALIZATION INTENSITY AS A PREDICTOR OF METASTATIC RECURRENCE	US 14/238,253[81]	
Tuberculosis Biomarkers and Uses Thereof	PCT/US2014/017289[82]	
ERYTHROPOIETIC ROLE OF RESIDENT MACROPHAGES IN HEMATOPOIETIC ORGANS	US 14/189,110[83]	
METHOD OF TREATING LEUKEMIA IN A MAMMAL	US 14/190,705	
PAK1 INHIBITION FOR TREATMENT OF ACUTE MYELOID LEUKEMIA AND MYELODYSPLASTIC SYNDROMES	PCT/US14/24239	
HUMANIZED ANTIBODIES SPECIFIC FOR STAPHYLOCOCCAL ENTEROTOXIN B	PCT/US14/25861[84]	

[81] This patent is jointly owned with King's College London.
[82] This patent application is jointly owned with Caprion Proteomics Inc.
[83] This patent is jointly owned with ICAHN School of Medicine at Mount Sinai.
[84] This patent application is jointly owned with Pfizer, Inc.

Title	Application Number	Patent Issued Number
PANEL OF MICRORNA BIOMARKERS IN HEALTHY AGING	PCT/US14/27113	
ADJUVANT THERAPY FOR STAPHYLOCOCCAL INFECTION WITH ENTEROTOXIN SPECIFIC MABS	US 14/346,981	
CASPASE 9 INHIBITION AND BRI2 PEPTIDES FOR TREATING DEMENTIA	US 14/347,129	
SIMULTANEOUS EXTRACTION OF DNA AND RNA FROM FFPE TISSUES	US 14/249,631	
METHOD FOR MEASURING DNA METHYLATION PROFILES	US 14/253,922	
RECOMBINANT MYCOBACTERIOPHAGES FOR DELIVERY OF NUCLEIC ACIDS OF INTEREST INTO MYCOBACTERIA	US 14/352,761[85]	
TREATMENT OF AGING EFFECTS BY GONADOTROPIN-RELEASING HORMONE, NEUROGENESIS OR BRAIN IKK-BETA/NF-KAPPAB INHIBITION	PCT/US2014/035220	
METHOD OF TREATING TUBERCULOSIS	PCT/US14/35448	
TMIGD2 AND ITS DERIVATIVES AS BLOCKERS OR BINDERS OF CANCER-EXPRESSED HHLA2 FOR IMMUNOTHERAPIES	US 61/986,238	
TARGETING AN AMPHIREGULIN-DERIVED CELL SURFACE NEO-EPITOPE	US 14/356,724	
IL-34 RECEPTOR ASSAYS AND USES THEREOF	PCT/US14/38590	
PEGYLATED HEMOGLOBIN AND ALBUMIN AND USES THEREOF	US 14/281,970	
TREATMENT OF MULTIPLE SCLEROSIS BY INHIBITION OF ALLOGRAFT ONFLAMMATORY FACTOR-1	US 62/000,577	
Vectors and Composition for Stable Expression of Antigens in Mycobacteria	US 62/002,478[86]	
STAT3 ACTIVATION AS A MARKER FOR CLASSIFICATION AND PROGNOSIS OF DLBCL PATIENTS	US 14/360,325[87]	
Propylactic Compositions for Managment of Microbial Infecions in Patients with Brian Injury	US 14/361,030[88]	

[85] This patent is jointly owned with University of Pittsburgh.

[86] This patent application is jointly owned with Beth Israel Deaconess Medical Center, Inc. and Duke University.

[87] This patent application is jointly owned with the Board of Regents of the University of Nebraska.

Title	Application Number	Patent Issued Number
TARGETING DIMERIZATION OF BAX TO MODULATE BAX ACTIVITY	US 62/005,013	
THERAPY FOR FILOVIRUS INFECTION	US 14/291,608[89]	
LIPID NANOPARTICLES FOR TARGETED SIRNA DELIVERY	US 14/299,194	
TREATMENT OF OBESITY AND PULMONARY ARTERIAL HYPERTENSION USING PROSTAGLANDIN TRANSPORTER INHIBITORS	PCT/US14/42628	
SYNTAC FC-FUSION CONSTRUCTS AND USES THEREOF	US 62/013,715	
Identification of Inhibitors of the Malaria Parasite Plasmodium Falciparum Equilibrative Nucleoside Transporter Type 1 As Potential Antimalaria Drugs	PCT/US2014/044357[90]	
USE OF TGF-BETA ANTAGONISTS TO TREAT TYPE-2 DIABETES	US 62/026,126	
NEURAL STEM CELL THERAPY FOR OBESITY AND DIABETES	US 14/375,582	
COMPOSITIONS AND METHODS FOR TREATING SMOOTH MUSCLE DYSFUCTION	PCT/US2014/049811	
METHOD OF ENHANCING EFFICACY OF BLOOD TRANSFUSIONS	US 14/454,059[91]	
THERAPY FOR FILOVIRUS INFECTION	US 62/039,504[92]	
METHODS AND COMPOSITIONS FOR ASSESSING GERMLINE	US 62/039,691	
NOVEL CELLULAR TARGETS FOR HIV INFECTION	US 14/381,727	
COATING STRATEGIES FOR PARAMAGNETIC NANOPARTICLES FOR TARGETED DELIVERY OF THERAPEUTICS	US 62/047,242	
METHODS AND COMPOSITIONS TO INHIBIT METASTASIS AND TO TREAT FIBROSIS AND TO ENHANCE WOUND HEALING	PCT/US14/55393	
FIDGETIN-LIKE 2 AS A TARGET TO ENHANCE WOUND HEALING	US 14/487,221	

[88] This patent application is jointly owned with UTI Limited Partnership.
[89] This patent application is jointly owned with the Governing Council of the University of Toronto.
[90] This patent application is jointly owned with the Trustees of Columbia University of the City of New York.
[91] This patent application is jointly owned with the Regents of the University of California.
[92] This patent application is jointly owned with the Governing Council of the University of Toronto.

Title	Application Number	Patent Issued Number
REPOPULATION OF ORGANS AND TISSUES USING A YAP-ERT2 FUSION PROTEIN	US 62/051,214	
Mena INV and Cancer Invasion and Metastasis	US 14/390,113	
S-nitrosocaptopril Nanoparticles as Nitric Oxide-Liberating and Transitrosylating Anti-infective Technology	US 62/059,226	
PROGRAMMED CARGO RELEASE USING NUCLEIC ACID-STABILIZED MICELLES	US 62/061,772	
SUSTAINED RELEASE NANOPARTICLE DELIVERY OF NITRIC OXIDE (NO) OR S-NITROSOTHIOLS AND RELATED COMPOUNDS FOR RESTORING VASCULAR INTEGRITY	US 62/064,251	
CYSTEINE CATHEPSIN INHIBITORS AS ANTI-EBOLA AGENTS	US 62/066,216[93]	
TRANSFERRIN RECEPTOR APTAMERS AND APTAMER-TARGETED DELIVERY	US 14/396,102	
MULTI-SPECIFIC ANTIBODIES FOR CROSS-NEUTRALIZATION OF MULTIPLE FILOVIRUS GLYCOPROTEINS	US 62/069,516	
NUCLEIC ACID-SCAFFOLDED SMALL MOLECULE LIBRARIES	PCT/US14/62614	
Use of Fatty Acids to Enhance Topical and Systemic Delivery of Nanoparticle Formulations and Methods of Detection	US 62/074,382	
METHOD FOR PRODUCING RADIOBACTERIA FOR THERAPY OF CANCER	US 62/074,702	
WNT/BETA-CATENIN INHIBITOR-ELUTING ENDOVASCULAR STENT	PCT/US14/64046	
METHODS TO ACCELERATE ANTIBODY DIVERSIFICATION	US 62/076,099	
Preparation of nanoparticles Loaded with and Capable of Sustained Release of the S-nitroso Derivative of N-acetyl Cysteine (NACSNO)	US 14/399,335[94]	
MYCOBACTERIUM TUBERCULOSIS DELTA ESX-3 MUTANTS	US 14/399,557	
T CELL MARKER AND REGULATION OF T CELL RESPONSES THROUGH SIDT1 RECEPTOR AND USES THEREOF	US 62/078,506	

[93] This patent application is jointly owned with the Board of Trustees of the Leland Stanford Junior University.
[94] This patent application is jointly owned with La Jolla Bioengineering Institute.

Title	Application Number	Patent Issued Number
Diagnosis of Fungal Infections with a Urine Lateral Flow Device	US 14/546,830[95]	
RECOMBINANT HERPES SIMPLEX VIRUS 2 (HSV-2) VACCINE VECTORS	US 62/080,663	
HOST AND INTESTINAL MICROBIOTA DERIVED METABOLOMIC BLOOD PLASMA SIGNATURE FOR PRIOR RADIATION INJURY	US 62/082,781	
PEPTIDES FOR BLOCKING IL1RAP PROTEIN-PROTEIN INTERACTION AND USES THEREOF FOR TREATMENT OF DISEASE	US 62/083,417	
BTNL9 AND ERMAP FUNCTION AS NOVEL INHIBITORS OF THE IMMUNE SYSTEM AND USES THEREOF	US 62/084,124	
B7X AND ITS DERIVATIVES FOR TREATING AND PREVENTING CARDIOVASCULAR DISEASE	PCT/US2014/069191	
Nanoparticle Based Combination Therapy to Reduce the Mortality and Morbidity Associated with Ebola Infection	US 62/090,140	
RETINOIC ACID RECEPTOR ANTAGONISTS AS CHAPERONE-MEDIATED AUTOPHAGY MODULATORS AND USES THEREOF	US 14/566,762	
METHOD OF RAPID ISOLATION OF APTAMER BEACONS	PCT/US2014/069981	
GENERATION HEPATOCYTES FROM PLURIPOTENT STEM CELLS	US 14/409,234	
Pyrite Shrink-Wrap Laminate as a Hydroxyl Radical Generator	US 62/097,515[96]	
EPIGENETIC STEM CELL COMMITMENT-ASSOCIATED SIGNATURE	PCT/US2014/072474	
Use of Novel Chloroquine Analogs as Autophagy Inhibitors and Anti-Cancer Drugs	US 62/100,316	
APTAMER-TARGETED ANTIGEN DELIVERY	US 14/413,727	
METHODS OR PREVENTIMNG DRUG SULFATION AND USES THEREOF	US 62/102,170	
METHOD TO TREAT OR PREVENT HERPESVIRUS INFECTION	US 14/415,333	

[95] This patent application is jointly owned with Johns Hopkins University.

[96] This patent application is jointly owned with the University of California at Irvine.

Title	Application Number	Patent Issued Number
METHODS TO ISOLATE HUMAN MESENCHYMAL STEM CELLS	US 14/416,078	
CELLULAR PLATFORM FOR RAPID AND COMPREHENSIVE T-CELL IMMUNOMONITORING	PCT/US2015/012160	
ANTI-FILOVIRUS THERAPEUTICS	US 62/111,159[97]	
TREATMENT OF HELICOBACTER PYLORI INFECTIONS	US 14/419,669[98]	
TREATMENT OF H. PYLORI INFECTIONS USING MTAN-INHIBITORS	PCT/US2015/014778	
METHODS OF GRADING CARCINOMAS	PCT/US2015/014973	
METHODS OF DETERMINING LEVELS OF EXPOSURE TO RADIATION AND USES THEREOF	US 62/114,456[99]	
Pyridoxamine for the Treatment of Sickle Cell Disease	PCT/US15/16753[100]	
METHOD AND ASSAYS FOR TREATING HANTAVIRUS INFECTIONS	PCT/US2015/017410[101]	
RECOMINANT HERPES SIMPLEX VIRUS 2 (HSV-2) VACCINE VECTORS	PCT/US2015/018272	
TREATMENT AND PREVENTION OF P. AERUGINOSA INFECTIONS USING COFORMYCIN ANALOGS	US 14/426,775[102]	
MULTI-SPECIFIC ANTIBODIES FOR CROSS-NEUTRALIZATION OF MULTIPLE FILOVIRUS GLYCOPROTEINS	US 62/131,472	
USE OF MEMBRANE VESICLE-BASED VACCINE AGAINST M. TUBERCULOSIS	US 14/429,001	
THERAPY FOR RADIATION-INDUCED LUNG INJURY	US 14/666,746	
A THERAPEUTIC AND DIAGNOSTIC TARGET GENE IN ACUTE MYELOID LEUKEMIA	US 14/669,469	
Pegylated non-hypertensive hemoglobins, methods of preparing same, and uses thereof	10/957,200	US 7,144,989
Selective beta-glucuronidase inhibitors as a treatment for side effects of camptothecin antineoplastic agents	13/514,418	US 8,557,808[103]

[97] This patent application is jointly owned with the U.S. Government, Defense Threat Reduction Agency.
[98] This patent is jointly owned with Victoria Link Limited.
[99] This patent application is jointly owned with Dana-Farber Cancer Institute, Inc.
[100] This patent application is jointly owned with PHD Biosciences.
[101] This patent application is jointly owned with The Netherlands Cancer Institute.
[102] This patent is jointly owned with Victoria Link Limited.

Title	Application Number	Patent Issued Number
Model of infantile spasm syndrome	12/009,927	US 7,863,499
Surface coil arrays for simultaneous reception and transmission with a volume coil and uses thereof	12/224,478	US 8,030,926
Inhibitors of ADP-ribosyl transferases, cyclases, and hydrolases, and uses thereof	10/038,760	US 7,056,894
Method for decreasing low density lipoprotein	10/377,088	US 6,841,547[104]
Method of treating or preventing pathologic effects of acute increases in hyperglycemia and/or acute increases of free fatty acid flux	11/136,254	US 8,829,051[105]
Transition state structure of human 5'methylthioadenosine phosphorylase	13/311,091	US 8,828,124
Compounds and methods for detecting ricin and uses thereof	12/308,447	US 8,536,319
Myosin-IIA S1943 phosphorylation as a marker of tumor invasion	13/419,805	US 8,541,181
Method and compounds for inhibiting lipid biosynthesis of bacteria and plants	08/234,011	US 5,702,935
Antimycobacterial compounds and method of using same	08/386,917	US 5,648,392
Identification of mycobacterium tuberculosis complex species	08/388,916	US 5,656,424
Hepatic progenitors and method of isolating same	09/154,222	US 6,242,252
Methods and compositions for detecting and treating mycobacterial infections using an inha gene	08/241,766	US 5,686,590[106]
L5 shuttle phasmids	08/247,901	US 5,750,384[107]
Method for proliferating VY2V&2 T cells	08/390,881	US 5,639,653
Novel hemoglobin crosslinkers	08/425,137	US 5,585,484
Vectors and prokaryotes which autocatalytically delete antibiotic resistance	08/425,380	US 5,736,367
Compositions conprising [sic] hepatocyte precursors	08/751,546	US 5,789,246
Method for detecting chitin-containing organisms	09/193,923	US 6,440,388

[103] This patent is jointly owned with North Carolina Central University and The University of North Carolina at Chapel Hill.
[104] This patent is jointly owned with Montefiore Medical Center and the Research Foundation of State University of New York.
[105] This patent is jointly owned with Geoffrey C. Gurtner.
[106] This patent is jointly owned with Agresearch, New Zealand Pastoral Agriculture Research Institute Ltd.
[107] This patent is jointly owned with the University of Pittsburgh Cathedral of Learning.

Title	Application Number	Patent Issued Number
Aptamer constructs	10/999,686	US 7,700,759
Rhenium-188 and rhenium-186 for treatment of tumors expressing A NA+/I-symporter	10/704,434	US 7,709,613
Drug release coatings on calcium phosphate and uses thereof	US 12/736,605	
Method of treating or preventing pathologic effects of acute increases in hyperglycemia and/or acute increases of free fatty acid flux	US 11/297,808[108]	
Antibodies to human B7X for treatment of metastatic cancer	US 14/050,512[109]	
Modulation of hypothalamic Atp-sensitive potassium channels	US 11/884,298	
Vitamin K for prevention and treatment of skin rash secondary to anti-EGFR therapy	US 13/623,625	
SYNTAC POLYPEPTIDES AND USES THEREOF	PCT/US2015/035777	
TARGETING DIMERIZATION OF BAX TO MODULATE BAX ACTIVITY	PCT/US2015/032897	
THERAPY FOR FILOVIRUS INFECTION	PCT/US2015/043927[110]	
TMIGD2 AND IT'S DERIVATIVES AS BLOCKERS OR BINDERS OF CANCER-EXPRESSED HHLA2 FOR IMMUNOTHERPIES	PCT/US2015/027429	
USE OF TGF-BETA ANTAGONISTS TO TREAT TYPE-2 DIABETES	PCT/US2015/040833	
A SELECTIVE HIGH-AFFINITY IMMUNE STIMULATORY REAGENT AND USES THEREOF	14/765,885	
ANTIBODY THERAPEUTICS AGAINST FILOVIRUS INFECTIONS AND USES THEREOF	62/157,104	
ASSAY FOR INHIBITORS OF EQUILIBRATIVE OR CONCENTRATIVE NUCLEOSIDE TRANSPORTERS	14/759,973	
FGF RECEPTOR LIGANDS FOR TREATING DIABETES AND OBESITY	62/181,413	

[108] This patent is jointly owned with Geoffrey C. Gurtner.
[109] This patent is jointly owned with the Sloan-Kettering Institute for Cancer Research.
[110] This patent application is jointly owned with the Governing Council of the University of Toronto.

Title	Application Number	Patent Issued Number
GUT BARRIER DYSFUNCTION TREATMENT AND PREVENTION	14/729,211	
IDENTIFICATION AND USE OF NEW TUMOR-PROMOTING GENE IN HEMATOLOGICAL MALIGNANCIES	14/442,906[111]	
INTERVENTION FOR TENDINOPATHY	62/174,005	
PISTON DEVICE FOR MAGNETIC RESONANCE ELASTOGRAPHY AND USES THEREOF	62/143,265	
REGENERATION OF CORONARY ARTERY BY CORONARY ENDOTHELIAL SPECIFIC PROGENITOR CELLS	14/443,075	
REVERSAL OF PERSISTENT ROS GENERATION AFTER TRANSIENT HYPERGLYCEMIA	62/184,495	
SEROLOGIC TEST FOR THE RAPID DIAGNOSIS OF ACTIVE TUBERCULOSIS	14/434,415	
SMALL-MOLECULE BINDING SITE ON PRO-APOTOTIC BAX REGULATES INHIBITION OF BAX ACTIVITY	14/760,741	
TMEM ACTIVE TEST AND USES THEREOF IN DIAGNOSIS, PROGNOSIS AND TREATMENT OF TUMORS	62/166,730	
TREATMENT OF CANCER USING RECALL ANTIGENS DELIVERED BY ATTENUATED BACTERIA	62/153,728	
METHODS AND COMPOSITIONS FOR ASSESSING GERMLINE RISK OF CANCER	PCT/US2015/045856	

Jointly Owned Patents with Victoria Link Limited

Title	Country	Status	Application No.	Grant No.	Grant Date
Inhibitors of Nucleoside Metabolism	United States	Patent	08/949388	5985848	16/11/1999
Inhibitors of Nucleoside Metabolism	United States	Patent	09/172321	6066722	23/05/2000
Inhibitors of Nucleoside Metabolism	United States	Patent	09/820,276	6492347	10/12/2002

[111] This patent application is jointly owned with British Columbia Cancer Agency.

Title	Country	Status	Application No.	Grant No.	Grant Date
Inhibitors of Nucleoside Metabolism	Australia	Patent	10866/99	749098	3/10/2002
Inhibitors of Nucleoside Metabolism	Korea	Patent	1020007003944	1006374790000	16/10/2006
Inhibitors of Nucleoside Metabolism	Japan	Patent	2000-515909	4451983	5/02/2010
Inhibitors of Nucleoside Metabolism	China	Patent	98811489.5	1220695	28/09/2005
Inhibitors of Nucleoside Metabolism	Canada	Patent	2,305,760	2,305,760	3/06/2008
Inhibitors of Nucleoside Metabolism	Europe	Patent	98953516.6	1023308	7/09/2005
Inhibitors of Nucleoside Metabolism	United States	Patent	10/932,841	7,211,653	1/05/2007
Inhibitors of Nucleoside Metabolism	United States	Patent	10/268652	6803455	12/10/2004
Inhibitors of Nucleoside Metabolism	Austria	Patent	98953516	304019	7/09/2005
Inhibitors of Nucleoside Metabolism	Belgium	Patent	EP 98953516.6	1023308	7/09/2005
Inhibitors of Nucleoside Metabolism	Switzerland	Patent	EP 98953516.6	1023308	7/09/2005
Inhibitors of Nucleoside Metabolism	Cyprus	Patent	98953516.6	1023308	7/09/2005
Inhibitors of Nucleoside Metabolism	Germany	Patent	69831499	69831499	13/10/2005
Inhibitors of Nucleoside Metabolism	Denmark	Patent	98953516.6	1023308	7/09/2005
Inhibitors of Nucleoside Metabolism	Spain	Patent	98953516.6	1023308	7/09/2005
Inhibitors of Nucleoside Metabolism	Finland	Patent	98953516.6	1023308	7/09/2005
Inhibitors of Nucleoside Metabolism	France	Patent	98953516.6	1023308	7/09/2005

Title	Country	Status	Application No.	Grant No.	Grant Date
Inhibitors of Nucleoside Metabolism	Greece	Patent	98953516.6	1023308	7/09/2005
Inhibitors of Nucleoside Metabolism	Italy	Patent	98953516.6	1023308	7/09/2005
Inhibitors of Nucleoside Metabolism	Liechtenstein	Patent	98953516.6	1023308	7/09/2005
Inhibitors of Nucleoside Metabolism	Luxembourg	Patent	98953516.6	1023308	7/09/2005
Inhibitors of Nucleoside Metabolism	Netherlands	Patent	98953516.6	1023308	7/09/2005
Inhibitors of Nucleoside Metabolism	Portugal	Patent	98953516.6	1023308	7/09/2005
Inhibitors of Nucleoside Metabolism	Sweden	Patent	98953516.6	1023308	7/09/2005
Inhibitors of Nucleoside Metabolism	Great Britain	Patent	98953516.6	1023308	7/09/2005
Inhibitors of Nucleoside Metabolism	China	Patent	ZL200510092066.9	100393722	11/06/2008
Inhibitors of Nucleoside Metabolism	United States	Patent	09/496,741	6,228,847	8/05/2001
Inhibitors of Nucleoside Metabolism	Hong Kong	Patent	6109456.2	HK1089159	11/06/2008
Inhibitors of Nucleoside Metabolism	United States	Patent	11/728,730	7,390,890	24/06/2008
Process for Preparing Inhibitors of Nucleoside Metabolism	Europe	Application	9150953.9		
Process for Preparing Inhibitors of Nucleoside Metabolism	Canada	Patent	2,696,826.00	2,696,826	8/01/2013
Process for Preparing Inhibitors of Nucleoside Metabolism	China	Patent	200610148465.70	200610148465.70	6/10/2010
Process for Preparing Inhibitors of Nucleoside Metabolism	United States	Patent	11/716,100	7,405,297	29/07/2008

Title	Country	Status	Application No.	Grant No.	Grant Date
Process for Preparing Inhibitors of Nucleoside Metabolism	Korea	Patent	1020077002211	100827118	25/04/2008
Process for Preparing Inhibitors of Nucleoside Metabolism	Hong Kong	Patent	6108569.8	HK1088310	28/03/2008
Process for Preparing Inhibitors of Nucleoside Metabolism	Hong Kong	Patent	812704.5	HK1116472	6/10/2010
Process for Preparing Inhibitors of Nucleoside Metabolism	Canada	Patent	2,634,299	2,634,299	31/05/2011
Process for Preparing Inhibitors of Nucleoside Metabolism	Albania	Patent	AL-P-2009-2989	2926	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Austria	Patent	917509.2	E425165	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Belgium	Patent	917509.2	EP1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Cyprus	Patent	917509.2	EP1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Germany	Patent	917509.2	60041757.3	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Denmark	Patent	917509.2	EP1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Spain	Patent	917509.2	2324016	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Finland	Patent	917509.2	1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	France	Patent	917509.2	1165564	11/03/2009

Title	Country	Status	Application No.	Grant No.	Grant Date
Process for Preparing Inhibitors of Nucleoside Metabolism	Great Britain	Patent	917509.2	EP1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Greece	Patent	917509.2	3069168	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Ireland	Patent	917509.2	EP1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Italy	Patent	917509.2	EP1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Lithuania	Patent	917509.2	1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Luxembourg	Patent	917509.2	EP1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Latvia	Patent	917509.2	EP1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Monaco	Patent	917509.2	EP1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Macedonia	Patent	917509.2	MK/P/2009/119	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Netherlands	Patent	917509.2	EP1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Portugal	Patent	917509.2	EP1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Romania	Patent	917509.2	1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Sweden	Patent	917509.2	917509.2	11/03/2009

Title	Country	Status	Application No.	Grant No.	Grant Date
Process for Preparing Inhibitors of Nucleoside Metabolism	Slovenia	Patent	917509.2	EP1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Switzerland	Patent	917509.2	EP1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Japan	Patent	2009-080777	5070237	24/08/2012
Process for Preparing Inhibitors of Nucleoside Metabolism	United States	Patent	09/958,219	6693193	17/02/2004
Process for Preparing Inhibitors of Nucleoside Metabolism	Korea	Patent	1020017012816	1007551100000	28/08/2007
Process for Preparing Inhibitors of Nucleoside Metabolism	Japan	Patent	2000-611706	4430247	25/12/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Europe	Patent	917509.2	1165564	11/03/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	China	Patent	808441.6	1196704	13/04/2005
Process for Preparing Inhibitors of Nucleoside Metabolism	Canada	Patent	2368095	2368095	6/10/2009
Process for Preparing Inhibitors of Nucleoside Metabolism	Australia	Patent	38469/00	776540	6/01/2005
Process for Preparing Inhibitors of Nucleoside Metabolism	New Zealand	Patent	514660	514660	5/07/2004
Process for Preparing Inhibitors of Nucleoside Metabolism	United States	Patent	10/737,724	7022852	4/04/2006
Process for Preparing Inhibitors of Nucleoside Metabolism	United States	Patent	11/297,954	7,211,677	1/05/2007

Title	Country	Status	Application No.	Grant No.	Grant Date
Process for Preparing Inhibitors of Nucleoside Metabolism	China	Patent	2005108316.60	100344630	24/10/2007
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Brazil	Application	PI0313664.7		
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Russia	Patent	2005107714	2330042	27/07/2008
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Singapore	Patent	200501034.3	110552	30/03/2007
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Korea	Patent	1020057002959	10010812260000	1/11/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	China	Patent	3824354.7	100379750	9/04/2008
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Europe	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	India	Patent	680/DELNP/2005	244827	21/12/2010
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Canada	Patent	2496698	2496698	24/01/2012
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Japan	Patent	2004-530687	4682314	18/02/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Australia	Patent	2003258911	2003258911	4/03/2010
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	United States	Patent	10/524,995	7553839	30/06/2009
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	New Zealand	Patent	538368	538368	13/03/2008

Title	Country	Status	Application No.	Grant No.	Grant Date
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Austria	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Belgium	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Bulgaria	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Cyprus	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Czech Republic	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Denmark	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Estonia	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Finland	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	France	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Germany	Patent	3792904.9	60336734.8	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Greece	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Hungary	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Ireland	Patent	3792904.9	1539783	13/04/2011

Title	Country	Status	Application No.	Grant No.	Grant Date
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Italy	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Liechtenstein	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Luxembourg	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Monaco	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Portugal	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Romania	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Slovakia	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Slovenia	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Spain	Patent	3792904.9	3792904.9	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Sweden	Patent	3792904.9	3792904.9	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Switzerland	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Netherlands	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Turkey	Patent	3792904.9	1539783	13/04/2011

Title	Country	Status	Application No.	Grant No.	Grant Date
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Great Britain	Patent	3792904.9	1539783	13/04/2011
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	Hong Kong	Patent	6105174.1	HK1085219	12/09/2008
Inhibitors of Nucleoside Phosphorylases and Nucleosidases	United States	Patent	12/455537	8,173,662	8/05/2012
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Korea	Application	1020097006628	1014336210000	8/19/2014
Azetidine analogues of Nucleoside Phosphorylase and Hydrolase Inhibitors	United States	Patent	12/448,397	8,283,345	9/10/2012
Acyclic amine inhibitors of 5 - methylthioadenosine phosphorylase and nucleosidase	Europe	Application	7834862		
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Japan	Application	2009-527314		
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Canada	Application	2662628		
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	United States	Application	12/310,708	8,853,224	10/7/2014
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	India	Application	1153/KOLNP/2009		
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	China	Patent	200780040294.9	101528749	31/07/2013

Title	Country	Status	Application No.	Grant No.	Grant Date
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Australia	Patent	2007293774	2007293774	17/10/2013
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	New Zealand	Patent	575365	575365	5/06/2012
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Europe	Patent	7834863.8	EP2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Hong Kong	Patent	9110497.8	HK1131612	9/12/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Albania	Patent	7834863.8	3691	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Austria	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Belgium	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Bosnia/Herzegovina	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Bulgaria	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Croatia	Patent	7834863.8	P20110408T1	16/03/2011

Title	Country	Status	Application No.	Grant No.	Grant Date
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Cyprus	Patent	7834863.8	CY1111507	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Czech Republic	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Denmark	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Estonia	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Finland	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	France	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Great Britain	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Greece	Patent	7834863.8	3075210	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Hungary	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Iceland	Patent	7834863.8	2057165	16/03/2011

Title	Country	Status	Application No.	Grant No.	Grant Date
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Ireland	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Italy	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Latvia	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Lithuania	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Luxembourg	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Macedonia	Patent	7834863.8	903914	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Malta	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Monaco	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Netherlands	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Poland	Patent	7834863.8	2057165	16/03/2011

Title	Country	Status	Application No.	Grant No.	Grant Date
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Portugal	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Romania	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Serbia	Patent	7834863.8	P51864	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Slovakia	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Slovenia	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Switzerland	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Turkey	Patent	7834863.8	2057165	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Spain	Patent	7834863.8	7834863.8	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Sweden	Patent	7834863.8	7834863.8	16/03/2011
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Germany	Patent	7834863.8	602007013252.50	16/03/2011

Title	Country	Status	Application No.	Grant No.	Grant Date
Acyclic Amine Inhibitors of Nucleoside Phosphorylases and Hydrolases	Liechtenstein	Patent	7834863.8	2057165	16/03/2011
3-hydroxypyrrolidine Inhibitors of 5-methylthioadenosine phosphorylase and nucleosidase	Hong Kong	Application	12111232.1		
Acyclic amine inhibitors of 5 - methylthioadenosine phosphorylase and nucleosidase	Canada	Application	2662626		
Acyclic amine inhibitors of 5 - methylthioadenosine phosphorylase and nucleosidase	Australia	Patent	2007293773	2007293773	16/05/2013
Acyclic amine inhibitors of 5 - methylthioadenosine phosphorylase and nucleosidase	United States	Patent	12/310597	8383636	26/02/2013
3-hydroxypyrrolidine Inhibitors of 5-methylthioadenosine phosphorylase and nucleosidase	United States	Application	13/383,772		
3-hydroxypyrrolidine Inhibitors of 5-methylthioadenosine phosphorylase and nucleosidase	Canada	Application	2,768,291		
3-hydroxypyrrolidine Inhibitors of 5-methylthioadenosine phosphorylase and nucleosidase	Australia	Application	2010271532		
3-hydroxypyrrolidine Inhibitors of 5-methylthioadenosine phosphorylase and nucleosidase	Japan	Application	2012-520557		
3-hydroxypyrrolidine Inhibitors of 5-methylthioadenosine phosphorylase and nucleosidase	Europe	Application	10800093.6		

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Analogues of Coformycin and their use for Treating Protozoan Parasite Infections	United States	Patent	12/223,746	8,394,950	12/03/2013
Saporin-L1 Inhibitors and Uses Thereof	United States	Application	12/932,051	8,884,000	
Treatment and Prevention of P. Aeruginosa Infections Using Coformycin Analogs	United States	PCT Application	US2013/058844		
Treatment of Helicobater pylori infections	United States	PCT Application	US2013/053885		
METHODS, ASSAYS AND COMPOUNDS FOR TREATING BACTERIAL INFECTIONS BY INHIBITING METHYLTHIOINOSINE PHOSPHORYLASE	United States	Application	13/884,298		
TREATMENT OF H. PYLORI INFECTIONS USING MTAN-INHIBITORS	United States	PCT Application	US2015/014778		
TREATMENT OF HELICOBACTER PYLORI INFECTIONS	United States	Application	14/419,669		
TREATMENT AND PREVENTION OF P. AERUGINOSA INFECTIONS USING COFORMYCIN ANALOGS	United States	Application	14,426,775		