Based on FDA's knowledge of supplements and annual reports to NDAs and ANDAs, as well as the agency's familiarity with the time needed to prepare supplements and annual reports, our estimates for this information collection are as follows: The total number of supplements submitted per year is estimated to be reduced based on the recommendations in the draft guidance. Based on the number of CMC manufacturing supplements received for NDAs and ANDAs during 2008, FDA estimates that it will receive annually approximately 800 responses under §§ 314.70 and 314.71 for NDAs and approximately 2,075 responses under § 314.97 for ANDAs. The number of annual frequencies per response will decrease accordingly. FDA estimates that approximately the same number of respondents will submit responses under §§ 314.70, 314.71, and 314.97 and each response will take approximately the same amount of time to prepare as in the information collection currently approved under OMB Control Number 0910–0001.

TABLE 1.—ESTIMATED ANNUAL REPORTING BURDEN[1]

21 CFR Section	No. of Respondents	Annual Frequency per Response	Total Annual Responses	Hours Per Response	Total Hours
314.70 and 314.71	281 (same as currently approved)	2.85	800	150 (same as currently approved)	120,000
314.97	215 (same as currently approved)	9.65	2,075	80 (same as currently approved)	166,000
Total Hours					286,000

[1] There are no capital costs or operating and maintenance costs associated with this collection of information.

Therefore, the estimated annual reporting burden for this information collection is 286,000 hours.

IV. Electronic Access

Persons with access to the Internet may obtain the document at either *http://www.fda.gov/Drugs/GuidanceComplianceRegulatoryInformation/Guidances/default.htm* or *http://www.regulations.gov*.

Dated: June 21, 2010.

Leslie Kux,

Acting Assistant Commissioner for Policy.

[FR Doc. 2010–15415 Filed 6–24–10; 8:45 am]

BILLING CODE 4160–01–S

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Government-Owned Inventions; Availability for Licensing

AGENCY: National Institutes of Health, Public Health Service, HHS.

ACTION: Notice.

SUMMARY: The inventions listed below are owned by an agency of the U.S. Government and are available for licensing in the U.S. in accordance with 35 U.S.C. 207 to achieve expeditious commercialization of results of federally-funded research and development. Foreign patent applications are filed on selected inventions to extend market coverage for companies and may also be available for licensing.

ADDRESSES: Licensing information and copies of the U.S. patent applications listed below may be obtained by writing to the indicated licensing contact at the Office of Technology Transfer, National Institutes of Health, 6011 Executive Boulevard, Suite 325, Rockville, Maryland 20852–3804; telephone: 301/496–7057; fax: 301/402–0220. A signed Confidential Disclosure Agreement will be required to receive copies of the patent applications.

A New Class of Antibiotics: Natural Inhibitors of Bacterial Cytoskeletal Protein FtsZ To Fight Drug-Susceptible and Multi-Drug Resistant Bacteria

Description of Invention: The risk of infectious diseases epidemic has been alarming in recent decades. This is not only because of the increase incident of so-called "super bugs," but also because of the scarce number of potential antibiotics in the pipeline. Currently, the need for new antibiotics is greater than ever! The present invention by the National Institute of Diabetes and Digestive and Kidney Disease (NIDDK), part of the National Institute of Health (NIH), address this urgent need. The invention is a new class of chrysophaentin antibiotics that inhibit the growth of broad-spectrum, drug-susceptible, and drug-resistant bacteria.

Derived from the yellow algae *Chrysophaeum taylori,* the inventor has extracted 8 small molecules of natural products and tested for antimicrobial activity against drug resistant bacteria, methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant *Enterococcus faecalis* (VRE), as well as other drug susceptible strains. Structurally, the molecules represent a new class of antibiotic that also likely work through a distinct mechanism of action from that of current antibiotics, which is key for the further development of antibiotics that inhibit drug-resistant strains.

The bacterial cytoskeletal protein FtsZ is a GTPase and has structural homology to the eukaryotic cytoskeletal protein tubulin, but lacks significant sequence similarity. FtsZ is essential for bacterial cell division. It is responsible for Z-ring assembly in bacteria, which leads to bacterial cell division. Experiments show that the disclosed compounds are competitive inhibitors of GTP binding to FtsZ, and must bind in the GTP-binding site of FtsZ. Inhibition of FtsZ stops bacterial cell division and is a validated target for new antimicrobials. FtsZ is highly conserved among all bacteria, making it a very attractive antimicrobial target.

Applications:

- Therapeutic potential for curing bacterial infections *in vivo,* including for clinical and veterinary applications.
- Antiseptics in hospital sittings.
- Since FtsZ is structurally similar, but do not share sequence homology to eukaryotic cytoskeletal protein tubulin, these compounds may have antitumor properties against some cancer types or cell lines.

Advantages:

- Structurally distinct antimicrobial compounds.
- Attack newly validated antibacterial targeted protein FtsZ.
- These compounds have a unique mechanism of action which inhibit FtsZ by inhibiting FtsZ GTPase activity.
- Inhibit drug-susceptible and drug-resistant bacteria.

Development Status:

• Initial isolation and chemical structural characterization using NMR spectroscopy have been conducted.

• Antimicrobial testing against MRSA, *Enterrococcus faecium,* and VRE were conducted *in vitro* using a modified disk diffusion assay and microbroth liquid dilution assays.

• MIC_{50} values were determined using a microbroth dilution assay.

• Mode of action was elucidated and Saturation Transfer Difference (STD) NMR was conducted to map the binding epitope of one of these compounds in complex with recombinant FtsZ.

• Other experiments on different areas to further characterize these compounds and their mode of action are currently ongoing.

Market: The market potential for the disclosed compounds is huge due to the very limited number of new antibiotics developed in recent decades and the increased epidemic of infectious diseases. In fact, infectious diseases are the leading cause of death worldwide. In the United States alone, more people die from MRSA than from HIV (Journal of the American Medical Association, 2007) and more than 90,000 people die each year from hospital acquired bacterial infections (Centers for Disease Control).

According to the recent report, "*Antibiotics Resistance and Antibiotic Technologies: Global Markets*" published in November 2009, there has been a revival in the antibiotics sector over the past few years. Although some companies are developing analogues of existing antibiotic classes and putting them into clinical trials, other start-up biotechnology companies have come up with molecules that adopt new approaches in tackling antimicrobial infections. The antibacterials market can be split into two major groups: The community market and the hospital market. The smaller hospital market is expanding more rapidly, driven by rising resistant rates, a more severely ill patient population and newer, premium-priced injectable antibiotics. Interestingly, several big pharmaceutical companies have recently made strategic decisions to expand their presence in this sector by either acquiring other companies or in-licensing new compounds.

While the number of such new molecules in the approval stages is still low, R&D pipelines are promising, and several novel classes of antibiotics are in their early stages of development. This antibacterial R&D bailout that started about 5 years ago due to tougher regulatory conditions, restrictions on the use of antibiotics and emergence of resistance to newer antibiotics within 3 years has helped create global antimicrobial therapeutic market of $24 billion in 2008 with 14 products recording sales of more than $1 billion.

Inventors: Carole A. Bewley *et al.* (NIDDK).

Related Publications:

1. DJ Haydon *et al.* An inhibitor of FtsZ with potent and selective anti-staphylococcal activity. Science. 2008 Sept 19; 321(5896):1673–1675. [PubMed: 18801997].

2. NR Stokes *et al.* Novel inhibitors of bacterial cytokinesis identified by a cell-based antibiotic screening assay. J Biol Chem. 2005 Dec 2; 280(48):39709–39715. [PubMed: 16174771].

3. J Wang *et al.* Discovery of small molecule that inhibits cell division by blocking FtsZ, a novel therapeutic target of antibiotics. J Biol Chem. 2003 Nov 7; 278(45):44424–44428. [PubMed: 12952956].

4. P Domadia *et al.* Berberine targets assembly of Escherichia coli cell division protein FtsZ. Biochemistry. 2008 Mar 11; 47(10):3225–3234. [PubMed: 18275156].

5. P Domadia *et al.* Inhibition of bacterial cell division protein FtsZ by cinamaldehyde. Biochem Pharmacol. 2007 Sep 15:74(6):831–840. [PubMed: 17662960].

6. S Urgaonkar *et al.* Synthesis of antimicrobial natural products targeting FtsZ: (+/−)-dichamanetin and (+/−)-2‴-hydroxy-5″-benzylisouvarinol-B. Org Lett. 2005 Dec 8;7(25):5609–5612. [PubMed: 16321003].

Patent Status: U.S. Provisional Application No. 61/308,911 filed 27 Feb 2010 (HHS Reference No. E–116–2010/0–US–01).

Licensing Status: Available for licensing.

Licensing Contacts: Uri Reichman, PhD, MBA; 301–435–4616; *UR7a@nih.gov*; or John Stansberry, PhD; 301–435–5236; *stansbej@mail.nih.gov.*

Collaborative Research Opportunity: The National Institute of Diabetes and Digestive and Kidney Diseases, Laboratory of Bioorganic Chemistry is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate, or commercialize the chrysophaentin antibiotics. Please contact Cindy K. Fuchs at 301–451–3636 or *cfuchs@mail.nih.gov* for more information.

Hepatoma Cell Line That Can Be Infected With Both Hepatitis C and Human Immunodeficiency (HIV–1) Viruses

Description of Invention: It is estimated that 250,000 HIV patients in the U.S. are chronically infected with hepatitis C virus (HCV). Co-infection of HCV and HIV is associated with increased morbidity and mortality relative to mono-infection with either virus. Compared to HCV mono-infected individuals, HCV/HIV co-infected individuals experience rapid progression of liver disease, have higher HCV RNA viral levels, decreased cure rates, and increased toxic reactions to anti-HCV therapy. Understanding how these two viruses interact has been difficult because a cell culture system that supports HCV growth in the laboratory was not available. Recently, a continuous culture system to propagate HCV was discovered, however these cells do not express receptors that allow for infection by HIV. The inventors were able to genetically transform these cells (liver cancer) to express HIV receptors and successfully infect them with both viruses. This modified cell culture system will be useful for studying the interactions between HCV and HIV within the same cell and will serve as a model to understand the pathogenesis of HCV/HIV co-infection.

Applications:

• Use for clinical research to study the pathogenesis of HCV/HIV co-infection.

• Use in development of drugs to control both HIV and HCV infections.

Development Status:

• The cell line has been fully generated.

• Materials will be readily available if so requested.

Inventors: Shyam Kottilil, Xiaozhen Zhang, and Marybeth E. Daucher (NIAID).

Relevant Publication: Matthews GV and Dore GJ. HIV and hepatitis C coinfection. J Gastroenterol Hepatol. 2008 Jul;23(7 Pt 1):1000–1008. [PubMed: 18707597].

Patent Status: HHS Reference No. E–107–2009/0—Research Material. Patent protection is not being pursued for this technology.

Licensing Status: Available for licensing.

Licensing Contacts: Uri Reichman, PhD, MBA; 301–435–4616; *UR7a@nih.gov*; or John Stansberry, PhD; 301–435–5236; *js852e@nih.gov.*

Dated: June 21, 2010.

Richard U. Rodriguez,

Director, Division of Technology Development and Transfer, Office of Technology Transfer, National Institutes of Health.

[FR Doc. 2010–15476 Filed 6–24–10; 8:45 am]

BILLING CODE 4140–01–P