expected to rise as patients with HCV infection age and progress to more serious liver diseases (McHutchison HG, *et al.* Chronic Hepatitis C: An Age Wave of Disease Burden 2005. American Journal of Managed Care. 11: S286–S295). From 2010–2019, it is estimated that direct medical expenditures for HCV will be $10.7 billion; the costs of decompensated HCV infection (cirrhosis and hepatocellular carcinoma) are estimated to be $21.3 billion; and indirect costs associated with the loss of life under age 65 are estimated to be $54.2 billion (McHutchison HG, *et al.* 2005).

Chronic hepatitis C is a serious disease that can result in long-term health problems, including liver damage, liver failure, liver cancer, or even death. It is the leading cause of cirrhosis and liver cancer and the most common reason for liver transplantation in the United States. Approximately 8,000–10,000 people die every year from hepatitis C related liver disease.

Of every 100 people infected with the hepatitis C virus, about 75–85 people will develop chronic hepatitis C virus infection; of those,

- 60–70 people will go on to develop chronic liver disease.
- 5–20 people will go on to develop cirrhosis over a period of 20–30 years.
- 1–5 people will die from cirrhosis or liver cancer.

In spite of the urgent public health need for effective drugs and vaccines against HCV as discussed above, and in spite of the huge market potential for such medical remedies, there are no effective drugs or vaccines in existence as of yet due to technical difficulties, one of them, as mentioned at the outset, is the difficulties in growing and culturing the virus. The only drugs available to treat HCV at the present time are Ribavirin and Interferon but none constitute a real cure for the disease. They also can present severe side effects that make the use of them prohibitive in many cases. The subject technology may therefore present an opportunity for drug and vaccine companies to accelerate their research and development in this area.

Inventors: Rodney Russell, Jens Bukh, Robert H. Purcell, and Suzanne U. Emerson (NIAID).

Publication: RS Russell, JC Meunier, S Takikawa, K Faulk, RE Engle, J Bukh, RH Purcell, SU Emerson. Advantages of a single-cycle production assay to study cell culture-adaptive mutations of hepatitis C virus. Proc Natl Acad Sci USA. 2008 Mar 18;105(11):4370–4375.

Patent Status:

- U.S. Provisional Application No. 60/931,259 filed 21 May 2007 (HHS Reference No. E–171–2007/0–US–01).
- U.S. Provisional Application No. 61/066,773 filed 22 Feb 2008 (HHS Reference No. E–171–2007/1–US–01).
- PCT Application No. PCT/US2008/063982 filed 16 May 2008, which published as WO 2008/147735 on 04 Dec 2008 (HHS Reference No. E–171–2007/2–PCT–01).

Licensing Status: Available for licensing.

Licensing Contacts: Uri Reichman, PhD, MBA; 301–435–4616; *UR7a@nih.gov*; Rung C. Tang, JD, LLM; 301–435–5031; *tangrc@mail.nih.gov*.

Dated: March 24, 2009.

Richard U. Rodriguez,

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

[FR Doc. E9–7207 Filed 3–30–09; 8:45 am]

BILLING CODE 4140–01–P

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 any 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.

Mouse Monoclonal Antibodies to Human Tristetraprolin (TTP)

Description of Technology: TTP has been implicated in autoimmune and inflammatory diseases through its role as a regulator of the transcripts encoding several pro-inflammatory cytokines, including tumor necrosis factor alpha. However, it has been difficult to study endogenous TTP in man and other animals because it is expressed at very low levels in most cells and tissues, and because of the lack of mouse monoclonal antibodies directed at the human protein.

Scientists at the NIH have developed three mouse monoclonal antibodies (TTP–16, TTP–214 and TTP–409) that react to different regions of the human TTP to allow for the identification and localization of the TTP protein by standard protocols. Although validation has only been conducted at the level of western blotting to date, they do not appear to cross-react with other human members of the TTP protein family.

Potential Applications: Mouse monoclonal antibodies to human TTP will be useful in both clinical and basic research on a variety of inflammatory diseases and studies of mRNA destabilization. They can be used to identify or isolate TTP in cells or tissues by Western blotting, immunoprecipitation, immunohistochemistry, immunofluorescence, flow cytometry, and RNA super-shift assays, and can also be used in cross-linking and immunoprecipitation protocols.

Inventors: Elizabeth A. Kennington and Perry J. Blackshear (NIEHS).

Patent Status: HHS Reference No. E–123–2009/0—Research Tool. Patent protection is not being pursued for this technology.

Licensing Status: Available for licensing.

Licensing Contact: Fatima Sayyid, M.H.P.M.; 301–435–4521; *Fatima.Sayyid@hhs.nih.gov.*

Use of Anthrax Lethal Factor To Treat Cancer and Screening Methods for MAPK Kinase Protease Activity

Description of Technology: Anthrax toxin, produced by *Bacillus anthracis*, is composed of three proteins; protective antigen (PA), edema factor (EF), and lethal factor (LF). PA by itself has little or no toxic effect upon cells, but serves to bind cell surface receptors and mediate the entry of EF and LF into the cell. EF has been identified as an adenylate cyclase and together with PA forms a toxin (edema toxin; EdTx) which can induce edema formation when injected subcutaneously. LF and PA together form a toxin (lethal toxin; LeTx) which can cause rapid lysis of certain macrophage-derived cell lines *in vitro* as well as death when injected intravenously.

Indirect evidence had suggested that LF was a metalloprotease. However, the

intracellular target of LF remained unknown until recently when NIH scientists discovered that LF proteolytically inactivates mitogen activated protein kinase kinase 1 and 2 (MAPKK1, 2). Using oocytes of the frog *Xenopus laevis* as well as tumor derived NIH3T3 (490) cells expressing an effector domain mutant form of the human V12HaRas oncogene these scientists demonstrated that LF induced proteolysis of MAPKK 1 and 2, resulting in their irreversible inactivation. MAPKK 1 and 2 are components of the mitogen activated protein kinase (MAPK) signal transduction pathway, an evolutionarily conserved pathway that controls cell proliferation and differentiation in response to extracellular signals and also plays a crucial role in regulating oocyte meiotic maturation. Further, the MAPK pathway has been shown to be constitutively activated in many primary human as well as in tumor-derived cell lines. Consistent with this, treatment of V12Ha-Ras transformed NIH 3T3 cells with LeTx inhibits cell proliferation and causes their reversion to a non-transformed phenotype.

This invention specifically relates to *in vitro* and *ex vivo* methods of screening for modulators, homologues, and mimetics of LF mitogen activated protein kinase kinase (MAPKK) protease activity. Applications for this technology could be:

• A novel tool (LF) for the study of the cellular role of the MAPK pathway in normal or tumor cells.

• Investigation of LF for developing inhibitors for cancer therapy. By analyzing structural-functional relationships, additional compounds with improved specificity, increased potency, and reduced toxicity can be generated. Mimetics which block MAPKK activity or the determination of mechanisms of regulation of proteases that target MAPKK at or near the same site targeted by LF could be developed.

• A protease-based assay for LF by using a peptide to test for LF cleavage. There is no commercial test for anthrax. This assay could be used for testing soldiers for anthrax exposure. Characterization of the interaction between LF and MAPKK at the amino acid level may lead to the generation of inhibitors which may prove useful in treating anthrax.

Inventors: Nicholas S. Duesbery (NCI), Craig Webb (NCI), Stephen H. Leppla (NIDCR), George F. Vande Woude (NCI).

Patent Status:

U.S. Patent 6,485,925 issued 26 Nov. 2002 (HHS Reference No. E–066–1998/0–US–06).

U.S. Patent 6,893,835 issued 17 May 2005 (HHS Reference No. E–066–1998/0–US–07).

U.S. Patent 6,911,203 issued 28 June 2005 (HHS Reference No. E–066–1998/0–US–08).

U.S. Patent 7,056,693 issued 06 June 2006 (HHS Reference No. E–066–1998/0–US–10).

U.S. Patent 7,183,071 issued 27 Feb. 2007 (HHS Reference No. E–066–1998/0–US–11).

International rights available.

Licensing Status: Available for licensing.

Licensing Contact: Surekha Vathyam, PhD; 301–435–4076; *vathyams@mail.nih.gov.*

This abstract updates the version published in the **Federal Register** on Friday, March 13, 2009 (74 FR 10947–10948), to correct the reference numbers from E–068–1998 to E–066–1998.

Dated: March 25, 2009.

Richard U. Rodriguez,

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

[FR Doc. E9–7223 Filed 3–30–09; 8:45 am]

BILLING CODE 4140–01–P

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.

Vaccine for Shigella sonnei

Description of Technology: Shigellosis, an inflammatory enteric infection is on the World Health Organization's priority list of disease to be prevented. It can be prevented by O-specific polysaccharide (O-SP)-protein conjugate vaccines in adults. But the highest incidence and severity of *S. sonnei* shigellosis is in young children and the O-SP-protein conjugate that was effective in adults cannot overcome the age-related immunogenicity of vaccines in this age group. Thus, a better immunogen is needed.

The immunogen claimed in this application uses O-SP formed by isolation of low molecular mass of O-SP-core fragments from the native product that allows a conjugate to be formed with a ''sun'' configuration as opposed to ''lattice'' type conjugates made previously, based on a synthetic saccharide conjugate of *S. dysenteriae* type 1 that induced significantly higher antibody levels than the ''lattice'' type conjugate. IgG antibody levels induced in young outbred mice with the ''sun'' configuration *S. sonnei* conjugate were higher than conjugates made with the full length O-SP.

This application claims the vaccine compositions described above, methods of making the vaccine compositions of the technology, and methods of preventing and/or treating Shigellosis.

Application: Development of *Shigella sonnei* vaccines and diagnostics.

Advantages: Known regulatory path for conjugate vaccines, potential reduction in number of doses of vaccine, pediatric vaccine.

Development Status: Vaccine candidates have been synthesized and preclinical studies have been performed.

Inventors: John B. Robbins (NICHD), Rachel Schneerson (NICHD), Joanna Kubler-Kielb (NICHD), Christopher P. Mocca (NICHD), *et al.*

Publications:

1. J Kubler-Kielb et al. The elucidation of the structure of the core part of the LPS from *Plesiomonas shigelloides* serotype O17 expressing O-polysaccharide chain identical to the *Shigella sonnei* O-chain. Carbohydr Res. 2008 Dec 8;343(18):3123–3127.

2. JB Robbins *et al.* Shigella sonnei O-specific oligosaccharide-core-protein conjugates: synthesis, characterization and immunogenicity in mice. Proc Natl Acad Sci. 2009; doi 10.1073/pnas.0900891106.

Patent Status: U.S. Provisional Application No. 61/089,394 filed 15 Aug 2008 (HHS Reference No. E–308–2008/0–US–01)