associated with current prostate cancer therapies

Development Status: Preclinical stage of development.

Inventors: Pastan (NCI) *et al.*

Patent Status:

- US Patent 7,816,087 (E–005–2002/0–US–03)—Issued
- US Patent Application 12/193,604 (E–005–2002/0–US–05)—Allowed
- EP Patent Application 02795643.2 (E–005–2002/0–EP–04)—Pending

For more information, see:

- Das *et al.* "Topology of NGEP, a prostate-specific cell:cell junction protein widely expressed in many cancers of different grade level." *Cancer Res.* 2008 Aug 1; 68(15):6306–12
- Das *et al.* "NGEP, a prostate-specific plasma membrane protein that promotes the association of LNCaP cells." *Cancer Res.* 2007 Feb 15; 67(4):1594–601
- Bera *et al.* "NGEP, a gene encoding a membrane protein detected only in prostate cancer and normal prostate." *Proc Natl Acad Sci U S A.* 2004 Mar 2; 101(9):3059–64.

Licensing Status: Available for licensing

Licensing Contact: David A. Lambertson, PhD; 301–435–4632; *lambertsond@mail.nih.gov*.

Stem Cells That Transform To Beating Cardiomyocytes

Description of Technology: Many people die each year of congestive heart failure occurring from a variety of causes including cardiomyopathy, myocardial ischemia, congenital heart disease and valvular heart disease resulting in cardiac cell death and myocardial dysfunction. When cardiomyocytes are not replaced in adult myocardial tissue, physiologic demands on existing, healthy cardiomyocytes can lead to hypertrophy. Heart transplants have been the only recourse for patients in end-stage heart disease however this is complicated by lack of donors, tissue incompatibility and high cost.

An alternative approach to heart transplantation is to generate cardiomyocytes from stem cells *in vitro* that can be used in the treatment of cardiac diseases characterized by myocardial cell death or dysfunction.

This invention discloses a novel isolated population of stem cells, called spoc cells, isolated from skeletal muscle, that can be induced, either *in vivo* or *in vitro,* to differentiate into cardiomyocytes. Spoc cells may be differentiated and utilized for screening agents that affect cardiomyocytes and as therapeutic agents in the treatment of cardiac MI.

Potential Applications and Advantages: This invention is an alternative approach to heart transplantation which is typically complicated by lack of donors, tissue incompatibility and high cost.

Inventors: Neal D. Epstein (NHLBI), *et al.*

Related Publication: SO Winitsky, *et al.* Adult murine skeletal muscle contains cells that can differentiate into beating cardiomyocytes in vitro. PLoS Biol. 2005 Apr;3(4):e87, doi:10.1371/journal.pbio.0030087. [PubMed: 15757365]

Patent Status:

- Issued Australian Patent No. 2002337949 (HHS Ref. No. E–329–2001/0–AU–03)
- Issued Japanese Patent No. 4377690 (HHS Ref. No. E–329–2001/0–JP–04)
- Allowed Canadian Patent Appl. No. 2464088 (HHS Ref. No. E–329–2001/0–CA–05)

Licensing Status: Available for licensing.

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

Dated: February 16, 2011.

Richard U. Rodriguez,

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

[FR Doc. 2011–4170 Filed 2–23–11; 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.

Recombinant BoCPB: An Enzymatic Reagent for Removing Disordered, Positively Charged C-terminal Residues From Recombinant Proteins

Description of Technology: Affinity tags are commonly used to facilitate the purification of recombinant proteins, but concerns about the potential impact of the tags on the biological activity of the target proteins makes it necessary to remove them in most cases. Proteases with high sequence specificity, such as tobacco etch virus (TEV) protease, are typically used for this purpose. Affinity tags on the amino-terminus (N-terminal tag) can be cleaved by TEV protease to yield a recombinant protein product with only one nonnative residues on its C-terminus (usually G or S). In contrast, removal by TEV protease of tags added to the carboxy-terminus (C-terminal tag) of proteins has proven to be somewhat problematic, yielding a recombinant protein product with six nonnative residues on its C-terminus (ENLYFQ). Since C-terminal affinity tags are potentially very useful, particularly when used in combination with N-terminal tags in an "affinity sandwich" format, it would be very desirable to have a reagent to remove the C-terminal affinity tags without leaving extra nonnative residues behind.

Previously, the NIH inventors created a tagged version of a fungal carboxypeptidase from *Metarhizium anisopliae* (MeCPA) that is capable of removing histidine residues and many other types of amino acids from the C-termini of recombinant proteins. The only limitation of the MeCPA enzyme is that it does not remove positively charged residues (arginine and lysine). To overcome this drawback of MeCPA, the NIH inventors have now cloned, expressed and purified bovine carboxypeptidase B (BoCPB), which is specific for the removal of these positively charged residues. Like the genetically engineered MeCPA, the recombinant BoCPB has a C-terminal polyhistidine tag. This feature facilitates the purification of the enzyme, and, because this His-tag as been engineered to be immune to the action of MeCPA and BoCPB, it can be used to separate the enzymes from the products of a carboxypeptidase digest. By using a mixture of MeCPA and BoCPB, it should be possible to remove any short affinity tag along with disordered C-terminal residues of a recombinant protein with the exception of proline, which can be used as a "stop sign" to facilitate the

production of a digestion product with a homogeneous C-terminus.

Applications

• Removal short C-terminal affinity tags from recombinant proteins without leaving any nonnative residues behind when used in combination with MeCPA.

• Identification and removal of disordered residues from the C-termini of native (untagged) proteins, thereby increasing their propensity to crystallize.

Inventors: David Waugh *et al.* (NCI)

Related Publications: None.

Patent Status: HHS Reference No. E–027–2011/0—Research Tool. Patent protection is not being pursued for this technology.

Licensing Status: Available for licensing.

Licensing Contact: Whitney Hastings; 301–451–7337; hastingw@mail.nih.gov.

Collaborative Research Opportunity: The National Cancer Institute, Protein Engineering Section, is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate, or commercialize recombinant BoCPB and/or similar enzymes. Please contact John Hewes, PhD at 301–435–3121 or *hewesj@mail.nih.gov* for more information.

A DsbC Expression Vector for the Production of Proteins With Disulfide Bonds in the Cytosol of *E. coli*

Description of Technology: Many proteins of biomedical importance contain disulfide bonds and such proteins are notoriously difficult to produce in *Escherichia coli.* Current methods to address this problem either export the protein to the periplasmic space, which is a more favorable redox environment for disulfide bond formation, or utilize genetically modified strains of *E. coli* to alter the redox potential of the cytosol (such as "Origami" or "Shuffle" cells). Unfortunately, these methods generally result in very low yields of the desired product, thus emphasizing the need for a novel method.

The NIH inventors have designed a DsbC expression vector that can be used to improve the yield of correctly oxidized recombinant proteins in the cytosol of *E. coli.* By overproducing DsbC on a separate plasmid and coexpressing it with carboxypeptidases in the cytosol of *E. coli,* the inventors were able to increase the amount of properly oxidized, active carboxypeptidases that could be recovered from the cytosol by at least 4-fold. Further, they believe that co-expression of DsbC from a multicopy plasmid vector will also improve the yield of other disulfide bond-containing proteins in *E. coli.*

Applications: Improving the yield of correctly oxidized recombinant proteins in the cytosol of *E. coli.*

Advantages: Substantial increase in the amount of active carboxypeptidases recovered from the cytosol and improved yield of disulfide bond-containing proteins in *E. coli.*

Inventors: David Waugh *et al.* (NCI)

Related Publications

1. Prinz WA, Aslund F, Holmgren A, Beckwith J. The role of the thioredoxin and glutaredoxin pathways in reducing protein disulfide bonds in the *Escherichia coli* cytoplasm. J Biol Chem. 1997 Jun 20;272(25):15661–15667. [PubMed: 9188456]

2. Levy R, Weiss R, Chen G, Iverson BL, Georgiou G. Production of correctly folded Fab antibody fragment in the cytoplasm of *Escherichia coli* trxB gor mutants via the coexpression of molecular chaperones. Protein Expr Purif. 2001 Nov;23(2):338–347. [PubMed: 11676610]

Patent Status: HHS Reference No. E–028–2011/0—Research Tool. Patent protection is not being pursued for this technology.

Licensing Status: Available for licensing.

Licensing Contact: Whitney Hastings; 301–451–7337; *hastingw@mail.nih.gov.*

Dated: February 16, 2011.

Richard U. Rodriguez,

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

[FR Doc. 2011–4168 Filed 2–23–11; 8:45 am]

BILLING CODE 4140–01–P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Laboratory Animal Welfare: Proposed Adoption and Implementation of the Eighth Edition of the Guide for the Care and Use of Laboratory Animals

AGENCY: National Institutes of Health, HHS.

ACTION: Notice.

SUMMARY: The National Institutes of Health (NIH) requests public comments on (1) NIH's adoption of the eighth edition of the *Guide for the Care and Use of Laboratory Animals (Guide)* as a basis for evaluation of institutional programs receiving or proposing to receive Public Health Service (PHS) support for activities involving animals; and (2) if NIH decides to adopt the eighth edition of the *Guide,* NIH's proposed implementation plan, which would require that institutions complete at least one semiannual program and facility evaluation using the eighth edition of the *Guide* as the basis for evaluation by March 31, 2012. NIH will consider comments on (1) the adoption of the *Guide* and (2) the implementation plan.

DATES: Written comments on the adoption and implementation of the eighth edition of the *Guide* must be received by NIH within 30 days of the date of publication of this notice in order to be considered.

ADDRESSES: Public comments may be entered at *http://grants.nih.gov/grants/olaw/2011guidecomments/add.htm.* Comments will be made publicly available. Personally identifiable information (except organizational affiliations) will be removed prior to making comments publicly available.

FOR FURTHER INFORMATION CONTACT: Office of Laboratory Animal Welfare, Office of Extramural Research, National Institutes of Health, RKL1, Suite 360, 6705 Rockledge Drive, Bethesda, MD 20892–7982; telephone 301–496–7163.

SUPPLEMENTARY INFORMATION:

I. Background

The *Guide,* first published in 1963, is a widely accepted primary reference on animal care and use. Recommendations in the *Guide* are based on published data, scientific principles, expert opinion, and experience with methods and practices that are determined to be consistent with high quality, humane animal care and use. The eighth edition of the *Guide* was published in January 2011 following a study by the Institute for Laboratory Animal Research of the National Academy of Sciences (NAS). The NAS study process began in 2008 and followed the requirements of Section 15 of the Federal Advisory Committee Act. The NAS study process is described at the NAS Web site: *http://www.nationalacademies.org/studyprocess/index.html.*

Since 1985, the PHS Policy on Humane Care and Use of Laboratory Animals, authorized by Public Law 99–158, 42 U.S.C. 289d, and incorporated by reference at 42 CFR 52.8 and 42 CFR 52a.8, has required that institutions receiving PHS support for animal activities base their animal care and use programs on the current edition of the *Guide* and comply, as applicable, with the Animal Welfare Act and other Federal statutes and regulations relating