NIH RePorter

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NIH RePORTER

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NIH ARRA Projects Only: SELECT

Term Search:
Logic: (•) And ( ) Or

Hint: Multiple terms are accepted. Separate each term with a space. You may also use terms in " " (double quotes) for exact terms match.

Project Title:

Project Number:
Format: 5R01CA012345-04
Use '%' for wildcard
Enter multiple project numbers

Principal Investigator:
(Last Name, First Name)
Use '%' for wildcard

Organization:

DUNS Number:

Department: SELECT

Educational Institution Type: SELECT

City: boise
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State: Idaho SELECT

Country: All SELECT

Congressional District: SELECT

Fiscal Year (FY): Active Projects SELECT
Current FY is 2011

NIH Spending Category: SELECT

Agency/Institute/Center: All SELECT
(•) Admin ( ) Funding

Funding Mechanism: All SELECT

Award Type: All SELECT

Activity Code: All SELECT

Exclude Subprojects: ☐

Study Section: All SELECT

RFA/PA:
Format: RFA-IC-09-003 or PA-09-003
Use '%' for wildcard
Funding Opportunities and Notices

Public Health Relevance:

Project Start Date: >= mm/dd/yyyy
Format: mm/dd/yyyy

Project End Date: <= mm/dd/yyyy
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Award Notice Date: > mm/dd/yyyy
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Newly Added Projects Only: ☐
Projects added since 04/02/2011

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Search Results

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There were **62** results matching your search criteria.

Records per page 50

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Project Number	Sub #	Project Title	Contact Principal Investigator	Organization	FY	Admin IC	Funding IC	FY Total Cost by IC
1C06RR020533-01A1		PAR04-122, EXTRAMURAL RESEARCH FACILITIES CONSTRUCTION:*	RUDIN, MARK JOSEPH	BOISE STATE UNIVERSITY	2010	NCRR	NCRR	$3,978,104
1R15CA141358-01A1		PREFERENTIAL CYTOTOXIC ACTIONS OF METAL OXIDE NANOPARTICLES AGAINST CANCER	WINGETT, DENISE G	BOISE STATE UNIVERSITY	2010	NCI	NCI	$211,500
1R15HD059949-01		REGULATION OF CELL SIGNALING BY COL11A1 DURING CRANIOFACIAL DEVELOPMENT IN THE ZE	OXFORD, JULIA T	BOISE STATE UNIVERSITY	2009	NICHD	NICHD	$211,500
1R15CA137510-01A1		ONCOSTATIN M-INDUCED VEGF IN HUMAN BREAST CANCER IS HIF1A-MEDIATED	JORCYK, CHERYL LYNN	BOISE STATE UNIVERSITY	2009	NCI	NCI	$211,500
2R15CA113464-02		EVALUATION OF DNA CROSS-LINKING BY AZIRIDINOMITOSENES	WARNER, DON L	BOISE STATE UNIVERSITY	2009	NCI	NCI	$218,815
1R15GM087646-01		THERMODYNAMICS-INSPIRED IMPROVEMENT OF RNA SEARCH IN GENOMIC DATABASES	SMITH, JENNIFER ANNE	BOISE STATE UNIVERSITY	2009	NIGMS	NIGMS	$211,500
1R15DK088749-01		ROLE OF MONOCYTE CHEMOATTRACTANT PROTEIN (MCP)-1 IN LIVER REGENERATION	MITCHELL, KRISTEN ANDREA	BOISE STATE UNIVERSITY	2010	NIDDK	OD	$404,386
5I01BX000395-02		EFFECTS OF NSAIDS ON THE GENESIS OF STREPTOCOCCAL MYONECROSIS AFTER TRAUMA	BRYANT, AMY EVELYN	BOISE VA MEDICAL CENTER	2011	VA		
3X98SM001697-11S2		PROTECTION & ADVOCACY FOR INDIVIDUALS WITH MNTL ILLNESS	STILES, CORIANNA	DISABILITY RIGHTS IDAHO, INC.	2011	CMHS		
3X98SM001697-11S1		PROTECTION & ADVOCACY FOR INDIVIDUALS WITH MNTL ILLNESS	STILES, CORIANNA	DISABILITY RIGHTS IDAHO, INC.	2011	CMHS		
3X98SM001697-10S1		PROTECTION & ADVOCACY FOR INDIVIDUALS WITH MNTL ILLNESS	STILES, CORINNA	DISABILITY RIGHTS IDAHO, INC.	2010	CMHS		
2X98SM001697-10		PROTECTION & ADVOCACY FOR INDIVIDUALS WITH MNTL ILLNESS	STILES, CORINNA	DISABILITY RIGHTS IDAHO, INC.	2010	CMHS		
2X98SM001697-11		PROTECTION & ADVOCACY FOR INDIVIDUALS WITH MNTL ILLNESS	STILES, CORIANNA	DISABILITY RIGHTS IDAHO, INC.	2011	CMHS		
1H79SP017028-01		DRUGFREE IDAHO COMMUNITY COALITION	KING, MARIANNE	DRUG FREE IDAHO, INC.	2010	CSAP		
5H79TI021632-02		EASTER SEALS-GOODWILL NORTHERN ROCKY MOUNTAIN	VALENTINE, DELANIE	EASTER SEALS-GOODWILL NORTHERN ROCKY MOU	2010	CSAT		
		CHILDREN'S MENTAL HEALTH	SANTILLAN,	IDAHO FED OF				

Project Information

Project Number: 1R43GM088926-01
Contact Principal Investigator: COPPOLA, JULIA
Title: IDENTIFICATION OF SMALL MOLECULE FURIN-LIKE PROTEASE INHIBITORS
Awardee Organization: BOISE TECHNOLOGY, INC.

Abstract Text:

DESCRIPTION (provided by applicant): The overall goal of this proposal is to develop a non-invasive, real-time, quantifiable cell-based assay to detect and report on furin-like protease activity to identify small molecule inhibitors of furin-like proteases by high throughput screening (HTS). Furin-like proteolytic enzymes are members of the Proprotein Convertase (PC) family that serve to process immature latent proteins, including growth factors and hormones, receptors, plasma proteins, and matrix metalloproteases containing a specific recognition cleavage motif (RX(K/R)R?), to their mature or functional forms. Processing by furin-like protease family members, such as furin, PACE4, PC5/6, and PC7/8, contributes to development of several degenerative diseases, such as Alzheimer's disease, arteriolosclerosis, and arthritis. Furin-like protease expression and activity is necessary for processing substrates that enhance the cancer phenotype, contributing to cell transformation, tumor progression, metastasis, and angiogenesis. Further, furin-like proteolytic processing of viral coat glycoproteins is required for propagation of infectious viruses such as H5N1 avian influenza, HIV-1, human papillomavirus, ebola, yellow fever, and SARS-CoV. Furin-like proteases activate bacterial toxins found in anthrax, shigella, botulinum, pseudomonas, and diphtheria. Inhibition of furin-like proteolytic activity has been shown to halt toxicity of bacterial toxins, infectivity of viruses, and motility of cancer cells. We hypothesize that inhibiting furin-like proteolytic activity may lead to development of a therapeutic drug that inhibits a broad-spectrum of furin-like protease mediated disease. To aid in experimentation of this hypothesis, in specific aim 1A, we will develop a furin-like protease reporter, which non-invasively and quantitatively senses furin-like protease activity in real time and characterize its specificity and sensitivity to furin-like protease activity. In specific aim 1B, we will miniaturize this assay to adapt it to HTS. In specific aim 1C, we will perform HTS of several specialized small molecule libraries containing 71K compounds to identify furin-like protease inhibitory molecules. In specific aim 2A, a secondary screen will be employed to eliminate false positives, cytotoxic, and non-specific inhibitory molecules. Potency will be assessed by exposing the furin-reporter cells to various concentrations of the candidate compound to determine pIC50 values. In specific aim 2B, we subject the five most efficacious compounds to further validation by determining inhibition (IC50 value) of furin processing of physiological substrates using western blot analysis. Additionally, cytotoxicity will be gauged using cell proliferation assays. In specific aim 2C, the compound's ability to inhibit furin will be confirmed using purified furin in vitro. We will also investigate the molecule's specificity by performing in vitro inhibition assays with other serine proteases. At the conclusion of phase I, we expect to have identified at least one compound or derivative with IC50 < 1uM that will be the subject of further analysis and targeted for drug development to treat furin-mediated diseases such as anthrax and cancer in subsequent years. PUBLIC HEALTH RELEVANCE: Millions of people worldwide are exposed to and/or contract furin-like protease mediated diseases such as HIV-1, ebola, avian influenza, human papillomavirus, yellow fever, SARS-CoV, anthrax, botulinum, measles, pseudomonas, shigella, diphtheria, arthritis, arteriosclerosis, Alzheimer's disease, and malignant cancer. Instead of searching for a therapeutic to address each pathogen and disease individually, targeting a single cellular protease may allow defeat of a broad spectrum of furin-like protease mediated disease. The studies described here will result in identification of a molecule that inhibits furin-like proteases and thus may be used to treat the diseases listed above.

Public Health Relevance Statement:

Project Narrative Millions of people worldwide are exposed to and/or contract furin-like protease mediated diseases such as HIV-1, ebola, avian influenza, human papillomavirus, yellow fever, SARS-CoV, anthrax, botulinum, measles, pseudomonas, shigella, diphtheria, arthritis, arteriosclerosis, Alzheimer's disease, and malignant cancer. Instead of searching for a therapeutic to address each pathogen and disease individually, targeting a single cellular protease may allow defeat of a broad spectrum of furin-like protease mediated disease. The studies described here will result in identification of a molecule that inhibits furin-like proteases and thus may be used to treat the diseases listed above.

NIH Spending Category:

Anthrax; Biotechnology; Cancer; Emerging Infectious Diseases; Infectious Diseases

Project Terms:

Address; Alkaline Phosphatase; Alzheimer's Disease; angiogenesis; Anthrax disease; anthrax protective factor; Antigens; Arteriolosclerose; Arteriosclerosis; Arthritis; Avian Influenza; Bacterial Toxins; base; Biological Assay; botulinum; cancer cell; Cell Line; cell motility; Cell Proliferation; cell transformation; Cells; Cellular Assay; Chemicals; Cleaved cell; Collection; Contracts; cytotoxic; cytotoxicity; Degenerative Disorder; Development; Diphtheria; Disease; Dose; drug development; Drug usage; Ensure; Family; Family member; Glycoproteins; Goals; Growth Factor; high throughput screening; HIV-1; Hormone Receptor; Human Papillomavirus; improved; In Vitro; Influenza A Virus, H5N1 Subtype; inhibitor/antagonist; Inhibitory Concentration 50; Lead; Life; Malignant - descriptor; Malignant Neoplasms; Matrix Metalloproteinases; Measles; Mediating; member; Metalloproteases; miniaturize; MMP14 gene; Monitor; Neoplasm Metastasis; Oranges; pathogen; Pathway interactions; Peptide Hydrolases; Pharmaceutical Preparations; Phase; Phenotype; Physiological; Physiological Processes; Plasma Proteins; Poisons; Process; Property; Proprotein Convertases; Protease Inhibitor; Proteins; Proteolytic Processing; Pseudomonas; public health relevance; Reporter; Reporting; research study; SARS coronavirus; scaffold; Sensitivity and Specificity; Serine Protease; Shigella; small molecule; small molecule libraries; Solubility; Specificity; System; Testing; Therapeutic; therapeutic development; Time; Toxic effect; tumor progression;