

# FCR 2

Office of the President  
December 9, 2003

Members, Board of Trustees:

## PATENT ASSIGNMENT REPORT

Recommendation: that the patent assignment report for the period August 1, 2003 through October 31, 2003 be accepted.

Background: FCR 5, dated March 4, 1997, authorized that all future copyright and patent filings and prosecutions be conducted by the University of Kentucky Research Foundation (UKRF), and that the Vice President for Research and Graduate Studies or his designee be authorized to execute any needed documents to obtain appropriate patent or copyright protection. Quarterly reports on patent and copyright applications are to be submitted to the Finance Committee of the Board.

---

Action taken:  Approved     Disapproved     Other \_\_\_\_\_

PATENT ASSIGNMENT  
QUARTERLY FOR THE PERIOD AUGUST 1, 2003 THROUGH OCTOBER 31, 2003

Patents

The following assignments on behalf of the Board of Trustees to the University of Kentucky Research Foundation have been executed:

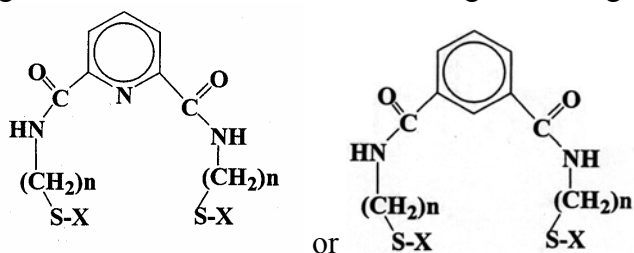
1. U.S. Patent Application Serial Number: (to be assigned), filed August 5, 2003, titled "METHODS FOR SPLICING PLANT GENES" Inventors: Dr. Joseph Chappell, Dr. Mark A. Schoenbeck and Dr. Bryan T. Greenhagen The present invention provides a method for the recovery of full-length cDNAs for plant genes containing introns. The method utilizes *Agrobacterium-mediated* transient expression coupled with an RT-PCR assay to facilitate expression cloning of processed transcripts. Subsequent expression of intron-less cDNAs in a suitable prokaryotic or eucaryotic host provides for direct functional testing of the encoded gene product.
2. U.S. Patent Application Serial Number: 10/442,330, filed May 21, 2003, titled "NONPARAMETRIC CONTROL CHART FOR THE RANGE" Inventor: Dr. Arnold J. Strombert The present invention provides a method of establishing the number of subsets of a dataset that have a range of the difference between any two datapoints within the dataset, and computing a control chart for the range based thereon. In another aspect, a software program for accomplishing the method of the present invention is provided. The method of the invention allows monitoring variability of a product being produced by a particular piece of machinery, of a process conducted by the machinery, or of a product stream generated thereby, accurately detecting changes in variability in real time. The true distribution of the data is reflected, and the desired result is achieved without requiring an inordinate number of computations.
3. U.S. Patent Application Serial Number: 10/459,909, filed June 12, 2003, titled "METHOD AND COMPOSITION FOR INHIBITION OF BACTERIOPHAGE PROLIFERATION IN DAIRY FERMENTATIONS" Inventors: Dr. Clair L. Hicks and Dr. Iwan Surjawan The present invention provides a method for inhibiting bacteriophage proliferation in a food fermentation process, comprising addition of an acid amino acid to a bacterial starter culture used to ferment said food product. Typically, the acid amino acid will be monosodium glutamate, and the food fermentation process will be a cheese-making process. In another aspect, a bacterial starter culture for use in a food fermentation process is provided, comprising a nutrient media, at least one lactic acid producing bacteria, and an acid amino acid in an amount sufficient to inhibit bacteriophage proliferation in the starter culture.
4. U.S. Patent Application Serial Number: (to be assigned), filed July 17, 2003, titled "METHOD AND KIT FOR DETERMINATION OF PROSTACYCLIN IN

PLASMA” Inventors: Dr. Sylvia Daunert, Mr. Michael Poon, Ms. Vrvee Desai and Ms. Sapna K. Deo The present invention provides a solid-phase immunoassay for 6-keto-Prostaglandin F1a the stable hydrolysis product of prostacyclin (Prostaglandin 12). Prostacyclin, a potent vasodilator with anti-platelet and anti-proliferative properties, is an effective treatment for primary pulmonary hypertension and pulmonary arterial hypertension associated with scleroderma and scleroderma-like syndrome. Levels of 6-keto-Prostaglandin F1a can be directly correlated with levels of prostacyclin. Therefore, 6-keto-Prostaglandin F1a has become the indicator of choice to measure prostacyclin levels. The single step immunoassay for 6-keto-Prostaglandin F1a uses the bioluminescent protein aequorin as a label. Analyte-label conjugates were constructed by linking the carboxyl group of 6- keto-Prostaglandin F1a and lysine residues of aequorin by chemical conjugation methods. The binding properties of 6-keto-Prostaglandin F1a towards its antibody and the bioluminescent properties of aequorin are retained in the conjugate. The concentration of 6-keto-Prostaglandin F1a after extraction from plasma shows good correlation with the concentration of 6-keto-Prostaglandin F1a obtained without prior extraction of the same plasma sample. The assay allows the measurement of 6-keto- Prostaglandin F1a directly in plasma without any pre-treatment of the samples, which results in a much simpler method with a faster assay time.

5. U.S. Patent Application Serial Number: (to be assigned), filed October 8, 2003, titled: “INHIBITORS OF PLANT PEPTIDE DEFORMYLASE FOR USE AS BROAD-SPECTRUM HERBICIDES AND METHODS FOR IDENTIFYING THE SAME” Inventors: Dr. Robert L. Houtz, Dr. Lynette Dirk and Dr. Mark Williams The present invention provides a method of identifying herbicides and the use of inhibitors of plant peptide deformylase as broad spectrum herbicides.
6. U.S. Patent Application Serial Number: (to be assigned), filed August 12, 2003, titled “PATHOGEN-INDUCED PROMOTERS RELATED APPLICATIONS” Inventor: Dr. Christopher B. Lawrence The present invention provides a method for identifying pathogen-inducible plant promoters. The promoters control expression of "hypersensitive response" proteins, including a protease inhibitor, an isocitrate lyase, and a glycoprotein. Heterologous gene sequences are produced by operably linking a promoter according to the present invention with a gene to be expressed in a transformed plant. Transformed plants are made by transforming a vector with a heterologous gene according to the present invention, and then transforming the plant with the transformed vector. The transformed plants are capable of expressing a pre-selected protein in response to challenge by a plant pathogen, for example tobacco blue mold, *P. tabacina*.
7. U.S. Patent Application Serial Number: (to be assigned), filed September 24, 2003, titled: “NANOPARTICLE-BASED VACCINE DELIVERY SYSTEM CONTAINING ADJUVANT” Inventors: Dr. Russell J. Mumper and Mr. Zhengrong Cui The present invention provides a vaccine delivery system comprising adjuvant and nanoparticles comprising an immunogenic agent. A

method of immunizing an animal by administering a nanoparticle-based vaccine delivery system is also provided.

8. U.S. Patent Application Serial Number: (to be assigned), filed September 10, 2003, titled "LINEAR ACTUATOR USING SHAPE MEMORY WIRE WITH CONTROLLER" Inventors: Dr. Robert R. Vallance, Dr. Bruce L. Walcott, Dr. James E. Lump and Dr. Aravind Balasubramanian The present invention provides a linear actuator, comprising a housing defining an interior channel, a stop extending from the housing and displaceable relative to the housing, and at least one wire formed of a shape-memory alloy, the wire being attached at a first end to the stop and at a second end to the housing. When heated to a predetermined temperature, the wire applies a pulling force to the stop to cause the stop to slide in a first direction into the housing interior channel. A spring located in the housing interior channel applies a biasing force to the stop in a second direction counter to the first direction when the wire cools, thereby returning the stop to the unactuated position. A wire heater is provided, which may be an electrical source for resistive heating of the wire. Multiple actuators of the present invention may be configured in parallel to increase the force generated by the wires. In yet another embodiment, the actuators of the invention may be arranged in a serial configuration for controlling a rotary or carousel dispenser.
  
9. U.S. Patent Application Serial Number: (to be assigned), filed October 16, 2003, titled "METHODS AND ANIMAL MODEL FOR ANALYZING AGE-RELATED MACULAR DEGENERATION" Inventor: Dr. Jayakrishna Ambati The present invention provides methods for testing candidate drugs for treatment of age-related macular degeneration. Cd2-deficient, and Ccr2-deficient mice are used to determine the effect of candidate drugs and treatments on development of age-related macular degeneration. Also provided is a Ccl2-deficient, Ccr2-deficient dual knockout mouse, which is a useful model for age-related macular degeneration.
  
10. U.S. Patent Application Serial Number: (to be assigned), filed September 5, 2003, titled "METHOD FOR PREVENTION OF SOLID DISSOLUTION THROUGH COVALENT LIGAND BONDING" Inventor: Dr. David A. Atwood The present invention provides methods for preventing dissolution of solid substrates, such as metal leaching from coal or corrosion of metal surfaces. The method comprises coating the solid substrate with a chelate ligand having the general structure:



where n is an integer from 1-4, and X is selected from the group consisting of hydrogen, lithium, sodium, potassium, rubidium, cesium, and francium. A method

for preventing metal leaching from coal, such as acid mine drainage or metal leachate in runoff from coal refuse piles, is also provided.