FCR 2

Office of the President
April 2, 2002

Members, Board of Trustees:

PATENT ASSIGNMENT REPORT

Recommendation: that the patent assignment report for the period December 1, 2001 through March 31, 2002, 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 December 1, 2001 through March 31, 2002

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 Serial Number: (to be assigned), filed (to be filed), titled "MAGNETOELASTIC SENSOR FOR CHARACTERIZING PROPERTIES OF THIN-FILM/COATING." Inventors: Leonidas G. Bachas, Gary Barrett, Craig A. Grimes, Dimitris Kouzoudis and Mr. Stefan Schmidt. This invention provides an apparatus for determining elasticity characteristics of a thin-film layer. The apparatus comprises a sensor element having a base magnetostrictive element at least one surface of which is at least partially coated with the thin-film layer. The thin-film layer may be of a variety of materials (having a synthetic and/or biocomponent) in a state or form capable of being deposited, manually or otherwise, on the base element surface, such as by way of eye-dropper, melting, dripping, brushing, sputtering, spraying, etching, evaporation, dip-coating, laminating, etc. Among suitable thin-film layers for the sensor element of the invention are fluent bio-substances, thin-film deposits used in manufacturing processes, polymeric coating, paint, an adhesive, and so on. A receiver, preferably remotely located, is used to measure a plurality of values for magneto-elastic emission intensity of the sensor element in either characterization: (a) the measure of the plurality of values is used to identify a magneto-elastic resonant frequency value for the sensor element; and (b) the measure of the plurality of successive values is done at a preselected magneto-elastic frequency.

2. U.S. Patent Serial Number: (to be assigned), filed (to be filed), titled "IDENTIFICATION OF A NOVEL SEVENTEEN AMINO ACID PEPTIDE (PEPTIDE P) WHICH CAN BE USED FOR TREATING ISCHEMIA AND REPERFUSION INJURY." Inventors: Peter R. Oeltgen and Mark S. Kindy. This invention provides Peptide P, having the amino acid sequence Tyr-D-Ala-Phe-Ala-Asp-Val-Ala-Ser-Thr-Ile-Gly-Asp-Phe-Phe-His-Ser-Ile-Nh2-SEQ ID NO:1, which is useful to treat ischemia.

3. U.S. Patent Serial Number: (to be assigned), filed (to be filed), titled "GENETIC INSULATOR FOR PREVENTING INFLUENCE BY ANOTHER GENE PROMOTER." Inventors: Susheng Gan and Mingtang Xie. This invention provides a 16 bp polynucleotide sequence of *Arabidopsis thaliana* as a genetic insulator that can effectively isolate a transgene from positional effects of neighboring gene activities in transgenic plant cells.

4. U.S. Patent Serial Number: (to be assigned), filed (to be filed), titled "METHOD FOR STORING AND RETRIEVING SEQUENTIAL INFORMATION." Inventors: Philip W. Landfield and Oliver Thibault. This invention provides a method and design for distributing and storing sets of temporally ordered information in a systematic and sequential fashion. This method is based on a model of how the brain functions in the

distribution and storage of temporally ordered memories, but it can also be applied to the design of new biological, electronic or optical devices. These devices may be used in the testing and development of new therapeutic drugs, in the detection of toxic agents or impaired performance, or in the development of new industrial and consumer devices in which the orderly storage of sequential information is important.

5. U.S. Patent Serial Number: (to be assigned), filed (to be filed), titled "USE OF INSULIN DEGRADING ENZYME (IDE) FOR THE TREATMENT OF ALZHEIMER'S DISEASE." Inventors: Louis B. Hersh and Atish Mukherjee. The peptidase insulin degrading enzyme (IDE) has been shown to cleave alpha beta peptides. Cleavage of alpha beta by recombinant IDE abolishes its cell toxicity. Recombinant IDE is expressed on the surface of cells or secreted from cells in plaque forming regions of the brain. Primary hippocampal and cortical cells are treated with alpha beta peptides in the presence or absence of IDE and cell toxicity measured. Cells are recombinantly engineered to express IDE on the cell surface or secrete it. The membrane bound and secreted forms of IDE are then expressed in a mammal.

6. U.S. Patent Serial Number: (to be assigned), filed (to be filed), titled "NOVEL MULTIDENTATE SULFUR-CONTAINING LIGANDS." Inventors: David A. Atwood, Mr. Brock S. Howerton, and Mr. Matthew Matlock. This invention provides sulfur-containing ligands for binding of heavy metals. The ligands incorporate a central ring structure and pendant alkyl-thiol chains. The ligands are suitable for binding any metal in or capable of being placed in a positive oxidative state, such as cadmium, lead, nickel, zinc, mercury, copper and the like. Additionally, methods for removal of heavy metals from various substances are disclosed, comprising separating selected heavy metals from selected substances by contacting the substances with an effective amount of the sulfur-containing chelate ligands for a sufficient time to form stable, irreversible ligand-metal precipitates, and removing such precipitates.

7. U.S. Patent Serial Number: (to be assigned), filed (to be filed), titled "METHODS TO IDENTIFY PLANT METABOLITES." Inventors: Deane L. Falcone and John M. Littleton. This invention provides materials and methods to manipulate the plant genome at the level of single plant cells in culture resulting in the ability to assign metabolic functionality to plant genes involved in hte production of biologically active molecules and to create a means of product discovery based on the biosynthetic capacity of plants. The materials to create an activation mutagenesis include incorporation of enhancer sequences from a plant viral promoter at rendom places in the plant genome via Agrobacterium mediated DNA transfer (T-DNA). The usefulness is that genes in the immediate vicinity of the incorporation were activated which allows for immediate screening of the mutagenized plant cells. Additionally, the usefulness includes relevant areas of the genome were flanked by the inserted T-DNAA which allows recovery of this area by standard molecular biology techniques. The method includes a procedure for screening large numbers of mutagenized plant cell cultures for activation of a relevant gene on the basis of the desired protein product on the basis of radioligand binding displacement assay.

8. U.S. Patent Serial Number: (to be assigned), filed (to be filed), "TEMPERATURE, STRESS, AND CORROSIVE SENSING APPARATUS UTILIZING HARMONIC RESPONSE OF MAGNETICALLY SOFT SENSOR ELEMENTS." Inventors: Craig A. Grimes and Keat G. Ong. This invention provides a temperature sensing apparatus including a sensor element made of a magnetically soft material operatively arranged within a first and second time-varying interrogation magnetic field, the first time-varying magnetic field being generated a frequency higher than that for the second magnetic field. A receiver, remote from the sensor element, in engaged to measure intensity of electromagnetic emissions from the sensor element to identify a relative maximum amplitude value for each f a plurality of higher-order harmonic frequency amplitudes so measured. A unit then determines a value for temperature (or other parameter of interest) using the relative maximum harmonic amplitude values identified. In other aspects of the invention, the focus is on an apparatus and technique for determining a value for stress condition of a solid analyte and for determining a value for corrosion, using the relative maximum harmonic amplitude values identified. A magnetically hard element supporting a biasing field adjacent to the magnetically soft sensor element can be included.