

FCR 31

Office of the President
September 20, 2005

Members, Board of Trustees:

PATENT ASSIGNMENT REPORT

Recommendation: that the Board of Trustees accept the patent assignment report for the period ending July 31, 2005.

Background: On March 4, 1997, the Board of Trustees authorized the University of Kentucky Research Foundation to conduct all future copyright and patent filings and prosecutions. 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
FOR THE PERIOD APRIL 1, 2005 THROUGH JULY 31, 2005

Patents

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

1. **U.S. Patent Application Serial Number: (to be assigned)**
Filed: July 28, 2005
Title: "ADSORBENT AND CATALYSTS FOR THE REMOVAL OF CARBONYL SULFIDE AND MERCAPTANS FROM LIGHT HYDROCARBON FUELS"
Inventors: Drs. Mark Crocker and Patricia Patterson (Center for Applied Energy Research)
Technical Description: A process is provided for hydrolyzing carbonyl sulfide. The process includes the step of combining carbonyl sulfide and water in a reaction vessel in the presence of a lamellar mixed hydroxide catalyst. A process is also provided for removing carbonyl sulfide from a hydrocarbon feed stream. That process includes the steps of (a) passing the hydrocarbon feed stream through a reaction vessel holding a lamellar mixed hydroxide catalyst so as to convert carbonyl sulfide in the hydrocarbon feed stream into hydrogen sulfide and carbon dioxide and (b) adsorbing the hydrogen sulfide on a substrate. In addition, a process is provided for adsorbing organosulfur compounds and carbonyl sulfide from a gaseous feed stream. That process includes passing the gaseous feed stream through a vessel in the presence of a mixed metal oxide adsorbent obtained from thermal decomposition of layered double hydroxide and adsorbing the carbonyl sulfide to the adsorbent.
Summary: Gassified fossil fuels are used in chemical production and in the production of hydrogen fuel cells. Gassified fossil fuels contain sulfur, which must be removed for most uses. This invention provides an efficient method of removing sulfur from gassified fossil fuels.

2. **U.S. Patent Application Serial Number: (to be assigned)**
Filed: June 23, 2005
Title: "CLEAVAGE OF PHOSPHATE ESTER BONDS BY USE OF NOVEL GROUP 13 CHELATE COMPOUNDS"
Inventor: Dr. David Atwood (Department of Chemistry)
Technical Description: The present invention relates generally to novel compounds, compositions and methods for the cleavage of phosphate ester bonds. A novel chemical compound has a general formula (LX)_nY wherein X is selected from a group consisting of a group 13 element other than boron, Y is selected from a group consisting of a halide, a chlorate, a sulfate and a nitrate and L is a chelating ligand containing two nitrogen and two oxygen donor groups where n = 1 or 2.

Summary: Organophosphates, such as nerve gas and pesticides, are highly toxic. Their safe destruction is of great environmental concern. The present invention provides chemical compounds useful in the safe destruction of organophosphates.

3. **U.S. Patent Application Serial Number: (to be assigned)**

Filed: May 3, 2005

Title: “METHODS AND COMPOSITIONS FOR THE TREATMENT OF OCULAR NEOVASCULARIZATION”

Inventor: Dr. Jayakrishna Ambati (Department of Ophthalmology)

Technical Description: The invention relates to compositions and methods for the treatment or prevention of ocular neovascularization by reducing macrophage infiltration into the eye. The compositions of the invention include an antagonist of MCP-1 and/or CCR2 that blocks MCP-1 binding to or activation of CCR2.

Summary: Inflammation and aberrant proliferation of eye tissue are undesirable effects of eye disease and eye injury. These conditions adversely affect vision. The inventors have discovered that intraocular injection of agents that block the action of known compounds (MCP-1 and/or CCR2) prevents these adverse effects.

4. **U.S. Patent Application Serial Number: (to be assigned)**

Filed: May 13, 2005

Title: “ALIGNED NANOTUBULE MEMBRANES”

Inventor: Dr. Bruce Hinds (Department of Chemical and Materials Engineering)

Technical Description: The present invention relates to methods for fabricating nanoporous membranes comprising aligned nanotubes, and to membranes fabricated thereby. A method is provided for producing a permeable membrane, comprising the steps of aligning a plurality of hollow nanotubes to form a mat, coating the mat with a continuous polymer matrix to form a membrane. The membrane is etched (a) to open the plurality of hollow nanotubes and form pores and (b) to oxidize the carboxyl groups to carboxylate groups. At least one additional functional unit having at least one available amine group to bind at least one additional functional unit to the nanotube end carboxylate group may be provided. Membranes fabricated in accordance with the method of the invention are provided also.

Summary: In many scientific applications, it is desirable to have a physical barrier which allows substances to pass through the barrier. One well known example is the transdermal “drug patch.” A drug patch is a thin sheet of material, or membrane, that is coated on one surface with a pharmaceutical. When the uncoated surface is affixed to a person's skin, the pharmaceutical passes through the membrane to contact and enter the person's skin. Ideally, the membrane would allow only the pharmaceutical to pass through the patch, but not other substances, so that the pharmaceutical would not be contaminated by substances like skin perspiration.

The inventors have devised a process for producing membranes that allow some molecules to pass from one side of the membrane to the other, while blocking the transit of other molecules. . The membranes may be chemically treated to further limit which molecules can pass. These membranes may be useful in making drug “patches” and other drug delivery devices.

5. **U.S. Patent Application Serial Number: (to be assigned)**

Filed: June 23, 2005

Title: “GENETICALLY ENGINEERED EQUINE INFLUENZA VIRUS AND USES THEREOF”

Inventor: Dr. Thomas Chambers (Department of Veterinary Science)

Technical Description: The present invention relates, in general, to attenuated equine influenza viruses having an impaired ability to antagonize the cellular interferon (IFN) response, and the use of such attenuated viruses in vaccine and pharmaceutical formulations. In particular, the invention relates to attenuated equine influenza viruses having modifications to an equine NS 1 gene that diminish or eliminate the ability of the NS 1 gene product to antagonize the cellular IFN response. These viruses replicate in vivo, but demonstrate decreased replication, virulence and increased attenuation, and therefore are well suited for use in live virus vaccines, and pharmaceutical formulations.

Summary: Equine influenza causes significant morbidity in horses. The inventors developed a weakened strain of Equine Influenza Virus, which can be used as a live vaccine to immunize horses from contracting the wild type virus.

Patent Activities
Fiscal Year 2004-05

Number of Patent Applications	26
Number of Patents Issued	15
Patent Income	\$856,263

Patent Activities
Fiscal Year 2005-06 to date as of 7/31/05

Number of Patent Applications	0
Numbers of Patent Issued	1
Patent Income	\$68,500