

# FCR 8

Office of the President  
September 14, 2018

Members, Board of Trustees:

## PATENT ASSIGNMENT REPORT

Recommendation: that the Board of Trustees accept the patent assignment report for the period April 1, 2018 to June 30, 2018.

Background: At its March 1997 meeting, 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.

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

PATENT ASSIGNMENTS  
FOR THE PERIOD April 1, 2018 TO June 30, 2018

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:** 15/968,262  
**Filed:** May 1, 2018  
**Title:** CELL CULTURE DEVICE AND METHODS OF USE THEREOF  
**Inventors:** Christine Trinkle, Ren Xu and Soroosh Torabi (College of Engineering)  
**Technical Description:** This 3D cell culture model uses a series of microchannels to mimic the microvasculature environment in which cells reside in the body. It allows researchers to precisely control the rate of fluid flowing into the cells. The cells and surrounding matrix can then be easily collected for analysis.  
**Summary:** This model describes a 3D tissue culture model that incorporates a realistic extracellular matrix.  
**Application:** In vivo cell culture models for cellular biology, drug development and medicine
  
2. **U.S. Patent Application Serial Number:** 15/976,643  
**Filed:** May 10, 2018  
**Title:** PHENYLETHYNYL-SUBSTITUTED BENZENES AND HETEROCYCLES FOR THE TREATMENT OF CANCER  
**Inventors:** David S. Watt, Chunming Liu, Wen Zhang (College of Medicine), Vitaliy M. Sviripa and Markos Leggas (College of Pharmacy)  
**Technical Description:** This invention describes novel therapeutic agents that target the Wnt signaling pathway in certain types of cancer.  
**Summary:** The Wnt signaling pathway is upregulated in cancer and thus targeting expression of Wnt genes offers a novel therapeutic target for cancer. The compounds described in this application target key steps in this pathway.  
**Application:** Cancer treatment
  
3. **U.S. Patent Application Serial Number:** 16/007,511  
**Filed:** June 13, 2018  
**Title:** DETECTION OF ORGANIC FREE RADICALS AND REACTIVE OXYGEN SUBSTANCES USING CHEMICAL LUMINESCENCE FROM STRUCTURED COMPOUND SEMICONDUCTORS  
**Inventors:** William L. Boatright (College of Agriculture, Food and Environment)  
**Technical Description:** This invention provides novel methods for measuring reactive oxygen species (ROS) that are quicker and easier than currently available methods. The method consists of using two zinc-manganese compounds on a phytate skeleton that luminesce when exposed to ROS.

**Summary:** Measurement of ROS is necessary for quality control in the food, pharmaceutical and cellular biology fields, but current methods are technically challenging and cannot be used under all conditions. This application describes two materials that use luminescence to measure ROS.

**Application:** Food safety, cellular biology diagnostic tools

4. **U.S. Patent Application Serial Number:** 16/021,710

**Filed:** June 28, 2018

**Title:** PROTEASOME INHIBITORS

**Inventors:** Kyung Bo Kim (College of Pharmacy)

**Technical Description:** This invention describes a new class of proteasome inhibitors consisting of peptide epoxyketones containing P1 groups and their use to treat cancer and neurodegenerative diseases.

**Summary:** The application consists of new proteasome inhibitors that are more effective than current products on the market at killing multiple myeloma cells. Because proteasomes regulate the amount of proteins in a cell, including misfolded proteins that can cause neurodegenerative diseases and cancers, these inhibitors are important therapeutic targets.

**Application:** Treatment of multiple myeloma and Alzheimer's disease

Patent Activities  
Fiscal year to date as of June 30, 2018

	Q1	Q2	Q3	Q4	Total
Full Patent Applications	14	5	4	4	25
Provisional Patent Applications	5	14	6	9	34
Patents Issued	5	3	8	7	23
License Income	\$906,686	\$211,168	\$713,138	\$514,036	\$2,345,029

**Patent Application Summary Table**

<b>Inventors</b>	<b>College(s)</b>	<b>Title</b>	<b>Brief description</b>
<b>Biomedical</b>			
David Watt, Chunming Liu, Wen Zhang, Vitaliy Sviripa and Marcos Leggas	Medicine, Pharmacy	Phenylethynyl- substituted benzenes and heterocycles for cancer treatment	Compounds to target key steps in the Wnt pathway and offer a therapeutic for cancer
Kyung Bo Kim	Pharmacy	Proteasome Inhibitors	New class of proteasome inhibitors to kill multiple myeloma cells and treat neurodegenerative diseases.
<b>Engineering</b>			
Christine Trinkle, Ren Xu and Soroosh Torabi	Engineering	Cell Culture Device and Methods of Use	3D tissue culture model that incorporates a realistic extracellular matrix
William L. Boatright	Agriculture, Food and Environment	Detection of Organic Free Radicals and Reactive Oxygen Substances Using Chemical Luminescence from Structured Compound Semiconductors	Two materials that use luminescence to measure reactive oxygen species