

BOARD MEETING DATE: March 4, 2016

AGENDA NO. 19

PROPOSAL: Annual Meeting of the Brain & Lung Tumor and Air Pollution Foundation

SYNOPSIS: This item is to conduct the annual meeting of the Brain & Lung Tumor and Air Pollution Foundation. The Foundation staff will present an annual report detailing the research supported by the Foundation over the past year, the Foundation's plans for the future, and a financial report.

COMMITTEE: No Committee Review

RECOMMENDED ACTION:

Receive and file the annual report and ratify the Foundation disbursements described in the annual report.

Barry R. Wallerstein, D.Env.  
Executive Officer

KRW:ML

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## **2016 Annual Report**

### **1. Background**

In February 2003, the Board established the Brain Tumor and Air Pollution Foundation. In March 2004 the Foundation amended its Articles of Incorporation to change its name to Brain & Lung Tumor and Air Pollution Foundation (Foundation) and to specify that its purpose is related to the effects of air pollution on brain tumors and lung cancer. The mission of the Foundation is to support research studies on the association between air pollution and brain and lung tumors, as well as research for the development of novel therapeutics for such tumors. To date the dollar amount of the funding received is \$8,222,568. The current projects are described in Section 3 below.

## **2. Directors and Officers**

The Directors of the Foundation are: Michael D. Antonovich, Chairman  
Ben Benoit, Vice Chairman  
Dr. Clark E. Parker, Sr.  
Dr. William A. Burke

The Board of Directors selected Ben Benoit as Vice Chairman on February 19, 2016.

The Foundation's staff is: Barry Wallerstein, Chief Executive Officer  
Denise Whitcher, Secretary  
Michael O'Kelly, Treasurer

## **3. Report on the Foundation's Activities**

### *Current Research Projects*

Chronic Exposure of Mice to Ambient Particles to Study Cancer-Related Stem Cell Activation in the Brain (BTAP008)  
Principal Investigator: Keith Black, M.D., Cedars-Sinai Medical Center  
Approved Funding: \$1,000,000  
Allocated Funding: \$500,000

This study (BTAP008), approved by the Foundation Board in September 2013, compares air pollution influence on animal model brain gene expression changes to a previous study (BTAP007, "The Impact of Air Pollution on Brain Stem Cell Activation"). The new study (BTAP008) was scheduled to be completed by the end of 2015. However, the unique biological materials collected from the previous study (BTAP007) were destroyed during a power outage. On June 17, 2015, the Foundation approved a no-cost extension of the agreement to May 1, 2016, to allow additional time to replicate the lost samples and to compare the samples from both studies. This research is being done in collaboration with investigators at UC Irvine.

Findings outlined in the latest progress report for BTAP008, dated February 16, 2016, include:

- The identification of 36 genes of potential interest relevant to central nervous system pathologies or some types of cancer, where gene expression appeared to differ when comparing mice who were exposed to air pollution versus those who breathed clean air for one year.
- Additional evidence that certain cancer stem cell markers were expressed more strongly in human Grade IV gliomas compared to lower grade gliomas and non-tumor brain tissues. Two of these stem cell markers also correlated with an increase in laminin beta-1 expression in the brain tumor tissues, so this protein

was used as a marker of blood vessel formation in tumor tissue. Blood vessels were found to be longer and more numerous in the higher grade tumors.

- Evidence that ultrafine particles were associated with increased blood pressure in mice, compared to those exposed to clean air for one year.

This work is still ongoing, including further investigation of genes involved in inflammatory response, expression of the cancer stem cell markers in the mouse brain tissues, and a comparison of the data for gene and stem cell markers expression from mice to those found in human brain tissues. Manuscripts resulting from this work are in preparation. The final report is due upon completion of the grant period.

#### **4. Financial Report**

The Foundation's fiscal year ended June 30, 2015. Financial statements were prepared by staff and audited by Simpson and Simpson, CPA's (Auditor). Total expenses for the fiscal year were \$1,259 and included audit fees (\$1,200), filing fees (\$30) and bank fees (\$29). The Auditor issued an unmodified opinion, indicating that the financial statements were presented fairly, in all material respects, and in accordance with generally accepted accounting principles.

As of January 31, 2016, the Foundation had a cash balance of \$3,059,292. Following is an accounting of the Foundation's operations since its inception (7/23/03):

<b>Revenue from Operations</b>	
Contributions	\$8,222,568
Interest Income	40,321
<b><i>Total Revenue from Operations</i></b>	<b>\$8,262,889</b>
<b>Operating Expenses</b>	
Grants Awarded	
-Cedars-Sinai	\$4,809,250
-USC	377,967
Corporation Filing Costs	1,400
Bank charges	580
Professional fees-audit	14,400
<b><i>Total Operating Expenses</i></b>	<b>\$5,203,597</b>
<b>Cash Balance</b>	<b>\$3,059,292</b>

## **5. Plans for Upcoming Year**

The Foundation will continue monitoring the progress of existing research projects. In June 2015, the SCAQMD Board authorized the transfer of \$2,500,000 from the Health Effects Research Fund to the Foundation. The Foundation has released an RFP to solicit research proposals within the purposes of the Foundation and a total of eight research proposals were received in response to the RFP. Staff is working toward convening the review committee to evaluate the proposed projects and the Foundation will consider providing funding as appropriate.