



R. Stephen Lloyd, Ph.D.
Professor and Associate Director of
Basic Science
Oregon Institute of Occupational
Health Sciences
Tel. (503)494-9957
lloydst@ohsu.edu
Mail code: L606
3181 S.W. Sam Jackson Park Rd.
Portland, OR 97239

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Chair Alonso Leon, Vice Chairs Neron and Weber and members of the committee:

I write today in support of HB 2441 to renew the University Venture Development Fund (UVDF) tax credit program, which helps promising university discoveries move out of the lab and into Oregon's economy.

My research and innovation efforts, related to treating the epidemic of obesity and related diseases, have advanced due to assistance from the UVDF. We proposed translating several interrelated basic science discoveries into clinically-actionable therapeutics, with specific applications to the condition of obesity and related diseases. The origin of this application was an unanticipated discovery that when mice lost their ability to repair oxidative damage to DNA located within mitochondria through loss of the DNA glycosylase OGG1, they developed mid-life obesity, fatty liver disease, and insulin resistance. Since mitochondria are responsible for energy production within cells, we reasoned that, over time, inefficient repair could lead to inadequate energy production and obesity.

To test this idea, we performed the converse experiment in which we created mice that increased mitochondrial OGG1. This resulted in mice that were nearly completely resistant to obesity and related diseases, even when placed on a very high fat, high caloric diet. These data suggested that if we could develop drugs that improve the activity of OGG1 in the mitochondria, we could prevent obesity, even under conditions of high fat, high caloric food intake. To investigate this, through UVDF funding, we developed a fluorescence-based high throughput methodology to screen for drugs that enhance OGG1 activity (agonists). We screened ~50,000 molecules and discovered basic chemical structures that significantly enhanced the activity of OGG1. Several of these agonists have been subsequently demonstrated to be effective in cellular assays that measure enhanced activity.

Based on these data, we filed for intellectual property rights covering these and related agonists of OGG1, and, have now entered into a partnership with a start-up pharmaceutical company that secured a worldwide license. None of these drug discoveries or business partnerships would have been possible without UVDF funding that allowed us to further investigate the promising data shown by our initial research.

I urge your support of the UVDF program so that future scientists and innovators have the opportunity to access critical funding that bridges the gap between the lab and the economy. Please feel free to contact me with any questions

Sincerely,

A handwritten signature in blue ink, appearing to read "R. Stephen Lloyd".

R. Stephen Lloyd, Ph.D.