

## **A Device for Attenuating Radiation**

### **Background**

The biological effects of a radiation injury are dependent on the dose and rate of radiation absorbed, energy transfer and radiosensitivity of the tissue. While the extent to which these factors affect acute and constant chronic radiation exposure is well understood, relatively little is known about their role in radiation injury from internal radionuclides administered for diagnostic and therapeutic purposes. When radionuclides are administered for diagnostic purposes, the absorbed doses are so low that the biological effects cannot be reliably measured. However, estimations of absorbed doses may be sufficient for conducting risk estimations and for comparing radionuclides. In cases where radionuclides are administered for therapeutic purposes, or during accidental ingestion, the biological effects of radiation exposure cannot be reliably predicted by determining the levels of absorbed doses alone. Existing technologies such as computational dosimetry have a number of limitations and cannot be used to predict biological consequences of radiation injury. Thus, a need exists for biological dosimeters that can verify the computational dosimeters.

### **Description of the Technology**

A device has been developed for use in conjunction with a radiation blocking liquid and a radiation source for attenuating radiation in a highly controlled manner. The device can be used to deliver radiation according to user defined parameters. The device includes an attenuation chamber capable of holding radiation-blocking liquid and a means to adjust the thickness of the liquid to control the radiation transmitted across the chamber thereby attenuating at least part of the radiation emitted from the radiation source. This device provides an effective means of determining the absorbed dose and dose rate received by the target tissue following administration of radionuclides.

### **Applications**

Provides a biological dosimeter and a method for attenuating radiation

### **Patent Status**

- United States Patents granted on March 13, 2001
- Patent No.: US 6,201,852 B1

### **Licensing Opportunity**

This technology is available for exclusive license.

### **Contact**

Peter Golikov, MS, MBA  
Director, Ventures and Licensing  
University of Medicine and Dentistry of New Jersey  
335 George Street

New Brunswick, NJ 08901  
Direct Phone: (732)-235-9355  
Main Office Phone: (732)-235-9350  
Facsimile: (732)-235-9358  
golikope@umdnj.edu

File NJMS 96-23 Howell