Resource Summary Report

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The Hamner Institute for Health Sciences: BMDExpress and The multiple-path particle dosimetry

RRID:SCR_005511
Type: Tool

Proper Citation

The Hamner Institute for Health Sciences: BMDExpress and The multiple-path particle dosimetry (RRID:SCR_005511)

Resource Information

URL: http://www.thehamner.org/technology-and-development/technology-transfer/index.html

Proper Citation: The Hamner Institute for Health Sciences: BMDExpress and The multiple-path particle dosimetry (RRID:SCR_005511)

Description: THIS RESOURCE IS NO LONGER IN SERVICE, documented on June 24, 2013. BMDExpress is a Java application used to analyze dose-response data from microarray experiments. The program was designed to perform a stepwise analysis on microarray data that combines bench mark dose (BMD) calculations with gene ontology (GO) classification analysis. The combination provides dose estimates at which different cellular processes are altered at a defined increase in risk based on expression levels in the untreated controls. The fitting of the data to the statistical models (linear, 2 polynomial models, 3 polynomial, and power models) is performed using source code borrowed from the U.S. Environmental Protection Agency""s BMDS software. The MPPD model is a computational model that can be used for estimating human and rat airway particle dosimetry. The model is applicable to risk assessment, research, and education. The MPPD model calculates the deposition and clearance of monodisperse and polydisperse aerosols in the respiratory tracts of rats and human adults and children (deposition only) for particles ranging in size from ultrafine (0.01 m) to coarse (20 m). The models are based on single-path and multiple-path methods for tracking air flow and calculating aerosol deposition in the lung. The single-path method calculates deposition in a typical path per airway generation, while the multiple-path method calculates particle deposition in all airways of the lung and provides lobar-specific and airway-specific information. Within each airway, deposition is calculated using theoretically derived efficiencies for deposition by diffusion, sedimentation, and impaction within the airway or airway bifurcation. Filtration of aerosols by the head is determined using empirical efficiency functions. The MPPD model includes calculations of

particle clearance in the lung following deposition. Eight tutorials are provided so that the user can learn to interact with the software.

Synonyms: BMDExpress & MPPD

Resource Type: software resource, software application, data processing software, data analysis software

Keywords: aerosol, airway, children, dose-response, human, lung, microarray, rat, respiratory tract, risk assessment

Funding:

Availability: THIS RESOURCE IS NO LONGER IN SERVICE

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Resource ID: SCR_005511

Alternate IDs: nif-0000-10456

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Ratings and Alerts

No rating or validation information has been found for The Hamner Institute for Health Sciences: BMDExpress and The multiple-path particle dosimetry.

No alerts have been found for The Hamner Institute for Health Sciences: BMDExpress and The multiple-path particle dosimetry.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We have not found any literature mentions for this resource.