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Modeling Deposition and Clearance of Insoluble Particles in Human Lung Airways

By Robert Sturm

VDM Verlag. Paperback. Book Condition: New. Paperback. 364 pages. Dimensions: 9.1in. x 6.1in. x 0.9in. Main goal of the work was the development of a complete bronchial clearance model including a fast clearance phase represented by the mucociliary escalator as well as a slow clearance phase which describes long-term clearance mechanisms. The model was applied to healthy lungs and, after some specific modifications, also to lungs of COPD-patients. Beside the extensive modeling of bronchial clearance, major interests were focused on the improvement of the existing stochastic deposition model by a) the development of generation-specific correction factors describing enhanced particle deposition in the proximal airways due to inertial impaction and b) the computation and visualization of spatial deposition patterns, better reflecting the complex behaviour of inhaled particles. Concerning the reliable modeling of bronchial clearance, several approaches were introduced, ranging from the mathematical description of single mechanisms over the stochastic formulation of fast and slow clearance phases to the creation of a multicompartamental model. Independent of the used approach, computed clearance data always corresponded well with available results from various inhalation experiments. This item ships from multiple locations. Your book may arrive from Roseburg, OR, La Vergne, TN. Paperback.



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