

## ▶ Radionuclide Measurement of Mucociliary Clearance

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Mucociliary clearance (MCC) is an important airway defense system by which the ciliated propulsion of mucus clears the airways for microbes, dust and debris. MCC can be affected by tobacco smoke, and reduced mucociliary transport is part of the dysfunction of many lung diseases, such as Cystic Fibrosis, Primary Ciliary Dyskinesia, Asthma and Chronic Obstructive Pulmonary Disease. Pulmonary MCC is measured by the scintigraphic clearance of inhaled radioaerosols, such as insoluble <sup>99m</sup>Tc labelled colloids. The purpose of a MCC study can be to assess possible mucociliary dysfunction in lung disease or the effects of chest athophysiology or pharmacological interventions eg. Inhaled beta-2 agonists on mucociliary transport. The radioaerosol MCC technique can also be used as a clinical diagnostic tool in the work-up of patients with recurrent airways infection. We do so in about 30-40 children (> 5 years) and adults yearly at our institution. Patients with the genetic disease, primary ciliary dyskinesia, suffer from recurrent lung infections, sinusitis, otitis, and bronchiectasis caused by a universally severely impaired MCC, while this condition can be excluded if MCC is normal or only regionally abnormal in a patient. If only one or a few regions of the lungs are affected the underlying condition could be local bronchiectasis or atrop after a lung infection. The presentation will cover an overview of athophysiological aspects of impaired MCC, possibilities for interventions, and a detailed description of how we perform a routine clinical test of pulmonary radioaerosol MCC in our Nuclear Medicine Department.

### References

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Oct.23