

Watching the Lung Breathe – Workshop on Pulmonary Functional Imaging

New methods of functional imaging make it possible to precisely describe all parameters of lung function. So far, these advanced diagnostic technologies are available only at selected facilities such as university hospitals and research centers. Advantages of the new technologies for diagnosis and treatment of selected pulmonary diseases will be discussed at the *3rd International Workshop of Pulmonary Functional Imaging* taking place from October 5-7 at the German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ) in Heidelberg, Germany.

Conventional pulmonary diagnostics produces primarily static images and, thus, is restricted to morphological information. In contrast, functional imaging also provides information about the motility of the lung and respiratory tract, ventilation of the respiratory tract, gas exchange, blood perfusion of the lung, and blood pressure and blood flow in the pulmonary vessels. "Functional imaging is particularly useful in the diagnosis of diseases of the respiratory tracts or the pulmonary vessels that affect the distribution of ventilation or perfusion such as mucoviscidosis or pulmonary hypertension," says Professor Hans-Ulrich Kauczor, head of the Radiology Division at the DKFZ and organizer of the workshop.

Acute pulmonary failure in intensive care is among the most critical lung diseases with an extremely high mortality. This is another area where functional imaging helps to control a process called protective ventilation. "The more gentle and individually adjusted ventilation is undertaken, the higher are the patient's chances of survival," says Kauczor. The relevance of this application is also reflected in the fact that the workshop is at the same time the annual conference of the focus funding program on "protective ventilation" of the *Deutsche Forschungsgemeinschaft* (DFG). The DFG is even funding two projects on this topic in Heidelberg. Besides the DFG, the workshop is supported by the *International Society of Magnetic Resonance in Medicine* (ISMRM).

A special focus of the workshop is the topic of lung tumors. Functional imaging facilitates to precisely target lung lesions with instruments in order to take tissue samples or perform local radiotherapy (brachytherapy). In addition, it provides information about biological properties of the cancer, such as the extent of new vessel formation (angiogenesis) in the tumor. Images of the motility of lung lobes and lung tumors facilitated by the new imaging technologies are also a prerequisite for the further enhancement of precision radiotherapy. In the future, the therapy beam will be coordinated with the movements in order to maximally spare healthy surrounding tissue.

3rd International Workshop of Pulmonary Functional Imaging, in English, Heidelberg, October 5-7, Communication Center of the German Cancer Research Center.

Journalists are welcome.

The task of the Deutsches Krebsforschungszentrum in Heidelberg (German Cancer Research Center, DKFZ) is to systematically investigate the mechanisms of cancer development and to identify cancer risk factors. The results of this basic research are expected to lead to new approaches in the prevention, diagnosis and treatment of cancer. The Center is financed to 90 percent by the Federal Ministry of Education and Research and to 10 percent by the State of Baden-Wuerttemberg. It is a member of the Helmholtz Association of National Research Centers (Helmholtz-Gemeinschaft Deutscher Forschungszentren e.V.).

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