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A New Professorship for Molecular Thoracic Oncology at the Translational Lung Research Center Heidelberg

Professor Dr. Rocio Sotillo, a molecular biologist previously at EMBL (Monterotondo, Italy), has joined the German Cancer Research Center (DKFZ) to lead the newly formed cooperation unit on the molecular basis of lung tumors. The W3-professorship is a joint appointment between the DKFZ and the Thoraxklinik at Heidelberg University Hospital. The DKFZ and the Thoraxklinik are partners in the Translational Lung Research Center Heidelberg (TLRC), member of the German Center for Lung Research (DZL).

Lung cancer is the leading cause of cancer-related deaths worldwide. In lung cancer, as in many other types of cancer, an abnormal number of chromosomes (aneuploidy) can cause a normal cell transform into a cancer cell. Aneuploidy observed in cancer is often caused by chromosomal instability (CIN), which has also been shown to be a risk factor for poor prognosis of lung cancer. Sotillo and her team are particularly interested in proteins, such as Mad2, that affect aneuploidy and CIN. Mad2, for example, is frequently found upregulated in human tumors. “To further examine if the chromosomal instability generated by high levels of Mad2 plays a role in lung tumorigenesis, we studied the combined effect of Mad2 overexpression with K-ras oncogene, a gene frequently mutated in human lung cancer. We observed that aneuploid lung tumors recurred more frequently after prior successful anti-cancer treatment”.

Understanding the complex relationship between aneuploidy and CIN and their respective contributions to cancer is subject of intense research. What particular role CIN plays in the initiation and progression of cancer remains unknown. The ERC starting grant received in 2012, while working at EMBL, enabled Rocio Sotillo to focus on modern genomic approaches to develop model systems that combine chromosomal instability with genes that are known to be important in lung tumorigenesis. The move to the DKFZ and the Translational Lung Research Center Heidelberg (TLRC) is an important and longed for opportunity for Sotillo to translate her basic research into translational science projects and vice versa. “One of the goals of our laboratory is to further our understanding of the role of CIN in tumor progression and relapse and identify new mechanisms of resistance to therapies. Perhaps even more importantly, the successful design of targeted therapies for specific types of lung cancer will likely be faced with therapeutic resistance. How CIN influences the response to these therapies will be crucial to determine the most efficient way of combating lung cancer”.



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As partners in the Translational Lung Research Center Heidelberg (TLRC), the DKFZ and the Thoracic Oncology Team headed by Professor Michael Thomas at Thoraxklinik at Heidelberg University Hospital have established a joint cooperation unit, “Molecular Basis of Lung Tumors”, with the aim to accelerate the translation of basic research approaches into clinical practice. Professor Sotillo will be heading this Unit where translational research is at the center of all activities and basic researchers will strongly benefit from close interaction with several physician scientists at the Thoraxklinik as well as the already established clinical cooperation on lung cancer within the German Center for Lung Research (DZL).