WWTF Project LS16-063

Deciphering genomic aberrations in rare skin cancers to find mechanism-based treatment strategies

Abstract

Tumors are driven by (epi-)genomic aberrations that can, in principle, be pharmaceutically targeted. Such mechanism-based therapies had already remarkable impact on the clinical care of patients with common cancers. Yet, the genomic aberrations in rare cancers and their therapeutic potential are largely unknown. In this project, we will determine the genomic landscape of various histologically well-defined subgroups of rare skin cancer, in particular of Merkel cell carcinoma and of various specific subtypes of adnexal carcinoma and melanocytic tumors. We will assess the biological relevance of the recurrently identified genomic aberrations in existing and novel patient-derived models to get insights into the pathways driving tumorigenesis and metastasis. Lastly, we will evaluate the efficacy of drugs targeting these pathways, and study potential drug resistance mechanisms that may limit their efficacy. Using this strategy, we are confident to refine the classification system of specific subtypes of skin cancer, and to pave the way for mechanism-based treatment strategies to improve the overall survival of patients. The proposed project builds on a unique and well-characterized set of patient samples (provided by an international network of pathologists and clinicians) and on industry partnerships providing sequencing support, and combines state-of-the-art genomic techniques with disease- and therapy-oriented functional assays.

Scientific disciplines:
106014 - Genomics (40%) | 106023 - Molecular biology (40%) | 302011 - Dermatology (20%)

Keywords:
mechanism based therapy, targeted therapy, precision medicine, rare skin cancer, Merkel cell carcinoma, genomics, patient-derived models

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Further links about the involved persons and regarding the project you can find at
https://archiv.wwtf.at/programmes/life_sciences/LS16-063