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Technology Transfer Network

StandLiqTec

Standardization of liquid biopsy analysis using advanced technologies for in vitro diagnostics in the era of personalized medicine for cancer patients

Recent advances in molecular genetics have enabled the identification of distinct tumor subtypes and important molecular pathways underlying oncogenesis. Translation of these findings into clinical practice with the ultimate goal of treatment personalization remains an ongoing challenge and has a great innovation potential. This is in part due to the multitude of available technologies differing in sensitivity and specificity and the lack of s Information generated until now has mostly derived from frozen tissue. The use of high throughput technologies recently improved in order to be applicable in formally fixed Paraffin imbedded tissue (FFPET) holds promise in terms of their adoption in routine diagnostics. This, however, requires validation of these technologies as reproducible tools across centers to identify poor-risk patients who benefit from targeted therapies. Of equal importance is the extraction of good quality DNA and RNA from tissues and blood. The various liquid biopsy platforms have the potential to add tremendous value to the care of cancer patients. Studies verifying their reproducibility.

Building on published experience the present project seeks to:

1. Validate targeted NGS in various common human cancers [non-small cell lung cancer (NSCLC), diffuse large B-cell lymphoma (DLBCL), classical Hodgkin lymphoma] for personalized therapeutic approach of cancer patients.

2. Validate across platforms and across different laboratories in Europe mutation detection in liquid biopsies in comparison with tumor tissue using NGS and digital droplet PCR on:

A. circulating cell free (cf) tumor DNA from plasma (for lymphomas and lung cancer)

B. exosomes (for lymphomas) develop a novel panel of disease-specific exosomal diagnostic, predictive and prognostic markers in Hodgkin and non-Hodgkin lymphomas.

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