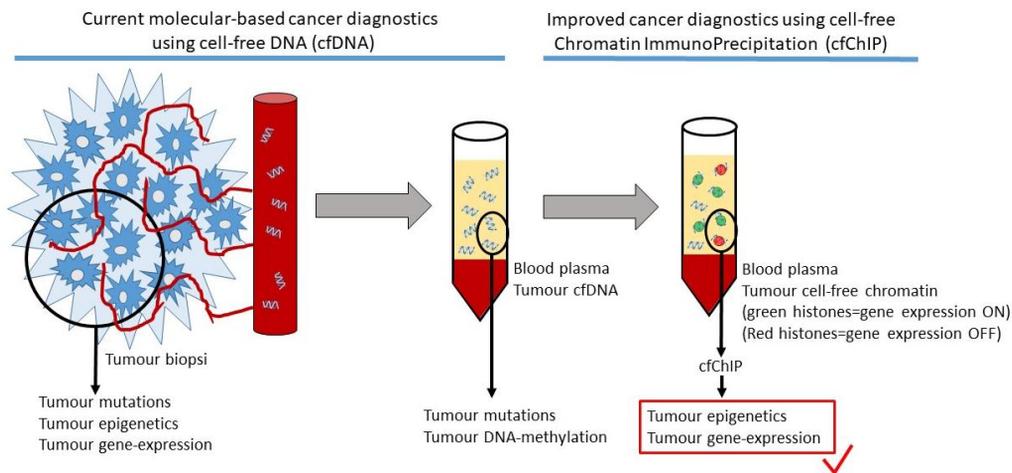


CELL-FREE CHROMATIN IMMUNOPRECIPITATION (cfChIP) AS A MEASURE OF TUMOUR GENE EXPRESSION IN A BLOOD PLASMA SAMPLE

Tumour gene-expression profiling can, on top of genetic analyses, be powerful to define i.e. cancer stage, prognosis and optimal treatment protocol. However, performing gene-expression profiling at the moment requires a tumour biopsy. Representative biopsies are not always obtainable due to anatomical issues, intra-tumour heterogeneity, and low performance status of the patient. Moreover, being an invasive procedure a biopsy is often only collected at time of diagnosis and thereby not reflecting tumour gene-expression in later disease stages.



We have developed a novel molecular cancer diagnostic methodology, called cell-free chromatin immunoprecipitation (cfChIP), which for the first time allows longitudinal determination of the gene-expression profile in solid tumours using blood plasma samples. cfChIP can have major clinical impact for future non-invasive cancer diagnostics.

Technology Description

We have discovered that tumour DNA now circulating in the blood have maintained association with a histone mark reflecting the expression level of the underlying genes in the tumor. Thus, from cfChIP analysis using an antibody against this histone mark and subsequent quantitative co-purification of the associated DNA, it is possible from a blood plasma sample to estimate the gene-expression level in the solid tumor.

Intellectual Property Rights

A European Patent application entitled "CELL-FREE CHROMATIN IMMUNOPRECIPITATION (CFCHIP) AS A MEASURE OF TUMOUR GENE EXPRESSION IN A SAMPLE" has been filed on June 25nd 2019. Application is owned by Aarhus University and Central Denmark Region.

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Current State In proof-of-principle we have shown that cfChIP using blood plasma samples can be used for diagnostic discrimination between lung adenocarcinoma and squamous cell carcinoma.

We envisage cfChIP to be an important novel blood plasma based cancer diagnostic methodology in a clinical setting i.e. to determine cancer subtypes, response to immunotherapy, and optimal selection of targeted therapy or chemotherapy protocols. In addition, to identify resistance to therapy caused by altered gene expression.

Business opportunity and Call to action

This Business Opportunity is open for license.

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