Baseline values of circulating nucleosomes in Lung Cancer: NUCLEO-LUNG study


ONCPRO (NCT03787056) is a prospective case-control study led in Lyon University Hospital that collected plasma at diagnosis and along disease management of 420 patients with 16 newly cancers. This study was perfectly designed to assess the diagnostic and prognostic values of circulating nucleosomes in lung cancer.

RESULTS

1. Circulating levels of H3K27Me3- and H3K36Me3-nucleosomes are higher in LC patients compared to healthy individuals

   - Median levels of H3K27Me3- and H3K36Me3-nucleosomes were measured in KEDTA plasma samples of 179 healthy subjects and 69 patients with lung cancer of the ONCPRO study.
   - Cancer patients were separated in two cohorts according to treatment: curative (surgery, n=19) or palliative (immunotherapy, n=20, or chemotherapy, n=30).

2. Curative cohort have lower levels of H3K27Me3- and H3K36Me3-nucleosomes at diagnosis than the palliative one

3. Baseline levels of H3K27Me3- and H3K36Me3-nucleosome are predictive of overall survival and progression in the palliative cohort

CONCLUSION

Plasatic levels of Nu.Q® H3K36Me3 and Nu.Q® H3K27Me3 at diagnosis could represent a non-invasive biomarker in lung cancer with potential relevant prognostic tumor burden value and progression-risk value in newly diagnosed patients.

PERSPECTIVES

- Circulating methylated nucleosomes concentrations during follow-up of patients will be assessed as potential biomarkers of cancer progression.
- Nucleosomes contain and protect released-tumor DNA, thus, the association between nucleosomes blood levels and molecular profiling on circulating DNA will be studied, at baseline and during progression.

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