PDL-1 expression in triple negative breast cancer patients by using short-term expanded Circulating Tumor Cells (CTCs)

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I. INTRODUCTION

Triple negative breast cancer (TNBC) is that it lacks expression of oestrogen, progesterone and human epidermal growth factor receptor-2/neu receptors. It accounts for 15%-20% of all breast cancers. TNBC is a more aggressive subset of breast cancer, it is associated with poor survival after recurrence and CNS relapse is common. Up to date, the isolation and characterization of CTCs through a simple blood test represent an important step in monitoring cancer patients.

A. Goal

PDL-1 expression on CTCs in patients with operable TNBC treated with adjuvant anthracycline-based chemotherapy.

B. Hypothesis

To evaluate if the TNBC-CTCs cultures represent an in vitro model to evaluate PDL-1 expression.

C. Ethical aspects

All Patients involved signed an informed consensus approved by the local Ethics Committee with the name CHARACTEX number 2013.34 [1].

II. METHODS

We conducted an observational prospective CHARACTEX project in patients with a cancer diagnosis and healthy subjects. The PDL-1 status on TNBC-CTCs was evaluated by immunohistochemistry [Figure 1]

III. RESULTS

Blood-derived cultures of 10 TNBCs patients, taken before anticancer treatments, recapitulate the cytological features of the primary tumours and maintain the genomic alterations of the original tumours during short-term expansion in vitro (≤14dys). PDL-1 expression was positive on 3 TNBC as confirmed on tissue biopsy. Moreover, cytotoxic features were observed on cytological specimens of TNBC –CTCs taken after adjuvant anthracycline-based chemotherapy.

IV. DISCUSSION

The use of short time expanded blood-derived cells protocol offers the opportunity to assess, in real-time, personalized immunotherapy.

V. CONCLUSIONS

Considering the short term from primary circulating cell line establishment to drug testing, our newly developed model prove useful for predicting patient-specific drug responsivity

REFERENCES

Figure 1: PDL-1 expression in TNBC-CTCs (Scale Bar 50 μm)