Modulo per la sottomissione abstract ricerca **di LABORATORIO**

Titolo (massimo **15 parole**)

EGFR characterization in liquid biopsies: development of new, more sensitive real-time assays

Autori (cognome e iniziali, es: Grassi L.)

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Testo (massimo **250 parole**, preferibilmente in italiano (accettato anche in inglese), suddiviso in Introduzione, *Metodi*, *Risultati*, *Conclusioni* e *Finanziamento*

Last years have seen the development of molecular analyses on liquid biopsies, in particular the detection of EGFR mutations in plasma from lung adenocarcinoma (AC) patients. This characterization is relevant for the administration of tyrosine kinase inhibitors (TKIs) against EGFR. Compared to tissue analyses, liquid biopsies testing is less invasive, more cost effective, can be repeated serially overtime and better reflects tumor heterogeneity. However, one disadvantage is the need of methodologies with high sensitivity because circulating tumor DNA is highly degraded and low concentrated. To improve EGFR characterization in plasma, we developed new real-time PCR-based assays (SensiScreen®) and we compared them with therascreen® (Qiagen), cobas® (Roche) or Ion Torrent® (IOT) (Thermo Fisher Scientific) methodologies.
SensiScreen® comprises SuPrimersTM (primers with increased specificity), BaseBlockersTM (suppressing amplification of wild-type) and HydrolEasyTM probes (characterized by increased signal-to-noise ratio and sensitivity). After sensitivity studies on plasmids and cell line DNA, we analyzed EGFR on plasma from 57 lung AC patients by SensiScreen®. In addition, 35 samples were characterized by therascreen®, 16 by cobas® and 6 by IOT®.
Therascreen® had a limit of detection of 1%, cobas® of 2-5%, IOT® up to 0.1% and SensiScreen® of <0.1%. By SensiScreen® we found EGFR mutations in 29 patients. SensiScreen® confirmed the data obtained by the other methodologies and found 2 additional L858R mutated cases compared to therascreen®.
SensiScreen® is a more rapid, easy-to-use and highly sensitive method for EGFR characterization in plasma and it can be used in clinical diagnostic.
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Visto superiore (prego indicare Nome e Cognome del superiore)

Milo Frattini

Criteri per sottomissione Abstract:
NO Case report
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Invio Abstract