# **POSTER PRESENTATION**



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# *In vitro* antineoplastic activity in triple-negative breast cancer cell line and *in vivo*

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# Background

Triple negative breast cancer (TNBC) is a heterogeneous subgroup (ER-, PR-, and HER2-) of invasive breast cancer, associated to poor prognosis, partially due to its resistance to available drugs. Therefore, it is imperative to discover new treatment options for the disease. In this context, we have synthesized and screened novel naphtoquinone-derived drugs (patent-protected), rationally designed to act through multiple pathways to avoid tumor chemoresistance.

# Methods

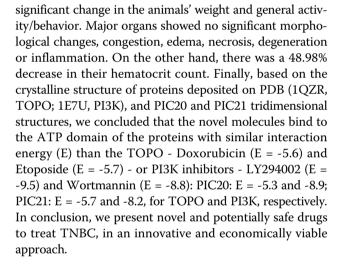
Drugs antineoplastic efficacy (AE) was accessed in the claudin-low TNBC cell line, MDA-MB231, by cellular metabolic viability (CMV) and  $IC_{50}$  calculation (MTT method; GraphPad Prism version 5.1). Drugs toxicity was studied in healthy mice, following the Guideline 423 (for test of chemicals) of OECD; blood cells and tissues were analyzed by a Pathologist. Computational molecular dock studies were conducted to investigate the molecules tridimensional conformation and bounding energy to topoisomerase 2 (TOPO) and PI3K (Autodock Vina software).

### **Results and conclusions**

We screened the AE of 43 novel drugs in MDA-MB231 (CMV  $\leq$  50% with 7 drugs). Of these, the most promising drugs PIC 20 (IC<sub>50</sub> 1.38x10<sup>-5</sup>M; CMV = 10%) and PIC21 (IC<sub>50</sub> 5.00x10<sup>-5</sup>M; CMV = 30%) showed significantly higher AE than cisplatin (IC<sub>50</sub> 1.56x10<sup>-4</sup>M; CMV>90%), doxorubicin (IC<sub>50</sub> 1.76x10<sup>-4</sup>M; CMV = 62%), and paclitaxel (IC<sub>50</sub> 5.05x10<sup>-7</sup>M; CMV = 80%). None of the treated mice died, neither demonstrated symptoms of toxicity, following 14-days treatment with PIC. Indeed, there was no

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