



Inhibiting Human Breast Cancer Cell Growth *In Vitro* of a Novel Heterocycles Compound

Ying KONG*, Chong YANG, Yanyan SU, Jiake YING & Yu YE

Department of General Surgery, Hangzhou Red Cross Hospital,
Hangzhou, Zhejiang, China

SUMMARY. The new heterocycles compound N-(4-bromo-3-(trifluoromethyl)phenyl)-N'-(4-(2-(N-methylcarbamoyl)-4-pyridyloxy)phenyl)urea (**3**), designed using 4-chloro-N-methyl-2-pyridinecarboxamide (**1**) as start material, was successfully obtained via multiple synthesis route and finally characterized by IR, ¹H NMR, HRMS, and single crystal X-ray crystallography. In addition, the anti-breast cancer effects of compound **3** was studied on three human breast cancer cell lines including SKBr-3, ZR-75-30 and MCF7. The results showed that compared with the positive reference drug carboplatin, compound **3** displayed efficient anti-breast cancer activity.

RESUMEN. El nuevo compuesto heterocíclico N-(4-bromo-3-(trifluorometil)fenil)-N'-(4-(2-(N-metilcarbamoil)-4-piridiloxi)fenil) urea (**3**), diseñado usando 4-cloro-N-metil-2-piridincarboxamida (**1**) como material de partida, se obtuvo con éxito mediante una ruta de síntesis múltiple y finalmente se caracterizó por IR, ¹H NMR, HRMS y cristalografía de rayos X de monocristal. Además, los efectos del compuesto **3** contra el cáncer de mama se estudiaron en tres líneas celulares de cáncer de mama humano, incluidas SKBr-3, ZR-75-30 y MCF7. Los resultados mostraron que en comparación con el fármaco de referencia carboplatino, el compuesto **3** mostró una actividad eficaz contra el cáncer de mama.

KEY WORDS: anti-breast cancer, heterocycles, single crystal.

* Author to whom correspondence should be addressed. *E-mail:* ying_kong666@163.com