Cite this as: An'an XU, Jeehyun LEE, Yueling ZHAO, Yuefei WANG, Xiaoli LI, Ping XU. Potential effect of EGCG on the anti-tumor efficacy of metformin in melanoma cells[J]. Journal of Zhejiang University Science B, 2021, 22(7): 548-562. http://doi.org/10.1631/jzus.B2000455

Potential effect of EGCG on the anti-tumor efficacy of metformin in melanoma cells

Key words: **Epigallocatechin-3-gallate, Metformin, Melanoma, Anti-tumour efficacy**

Research Summary

The work suggests that EGCG exerts a partially additive effect when combined with metformin in melanoma cancer cells by inhibiting cell growth, cytokine levels, and the STAT3/NF-κB pathway. On the other hand, the two compounds possess antagonistic effects on apoptosis and anti-enzyme secretion. To further confirm their potential combined effects on melanoma, more studies are necessary to define the pharmacodynamic interaction between EGCG and metformin.

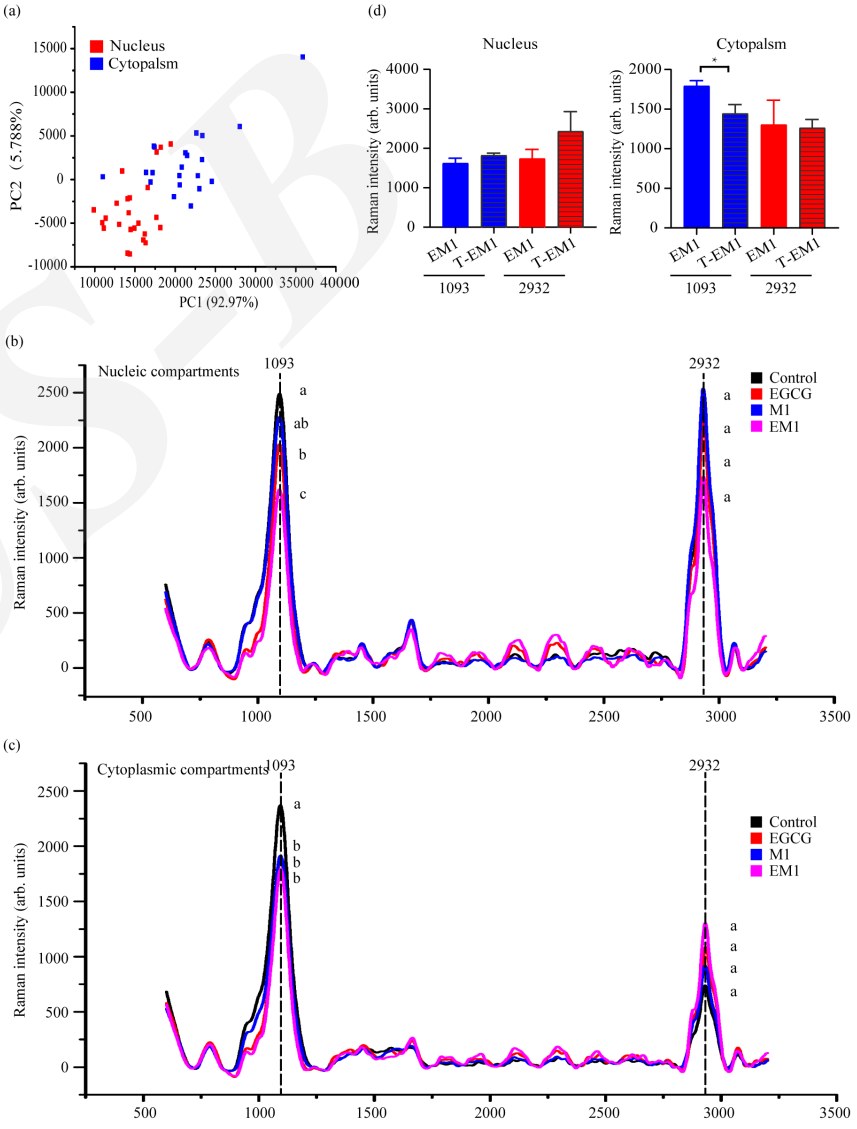

Figure 7

Innovation points

- **EGCG and metformin exhibited a synergistic effect on cell viability, migration, and proliferation, as well as STAT3/NF-κB signalling pathway.**

- **EGCG and metformin showed an antagonistic effect on cell apoptosis and oxidative stress levels.**

- **The combination of EGCG and metformin differentially affected the nucleus (synergism) and cytoplasm (antagonism) of B16F10 cells**