# Can Antipsychotics Prevent the Progression of Non-Small Cell Lung Cancer?

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# Background

Despite great advances in diagnostic and therapeutic technologies, lung cancer remains the leading cause of cancer-related mortality worldwide. Non-small cell lung cancer (NSCLC) accounts for approximately 85% of lung cancer cases. Recently, some antipsychotics have been shown to possess anticancer activity.

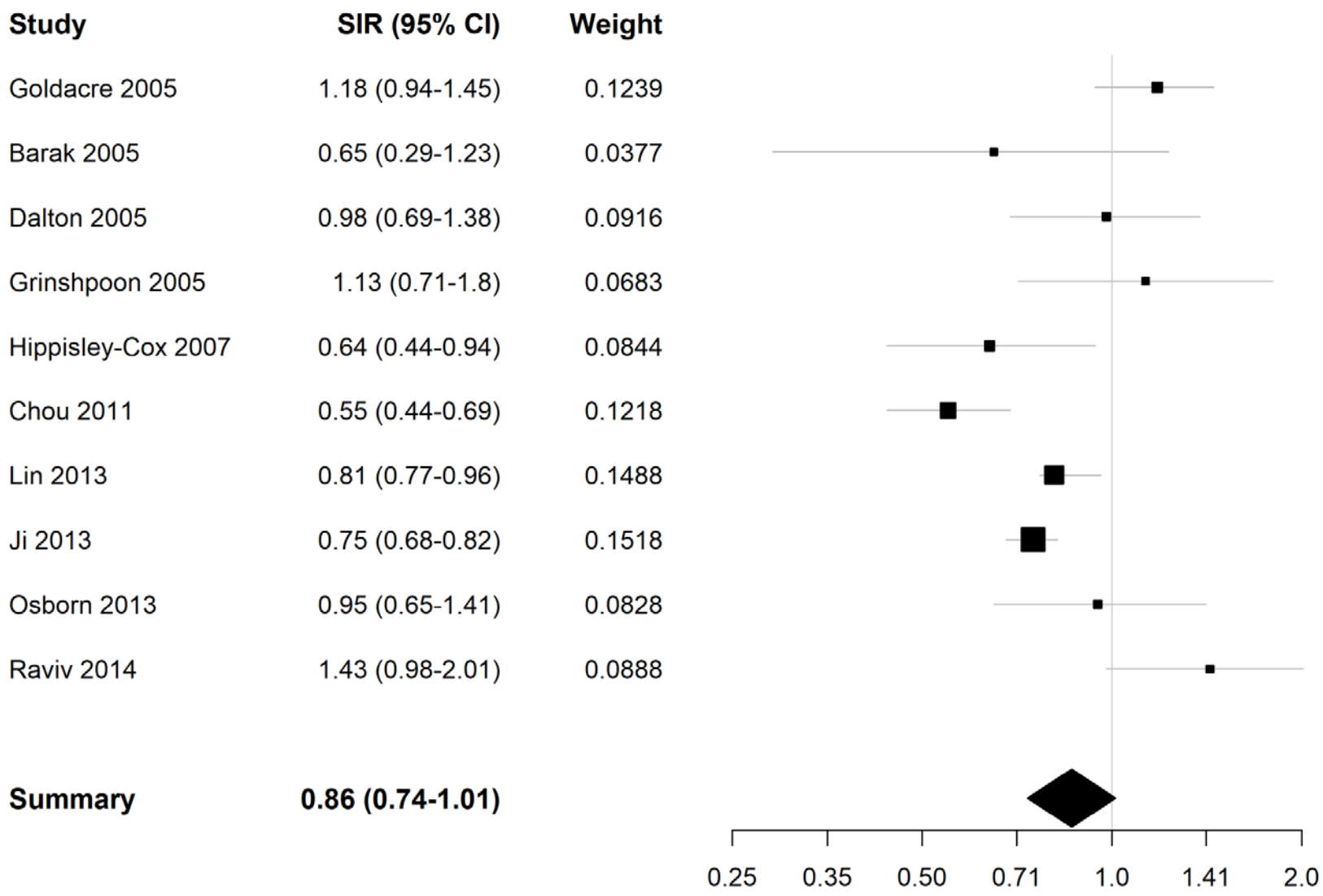
# Aim

Present study aimed to evaluate the possibility of antipsychotics as a therapeutic tools for lung cancer patients.

# Methods

1. Meta-analysis of lung cancer with schizophrenia cohort studies
2. Cell proliferation assay
3. Colony formation assay
4. Wound healing assay
5. Western blot analysis
6. Flow cytometry and DNA fragmentation assay
7. Measurement of intracellular $Ca^{2+}$ concentration
8. Tumor xenograft and histological analysis

**Figure 1.** The association between schizophrenia and lung cancer risk



# **Figure 2.** Treatment with TFP and TFP analogs inhibited A549 cell proliferation

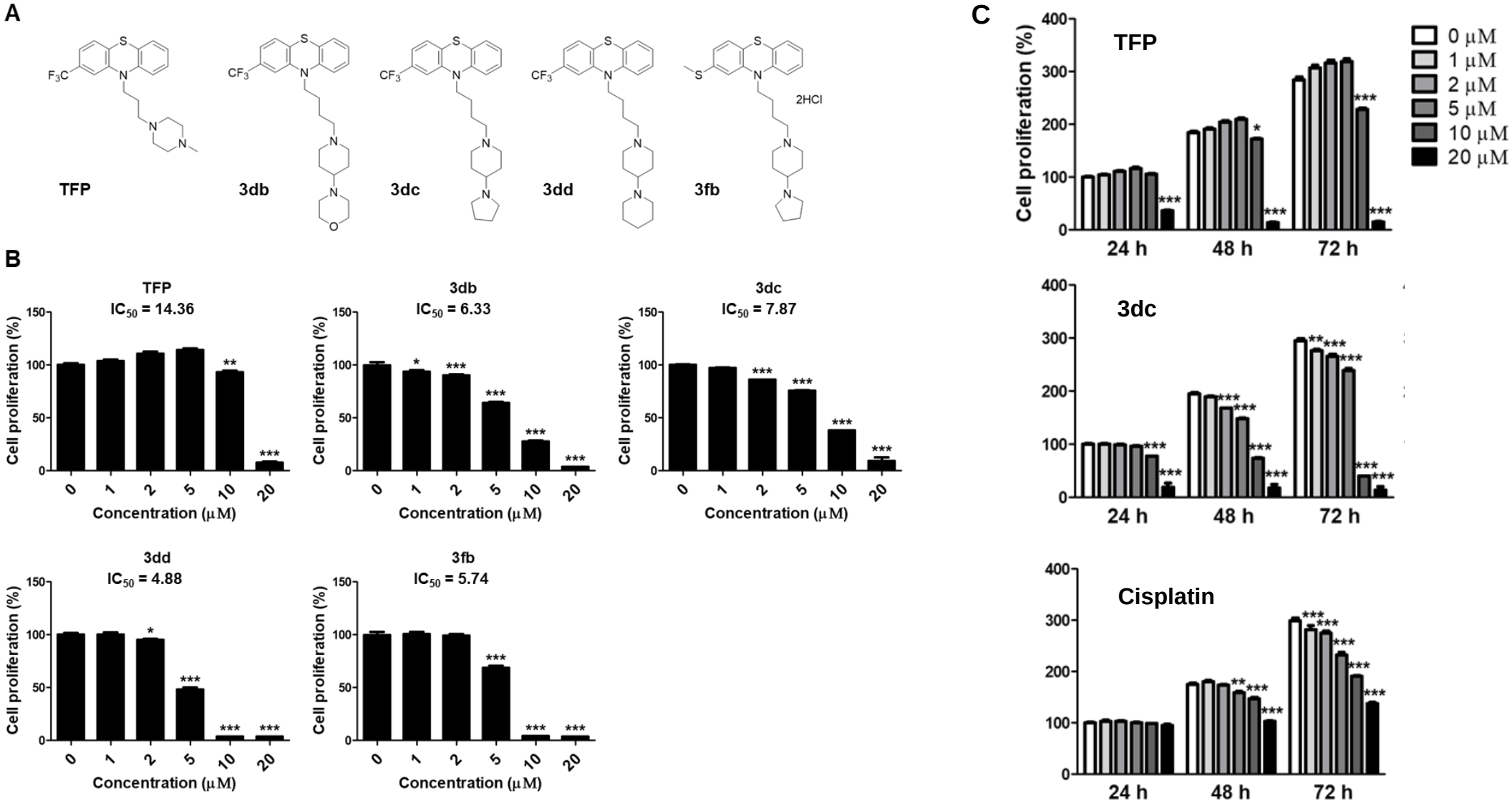
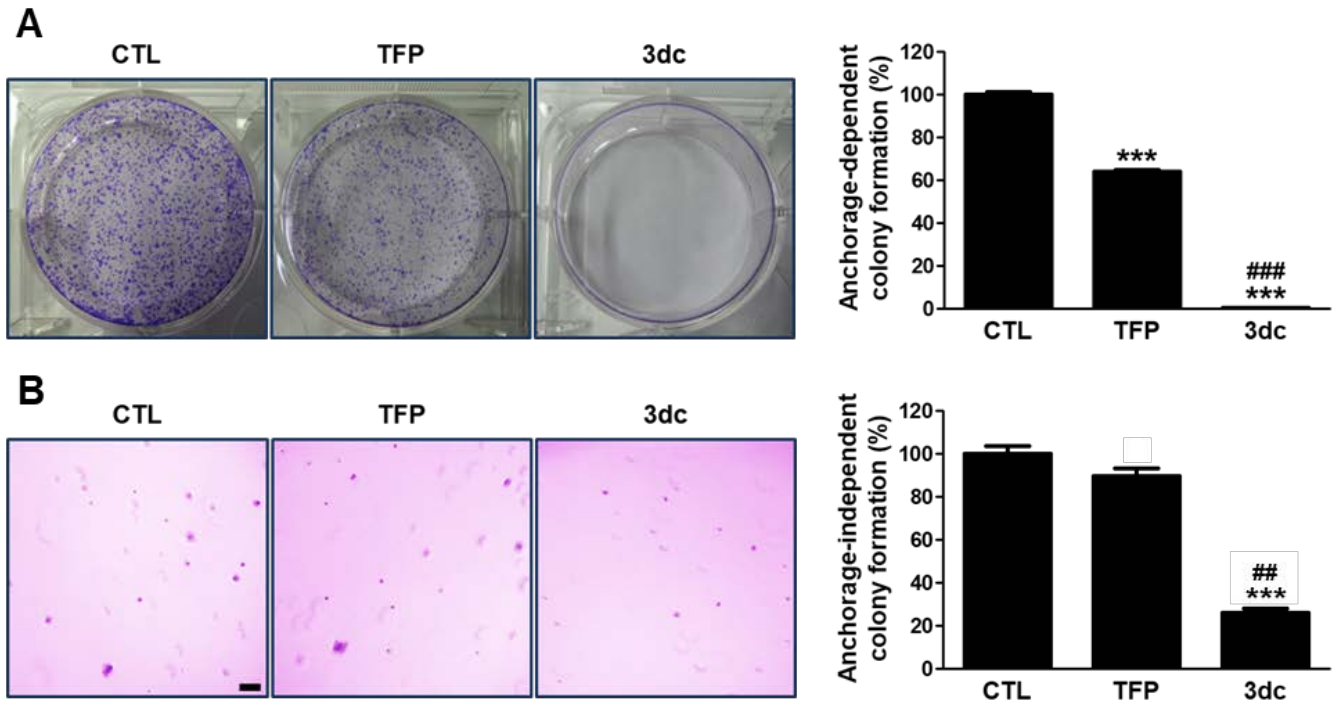


**Figure 3.** Treatment with TFP and 3dc suppressed colony formation and migration



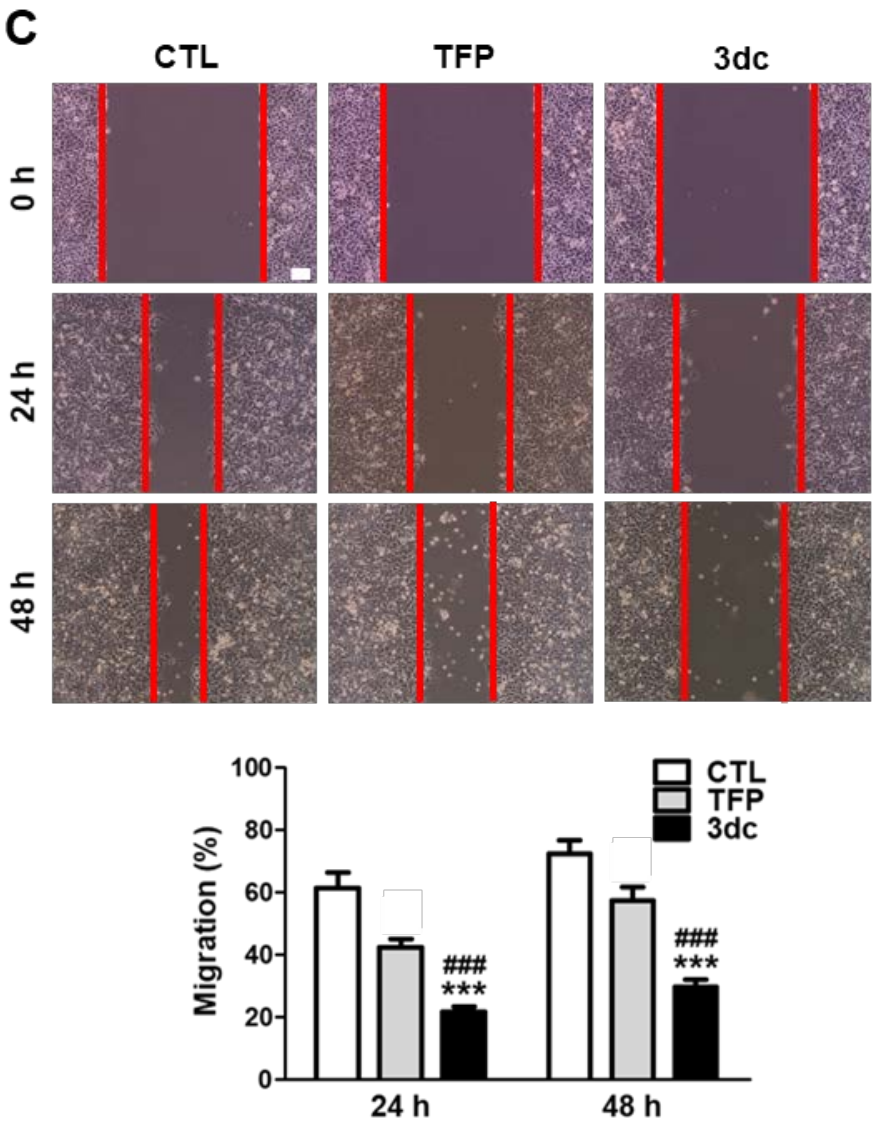



**Figure 4.** Western blot analysis of apoptosis- and survival-related factors and flow cytometric analysis of TFP and 3dc treatment

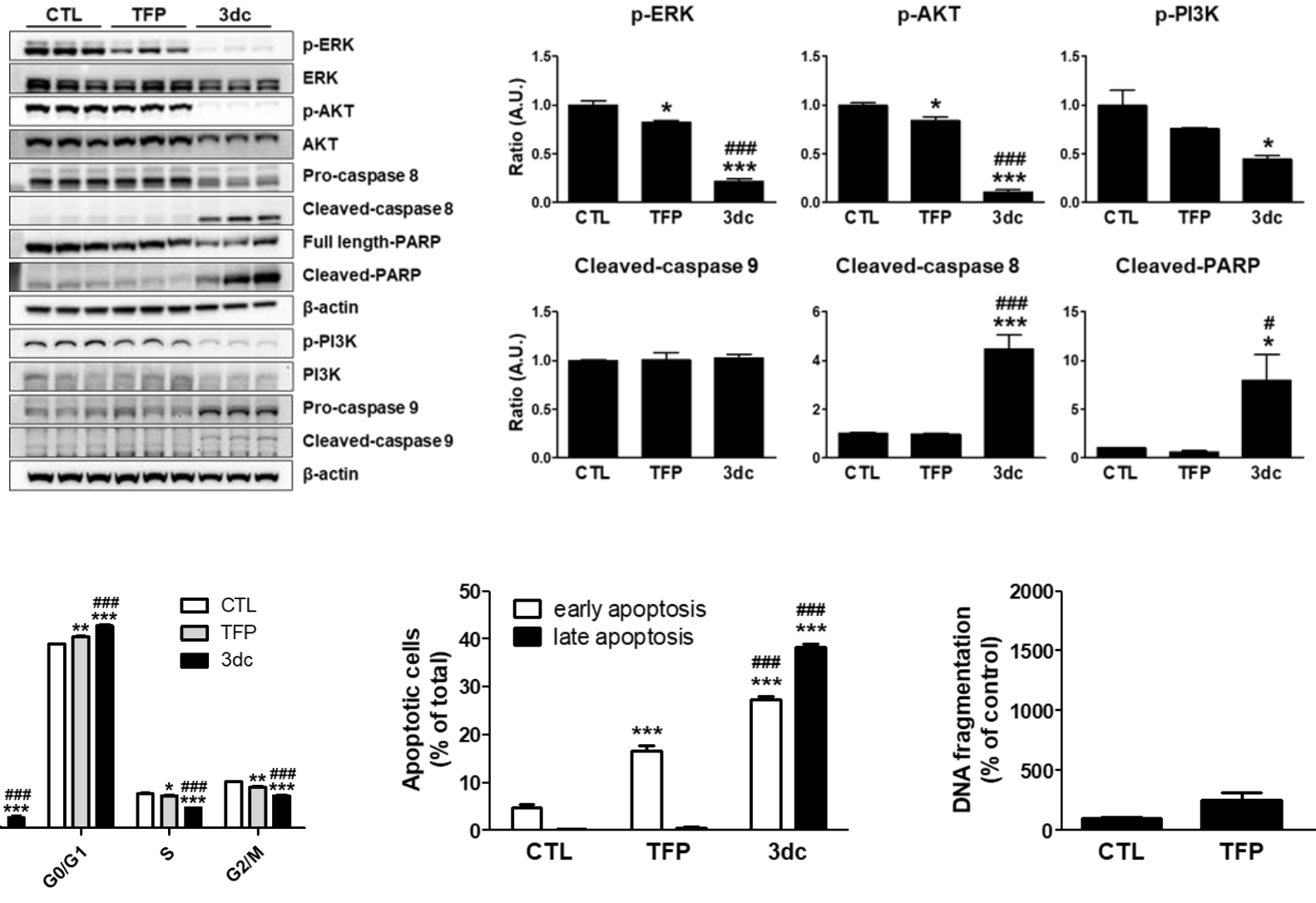


**Figure 5.** TFP and 3dc treatment increased intracellular $Ca^{2+}$ levels

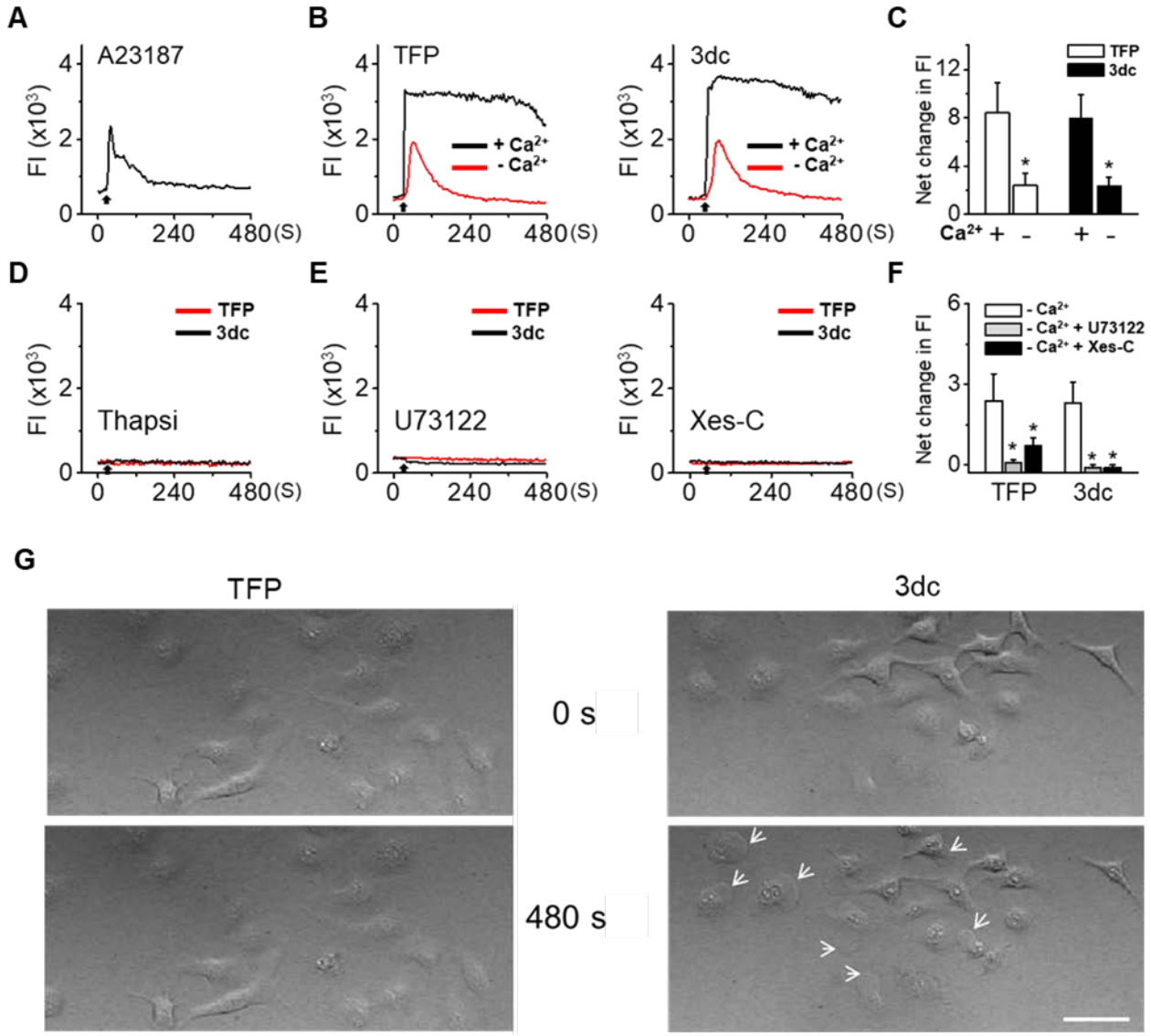
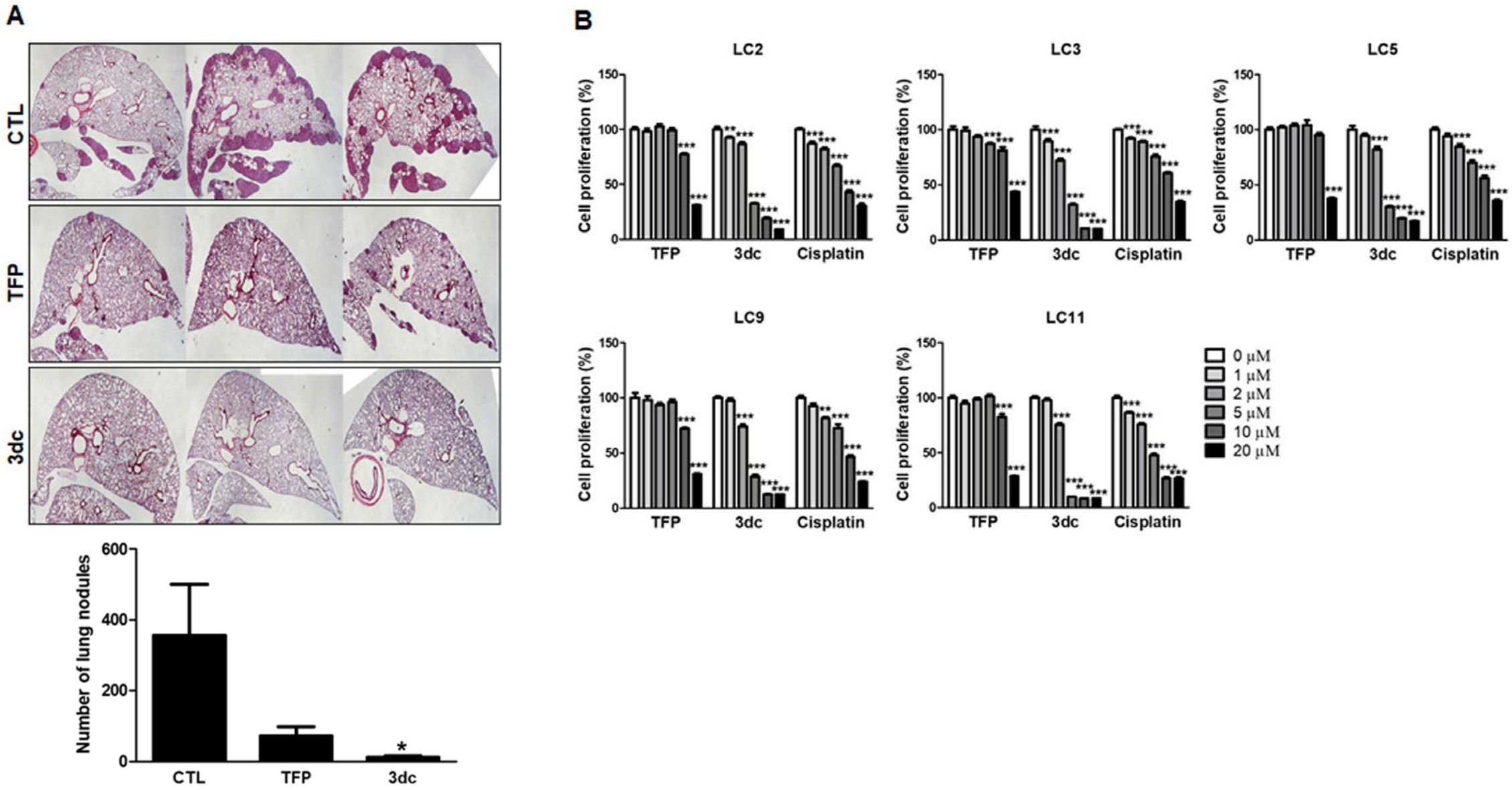


**Figure 7.** Inhibitory effect of TFP and 3dc on metastasis in A549 cell-derived xenograft model and human primary lung cancer cells



# Conclusion

According to our analysis of publicly available clinical data and *in vitro* and *in vivo* experiments, we suggest that some kinds of antipsychotics prevent the progression of NSCLC. Furthermore, this study indicates a synthetic TFP analog that could be a potential therapeutic for lung cancer.