Wild Jujube Suppresses Growth of Bronchial Epithelial Cells and Upregulates PDL1 and OX40L

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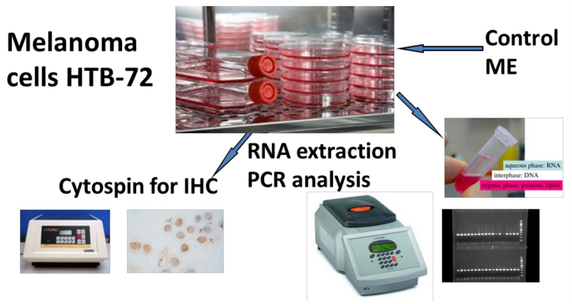
Introduction

Lung cancer is the leading death-causing cancer in the US. Wild Jujube (WJ) is a popular fruit in Asia and has been shown to have anti-cancer properties including lung cancer. However, little is known about its effects on normal bronchial epithelial cells. Co-stimulatory molecules such as PDL1, PDL2, 4-1BBL, OX40L, and CD74 are a group of cell-surface molecules activating or inhibiting T cells. These molecules play a critical role in T-cell activation against cancer. However, the role of WJ on the expression of the co-stimulatory molecules is unknown yet. This study will investigate the effects of WJ on growth in bronchial epithelial cells and on the expression of key co-stimulatory molecules.

Methods

Normal bronchial epithelial cell line, B2B, was treated with WJ extract (WJE). A clonogenic Survival Assay and Cell Proliferation kit were utilized to measure the growth of B2B in the presence of WJE. RT-PCR and IHC were utilized to determine the effects of WJE extract on the expression of key co-stimulatory molecules PDL1, PDL2, 4-1BBL, OX40L, and CD74.



Results

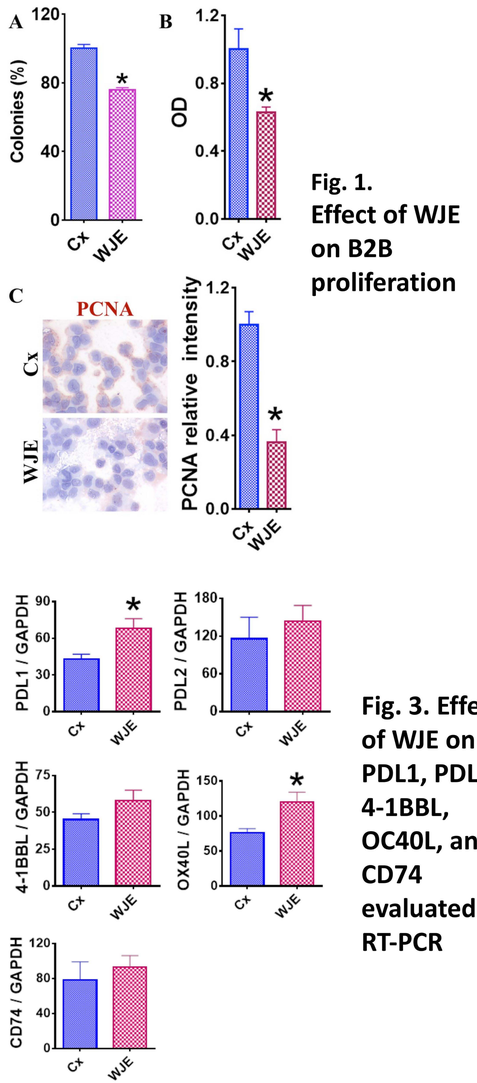


Fig. 1. Effect of WJE on B2B proliferation

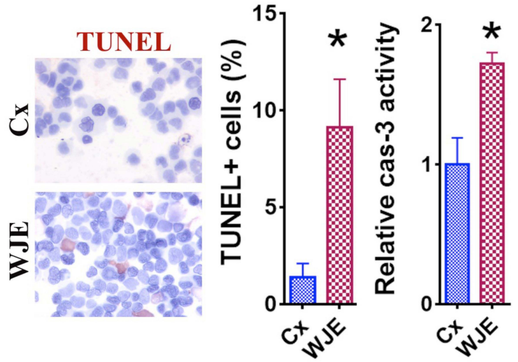


Fig. 2. Effect of WJE on B2B apoptosis

Fig. 3. Effect of WJE on PDL1, PDL2, 4-1BBL, OC40L, and CD74 evaluated by RT-PCR

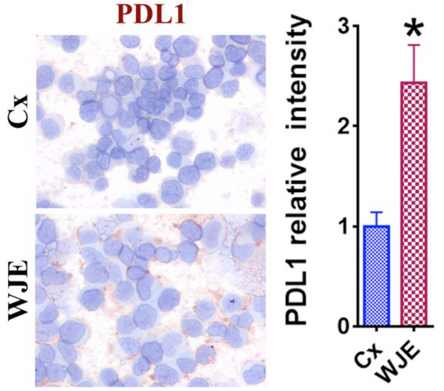


Fig. 4. Effect of WJE on PDL1 evaluated by IHC

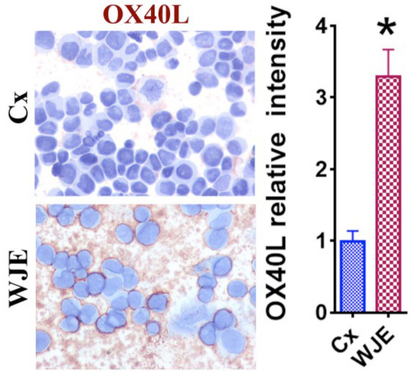


Fig. 5. Effect of WJE on OX40L evaluated by IHC

Conclusion

WJ suppresses the growth of bronchial epithelial cells and upregulates the expression of PDL1 and OX40L. The clinical significance of the upregulation of OX40L is unclear. However, the upregulation of PDL1 by WJ may protect normal bronchial epithelial cells from immune attack while lung cancer cells are targeted by immunity. Such a study may provide useful information to design WJ as an option for the treatment of lung cancer.

Acknowledgments

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