A POTENTIAL THERAPEUTIC METHOD FOR EFFICACY OF INTERSTITIAL BRACHYTHERAPY

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Introduction
Carbonyl Reductase1 (CBR1) has been reported to be involved in cancer progression. Recently, we reported that CBR1 overexpression repressed malignant behavior of uterine cervical cancer (CC) via epithelial mesenchymal transition. Arsenic trioxide (ATO) is known as an effective chemotherapeutic agent for acute promyelocytic leukemia with a low toxicity. ATO is reported to upregulate CBR1 expression by activating the transcription factor activator protein-1. In this study, we investigated the effect of ATO on the malignant behavior of CC via CBR1 expression.

Methods
We investigated the effect of ATO on malignant behavior in CC cell lines (SiHa and SKGII) in vitro by Cell proliferation Assay, Wound healing Assay, and Invasion Assay, and using the mouse models transplanted with CC cells subcutaneously.

Results
ATO increased CBR1 expression dose-dependently in the cultured cells. ATO significantly inhibited the activities of cell proliferation, invasion, and migration. 1.0×10⁶ cells of SiHa or SKGII were subcutaneously injected into the back of immunodeficient mice (Bulb-C), and 5.0 mg/kg ATO were given intravenously every two days after the tumor development on the host mice. Seven weeks after injection of ATO, the tumor growth was significantly inhibited in SiHa and SKGII (P<0.05). The CBR1 expression level in the tumor treated with ATO was significantly higher than that of control.

Conclusion/Implications
ATO inhibited the cancer growth and malignant behavior with increased CBR1 expression in CC cells. This result suggests that ATO can be the novel agent targeting CBR1 in CC treatment.