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## The effect of fucoïdan on proliferation of leiomyoma cell

**Shih-Min Hsia**

Taipei Medical University, Taiwan

**Statement of the Problem:** Uterine Leiomyoma (UL) are benign uterine tumors and the most notable pathophysiologic feature is the excessive accumulation of Extra Cellular Matrix (ECM). Fucoïdan is a polysaccharide extracted from brown seaweeds, possesses a wide range of pharmacological properties, such as anti-tumor, anti-thrombotic, anti-inflammatory and anti-fibrotic effect. The aim was to study the effect of fucoïdan on the growth of UL activated by transforming growth Factor Beta (TGF- $\beta$ ).

**Methodology & Theoretical Orientation:** ELT-3 uterine fibroids cells viability was determined by MTT method, cell cycle and cell apoptosis were stained with PI only or annexin V-FITC and PI, expressions of T $\beta$ R-I, T $\beta$ R-II, p-Smad2, Smad2/3, and fibronectin proteins was assayed by Western blot assay, cellular migration was assayed by wound healing assay, localizations of fibronectin were assayed by immunofluorescence analysis in each treatment group.

**Findings:** Treated ELT-3 cell with 0.5-2 mg/mL fucoïdan from the brown alga *Saccharina cichorioides* and observed that fucoïdan caused 50% growth inhibition with the high dose of 2 mg/ml after 48 h. Fucoïdan induces sub-G1 cell cycle arrest and apoptosis. Fucoïdan down-regulated T $\beta$ R-II, p-Smad2 protein levels and significantly inhibits migration and fibronectin localization in TGF- $\beta$ 1-induced ELT-3 cells.

**Conclusion & Significance:** Fucoïdan displays anti-proliferation, anti-fibrotic effects and exerts protective effects against the UL development.

### Biography

Shih-Min Hsia has received his PhD from National Taiwan University in 2006. Currently, he is working as an Associate Professor in the Department of Nutrition and Health Sciences, Taipei Medical University, Taipei, Taiwan. He has authored 32 research articles. He is a member of Society of Adaptive Science in Taiwan and Society for Study of Reproduction (USA).

bryanhhsia@tmu.edu.tw

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