Sulphated polysaccharides from seaweeds has potential to inhibit cell growth and cell cycle arrest of human cancer cells

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Sulphated polysaccharides from marine algeaes has been previously reported to have therapeutic properties. Especially, sulphated polysaccharides such as carrageenan and fucoidan are known to exhibit strong antitumor activities. However, little is known about the mechanism of fucoidan or carrageenan antitumor activities towards human cells. In this study, firstly, we evaluated the effects of fucoidan and carrageenan towards cell growth of HeLa cells. HeLa cells were cultured with various concentrations of fucoidan (0-100 µg/mL) and carrageenan (0-1000 µg/mL). Both sulphated polysaccharides were seen to inhibit cell growth of HeLa cells. To confirm whether cell growth is truly inhibited or not, fucci fluorescent ubiquitination-based cell cycle indicator were used to evaluate cell cycle arrest due to fucoidan and carrageenan treatment. Cell cycle was seen to be arrested at the G1 phase which indicates that later on cells would undergo apoptosis. The findings of this study so far gives the idea that fucoidan and carrageenan inhibits cell growth of HeLa cells by arresting cell cycle. Future studies are still needed to provide better understanding of the antitumor mechanisms of marine algae sulphated polysaccharides.

Biography
Eka Sunarwidhi Prasedya is a PhD candidate pursuing his PhD in Fukushima Medical University, Japan. Previously, he earned his Bachelor’s degree from Gadjah Mada University, Jogjakarta, Indonesia and Master’s degree from Universiti Malaya, Kuala Lumpur, Malaysia.

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