

# 22<sup>nd</sup> GLOBAL ANNUAL ONCOLOGISTS MEETING

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### Multiple roles of the cytoskeletal protein, gelsolin, in gastrointestinal tumor cells that contribute to dissemination and tumor progression

Gelsolin is an actin-binding protein which regulates the dynamics of the actin cytoskeleton and is involved in several pathological conditions including cancer. The roles of gelsolin in cancer are complex, there is evidence that it contributes to both tumor suppression as well as malignant progression. Studies suggest that gelsolin can act as a tumor suppressor, with decreased expression of gelsolin observed in cancers such as breast and lung cancers. On the other hand, high gelsolin expression has been correlated with aggressive tumors, such as with high grade urothelial and oral carcinomas, and lymphatic invasion in lung cancer. We identified gelsolin expression to be up-regulated in tumor tissues which exhibit disseminative behavior, such in lymph node metastases of intestinal-type gastric cancer, in primary tumors of diffuse gastric cancer and at the invasive edges of colon cancer metastases in the liver. We found that gelsolin can promote dissemination of gastrointestinal cancer cells by several mechanisms-gelsolin dysregulates the cellular redox milieu and promotes extracellular matrix degradation, leading to increased invasive activity of cancer cells. Gelsolin also interacts with the Hepatocyte Growth Factor (HGF)-cMET pathway and affects intercellular adhesion to promote cell scattering. In addition, gelsolin protects cancer cells from stress by activating autophagy. The multiple roles of gelsolin that contribute to cancer progression will be discussed.

### Biography

Celestial T. Yap has obtained MBBS degree from the National University of Singapore. She is engaged in clinical practice and subsequently obtained a PhD in Biomedical Sciences at the University of Edinburgh, UK. She is the Physiology Program Director and the Integration Lead Educator at the Yong Loo Lin School of Medicine, NUS, overseeing undergraduate education in clinical sciences. She leads the cytoskeleton and tumor biology laboratory, which focuses on cytoskeletal derangements and signaling pathways that promote tumor invasion and resistance, as well as biomarkers for cancer detection.

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