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The crucial role of CHI3L1 in vasculogenic mimicry formation of cervical cancer

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Statement of the problem: Over the past several decades, accumulating evidence has revealed that highly metastatic cancers are intimately associated with vessel-like formation that is primarily derived from tumor cells, independent of endothelial cell-mediated angiogenesis. This alternative microvascular formation lacking endothelial cells is known as vasculogenic mimicry (VM). VM develops tumor vascular networks that associated tumor growth, metastasis, and short survival time of cancer patients. However, the knowledge of VM in the vascularization of cervical cancer are not fully understood yet. Chitinase-3-like-1 (CHI3L1) has been reported to plays a critical role in angiogenesis of cervical cancer. Here, we explored a pathological function of CHI3L1 in tumor cell-mediated vascularization.

Methodology & Theoretical orientation: The sixty- six tissue samples of cervical cancer were collected to determine CHI3L1 expression and VM formation using immunohistochemistry and CD34-periodic acid-Schiff (PAS) dual staining.

Findings: CHI3L1 expression was significantly correlated with VM formation ($p = 0.031$). Interestingly, patients with VM positive tumors tended to have decreased overall survival (OS) compared to those with VM negative samples (43.9 versus 64.6 months, $p = 0.079$). In addition, recombinant CHI3L1 enhanced cervical cancer cell lines to form tube-like structures, supporting the notion that CHI3L1 mediates VM in cervical cancer. Conclusion & Significance: Our present findings suggest the crucial role of CHI3L1 by promoting the formation, which may contribute to tumor aggressiveness. Therefore, CHI3L1 may represent a novel attractive therapeutic target for the reduction of cervical cancer vascularization and metastasis.

Biography

Nipaporn Ngernyuang has completed her Ph.D. in Biomedical sciences from Khon Khan University, Thailand. Currently, she is an Assistant Professor at Chulabhorn International College of Medicine, Thammasat University, Thailand. Her program of research focuses on molecular oncology and nanotechnology for cancer treatment. She has published about 8 papers in reputed journals. She has received researcher awards for her scholarly work from Thammasat University.

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