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Senescent tumor cells lead the collective invasion in thyroid cancer

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Cellular senescence has been perceived as a barrier against carcinogenesis. However, the senescence-associated secretory phenotype (SASP) of senescent cells can promote tumorigenesis. Here, we show senescent tumour cells are frequently present in the front region of collective invasion of papillary thyroid carcinoma (PTC), as well as lymphatic channels and metastatic foci of lymph nodes. In in vitro invasion analysis, senescent tumour cells exhibit high invasion ability as compared with non-senescent tumour cells through SASP expression. Collective invasion in PTC is led by senescent tumour cells characterized by generation of a C-X-C-motif ligand (CXCL)12 chemokine gradient in the front region. Furthermore, senescent cells increase the survival of cancer cells via CXCL12/CXCR4 signalling. An orthotopic xenograft in vivo model also shows higher lymphatic vessels involvement in the group co-transplanted with senescent cells and cancer cells. These findings suggest that senescent cells are actively involved in the collective invasion and metastasis of PTC.

Biography

Young Hwa Kim has completed all the requirements for the Doctoral Degree in Biomedical Science and expect to obtain the Ph.D. Degree Certificate at the end of February 2016, officially. She has published 8 papers, out of which she is the first author of 4 papers.

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