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Specific neuropilins expression in alveolar macrophages among tissue-specific macrophages

In the immune system, neuropilins (NRPs), including NRP-1 and NRP-2, are expressed in thymocytes, dendritic cells, regulatory T cells and macrophages. Even though NRPs expression on malignant tumors and immune system has studied, a PubMed-based literature query did not yield any articles describing NRPs expression on tissue-specific macrophages. The aims of this study were (i) to detect NRPs expression on tissue-specific macrophages in the brain, liver, spleen, lymph node and lung; (ii) to observe NRPs expression in classes of macrophages, including alveolar macrophages (AMs), bronchial macrophages (BMs), interstitial macrophages (IMs), intravascular macrophages (IVMs) and macrophage subsets (M₁, M₂ and Mox) in lung; and (iii) to detect the co-expression of NRPs and dendritic cell-specific ICAM-3-grabbing nonintegrin (DC-SIGN) in AMs. Both NRPs were specifically detected in AMs among tissue-specific macrophages by immunohistochemistry (IHC). NRPs mRNA expression levels were characterized in normal lung by reverse transcriptase polymerase chain reaction (RT-PCR) and in situ-polymerase chain reaction (in situ-PCR). The frequency of NRPs+AMs in lung tissue adjacent to the cancer margin was significantly higher than the frequencies in inflamed and normal lung tissue. Double and triple IHC demonstrated that NRPs are expressed on all macrophage subsets in lung. Double IHC showed co-expression of DC-SIGN and NRPs in AMs. This study demonstrated for the first time the specific expression of both NRPs in AMs among tissue-specific macrophages and their expression on M₁, M₂ and Mox macrophages. Furthermore, the possible origin of AMs from blood monocytes could be suggested from a co-expression of NRPs and DC-SIGN.

Biography

Naing Ye Aung has completed his PhD from Yamagata University Faculty of Medicine. He is Assistant Professor of Pathological and Image Analysis Center, Cancer Research Center, Yamagata University. He has published 4 papers in reputed journals.

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