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Interleukin (IL)-23 promotes growth and proliferating activity of oral squamous cell carcinomas

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Interleukin (IL)-23 is a heterodimeric cytokine, comprising IL-12 p40 and the recently cloned IL-23-specific p19 subunit. Like IL-12, IL-23 is expressed predominantly by activated dendritic cells and phagocytic cells, and both cytokines induce IFN-γ secretion by T cells. Whereas IL-12 promotes infiltration of cytotoxic T cells, IL-23 promotes inflammatory responses, and increases angiogenesis but reduces CD8 T-cell infiltration. Although it has been currently reported that IL-23 expression is observed in various organs, it is unclear whether IL-23 is expressed in human oral squamous cell carcinomas (HOSCC). This study examined the expression of IL-23 in HOSCC and attempted to clarify the role of IL-23 in those cells. As the results, it was demonstrated that IL-23 is spontaneously expressed and increased by TNF-α in HOSCC cells. Luciferase reporter assay indicated that anti-IL-23 antibody induced a 2-fold decrease of NF-κB-dependent transcription at 4 h, which was further reduced by knockdown of IL-23 using RNA interference. Immunohistochemistry revealed a weak IL-23 immunoreactivity in the cytoplasm of inflammatory infiltrating cells and in the cancer cells derived from 14 of 40 cases (35%) of oral SCC. In contrast, strong RelA immunoreactivity was observed in 30 of 40 cases of SCC (75%), especially consistent with IL-23 positive cells in SCC tissues. These data suggest that IL-23 up-regulates the growth and cell proliferation of oral cancer by promoting the nuclear transactivation of NF-κB.

Biography

Masakatsu Fukuda has completed his Ph.D at the age of 31 years from Nihon University and postdoctoral studies from International Agency for Research on Cancer (IARC; Lyon, France). He is an assistant professor of Second Division of Oral and Maxillofacial Surgery, Department of Diagnostic and Therapeutic Sciences, Meikai University School of Dentistry. He has published more than 30 papers in reputed journals.