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TDO2+ Myofibroblasts Mediate Immune Suppression in Malignant Transformation of OSCC

Alexandria, VA, USA, June 17, 2022 – A study characterizing the dynamic change of immunological landscape during malignant transformation from precancerous lesion to cancerous lesion in oral squamous cell carcinoma (OSCC) will be presented by Zhong Yan Shan of Sun Yat-Sen University, Guangzhou, China at the 100th General Session and Exhibition of the IADR, to be held in conjunction with the 5th Meeting of the IADR Asia Pacific Region. The Interactive Talk presentation, "TDO2+ Myofibroblasts Mediate Immune Suppression in Malignant Transformation of OSCC", will take place on **Wednesday, June 22nd, 2022 at 8 a.m. China Standard Time (UTC+08:00)** during the "Clinical & Translational Science Network I" session.

The study performed scRNA-seq from 13 cancerous tissues of OSCC, 3 precancerous oral leukoplakia and 8 adjacent normal samples to systematically survey the cellular diversity of malignant transformation during oral carcinogenesis. Tumor infiltrating CD4+ and CD8+ T cells were functionally inhibited by immunosuppressive ligands expressed on various kinds of myeloid cells or neutrophils in the process of oral carcinogenesis. Notably, the study identified a subset of myofibroblasts that exclusively expressed TDO2, and TDO2 was predominantly expressed in α-SMA+ myofibroblasts in OSCC, whereas it was nearly absent in normal tissues or in tumor cells. These TDO2+ myofibroblast were located distally from tumor nests and both CD4+ and CD8+ T cells were enriched around them. Functional experiments revealed that TDO2+ myofibroblasts were more likely to possess the chemotactic ability for T cells, but induced transformation of CD4+ T cells into regulatory T cells and caused CD8+ T cell dysfunction. Survival analyses reveal that TDO2+ myofibroblasts are associated with a worse prognosis for OSCC patients. The study further showed that the use of TDO2 inhibitor LM10 attenuated the inhibitory states of T cells, re-activated its anti-tumor response and prevented the progression of OSCC malignant transformation in murine models. The study provides a multi-step transcriptomic landscape of OSCC and demonstrates that TDO2+ myofibroblasts are potential targets for immunotherapy.

View this Interactive Talk in the IADR General Session Virtual Experience Platform.

About IADR
The International Association for Dental Research (IADR) is a nonprofit organization with over 10,000 individual members worldwide, with a Mission to drive dental, oral and craniofacial research to advance health and well-being worldwide. To learn more, visit www.iadr.org.

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