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USE OF SPECIFIC IMMUNE CELLS AND THEIR SIGNALING SYSTEMS FOR R&D OF CANDIDATE ANTI-TUMOR METASTASIS PHYTOCHEMICALS

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Recent studies showed that a spectrum of innate immune responses, various immune cell types and their cross-talks, and the associated inflammatory activities are involved in tumor metastasis. Tumor metastasis is now known to be strongly affected by the surroundings or even "remote" tumor microenvironments. These findings strongly suggest that, by modulating and regulating specific immune cell responses or mechanism-defined, molecular and cellular inflammation-suppressive activities, we could then design new approaches for therapeutics or treatment of cancer metastasis. Interestingly, it's increasingly known and appreciated that various Traditional Chinese Medicines (TCM), especially some commonly used medicinal herbs, have been claimed with functional specificity (e.g. anti-dermatitis, suppress severe inflammation, promote wound-healing) and routinely used historically for hundreds to thousands of years. These activities recently have also been re-established for their "strong anti-inflammatory" activities at the cellular and tissue levels and are being actively evaluated toward control of specific anti-inflammation at the organ/tissue levels. With the above observations and understandings, my laboratory has investigated a group of phytoextracts or the derived pure phytochemicals from specific TCM plants, and evaluated their bioactivities/effects, *in vitro* and *in vivo*, on dendritic cells, MDSCs, Th17, Tregs and other immune cell types in mouse models relevant to specific tumor metastasis systems. Experimentally, we employed functional genomics, proteomics, transgenic promoter analysis, cytokine/chemokine profiling, micro RNA arrays and signaling pathway analysis systems in various cross-examination studies. Results and findings published in eight key papers during the past several years will be discussed and projected for future research directions.



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