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Cytokine arrays reveal “Black Ops” tactics of tumor-induced immunosuppression

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The immune system continuously scans for foreign substances on pathogens and aberrant cells and targets them for elimination. To persist and grow, tumors must evade or sabotage this constant immunosurveillance. The mechanisms of innate and adaptive immune response and of tumor-induced immunosuppression involve complex networks of many different cell types that are regulated and coordinated by numerous cytokines and other related secreted proteins. Much of our current understanding of these complex interactions have come through the dissection of cell-cell communication networks in the tumor microenvironment using multiplexed protein detection, such as cytokine antibody arrays, which can detect expression of dozens or hundreds of proteins in a single experiment. This presentation will give examples of the investigative power of cytokine antibody arrays to help identify key factors in complex biological mechanisms in conjunction with more classical methods of cellular and molecular biology. Additionally, a model of tumor-induced immunosuppression, suggested by the collective results of such experiments, will be presented along with the implications of this model for future investigations of cancer immunology.

Biography

Ruo-Pan Huang is a founder and CEO of RayBiotech, Inc and adjunct Associate Professor of Emory University. As a pioneer in the development of protein array technology, he and his team have developed many innovative protein array technologies and products which now are widely used worldwide by many investigators. He has published about 100 scientific research papers. He also serves on the editorial board of several journals such as Cancer Genomics and Proteomics, journal of analytical oncology and open journal of proteomics and on several other committees, including an NIH study section and Chinese National Natural Science Fund. His research has been funded by NIH, ACS, Emory University and others. During his tenure, he has received several awards, including the American Cancer Society Young Investigator Award.

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