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The Curiel lab is focused on disease immunopathology. Our emphasis is on tumor immunology, but significant work in cell signaling is also ongoing. We have demonstrated that the tumor microenvironment conditions dendritic cells (an antigen presenting cell specialized to prime naïve T cells) to induce dysfunctional immunity in patients with cancer. Thus, instead of inducing protective anti-tumor CD8⁺ cytotoxic T cells, tumor-conditioned antigen presenting cells tend to induce CD4⁺ regulatory T cells (Tregs) that inhibit tumor immunity. We are investigating mechanisms of Treg induction and of antigen presenting cell dysfunction in a mouse model for ovarian cancer and in human patients with cancer. We translate discoveries into human clinical trials that are ongoing in our Cancer Center. Part of our group engages in drug discovery to develop novel reagents for human clinical trials. Signaling work relates to chemokines, especially CXCL12, and MAP kinases, especially p38 MAPK, and their roles in tumor biology. We recently began studies of Th17 immunity in cancer, and mechanisms of its induction. Each component of our research is funded through distinct grants from the National Cancer Institute. Our lab has cell analysis, cell sorting, and much additional core facility type hardware on site for rapid and efficient conduct of research.

Key recent publications

- Zou, W., *et al.* Stromal-derived factor-1 in human tumors recruits and alters the function of plasmacytoid precursor dendritic cells. *Nature Medicine* **7**, 1339-1346. (2001).
- Curiel, T.J., *et al.* Blockade of B7-H1 improves myeloid dendritic cell-mediated antitumor immunity. *Nature Medicine* **9**, 562-567 (2003).
- Curiel, T.J., *et al.* Dendritic cell subsets differentially regulate angiogenesis in human ovarian cancer. *Cancer Research* **64**, 5535-5538 (2004).
- Curiel, T.J., *et al.* Specific recruitment of regulatory T cells in ovarian carcinoma fosters immune privilege and predicts reduced survival. *Nature Medicine* **10**, 942-949 (2004).
- Kryczek, I., *et al.* B7-H4 expression identifies a novel suppressive macrophage population in human ovarian carcinoma. *The Journal of Experimental Medicine* **203**, 871-881 (2006).
- Curiel, T.J. Regulatory T-cell development: is Foxp3 the decider? *Nature Medicine* **13**, 250-253 (2007).
- Curiel, T.J. Tregs and rethinking cancer immunotherapy. *The Journal of Clinical Investigation* **117**, 1167-1174 (2007).
- Curiel, T.J. Regulatory T cells and treatment of cancer. *Current Opinion in Immunology* **20**, 1-6 (2008)