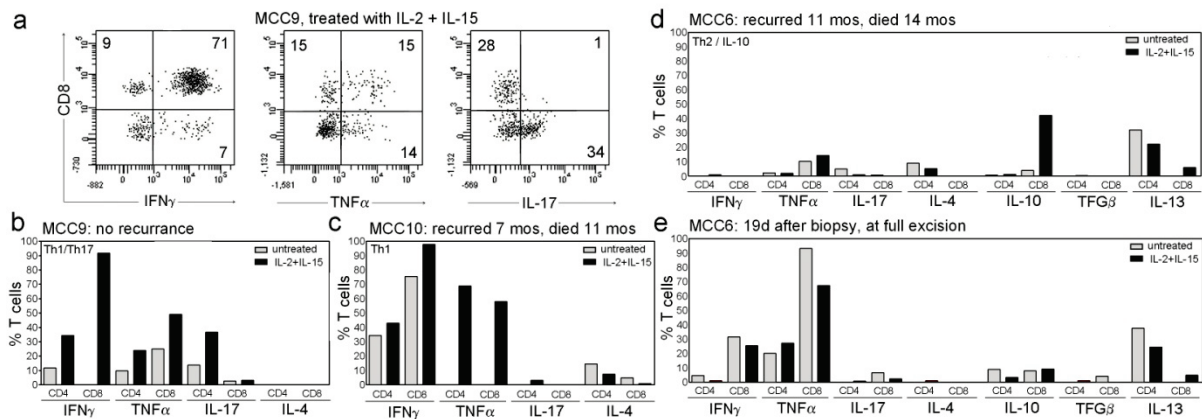
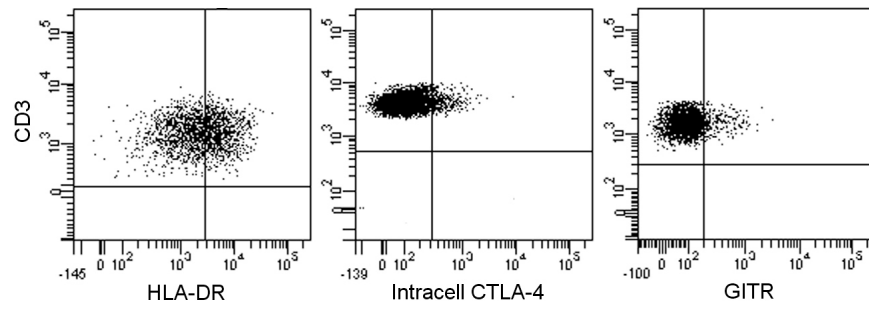


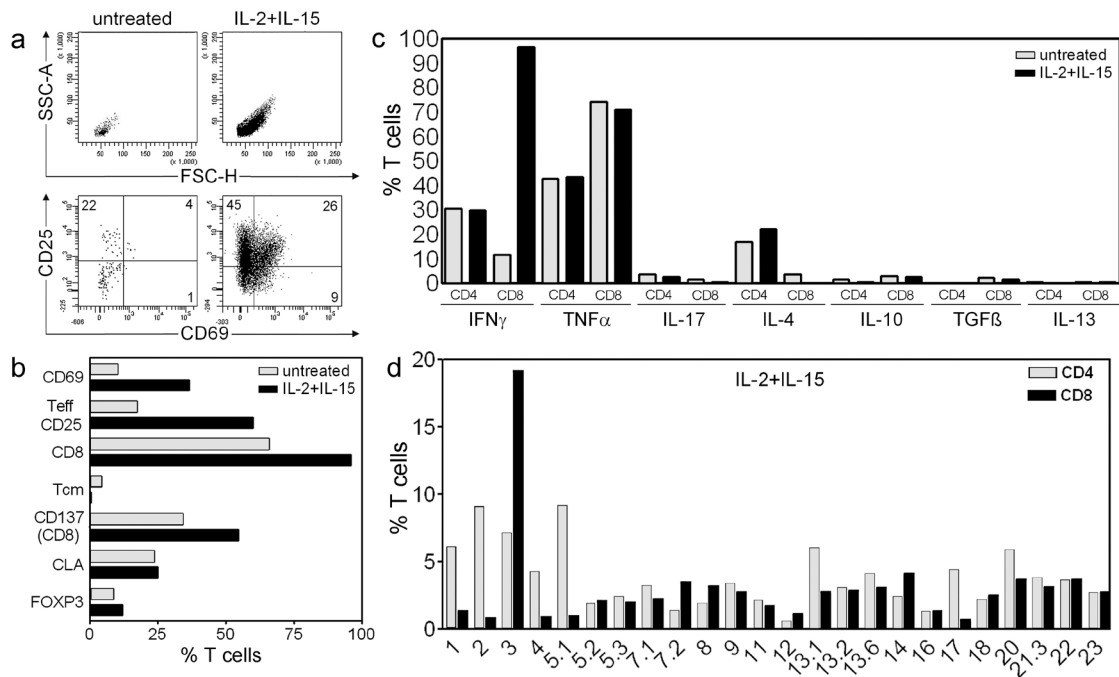
**Supplemental Figure 1. A combination of IL-2 and IL-15 was optimal for the activation and expansion of T cells from MCC.** T cells isolated from the same MCC tumor in the presence of no exogenous cytokines (control), IL-2 alone (IL-2) or a combination of IL-2 and IL-15 (IL-2+IL-15) are shown. Inclusion of both IL-2 and IL-15 induced (a) maximal T cell activation, (b) preferential expansion of CD8 T cells and (c) maximal T cell proliferation, whereas IL-2 alone was minimally effective. IL-15 alone induced T cell activation but less overall T cell proliferation (data not shown). (d) Effects of IL-2 alone vs. IL-2+IL-15. CD137 expression of CD8 T cells was enhanced only in tumors treated with both IL-2 and IL-15. A representative tumor is shown; similar results were obtained in two additional tumors. All histograms are gated to show CD3<sup>+</sup> T cells.



**Supplemental Figure 2. In vitro treatment of MCC tumors with IL-2 and IL-15 enhances T cell cytokine production.** T cells were isolated from 5 MCC tumors cultured for two weeks in control medium (untreated) or IL-2 and IL-15 (IL-2+IL-15); cytokine production was assayed by intracellular cytokine staining after stimulation with PMA and ionomycin. **(a, b)** One patient showed enhanced production of IFN $\gamma$ , TNF $\alpha$  and IL-17 production in treated tumors. **(c)** A second subset of patients (2/5) demonstrated increased production of IFN $\gamma$  and TNF $\alpha$  but little IL-17. **(d)** Expanded TIL from a third group of patients (2/5) showed significant production of Th2 cytokines (IL-4, IL-13) and IL-10 but no enhancement of IFN $\gamma$ , TNF $\alpha$  and IL-17 production. **(e)** T cells isolated from the same tumor shown in panel D 19 days after the initial biopsy showed enhanced production of IFN $\gamma$  and TNF $\alpha$ , suggesting migration of Th1 T cells into the tumor occurred following the biopsy procedure. All histograms are gated to show CD3<sup>+</sup> T cells.



**Supplemental Figure 3. Expression of HLA-DR, GITR and intracellular CTLA-4 on T cells from normal human skin.**



**Supplemental Figure 4. MCC metastases also contain T cells that can be activated and expanded by treatment with IL-2 and IL-15.** (a) T cells from IL-2/IL-15 treated MCC metastases showed expansion and increased expression of the activation markers CD69 and CD25. (b) CD8<sup>+</sup> effector cells preferentially proliferated and CD137 expression was enhanced on CD8 T cells. (c) IFN $\gamma$  production was markedly enhanced and there was (d) significant skewing of the T cell repertoire. All histograms are gated to show CD3<sup>+</sup> T cells.