

Immunotherapy/Inflammation targeting as an opportunity:

Both neoplastic and normal cells can be targeted for overall anti-tumor efficacy.

Cancer Stem Cells (CSC) represent cutting edge targets.

Current preclinical models are inadequate for assessing human indirect immune-mediated anti-tumor effects.

“Off-target” effects affecting quality of life issues (pain, cachexia susceptibility to opportunistic infections) are more appreciated.

Impact of age on immune response and adverse events.

Alternative and complementary medicines/nutrition as immune modulators.

Active and Adoptive Immunotherapy

1. T cell transfer (CARs)
2. DC transfer (Provenge)
3. NK cell transfer (to attack CSC)
4. Immunomodulatory antibody use (CTLA4, PD1)
5. Inhibitory pathway blockade (IDO, Treg depletion)
6. Local immunomodulation (BCG, IL2, anti-CD40)
7. Use of nanotechnology to improve efficacy

UC Davis- Immunotherapy

1. Murphy Laboratory- preclinical assessment of NK cells, Velcade, anti-CD40/IL2, nano-delivery platforms
2. Tuscano Laboratory- new mAbs, immunomodulation
3. Abedi Laboratory- GVHD and GVT
4. Maverakis Laboratory- Local IL2 in skin cancer
5. Lam laboratory- nano-delivery platforms
6. Liu Laboratory- Galectins
7. Monzajab- Toll receptor (CpG) and radiation therapy

Inflammation as a Target in Cancer

1. Inflammation plays a role in chronic pathology/disease/pain
2. Angiogenesis
3. Invasion/metastasis
4. Immune suppression

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UC DAVIS CANCER IMMUNOTHERAPY POTENTIAL- PROs

1. Stem Cell Center (Cancer Stem Cell expertise) and GMP Facility
2. Vet School and Primate Center (large animal testing)
3. State-of-the-art imaging (including small animal)
4. Nanotechnology for delivery (consortium with LLNL)
5. Strong program in prostate cancer
6. Inflammation blockers easy to add-on

UCD CANCER IMMUNO/INFLAMMATION THERAPY-Cons

1. Lack of RO1-funded researchers
2. Complex immune monitoring core needs
3. Inflammation has discovery pipeline but little resources for bench-to-bedside
4. Lack of substantial immunotherapy trial history (even with current FDA-approved agents) and cancer immunology or inflammation applications
5. HSCT unit still developing
6. Campus distance