Craig Elmets, M.D. - Co-Leader

Clinton Grubbs, Ph.D. - Co-Leader

Overview:

The Cancer Center Chemoprevention Program, co-directed by Craig Elmets, M.D. (Professor and Chair, Department of Dermatology) and Clinton Grubbs, Ph.D. (Professor, Department of Surgery) is dedicated to the discovery of interventions, through both natural and synthetic agents, for the prevention of malignancy. The Program has major efforts in drug discovery including:

- Novel patented retinoids and isoflavinoids
- Preclinical studies of chemopreventive mechanisms of action
- Animal models for screening and mechanism of action studies
- Biomarker standardization and evaluation
- Early Phase I/II clinical trials involving premalignant and malignant lesions of skin, head and neck cancer and breast.

The Program also has significant projects in breast, skin, and head and neck cancer as well as extensive collaborations with investigators in Structural Biology, Tumor Biology, Experimental Therapeutics and Woman's Cancer.

Goals:

The overall goal of the Cancer Chemoprevention Program is to determine, through basic and clinical research, the role of chemoprevention agents in the prevention of cancer. Research is currently focused on the following five areas of interest:

- Development and characterization of novel chemoprevention agents
- Basic laboratory studies of the ability of naturally occurring and synthetic chemicals to prevent or delay the process of carcinogenesis
- Preclinical studies of chemoprevention agents using animal models
- Identification of molecular biomarkers (e.g. surrogate endpoint biomarkers), which can be used to evaluate the effectiveness of novel chemoprevention agents
- Early phase chemoprevention trials evaluating novel chemoprevention agents

Meetings and Events:

The Cancer Chemoprevention Program holds monthly lunch seminars. These seminars may

consist of an intramural speaker from the Program or an extramural speaker from outside UAB, or of informal brainstorming sessions with no featured speaker. UAB scientists from outside the Comprehensive Cancer Center are also invited to share their research. In addition, special lectures have been co-sponsored with the UAB Skin Diseases Research Center, the UAB Program in Immunology, and the Department of Surgery.

Significant Recent Publications:

Harper CE, Cook LM, Patel BB, Wang J, Eltoum IA, Arabshahi A, Shirai T, **Lamartiniere CA**. Genistein and resveratrol, alone and in combination, suppress prostate cancer in SV-40 tag rats.
Prostate.
69(15): 1668-82.

Meeran SM, Akhtar S, **Katiyar SK.** Inhibition of UVB-induced skin tumor development by drinking green tea polyphenols is mediated through DNA repair and subsequent inhibition of inflammation. *J Invest. Dermatol.* 129(5): 1258-70, 2009.

Steele VE, Rao CV, Zhang Y, Patlolla J, Boring D, Kopelovich L, Juliana MM, **Grubbs CJ**, Lubet RA. Chemopreventive efficacy of naproxen and nitric oxide-naproxen in rodent models of colon, urinary bladder, and mammary cancers.
Cancer Prev Res.

2(11): 951-6, 2009.

Tang X, Zhu Y Han L, Kim AL, Kopelovich L, Bickers DR, **Athar M**. CP-31398 restores mutant p53 tumor suppressor function and inhibits UVB-induced skin carcinogenesis in mice.
J Clin Invest
. 117: 3753-3764, 2008.

Yusuf N, Nasti TH, Meleth S, **Elmets CA**. Resveratrol enhances cell-mediated immune response to DMBA through TLR4 and prevents DMBA induced cutaneous carcinogenesis.
Mol Carcinog.
48(8): 713-23, 2009.

Leadership:

Craig Elmets, M.D., is Professor and Chair of the Department of Dermatology at UAB. His research focuses on the chemoprevention of non-melanoma skin cancer. Grouped together under the term nonmelanoma skin cancer, cutaneous squamous cell and basal cell carcinomas are the most common malignancy in humans. In the United States alone, over one million new nonmelanoma skin cancers are diagnosed each year. In animal models, Dr. Elmets has examined the chemopreventive effects of green tea polyphenols in UV-induced skin cancer and is evaluating vaccine strategies for skin cancer produced by carcinogenic polyaromatic hydrocarbons. Dr. Elmets has conducted phase II/III skin cancer chemoprevention trials in

humans with cyclooxygenase inhibitors and also with topically applied DNA repair enzymes.

Clinton J. Grubbs, Ph.D., is a basic scientist with primary research interest in the chemoprevention of urinary bladder, breast, and ovarian cancers. His major area of research is the identification of nutrient and non-nutrient agents that exhibit efficacy in the prevention of these cancers. He is a Professor in the UAB Department of Surgery and a Senior Scientist in the UAB Comprehensive Cancer Center. Dr. Grubbs has established four laboratories for the preclinical evaluation of agents for chemoprevention activity; animal models, histopathology, biochemical, and pharmacology-toxicology. In 1987 he was awarded Master Agreements from the National Cancer Institute for *in vivo* screening of chemopreventive agents and the evaluation of the efficacy of potential preventive compounds. The agreements continue to be active. As a result of these research efforts, Dr. Grubbs has established a strong liaison with the Chemoprevention Agent Development Research Group of the Division of Cancer Prevention at the NCI.

Cancer Chemoprevention Program Members