

## Biological Mechanisms of Psychosocial Effects on Disease (BiMPED) Initiative

Launched in 2002, the objective of the BiMPED initiative is to elucidate biological and molecular mechanisms associated with biobehavioral influences on cancer progression.

The Basic and Biobehavioral Research Branch seeks to encourage mechanistic studies to identify biological signaling pathways that might inform how behavioral stress and other influences on tumorigenesis are mediated by the central nervous system.

### Scientific Advances



Scientific symposium: “Biobehavioral Influences on Cancer Biology: An Emerging Opportunity.” Presented at the 36<sup>th</sup> Regular Meeting of the National Cancer Institute’s Board of Scientific Advisors, March 2007.

Antoni MH, Lutgendorf SK, Cole S, Dhabar FS, Sephton S, McDonald PG, Stefanek M, & Sood AK (2006). The influence of biobehavioural factors on tumor biology: Pathways and mechanisms. *Nature Reviews Cancer*, 6, 240-248.

*Brain, Behavior, and Immunity* Special Issue (Volume 17, February 2003, Supplement 1).

### Selected Publications



Giese-Davis J, Wilhelm FH, Conrad A, Abercrombie HC, Sephton S, Yutsis M, Neri E, Taylor CB, Kraemer HC, & Spiegel D (2006). Depression and stress reactivity in metastatic breast cancer. *Psychosomatic Medicine*, 68(5), 675-683.

Thaker PH, Han LY, Kamat AA, Arevalo JM, Takahashi R, Lu C, Jennings NB, Armaiz-Pena G, Bankson JA, Ravoori M, Merritt WM, Lin YG, Mangala LS, Kim TJ, Coleman RL, Landen CN, Li Y, Felix E, Sanguino AM, Newman RA, Lloyd M, Gershenson DM, Kundra V, Lopez-Berestein G, Lutgendorf SK, Cole SW, & Sood AK (2006). Chronic stress promotes tumor growth and angiogenesis in a mouse model of ovarian carcinoma. *Nature Medicine*, 12(8), 939-44.



Yang EV, Sood AK, Chen M, Yang L, Eubank T, Marsh CB, Jewell S, Flavahan NA, Morrison C, Yeh P, Lemeshow S, & Glaser R (2006). Norepinephrine up-regulates the expression of vascular endothelial growth factor, matrix metalloproteinase-2, and matrix metalloproteinase-9 in nasopharyngeal carcinoma tumor cells. *Cancer Research*, 66(21), 1-9.

Costanzo E, Lutgendorf SK, Sood AK, Anderson B, & Lubaroff D (2005). Psychosocial factors and interleukin-6 among women with advanced ovarian cancer. *Cancer*, 104, 305-313.

Saul AN, Oberyshyn TM, Daugherty C, Kusewitt D, Jones S, Jewell S, Malarkey WB, Lehman A, Lemeshow S, & Dhabhar FS (2005). Chronic stress and susceptibility to skin cancer. *Journal of the National Cancer Institute*, 97(23), 1760-7.

# BiMPED Research Portfolio

The Basic and Biobehavioral Research Branch holds a promising portfolio of research related to the BiMPED initiative. Examples include:

## Contributions of sleep/rhythms/fatigue to “chemobrain”

Sonia A. Ancoli-Israel  
University Of California, San Diego

## Psychological interventions for women with breast cancer

Barbara L. Andersen  
Ohio State University

## Biobehavioral effects of emotional expression in cancer

Lorenzo Cohen  
University of Texas, MD Anderson Cancer Center

## Stress and UV-induced squamous cell carcinoma

Firdaus Dhabhar  
Stanford University

## Effects of opioids on sleep and fatigue

Joel E. Dimsdale  
University of California, San Diego

## Individual differences in pain modulation as predictors of post-surgical pain

Robert R. Edwards  
John Hopkins University

## Biobehavioral pathways in oral precancers

Carolyn Y. Fang  
Fox Chase Cancer Center

## Cognitive functioning after breast cancer treatment

Patricia Ganz  
University of California, Los Angeles

## Stress, the immune system, and basal cell carcinoma

Ronald Glaser  
Ohio State University

## Tai chi effects on chronic insomnia in breast cancer survivors: Immune mechanisms

Michael Irwin  
University of California, Los Angeles

## Biobehavioral-cytokine interactions in ovarian cancer

Susan K. Lutgendorf  
University of Iowa

## Cranial stimulation for chemo symptoms in breast cancer

Debra E. Lyon  
Virginia Commonwealth University

## Immune dysregulation by psychosocial distress

Herbert L. Mathews  
Loyola University, Chicago

## PNI-based stress management in early breast cancer

Nancy L. McCain  
Virginia Commonwealth University

## Psychological stress, cortisol, and B lymphocyte decrements

Bonnie A. McGregor  
Fred Hutchinson Cancer Research Center

## PNI relations among women with endometrial cancer during the perioperative period

Deidre B. Pereira  
University of Florida

## Tumor metastasis: Biobehavioral mechanisms

Anil K. Sood  
University of Texas, MD Anderson Cancer Center

## Sleep, circadian, hormonal dysregulation and breast cancer survival

David Spiegel  
Stanford University

## Stress, immunity, and cervical cancer: Biobehavioral outcomes of a randomized trial

Lari B. Wenzel  
University of California, Irvine

## Funding Opportunities

### Research on Mind-Body Interactions in Health

PA-07-046, expires 1/3/10  
<http://grants.nih.gov/grants/guide/pa-files/PA-07-046>

### Biobehavioral Methods to Improve Outcomes Research

PA-07-008, expires 9/2/08 and PA-07-072, expires 9/2/08  
<http://grants.nih.gov/grants/guide/pa-files/PA-07-008>  
<http://grants.nih.gov/grants/guide/pa-files/PA-07-072>

### Functional Links Between the Immune System, Brain Function and Behavior

PA-06-533, expires 9/2/08 and PA-07-088, expires 3/6/08  
<http://grants.nih.gov/grants/guide/pa-files/PA-06-533>  
<http://grants.nih.gov/grants/guide/pa-files/PA-07-088>

## For More Information

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<http://biobehavioral.cancer.gov>

<http://www.cancercontrol.cancer.gov/bimiped>

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