

# Diet, Epigenetic Events, and Cancer Prevention Symposium



September 26-27, 2007 • Gaithersburg Marriott Washingtonian Center



**Gaithersburg Marriott Washingtonian Center  
Gaithersburg, Maryland**

## AGENDA

**Sponsors: Division of Cancer Prevention (DCP), National Cancer Institute (NCI), and Office of Dietary Supplements (ODS) at the National Institutes of Health (NIH)**

### Day 1: Wednesday, September 26, 2007

- 7:30 a.m. – 8:00 a.m.**                      **Registration and Light Refreshments**
- 8:00 a.m. – 8:05 a.m.                      **Welcome**  
**Sharon Ross**, DCP, NCI
- 8:05 a.m. – 8:20 a.m.                      **Opening Remarks**  
**Peter Greenwald**, Director, DCP, NCI  
**Paul Coates, Director**, ODS, NIH  
**John Milner, Chief**, Nutritional Science Research Group (NSRG),  
DCP, NCI
- 8:20 a.m. – 8:55 a.m.                      **Overview: Epigenetic Progression of Human Lung Cancer:  
Early Events in the Development of Cancer**  
**James Herman**, Johns Hopkins University
- 8:55 a.m. – 9:05 a.m.                      Discussion
- 9:05 a.m. – 12:15 p.m.**                      **Session 1: Are There Critical Times of DNA Methylation and  
Potential Modification by Dietary Factors?**  
**Moderator: Johanna Dwyer**, ODS, NIH
- 9:05 a.m. – 9:30 a.m.                      **Maternal Nutrient Supplementation  
Counteracts Bisphenol A-Induced DNA  
Hypomethylation in Early Development**  
**Dana Dolinoy**, Duke University
- 9:30 a.m. – 9:40 a.m.                      Discussion
- 9:40 a.m. – 10:05 a.m.                      **Effects of Methyl Donors on Epigenetic  
Inheritance and CpG Methylation at the  
A<sup>vy</sup> Allele**  
**David I.K. Martin**, Children's Hospital Oakland  
Research Institute
- 10:05 a.m. – 10:15 a.m.                      Discussion

10:15 a.m. – 10:35 a.m.

**BREAK**

10:35 a.m. – 11:00 a.m. **One-Carbon Nutrients and Age as Co-Determinants of Colorectal Carcinogenesis**  
**Joel B. Mason**, Jean Mayer U.S. Department of Agriculture Human Nutrition Research Center on Aging at Tufts University

11:00 a.m. – 11:10 a.m. Discussion

11:10 a.m. – 11:35 a.m. **Reversal of Hypermethylation and Reactivation of Genes by Dietary Polyphenolic Compounds**  
**Chung S. Yang**, Rutgers University

11:35 a.m. – 11:45 a.m. Discussion

11:45 a.m. – 12:15 p.m.

**Session 1 Group Discussion**

12:15 p.m. – 1:15 p.m.

**LUNCH (on your own)**

1:15 p.m. – 4:25 p.m.

**Session 2: Examining Diet and DNA Methylation Patterns in Human Population and Intervention Studies. What Is Needed To Move Forward?**

**Moderator: Asad Umar**, DCP, NCI

1:15 p.m. – 1:40 p.m. **Epigenetic Epidemiology of Obesity: Application of Epigenomic Technologies**  
**Robert A. Waterland**, Baylor College of Medicine

1:40 p.m. – 1:50 p.m. Discussion

1:50 p.m. – 2:15 p.m. **Folate, Diet, and DNA Methylation in Colonic Mucosa**  
**Jean-Pierre Issa**, University of Texas at M.D. Anderson Cancer Center

2:15 p.m. – 2:25 p.m. Discussion

2:25 p.m. – 2:50 p.m. **DNA Methylation Biomarkers To Assess Selenium Chemoprevention for Non-Small-Cell Lung Cancer**  
**Steven A. Belinsky**, Lovelace Respiratory Research Institute

2:50 p.m. – 3:00 p.m. Discussion

3:00 p.m. – 3:20 p.m.

**BREAK**

3:20 p.m. – 3:45 p.m. **Modeling Folate, One-Carbon Metabolism, and DNA Methylation**  
**Cornelia M. Ulrich**, Fred Hutchinson Cancer Research Center

3:45 p.m. – 3:55 p.m. Discussion

3:55 p.m. – 4:25 p.m.

### Session 2 Group Discussion

4:25 p.m. – 5:50 p.m.

**Session 3: What Is the Role of Non-Coding RNA in Transcriptional Gene Silencing? Is There Evidence for Diet and Bioactive Food Components To Modulate This Gene Expression Regulatory Mechanism?**

Moderator: **Jacob Kagan**, DCP, NCI

4:25 p.m. – 4:50 p.m. **The Role of RNA in the Regulation of Gene Expression**  
**Kevin V. Morris**, The Scripps Research Institute

4:50 p.m. – 5:00 p.m. Discussion

5:00 p.m. – 5:25 p.m. **Differential Expression of MicroRNAs During Methyl-Deficient-Induced Rat Hepatocarcinogenesis**  
**Igor Pogribny**, U.S. Food and Drug Administration, National Center for Toxicological Research

5:25 p.m. – 5:35 p.m. Discussion

5:35 p.m. – 5:50 p.m.

### Session 3 Group Discussion

5:50 p.m.

### ADJOURNMENT

## Day 2: Thursday, September 27, 2007

8:30 a.m. – 11:40 a.m.

**Session 4: How Strong Is the Evidence for the Impact of Diet on Histone Modification and Gene Expression?**

Moderator: **Mukesh Verma**, Division of Cancer Control and Population Sciences, NCI

8:30 a.m. – 8:55 a.m. **Dietary Agents as Histone Deacetylase Inhibitors**  
**Roderick H. Dashwood**, Linus Pauling Institute, Oregon State University

8:55 a.m. - 9:05 a.m. Discussion

9:05 a.m. – 9:30 a.m. ***In Vivo* Treatment by Diallyl Disulfide Increases Histone Acetylation in Rat Colonocytes**  
**Nathalie Druesne-Pecollo**, Laboratoire de Nutrition et Sécurité Alimentaire, L'institut National de la Recherche Agronomique

9:30 a.m. - 9:40 a.m. Discussion

9:40 a.m. – 10:05 a.m. **Dietary Polyphenols Mediated Regulation of Oxidative Stress and Chromatin Remodeling in Inflammation**  
**Irfan Rahman**, University of Rochester Medical Center

10:05 a.m. – 10:15 a.m. Discussion

**10:15 a.m. – 10:35 a.m.**

**BREAK**

10:35 a.m. – 11:00 a.m. **Epigenetic Regulation of Chromatin Structure and Gene Function by Biotin: Are Biotin Requirements Being Met?**  
**Janos Zemleni**, University of Nebraska at Lincoln

11:00 a.m. – 11:10 a.m. Discussion

**11:10 a.m. – 11:40 a.m.**

**Session 4 Group Discussion**

**11:40 a.m. – 4:45 p.m.**

**Session 5: What Are the Emerging Issues and Approaches in Epigenetics Research?**

**Moderator: Barbara Dunn**, DCP, NCI

11:40 a.m. – 12:05 p.m. **Epigenetics Meets Diet: Applications of Epigenomic Tools in Nutrition**  
**Tim H. Huang**, Ohio State University

12:05 p.m. – 12:15 p.m. Discussion

**12:15 p.m. – 1:15 p.m.**

**LUNCH (on your own)**

1:15 p.m. – 1:40 p.m. **Mouse Models To Elucidate Mechanisms of Folate-Related Cancer Pathologies**  
**Patrick Stover**, Cornell University

1:40 p.m. – 1:50 p.m. Discussion

1:50 p.m. – 2:15 p.m. **Folate, DNA Methylation Machinery, and Breast Tumorigenesis**  
**Joshua Miller**, University of California, Davis

2:15 p.m. – 2:25 p.m. Discussion

2:25 p.m. – 2:50 p.m. **The BMI-1 Polycomb Group Gene in Skin Cancer – Regulation of Function by (-)-Epigallocatechin-3-Gallate (EGCG)**  
**Richard L. Eckert**, University of Maryland School of Medicine

2:50 p.m. – 3:00 p.m. Discussion

**3:00 p.m. – 3:20 p.m.**

**BREAK**

3:20 p.m. – 3:45 p.m. **NIH Roadmap Epigenomics Program**  
**Brenda Weis**, National Institute of Environmental Health Sciences

3:45 p.m. – 3:55 p.m. Discussion

3:55 p.m. – 4:20 p.m. **Influence of Genetic Inheritance on Global Epigenetic States and Cancer Risk Prediction With DNA Methylation Signature: Challenges in Data Analysis and Informatics Infrastructure**  
**Maxwell Lee**, Laboratory of Population Genetics, NCI

4:20 p.m. – 4:30 p.m. Discussion

**4:30 p.m. – 4:45 p.m.**

**Session 5 Group Discussion**

4:45 p.m. – 5:00 p.m.

**Summary, Directions for Future Research, and Wrap-Up**  
**Sharon Ross**, DCP, NCI

**5:00 p.m.**

**ADJOURNMENT**

Version 7.0