

NCI Summer Curriculum in Cancer Prevention

Molecular Prevention Course

August 5 – 9, 2013

**6001 Executive Boulevard
Conference Rooms C and D
Rockville, MD 20852
301-435-1465**

Course Syllabus 2013

*U.S. Department of Health and Human Services
National Institutes of Health
National Cancer Institute
Division of Cancer Prevention
Cancer Prevention Fellowship Program*

NCI Summer Curriculum in Cancer Prevention

Molecular Prevention Course

Date: August 5 –9, 2013

Time: 8:30 a.m. to 10:00 a.m.
10:30 a.m. to 12:00 p.m.
1:00 p.m. to 2:30 p.m.
(Occasionally, lecture times will vary.)

Location: 6001 Executive Boulevard
Conference Rooms C and D
Rockville, MD 20852
301-435-1465

Course Director: Jessica M. Faupel-Badger, PhD, MPH, Deputy Director

Course Coordinators: Studly Auguste

Course presented by:

Cancer Prevention Fellowship Program
Division of Cancer Prevention
National Cancer Institute
National Institutes of Health
9609 Medical Center Drive, Suite 2W-136
Rockville, MD 20850
Telephone: 240-276-5626
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<http://cancer.gov/prevention/pob>

David E. Nelson, MD, MPH, Director
Jessica M. Faupel-Badger, PhD, MPH, Deputy Director

Program Staff:
Studly Auguste
Tiffany Bates
Nicole Hollis
Ellen Jaffe
Tamika McKay
Katherine Ross

Educational Objective for Molecular Prevention Course

The overall objective of the course is to provide specialized instruction in the principles of molecular biology as applied to the field of cancer prevention. The course focuses on the concepts, methods, issues, and applications of molecular biology in cancer prevention efforts and the genetics of cancer. Participants will have an opportunity to gain a broad-based perspective of these subject areas, including basic laboratory methodology and theory of how molecular techniques are applied to molecular epidemiology, bionutrition, chemoprevention, biomarkers, and translational research. Lifelong learning skills include critical appraisal of molecular approaches, methodologies, and theories used in the field of cancer prevention.

After attending this activity, participants will be able to: outline and apply the principles of molecular biology in cancer prevention; describe the concepts and methods of molecular biology in the field of genetics of cancer; demonstrate theoretical knowledge of basic laboratory methodology and identify techniques in the areas of molecular epidemiology, bionutrition, chemoprevention, biomarkers, and translational research; discuss the process of translating laboratory research to cancer prevention; and interpret methodologies and theories used in the field of cancer prevention.

The target audiences are MD- and PhD-degree holders who were selected into the Cancer Prevention Fellowship Program, and MD- and PhD-degree holders with an interest in cancer prevention and control from the NIH and the NCI, national organizations, and foreign institutions.

If you have a disability and require any assistive devices, services, or other reasonable accommodations to participate in this activity, please contact the Cancer Prevention Fellowship Program at 240-276-5626 at least one week in advance of the lecture date to discuss your needs.

NCI Summer Curriculum in Cancer Prevention and Control

Molecular Prevention Course

Monday, August 5, 2013

8:30 a.m. – 8:45 a.m.	Introduction/Course Overview	Jessica Faupel-Badger, PhD, MPH
8:45 a.m. – 10:30 a.m.	Hallmarks of Cancer	Jessica Faupel-Badger, PhD, MPH
10:30 a.m. – 11:00 a.m.	Break	
11:00 a.m. – 12:30 p.m.	Pathology	Mark Sherman, MD, MPH
12:30 p.m. – 1:30 p.m.	Group Photo and Lunch	
1:30 p.m. – 3:00 p.m.	Interweaving MicroRNA, P53, and Inflammation Networks in Human Cancer	Curtis Harris, MD

Tuesday, August 6, 2013

8:30 a.m. – 10:00 a.m.	Application of Tissue-Based Markers In Population Studies	Jonine Figueroa, PhD, MPH
10:00 a.m. – 10:30 a.m.	Break	
10:30 a.m. – 12:00 noon	Next Generation Sequencing: Application to Cancer Prevention Research	Meredith Yeager, MD, PhD
12:00 noon – 1:00 p.m.	Lunch	
1:00 p.m. – 2:30 p.m.	Biobanking	Marianne Henderson MD, PhD

Wednesday, August 7, 2013

8:30 a.m. – 10:00 a.m.	Stem Cells and Cancer	Brid Ryan, PhD, MPH
10:00 a.m. – 10:30 a.m.	Break	
10:30 a.m. – 11:15 a.m.	Public Health Genomics: From the Science of Discovery to the Science of Action	Muin Khoury, MD, PhD
11:15 a.m. – 12:00 p.m.	Knowledge Integration	Sheri Schully, PhD

12:00 p.m. – 1:00 p.m. **Lunch**
1:00 p.m. – 2:30 p.m. EDRN, Biomarkers, Imaging Sudhir Srivastava, PhD, MPH

Thursday, August 8, 2013

8:30 a.m. – 10:00 a.m. Vaccines for Prevention of HPV-Associated Cancers John Schiller, PhD
10:00 a.m. – 10:30 a.m. **Break**
10:30 a.m. – 12:00 p.m. Study of the Human Microbiome and Cancer Prevention Roberto Flores, PhD, MPH
12:00 p.m. – 1:00 p.m. **Lunch**
1:00 p.m. – 2:30 p.m. Immunoprevention Strategies Asad Umar, DVM, PhD
Barbara Dunn MD, PhD

Friday, August 9, 2013

8:30 a.m. – 10:00 a.m. **TBD** **TBD**
10:00 a.m. – 10:30 a.m. **Break**
10:30 a.m. – 12:00 p.m. Biomedical Informatics for Molecular Prevention Studies Kenneth Buetow, PhD
12:00 p.m. – 1:00 p.m. **Lunch**
1:00 p.m. – 2:30 p.m. Molecular Epidemiology Overview Nathan Rothman, PhD
2:30 p.m. – 3:00 p.m. Closing Remarks Dave Nelson, MD, MPH

Faculty

Buetow, Kenneth, PhD – *Biomedical Informatics for Molecular Prevention Studies*

Director of Computational Sciences and Informatics, Complex Adaptive Systems Initiative, Full Professor, School of Life Sciences, Arizona State University College of Liberal Arts and Sciences, 1475 N. Scottsdale Road, Scottsdale, AZ 85257; 480-965-4800; kenneth.buetow@asu.edu

Dunn, Barbara K., MD, PhD – *Immunoprevention Strategies*

Medical Officer, Chemopreventive Agent Development Research Group, Division of Cancer Prevention, NCI, NIH, 9609 Medical Center Drive, Rockville, MD 20850; 301-276-7093; barbara.dunn@nih.gov

Faupel-Badger, Jessica, PhD, MPH – *Introduction/Course Overview & Hallmarks of Cancer*

Deputy Director, Cancer Prevention Fellowship Program, Division of Cancer Prevention, NCI, NIH, 9609 Medical Center Drive, Rockville, MD 20850; 240-276-5626; badgerje@mail.nih.gov

Figueroa, Jonine, PhD, MPH – *Application of Tissue-Based Markers In Population Studies*

Investigator, Hormonal and Reproductive Epidemiology Branch, Division of Cancer Epidemiology and Genetics, NCI, NIH, 9609 Medical Center Drive, Rockville, MD 20850; 301-402-3654; figueroaj@mail.nih.gov

Flores, Roberto, PhD, MPH – *Study of the Human Microbiome in Cancer Prevention Research*

Program Director, Nutritional Science Research Group, Division of Cancer Prevention, NCI, NIH, 9609 Medical Center Drive, Room 5E-570, Rockville, MD 20850; 240-276-7119; floresr2@mail.nih.gov

Harris, Curtis, MD – *Interweaving MicroRNA, P53, and Inflammation Networks in Human Cancer*

Head, Molecular Genetics and Carcinogenesis Section, Laboratory Chief, Laboratory of Human Carcinogenesis, Center for Cancer Research, NCI, NIH, Building 37, Room 306BA, 37 Convent Drive, MSC 4258, Bethesda, MD 20892-4258; 301-496-2048; curtis.harris@nih.gov

Henderson, Marianne, MD, PhD – *Biobanking*

Epidemiology and Genetics, Chief Office of Division Operation and Analysis, Division of Cancer Epidemiology and Genetics, NCI, NIH, 9609 Medical Center Drive, Rockville, MD 20850; 301-496-8672; hendersonm@mail.nih.gov

Khoury, Muin J., MD, PhD – *Public Health Genomics: From the Science of Discovery to the Science of Action*

Director, National Office of Public Health Genomics, Centers for Disease Control and Prevention, 1600 Clifton Road, Atlanta, GA 30333; 404-498-0001; muk1@cdc.gov
Acting Director of Epidemiology and Genomics Research Program, Division of Cancer Control and Population Sciences NCI/NIH, 9609 Medical Center Drive, MSC 9763, Room 4E-302, Rockville, MD 20850; 240-276-6888; khourym@mail.nih.gov

Nelson, David E., MD, MPH – *Closing Remarks*

Director, Cancer Prevention Fellowship Program, Division of Cancer Prevention, NCI, NIH, 9609 Medical Center Drive, Room 2W-138, Rockville, MD 20850; 240-276-5626; nelsonde@mail.nih.gov

Rothman, Nathaniel, MD, MPH, MHS – *Molecular Epidemiology Overview*

Head of Molecular Studies, Senior Investigator, Division of Cancer Epidemiology and Genetics, NCI, NIH, 9609 Medical Center Drive, MSC 9771, Room 6E-134, Rockville, MD 20850; 240-276-7169; rothmann@mail.nih.gov

Ryan, Brid, PhD, MPH – *Stem Cells and Cancer*

Research Fellow, Laboratory of Human Carcinogenesis, Center for Cancer Research, NCI, NIH, Building 37, Room 3060, MSC 4258, 37 Convent Drive, Bethesda, MD 20892-4258; 301-496-5886; brid.ryan@nih.gov

Schiller, John, PhD – *Vaccines for Prevention of HPV-Associated Cancers*

Head, Neoplastic Disease Section, Deputy Laboratory Chief, Laboratory of Cellular Oncology, Center for Cancer Research, NCI, NIH, Building 37, Room 4106, 37 Convent Drive, MSC 4262, Rockville, MD 20850; 301-594-2715; schillej@mail.nih.gov

Schully, Sheri D., PhD – *Public Health Genomics, Knowledge Integration*

Team Lead, Epidemiology and Genomics Research Program, Division of Cancer Control and Population Sciences, NCI, NIH, 9609 Medical Center Drive, Room 4E-106, MSC 9763, Rockville, MD 20850; 240-276-6936; schullys@mail.nih.gov

Sherman, Mark E., MD – *Pathology*

Chief, Breast and Gynecologic Cancer Research Group, Division of Cancer Prevention, NCI, NIH, 9609 Medical Center Drive, Room 5E334, Rockville, MD, 20850; 240-276-7051; shermanm@mail.nih.gov

Srivastava, Sudhir, PhD, MPH – *EDRN, Soluble Biomarkers, and Imaging*

Chief, Cancer Biomarkers Research Group, Division of Cancer Prevention, NCI, NIH, 9609 Medical Center Drive, Room 5E-136, Rockville, MD 20850; 240-276-7028; srivasts@mail.nih.gov

Umar, Asad, DVM, PhD – *Immunoprevention Strategies*

Chief, Gastrointestinal and Other Cancer Research Group, Division of Cancer Prevention, NCI, NIH, 9609 Medical Center Drive, Rockville, MD, 20850; 240-276-7038; asad.umar@nih.gov

Yeager, Meredith, MD, PhD – *Next Generation Sequencing Application to Cancer Prevention Research*

Scientific Director, Division of Cancer Epidemiology and Genetics NIH, NCI, 8718 Government Circle, ATC Room 152B, Gaithersburg, MD 20892; 301-435-7613; yeagerm@mail.nih.gov