

# NIEHS Inflammation Faculty Workshop

## Circulating Cell Free DNA: Applications in the Clinical and Toxicology Setting

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NIEHS Rodbell Auditorium  
Research Triangle Park, N.C.  
September 24-25, 2018

### DAY ONE - Monday September 24

- 8:00am – 8:30am      Registration
- 8:30am – 8:40am      Welcome and Introductions  
*Mike Humble, Ph.D., NIEHS*
- 8:40am – 8:50am      Opening Remarks and Workshop Background  
*Linda Birnbaum, Ph.D., Director, NIEHS*
- 8:50am – 9:20am      Biomarker Development and Application to Toxicology  
*Andrew Nixon, Ph.D., Duke University Medical Center*

### Session I – Technology: Collect, Quantify, Analyze

- 9:20am – 9:25am      Introduction  
*Kevin Gerrish, Ph.D., NIEHS*
- 9:25am – 9:55am      CcfDNA: Characterization, Isolation, and Applications  
*Douglas White, Promega*
- 9:55am – 10:15am      CcfDNA: The NIEHS Experience  
*Brian Elgart, NIEHS*
- 10:15am – 10:30am      Break

### Session II – ccfDNA Clinical Applications

- 10:30am – 10:35am      Introduction  
*Fred Miller, M.D., Ph.D., NIEHS*
- 10:35am – 11:05am      Utility of ccfDNA For Detecting Prostate Cancer Development and Progression:  
Advantages and Limitations  
*Adam Sowalsky, Ph.D., National Cancer Institute, Center for Cancer Research*

11:05am – 11:35am	Cell-Free Screening: Complexities and Challenges of Clinical Implementation <i>Neeta L. Vora, M.D., University of North Carolina School of Medicine</i>
11:35am – 12:05pm	Cell-Free Mitochondrial DNA is Elevated in Sickle Cell Disease Patients, and Serve as A Potential Proinflammatory DAMP <i>Swee Lay Thein, D.Sc., National Heart, Lung, and Blood Institute</i>
12:05pm – 12:10pm	Session Summary <i>Fred Miller, M.D., Ph.D., NIEHS</i>
12:10am – 1:10pm	Lunch

### **Session III – ccfDNA Toxicology Applications**

1:10pm – 1:15pm	Introduction <i>Julie F. Foley, B.S., NIEHS</i>
1:15pm – 1:45pm	Circulating Cell-Free RNA as Biomarkers of Exposure to Toxic Substances <i>Rebecca Fry, Ph.D., University of North Carolina Gillings School of Global Public Health</i>
1:45pm – 2:15pm	Epigenetics of Cell-Free DNA in Health and Diseases <i>Peng Jin, Ph.D., Emory University School of Medicine</i>
2:15pm – 2:45pm	Detection of Stress-Induced mitoDAMPs <i>Jennifer Martinez, Ph.D., NIEHS</i>
2:45pm – 3:05pm	Break
3:05pm – 3:35pm	The Role of Cell-Free DNA in Systemic Lupus Erythematosus <i>Dr. David Pisetsky, M.D., Ph.D., Duke University Medical Center</i>
3:35pm – 4:35pm	Panel Discussion of Overarching Questions <i>Moderators: Andy Nixon, Ph.D., Duke, Kevin Gerrish, Ph.D., NIEHS Mike Fessler, M.D., NIEHS</i>
4:35pm – 4:40pm	Wrap up <i>Fred Miller, M.D., Ph.D., NIEHS</i>
4:40pm	End of Day 1

## DAY TWO – Tuesday, September 25

### Session IV – Poster Session/Discussion Panel

8:30am – 8:40am	Welcome and Reflections from Day 1 <i>Alex Merrick, Ph.D., NIEHS</i>
8:40am – 9:00am	Exploring Combinations of Pan-Cancer Epigenetic Markers for Cancer Screening <i>Karen Funderburk, National Human Genome Research Institute</i>
9:00am – 9:20am	ZNF154 Promoter Methylation Density Enhances Detection of Ovarian Cancer <i>Brendan Miller, National Human Genome Research Institute</i>
9:20am – 9:50am	Sequencing Plasma DNA to Classify and Monitor Cancer <i>Margaret L. Gulley, M.D., University of North Carolina Medical Center</i>
9:50 – 10:50am	Poster Session
10:50am – 11:50am	Panel Discussion: Technology, Clinical and Toxicology Applications <i>Moderators: Kevin Gerrish, Ph.D., NIEHS, Andy Nixon, Ph.D., Duke University Medical Center, B. Alex Merrick, Ph.D., NIEHS</i>
11:50pm – 11:55pm	Summary of Findings and Next Steps <i>Julie F. Foley, NIEHS</i>
11:55 – 12:00pm	Closing Remarks <i>Mike Humble, Ph.D., NIEHS</i>
12:00pm	End of Workshop