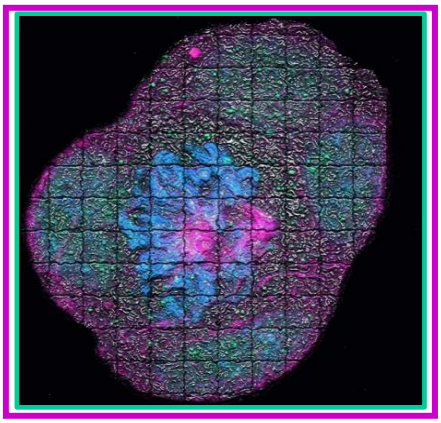
Frontiers in Stem Cells in Cancer
Morehouse School of Medicine
Atlanta, GA
February 5-11, 2017



Sunday, February 5, 2017

4:30 Student Registration

4:45 Welcome and Opening Remarks
Gerald Schatten, PhD-University of Pittsburgh, Pittsburgh, PA
Winston Thompson, PhD-Morehouse School of Medicine, Atlanta, GA

5:00 Dinner

5:45-6:30 **Lecture:** *Ethical and Political Issues Related to Stem Cell Research*
Paul Root Wolpe, PhD-Emory University, Atlanta, GA

6:30-7:15 **Lecture:** *Challenges in Stem Cells and Cancer Research*
Gerald Schatten, PhD-University of Pittsburgh, Pittsburgh, PA

7:15 Biosafety, Regulatory Restrictions, MOUs, IACUCs, IBCs, - Team Assignments
Calvin Simerly, PhD-University of Pittsburgh, Pittsburgh, PA

Monday, February 6, 2017
Theme: The 'Cancer Stem Cell' Hypothesis

8:30-9:15 **Lecture:** *Cancer Stem Cells, Cancer Plasticity, and Radiation Therapy*
Frank Pajonk, PhD- University of California at Los Angeles, Los Angeles, CA

9:15-10:00 **Lecture:** *Cancer Stem Cells and the Microenvironment in Aggressive Breast Cancer*
Wendy Woodward, MD, PhD-University of Texas MD Anderson Cancer Center, Houston, TX

10:00-10:30 Break

10:30-11:15 **Lecture:** *Illuminating actionable biology in TNBC: Research, resources and global initiatives*
Ritu Aneja, PhD-Georgia State University, Atlanta, GA

11:15-12:00 **Lecture:** *Role of Stem Cells in Cancer Immunotherapy*
Duane Mitchell, MD, PhD-University of Florida, Gainesville, FL

12:00-1:00 Lunch

1:00 Lab Introductions: *Deriving Mouse Embryonic Stem Cells by Immunosurgery/ Derivation and Culture of Induced Pluripotent Stem Cells*

1:30-6:00 Lab Sessions:
Lab 1: Calvin Simerly & Carrie Hartnett-Magee-Womens Research Institute, Pittsburgh, PA
1) Deriving Mouse Embryonic Stem Cells by Immunosurgery

Students will learn how to isolate the inner cell mouse cells (ICM) from expanded blastocysts using the antibody: complement technique and transfer isolated ICMs for deriving mouse embryonic stem cells.

Lab 2: Charles Easley, PhD & Kristen Flower-University of Georgia, Athens, GA
2) *Derivation and Culture of Induced Pluripotent Stem Cells*

Students will learn how to derive, identify, and culture human induced pluripotent stem cells and discuss mechanism for characterization of iPSCs.

6:30 Dinner (on own)

Tuesday, February 7, 2017
Theme: Targeting Cancer with Immunotherapies and Stem Cell Inhibitors

8:30-9:15 **Lecture:** *Pediatric Cancer Stem Cells: Biologic Targeting Strategies with Oncolytic Virotherapy*
Gregory Friedman, MD-University of Alabama at Birmingham, Birmingham, AL

9:15-10:00 **Lecture:** *Melanoma Stem Cells: Biology and Implications for Immune Checkpoint Therapy*
Tobias Schatton, PhD, PharmD-Harvard Medical School, Boston, MA

10:00-10:30 Break

10:30-11:30 Trainee Presentations

11:30-12:00 Lab Introduction: *Isolation and Characterization of Cancer Stem Cells*

12:00-1:00 Lunch

1:00-5:30 Lab Session: Tobias Schatton & Steven Barthel, PhD-Harvard Medical School, Boston, MA
Isolation and Characterization of Cancer Stem Cells

Students will learn how to isolate cancer stem-like cells (CSCs) from unsegregated tumor cell cultures and/or primary tumor material, various methodologies to determine purity and viability of CSC isolates, and discuss techniques for the characterization of CSC biological functions.

6:00 Dinner (on own)

Wednesday, February 8, 2017
Theme: Epigenomics, Reprogramming and miRNA

8:30-9:15 **Lecture:** *Cancer Metabolism*
Matthew Hirschey, PhD-Duke Molecular Physiology Institute, Durham, NC

9:15-10:00 **Lecture:** *Death by a thousand cuts: the slow demise of chemotherapy*
Ajay Nooka, MD, MPH, FACP-Winship Cancer Institute @ Emory University, Atlanta, GA

10:00-10:30 Break

10:30-11:15 **Lecture:** *ROS-mediated regulation of CXCR4 in cancer*
Cimona Hinton, PhD-Clark Atlanta University, Atlanta, GA

11:15-12:00 Trainee Presentations

12:00-1:00 Lunch

Career Strategies/Mentoring, Etc.

1:00-1:45 **Lecture:** *Rigor and Transparency*
Course Faculty

1:45-2:30 **Lecture:** *Academic and Non-Academic Career Options/*Career Strategies
Course Faculty

2:30-3:00 *Break*

3:15-4:00 **Lecture/Discussion:** *Mentoring Mentors: Improving the Skills of Research Mentors and What Matters in Mentoring/Individual Development Plan*
Winston Thompson, PhD-Morehouse School of Medicine, Atlanta, GA
Course Faculty

4:30 Dinner (on own)

Thursday, February 9, 2017
Theme: Health Disparities in Cancer

8:30-9:15 **Lecture:** *Cancer Health Disparities*
Niharika Dixit, MD-University of California San Francisco, San Francisco, CA

9:15-10:00 **Lecture:** *Cancer Among Women of Color*
Rena Pasick, PhD-San Francisco State University, San Francisco, CA

10:00-10:30 Break

10:30-11:15 **Lecture:** *The role of admixture in genetic predisposition to breast cancer in Puerto Rican patients*
Julie Dutil, PhD-Ponce Health Sciences University, Ponce, PR

11:15-12:00 Trainee Presentations

12:00-1:00 Lunch

1:00 Lab Introduction: *Mammospheres and Tumorspheres as Tools of Discovery*

1:30-5:00 Lab Session: Eduardo Farias, PhD-Mount Sinai School of Medicine, New York, NY
Mammospheres and Tumorspheres as Tools of Discovery

Students will learn how to isolate stem/progenitor cells and tumor initiating cells from mammary glands and tumor cells by selecting them in cell suspension cultures for the development of mammospheres and tumorspheres. They will also learn techniques to study the biological characteristics of the mammospheres obtained.

5:30 Dinner (on own)

Friday, February 10, 2017
Day 5 Theme: Life After Cancer and Fertility Preservation

8:30-9:15 **Lecture:** *Grafted ovarian fragment rescues host fertility after chemotherapy*
Blanche Capel, PhD-Duke University Medical Center, Durham, NC

9:15-10:00 **Lecture:** *Fertility and Pregnancy Among Young Cancer Survivors of Breast Cancer*
Karen Meneses, PhD-University of Alabama at Birmingham, Birmingham, AL

10:00-10:30 Break

10:30-11:15 **Lecture:** *Cancer and Fertility Preservation*
Pasquale Patrizio, MD- Yale Fertility Center, New Haven, CT

11:15-12:00 **Lecture:** *Male Fertility Preservation and Stem Cell Transplant*
Kyle Orwig, PhD-University of Pittsburgh, Pittsburgh, PA

12:00-1:00 Lunch

1:00-1:30 Lab Introduction: *SSC and injection*

1:30-6:00 Lab Session: Meena Sukhwani, PhD-Magee-Womens Research Institute, Pittsburgh, PA
SSC and injection

Students will learn Germ stem cell isolation, identification, and transplantation using a magnetic sorting (MACS) strategy

Saturday, February 11, 2017
Theme: Frontiers in Precision Medicine, Big Data and the Next Gen Genomics in Cancer Research

8:30-9:15 **Lecture:** *Precision Medicine and Exceptional Responders*
Barbara Conley, PhD-National Cancer Institute, Bethesda, MD

9:15-10:00 **Lecture:** *Transforming Big Data into cancer-relevant insight: An initial, multi-tier approach to assess reproducibility and relevance*
Carlos Moreno, PhD-Emory University, Atlanta, GA

10:30-10:30 Break

10:30-11:15 **Lecture:** *Evaluating biomarkers to model cancer risk post cosmic ray exposure*
Janice Pluth, PhD-Lawrence Berkeley National Laboratory-Berkeley, CA

11:15-12:00 **Lecture:** *Frontiers in Stem Cell Research: From the Bench to the Bedside to a Breakthrough*
Roland Pattillo, MD-Morehouse School of Medicine, Atlanta, GA (retired)

12:00 Free Afternoon

Closing Banquet

7:00 Dinner

7:45 **Presentation of Participant Certificates**
Gerald Schatten, PhD, Winston Thompson, PhD

8:00 **Pioneer Award**: Jerry Shay, PhD-University of Texas Southwestern Medical Center, Dallas, TX

8:30 Social Gathering

Sunday, February 12, 2017

9:00 One-on-one Mentoring
12:00 Check out of hotel