George Mason University and Dublin City University
joint summer course
Bench to Bedside: Translational Molecular Research

BIOL 575
Translational Molecular Research
3 credits, graduate level
Course Dates: July 22 - 27, 2013
Enrollment Deadline: April 1, 2013

Prepare for the upcoming revolution in molecular medicine and get 3 graduate credits in one week this summer while interacting with international scientists in Ireland. This course addresses the challenge of every bioscience graduate student who must keep up with the incredible pace of new biomedical technology innovations, scientific advances, and clinical trials. The joint George Mason University and Dublin City University Translational Molecular Research course will provide students with a unique opportunity to learn about the latest advances in biomedical research while participating in hands-on workshops with cutting-edge technology. Students will interact directly with world-class scientists from Ireland and USA, while also enjoying faculty-student dinners and tours of the Irish countryside.

Course fee is $2,750.00 and includes tuition, lodging, breakfast, and two group dinners. Fee does not include airfare or transportation to/from airport.

Course Director DCU: Dr. Martin Clynes, PhD
Course Director GMU: Dr. Lance Liotta, MD, PhD

For more information on course content, contact Virginia Espina at:
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For information on how to enroll, contact Greg Justice at:
gjustice@gmu.edu
703-993-1740
What will I learn about in the course?

- Upcoming revolution of individualized therapy
- Preserving tissue for reliable molecular and cellular analysis
- Importance of biobanking: cutting through ethical, social and economic barriers
- New clinical trial designs to evaluate personalized therapy
- Harvest biomarkers using nanoparticles that improve analytical sensitivity and preserve analytes in one step
- Translational research used to fight cancer and other diseases
- Genomic sequencing of cancer: distinguishing driver from bystander mutations
- Targeting premalignant cancer stem-like cells: killing pre invasive lesions for cancer prevention
- Stem cell therapy
- Combination therapy and pharma-biotech cooperation
- Commercialization of biomedical research discoveries and inventions

Participate in hands-on workshops each day!
Use cutting edge technologies that will significantly impact the future of individualized patient therapy:

**Laser Capture Microdissection:** Isolate pure population of cells under direct microscopic visualization

**Sequenom:** Genotype and screen for genetic variations

**Reverse Phase Protein Microarray Technology:** Quantitatively measure cell signaling proteins with limited amount of sample

**Immunohistochemistry:** Detect location and abundance of proteins in cells of a tissue

**Nanoparticle Biomarker harvesting:** Concentrate and protect low abundant disease biomarkers

**Mass Spectrometry:** Discover, identify and measure proteins and peptides in biological samples

**Affymetrix Microarrays:** Analyze RNA and DNA using high throughput platform

**Quantitative PCR:** Simultaneously amplify and quantify a targeted DNA molecule
Accommodations in Dublin

Dublin City University Campus Residence

Check-in: Saturday July 20, 2013
Check-out: Sunday July 28, 2013

- Complimentary breakfast Monday-Sunday 8:00am-10:30am (Hot buffet or continental breakfast)
- 10€ daily spa pass (incl. fitness center, swimming pool, and spa facilities)
- 5 kilometers from Dublin Airport and 5 kilometers from Dublin City Centre
- Direct bus routes to Dublin City Centre where you will discover a plethora of restaurants, pubs, museums, historic architecture, and more.
- Classes are within a 5 minute walking distance from residence