13th International Workshop on Radiation Damage to DNA
@MIT, June 14-18, 2014

Saturday, June 14, 2014

2:00 – 6:00 PM Arrival, registration
7:00 – 9:30 PM Welcome reception

Sunday, June 15, 2014

7:00-8:00 Breakfast
8:00 – 8:15 AM Welcome – Peter Dedon, Chair of the 13th IWRDD
8:15 – 8:45 AM Opening Remarks – Dr. Gerald Chan, Co-Founder and Chairman of Morningside Ventures, and Harvard School of Public Health alumnus
8:45 – 9:30 AM Keynote Address - Prof. Jeff Hoffman* (MIT): An astronaut’s view of space radiation – Experience and shielding approaches

9:30 – 11:00 Session I: Space radiation – From simulation to survival
   Chair: Akinari Yokoya* (Japan Atomic Energy Agency)
   • Christopher Carr* (MIT EAPS) Adapting life to extreme environments; origin of life; astrobiology
   • Francis Cucinotta* (NASA) Stochastic models for cancers risks after space irradiations
   • Ralf Möller* (German Aerospace Center) B. subtilis and radioresistance in space
   • Young investigator: Asaithamby Aroumougame* (UT SW Med Ctr) Mechanism of clustered DNA double-strand break repair in response to HZE particles in human cells

11:00 – 11:30 AM Coffee Break

11:30 – 12:40 PM Session II: Radiation-induced DNA damage – Physics and modeling
   Chair: Elise Dumont* (Lab. de Chimie, Ecole Normale Supérieure de Lyon)
   • Michael Sevilla* (Oakland Univ.) - Understanding of fundamental DNA damage mechanisms with the aid of computational chemistry
   • Hooshang Nikjoo* (Karolinska Institutet) - DNA damage response and repair: Bridging the gap between radiation-induced DSBs and the origin of DNA deletions in the human genome
   • Young investigator: Selected from submitted abstracts

12:40 - 2:00 PM Lunch

2:00 – 3:30 PM Session III: Chemistry of DNA oxidation – From mechanism to cells
   Chair: Yinsheng Wang* (UC Riverside)
   • Richard Wagner* (Univ. Sherbrooke) - Profiling DNA damage induced by ionizing radiation
   • Sarah Delaney* (Brown Univ.) - Oxidatively damaged DNA as a chemical founder event in triplet repeat expansion
   • Marc Greenberg* (Johns Hopkins) - Nucleic acid damage chemistry in free DNA & nucleosomes
   • Young investigator: Selected from submitted abstracts

3:30- 5:00 PM Session IV: Clustered DNA damage – Chemistry and consequences
   Chair: Rob Stewart* (U. Washington)
   • Jean-Luc Ravanat* (CEA Grenoble) - Chemistry of complex DNA lesions induced by a single oxidation event
   • Amy Kronenberg* (Berkeley National Lab) - High-LET induced mutagenesis
   • Kathy Held* (Mass. Gen'l Hosp.) - High-LET-induced DNA damage and bystander signaling
   • Young investigator: Dr. Lei Li* (IUPUI) - Formation of spore photoproduct and its impact on the stability of genomic DNA

5:00 – 7:00 PM Poster Session I - Refreshments
**Monday, June 16, 2014**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 - 8:00 AM</td>
<td><em>Breakfast</em></td>
</tr>
<tr>
<td>8:00 – 8:45 AM</td>
<td><strong>Keynote Address - John Boice</strong> (Vanderbilt Univ.): Epidemiologic study of one million US radiation workers and veterans*</td>
</tr>
<tr>
<td>8:45 – 10:15 AM</td>
<td><strong>Session V: Radiation and Chromatin</strong>&lt;br&gt;<strong>Chair: Gaelle Legube</strong> (CNRS and Univ. Toulouse)&lt;br&gt;• <em>Martin Falk</em> (Inst. Biophysics ASCR) – DNA damage and repair in the context of chromatin - different radiations in action&lt;br&gt;• <em>Hiroshe Ide</em> (Hiroshima Univ.) – Formation and repair of DNA-protein cross-link damage&lt;br&gt;• <em>Brendan Price</em> (Dana Farber Cancer Inst.) – Repair of radiation-induced double-strand breaks&lt;br&gt;• <em>Young Investigator: Dr. Gaelle Legube</em> (CNRS and Univ. Toulouse)</td>
</tr>
<tr>
<td>10:15 – 10:45 AM</td>
<td><em>Coffee Break</em></td>
</tr>
<tr>
<td>10:45 – 12:15 PM</td>
<td><strong>Session VI: Repair of clustered DNA damage and double-strand breaks</strong>&lt;br&gt;<strong>Chair: Bevin Engleward</strong>&lt;br&gt;• <em>David Pederson</em> (Univ. Vermont) - Formation of double-strand breaks during repair of clustered lesions in nucleosomes&lt;br&gt;• <em>Gisela Taucher-Scholz</em> (GSI Helmholtzzentrum) - DNA repair dynamics at complex lesions&lt;br&gt;• <em>Evelyne Sage</em> (Institut Curie) - Repair of clustered DNA damage and double-strand breaks&lt;br&gt;• <em>Young Investigator: Selected from submitted abstracts</em></td>
</tr>
<tr>
<td>12:15 – 2:00 PM</td>
<td><em>Lunch + Group Photo</em></td>
</tr>
<tr>
<td>2:00 – 3:30 PM</td>
<td><strong>Session VII: Biological impact of low-dose radiation</strong>&lt;br&gt;<strong>Chair: Maria Antonella Tabocchini</strong> (Istituto Superiore di Sanità)&lt;br&gt;• <em>Sally Amundson</em> (Columbia Univ.) - Gene expression at high versus low radiation doses&lt;br&gt;• <em>Leon Mullenders</em> (Leiden NL) - Chromosomal damage at clinically relevant doses&lt;br&gt;• <em>Bevin Engelward</em> (MIT) - Low-dose radiation biology&lt;br&gt;• <em>Young investigator – Selected from submitted abstracts</em></td>
</tr>
<tr>
<td>3:30 – 5:00 PM</td>
<td><strong>Session VIII: Radiosensitizing action of high-Z nanoparticles and metallic compounds interacting with cellular DNA</strong>&lt;br&gt;<strong>Chair: Mike Makrigiorgos</strong> (Dana-Farber Cancer Inst.)&lt;br&gt;• <em>Leon Sanchez</em> (Univ. Sherbrooke) - DNA damage caused by low energy electrons: Applications to radiosensitization by gold nanoparticles and Pt-drugs&lt;br&gt;• <em>Sandrine Lacombe</em> (ISM Orsay) - Platinum nanoparticles, fast ions and DNA damage&lt;br&gt;• <em>Ross Berbeco</em> (Brigham &amp; Women’s Hosp.) - Gold or gadolinium nanoparticles for boosting radiation dose to cancer vasculature during X-ray radiotherapy&lt;br&gt;• <em>Young Investigator: Dr. Wil Ngwa</em> (Dana Farber Cancer Inst.) - High-Z nanoparticles in prostate cancer radiation therapy</td>
</tr>
<tr>
<td>5:00 – 7:00 PM</td>
<td><em>Poster Session II - Refreshments</em></td>
</tr>
</tbody>
</table>
Tuesday, June 17, 2014

7:30-8:30  Breakfast

8:30 – 10:00 AM  Session IX: New tools and approaches to base excision repair  
Chair: Bevin Engelward (MIT)  
  • Sankar Mitra* (Houston Methodist Res. Inst.) - Hierarchy in repair of radiation-induced clustered damage in human genome  
  • Akira Yasui* (Tohoku Univ.) – Repair and chromatin remodeling factors required for cellular resistance to radiation damage  
  • Grigory Dianov* (Gray Institute) – Radiation DNA damage recognition, signaling and repair  
  • Young investigator: Selected from submitted abstracts

10:00 – 10:30 AM  Coffee Break

10:30 – 12:00 PM  Session X: Real-time DNA repair  
Chair: Melanie Spotheim-Maurizot*  
  • Susan Wallace* (U. Vermont) - Single-molecular analysis of DNA repair  
  • Paul Doetsch* (Emory) - Radiation, ROS, senescence, and genetic instability in human cells: connections and consequences  
  • Dik van Gent* (Erasmus MC) - Non-homologous end-joining repair of double-strand breaks  
  • Young investigator: Selected from submitted abstracts

12:00 – 1:30 PM  Session XI: Therapeutic interventions  
Chair: Kevin Prise* (Queen’s University Belfast)  
  • Michael Weinfeld* (Univ. Alberta) - Polynucleotide kinase/phosphatase as a therapeutic target  
  • Eva Guinan* (Dana-Farber Cancer Inst.) - Developing a biological for radiation mitigation  
  • Young investigator: Selected from submitted abstracts

1:30 PM  Free Afternoon and Planning Session for the 14th Workshop

6:30 PM  Workshop Banquet
### 7:30-8:30 AM
**Breakfast**

### 8:30 – 10:00 AM
**Session XII: Epigenetics and Synthetic Lethality in Radiation Biology**  
Chair: Lynn Harrison* (Louisiana State Univ.)

- **Janet Baulch*** (UC Irvine) - Epigenetic responses to high and low LET radiations: effect of dose and radiation quality
- **Simon Powell*** (Sloan Kettering Cancer Inst.) - DNA repair and synthetic lethality
- **Olga Kovalchuk*** (Univ. of Lethbridge) - Epigenetic regulation of the cancer treatment responses
- **Young investigator**: Selected from submitted abstracts

### 10:00 – 10:30 AM
**Coffee Break**

### 10:30 – 1:00 PM
**Session XV: Clemens von Sonntag Memorial Symposium**  
Chair: Miral Dizdaroglu* (NIST)

- **Opening remarks by Miral Dizdaroglu*** (NIST) - Life and science of Prof. Clemens von Sonntag
- **Amitava Adhikary*** (Oakland Univ.) - Hole transfer from phosphorothioate backbone adduct radicals to guanine in dsDNA-oligomers
- **Peter O’Neill** (Univ. Oxford) - NO radiosensitisation of hypoxic cells: ‘Fixing’ the DNA damage
- **Tom Tullius*** (Boston Univ.) - OH-seq: Whole genome maps of oxidative damage and chromosome topography
- **Marie Davidkova*** (Nuclear Physics Institute) - A physicist's approach of damage induced by different types of radiation in DNA and related proteins
- **Miral Dizdaroglu*** (NIST) - Measurement of DNA repair proteins in human cells by LC-MS/MS with isotope dilution

### 1:00 PM
**Closing remarks**