Molecular Genetics of Hematopoietic Neoplasms
Workshop Panel meeting: April 22-24, 2017

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Entire DNA of first leukemia sequenced

Widespread entry of ‘next generation sequencing’ into clinical practice

Cost of sequencing the DNA of a single cancer case
The diverse roles of genetic testing in hematopathology diagnosis

• To confirm a WHO diagnosis (e.g. **BCR-ABL1** in CML)
• To reveal a germline condition that may increase the risk of hematologic malignancy (e.g. **GATA2** mutation)
• To establish a clonal process (e.g. **TCR** rearrangement in PTCL)
• To provide prognostic information (e.g. **TP53** mutation in MDS with isolated del5q)
• To predict response to a targeted therapy (e.g. **FLT3** mutation)
• To interrogate the biology of complex or unusual cases (e.g. clonal architecture, disease progression, relationship of two neoplasms)
What we will be learning in this Workshop

• What genetic testing should be done NOW in order to correctly diagnose and classify hematopoietic neoplasms and guide appropriate therapy?

• What else does genetic testing tell us about the biology of hematolymphoid neoplasms?
  • May impact future classifications or therapies
Forums for learning in the Workshop

• 7 keynote lectures from experts in the field
• Interactive Round Table discussion covering issues of implementing genetic testing
• 2 Lunch symposia and an evening symposium sponsored by Seattle Genetics, Archer Diagnostics, and Nanostring
• 350 great cases submitted by all of you!
  • Oral and summarized, with consensus statements on the current use of genetic testing from panel
### 2016 WHO Classification of Myeloid Neoplasms and Acute Leukemias

<table>
<thead>
<tr>
<th>Category</th>
<th>Sessions</th>
</tr>
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<tbody>
<tr>
<td>Myeloproliferative neoplasms (MPN)</td>
<td>4 &amp; 6</td>
</tr>
<tr>
<td>Mastocytosis</td>
<td>4 &amp; 6</td>
</tr>
<tr>
<td>Myeloid/lymphoid neoplasms with eosinophilia and gene rearrangement</td>
<td>4 &amp; 6</td>
</tr>
<tr>
<td>(PDGFRA, PDGFRB, FGFR1 or PCM1-JAK2)</td>
<td></td>
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<tr>
<td>Myelodysplastic/myeloproliferative neoplasms (MDS/MPN)</td>
<td>4 &amp; 6</td>
</tr>
<tr>
<td>Myelodysplastic syndromes (MDS)</td>
<td>4 &amp; 6</td>
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<tr>
<td>Myeloid neoplasms with germline predisposition</td>
<td>1</td>
</tr>
<tr>
<td>Acute myeloid leukemia and related precursor neoplasms (AML)</td>
<td>3 &amp; 7</td>
</tr>
<tr>
<td>Blastic plasmacytoid dendritic cell neoplasm (BPDCN)</td>
<td>4 &amp; 6</td>
</tr>
<tr>
<td>Acute leukemias of ambiguous lineage (AUL, MPAL)</td>
<td>3 &amp; 7</td>
</tr>
<tr>
<td>Precursor lymphoid neoplasms (T-ALL/LBL, B-ALL/LBL)</td>
<td>3 &amp; 7</td>
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2016 WHO Classification of Lymphomas and Histiocytic Neoplasms

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Sessions</th>
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<tbody>
<tr>
<td>Mature B-cell neoplasms</td>
<td>2 &amp; 8</td>
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<tr>
<td>Mature T- and NK-cell neoplasms</td>
<td>2 &amp; 8</td>
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<tr>
<td>Hodgkin lymphomas</td>
<td>2 &amp; 8</td>
</tr>
<tr>
<td>Immunodeficiency-associated lymphoproliferative disorders</td>
<td>2 &amp; 8</td>
</tr>
<tr>
<td>Histiocytic and dendritic cell neoplasms</td>
<td>2 &amp; 8</td>
</tr>
</tbody>
</table>

“Pre-malignant” clonal proliferations

| CHIP, CCUS, ICUS, MBL, MGUS                                              | Session 5         |
Virtual slides for Workshop cases visible at:

https://visoar.org

Login: your email address
Password: SHEAHP17

All Workshop presentations will be posted online at the SH Website after the Workshop
Round Table Discussion (Friday 2 pm)

• Practical issues surrounding the regulation, reimbursement, and reporting of molecular genetic testing in hematologic neoplasms

Submit questions for the panelists by Friday morning to: shworkshop2017@gmail.com
Surveys coming soon for hematopathology fellowship directors & ABP hematopathology diplomates doing MOC reporting this year!

- **Goal**: To better harmonize actual practice of hematopathology, hematopathology training & requirements and board certification testing
- **Fellowship directors**: Look for email notification mid-September.
- **Hematopathology diplomates** (since 2006): Survey is part of larger survey you will be notified about when you do MOC reporting this fall.
- **Thank you for your cooperation! We need your help**
- Results will be published for all to see.

*Sponsored by the American Board of Pathology & Society for Hematopathology*
Welcome to the 2017 Society for Hematopathology Workshop!

2017 Solar Eclipse photographed by John Hunt, Baystate Medical Center