Association for Molecular Pathology: Lessons Learned in Molecular Oncology – Summary and the Future

Moderators:
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Disclosure of Relevant Financial Relationships

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Dr. Yeung declares affiliation with MolPath Dx, LLC.

Dr. Lindemen on Lung Cancer
• Molecular testing should be performed on all advance stage lung adenocarcinomas (includes mixed, and poorly differentiated)
• FDA approved IHC: for treatment with crizotinib
• Samples to be selected by pathologist
• Molecular platform makes a big difference with limited samples
  • NGS vs ddPCR
  • EGFR by molecular diagnostics, ALK by FISH or IHC

Dr. Sepulveda on Colorectal Cancer
• Important to review the 21 points of the CRC guideline statements
• Mutations EGFR, RAS, and BRAF as well as DNA mismatch repair genes may be seen in CRC
• Some biomarkers are important for prognostication

Dr. Kelly on Companion Diagnostics for Systemic Mastocytosis (SM)
• SM have activating mutations in KIT (D816V)
  • Imatinib is useful in ASM without KIT (D816V) or have PDGFRb rearrangement
• IVD Companion Diagnostics helps identify patients that:
  • More likely to benefit from specific treatment
  • Increased risk for serious adverse reaction
  • Identify patients the treatment was studied in and found to be safe and effective
  • Monitor response to treatment
• FDA application is long and arduous, with more requirements than CLIA/CAP requirements

A Look to Our Future
Challenges

- Simplify operations: specimen identification and selection, test ordering, results reporting
- Doing it all in a shorter amount of time: General consensus is about 10 days from receipt in the molecular laboratory.
- Regulatory changes: FDA, CMS, CLIA, CAP, International standards?
- Should a molecular report be classified as a medical art form?

Upcoming Molecular Platforms

- Digital PCR
- Hybridization based nucleic acid counters
- Quantum dot target capture
- Single cell Sequencing
- Real-time Sequencing

Advancing Surgical Pathology: Imaging 2.0

- Human kidney H&E
- Hyperspectral Imaging
- MUSE: Microscopy with UV surface excitation

Advancing Surgical Pathology: IHC 2.0

- Multiplexed ion beam imaging
- Multiplex In Vivo Quantum dot labeling
- Multiplex FFPE Quantum dot labeling

Future of “big data”

- Glioma patients IDH1/IDH2
- Purple = mutation
- Orange = loss

Demo: https://oncoscape.strcancer.org/#/tools/prad

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No claims can be processed after that date!

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Questions?

**Molecular Studies in Lung Cancer**
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**Molecular Studies in GI Pathology**
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**Molecular Studies in Myeloid Neoplasms**
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**THANK YOU**