Molecular Profiling in Small Cell Lung Cancer and Lung Neuroendocrine Tumors

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Molecular Profiling and Lung Cancer

• Lung cancer remains the leading cause of cancer related mortality in the US
  – Small cell lung cancer is an aggressive subset
    • Accounts for 13% of all cases
    • Few advances over the past 30 years

• Advances in non-small cell lung cancer are primarily based on molecular profiling
  – Paradigm shift based on classification
Molecular Profiling and Lung Cancer

- Molecular testing now standard in subsets of NSCLC and dictates therapy
Methods

• Molecular profiling for SCLC has not identified any consistent targets

• Several commercial assays have emerged
  • Analysis of gene copy number, protein expression and DNA sequencing for practicing physicians

• Caris Life Sciences platform
  • We analyzed all pulmonary neuroendocrine samples submitted for analysis from 2009-2014
Results

• Analysis included 607 specimens
  • 375 SCLC, 151 large cell, 81 carcinoid
Conclusions

• Although the appearance may be similar, the DNA changes among samples are very different
  – These differences should be embraced and may hold the key for treatment
  – Alterations in BRAF, EGFR, HER2 and ALK were seen (rarely) in these neuroendocrine samples

• Additional work is needed for discovery of new targets and validation of existing targets