



miRview[®] lung

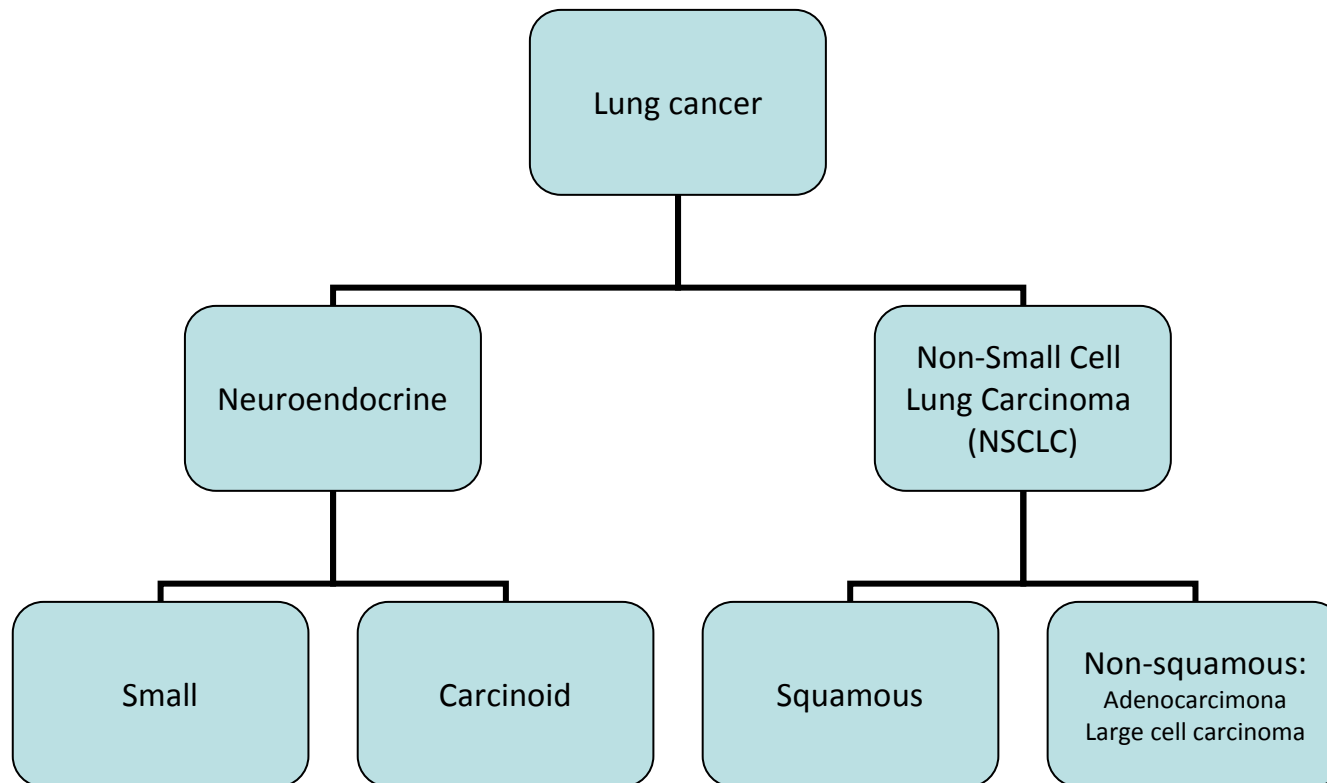
A microRNA-based Test to Identify Lung
Tumor Type from Pre and Post
Operative Samples

miRview[®] lung - clinical need

- ▶ Accurate determination of tumor type needed for treatment decision
 - ▶ Treatment options are different for different tumor types
 - ▶ Targeted drug treatment is different for adenocarcinoma and SCC
 - ▶ SCLC, the main type of Neuroendocrine tumors is much more responsive to chemotherapy and consequently this comprises the mainstay of treatment. This is in contrast to NSCLC which is relatively chemoresistant and thus primarily treated with surgical resection for local disease
 - ▶ Making definitive diagnosis of tumor type based on cytological specimen (e.g. FNA or Bronchial brushing and washing) is sometimes difficult
- ▶ Lack of standardization of IHC technique for tumor typing

miRview[®] lung - overview

- ▶ This test utilizes Rosetta Genomics capability to work with preoperative samples
- ▶ The assay differentiates the main 4 types of primary lung cancer
- ▶ The assay works on cytological or pathological samples
- ▶ The assay utilizes 8 microRNAs to do this diagnosis



Validation- overview

- 451 samples were run in the validation study
 - 204 pathological samples
 - I. 125 Resections
 - II. 79 Biopsy samples
 - 247 cytological samples
 - I. 207 FNA cell blocks
 - II. 40 cell blocks from bronchial brushing and bronchial washing procedures
- Histological types of the 451 samples
 - 148 Squamous
 - 186 Non-squamous
 - 35 Carcinoid (all were from resections)
 - 82 Small

Validation results- summary

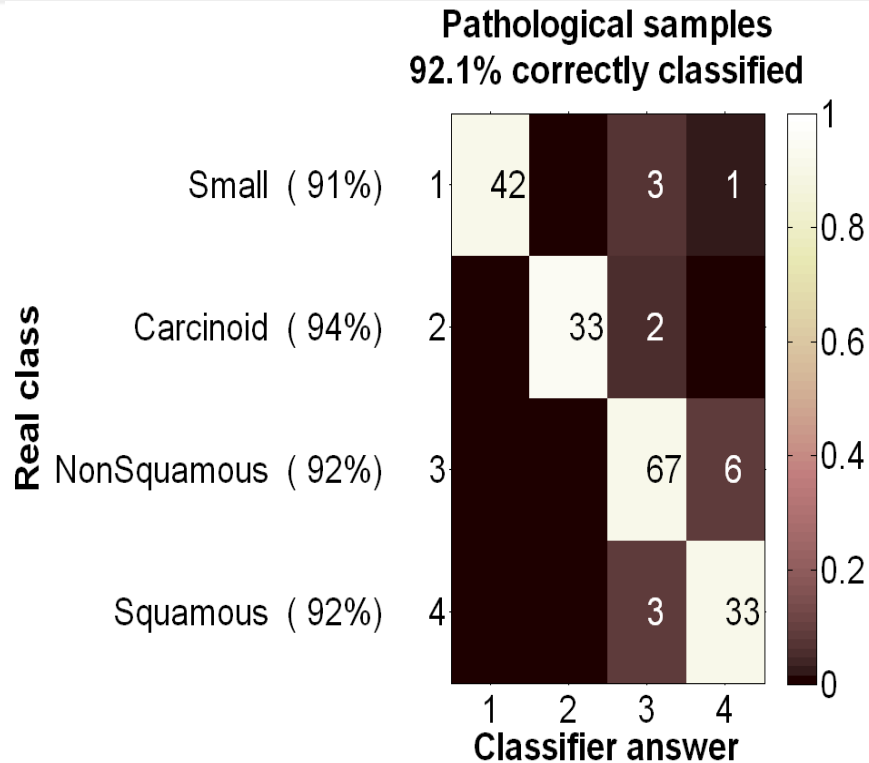
- ▶ 451 samples were run, and 410 produced a final result:
 - **Overall sensitivity: 93.7%**
 - **Overall specificity: 97.9%**
- ▶ 8 samples failed QA (<2%)
- ▶ For 33 samples classification was undetermined (7.3%)

Performance- all samples together

| Class | N | Prevalence | Sensitivity | Specificity | PPV |
|--------------|-----|------------|-------------|-------------|-------|
| Carcinoid | 35 | 0.02 | 0.943 | 1 | 1 |
| Non-squamous | 166 | 0.6 | 0.922 | 0.955 | 0.968 |
| Small | 70 | 0.13 | 0.929 | 0.982 | 0.887 |
| Squamous | 139 | 0.25 | 0.957 | 0.967 | 0.906 |

- ▶ PPV (positive predictive values) explanation: Given one of the four possible results of the miRview[®] lung test, the PPV is the estimated proportion of subjects with this specific test result who are correctly diagnosed.
- ▶ PPV calculations were based on the prevalence estimations in the table and on the validation results.

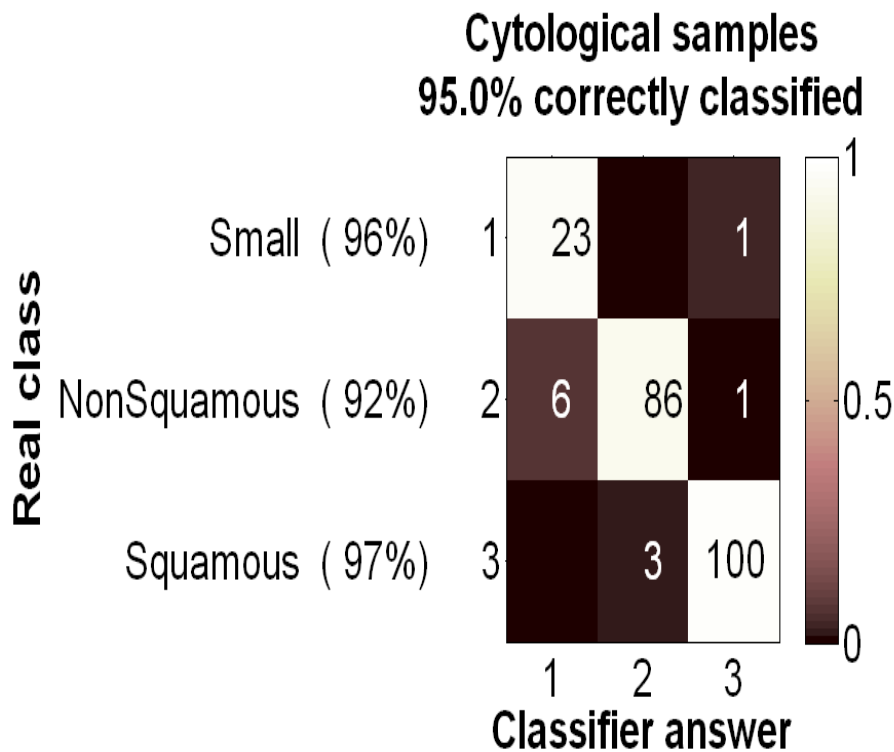
Performance of pathological samples (Resections and biopsies)



| Class | N | Sensitivity | Specificity |
|--------------|----|-------------|-------------|
| Carcinoid | 35 | 0.943 | 1 |
| Non-squamous | 73 | 0.918 | 0.932 |
| Small | 46 | 0.913 | 1 |
| Squamous | 36 | 0.917 | 0.955 |

- ▶ 204 samples tested, all passed QA criteria
- ▶ 6.86% (14 out of 204) received undetermined results
- ▶ 92.1% (175 of 190) were correctly classified

Performance of cytological samples (FNA, bronchial brushing and washing specimens)



| Class | N | Sensitivity | Specificity |
|--------------|-----|-------------|-------------|
| Non-squamous | 93 | 0.925 | 0.976 |
| Small | 24 | 0.958 | 0.969 |
| Squamous | 103 | 0.971 | 0.983 |

- ▶ 247 samples tested
- ▶ 3.2% (8 of 247) failed QA criteria
- ▶ 7.6% (19 out of 247) received undetermined results
- ▶ 95% (209 of 220) were correctly classified

Posters

- ▶ AACR 2011 poster: **microRNAs as clinical biomarkers for lung cancer classification**
- ▶ ASCO 2011 poster: **New microRNA-based diagnostic test for lung cancer classification**