A novel biophysical based marker with multilevel, multiparameter expression for early stage cancer detection.

Sub-category:
Metastatic Non-Small Cell Lung Cancer

Category:
Lung Cancer—Non-Small Cell Metastatic

Meeting:
2019 ASCO Annual Meeting

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Abstract Disclosures

Abstract:

**Background:** Early stage cancer detection remains to be elusive despite of many years of efforts. In this work, a biophysical based marker (named Cancer Differentiation Analysis (CDA)) with multi-level and multi-parameter expression...
features has been developed which has shown a number of clear advantages over the traditional approaches such as biochemistry based marker, circulating tumor cell (CTC) and circulating DNA (ct-DNA). In stage I non-small cell lung cancer (NSCLC), sensitivity and specificity reached a record high of 85.2% and 93.0%, respectively. **Methods:** In this study, 832 NSCLC cancer samples with pathological information and 642 samples from healthy individuals were measured in a single blind test. Peripheral blood of each individual was drawn in EDTA tubes. One class of bio-physical property in blood samples was utilized for CDA tests. The CDA data were first processed using an algorithm built from data base and subsequently analyzed using SPSS. The results were shown in the table. **Results:** The results indicated that CDA technology has a very good sensitivity and specificity even at stage I (85% and 93%, respectively), which is much better than those previously reported results by other methods. **Conclusions:** Initial results showed that CDA technology could effectively screen NSCLC patients from healthy individuals. As a novel bio-physical based cancer detection approach with multi-level and multi-parameter expressions, CDA technology could be a potential candidate for early stage cancer screening.

**NSCLC single blind test results from statistical analysis of CDA.**

<table>
<thead>
<tr>
<th>NSCLC CDA Data Set</th>
<th>Gender (Male %)</th>
<th>Age Range (year)</th>
<th>Average Age (year)</th>
<th>Median Age (year)</th>
<th>Average CDA (rel. units)</th>
<th>Median CDA (rel. units)</th>
<th>SD of CDA (rel. units)</th>
<th>AUC (rel. units)</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>642</td>
<td>53</td>
<td>19 - 86</td>
<td>45</td>
<td>47</td>
<td>32.87</td>
<td>32.86</td>
<td>5.74</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Stage cũ</td>
<td>108</td>
<td>58</td>
<td>28 - 97</td>
<td>60</td>
<td>61</td>
<td>49.49</td>
<td>50.63</td>
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</tr>
<tr>
<td>Stage cò</td>
<td>90</td>
<td>84</td>
<td>45 - 78</td>
<td>61</td>
<td>60</td>
<td>52.38</td>
<td>53.66</td>
<td>7.21</td>
<td>0.967</td>
<td>93.3%</td>
</tr>
<tr>
<td>Stage cô</td>
<td>246</td>
<td>87</td>
<td>41 - 87</td>
<td>62</td>
<td>63</td>
<td>53.66</td>
<td>53.87</td>
<td>5.26</td>
<td>0.995</td>
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</tr>
<tr>
<td>Stage cô</td>
<td>388</td>
<td>71</td>
<td>36 - 90</td>
<td>60</td>
<td>59</td>
<td>52.45</td>
<td>52.96</td>
<td>6.11</td>
<td>0.987</td>
<td>94.1%</td>
</tr>
</tbody>
</table>

**Other Abstracts in this Sub-Category:**

1. **Association of STK11/LKB1 genomic alterations with lack of benefit from the addition of pembrolizumab to platinum doublet chemotherapy in non-squamous non-small cell lung cancer.**

**Meeting:** 2019 ASCO Annual Meeting  **Abstract No:** 102  **First Author:** Ferdinandos Skoulidis  **Category:** Lung Cancer—Non-Small Cell Metastatic - Metastatic Non-Small Cell Lung Cancer

2. **Real-world outcomes of patients with advanced non-small cell lung cancer (aNSCLC) and autoimmune disease (AD) receiving immune checkpoint inhibitors (ICIs).**

**Meeting:** 2019 ASCO Annual Meeting  **Abstract No:** 110  **First Author:** Sean Khozin  **Category:** Lung Cancer—Non-Small Cell Metastatic - Metastatic Non-Small Cell Lung Cancer