Dissecting tumor-immune interactions in mesothelioma for identifying responders to immune checkpoint blockade

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Introduction

- Mesothelioma (MISO) is most commonly a cancer of the pleural membranes of the lungs that is associated with exposure to asbestos
- 20 million people are exposed to asbestos each year around the world, 5-year survival rate < 8%
- Current treatment: Surgery orRadiation or
  - Pemetrexed + Cisplatin
- Patients treated with anti-PD1+anti-CTLA4 vs.
  - Chemotherapy showed OS of 18.1 vs 14.1 months

Methods

<table>
<thead>
<tr>
<th>Sequencing</th>
<th>Patch et al</th>
<th>TCGA-MESO</th>
</tr>
</thead>
<tbody>
<tr>
<td>WGS</td>
<td>58</td>
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<tr>
<td>RNA Seq</td>
<td>34</td>
<td>82</td>
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</tbody>
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- Whole genome sequencing
- RNA sequencing
- Mutation calling
- Expression quantification
- Mutation Annotation
- Immuno-Oncology analysis

Conclusion

- Expression of immune checkpoint receptors and immune intrinsic-extrinsic factors.
- By integrating immune checkpoint receptors gene expression with tumor intrinsic-extrinsic factors revealed an overall 12% patients may respond to ICIs.
- This analysis showed ICIs with anti-PD1/CTLA4 blockade may remain the standard in MISO.