Supplemental Methods

Search strategies and number of studies yielded from each database.

Pubmed: 75 Results

((("Carcinoma, Non-Small-Cell Lung"[Mesh]) OR (((NSCLC[Title/Abstract] OR "Non Small Cell"[Title/Abstract] OR "Non-Small-Cell"[Title/Abstract] OR "Non-Small-Cell"[Title/Abstract]) AND lung[Title/Abstract])))) AND ("pembrolizumab" [Supplementary Concept] OR "lambrolizumab"[Title/Abstract] OR "Keytruda"[Title/Abstract] OR "MK-3475"[Title/Abstract]))) AND ((("clinical trials as topic"[MeSH Terms] OR "trial"[Title/Abstract] OR "study"[Title/Abstract])))

EMbase: 106 Results

(pembrolizumab'/exp OR 'lambrolizumab':ab,ti OR 'Keytruda':ab,ti OR 'MK-3475':ab,ti) AND (('non small cell lung cancer'/exp OR ('lung':ab,ti AND 'NSCLC':ab,ti OR 'Non Small Cell':ab,ti OR 'Non-Small-Cell':ab,ti OR 'Non-Small Cell':ab,ti OR 'Non-Small Cell':ab,ti)) AND ('randomized controlled trial'/exp))

Cochrane: 162 results, 158 trials

#1 MeSH descriptor: [Carcinoma, Non-Small-Cell Lung] explode all trees

#2 “lung” AND ("Non Small Cell" OR "Non-Small Cell" OR "Non-Small-Cell")

#3 "pembrolizumab" or "lambrolizumab" or "Keytruda" or "MK-3475"

# 4 (#1 OR #2) AND #3
<table>
<thead>
<tr>
<th>Trial</th>
<th>Sequence generation</th>
<th>Allocation Concealment</th>
<th>Bliding</th>
<th>Incomplete outcome data</th>
<th>Selective reporting</th>
<th>Other source of bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>KEYNOTE-021 2016, 2018</td>
<td>Adequate</td>
<td>Adequate</td>
<td>Adequate (Independent Radiologic review)</td>
<td>Adequate</td>
<td>Inadequate (PFS, OS was not reported)</td>
<td></td>
</tr>
<tr>
<td>KEYNOTE-189 2018</td>
<td>Adequate</td>
<td>Adequate (Central allocation)</td>
<td>Adequate (Independent Radiologic review)</td>
<td>Adequate</td>
<td>Adequate</td>
<td></td>
</tr>
<tr>
<td>KEYNOTE-407 2018</td>
<td>Adequate</td>
<td>Adequate (Central allocation)</td>
<td>Adequate (Independent Radiologic review)</td>
<td>Adequate</td>
<td>Adequate</td>
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<tr>
<td>KEYNOTE-024 2016, 2017</td>
<td>Adequate</td>
<td>Adequate (Central allocation)</td>
<td>Adequate (Independent Radiologic review)</td>
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<td>Adequate</td>
<td></td>
</tr>
<tr>
<td>KEYNOTE-042 2018</td>
<td>Adequate</td>
<td>Adequate (Central allocation)</td>
<td>Adequate (Independent Radiologic review)</td>
<td>Adequate</td>
<td>Adequate</td>
<td>Data from the abstract and the presentation slides</td>
</tr>
</tbody>
</table>
Supplemental Figure 1. Trial Selection Process

349 Studies identified in search
- 75 From Pumbed
- 162 From Cochrane
- 106 From EMBASE
- 6 From other sources

75 Duplicates excluded

274 Studies screened for eligibility using titles and abstracts

263 Studies Excluded
- 118 Irrelevant topic
- 66 Nontrial report
- 16 Single-group study
- 13 Not first-line treatment
- 39 Reviews or meta-analysis
- 11 Others

11 Assessed for eligibility

6 Studies Excluded
- 6 Conference abstract (duplicates)

5 Trials included in meta-analysis