

Supplementary table 4:

PubMed search strategy.

| #NO | Searches                                                                                                                                                                                                                                                                                                                                                                              |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | “Programmed Cell Death 1 Receptor”[Mesh] OR “CTLA-4 Antigen”[Mesh]                                                                                                                                                                                                                                                                                                                    |
| 2   | “anti-PD-1”[Title/Abstract] OR “PD-1”[Title/Abstract] OR<br>“anti-PD-L1”[Title/Abstract] OR “PD-L1”[Title/Abstract] OR<br>“anti-PD(L)-1”[Title/Abstract] OR “PD(L)-1”[Title/Abstract] OR<br>“CTLA-4”[Title/Abstract] OR “anti-CTLA-4”[Title/Abstract] OR “anti-cytotoxic<br>T-lymphocyte antigen-4”[Title/Abstract]                                                                   |
| 3   | “nivolumab”[Title/Abstract] OR “pembrolizumab”[Title/Abstract] OR<br>“atezolizumab”[Title/Abstract] OR “durvalumab”[Title/Abstract] OR<br>“avelumab”[Title/Abstract] OR “ipilimumab”[Title/Abstract] OR<br>“cemiplimab”[Title/Abstract]                                                                                                                                               |
| 4   | “immune checkpoint inhibitor”[Title/Abstract] OR “immune checkpoint<br>inhibitors”[Title/Abstract] OR “ICI”[Title/Abstract] OR “immune checkpoint<br>blockade”[Title/Abstract] OR “ICB”[Title/Abstract]                                                                                                                                                                               |
| 5   | ‘Lymphohistiocytosis, Hemophagocytic’ (Mesh) OR ‘Hemophagocytic<br>lymphohistiocytosis’ OR ‘Haemophagocytic lymphohistiocytosis’ OR<br>‘Hemophagocytic syndrome’ OR ‘Haemophagocytic syndrome’ OR ‘Macrophage<br>Activation Syndrome’(Mesh)] OR ‘Macrophage Activation Syndrome’ OR MAS OR<br>HLH OR hypercytokinaemia OR ‘cytokine storm’ OR ‘hemophagocytic activation<br>syndrome’ |

|   |                               |
|---|-------------------------------|
| 6 | (1 or 2 or 3 or 4)and 5 = 357 |
|---|-------------------------------|

Supplementary table 5:

Embase search strategy.

| #NO | Searches                                                                                                                                                                                                                           |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | "immune checkpoint inhibitor"/de OR "avelumab"/de OR "atezolizumab"/de OR "cemiplimab"/de OR "durvalumab"/de OR "ipilimumab"/de OR "nivolumab"/de OR "pembrolizumab"/de                                                            |
| 2   | atezolizumab:ti,ab,kw OR avelumab:ti,ab,kw OR cemiplimab:ti,ab,kw OR durvalumab:ti,ab,kw OR ipilimumab:ti,ab,kw OR nivolumab:ti,ab,kw OR pembrolizumab:ti,ab,kw                                                                    |
| 3   | ((("ctla-4" OR ctla4 OR "cytotoxic t-lymphocyte-associated protein 4" OR checkpoint OR "pd-1" OR pd1 OR "pd-l1" OR pdl1 OR "programmed death-ligand 1" OR "programmed cell death protein 1") NEAR/3 (block* OR inhibit*)):ti,ab,kw |
| 4   | "hemophagocytic syndrome"/exp OR "hemophagocytic syndrome"                                                                                                                                                                         |

|   |                                                                                                                                     |
|---|-------------------------------------------------------------------------------------------------------------------------------------|
| 5 | ("macrophage activati*" NEAR/2 syndrome*):ti,ab,kw                                                                                  |
| 6 | ((erythrophagocyt* OR hemophagocyt*) NEAR/2 (histiocy* OR hymphohistiocy* OR lymphohistiocy* OR reticulosis OR syndrome*)):ti,ab,kw |
| 7 | "cytokine storm"/exp                                                                                                                |
| 8 | (1 or 2 or 3) and (5 or 6 or 7) = 1082                                                                                              |

Supplementary figure 1:

Diagram of the PRISMA

