**SUPPLEMENTARY METHODS**

***Endpoints and Statistical Analysis***

For each trial, objective response rate (ORR) was defined as the number of responses (complete [CR] and partial [PR]) divided by the total number of patients (CR + PR + SD + PD + NE). Non-progression rate (NPR) was defined as the number of CR, PR and SD divided by the number of reported patients.

To account for varying sample sizes across trials, we relied on generalized linear models (binomial link function) to provide unbiased estimates of the trial-level ORR and NPR using a the trial as a random effect. We reported the estimated mean trial-level ORR and NPR, together with their respective 95% confidence intervals (95%CI). Statistical significance was set at 5%. Statistical analyses were performed using SAS version 9.4 software (SAS Institute, North Carolina, USA).

**SUPPLEMENTARY RESULTS**

| **Supplementary Table 1. Characteristics of the studies included in the pooled analysis (n=384)** | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Therapeutic strategy** | **Investigational drug(s)** | **Reference** | **N patients** | **UPS** | | **LPS** | | **LMS** | | **ASPS** | | **OTHER** | |
| **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** |
| Monotherapy | Pembrolizumab | 1,2 | 98 | 40 | 40.8% | 34 | 34.7% | 10 | 10.2% | 0 | 0.0% | 14 | 14.3% |
| Monotherapy | Atezolizumab | 6 | 22 | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 22 | 100% | 0 | 0% |
| Monotherapy | Nivolumab | 4 | 33 | 12 | 36.4% | 3 | 9.1% | 13 | 39.4% | 1 | 3.0% | 4 | 12.1% |
| Combination :  Immunotherapy + other | Pembrolizumab  plus doxorubicin | 8 | 36 | 3 | 8.3% | 4 | 11.1% | 10 | 27.8% | 0 | 0% | 19 | 52.8% |
| Combination :  Immunotherapy + other | Pembrolizumab +  cyclophosphamide | 5 | 47 | 16 | 34.0% | 2 | 4.3% | 15 | 31.9% | 0 | 0.0% | 14 | 29.8% |
| Combination :  Immunotherapy + other | Pembrolizumab +  axitinib | 7 | 34 | 5 | 14.7% | 2 | 5.9% | 6 | 17.7% | 12 | 35.3% | 9 | 26.5% |
| Combination :  Double immunotherapy | Pembrolizumab +  NKTR 214 | 9 | 40 | 10 | 25.0% | 10 | 25.0% | 10 | 25.0% | 0 | 0.0% | 10 | 25.0% |
| Combination :  Double immunotherapy | Durvalumab +  tremelimumab | 3 | 43 | 5 | 11.6% | 6 | 14.0% | 5 | 11.6% | 6 | 14.0% | 21 | 48.8% |
| Combination :  Double immunotherapy | Nivolumab +  Ipilimumab | 4 | 31 | 12 | 38.7% | 0 | 0.0% | 13 | 41.9% | 0 | 0% | 6 | 19.4% |

***Footnotes****: ASPS= alveolar soft-part sarcoma, LMS= Leiomyosarcoma, LPS= Liposarcoma, UPS= undifferentiated pleomorphic sarcoma*

| **Supplementary Table 2. Objective response rates according to histological subtypes and therapeutic strategy (n=384)** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Therapeutic strategy** | **N patients** | **UPS** | | **LPS** | | **LMS** | | **ASPS** | | **OTHER** | |
| **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** | **N** | **%** |
| Monotherapy | 153 | 52 | 19.2% | 37 | 8.1% | 23 | 4.3% | 23 | 43.5% | 18 | 11.1% |
| Combination :  Immunotherapy + other | 117 | 24 | 8.3% | 8 | 25% | 31 | 12.9% | 12 | 58.3% | 42 | 9.5% |
| Combination :  Double immunotherapy | 113 | 27 | 18.5% | 16 | 0% | 27 | 3.7% | 6 | 50% | 37 | 10.8% |

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