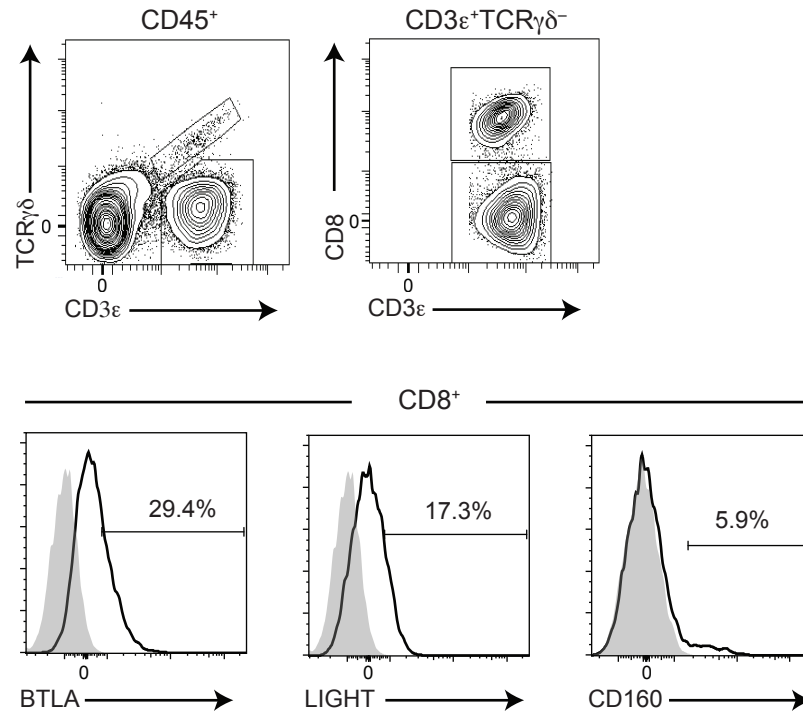
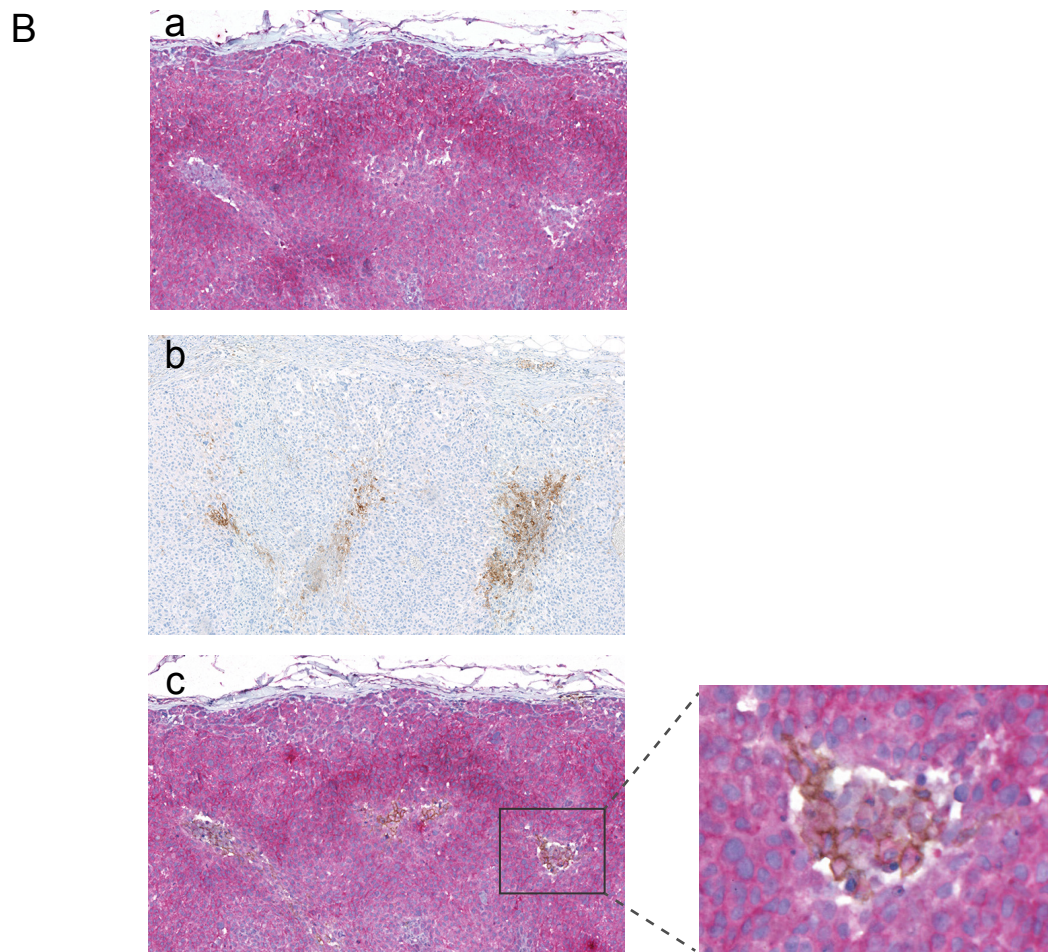
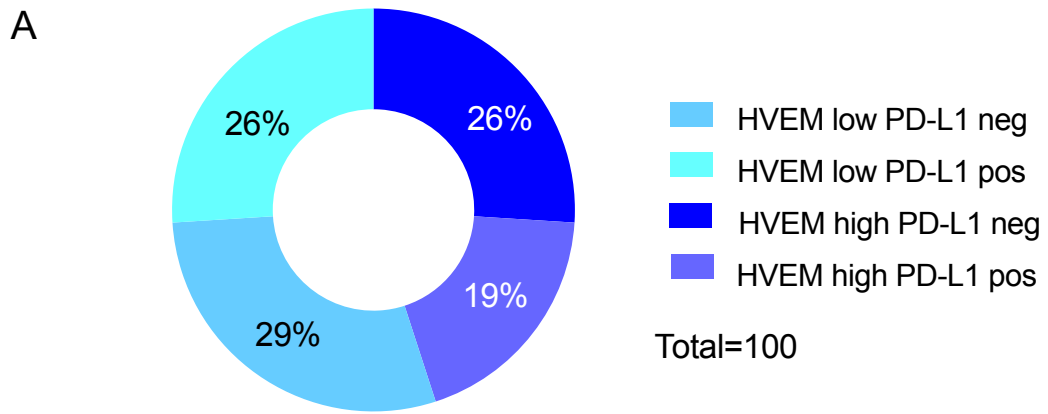


Supplementary Figure S1. Gating strategy used in flow cytometry for melanoma cells.

A triple combination of HMB45, melan-A, and tyrosinase intracellular antibodies (melanoma-specific antibodies) were used to gate melanoma cells among live CD45⁻ cells.

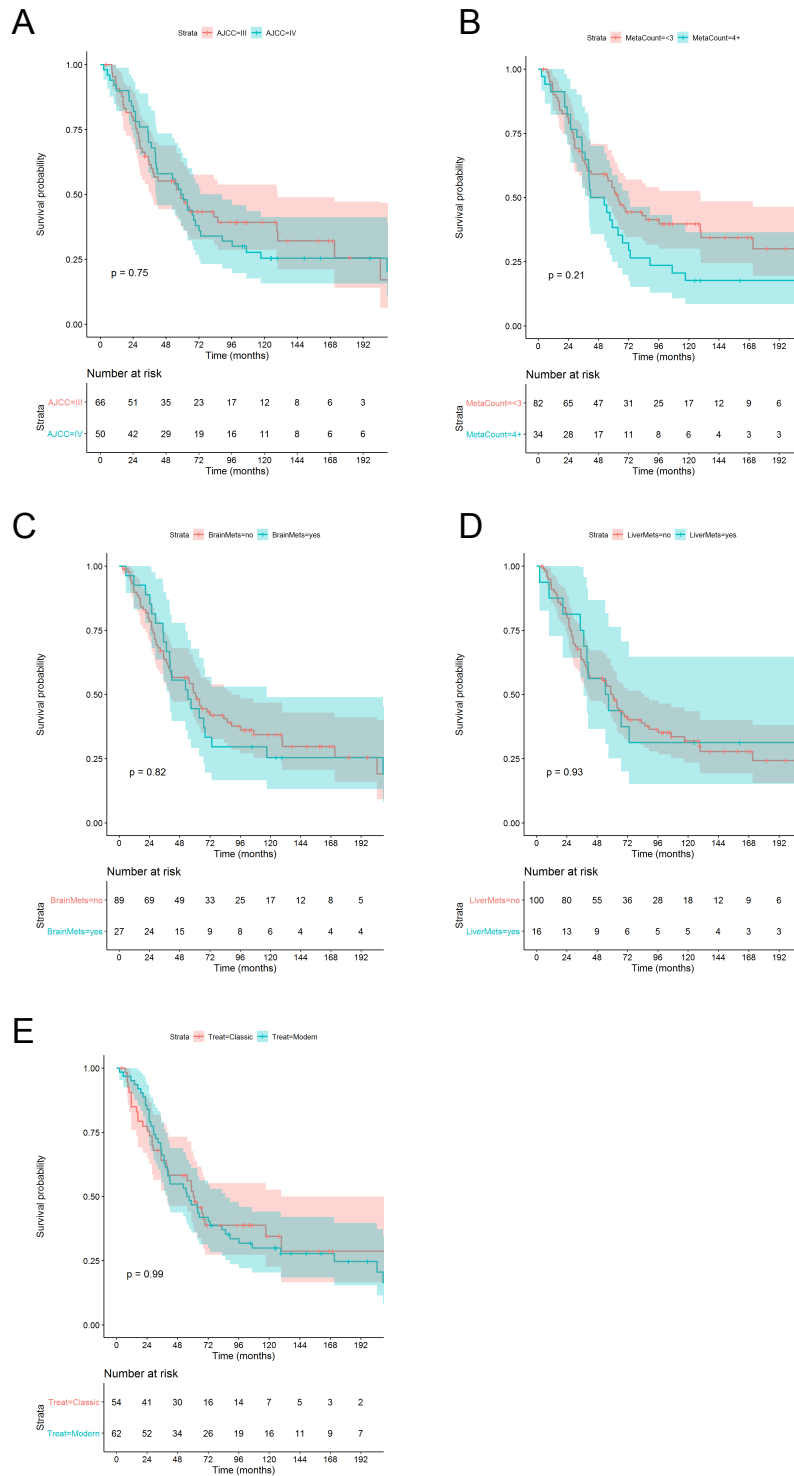


Supplementary Figure S2. Gating strategy used in flow cytometry for CD8⁺ tumor-infiltrating lymphocytes.

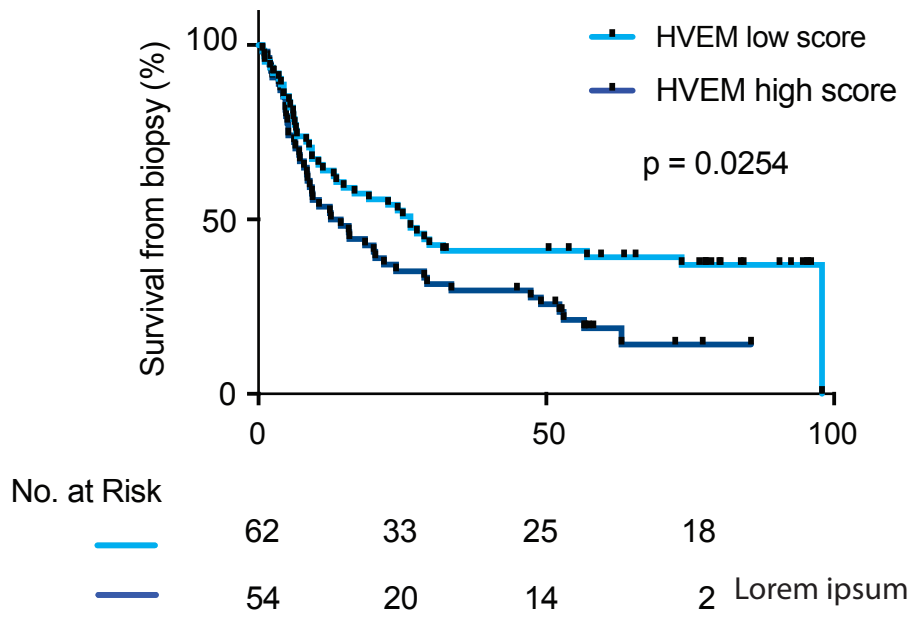


Supplementary Figure S3. PD-L1 and HVEM co-expression assessed by immunohistochemistry.

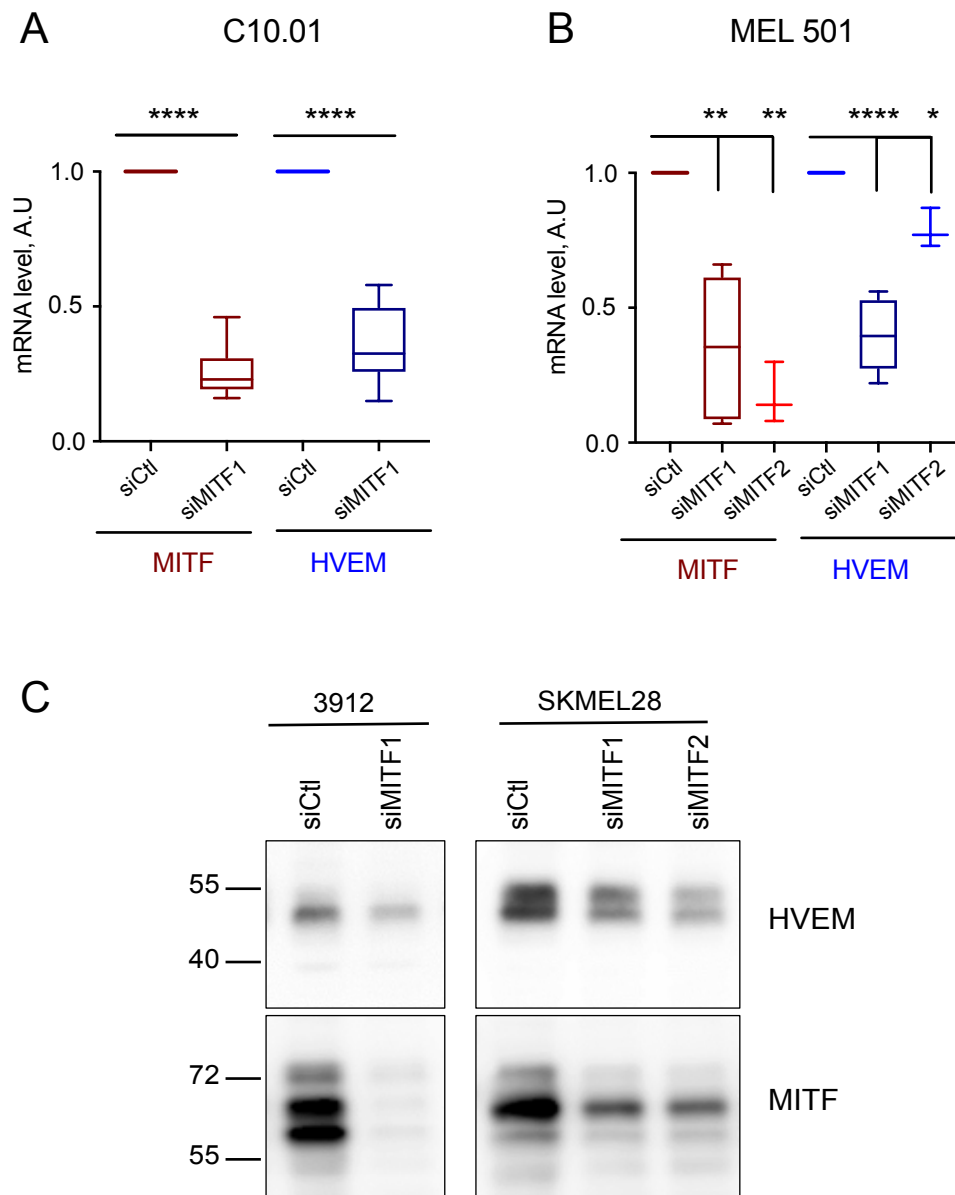
A, On 68 melanoma samples. A 5% cut-off was used to define PD-L1⁺ (pos) and PD-L1⁻ (neg) samples. **B**, A representative example of contiguous serial sections staining for (a) HVEM RED, (b) PD-L1 DAB, and (c) double staining (combination) of both on the same slide.



Supplementary Figure S4. Univariate analysis of factors associated with overall survival. **A**, AJCC 8th edition stage. **B**, Number of metastatic sites. **C**, Presence of brain metastases. **D**, Presence of liver metastases. **E**, Receiving a modern treatment. In this study, modern treatment refers to either targeted therapies or immune checkpoint blockade (no patient received any oncolytic virus). Data were obtained by the log-rank test.



Supplementary Figure S5. Patient survival from the date of excision of 116 melanoma metastases according to the HVEM status of the tumor.
 Patients with high HVEM expression had a significantly poorer prognosis than those with low expression.



Supplementary Figure S6. Expression of HVEM and MITF correlate strongly.

A, B: One short-term culture isolated from patient (C.10.01) and one melanoma cell line, MEL501, were transfected with control siRNA (siCtl) or one or two different MITF siRNAs (siMITF1, siMITF2). MITF and HVEM expression was quantified by qPCR. Results are mean±SD of two experiments carried out in triplicate for C10.01, and one experiment carried out in triplicate for MEL501. Two-tailed paired t-test was used for comparison between control and target siRNA (*: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$, ****: $p < 0.0001$). **C:** Western blot analysis comparing the effect of two different MITF siRNAs on MITF and HVEM expression in two melanoma cell lines (3912 and SKmel28).