**Supplemental table legend:**

Supplemental table 1. Mechanisms of action for immunotherapy trials.

Supplemental table 2. Mechanisms of action for targeted therapy trials.

Supplemental table 3: Response across trials and impact of FIH vs RP2D dosing. PR: partial response, SD: stable disease, PD: progressive disease, NE: non-evaluable.

Supplemental table 4: Response in targeted therapy trials. PR: partial response, SD: stable disease, PD: progressive disease, NE: non-evaluable

Supplemental table 5: Response in immunotherapy trials. PR: partial response, SD: stable disease, PD: progressive disease, NE: non-evaluable

Supplemental table 6: Baseline characteristics of patients with metastatic urothelial carcinoma at each trial participation based on TP53 alterations. ECOG: Eastern Cooperative Oncology Group, UC: urothelial carcinoma