

## **Description of Additional Supplementary Files**

### **Supplementary Data 1**

Description: List of bladder cancer samples used to test organoids derivation. Information regarding age (at sampling), sex, specimen type, tumor stage and grade, and organoid formation are reported.

### **Supplementary Data 2**

Description: Genomic measures and statistics computed on samples (tumor and/or matched PDOs) sequenced with WES.

### **Supplementary Data 3**

Description: Comparison of frequency of mutations (snv, homo-deletion, hemi-deletion, gain, amp) for a list of genes between our non-muscle invasive cohort and the Memorial Sloan Kettering (MSK) cohort.

### **Supplementary Data 4**

Description: Comparison of frequency of mutations (snv, homo-deletion, hemi-deletion, gain, amp) for a list of genes between our muscle invasive cohort and the The Cancer Genome Atlas (TCGA) cohort.

### **Supplementary Data 5**

Description: Enrichment analysis on deleterious single nucleotide variants (SNVs) of 20 bladder cancer PDOs. 0=not significantly enriched, 1=significantly enriched.

### **Supplementary Data 6**

Description: Replicate-level drug screening data for 21 bladder cancer organoids.

### **Supplementary Data 7**

Description: Sequencing statistics of 22 bladder cancer samples (tumor and/or matched PDOs).