



**Supplemental Figure 1. Genomic profiles of the validation cohort.** uCGP determined genomic profiles of cystoscopy positive ( $N = 70$ ) and cystoscopy negative (surveillance cohort,  $N = 82$ ; initial diagnosis cohort,  $N = 96$ ) patients are shown for the validation cohort. In cystoscopy positive patients, mutations are matched with pathologic correlates (one column per patients). In the cystoscopy negative surveillance cohort, recurrence status is noted, if available, for each patient. (A) In the SNV panel, all genes mutated in  $>2.5\%$  of cystoscopy positive patients are shown. (B) Significant CNV events ( $\log_2$  fold change), copy-neutral loss of heterozygosity (LOH) (total events), and aneuploidy are shown.