Supplementary Figure 1. Cell specific activity of AdTSTA.  

a) Comparison of TSTA and CMV mediated firefly luciferase activity (RLU/s/μg protein) in prostate (LNCaP) vs. macrophage cell lines (J774 and RAW).  
b) Immunohistochemistry of red fluorescent protein (red), F4/80 (green) and dapi (blue) in the periphery of an adenovirus injected tumor. LAPC-9 tumor was injected with 1 x 10^8 infectious units of AdTSTA-TF, expressing the triple fusion reporter gene. Immunohistological staining of tumor sections, 3 days after viral injection, revealed the expression of RFP is present dominantly in tumor cells but not in the adjacent F4/80+ macrophages.  
c) In vivo bioluminescence at 3 days after injection of 1 x 10^8 pfu AdCMV-fl or AdTSTA-fl in the left forepaw. AdCMV-fl displays high nonspecific bioluminescence signal at the site of injection (paw) and in the liver, presumably due to redistribution from the lymphatic to the systemic circulation. Scale bar. 5 μm (b)
Supplementary Figure 2. Lymphatics of orthotopically implanted xenografts. a) Small punctuate lymphatic vessels can be observed throughout the prostatic region associated with the LAPC-9 tumor. CWR22Rv-1 tumors, which express relatively high levels of VEGF-C, tend to have lymphatics associated with the margin and extending intratumorally. b) Regardless of VEGF-C expression level, orthotopic implants have peritumoral lymphatics associated with the stroma around the normal ductiles. Scale bar, 200 μm (a).
Supplementary Video 1. Progression of $^{18}$FLT PET/CT detectable lymph node metastasis following resection of primary tumor, CWR22Rv-1

Supplementary Video 2. $^{18}$FHBG PET/CT video of AdTSTA-sr39tk mediated visualization of sentinel lymph node metastasis.