

## Supporting Information for

### ORIGINAL ARTICLE

#### Molecularly engineered truncated tissue factor with therapeutic aptamers for tumor-targeted delivery and vascular infarction

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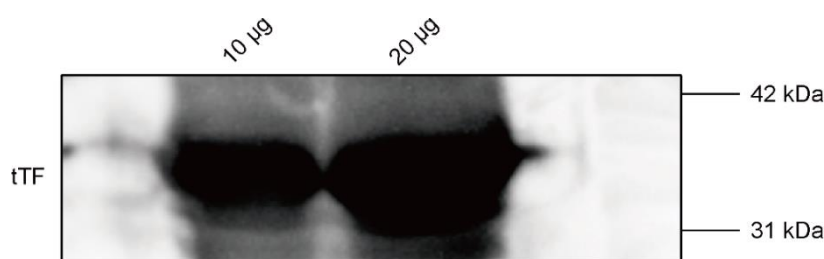
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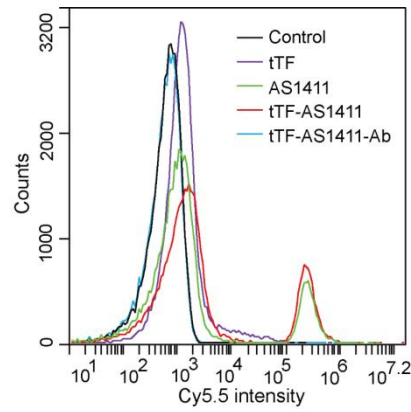
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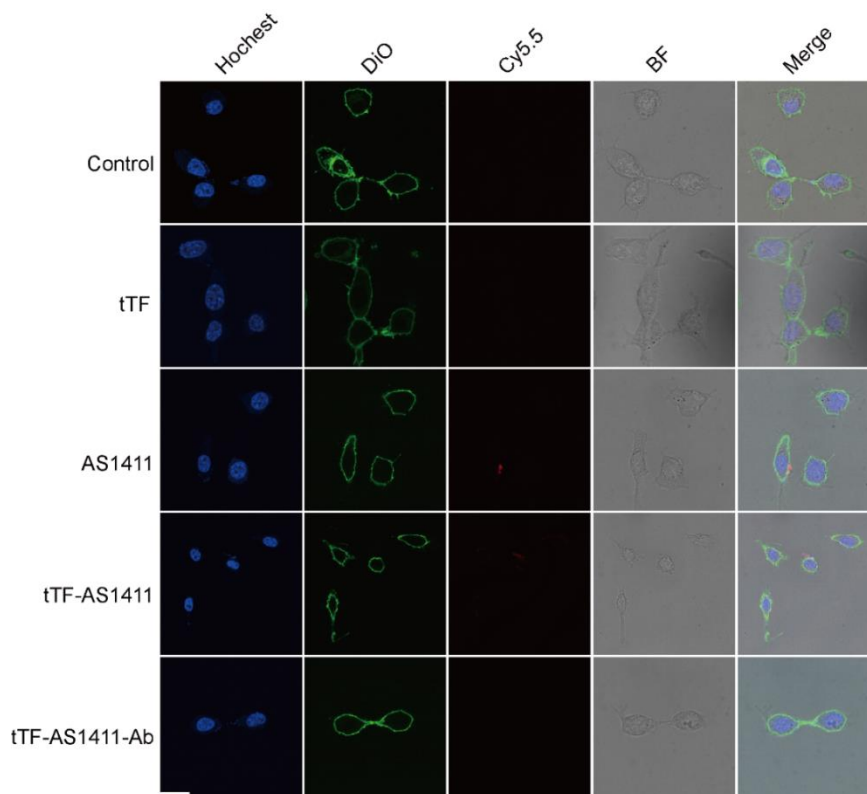
Running title: Molecularly engineered truncated tissue factor with therapeutic aptamers



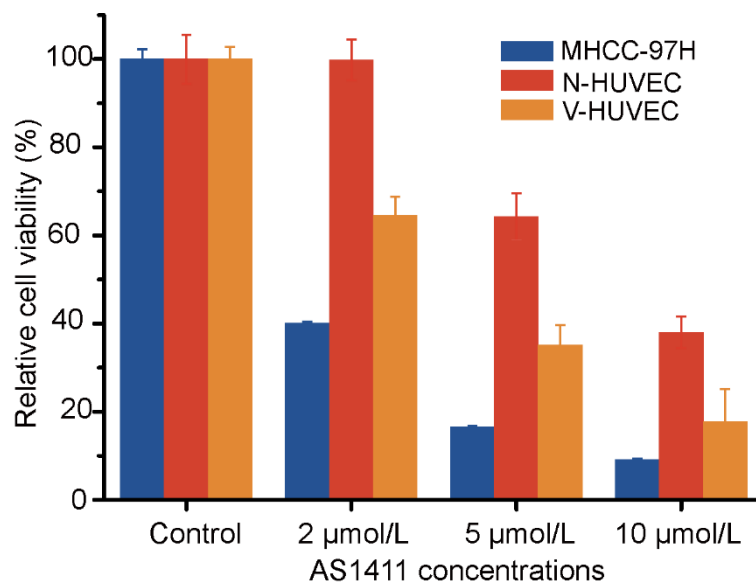
**Figure S1** Characterization of tTF protein. Western blot analysis of purified tTF protein at different concentrations.



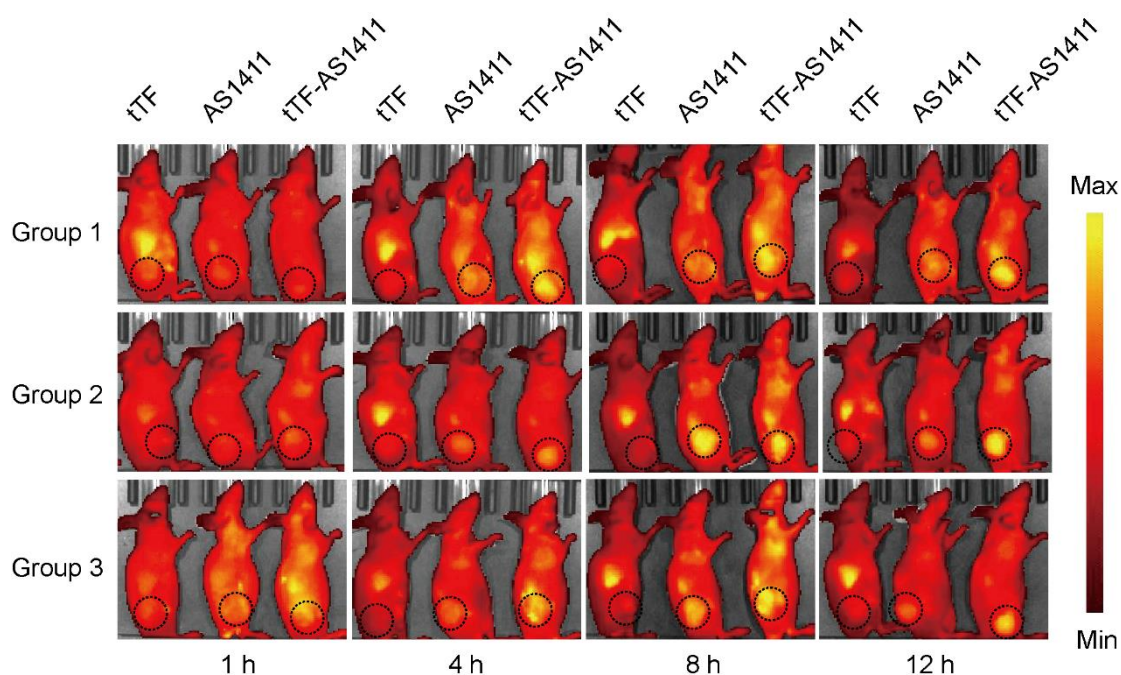
**Figure S2** *In vitro* measurements of tTF-AS1411 targeting ability. HUVECs were incubated with Cy5.5-labeled tTF or tTF-AS1411 (10 nmol/L, red) for 30 min. Flow cytometry analysis was performed to detect the fluorescent binding intensity.



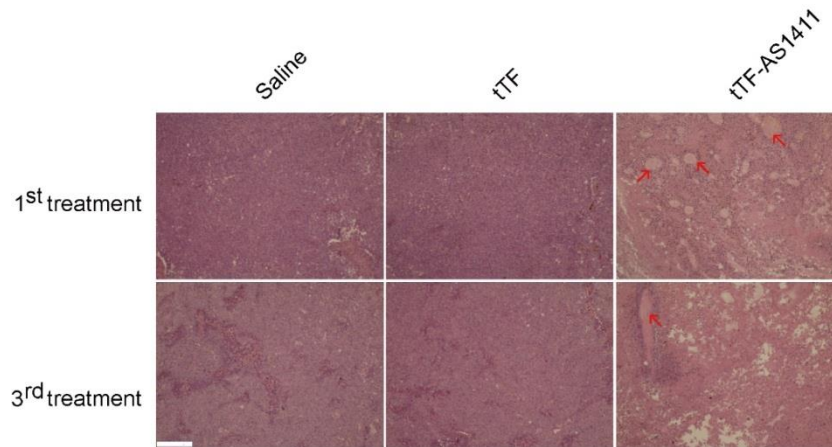
**Figure S3** Confocal laser scanning microscopy images of HUVEC binding of indicated formulations. The normal HUVECs were incubated with Cy5.5-labeled tTF or tTF-AS1411 (10 nmol/L, red) for 30 min. Confocal microscopy showed no detectable fluorescent binding in any group. Scale bar=20  $\mu$ m.



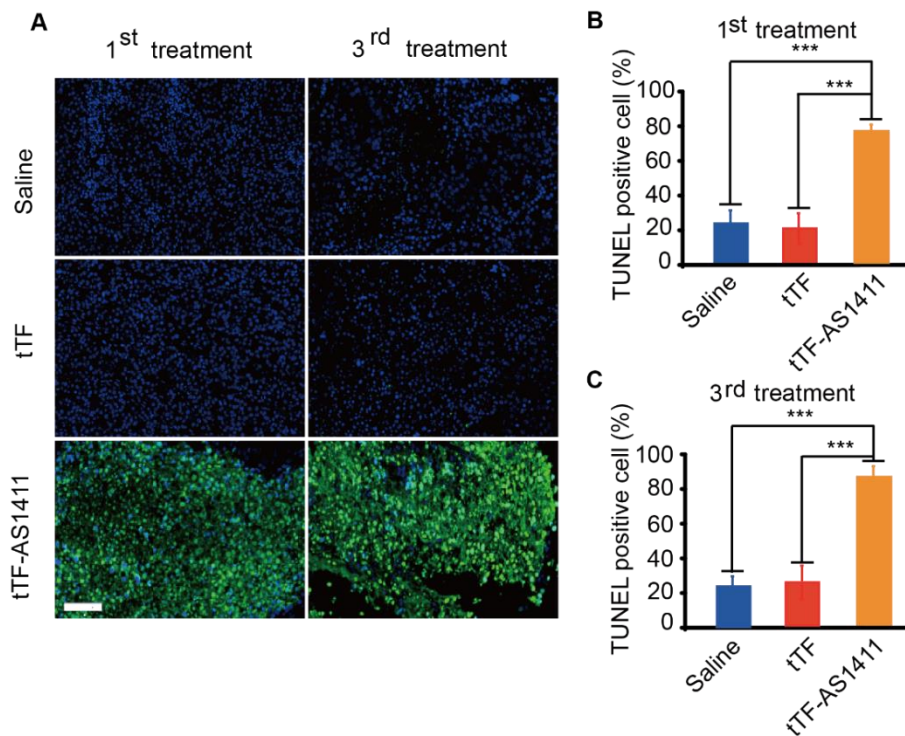
**Figure S4** Cytotoxicity of AS1411. Cytotoxicity of the different concentrations of AS1411 aptamer in MHCC-97H liver cancer cells, normal HUVECs (N-HUVECs) and HUVECs treated with VEGF (V-HUVECs) (100 ng/mL), as determined by CCK-8 assay. Each bar represents the mean  $\pm$ SD,  $n=6$ .



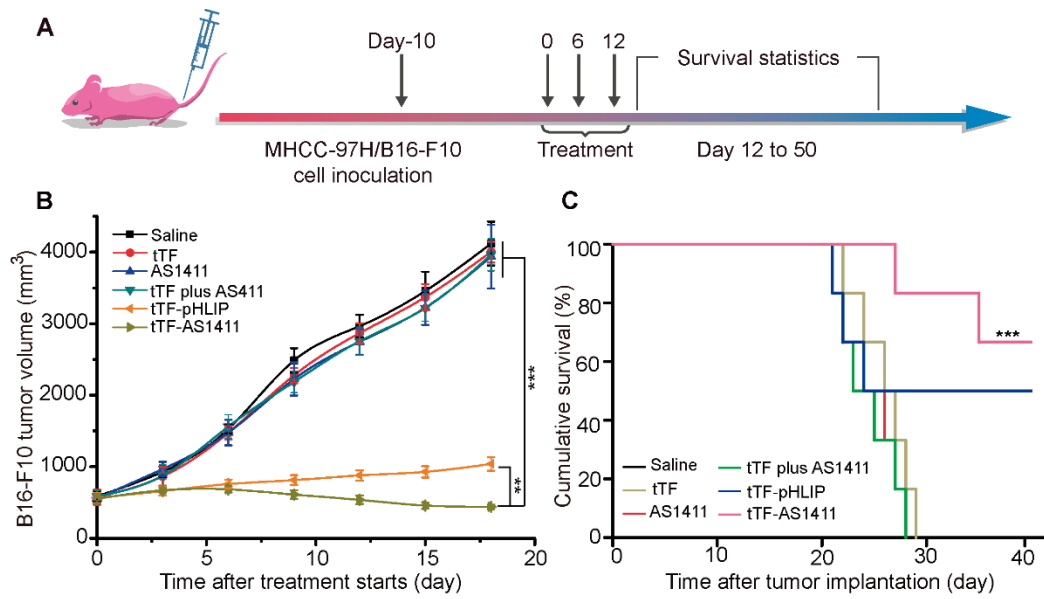
**Figure S5** Tumor targeting ability of tTF-AS1411 *in vivo*. Fluorescence images of MHCC-97H liver tumor-bearing mice at the indicated times after intravenous administration of Cy5.5-labeled tTF, AS1411 or tTF-AS1411,  $n=3$ .



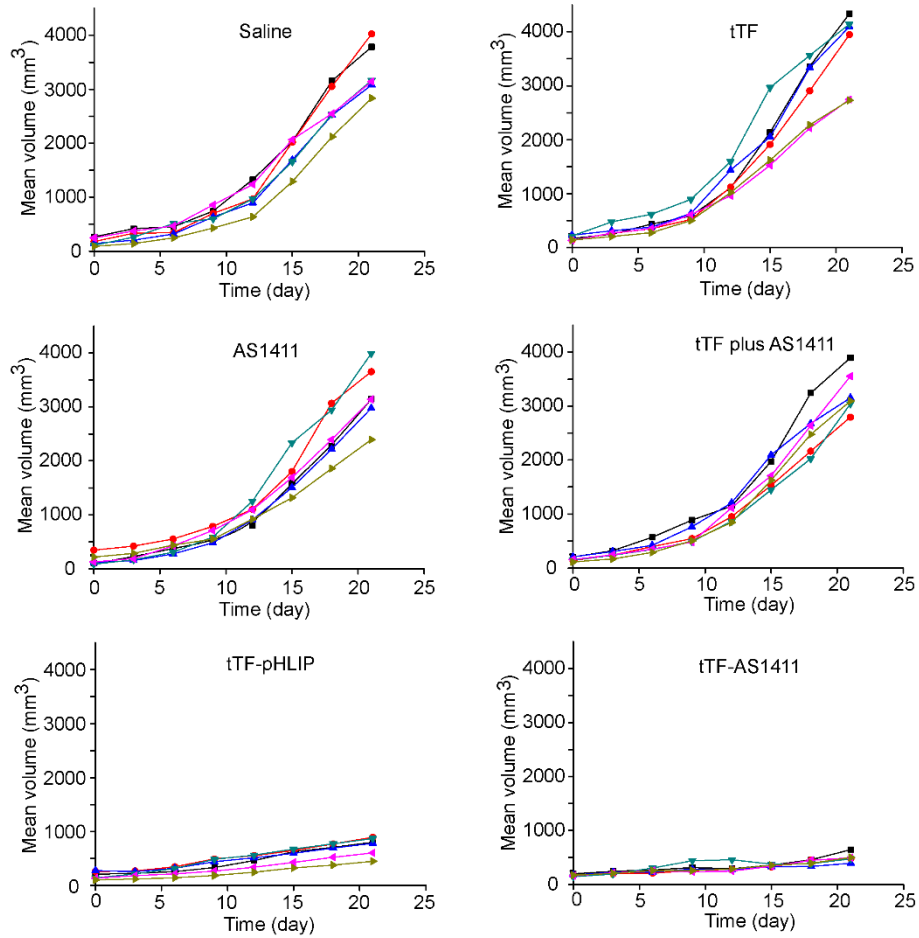
**Figure S6** H&E stained microphotographs of tumor tissues. H&E staining revealed extensive thrombosis (red arrows) and necrosis (spaces) in the tTF-AS1411-treated tumors after a single or three treatments. Scale bar=100  $\mu$ m.



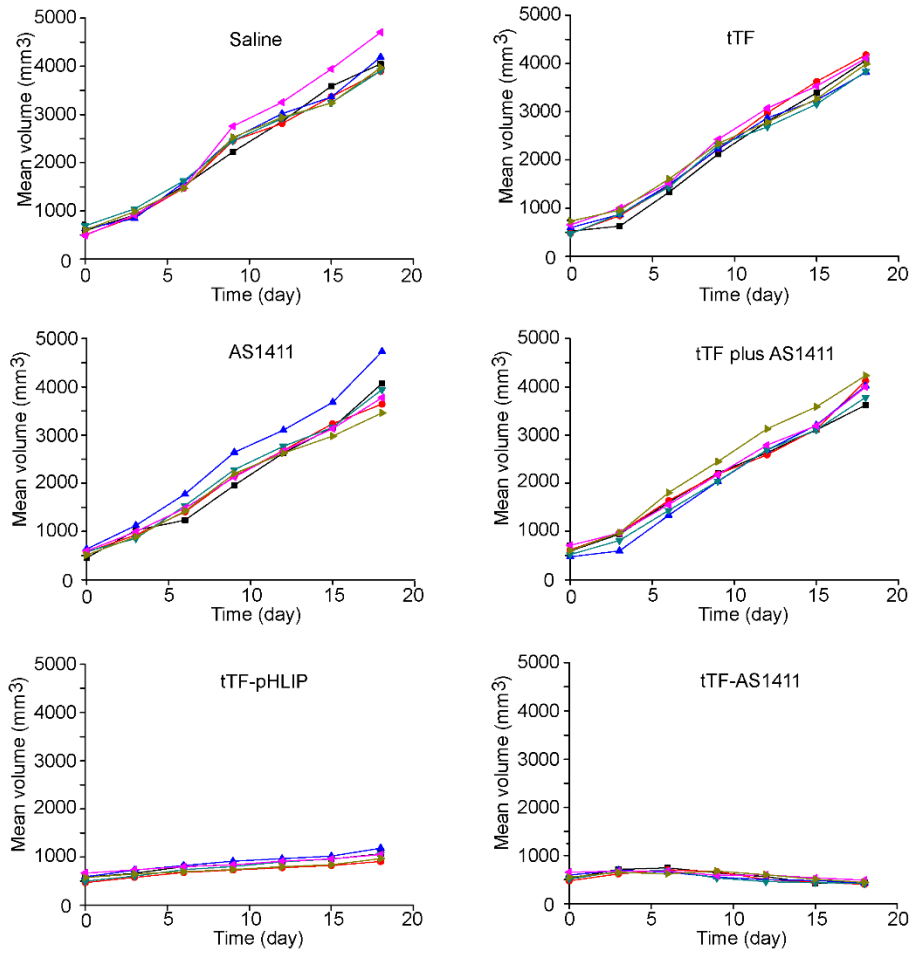
**Figure S7** Anti-TUNEL stained to the tumor tissues. (A) Photographs of TUNEL stained tumor tissues from saline, tTF or tTF- AS1411-treated mice. Scale bar, 100  $\mu$ m. (B) and (C) Quantification of TUNEL-positive cells in tumor tissues after the first (B) or third (C). Data type,  $n=3$ .



**Figure S8** Anti-tumor activity of tTF-AS1411 in melanoma tumors. (A) Scheme of administration paradigm. Tumor therapy started from 10 days after cell inoculation, with an average tumor size of 150 mm<sup>3</sup>. (B) Tumor volumes of B16-F10 melanoma-bearing mice up to Day 18 after treatment were shown. Three injections of tTF-AS1411 significantly inhibited tumor growth. Each bar represents the mean  $\pm$ SD,  $n=6$ ; \*\*  $P<0.01$ , \*\*\*  $P<0.001$ . (C) Cumulative survival of B16-F10 tumor-bearing mice. Data type,  $n=6$ ; \*\*\*  $P<0.001$ .



**Figure S9** MHCC-97H liver tumor growth curves. The tumor-growth curves for the mice bearing MHCC-97H liver tumors after different formulations treatment over time. Data type,  $n=6$  in each group.



**Figure S10** B16-F10 melanomas tumor growth curves. The tumor-growth curves for the individual mice bearing B16-F10 melanomas after different formulations treatment over time. Data type,  $n=6$  in each group.