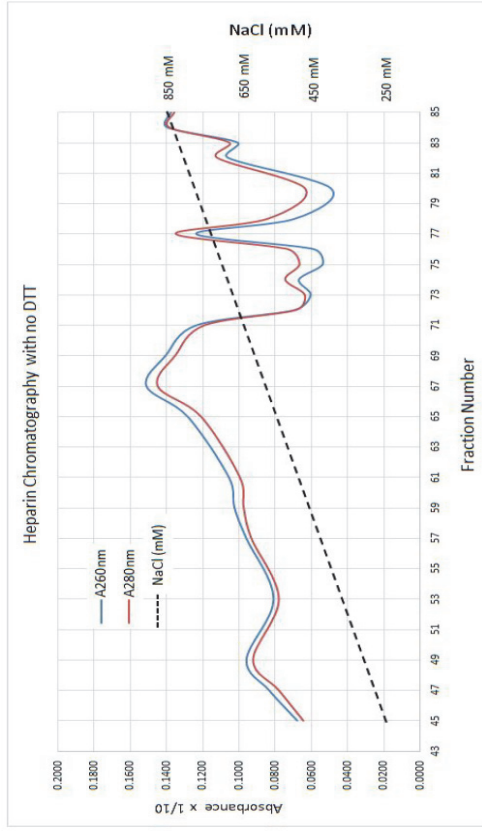
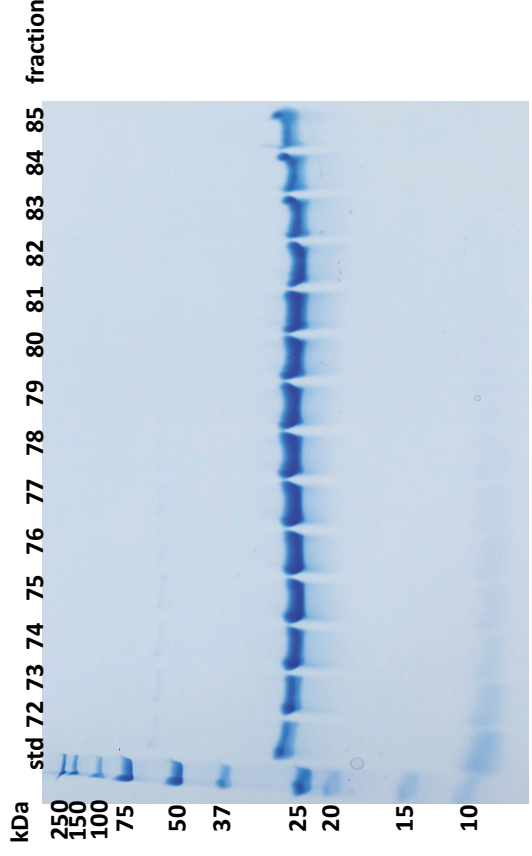


A



B



Supplementary Fig. 1. Purification of Tat-PY-C-Smad7 by heparin chromatography. A: Heparin chromatograph. **B:** SDS gel loaded with heparin fractions.

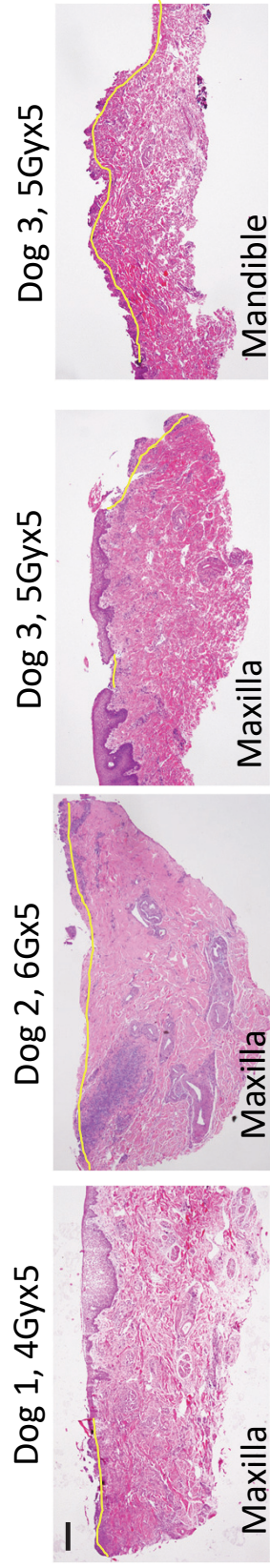
Sun	Mon	Tues	Wed	Thu	Fri	Sat
	Dogs Arrive		Lab work, pre-biopsy			
Week1	RT	RT	RT	RT	RT	
Week2 Tat-PYC- Smad7 treatment	Dose X: Oral Treatment VRTOG score	Dose X: Oral Treatment VRTOG score	Dose X: Oral Treatment VRTOG score	Dose X: Oral Treatment VRTOG score	Dose X: Oral Treatment VRTOG score	
Week3 Tat-PYC- Smad7 treatment	Dose X: Oral Treatment VRTOG score	Dose X: Oral Treatment VRTOG score	Dose X: Oral Treatment VRTOG score	Dose X: Oral Treatment VRTOG score	Dose X: Oral Treatment Biopsy, Lab work VRTOG score	
Week4	VRTOG score	VRTOG score	VRTOG score	VRTOG score	VRTOG score	

Supplementary Fig. 2. Clinical protocol of IMRT-induced oral mucositis and Tat-PYC-Smad7 treatment schedule.

27 Nanostring Functional Annotation Gene Categories	# Genes
Angiogenesis	61
Antigen Presentation	56
Apoptosis	52
Autophagy	23
Cell Proliferation	32
Complement System	33
Costimulatory Signaling	67
Cytokine And Chemokine Signaling	305
Cytotoxicity	38
DNA Damage Repair	18
Epigenetic Regulation	24
Hedgehog Signaling	7
Hypoxia	51
Immune Cell Adhesion And Migration	77
Interferon Signaling	47
Internal Reference Gene	20
JAK-STAT Signaling	75
Lymphoid Compartment	81
MAPK	46
Matrix Remodeling And Metastasis	44
Metabolic Stress	32
Myeloid Compartment	66
NF-kB Signaling	76
Notch Signaling	6
PI3K-Akt	55
TGF-beta Signaling	12
Wnt Signaling	15

Subcategory of secreted cytokines and chemokines	# Genes
Secreted cytokines & chemokines	93

Supplementary Fig. 3. Nanostring Functional Annotation Categories. The NanoString nCounter Canine IO panel includes 800 genes which are assigned to one or more of 27 functional categories. The largest category, Cytokine and Chemokine Signaling, contains 305 genes. We separated out the secreted cytokines and chemokines into a 28th functional category.



Supplementary Fig. 4. Histology of Tat-PYC-Smad7 treated dog mucositis with different IMRT doses. All dogs were treated with mock gel only. Yellow lines delineates the lengths of ulcerated lesions. Scale bar: 200 μ m for all sections.

