



Project BASTION „From Basic to Translational Research in Oncology”

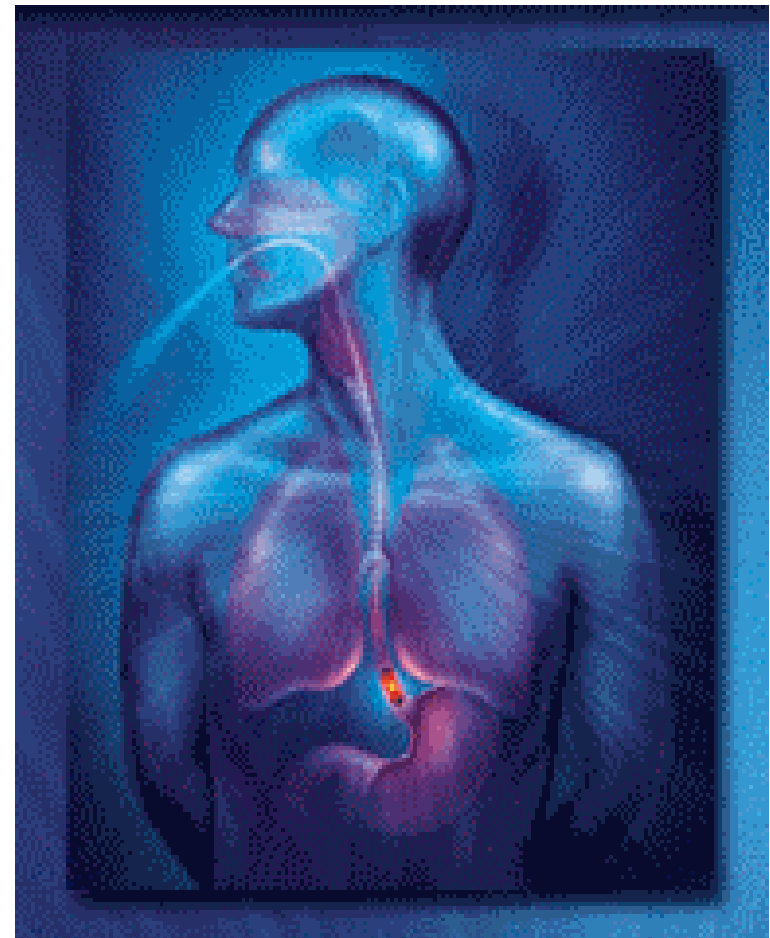
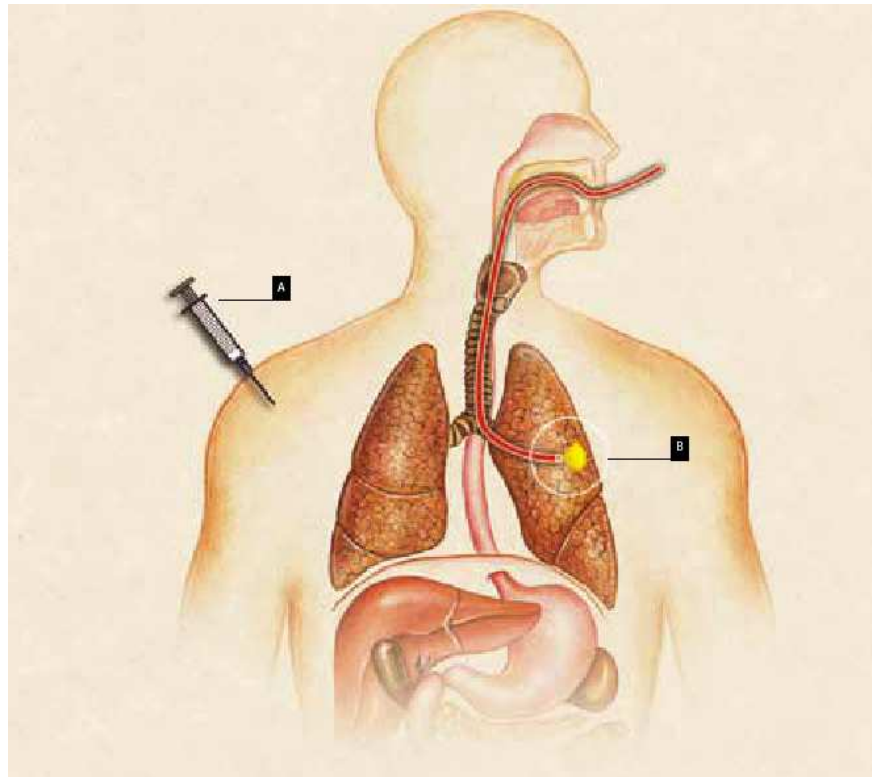
Kick-off Meeting International Advisory Board Meeting

Warsaw

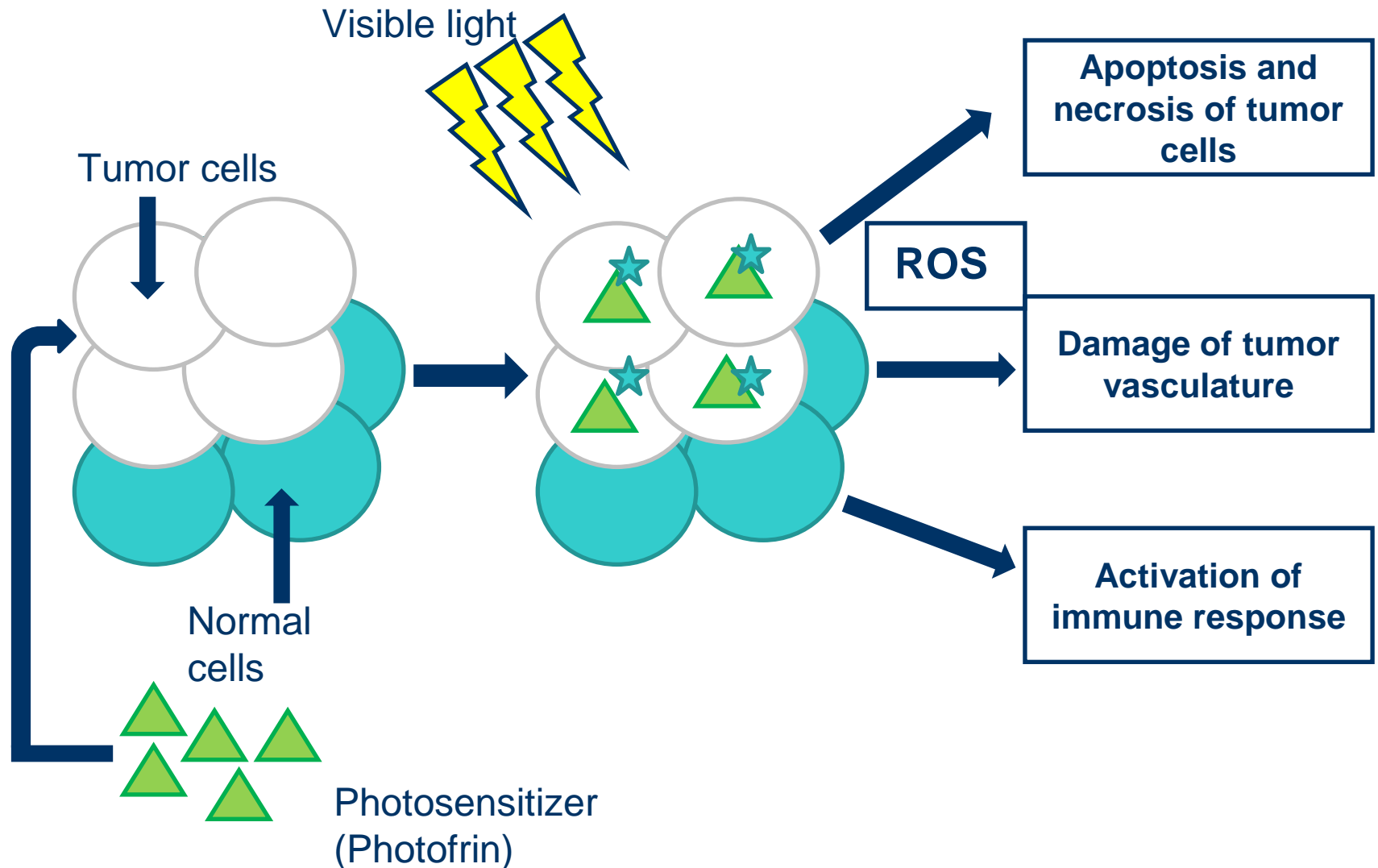
November 27th 2012



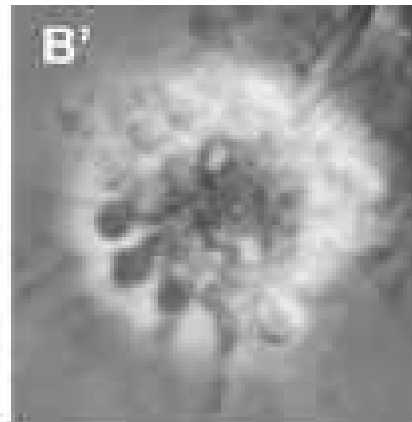
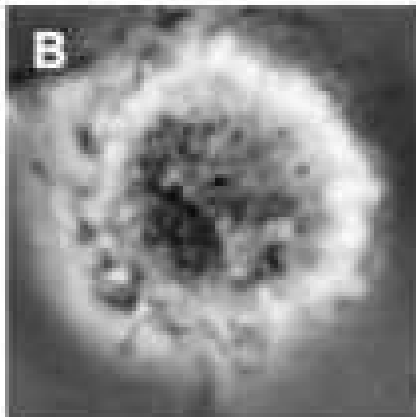
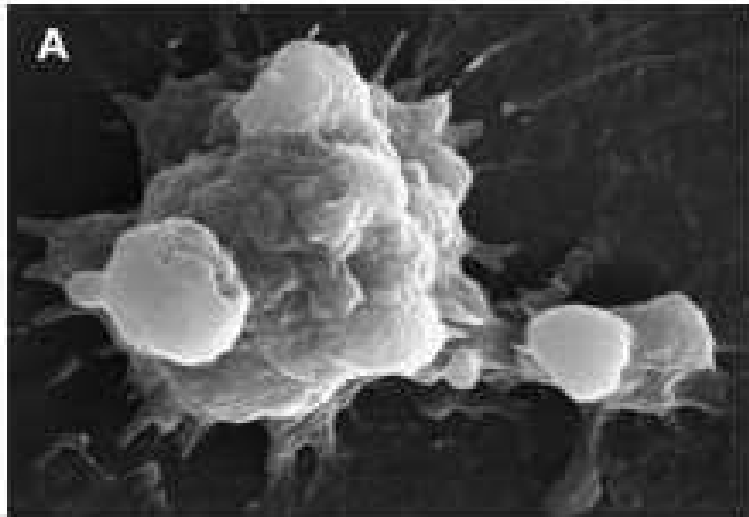
Photodynamic therapy of cancer



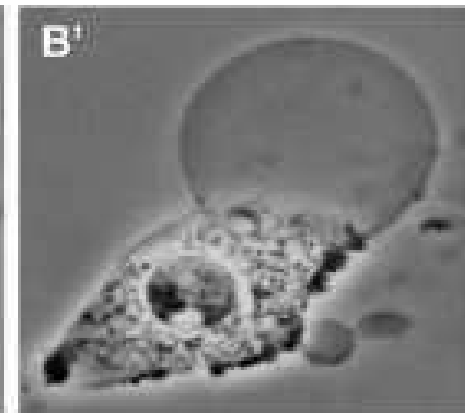
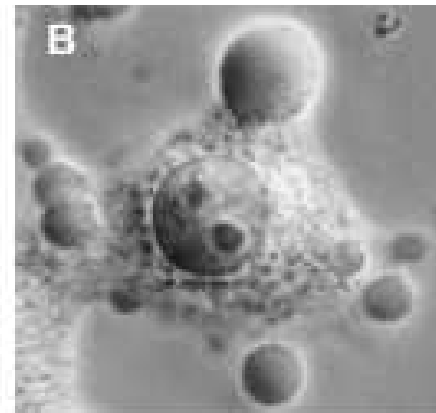
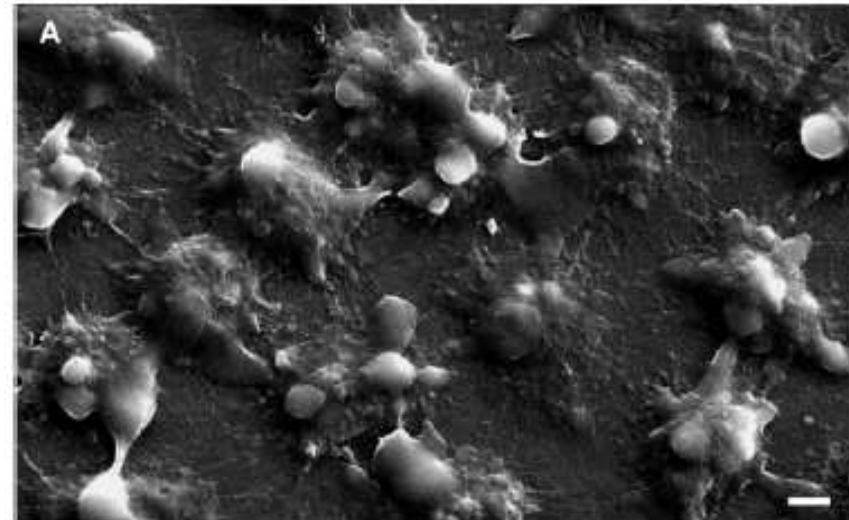
Photodynamic therapy (PDT)



PDT-induced apoptosis of
HeLa cells



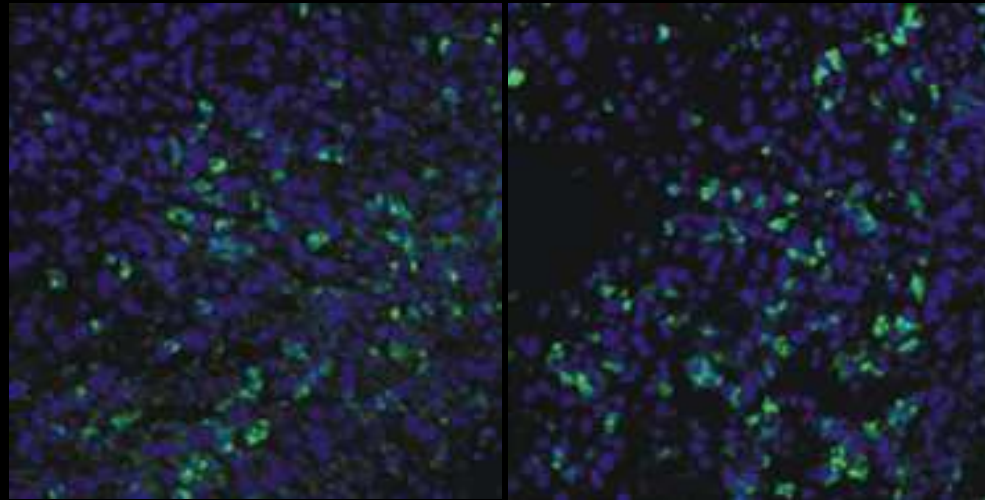
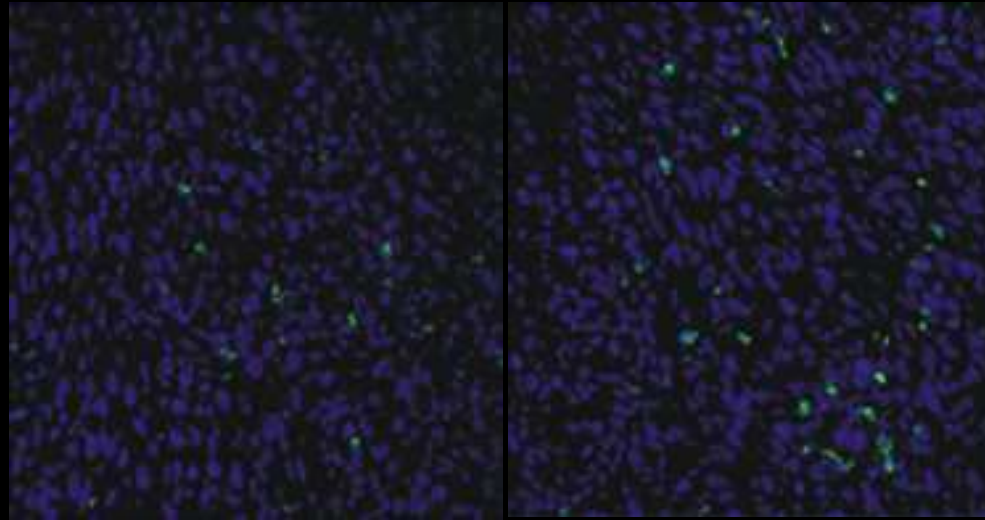
PDT-induced necrosis of
HeLa cells



PDT induces rapid recruitment of neutrophils

Controls

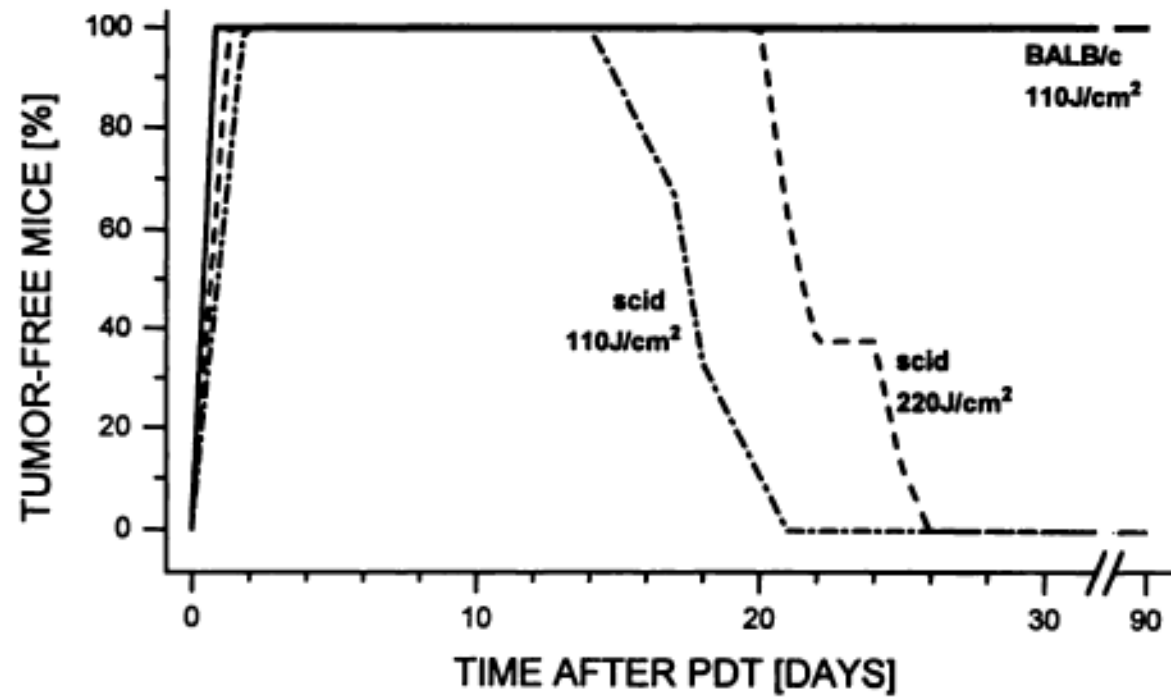
PDT - 2 h



PDT - 4 h

PDT - 8 h

PDT in immunodeficient mice



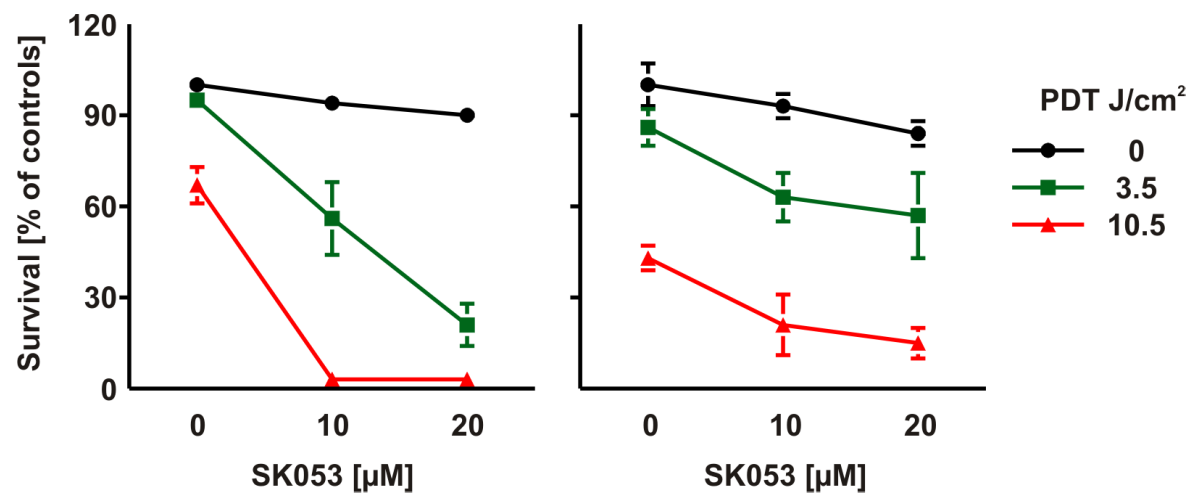
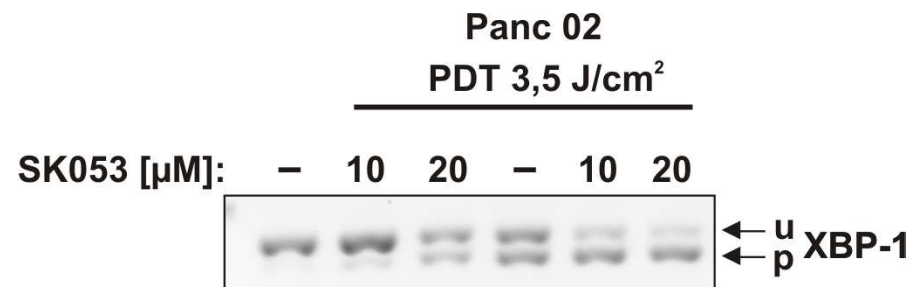
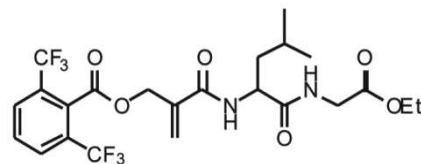
Vascular effects of PDT



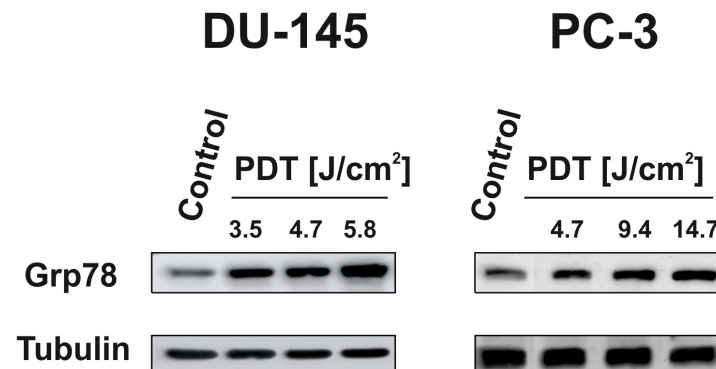
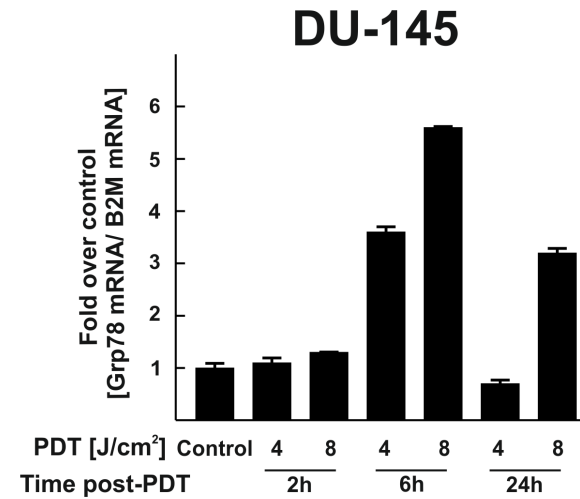
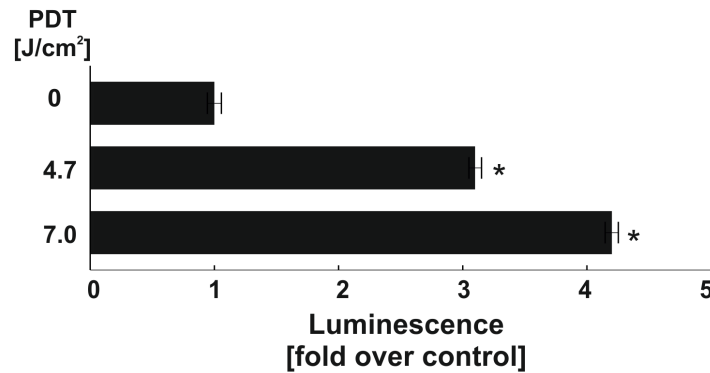
Chorioallantoic membrane circulation after i.v. injected photosensitizer (verteporfin) and light treatment

Thioredoxin inhibitor sensitizes tumor cells to Photofrin-PDT

SK053:



PDT induces Grp78 in tumor cells

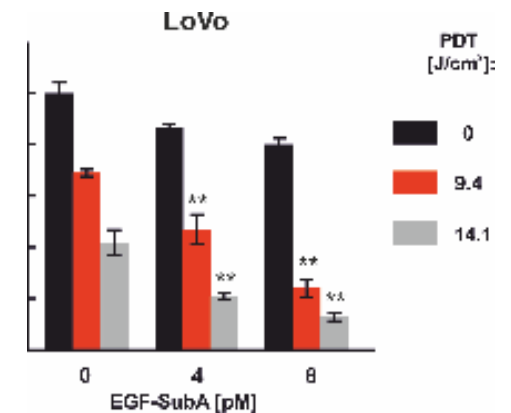
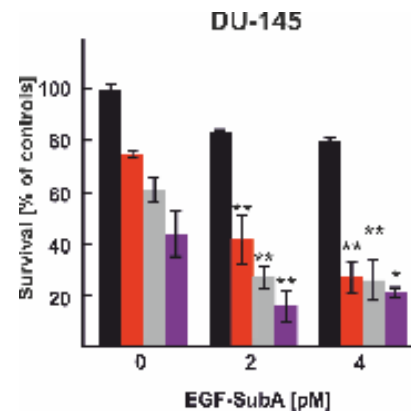
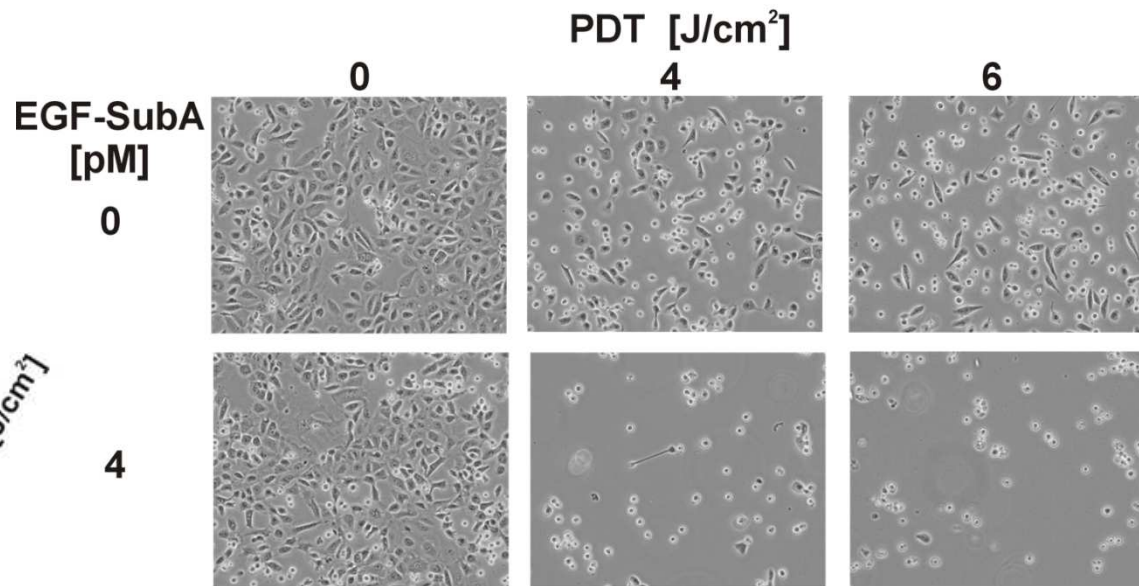
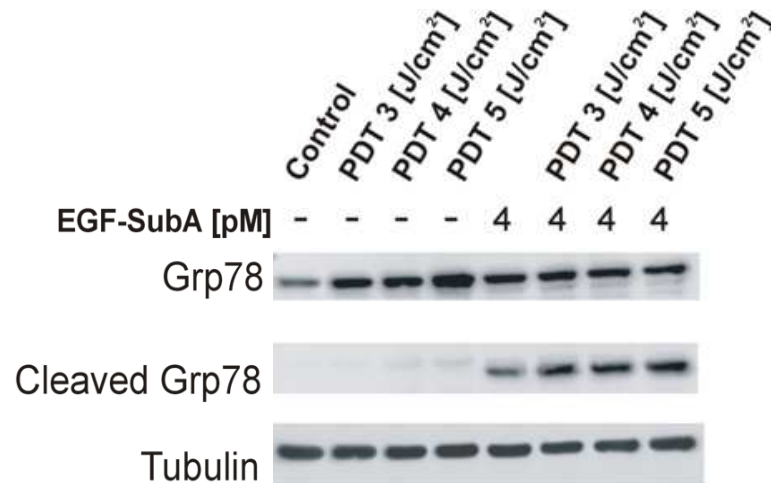


Grp78-targeting subtilase cytotoxin potentiates Photofrin-PDT

Cytotoxicity of EGF-SubA combined with Photofrin-PDT

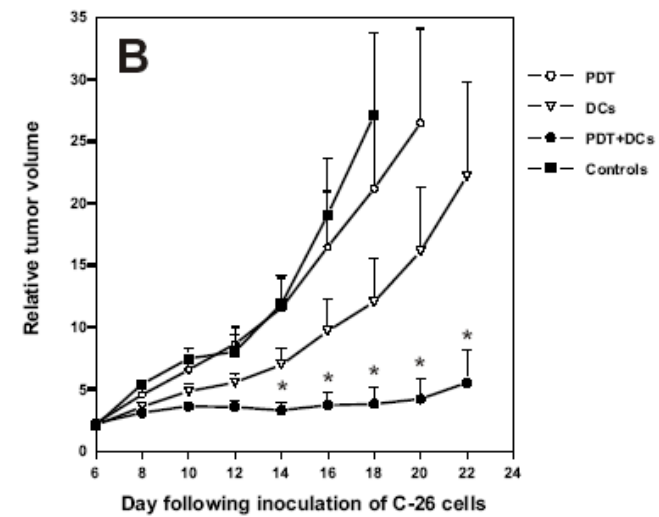
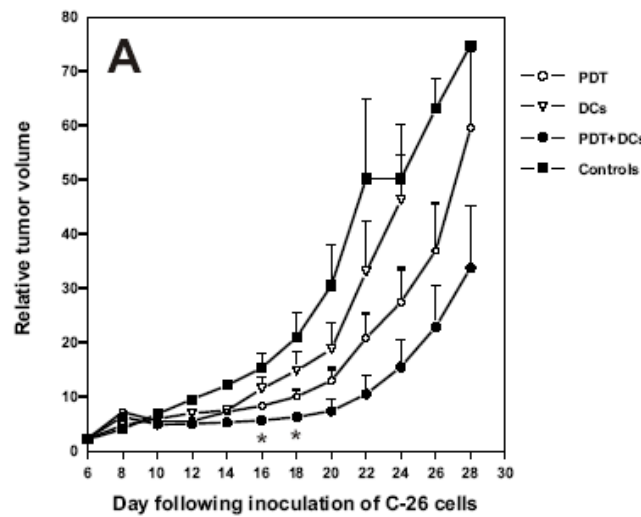
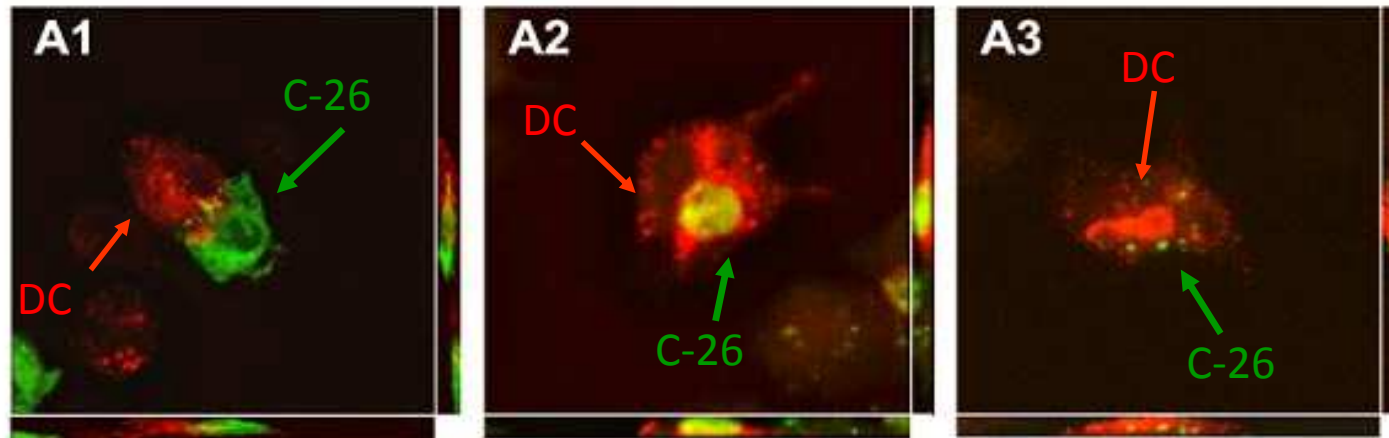


Western blotting



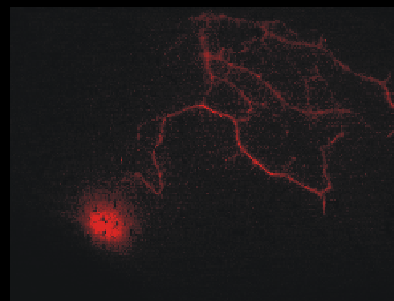
Firczuk M. et al. 2012

PDT and activation of dendritic cells

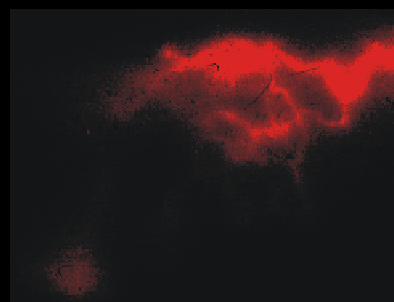


Popliteal lymph node

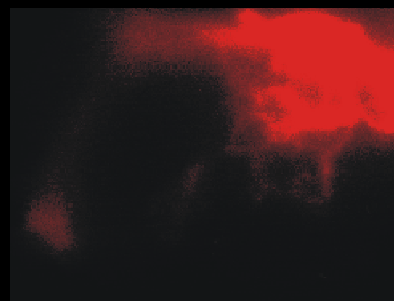
Day of PDT
Visudyne



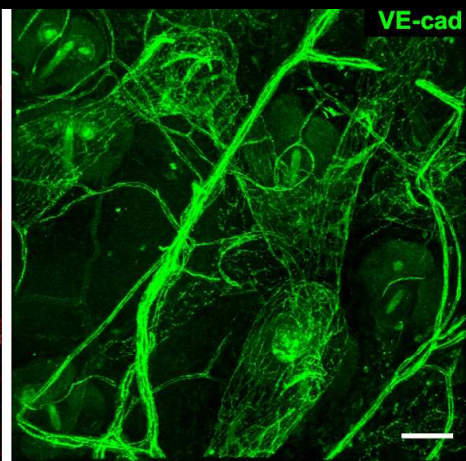
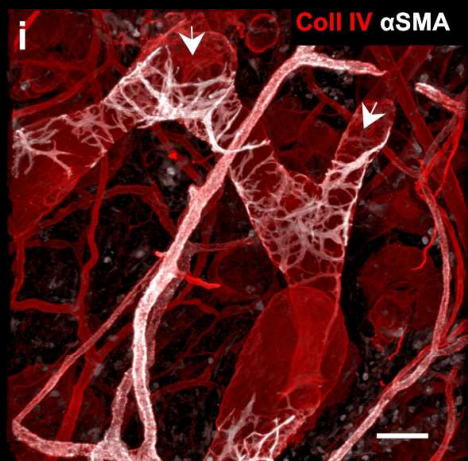
24h after PDT



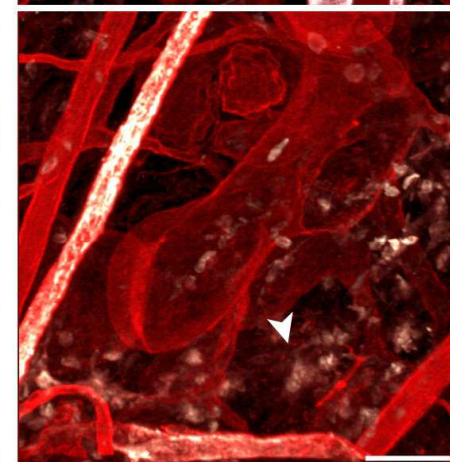
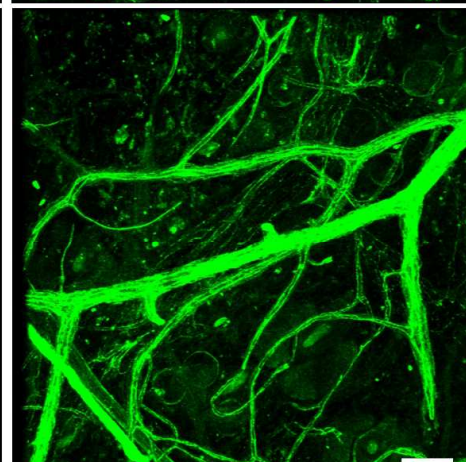
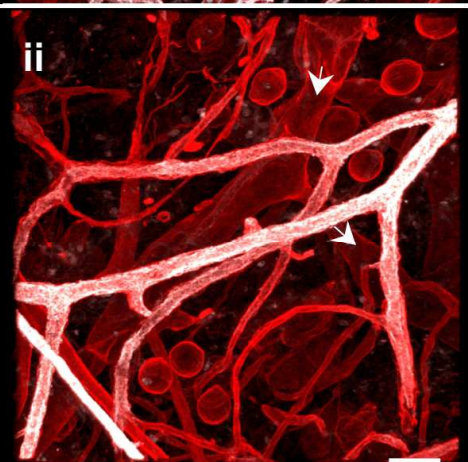
48h after PDT



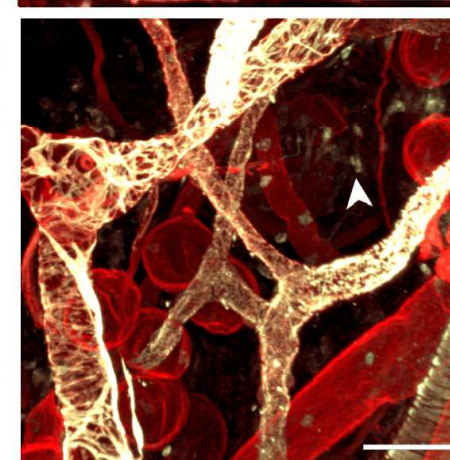
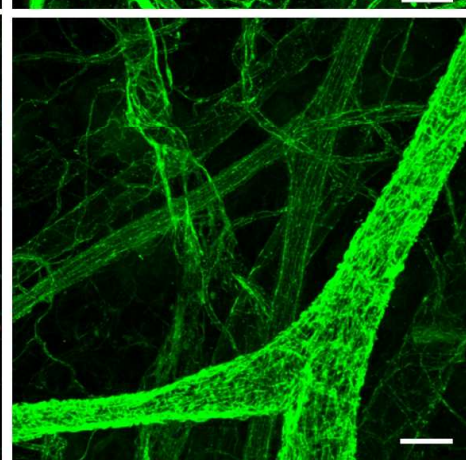
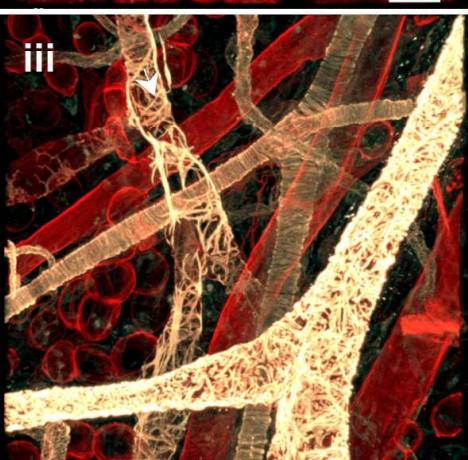
Normal

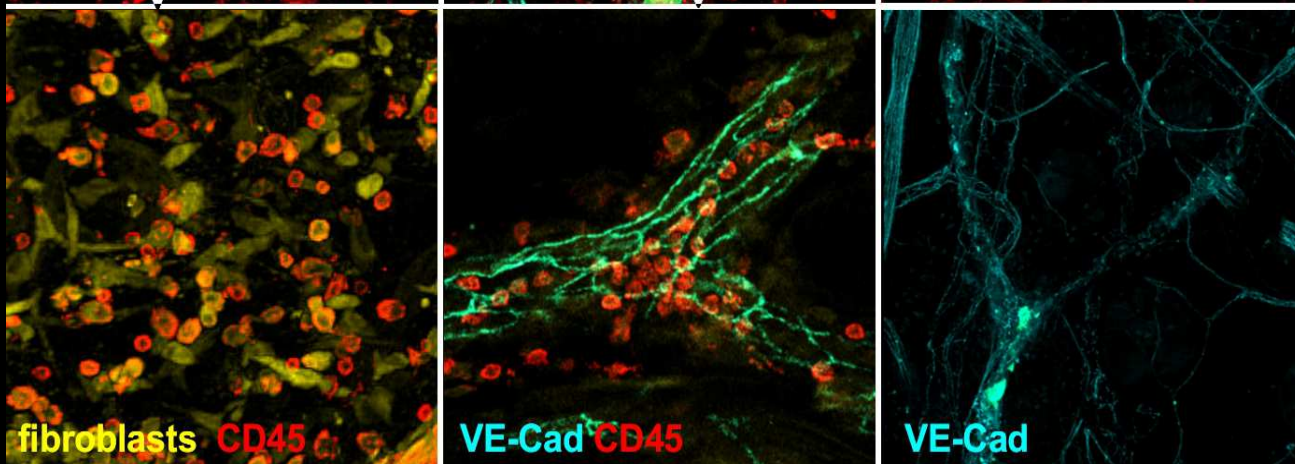
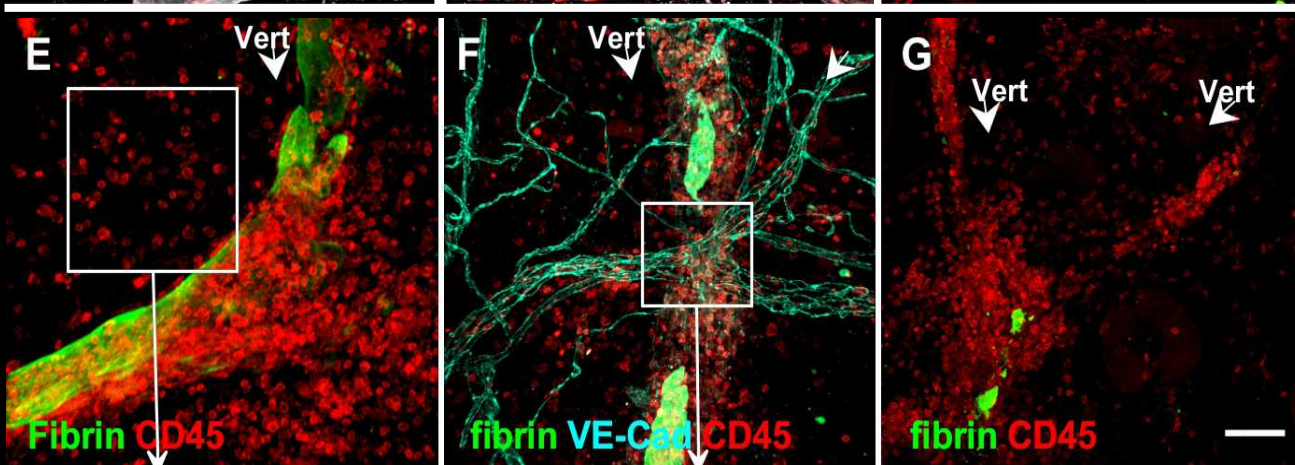
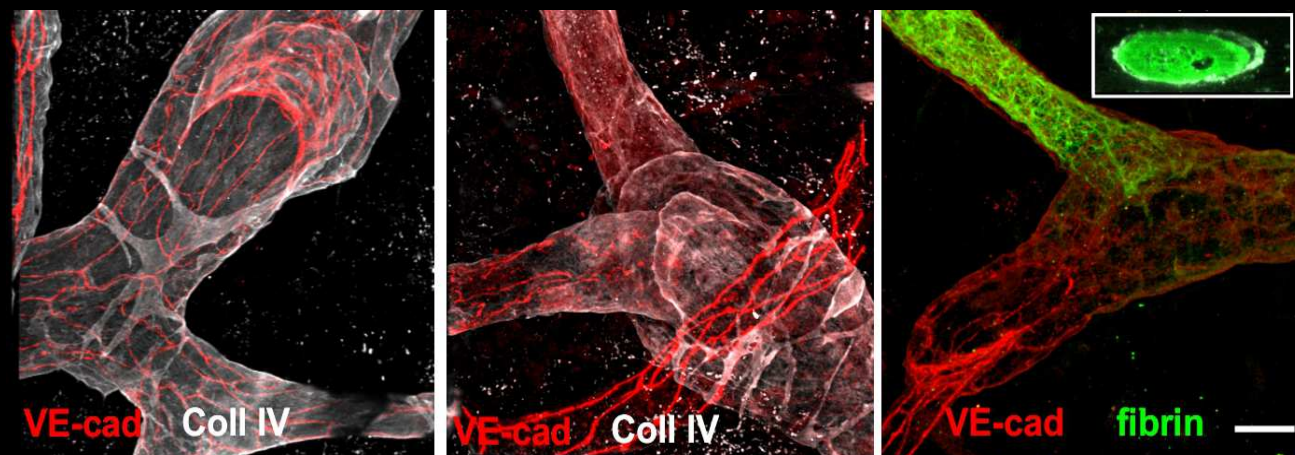


Non-regenerated

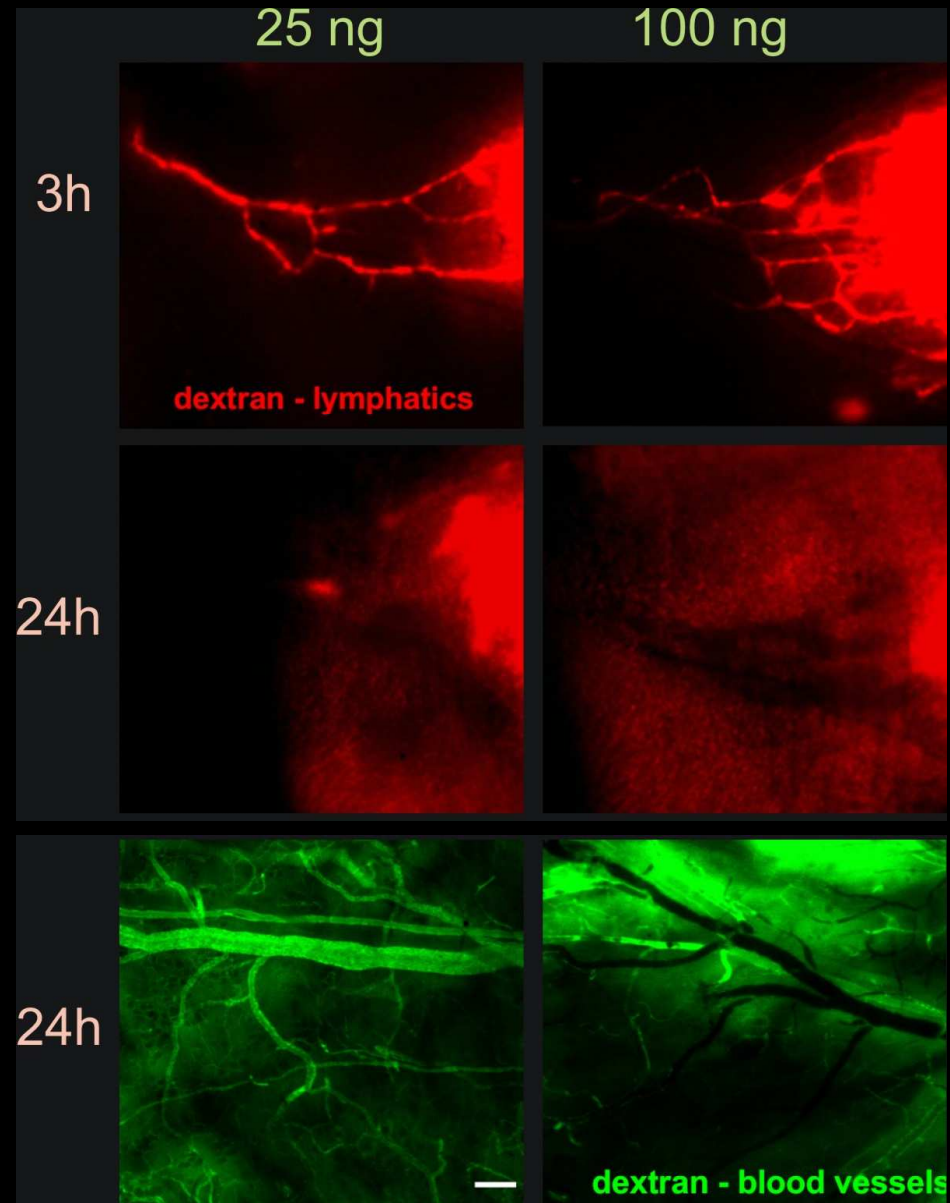


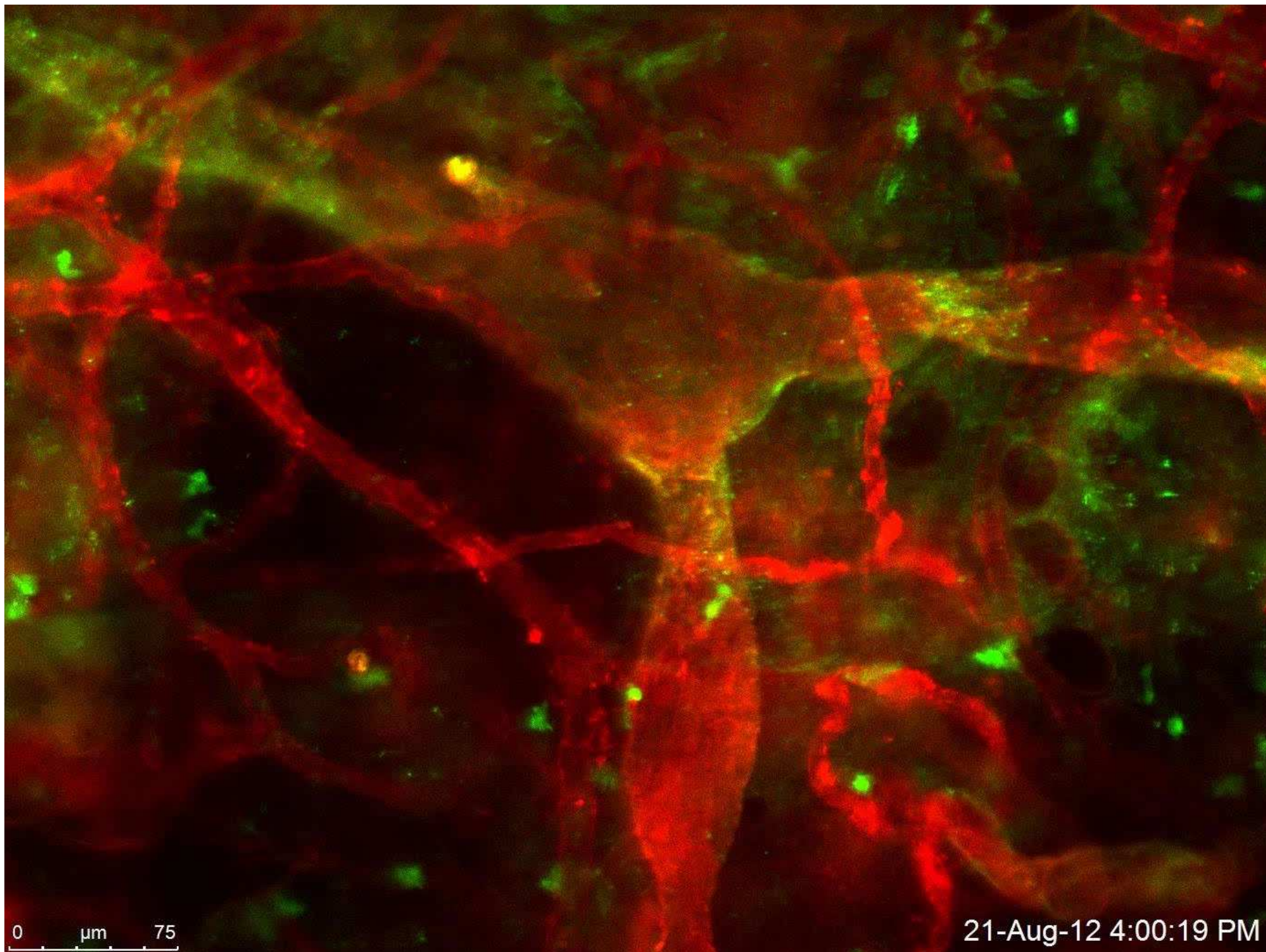
Regenerated





Lymphatics are more vulnerable to PDT as compared with blood vessels





PCI - photochemical internalisation

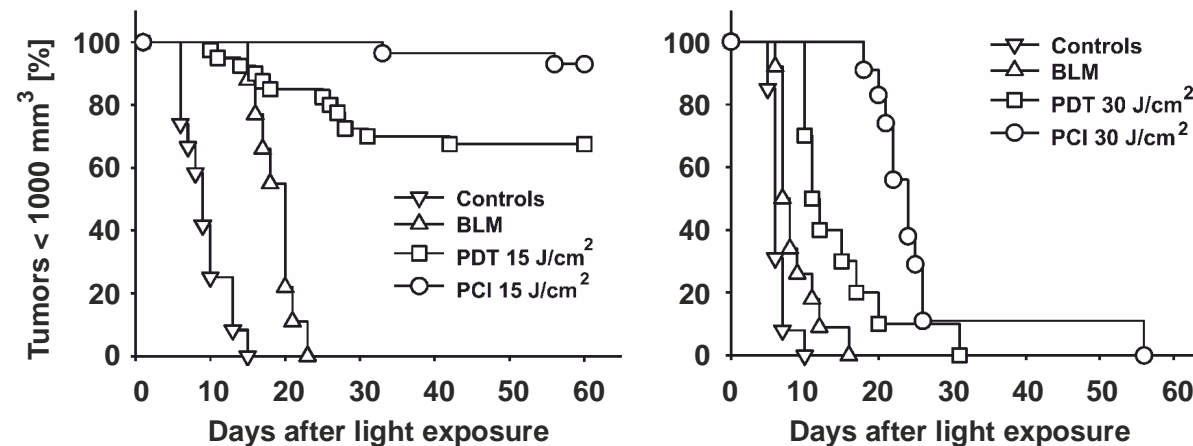
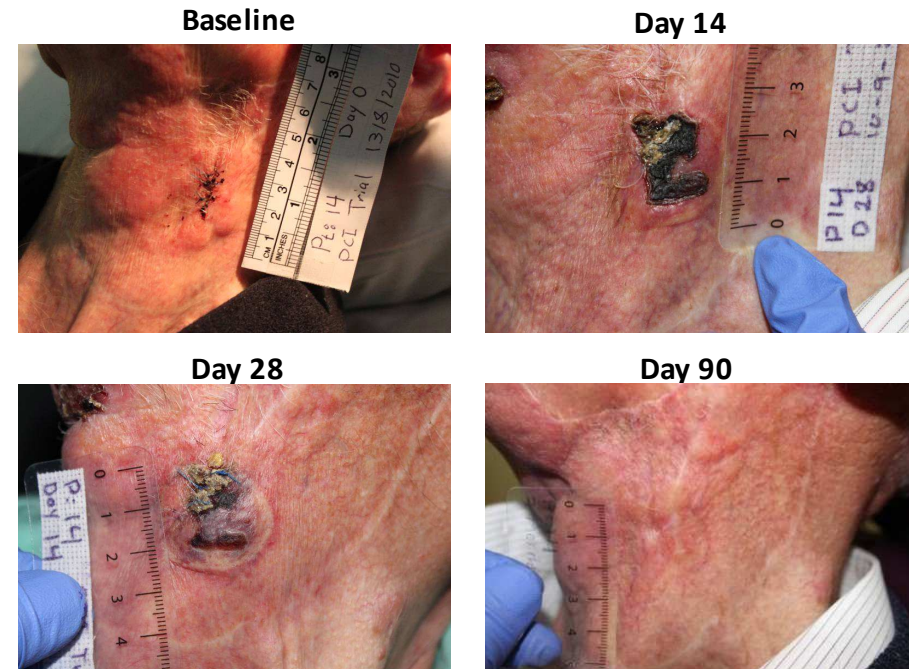
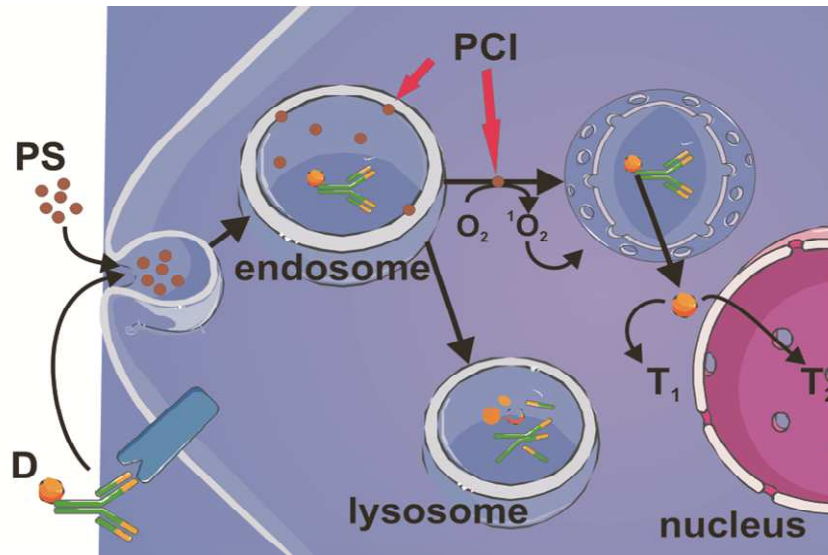


Figure 5. Comparison of PCI efficacy in normal and immunodeficient mice.

Lp.	Articles:	Journals	Impact Factor
1	Garg AD et al. A novel pathway combining calreticulin exposure and ATP secretion in immunogenic cancer cell death	<i>EMBO J</i> 2012; 31: 1062-1079	9,205
2	Agostinis P et al. Photodynamic therapy of cancer: an update.	<i>CA: A Cancer J Clin</i> 2011; 61: 250-281	101,780
3	Berg K et al. Drug delivery technologies and immunological aspects of PDT	<i>Photochem Photobiol Sci.</i> 2011;10:647-648	2,378
4	Firczuk M et al. PDT-induced inflammatory and host responses	<i>Photochem Photobiol Sci.</i> 2011;10:653-663	2,378
5	Wachowska M et al. Aminolevulinic acid (ALA) as a prodrug in photodynamic therapy of cancer	<i>Molecules</i> 2011;16:4140-4164	2,386
6	Garg AD et al. Photodynamic Therapy (PDT): Illuminating the road from cell death towards anti-tumour immunity	<i>Apoptosis</i> 2010; 15: 1050-1071	3,971
7	Garg AD, et al. Immunogenic cell death, DAMPs and anticancer therapeutics: An emerging amalgamation	<i>Biochim Biophys Acta.</i> 2010; 1805: 53-71	10,283
8	Bil J, et al. Photodynamic therapy-driven induction of suicide cytosine deaminase gene	<i>Cancer Lett.</i> 2010; 290: 216-222	3,504
9	Szokalska A, et al. Proteasome inhibition potentiates antitumor effects of photodynamic therapy in mice through induction of ER stress and unfolded protein response	<i>Cancer Res</i> 2009; 69: 4235-4243	7,514
10	Kocanova S, et al. Induction of heme-oxygenase 1 requires the p38MAPK and PI3K pathways and suppresses apoptotic cell death following hypericin-mediated PDT	<i>Apoptosis.</i> 2007; 12: 731-741	3,043
11	Nowis D, et al. Heme oxygenase-1 protects tumor cells against photodynamic therapy-mediated cytotoxicity.	<i>Oncogene</i> 2006; 25: 3365-3374	6,582
12	Nowis D, et al. Direct tumor damage mechanisms of photodynamic therapy.	<i>Acta Biochim Pol.</i> 2005; 52: 339-352	1,863
13	Jalili A, et al. Effective photoimmunotherapy of murine colon carcinoma induced by the combinationn of photodynamic therapy and dendritic cells.	<i>Clin Cancer Res</i> 2004; 10: 4498-4508	5,623
14	Makowski M, et al. Inhibition of cyclooxygenase-2 indirectly potentiates antitumor effects of photodynamic therapy in mice..	<i>Clin Cancer Res</i> 2003; 9: 5417-5422	6,511
15	Golab J, et al. Antitumor effects of photodynamic therapy are potentiated by 2-methoxyestradiol - a superoxide dismutase inhibitor.	<i>J Biol Chem.</i> 2003; 278: 407-414	6,482
16	Golab J, et al. Erythropoietin restores the antitumor effectiveness of photodynamic therapy in mice with chemotherapy-induced anemia.	<i>Clin Cancer Res</i> 2002; 8: 1265-1270	5,991
17	Golab J, et al. Potentiation of the antitumor effects of Photofrin-based photodynamic therapy by localized treatment with G-CSF.	<i>Brit J Cancer</i> 2000; 8: 1485-1491	3,489