

Table S1. Main characteristics of some common photosensitizers.

PS/ Drug (substance)	Lambda (nm)	Time to PDT after dose delivery	Clearance	Clinical/preclinical application [1]	Clinical approved?	Side effects [1]	Localization	Primary mechanism of action	Manufacturer [2]	Refs.
Photofrin® 1 st generation	630	24-48 h	4-12 weeks [3]	Approved Esophageal cancer, lung cancer, microinvasive endobronchial cancer, gastric and papillary bladder, cervical dysplasia and cancer.	Yes Worldwide	Mild to moderate erythema Photosensitivity, mild constipation	Mitochondrial membrane and lysosome [4] Golgi apparatus [1]	Ischemic cell necrosis[1] Rapid illumination post infusion will favor vascular shutdown [5]	Axcan harma, Canada	[3] [6]
TOOKAD® (pheophorbides)	753	15 min	24-48h [7]	Clinical trial: Prostate Cancer.	EMA Yes FDA No	-	Vascular occlusion [8]	Vascular damage [1]	Negma- Lerads	[7]
Foscan® (Temoporfin)	652	48-96 h	Dark 1 day 1-7 home [9]	Preclinical testing: Pancreas, Breast Approved: Head and neck Cancer.	EMA, Norway, Iceland	Swelling, bleeding, ulceration, scarring Photosensitivity	Mitochondria [10] Endoplasmic reticulum (ER) [1]	Vascular damage and direct tumor cytotoxicity [1]	Biolitec, Germany	[11] [12] [13]
Purlytin® (purpirins)	664	24 h	7-14 days [14]	Clinical trials: Metastatic breast cancer, AIDS related Kaposi sarcoma, basal cell carcinomas	No	Photosensitivity	Accumulates in cellular membranes [5] Mitochondria, lysosomes [1]	Direct tumor cytotoxicity [1]		[14]
Lutrin® and Lutex® (metalloporphyrins) [1]	732	3h		Clinical Trials: Recurrent prostate cancer, cervical cancer Preclinical testing: Recurrent breast cancer	No	Photosensitivity (minimal)	Lysosome	Vascular damage and direct tumor cytotoxicity		[15]
Laserphyrin® / NPe6 / Talaporfin (Chlorin m-THPC) [1]	664	2-4h	Dark 2 days Fluorescence 2-5days Home 8-14 days [16]	Approved (Japan): Early lung cancer Clinical trials Hepatocellular cancer, Liver metastasis	Japan		Lysosome, endosome	Vascular stasis and direct tumor cytotoxicity	Meiji Seika, Japan	[16]
Levulan® (Protoporphyrin) [1]	635	4-6h	48hours [17]	Approved: Actinic keratoses	EMA, USA, Austria, China	Stinging, burning, itching, erythema	Mitochondria, cytosol, cytosolic membranes	Direct tumor cytotoxicity	DUSA, USA	[18]
Metvix® / Metvixia® (Protoporphyrin) [1]	635	3h	48h	Approved: Actinic keratoses, basal cell carcinoma	EMA, USA, Canada	Burning sensation, redness, scabbing	Mitochondria, cytosol, cytosolic membranes	Direct tumor cytotoxicity	Galderma, UK	[19]
Redaporfin® [2]	749	24-72h [20]		Clinical trials: Biliary tract cancer Head neck	No		Endoplasmic reticulum and Golgi apparatus.[21]	Vascular [20]	Luzitin, Portugal	[22] [23]
Visudyne® (Verteporfin)	690	1 h		Approved: Age-related macular degeneration	Norway, China		DNA Fragmentation [10] Mitochondria membrane [24]		Novartis, Switzerland	[25] [26]
Ameluz®/Levulan® (5-ALA)	635	3h	48h	Approved: Actinic Keratosis Clinical trials: Brain	Yes	Mild to moderate actinic keratosis			DUSA, USA	[27]
Photochlor (HPPH)	655			BCC, lung, head and neck cancers	USA		Selectively accumulates in the cytoplasm of cancer or pre-cancerous cells		Roswell Park Cancer Insti- tute	[28]

porphyrin-based photosensitizers

Hypericin [1]	595	0.5-6h		Preclinical testing: Bladder cancer, nasopharyngeal cancer	No	Slight damage to surrounding normal tissue	Membranes of endoplasmic reticulum (ER), membranes of Golgi	Tumor cell cytotoxicity and vascular damage		
Chalcogenopyrylium Dyes [1]	592-746	24h		Preclinical testing: Prostate cancer, breast cancer, colon cancer	No	Dark toxicity	Lysosomes	Tumor cell and cytotoxicity		
Phenothiazinium dye—methylene Blue [1]	666	1-4h		Preclinical testing: Bladder cancer, colon cancer, AIDS-related Kaposi's sarcoma	No		Lysosomes	Tumor cell and cytotoxicity		
Phenothiazinium dye—Nile blue and derivatives [1]	626,632	1h		Preclinical testing: AIDS-related Kaposi's sarcoma, T-cell leukemia	No	Minimal side effects	ER, Golgi apparatus	Tumor cell and cytotoxicity		
Phenothiazinium dye—toluidine Blue [1]	650-660	30min		Preclinical testing: Bladder cancer, mouse mammary sarcoma	No	Minimal side effects	Lysosomes	Tumor cell and cytotoxicity		
Cyanines [1]	535-574	1h		Preclinical testing: Leukemia, lymphoma	No	Minimal side effects	Mitochondria, plasma membrane	Tumor cell and cytotoxicity		
ADPM06 [1]	680	<5min		Preclinical testing: Breast cancer, mouse lung cancer	No		ER, mitochondria	Vascular-targeted		
Zinc phthalocyanine 2nd	675	12 h			No		These PS accumulate in mitochondria and apparently induces apoptosis [5]			[29]
Motexafin lutetium (Lutex)	720	3-24 h			No		Lutex binds to lysosomes of EMT6 cells in vitro and to produce apoptosis [10]			[30]
Mono-L-aspartyl chlorin	664-667	4 h	3weeks [31]		No		Increased expression of the mRNA of IL-2, IL-6, and TNF- α 6 h later [10]			[31]
Phenotiazonium salt, MB	640	24h			No					[32]

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