

**Table S2. Characteristics of included studies**

Auteur	Year of publication	Country	Type of plasma	Gas	Target cell, tumor	Direct or indirect treatment	Methodology
Adachi <i>et al</i> [1]	2015	Japan	Plasma Jet	Argon	Human lung carcinoma cells (A549), Human liver hepatocellular carcinoma cells (HepG2) and Human breast cancer cells (MCF-7)	Indirect	<i>In-vitro</i>
Adachi <i>et al</i> [2]	2016	Japan	Plasma Jet	Argon	Human lung carcinoma cells (A549), Human aortic smooth muscle cells (SMCs) and Human skin keratinocytes (HaCaT)	Indirect	<i>In-vitro</i>
Ahn <i>et al</i> [3]	2014	South Korea	Plasma Jet	Air	Human cervical cancer cells (HeLa), Human lung cancer cells (A549) and normal lung cells (MRC5)	Direct	<i>In-vitro</i>
Ahn <i>et al</i> [4]	2011	South Korea	Plasma Jet	Air, Nitrogen	Human cervical cancer cells (HeLa).	Direct	<i>In-vitro</i>
Akhlaghi <i>et al</i> [5]	2015	Iran	Plasma Jet	Helium	Murine breast cancer cells (4T1)	Direct	<i>In-vitro</i>
Anderson <i>et al</i> [6]	2013	USA	-	-	-	-	Conference proceeding
Amdt <i>et al</i> [7]	2013	Germany	Surface micro DBD	Air	Human melanoma cells (Mel Ju and HTZ19)	Direct	<i>In-vitro</i>
Arya <i>et al</i> [8]	2017	Nepal	-	-	-	-	Review
Avellan <i>et al</i> [9]	2016	USA	-	-	-	-	Conference proceeding
Babington <i>et al</i> [10]	2015	USA	-	-	-	-	Review
Barekzi <i>et al</i> [11]	2012	USA	Plasma Jet	Helium	Human T cell line isolated from a patient suffering of acute lymphoblastic leukemia	Direct	<i>In-vitro</i>
Barekzi <i>et al</i> [12]	2013	USA	-	-	-	-	Review
Bauer <i>et al</i> [13]	2017	Germany	-	-	-	-	Review
Bauer <i>et al</i> [14]	2017	Germany	-	-	-	-	Review
Bauer <i>et al</i> [15]	2016	Germany, USA	-	-	-	-	Review
Bekeschus <i>et al</i> [16]	2017	Germany	Plasma Jet	Argon	Murine melanoma cells (B16F10)	Direct	<i>In-vitro</i>
Bekeschus <i>et al</i> [17]	2017	Germany	Plasma Jet	Argon + Oxygen or Nitrogen or Water	Murine melanoma cells (B16F10)	Direct	<i>In-vitro</i>

Bekeschus <i>et al</i> [18]	2017	Germany / Égypt.	Plasma Jet	Helium or Helium + Oxygen	Human leukemia cells (THP-1)	Direct	<i>In-vitro</i>
Binenbaum <i>et al</i> [19]	2017	Israël	Plasma Jet	Neon + Argon	Murine squamous cell carcinoma (SCC-7), Colon cancer (DLD-1) and melanoma (B-16) cells. Human hypopharyngeal carcinoma cells (FaDU). C57/bl mice with subcutaneous xenograft tumors.	Direct	<i>In-vitro, In-vivo</i>
Boehm <i>et al</i> [20]	2016	Ireland, Australia	DBD	Air	Human cervical cancer cells (HeLa) and Chinese hamster cells (CHO-K1)	Direct, Indirect	<i>In-vitro</i>
Boehm <i>et al</i> [21]	2017	Ireland	DBD	Air	Human cervical carcinoma cells (HeLa) and Human glioblastoma (U373MG)	Indirect	<i>In-vitro</i>
Brullé <i>et al</i> [22]	2012	France	DBD	Helium	Human pancreatic carcinoma cells (MIA PACA2), Female nude mice implanted with pancreatic orthotopic xenograft tumors.	Direct	<i>In-vitro, In-vivo</i>
Calugaru <i>et al</i> [23]	2005	Romania	Plasma Jet	Helium	Human breast cancer (BrSk) and murine melanoma cells (B16)	Direct	<i>In-vitro</i>
Canal <i>et al</i> [24]	2017	Spain	Plasma Jet	Helium	Human osteogenic sarcoma cells (SaOs-2)	Direct	<i>In-vitro</i>
Chang <i>et al</i> [25]	2014	South Korea, USA	Plasma Jet	Helium + Oxygen	Human squamous carcinoma cell lines originating from oral cavity cancer (MSK QLL1, SCC1483, SCC15, and SCC25)	Direct	<i>In-vitro</i>
Chang <i>et al</i> [26]	2014	South Korea, USA	Plasma Jet	Helium + Oxygen	Human thyroid papillary carcinoma cell lines (BHP10-3 and TPC1)	Direct	<i>In-vitro</i>
Chang <i>et al</i> [27]	2015	South Korea, USA	Plasma Jet	Helium + Oxygen	Human oral Squamous Cancer cells culture (MSKQLL1, SCCQLL1, HN6, SCC25, SCC15, Cal27, and SCC1483)	Direct	<i>In-vitro</i>
Chen <i>et al</i> [28]	2016	USA	Plasma Jet	Argon + Deionized water	Human gastric cancer cell line, (NCI-N87)	Direct	<i>In-vitro</i>
Chen <i>et al</i> [29]	2016	USA	Plasma Jet	Helium + Deionized water	Human breast cancer cell line, (MDA-MB-231) and gastric cancer cell line, (NCI-N87)	Indirect	<i>In-vitro</i>
Chen <i>et al</i> [30]	2017	USA	Plasma Jet	Helium	Human glioblastoma cancer cells (U87MG). Female athymic nude mice with glioblastoma xenograft.	Direct, Indirect	<i>In-vitro, In-vivo</i>
Chen <i>et al</i> [31]	2017	USA, Israel	DBD	Helium	Human breast cancer cell line (MDA-MB-231) and glioblastoma cancer cell line (U87)	Indirect	<i>In-vitro</i>
Cheng <i>et al</i> [32]	2014	USA	Plasma Jet	Helium	Human glioblastoma cancer cell line (U87)	Direct	<i>In-vitro</i>
Cheng <i>et al</i> [33]	2014	USA	Plasma Jet	Helium + Oxygen	Human glioblastoma cancer cells culture (U87) and astrocytes (E6, E7)	Direct	<i>In-vitro</i>
Cheng <i>et al</i> [34]	2017	USA	Plasma Jet	Helium	Human breast cancer cells (MDA-MB-231)	Direct, Indirect	<i>In-vitro</i>

Chemets <i>et al</i> [35]	2015	USA	DBD	Air	Murine subdermal melanoma model (B16)	Direct	<i>In-vivo</i>
Choi <i>et al</i> [36]	2015	South Korea	DBD	Air	Human melanoma (G361) and keratinocyte (HaCaT) cell lines.	Direct	<i>In-vitro</i>
Choi <i>et al</i> [37]	2016	South Korea	Plasma Jet	Helium + Oxygen	Wild-type mouse embryonic fibroblasts (WT-MEF), CRY1 and CRY2 double knockout mouse embryonic fibroblasts (CRYDKO MEF), Human lung carcinoma (A549) and melanoma (SK-MEL2) cells	Direct	<i>In-vitro</i>
Choi <i>et al</i> [38]	2017	South Korea	DBD	Air	Human melanoma (G361) and keratinocyte (HaCaT) cell lines.	Direct	<i>In-vitro</i>
Choi <i>et al</i> [39]	2017	South Korea	DBD	Nitrogen	Human colon cancer cell line, HCT116	Direct	<i>In-vitro</i>
Conway <i>et al</i> [40]	2016	Ireland, Australia	DBD	Air	Human Glioma cells culture (U373MG) and cervical carcinoma cells (HeLa)	Direct	<i>In-vitro</i>
Daeschlein <i>et al</i> [41]	2013	Germany	Plasma Jet or DBD	Argon	Female mice injected with melanoma cells (B16-F10)	Direct	<i>In-vivo</i>
Fridman <i>et al</i> [42]	2007	USA	Floating electrode DBD	Air	Human melanoma cells (A2058)	Direct	<i>In-vitro</i>
Gay-Mimbrera <i>et al</i> [43]	2016	Spain	-	-	-	-	Review
Georgescu <i>et al</i> [44]	2010	Romania	Plasma Jet	Helium + Oxygen	Murine melanoma cells (B16), Human colon cancer cells (COLO320)	Direct	<i>In-vitro</i>
Gherardi <i>et al</i> [45]	2015	Italy	DBD	Air	Murine Lymphoma cells (L5178Y TK)	Direct, Indirect	<i>In-vitro</i>
Gibson <i>et al</i> [46]	2014	United Kingdom	Plasma Jet	Helium + Oxygen	Human prostate cancer cells (PC-3)	Direct	<i>In-vitro</i>
Girard <i>et al</i> [47]	2016	France	Plasma Jet	Helium	Human normal skin fibroblast, immortalized human lung fibroblast (SV-40 transformed), Human colon cancer cells (HTC116), Human melanoma cells (Lu1205)	Direct	<i>In-vitro</i>
Guerrero-Preston <i>et al</i> [48]	2014	USA	Plasma Jet	Helium	Human head and neck carcinoma cells (JHU-022, JHU-028, JHU-029, SCC25)	Direct	<i>In-vitro</i>
Gümbel <i>et al</i> [49]	2016	Germany	Plasma Jet	Argon	Human osteosarcoma cells (U2-OS, MNNG, HOS)	Direct	<i>In-vitro</i>
Gümbel <i>et al</i> [50]	2017	Germany	-	-	-	-	Review
Gümbel <i>et al</i> [51]	2017	Germany	-	-	-	-	Review
Gümbel <i>et al</i> [52]	2017	Germany	Plasma Jet	Argon	Human osteosarcoma cell lines (U2-OS and MNNG/HOS)	Direct	<i>In-vitro</i>

Gümbel <i>et al</i> [53]	2017	Germany	Plasma Jet	Argon, Helium	Human osteosarcoma cell lines (U2-OS)	Direct	<i>In-vitro</i>
Han <i>et al</i> [54]	2013	USA	Plasma Jet	Nitrogen	Human oral carcinoma cells (SCC-25)	Direct	<i>In-vitro</i>
Han <i>et al</i> [55]	2017	South Korea	DBD	Helium	Human colorectal cancer cell lines (HT29 and HCT116)	Direct	<i>In-vitro</i>
Hara <i>et al</i> [56]	2015	Japan	Plasma Jet	Argon	Human neuroblastoma cells (SH-SY5Y)	Indirect	<i>In-vitro</i>
Hara <i>et al</i> [57]	2017	Japan	Plasma Jet	Argon	Human neuroblastoma cells (SH-SY5Y)	indirect	<i>In-vitro</i>
Hattori <i>et al</i> [58]	2015	Japan	Plasma Jet	Argon	Human pancreatic cancer cells (PANC-1, Capan-2, BxPC-3, MIA Paca-2), mouse xenograft model	Indirect	<i>In-vitro, In-vivo</i>
Hirst <i>et al</i> [59]	2016	United Kingdom	-	-	-	-	Review
Hoentsch <i>et al</i> [60]	2012	Germany	Plasma Jet	Argon	Immortalized epithelial cells (mHepR1)	Direct, Indirect	<i>In-vitro</i>
Hoffman <i>et al</i> [61]	2010	Germany	Plasma Jet	Helium	Diaphragm and pericardium of stage III patient in combination with chemotherapy	Direct	Clinical trial
Hoffman <i>et al</i> [62]	2013	Germany	-	-	-	-	Review
Hou <i>et al</i> [63]	2015	China	DBD	Helium	Human lung cancer cells (A549)	Direct	<i>In-vitro</i>
Huang <i>et al</i> [64]	2011	China, Australia	Plasma Jet	Helium	Human lung cancer cells (A549)	Direct	<i>In-vitro</i>
Irani <i>et al</i> [65]	2015	Iran	Plasma Jet	Helium	Human colorectal cancer cells (HTC116)	Direct	<i>In-vitro</i>
Iseki <i>et al</i> [66]	2012	Japan	Plasma Jet	Argon	Human ovarian cancer cells (SKOV3, HRA)	Direct	<i>In-vitro</i>
Ishaq <i>et al</i> [67]	2015	Australia	Plasma Jet	Helium	Human melanoma cells (Mel007)	Direct	<i>In-vitro</i>
Ishaq <i>et al</i> [68]	2015	Australia	Plasma Jet	Helium	Human melanoma cells (Mel007)	Direct	<i>In-vitro</i>
Isahq <i>et al</i> [69]	2014	Australia	Plasma Jet	Helium	Human melanoma cells (Mel007, Mel-RM, Mel-JD)	Direct, Indirect	<i>In-vitro</i>
Ishaq <i>et al</i> [70]	2015	Australia	Plasma Jet	Helium	Human colon cancer cells (HT29, HCT116)	Direct, Indirect	<i>In-vitro</i>
Ishaq <i>et al</i> [71]	2014	Australia	-	-	-	-	Review
Jalili <i>et al</i> [72]	2016	Iran	Plasma Jet	Helium + Oxygen	Human breast cancer cells (MCF-7)	Direct	<i>In-vitro</i>
Jawaid <i>et al</i> [73]	2016	Japan	Plasma Jet	Helium	Human melanocytic lymphoma (U937), cervical cancer (HeLa), colon cancer (HCT116), acute lymphoblastic cells (MOLT4, JurKat-T)	Direct	<i>In-vitro</i>

Joh <i>et al</i> [74]	2013	South Korea	Plasma Jet	Argon or Helium or Nitrogen	Human lung cancer cells (A549), bladder cancer cells (EJ)	Direct	<i>In-vitro</i>
Joh <i>et al</i> [75]	2014	South Korea	Plasma Jet	Helium + oxygen (mix or separate)	Human lung cancer (A549)	Direct	<i>In-vitro</i>
Judée <i>et al</i> [76]	2016	France	Plasma Jet	Helium	Colorectal multicellular tumor spheroids (HCT116)	Indirect	<i>In-vitro</i>
Kajiyama <i>et al</i> [77]	2017	Japan	-	-	-	-	Review
Kalghatgi <i>et al</i> [78]	2009	USA	-	-	-	-	Conference proceeding
Kalghatgi <i>et al</i> [79]	2011	USA	DBD	Air	Mammalian breast epithelial cells (MCF10A)	Direct, Indirect	<i>In-vitro</i>
Kalghatgi <i>et al</i> [80]	2012	USA	DBD	Air	Mammalian breast epithelial cells (MCF10A)	Direct, Indirect	<i>In-vitro</i>
Kang <i>et al</i> [81]	2014	USA, South Korea	Plasma Jet	Helium + Oxygen	Human head and neck carcinoma cells (FaDu, SNU1041, SNU899, HN9), mice with subcutaneous tumor xenograft	Direct	<i>In-vitro, In-vivo</i>
Kang <i>et al</i> [82]	2017	South Korea	Plasma Jet	Helium, Argon, Nitrogen	Human head and neck carcinoma cells (MSKQLL1, SCC1483)	Direct	<i>In-vitro</i>
Karki <i>et al</i> [83]	2017	USA	DBD	Air	Human lung adenocarcinoma cells (A549)	Direct	<i>In-vitro</i>
Kaushik <i>et al</i> [84]	2012	South Korea	DBD	Air	Human brain cancer cells (T98G)	Direct	<i>In-vitro</i>
Kaushik <i>et al</i> [85]	2013	South Korea	DBD	AIR	Human brain cancer cells (T98G)	Direct	<i>In-vitro</i>
Kaushik <i>et al</i> [86]	2014	South Korea	DBD	Air	Human brain cancer cells (T98G), Thyroid carcinoma cells (SNU80), Oral carcinoma cells (KB)	Direct	<i>In-vitro</i>
Kaushik <i>et al</i> [87]	2014	South Korea	DBD	Air	Human monocytic lymphoma cells (U937G)	Direct	<i>In-vitro</i>
Kaushik <i>et al</i> [88]	2013	South Korea	Plasma Jet	Air	Human brain cancer cells (T98G)	Direct	<i>In-vitro</i>
Kaushik <i>et al</i> [89]	2015	South Korea	Plasma Jet	Air	Human blood cancer cells (THP-1, U937G), Murine leukemia cells (RAW 264.7)	Direct	<i>In-vitro</i>
Kaushik <i>et al</i> [90]	2015	South Korea	Plasma Jet	Air	Human brain cancer cells (T98G), Lung cancer cells (A549)	Direct	<i>In-vitro</i>
Kaushik <i>et al</i> [91]	2016	South Korea	Surface micro DBD	Air	Human brain cancer cells (T98G) and lung cancer cells (A540), Nude mice glioma xenograft tumor.	Direct, Indirect	<i>In-vitro, In-vivo</i>
Kaushik <i>et al</i> [92]	2016	South Korea	Surface micro DBD	Air	Human brain cancer cells (T98G) and lung cancer cells (A540), Nude mice glioma xenograft tumor.	Direct, Indirect	<i>In-vitro, In-vivo</i>

Keidar <i>et al</i> [93]	2011	USA	Plasma Jet	Helium	Human lung cancer cells (SW900), Murine melanoma cells (B16-F10), human primary bone marrow macrophage., Nude mice with subcutaneous B16 tumor	Direct	<i>In-vitro, In-vivo</i>
Keidar <i>et al</i> [94]	2013	USA	-	-	-	-	Review
Keidar <i>et al</i> [95]	2017	USA, Israel	-	-	-	-	Review
Kim <i>et al</i> [96]	2009	South Korea	-	-	-	-	Conference proceeding
Kim <i>et al</i> [97]	2009	South Korea	DBD	Air	Human melanoma cells (G361)	Direct	<i>In-vitro</i>
Kim <i>et al</i> [98]	2010	South Korea	DBD	Air	Murine melanoma cells (B16F10)	Direct	<i>In-vitro</i>
Kim <i>et al</i> [99]	2011	USA	Plasma Jet	Helium	Murine lung cancer cells (TC-1)	Direct	<i>In-vitro</i>
Kim <i>et al</i> [100]	2010	USA	Plasma Jet	Helium	Murine melanoma cells (B16F10)	Direct	<i>In-vitro</i>
Kim <i>et al</i> [101]	2011	South Korea	Plasma Jet	nitrogen	Human embryonic kidney cells (293T)	Direct	<i>In-vitro</i>
Kim <i>et al</i> [102]	2014	South Korea	Plasma Jet	Air	Human cervical cancer (HeLa)	Direct	<i>In-vitro</i>
Kim <i>et al</i> [103]	2010	South Korea	Plasma Jet	Argon +- oxygen or, Helium +- Oxygen	Human breast cancer cells (MCF-7)	Direct	<i>In-vitro</i>
Kim <i>et al</i> [104]	2010	USA	Plasma Jet	Helium	Murine melanoma cells (B16F10)	Direct	<i>In-vitro</i>
Kim <i>et al</i> [105]	2010	USA, South Korea	Plasma Jet	Helium + oxygen	Human colorectal cancer cells (SW480)	Direct	<i>In-vitro</i>
Kim <i>et al</i> [106]	2010	South Korea, USA	Plasma Jet	Helium + Oxygen	Human colorectal cancer cells (HCT116, SW480, LoVo)	Direct	<i>In-vitro</i>
Kim <i>et al</i> [107]	2013	South Korea	Plasma Jet	Helium	Human lung cancer cells (A549)	Direct	<i>In-vitro</i>
Kim <i>et al</i> [108]	2011	USA	Plasma Jet	Helium	Murine melanoma cells (B16F10), Mice with subcutaneous tumor graft	Direct	<i>In-vitro, In-vivo</i>
Kim <i>et al</i> [109]	2015	South Korea, USA	Plasma Jet	Helium + Oxygen	Human head and neck cancer cells (SCC15, SCC-QLL1, SCC1483), murine squamous carcinoma cells (SCC7)	Direct, Indirect	<i>In-vitro, In-vivo</i>
Kim <i>et al</i> [110]	2011	South Korea	-	-	-	-	Review
Kim <i>et al</i> [111]	2016	South Korea	Plasma Jet	Helium	Human prostate cancer cells (PC-3), lung cancer cells (A549), melanoma cells (SK-MEL2)	Direct	<i>In-vitro</i>
Kim <i>et al</i> [112]	2017	South Korea	DBD	Air	Human lung adenocarcinoma (A549), Prostate cancer (DU145), Colorectal	Direct	<i>In-vitro</i>

					cancer (HT29), ovarian cancer (SK-OV), and cervical cancer (SH-SY5Y and HeLa) cells.		
Knecht <i>et al</i> [113]	2015	USA	-	-	-	-	conference proceeding
Kong <i>et al</i> [114]	2011	USA, United Kingdom, Australia	-	-	-	-	Review
Koensgen <i>et al</i> [115]	2017	Germany	Plasma Jet	Argon	Human ovarian cancer (OVCAR-3, SKOV-3, TOV-21G, TOV-112D) cells	Direct	<i>In-vitro</i>
Köritzer <i>et al</i> [116]	2013	Germany	Surface micro DBD	Air	Human brain cancer cells (LN18, LN229, U87MG)	Direct	<i>In-vitro</i>
Kumar <i>et al</i> [117]	2016	South Korea, Japan	Plasma Jet	-	Human lung cancer cells (H460)	Indirect	<i>In-vitro</i>
Kumar <i>et al</i> [118]	2014	South Korea	Plasma Jet	Nitrogen + Deuterium oxide	Human melanoma cells (G361)	Direct	<i>In-vitro</i>
Kumar <i>et al</i> [119]	2015	South Korea	Plasma Jet	Nitrogen + Deuterium oxide	Human breast cancer cells (SK-BR3)	Direct	<i>In-vitro</i>
Kurake <i>et al</i> [120]	2016	Japan	Plasma Jet	Argon	Human brain cancer cells (U251SP)	Indirect	<i>In-vitro</i>
Kwon <i>et al</i> [121]	2016	South Korea	DBD	Nitrogen	Human cervical cancer cells (HeLa)	Direct	<i>In-vitro</i>
Laroussi <i>et al</i> [122]	2015	USA	Plasma Jet	Helium + Oxygen	Human acute leukemia T cells (CCL-119), bladder cancer cell line (SCaBER) and prostate cancer cells (DU 145)	Direct	<i>In-vitro</i>
Leduc <i>et al</i> [123]	2009	Canada	Plasma Jet	Helium	Human cervical cancer cells (HeLa)	Direct	<i>In-vitro</i>
Lee <i>et al</i> [124]	2016	South Korea	Plasma Jet	Argon	Human breast cancer cells (MCF-7)	Direct	<i>In-vitro</i>
Lee <i>et al</i> [125]	2011	South Korea	Plasma Jet	Helium	Human head and neck cancer cells (SCC25)	Direct	<i>In-vitro</i>
Lee <i>et al</i> [126]	2016	South Korea	Plasma Jet	Nitrogen	Human head and neck cancer cells (SCC25, HSC-2)	Direct	<i>In-vitro</i>
Lee <i>et al</i> [127]	2009	South Korea, USA	Plasma Jet	Helium	Human melanoma cells (G361)	Direct	<i>In-vitro</i>
Lee <i>et al</i> [128]	2017	South Korea	DBD	Argon	Human breast cancer cells (MCF-7)	Direct	<i>In-vitro</i>
Li <i>et al</i> [129]	2016	China	DBD	Helium	Human cervical cancer cells (HeLa)	Direct	<i>In-vitro</i>
Li <i>et al</i> [130]	2017	China	DBD	Helium	Human cervical cancer cells (HeLa)	Direct	<i>In-vitro</i>
Li <i>et al</i> [131]	2017	South Korea	DBD	Nitrogen	Human cervical cancer cells (HeLa)	Direct	<i>In-vitro</i>
Liedtke <i>et al</i> [132]	2017	Germany	Plasma Jet	Argon	Murine pancreatic cancer cells (6606PDA). Transgenic C57BL/6 mice with	Direct, Indirect	<i>In-vitro, In-vivo</i>

					pancreatic adenocarcinoma.		
Lin <i>et al</i> [133]	2015	USA, China	DBD	Air	Radioreistant nasopharyngeal carcinoma (CNE-1) and Human acute monocytic leukemia cell line (THP-1).	Direct	<i>In-vitro</i>
Lin <i>et al</i> [134]	2017	USA, South Korea	DBD	Air, Oxygen, Argon	Human lung adenocarcinoma (A549)	Direct	<i>In-vitro</i>
Linneweh <i>et al</i> [135]	2017	Germany	-	-	Human cervical intraepithelial neoplasia	-	clinical trial (on going)
Liu <i>et al</i> [136]	2017	China	DBD	Air	Human breast cancer cell lines (MDA-MB-453, MDA-MB-231)	Direct	<i>In-vitro</i>
Lunov <i>et al</i> [137]	2014	Czech Republic	Plasma Jet	Air or Helium	Murine brain cancer cells (C6)	Direct	<i>In-vitro</i>
Ma <i>et al</i> [138]	2014	South Korea	Plasma Jet	Helium	Human cervical cancer (HeLa), oral squamous carcinoma (YD-9), malignant melanoma, (G-361), colorectal carcinoma (p53+, +) (HCT 116), colorectal carcinoma (p53 -, -) (HCT 116-E6), non-small cell lung cancer (H1299), colorectal carcinoma (RKO), uterine sarcoma (MES-SA, MES-SA, Dx5), hepatocellular carcinoma (HepG2), colorectal adenocarcinoma (HT29, LoVo, DLD-1, HCT 1, HCT 15, CL02)	Direct	<i>In-vitro</i>
Mashayekh <i>et al</i> [139]	2015	Iran	Plasma Jet	Helium + oxygen	Murine melanoma cells (B16F10), mice with subcutaneous tumor graft (C57)	Direct	<i>In-vitro, In-vivo</i>
Metelman <i>et al</i> [140]	2015	Germany, USA	Plasma Jet	Argon	Patients presenting oral squamous carcinoma	Direct	Clinical follow up
Merbahi <i>et al</i> [141]	2017	France	Plasma Jet	Helium	Human head and neck cancer cells (FaDu)	Indirect	<i>In-vitro</i>
Miller <i>et al</i> [142]	2016	USA	-	-	-	-	Review
Min Joh <i>et al</i> [143]	2012	South Korea	Plasma Jet	Helium or Argon or Nitrogen + oxygen	Human bladder cancer cells	Direct	<i>In-vitro</i>
Mirpour <i>et al</i> [144]	2012	Iran	-	-	-	-	Conference proceeding
Mirpour <i>et al</i> [145]	2016	Iran, USA	Plasma Jet	Helium	Murine breast cancer cells (4T1), Mice with subcutaneous tumor graft (4T1)	Direct	<i>In-vivo, In-vitro</i>
Mizuno <i>et al</i> [146]	2017	USA, Japan	DBD	Oxygen, Nitrogen	C57BL/6 mice were subcutaneously inoculated with murine melanoma B16-F10 cells	Direct	<i>In-vivo</i>
Mohades <i>et al</i> [147]	2015	USA	Plasma Jet	Helium	Human bladder cancer cells (SCaBER)	Indirect	<i>In-vitro</i>
Naciri <i>et al</i> [148]	2014	Ireland	Plasma Jet	Helium	Human colon cancer cells (SW480)	Direct	<i>In-vitro</i>
Nakamura <i>et al</i> [149]	2017	Japan	Plasma Jet	Argon	Human ovarian cancer cells (ES2, SKOV3 and WI-38). Female nude mice with intraperitoneal tumor graft.	Indirect	<i>In-vivo, In-vitro</i>



Nguyen <i>et al</i> [150]	2016	South Korea	Plasma Jet	Air	Human cervical cancer (HeLa), sarcoma (U2OS, SaOS2), breast cancer (MDA-MB-231, MDA-MB-453, MDA-MB-468), colon cancer (HTC116) cells.	Indirect	<i>In-vitro</i>
Ninomiya <i>et al</i> [151]	2013	Japan	Plasma Jet	Helium	Human breast cancer cells (MCF-7, MDA-MB-231)	Direct	<i>In-vitro</i>
O'connell <i>et al</i> [152]	2011	United Kingdom	Plasma Jet	Helium	Plasmid DNA in solution (pCDNA 3,1)	Direct	<i>In-vitro</i>
Omata <i>et al</i> [153]	2014	Japan	-	-	Hairless model mice (HEL-RET) with melanoma	Direct	<i>In-vitro</i>
Ono <i>et al</i> [154]	2016	Japan	DBD	Air	Human oral cancer cells (HSC2)	Direct	<i>In-vitro</i>
Panngom <i>et al</i> [155]	2013	South Korea	DBD	Air	Human lung cancer cells (H460, HCC1588),	Direct	<i>In-vitro</i>
Park <i>et al</i> [156]	2015	South Korea	DBD	Argon	Human breast cancer (MCF-7, MDA-MB-231), colon cancer (HCT-15) and lung cancer (NCI-H1299) cells	Direct	<i>In-vitro</i>
Park <i>et al</i> [157]	2016	South Korea	DBD	Helium	Human cervical cancer cells (HeLa)	Direct	<i>In-vitro</i>
Partecke <i>et al</i> [158]	2012	Germany	Plasma Jet	Argon	Human pancreatic cancer (Colo-357, PaTu8988T) cells. Murine pancreatic cancer cells (6606PDA), Tumor chorio allantoic membrane model.	Direct	<i>In-vitro, In-vivo</i>
Plewa <i>et al</i> [159]	2014	France	Plasma Jet	Helium	Human colorectal cancer cells (HCT116) forming multicellular tumor spheroids	Direct	<i>In-vitro</i>
Ratovitski <i>et al</i> [160]	2014	USA, Israel	-	-	-	-	Review
Ryan <i>et al</i> [161]	2016	USA	Plasma Jet	Helium	Human HPV-16 cervical cancer cells (CaSki)	Direct	<i>In-vitro</i>
Recek <i>et al</i> [162]	2011	Slovenia, USA	Plasma Jet	Helium	Human brain cancer cells (U87)	Direct	<i>In-vitro</i>
Ruwan Kumara <i>et al</i> [163]	2016	South Korea	DBD	Oxygen + Argon	Human colon cancer cells (SNUC5)	Direct	<i>In-vitro</i>
Saito <i>et al.</i> [164]	2016	Japan	Plasma Jet	Helium	Human melanoma (A375, A2058), lung cancer (A549) and osteosarcoma (MG63, SAOS-2, HOS) cells	Indirect	<i>In-vitro</i>
Shi <i>et al</i> [165]	2017	Japan, Australia	Plasma Jet	Argon	Murine mesothelioma cells (SM2,EM2)	Direct	<i>In-vitro</i>
Shi <i>et al</i> [166]	2017	China	Plasma Jet	Air	Human oral cancer cells (SCC15)	Indirect	<i>In-vitro</i>
Schlegle <i>et al</i> [167]	2013	Germany	-	-	-	-	Review
Schmidt <i>et al</i> [168]	2015	Germany	Plasma Jet	Argon	Human melanoma cells (SK-Mel-147)	Direct	<i>In-vitro</i>
Schuster <i>et al</i> [169]	2016	Germany	Plasma Jet	Argon	Patients suffering of squamous cell carcinoma.	Direct	Clinical trial
Sensenig <i>et al</i> [170]	2010	USA	DBD	Air	Human melanoma cells (A2058)	Direct	<i>In-vitro</i>
Shi <i>et al</i> [171]	2014	China	Plasma Jet	Argon	Murine melanoma cells (B16F10)	Direct	<i>In-vitro</i>

Siu <i>et al</i> [172]	2015	USA	Plasma Jet	Helium	Human brain cancer cells (U87, U373, A172)	Direct	<i>In-vitro</i>
Stoffels <i>et al.</i> [173]	2007	Germany	-	-	-	-	Review
Stoffels <i>et al</i> [174]	2011	Germany	-	-	-	-	Review
Tabuchi <i>et al</i> [175]	2016	Japan	Plasma Jet	Argon +- Nitrogen	Human myelomonocytic lymphoma cells (U937)	Direct	<i>In-vitro</i>
Tan <i>et al</i> [176]	2014	China, Australia	Plasma Jet	Helium	Human hepatocellular cancer (HepG2), cervical cancer (HeLa) cells.	Direct	<i>In-vitro</i>
Takeda <i>et al</i> [177]	2017	Japan	Plasma Jet	Argon	Human gastric cancer cells (SC-2-NU, AGS, and enhanced green fluorescent protein-tagged GCIY (GCIY-EGFP)). Mice with intraperitoneal tumor graft	Indirect	<i>In-vitro, In-vivo</i>
Tanaka <i>et al</i> [178]	2011	Japan	Plasma Jet	Argon	Human brain cancer cells (U251SP)	Indirect	<i>In-vitro</i>
Tanaka <i>et al</i> [179]	2016	Japan	DBD	Argon	Human brain cancer (U251SP), cervical cancer (SiHa), ovarian cancer (SK-OV-3), Nude mice with subcutaneous tumor (SiHa)	Indirect	<i>In-vitro, In-vivo</i>
Tanaka <i>et al</i> [180]	2015	Japan	-	-	-	-	Review
Tanaka <i>et al</i> [181]	2017	Japan	-	-	-	-	Review
Taylor <i>et al</i> [182]	2014	USA, South Korea	-	-	-	-	Conference proceeding
Tazdia <i>et al</i> [183]	2016	USA	Plasma Jet	Helium	Lymphoceles following Pelvic Lymph Node Dissection	-	Clinical trial (ongoing)
Thiyagarajan <i>et al</i> [184]	2012	USA	Plasma Jet	Air	Human monocytic leukemia cancer cells (THP-1)	Indirect	<i>In-vitro</i>
Thiyagarajan <i>et al</i> [185]	2014	USA	Plasma Jet	Air	Human monocytic leukemia cancer cells (THP-1)	Direct	<i>In-vitro</i>
Thiyagarajan <i>et al</i> [186]	2012	USA	-	-	Human monocytic leukemia cancer cells (THP-1)	Direct	<i>In-vitro</i>
Toyokuni <i>et al</i> [187]	2016	Japan	-	-	-	-	Review
Turrini <i>et al</i> [188]	2017	Italia	DBD	Air	Human T-Lymphoblastoid Leukemia Cells (JURKAT)	Direct	<i>In-vitro</i>
Utsumi <i>et al</i> [189]	2014	Japan	Plasma Jet	Argon	Human ovarian cancer cells (TOV21G, ES2, SKOV3)	Indirect	<i>In-vitro</i>
Utsumi <i>et al</i> [190]	2016	Japan	Plasma Jet	Argon	Human ovarian cancer cells (OVCAR-3, TOV21G, ES2, SKOV3)	Indirect	<i>In-vitro</i>
Utsumi <i>et al</i> [191]	2013	Japan	Plasma Jet	Argon	Human resistant ovarian cancer cells (NOS2CR, NOS2TR, NOS3CR, NOS3TR), Mice with subcutaneous tumor xenograft	Indirect	<i>In-vitro, In-vivo</i>
Van Boexem <i>et al</i> [192]	2017	Belgium	Plasma Jet	Argon	Human glioblastoma cells (U87, U251 and LN229)	Indirect	<i>In-vitro</i>

Vandamme <i>et al</i> [193]	2012	France	Floating Electrode DBD	Air	Human brain cancer (U87MG-Luc2), colorectal cancer (HTC116-Luc2) cells, Mice with subcutaneous tumor xenograft	Direct, Indirect	<i>In-vitro, In-vivo</i>
Vandamme <i>et al</i> [194]	2010	France	DBD	Air	Mice with subcutaneous tumor xenograft (U87)	Direct	<i>In-vivo</i>
Vandamme <i>et al</i> [195]	2011	France	DBD	Air	Mice with subcutaneous tumor xenograft (U87)	Direct	<i>In-vivo</i>
Van der paal <i>et al</i> [196]	2017	Belgium	-	-	-	-	Review
Vermeulen <i>et al</i> [197]	2016	Belgium	Plasma Jet	Helium + oxygen or, Helium + oxygen + nitrogen	Human melanoma (Malme-3M, SK-MEL-28), brain cancer (LN229, U87) cells	Direct, Indirect	<i>In-vitro</i>
Vijayarangan <i>et al</i> [198]	2017	France	Plasma Jet	Helium	Human cervical cancer cells (HeLa)	Direct	<i>In-vitro</i>
Volotskova <i>et al</i> [199]	2012	USA	Plasma Jet	Helium	Human papilloma (308), epidermal carcinoma (PAM2012) cells.	Direct	<i>In-vitro</i>
Walk <i>et al</i> [200]	2013	USA	Plasma Jet	Helium	Murine brain cancer cells (Neuro2a), Mice with subcutaneous tumor xenograft	Direct	<i>In-vitro, In-vivo</i>
Wada <i>et al</i> [201]	2017	Japan	Plasma Jet	Helium	Human lymphoma cells (MWCL-1)	Indirect	<i>In-vitro</i>
Wang <i>et al</i> [202]	2015	China	DBD	Air	Human leukemia cells (LT-12)	Direct	<i>In-vivo</i>
Wang <i>et al</i> [203]	2013	USA	Plasma Jet	Helium	Human metastatic cells (MDA-MB-231 BrCa)	Direct	<i>In-vitro</i>
Wang <i>et al</i> [204]	2017	USA, China	-	-	Human Malignant melanoma cells (A375)	Direct	<i>In-vitro</i>
Weiss <i>et al</i> [205]	2015	Germany	Plasma Jet	Argon	Human prostate cancer cells (LNCaP, PC-3)	Direct	<i>In-vitro</i>
Weiss <i>et al</i> [206]	2015	Germany	Plasma Jet	Argon	Human prostate cancer cells (LNCaP)	Direct	<i>In-vitro</i>
Welz <i>et al</i> [207]	2015	Germany	DBD	Air	Human head and neck cancer cells (FaDu, OSC-19)	Direct	<i>In-vitro</i>
Xu <i>et al</i> [208]	2016	China, USA	Plasma Jet	Helium	Human myeloma cells (LP-1)	Direct	<i>In-vitro</i>
Xu <i>et al</i> [209]	2015	China, USA	Plasma Jet	Helium + oxygen + argon	Human myeloma cells (LP-1)	Direct	<i>In-vitro</i>
Yajima <i>et al</i> [210]	2014	Japan	Plasma Jet	Argon	Hairless mice with melanocytic tumor	Direct	<i>In-vivo</i>
Yan <i>et al</i> [211]	2010	China	Plasma Jet	Helium	Human hepatocellular cancer cells (HepG2)	Direct	<i>In-vitro</i>
Yan <i>et al</i> [212]	2014	USA	Plasma Jet	Helium	Human brain cancer cells (U87)	Indirect	<i>In-vitro</i>

Yan <i>et al</i> [213]	2015	USA	Plasma Jet	Helium	Human brain cancer (U87), breast cancer (MDA-MB-231, MCF-7) cells	Indirect	<i>In-vitro</i>
Yan <i>et al</i> [214]	2016	USA	Plasma Jet	Helium	Human brain cancer cells (U87MG)	Indirect	<i>In-vitro</i>
Yan <i>et al</i> [215]	2012	China, Australia	Plasma Jet	Helium + oxygen	Human hepatocellular cancer cells (HepG2)	Direct	<i>In-vitro</i>
Yan <i>et al</i> [216]	2016	USA	-	-	-	-	Review
Yan <i>et al</i> [217]	2015	USA	-	-	-	-	Review
Yan <i>et al</i> [218]	2017	USA	Plasma Jet	Helium	Human glioblastoma (U87MG), human pancreas adenocarcinoma (PA-TU-8988T) and Human breast adenocarcinoma (MDA-MB-231) cells	Direct	<i>In-vitro</i>
Yan <i>et al</i> [219]	2017	USA	Plasma Jet	Helium	Human glioblastoma (U87MG), human pancreas adenocarcinoma (PA-TU-8988T) and Human breast adenocarcinoma (MDA-MB-231) cells	Direct, Indirect	<i>In-vitro</i>
Yan <i>et al</i> [220]	2017	USA	-	-	-	-	Review
Yan <i>et al</i> [221]	2017	China	Plasma Jet	Helium	Human neuroblastoma cells (SH-SY5Y)	Direct	<i>In-vitro</i>
Yang <i>et al</i> [222]	2015	China	DBD	Air	Human hepatocellular cancer cells (Bel7402) and Human hepatocellular cancer cells 5-FU resistant (Bel7402, 5FU)	Direct, Indirect	<i>In-vitro</i>
Yokoyama <i>et al</i> [223]	2014	Japan	DBD	Air	Human cervical cancer cells (HeLa)	Indirect	<i>In-vitro</i>
Zhao <i>et al</i> [224]	2013	China	Plasma Jet	Helium + oxygen	Human hepatocellular cancer cells (HepG2)	Direct	<i>In-vitro</i>
Zhang <i>et al</i> [225]	2008	China	Plasma Jet	Argon + oxygen	Human hepatocellular cancer cells (Bel7402)	Direct	<i>In-vitro</i>
Zhu <i>et al</i> [226]	2016	USA	Plasma Jet	-	Human breast cancer (MDA-MB-231, MCF-7), pancreatic cancer (PaTu 8988) cells	Direct	<i>In-vitro</i>
Zhunussova <i>et al</i> [227]	2016	USA	DBD	Air	Human prostate metastatic cells (DU145)	Indirect	<i>In-vitro</i>
Zirnheld <i>et al</i> [228]	2010	USA	Plasma Jet	helium	Human metastatic melanoma cells (1205Lu)	Direct	<i>In-vitro</i>
Zucker <i>et al</i> [229]	2012	USA	Plasma Jet	Helium	Human premetastatic and metastatic melanoma cells (WM793B, 1205Lu)	Direct	<i>In-vitro</i>

## References

1. Adachi T, Tanaka H, Nonomura S, Hara H, Kondo S, Hori M. Plasma-activated medium induces A549 cell injury via a spiral apoptotic cascade involving the mitochondrial-nuclear network. *Free Radic Biol Med.* 2015;79: 28–44. doi:10.1016/j.freeradbiomed.2014.11.014
2. Adachi T, Nonomura S, Horiba M, Hirayama T, Kamiya T, Nagasawa H, et al. Iron stimulates plasma-activated medium-induced A549 cell injury. *Sci Rep.* 2016;6. doi:10.1038/srep20928
3. Ahn HJ, Kim KI, Hoan NN, Kim CH, Moon E, Choi KS, et al. Targeting Cancer Cells with Reactive Oxygen and Nitrogen Species Generated by Atmospheric-Pressure Air Plasma. *PLOS ONE.* 2014;9: e86173. doi:10.1371/journal.pone.0086173
4. Ahn HJ, Kim KI, Kim G, Moon E, Yang SS, Lee J-S. Atmospheric-pressure plasma jet induces apoptosis involving mitochondria via generation of free radicals. *PLoS One.* 2011;6: e28154. doi:10.1371/journal.pone.0028154
5. Akhlaghi M, Rajayi H, Mashayekh AS, Khani M, Hassan ZM, Shokri B. On the design and characterization of a new cold atmospheric pressure plasma jet and its applications on cancer cells treatment. *Biointerphases.* 2015;10: 29510. doi:10.1116/1.4918806
6. Anderson H, Gonzales X, Valdez S, Thiagarajan M. Activation of apoptotic cell death in human myeloid leukemia cells by RNS: A novel antitumor approach using resistive barrier plasma. 2013 Abstracts IEEE International Conference on Plasma Science (ICOPS). 2013. pp. 1–1. doi:10.1109/PLASMA.2013.6634817
7. Arndt S, Wacker E, Li Y-F, Shimizu T, Thomas HM, Morfill GE, et al. Cold atmospheric plasma, a new strategy to induce senescence in melanoma cells. *Exp Dermatol.* 2013;22: 284–289. doi:10.1111/exd.12127
8. Aryal S, Bisht G. New Paradigm for a Targeted Cancer Therapeutic Approach: A Short Review on Potential Synergy of Gold Nanoparticles and Cold Atmospheric Plasma. *Biomedicines.* 2017;5. doi:10.3390/biomedicines5030038
9. Avellan A, Jain R, Diwakar P, Savran C, Hassanein A. Synergy of Cold Atmospheric Plasma and Electroporation for Treatment of Cancer Cells. Summer Undergrad Res Fellowsh SURF Symp. 2016; Available: <http://docs.lib.purdue.edu/surf/2016/presentations/8>
10. Babington P, Rajjoub K, Canady J, Siu A, Keidar M, Sherman JH. Use of cold atmospheric plasma in the treatment of cancer. *Biointerphases.* 2015;10: 29403. doi:10.1116/1.4915264
11. Barezzi N, Laroussi M. Dose-dependent killing of leukemia cells by low-temperature plasma. *J Phys Appl Phys.* 2012;45: 422002. doi:10.1088/0022-3727/45/42/422002
12. Barezzi N, Laroussi M. Effects of Low Temperature Plasmas on Cancer Cells. *Plasma Process Polym.* 2013;10: 1039–1050. doi:10.1002/ppap.201300083
13. Bauer G. Signal Amplification By Tumor Cells: Clue To The Understanding Of The Antitumor Effects Of Cold Atmospheric Plasma And Plasma-Activated Medium. *IEEE Trans Radiat Plasma Med Sci.* 2017;PP: 1–1. doi:10.1109/TRPMS.2017.2742000
14. Bauer G. Targeting protective catalase of tumor cells with cold atmospheric plasma-treated medium (PAM). *Anticancer Agents Med Chem.* 2017; doi:10.2174/1871520617666170801103708
15. Bauer G, Graves DB. Mechanisms of Selective Antitumor Action of Cold Atmospheric Plasma-Derived Reactive Oxygen and Nitrogen Species. *Plasma Process Polym.* 2016;13: 1157–1178. doi:10.1002/ppap.201600089
16. Bekeschus S, Rödder K, Fregin B, Otto O, Lippert M, Weltmann K-D, et al. Toxicity and Immunogenicity in Murine Melanoma following Exposure to Physical Plasma-Derived Oxidants. *Oxid Med Cell Longev.* 2017;2017: 4396467. doi:10.1155/2017/4396467
17. Bekeschus S, Schmidt A, Niessner F, Gerling T, Weltmann K-D, Wende K. Basic Research in Plasma Medicine - A Throughput Approach from Liquids to Cells. *J Vis Exp JoVE.* 2017; doi:10.3791/56331
18. Bekeschus S, Wende K, Hefny MM, Rödder K, Jablonowski H, Schmidt A, et al. Oxygen

- atoms are critical in rendering THP-1 leukaemia cells susceptible to cold physical plasma-induced apoptosis. *Sci Rep.* 2017;7: 2791. doi:10.1038/s41598-017-03131-y
19. Binenbaum Y, Ben-David G, Gil Z, Slutsker YZ, Ryzhkov MA, Felsteiner J, et al. Cold Atmospheric Plasma, Created at the Tip of an Elongated Flexible Capillary Using Low Electric Current, Can Slow the Progression of Melanoma. *PLoS One.* 2017;12: e0169457. doi:10.1371/journal.pone.0169457
  20. Boehm D, Heslin C, Cullen PJ, Bourke P. Cytotoxic and mutagenic potential of solutions exposed to cold atmospheric plasma. *Sci Rep.* 2016;6. doi:10.1038/srep21464
  21. Boehm D, Curtin J, Cullen PJ, Bourke P. Hydrogen peroxide and beyond - the potential of high-voltage plasma-activated liquids against cancerous cells. *Anticancer Agents Med Chem.* 2017; doi:10.2174/1871520617666170801110517
  22. Brullé L, Vandamme M, Riès D, Martel E, Robert E, Lerondel S, et al. Effects of a non thermal plasma treatment alone or in combination with gemcitabine in a MIA PaCa2-luc orthotopic pancreatic carcinoma model. *PLoS One.* 2012;7: e52653. doi:10.1371/journal.pone.0052653
  23. Calugaru A, Cremer L, Herold A, Lupu A, Szegli G, Lungu C, et al. The effect of the plasma needle on tumoral cell lines apoptosis. *Roum Arch Microbiol Immunol.* 2005;64: 57–64.
  24. Canal C, Fontelo R, Hamouda I, Guillem-Marti J, Cvelbar U, Ginebra M-P. Plasma-induced selectivity in bone cancer cells death. *Free Radic Biol Med.* 2017;110: 72–80. doi:10.1016/j.freeradbiomed.2017.05.023
  25. Chang JW, Kang SU, Shin YS, Kim KI, Seo SJ, Yang SS, et al. Non-thermal atmospheric pressure plasma induces apoptosis in oral cavity squamous cell carcinoma: Involvement of DNA-damage-triggering sub-G(1) arrest via the ATM/p53 pathway. *Arch Biochem Biophys.* 2014;545: 133–140. doi:10.1016/j.abb.2014.01.022
  26. Chang JW, Kang SU, Shin YS, Kim KI, Seo SJ, Yang SS, et al. Non-Thermal Atmospheric Pressure Plasma Inhibits Thyroid Papillary Cancer Cell Invasion via Cytoskeletal Modulation, Altered MMP-2/-9/uPA Activity. *PLoS ONE.* 2014;9. doi:10.1371/journal.pone.0092198
  27. Chang JW, Kang SU, Shin YS, Seo SJ, Kim YS, Yang SS, et al. Combination of NTP with cetuximab inhibited invasion/migration of cetuximab-resistant OSCC cells: Involvement of NF- $\kappa$ B signaling. *Sci Rep.* 2015;5: 18208. doi:10.1038/srep18208
  28. Chen Z, Lin L, Cheng X, Gjika E, Keidar M. Treatment of gastric cancer cells with nonthermal atmospheric plasma generated in water. *Biointerphases.* 2016;11: 31010. doi:10.1116/1.4962130
  29. Chen Z, Lin L, Cheng X, Gjika E, Keidar M. Effects of cold atmospheric plasma generated in deionized water in cell cancer therapy. *Plasma Process Polym.* 2016; Available: <http://adsabs.harvard.edu/abs/2016arXiv160706775C>
  30. Chen Z, Simonyan H, Cheng X, Gjika E, Lin L, Canady J, et al. A Novel Micro Cold Atmospheric Plasma Device for Glioblastoma Both In Vitro and In Vivo. *Cancers.* 2017;9. doi:10.3390/cancers9060061
  31. Chen Z, Zhang S, Levchenko I, Beilis II, Keidar M. In vitro Demonstration of Cancer Inhibiting Properties from Stratified Self-Organized Plasma-Liquid Interface. *Sci Rep.* 2017;7: 12163. doi:10.1038/s41598-017-12454-9
  32. Cheng X, Murphy W, Recek N, Yan D, Cvelbar U, Vesel A, et al. Synergistic effect of gold nanoparticles and cold plasma on glioblastoma cancer therapy. *J Phys Appl Phys.* 2014;47: 335402. doi:10.1088/0022-3727/47/33/335402
  33. Cheng X, Sherman J, Murphy W, Ratovitski E, Canady J, Keidar M. The Effect of Tuning Cold Plasma Composition on Glioblastoma Cell Viability. *PLoS ONE.* 2014;9. doi:10.1371/journal.pone.0098652
  34. Cheng X, Rajjoub K, Shashurin A, Yan D, Sherman JH, Bian K, et al. Enhancing cold atmospheric plasma treatment of cancer cells by static magnetic field. *Bioelectromagnetics.* 2017;38: 53–62. doi:10.1002/bem.22014
  35. Chernets N, Kurpad DS, Alexeev V, Rodrigues DB, Freeman TA. Reaction Chemistry Generated by Nanosecond Pulsed Dielectric Barrier Discharge Treatment is Responsible for the

- Tumor Eradication in the B16 Melanoma Mouse Model. *Plasma Process Polym.* 2015;12: 1400–1409. doi:10.1002/ppap.201500140
36. Choi BB, Kim MS, Kim UK, Hong JW, Lee HJ, Kim GC. Targeting NEU Protein in Melanoma Cells with Non-Thermal Atmospheric Pressure Plasma and Gold Nanoparticles. *J Biomed Nanotechnol.* 2015;11: 900–905.
37. Choi JY, Joh HM, Park J-M, Kim MJ, Chung TH, Kang T-H. Non-thermal plasma-induced apoptosis is modulated by ATR- and PARP1-mediated DNA damage responses and circadian clock. *Oncotarget.* 2016;7: 32980–32989. doi:10.18632/oncotarget.9087
38. Choi BBR, Choi JH, Hong JW, Song KW, Lee HJ, Kim UK, et al. Selective Killing of Melanoma Cells With Non-Thermal Atmospheric Pressure Plasma and p-FAK Antibody Conjugated Gold Nanoparticles. *Int J Med Sci.* 2017;14: 1101–1109. doi:10.7150/ijms.20104
39. Choi J-S, Kim J, Hong Y-J, Bae W-Y, Choi EH, Jeong J-W, et al. Evaluation of non-thermal plasma-induced anticancer effects on human colon cancer cells. *Biomed Opt Express.* 2017;8: 2649–2659. doi:10.1364/BOE.8.002649
40. Conway GE, Casey A, Milosavljevic V, Liu Y, Howe O, Cullen PJ, et al. Non-thermal atmospheric plasma induces ROS-independent cell death in U373MG glioma cells and augments the cytotoxicity of temozolomide. *Br J Cancer.* 2016;114: 435–443. doi:10.1038/bjc.2016.12
41. Daeschlein G, Scholz S, Lutze S, Arnold A, von Podewils S, Kiefer T, et al. Comparison between cold plasma, electrochemotherapy and combined therapy in a melanoma mouse model. *Exp Dermatol.* 2013;22: 582–586. doi:10.1111/exd.12201
42. Fridman G, Shereshevsky A, Jost MM, Brooks AD, Fridman A, Gutsol A, et al. Floating Electrode Dielectric Barrier Discharge Plasma in Air Promoting Apoptotic Behavior in Melanoma Skin Cancer Cell Lines. *Plasma Chem Plasma Process.* 2007;27: 163–176. doi:10.1007/s11090-007-9048-4
43. Gay-Mimbrera J, García MC, Isla-Tejera B, Rodero-Serrano A, García-Nieto AV, Ruano J. Clinical and Biological Principles of Cold Atmospheric Plasma Application in Skin Cancer. *Adv Ther.* 2016;33: 894–909. doi:10.1007/s12325-016-0338-1
44. Georgescu N, Lupu AR. Tumoral and Normal Cells Treatment With High-Voltage Pulsed Cold Atmospheric Plasma Jets. *IEEE Trans Plasma Sci.* 2010;38: 1949–1955. doi:10.1109/TPS.2010.2041075
45. Gherardi M, Turrini E, Laurita R, De Gianni E, Ferruzzi L, Liguori A, et al. Atmospheric Non-Equilibrium Plasma Promotes Cell Death and Cell-Cycle Arrest in a Lymphoma Cell Line. *Plasma Process Polym.* 2015;12: 1354–1363. doi:10.1002/ppap.201500033
46. Gibson AR, McCarthy HO, Ali AA, O'Connell D, Graham WG. Interactions of a Non-Thermal Atmospheric Pressure Plasma Effluent with PC-3 Prostate Cancer Cells. *Plasma Process Polym.* 2014;11: 1142–1149. doi:10.1002/ppap.201400111
47. Girard P-M, Arbabian A, Fleury M, Bauville G, Puech V, Dutreix M, et al. Synergistic Effect of H<sub>2</sub>O<sub>2</sub> and NO<sub>2</sub> in Cell Death Induced by Cold Atmospheric He Plasma. *Sci Rep.* 2016;6. doi:10.1038/srep29098
48. Guerrero-Preston R, Ogawa T, UEMURA M, Shumulinsky G, Valle BL, Pirini F, et al. Cold atmospheric plasma treatment selectively targets head and neck squamous cell carcinoma cells. *Int J Mol Med.* 2014;34: 941–946. doi:10.3892/ijmm.2014.1849
49. Gumbel D, Gelbrich N, Weiss M, Napp M, Daeschlein G, Sckell A, et al. New Treatment Options for Osteosarcoma - Inactivation of Osteosarcoma Cells by Cold Atmospheric Plasma. *Anticancer Res.* 2016;36: 5915–5922.
50. Gumbel D, Bekeschus S, Gelbrich N, Napp M, Ekkernkamp A, Kramer A, et al. Cold Atmospheric Plasma in the Treatment of Osteosarcoma. *Int J Mol Sci.* 2017;18. doi:10.3390/ijms18092004
51. Gumbel D, Daeschlein G, Ekkernkamp A, Kramer A, Stope MB. Cold atmospheric plasma in orthopaedic and urologic tumor therapy. *GMS Hyg Infect Control.* 2017;12: Doc10. doi:10.3205/dgkh000295
52. Gumbel D, Gelbrich N, Napp M, Daeschlein G, Kramer A, Sckell A, et al. Peroxiredoxin

- Expression of Human Osteosarcoma Cells Is Influenced by Cold Atmospheric Plasma Treatment. *Anticancer Res.* 2017;37: 1031–1038. doi:10.21873/anticancer.11413
53. Gumbel D, Suchy B, Wien L, Gelbrich N, Napp M, Kramer A, et al. Comparison of Cold Atmospheric Plasma Devices' Efficacy on Osteosarcoma and Fibroblastic In Vitro Cell Models. *Anticancer Res.* 2017;37: 5407–5414. doi:10.21873/anticancer.11968
54. Han X, Klas M, Liu Y, Sharon Stack M, Ptasinska S. DNA damage in oral cancer cells induced by nitrogen atmospheric pressure plasma jets. *Appl Phys Lett.* 2013;102: 233703. doi:10.1063/1.4809830
55. Han D, Cho JH, Lee RH, Bang W, Park K, Kim MS, et al. Antitumorigenic effect of atmospheric-pressure dielectric barrier discharge on human colorectal cancer cells via regulation of Sp1 transcription factor. *Sci Rep.* 2017;7: 43081. doi:10.1038/srep43081
56. Hara H, Taniguchi M, Kobayashi M, Kamiya T, Adachi T. Plasma-activated medium-induced intracellular zinc liberation causes death of SH-SY5Y cells. *Arch Biochem Biophys.* 2015;584: 51–60. doi:10.1016/j.abb.2015.08.014
57. Hara H, Sueyoshi S, Taniguchi M, Kamiya T, Adachi T. Differences in intracellular mobile zinc levels affect susceptibility to plasma-activated medium-induced cytotoxicity. *Free Radic Res.* 2017;51: 306–315. doi:10.1080/10715762.2017.1309527
58. Hattori N, Yamada S, Torii K, Takeda S, Nakamura K, Tanaka H, et al. Effectiveness of plasma treatment on pancreatic cancer cells. *Int J Oncol.* 2015;47: 1655–1662. doi:10.3892/ijo.2015.3149
59. Hirst AM, Frame FM, Arya M, Maitland NJ, O'Connell D. Low temperature plasmas as emerging cancer therapeutics: the state of play and thoughts for the future. *Tumour Biol J Int Soc Oncodevelopmental Biol Med.* 2016;37: 7021–7031. doi:10.1007/s13277-016-4911-7
60. Hoentsch M, Woedtke T von, Weltmann K-D, Nebe JB. Time-dependent effects of low-temperature atmospheric-pressure argon plasma on epithelial cell attachment, viability and tight junction formation in vitro. *J Phys Appl Phys.* 2012;45: 25206. doi:10.1088/0022-3727/45/2/025206
61. Hoffmann M, Bruch H-P, Kujath P, Limmer S. Cold-plasma coagulation in the treatment of malignant pleural mesothelioma: results of a combined approach. *Interact Cardiovasc Thorac Surg.* 2010;10: 502–505. doi:10.1510/icvts.2009.223768
62. Hoffmann C, Berganza C, Zhang J. Cold Atmospheric Plasma: methods of production and application in dentistry and oncology. *Med Gas Res.* 2013;3: 21. doi:10.1186/2045-9912-3-21
63. Hou J, Ma J, Yu KN, Li W, Cheng C, Bao L, et al. Non-thermal plasma treatment altered gene expression profiling in non-small-cell lung cancer A549 cells. *BMC Genomics.* 2015;16: 435. doi:10.1186/s12864-015-1644-8
64. Huang J, Li H, Chen W, Lv G-H, Wang X-Q, Zhang G-P, et al. Dielectric barrier discharge plasma in Ar/O<sub>2</sub> promoting apoptosis behavior in A549 cancer cells. *Appl Phys Lett.* 2011;99: 253701. doi:10.1063/1.3666819
65. Irani S, Shahmirani Z, Atyabi SM, Mirpoor S. Induction of growth arrest in colorectal cancer cells by cold plasma and gold nanoparticles. *Arch Med Sci AMS.* 2015;11: 1286–1295. doi:10.5114/aoms.2015.48221
66. Iseki S, Nakamura K, Hayashi M, Tanaka H, Kondo H, Kajiyama H, et al. Selective killing of ovarian cancer cells through induction of apoptosis by nonequilibrium atmospheric pressure plasma. *Appl Phys Lett.* 2012;100: 113702. doi:10.1063/1.3694928
67. Ishaq M, Bazaka K, Ostrikov K. Intracellular effects of atmospheric-pressure plasmas on melanoma cancer cells. *Phys Plasmas.* 2015;22: 122003–(1.
68. Ishaq M, Bazaka K, Ostrikov K. Pro-apoptotic NOXA is implicated in atmospheric-pressure plasma-induced melanoma cell death. *J Phys Appl Phys.* 2015;48: 464002. doi:10.1088/0022-3727/48/46/464002
69. Ishaq M, Kumar S, Varinli H, Han ZJ, Rider AE, Evans MDM, et al. Atmospheric gas plasma-induced ROS production activates TNF-ASK1 pathway for the induction of melanoma cancer cell apoptosis. *Mol Biol Cell.* 2014;25: 1523–1531. doi:10.1091/mbc.E13-10-0590



70. Ishaq M, Han ZJ, Kumar S, Evans MDM, Ostrikov K (Ken). Atmospheric-Pressure Plasma- and TRAIL-Induced Apoptosis in TRAIL-Resistant Colorectal Cancer Cells. *Plasma Process Polym.* 2015;12: 574–582. doi:10.1002/ppap.201400207
71. Ishaq M, Evans MM, Ostrikov KK. Effect of atmospheric gas plasmas on cancer cell signaling. *Int J Cancer.* 2014;134: 1517–1528. doi:10.1002/ijc.28323
72. Jalili A, Irani S, Mirfakhraie R. Combination of cold atmospheric plasma and iron nanoparticles in breast cancer: gene expression and apoptosis study. *OncoTargets Ther.* 2016;9: 5911–5917. doi:10.2147/OTT.S95644
73. Jawaid P, Rehman MU, Zhao QL, Takeda K, Ishikawa K, Hori M, et al. Helium-based cold atmospheric plasma-induced reactive oxygen species-mediated apoptotic pathway attenuated by platinum nanoparticles. *J Cell Mol Med.* 2016;20: 1737–1748. doi:10.1111/jcmm.12880
74. Joh HM, Kim SJ, Chung TH, Leem SH. Comparison of the characteristics of atmospheric pressure plasma jets using different working gases and applications to plasma-cancer cell interactions. *AIP Adv.* 2013;3: 92128. doi:10.1063/1.4823484
75. Joh HM, Choi JY, Kim SJ, Chung TH, Kang T-H. Effect of additive oxygen gas on cellular response of lung cancer cells induced by atmospheric pressure helium plasma jet. *Sci Rep.* 2014;4. doi:10.1038/srep06638
76. Judée F, Fongia C, Ducommun B, Yousfi M, Lobjois V, Merbahi N. Short and long time effects of low temperature Plasma Activated Media on 3D multicellular tumor spheroids. *Sci Rep.* 2016;6: 21421. doi:10.1038/srep21421
77. Kajiyama H, Utsumi F, Nakamura K, Tanaka H, Toyokuni S, Hori M, et al. Future perspective of strategic non-thermal plasma therapy for cancer treatment. *J Clin Biochem Nutr.* 2017;60: 33–38. doi:10.3164/jcbrn.16-65
78. Kalghatgi S, Cerchar E, Podolsky E, Arjunan K, Sensenig R, Shereshevsky A, et al. Mechanism of induction of apoptosis in melanoma cancer cells by non-thermal plasma. *IEEE International Conference on Plasma Science - Abstracts, 2009 ICOPS 2009.* 2009. pp. 1–1. doi:10.1109/PLASMA.2009.5227452
79. Kalghatgi S, Kelly CM, Cerchar E, Torabi B, Alekseev O, Fridman A, et al. Effects of Non-Thermal Plasma on Mammalian Cells. *PLOS ONE.* 2011;6: e16270. doi:10.1371/journal.pone.0016270
80. Kalghatgi S, Fridman A, Azizkhan-Clifford J, Friedman G. DNA Damage in Mammalian Cells by Non-thermal Atmospheric Pressure Microsecond Pulsed Dielectric Barrier Discharge Plasma is not Mediated by Ozone. *Plasma Process Polym.* 2012;9: 726–732. doi:10.1002/ppap.201100156
81. Kang SU, Cho J-H, Chang JW, Shin YS, Kim KI, Park JK, et al. Nonthermal plasma induces head and neck cancer cell death: the potential involvement of mitogen-activated protein kinase-dependent mitochondrial reactive oxygen species. *Cell Death Dis.* 2014;5: e1056. doi:10.1038/cddis.2014.33
82. Kang SU, Seo SJ, Kim YS, Shin YS, Koh YW, Lee CM, et al. Comparative Effects of Non-Thermal Atmospheric Pressure Plasma on Migration and Invasion in Oral Squamous Cell Cancer, by Gas Type. *Yonsei Med J.* 2017;58: 272–281. doi:10.3349/ymj.2017.58.2.272
83. Karki SB, Yildirim-Ayan E, Eisenmann KM, Ayan H. Miniature Dielectric Barrier Discharge Nonthermal Plasma Induces Apoptosis in Lung Cancer Cells and Inhibits Cell Migration. *BioMed Res Int.* 2017;2017: 8058307. doi:10.1155/2017/8058307
84. Kaushik NK, Uhm H, Ha Choi E. Micronucleus formation induced by dielectric barrier discharge plasma exposure in brain cancer cells. *Appl Phys Lett.* 2012;100: 84102. doi:10.1063/1.3687172
85. Kaushik NK, Attri P, Kaushik N, Choi EH. A preliminary study of the effect of DBD plasma and osmolytes on T98G brain cancer and HEK non-malignant cells. *Mol Basel Switz.* 2013;18: 4917–4928. doi:10.3390/molecules18054917
86. Kaushik NK, Kaushik N, Park D, Choi EH. Altered Antioxidant System Stimulates Dielectric Barrier Discharge Plasma-Induced Cell Death for Solid Tumor Cell Treatment. *PLoS*

ONE. 2014;9. doi:10.1371/journal.pone.0103349

87. Kaushik N, Kumar N, Kim CH, Kaushik NK, Choi EH. Dielectric Barrier Discharge Plasma Efficiently Delivers an Apoptotic Response in Human Monocytic Lymphoma. *Plasma Process Polym.* 2014;11: 1175–1187. doi:10.1002/ppap.201400102

88. Kaushik NK, Kim YH, Han YG, Choi EH. Corrigendum to “Effect of jet plasma on T98G human brain cancer cells”[*Curr. Appl. Phys.* 13 (2012) 176–180]. *Curr Appl Phys.* 2013;13: 4e618.

89. Kaushik N, Lee SJ, Choi TG, Baik KY, Uhm HS, Kim CH, et al. Non-thermal plasma with 2-deoxy-D-glucose synergistically induces cell death by targeting glycolysis in blood cancer cells. *Sci Rep.* 2015;5: 8726. doi:10.1038/srep08726

90. Kaushik N, Uddin N, Sim GB, Hong YJ, Baik KY, Kim CH, et al. Responses of Solid Tumor Cells in DMEM to Reactive Oxygen Species Generated by Non-Thermal Plasma and Chemically Induced ROS Systems. *Sci Rep.* 2015;5. doi:10.1038/srep08587

91. Kaushik NK, Kaushik N, Yoo KC, Uddin N, Kim JS, Lee SJ, et al. Low doses of PEG-coated gold nanoparticles sensitize solid tumors to cold plasma by blocking the PI3K/AKT-driven signaling axis to suppress cellular transformation by inhibiting growth and EMT. *Biomaterials.* 2016;87: 118–130. doi:10.1016/j.biomaterials.2016.02.014

92. Kaushik NK, Kaushik N, Yoo KC, Uddin N, Kim JS, Lee SJ, et al. Data on combination effect of PEG-coated gold nanoparticles and non-thermal plasma inhibit growth of solid tumors. *Data Brief.* 2016;9: 318–323. doi:10.1016/j.dib.2016.08.059

93. Keidar M, Walk R, Shashurin A, Srinivasan P, Sandler A, Dasgupta S, et al. Cold plasma selectivity and the possibility of a paradigm shift in cancer therapy. *Br J Cancer.* 2011;105: 1295–1301. doi:10.1038/bjc.2011.386

94. Keidar M, Shashurin A, Volotskova O, Stepp MA, Srinivasan P, Sandler A, et al. Cold atmospheric plasma in cancer therapy. *Phys Plasmas* 1994-Present. 2013;20: 57101. doi:10.1063/1.4801516

95. Keidar M, Yan D, Beilis II, Trink B, Sherman JH. Plasmas for Treating Cancer: Opportunities for Adaptive and Self-Adaptive Approaches. *Trends Biotechnol.* 2017; doi:10.1016/j.tibtech.2017.06.013

96. Kim D, Gweon B, Kim DB, Choe W, Shin JH. A Feasibility Study for the Cancer Therapy Using Cold Plasma. In: Lim CT, Goh JCH, editors. 13th International Conference on Biomedical Engineering. Springer Berlin Heidelberg; 2009. pp. 355–357. doi:10.1007/978-3-540-92841-6\_87

97. Kim GC, Kim GJ, Park SR, Jeon SM, Seo HJ, Iza F, et al. Air plasma coupled with antibody-conjugated nanoparticles: a new weapon against cancer. *J Phys Appl Phys.* 2009;42: 32005. doi:10.1088/0022-3727/42/3/032005

98. Kim GJ, Kim W, Kim KT, Lee JK. DNA damage and mitochondria dysfunction in cell apoptosis induced by nonthermal air plasma. *Appl Phys Lett.* 2010;96: 21502. doi:10.1063/1.3292206

99. Kim JY, Ballato J, Foy P, Hawkins T, Wei Y, Li J, et al. Apoptosis of lung carcinoma cells induced by a flexible optical fiber-based cold microplasma. *Biosens Bioelectron.* 2011;28: 333–338. doi:10.1016/j.bios.2011.07.039

100. Kim JY, Kim S-O, Wei Y, Li J. A flexible cold microplasma jet using biocompatible dielectric tubes for cancer therapy. *Appl Phys Lett.* 2010;96: 203701. doi:10.1063/1.3431392

101. Kim K, Choi JD, Hong YC, Kim G, Noh EJ, Lee J-S, et al. Atmospheric-pressure plasma-jet from micronozzle array and its biological effects on living cells for cancer therapy. *Appl Phys Lett.* 2011;98: 73701. doi:10.1063/1.3555434

102. Kim K, Jun Ahn H, Lee J-H, Kim J-H, Sik Yang S, Lee J-S. Cellular membrane collapse by atmospheric-pressure plasma jet. *Appl Phys Lett.* 2014;104: 13701. doi:10.1063/1.4861373

103. Kim SJ, Chung TH, Bae SH, Leem SH. Induction of apoptosis in human breast cancer cells by a pulsed atmospheric pressure plasma jet. *Appl Phys Lett.* 2010;97: 23702. doi:10.1063/1.3462293

104. Kim J, WEI Y, Li J, Kim S. 15- $\mu\text{m}$ -sized single-cellular-level and cell-manipulatable microplasma jet in cancer therapies. *Biosens Bioelectron.* 2010;26: 555–559.

doi:10.1016/j.bios.2010.07.043

105. Kim C-H, Kwon S, Bahn JH, Lee K, Jun SI, Rack PD, et al. Effects of atmospheric nonthermal plasma on invasion of colorectal cancer cells. *Appl Phys Lett*. 2010;96: 243701.

doi:10.1063/1.3449575

106. Kim C-H, Bahn JH, Lee S-H, Kim G-Y, Jun S-I, Lee K, et al. Induction of cell growth arrest by atmospheric non-thermal plasma in colorectal cancer cells. *J Biotechnol*. 2010;150: 530–538.

doi:10.1016/j.jbiotec.2010.10.003

107. Kim SJ, Min Joh H, Chung TH. Production of intracellular reactive oxygen species and change of cell viability induced by atmospheric pressure plasma in normal and cancer cells. *Appl Phys Lett*. 2013;103: 153705. doi:10.1063/1.4824986

108. Kim JY, Wei Y, Li J, Foy P, Hawkins T, Ballato J, et al. Single-Cell-Level Microplasma Cancer Therapy. *Small*. 2011;7: 2291–2295. doi:10.1002/smll.201100456

109. Kim S-Y, Kim H-J, Kang SU, Kim YE, Park JK, Shin YS, et al. Non-thermal plasma induces AKT degradation through turn-on the MUL1 E3 ligase in head and neck cancer.

*Oncotarget*. 2015;6: 33382–33396. doi:10.18632/oncotarget.5407

110. Kim W, Woo K-C, Kim G-C, Kim K-T. Nonthermal-plasma-mediated animal cell death. *J Phys Appl Phys*. 2011;44: 13001. doi:10.1088/0022-3727/44/1/013001

111. Kim SJ, Chung TH. Cold atmospheric plasma jet-generated RONS and their selective effects on normal and carcinoma cells. *Sci Rep*. 2016;6. doi:10.1038/srep20332

112. Kim W, Na K-Y, Lee K-H, Lee HW, Lee JK, Kim K-T. Selective uptake of epidermal growth factor-conjugated gold nanoparticle (EGF-GNP) facilitates non-thermal plasma (NTP)-mediated cell death. *Sci Rep*. 2017;7: 10971. doi:10.1038/s41598-017-11292-z

113. Knecht S, Bilen S, Micci M, Brubaker T, Wilson M, Cook I, et al. Low-temperature plasma needle effects on cultured metastatic breast cancer cells. *APS Meeting Abstracts*. 2015. Available: <http://adsabs.harvard.edu/abs/2015APS..DPPJP2156K>

114. Kong MG, Keidar M, Ostrikov K. Plasmas meet nanoparticles—where synergies can advance the frontier of medicine. *J Phys Appl Phys*. 2011;44: 174018. doi:10.1088/0022-3727/44/17/174018

115. Koensgen D, Besic I, Gumbel D, Kaul A, Weiss M, Diesing K, et al. Cold Atmospheric Plasma (CAP) and CAP-Stimulated Cell Culture Media Suppress Ovarian Cancer Cell Growth - A Putative Treatment Option in Ovarian Cancer Therapy. *Anticancer Res*. 2017;37: 6739–6744. doi:10.21873/anticancer.12133

116. Köritzer J, Boxhammer V, Schäfer A, Shimizu T, Klämpfl TG, Li Y-F, et al. Restoration of Sensitivity in Chemo — Resistant Glioma Cells by Cold Atmospheric Plasma. *PLoS ONE*. 2013;8. doi:10.1371/journal.pone.0064498

117. Kumar N, Park JH, Jeon SN, Park BS, Choi EH, Attri P. The action of microsecond-pulsed plasma-activated media on the inactivation of human lung cancer cells. *J Phys Appl Phys*. 2016;49: 115401. doi:10.1088/0022-3727/49/11/115401

118. Kumar N, Attri P, Yadav DK, Choi J, Choi EH, Uhm HS. Induced apoptosis in melanocytes cancer cell and oxidation in biomolecules through deuterium oxide generated from atmospheric pressure non-thermal plasma jet. *Sci Rep*. 2014;4. doi:10.1038/srep07589

119. Kumar N, Attri P, Choi EH, Uhm HS. Influence of water vapour with non-thermal plasma jet on the apoptosis of SK-BR-3 breast cancer cells. *R Soc Chem*. 2015;5: 14670–14677.

doi:10.1039/C4RA15879B

120. Kurake N, Tanaka H, Ishikawa K, Kondo T, Sekine M, Nakamura K, et al. Cell survival of glioblastoma grown in medium containing hydrogen peroxide and/or nitrite, or in plasma-activated medium. *Arch Biochem Biophys*. 2016;605: 102–108. doi:10.1016/j.abb.2016.01.011

121. Kwon B-S, Choi EH, Chang B, Choi J-H, Kim KS, Park H-K. Selective cytotoxic effect of non-thermal micro-DBD plasma. *Phys Biol*. 2016;13: 56001. doi:10.1088/1478-3975/13/5/056001

122. Laroussi M, Mohades S, Barekzi N. Killing adherent and nonadherent cancer cells with the plasma pencil. *Biointerphases*. 2015;10: 29401. doi:10.1116/1.4905666

123. Leduc M, Guay D, Leask RL, Coulombe S. Cell permeabilization using a non-thermal

- plasma. *New J Phys.* 2009;11: 115021. doi:10.1088/1367-2630/11/11/115021
124. Lee S, Lee H, Bae H, Choi EH, Kim SJ. Epigenetic silencing of miR-19a-3p by cold atmospheric plasma contributes to proliferation inhibition of the MCF-7 breast cancer cell. *Sci Rep.* 2016;6. doi:10.1038/srep30005
125. Lee JK, Kim MS, Byun JH, Kim KT, Kim GC, Park GY. Biomedical Applications of Low Temperature Atmospheric Pressure Plasmas to Cancerous Cell Treatment and Tooth Bleaching. *Jpn J Appl Phys.* 2011;50: 08JF01. doi:10.1143/JJAP.50.08JF01
126. Lee J-H, Om J-Y, Kim Y-H, Kim K-M, Choi E-H, Kim K-N. Selective Killing Effects of Cold Atmospheric Pressure Plasma with NO Induced Dysfunction of Epidermal Growth Factor Receptor in Oral Squamous Cell Carcinoma. *PloS One.* 2016;11: e0150279. doi:10.1371/journal.pone.0150279
127. Lee HJ, Shon CH, Kim YS, Kim S, Kim GC, Kong MG. Degradation of adhesion molecules of G361 melanoma cells by a non-thermal atmospheric pressure microplasma. *New J Phys.* 2009;11: 115026. doi:10.1088/1367-2630/11/11/115026
128. Lee S, Lee H, Jeong D, Ham J, Park S, Choi EH, et al. Cold atmospheric plasma restores tamoxifen sensitivity in resistant MCF-7 breast cancer cell. *Free Radic Biol Med.* 2017;110: 280–290. doi:10.1016/j.freeradbiomed.2017.06.017
129. Li W, Yu KN, Bao L, Shen J, Cheng C, Han W. Non-thermal plasma inhibits human cervical cancer HeLa cells invasiveness by suppressing the MAPK pathway and decreasing matrix metalloproteinase-9 expression. *Sci Rep.* 2016;6. doi:10.1038/srep19720
130. Li W, Yu KN, Ma J, Shen J, Cheng C, Zhou F, et al. Non-thermal plasma induces mitochondria-mediated apoptotic signaling pathway via ROS generation in HeLa cells. *Arch Biochem Biophys.* 2017;633: 68–77. doi:10.1016/j.abb.2017.09.005
131. Li Y, Ho Kang M, Sup Uhm H, Joon Lee G, Ha Choi E, Han I. Effects of atmospheric-pressure non-thermal bio-compatible plasma and plasma activated nitric oxide water on cervical cancer cells. *Sci Rep.* 2017;7: 45781. doi:10.1038/srep45781
132. Liedtke KR, Bekeschus S, Kaeding A, Hackbarth C, Kuehn J-P, Heidecke C-D, et al. Non-thermal plasma-treated solution demonstrates antitumor activity against pancreatic cancer cells in vitro and in vivo. *Sci Rep.* 2017;7: 8319. doi:10.1038/s41598-017-08560-3
133. Lin A, Truong B, Pappas A, Kirifides L, Oubbari A, Chen S, et al. Uniform Nanosecond Pulsed Dielectric Barrier Discharge Plasma Enhances Anti-Tumor Effects by Induction of Immunogenic Cell Death in Tumors and Stimulation of Macrophages. *Plasma Process Polym.* 2015;12: 1392–1399. doi:10.1002/ppap.201500139
134. Lin A, Truong B, Patel S, Kaushik N, Choi EH, Fridman G, et al. Nanosecond-Pulsed DBD Plasma-Generated Reactive Oxygen Species Trigger Immunogenic Cell Death in A549 Lung Carcinoma Cells through Intracellular Oxidative Stress. *Int J Mol Sci.* 2017;18. doi:10.3390/ijms18050966
135. ICTRP Search Portal [Internet]. [cited 28 Jan 2018]. Available: <http://apps.who.int/trialsearch/Trial2.aspx?TrialID=NCT03218436>
136. Liu Y, Tan S, Zhang H, Kong X, Ding L, Shen J, et al. Selective effects of non-thermal atmospheric plasma on triple-negative breast normal and carcinoma cells through different cell signaling pathways. *Sci Rep.* 2017;7: 7980. doi:10.1038/s41598-017-08792-3
137. Lunov O, Zablotskii V, Churpita O, Chánová E, Syková E, Dejneka A, et al. Cell death induced by ozone and various non-thermal plasmas: therapeutic perspectives and limitations. *Sci Rep.* 2014;4. doi:10.1038/srep07129
138. Ma Y, Ha CS, Hwang SW, Lee HJ, Kim GC, Lee K-W, et al. Non-Thermal Atmospheric Pressure Plasma Preferentially Induces Apoptosis in p53-Mutated Cancer Cells by Activating ROS Stress-Response Pathways. *PLoS ONE.* 2014;9. doi:10.1371/journal.pone.0091947
139. Mashayekh S, Rajaei H, Akhlaghi M, Shokri B, Hassan ZM. Atmospheric-pressure plasma jet characterization and applications on melanoma cancer treatment (B/16-F10). *Phys Plasmas.* 2015;22: 93508. doi:10.1063/1.4930536
140. Metelmann H-R, Nedrelow DS, Seebauer C, Schuster M, von Woedtke T, Weltmann K-D,

- et al. Head and neck cancer treatment and physical plasma. *Clin Plasma Med.* 2015;3: 17–23. doi:10.1016/j.cpme.2015.02.001
141. Nofel M, Chauvin J, Vicendo P, Judée F. Effects of Plasma Activated Medium on Head and Neck FaDu Cancerous Cells: comparison of 3D and 2D response. *Anticancer Agents Med Chem.* 2017; doi:10.2174/1871520617666170801111055
142. Miller V, Lin A, Fridman A. Why Target Immune Cells for Plasma Treatment of Cancer. *Plasma Chem Plasma Process.* 2016;36: 259–268. doi:10.1007/s11090-015-9676-z
143. Min Joh H, Ja Kim S, Chung TH, Leem SH. Reactive oxygen species-related plasma effects on the apoptosis of human bladder cancer cells in atmospheric pressure pulsed plasma jets. *Appl Phys Lett.* 2012;101: 53703. doi:10.1063/1.4742742
144. Mirpour S, Nikkhah M, Pirouzmand S, Ghomi HR. Effect of non-thermal atmospheric pressure plasma jet on human breast cancer cells. *APS Meeting Abstracts.* 2012. Available: <http://adsabs.harvard.edu/abs/2012APS..GECUF1008M>
145. Mirpour S, Piroozmand S, Soleimani N, Jalali Fazarani N, Ghomi H, Fotovat Eskandari H, et al. Utilizing the micron sized non-thermal atmospheric pressure plasma inside the animal body for the tumor treatment application. *Sci Rep.* 2016;6: 29048. doi:10.1038/srep29048
146. Mizuno K, Yonetamari K, Shirakawa Y, Akiyama T, Ono R. Anti-tumor immune response induced by nanosecond pulsed streamer discharge in mice. *J Phys Appl Phys.* 2017;50: 12LT01. doi:10.1088/1361-6463/aa5dbb
147. Mohades S, Laroussi M, Sears J, Barekzi N, Razavi H. Evaluation of the effects of a plasma activated medium on cancer cells. *Phys Plasmas.* 2015;22: 122001. doi:10.1063/1.4933367
148. Naciri M, Dowling D, Al-Rubeai M. Differential Sensitivity of Mammalian Cell Lines to Non-Thermal Atmospheric Plasma. *Plasma Process Polym.* 2014;11: 391–400. doi:10.1002/ppap.201300118
149. Nakamura K, Peng Y, Utsumi F, Tanaka H, Mizuno M, Toyokuni S, et al. Novel Intraperitoneal Treatment With Non-Thermal Plasma-Activated Medium Inhibits Metastatic Potential of Ovarian Cancer Cells. *Sci Rep.* 2017;7: 6085. doi:10.1038/s41598-017-05620-6
150. Nguyen NH, Park HJ, Yang SS, Choi KS, Lee J-S. Anti-cancer efficacy of nonthermal plasma dissolved in a liquid, liquid plasma in heterogeneous cancer cells. *Sci Rep.* 2016;6. doi:10.1038/srep29020
151. Ninomiya K, Ishijima T, Imamura M, Yamahara T, Enomoto H, Kenji Takahashi, et al. Evaluation of extra- and intracellular OH radical generation, cancer cell injury, and apoptosis induced by a non-thermal atmospheric-pressure plasma jet. *J Phys Appl Phys.* 2013;46: 425401. doi:10.1088/0022-3727/46/42/425401
152. O’Connell D, Cox LJ, Hyland WB, McMahon SJ, Reuter S, Graham WG, et al. Cold atmospheric pressure plasma jet interactions with plasmid DNA. *Appl Phys Lett.* 2011;98: 43701. doi:10.1063/1.3521502
153. Omata Y, Iida M, Yajima I, Takeda K, Ohgami N, Hori M, et al. Non-thermal atmospheric pressure plasmas as a novel candidate for preventive therapy of melanoma. *Environ Health Prev Med.* 2014;19: 367–369. doi:10.1007/s12199-014-0399-1
154. Ono R, Ohtsubo T, Hayashi N, Aijima R, Yamashita Y, Goto M. Inactivation of Oral Cancer Cell Using Active Species Generated by Atmospheric Plasma. *J Photopolym Sci Technol.* 2016;29: 443–445. doi:10.2494/photopolymer.29.443
155. Panngom K, Baik KY, Nam MK, Han JH, Rhim H, Choi EH. Preferential killing of human lung cancer cell lines with mitochondrial dysfunction by nonthermal dielectric barrier discharge plasma. *Cell Death Dis.* 2013;4: e642. doi:10.1038/cddis.2013.168
156. Park S-B, Kim B, Bae H, Lee H, Lee S, Choi EH, et al. Differential Epigenetic Effects of Atmospheric Cold Plasma on MCF-7 and MDA-MB-231 Breast Cancer Cells. *PLOS ONE.* 2015;10: e0129931. doi:10.1371/journal.pone.0129931
157. Park J, Lee H, Lee HJ, Kim GC, Kim DY, Han S, et al. Non-Thermal Atmospheric Pressure Plasma Efficiently Promotes the Proliferation of Adipose Tissue-Derived Stem Cells by Activating NO-Response Pathways. *Sci Rep.* 2016;6. doi:10.1038/srep39298

158. Partecke LI, Evert K, Haugk J, Doering F, Normann L, Diedrich S, et al. Tissue Tolerable Plasma (TTP) induces apoptosis in pancreatic cancer cells in vitro and in vivo. *BMC Cancer*. 2012;12: 473. doi:10.1186/1471-2407-12-473
159. Plewa J-M, Yousfi M, Frongia C, Eichwald O, Ducommun B, Merbahi N, et al. Low-temperature plasma-induced antiproliferative effects on multi-cellular tumor spheroids. *New J Phys*. 2014;16: 43027.
160. Ratovitski EA, Cheng X, Yan D, Sherman JH, Canady J, Trink B, et al. Anti-Cancer Therapies of 21st Century: Novel Approach to Treat Human Cancers Using Cold Atmospheric Plasma. *Plasma Process Polym*. 2014;11: 1128–1137. doi:10.1002/ppap.201400071
161. Ryan HA, Neuber J, Shutong Song null, Beebe SJ, Chunqi Jiang null. Effects of a non-thermal plasma needle device on HPV-16 positive cervical cancer cell viability in vitro. *Conf Proc Annu Int Conf IEEE Eng Med Biol Soc IEEE Eng Med Biol Soc Annu Conf*. 2016;2016: 537–540. doi:10.1109/EMBC.2016.7590758
162. Recek N, Cheng X, Keidar M, Cvelbar U, Vesel A, Mozetic M, et al. Effect of cold plasma on glial cell morphology studied by atomic force microscopy. *PloS One*. 2015;10: e0119111. doi:10.1371/journal.pone.0119111
163. Ruwan Kumara MHS, Piao MJ, Kang KA, Ryu YS, Park JE, Shilnikova K, et al. Non-thermal gas plasma-induced endoplasmic reticulum stress mediates apoptosis in human colon cancer cells. *Oncol Rep*. 2016;36: 2268–2274. doi:10.3892/or.2016.5038
164. Saito K, Asai T, Fujiwara K, Sahara J, Koguchi H, Fukuda N, et al. Tumor-selective mitochondrial network collapse induced by atmospheric gas plasma-activated medium. *Oncotarget*. 2016;7: 19910–19927. doi:10.18632/oncotarget.7889
165. Shi L, Ito F, Wang Y, Okazaki Y, Tanaka H, Mizuno M, et al. Non-thermal plasma induces a stress response in mesothelioma cells resulting in increased endocytosis, lysosome biogenesis and autophagy. *Free Radic Biol Med*. 2017;108: 904–917. doi:10.1016/j.freeradbiomed.2017.04.368
166. Shi L, Yu L, Zou F, Hu H, Liu K, Lin Z. Gene expression profiling and functional analysis reveals that p53 pathway-related gene expression is highly activated in cancer cells treated by cold atmospheric plasma-activated medium. *PeerJ*. 2017;5: e3751. doi:10.7717/peerj.3751
167. Schlegel J, Körtitzer J, Boxhammer V. Plasma in cancer treatment. *Clin Plasma Med*. 2013;1: 2–7. doi:10.1016/j.cpme.2013.08.001
168. Schmidt A, Bekeschus S, von Woedtke T, Hasse S. Cell migration and adhesion of a human melanoma cell line is decreased by cold plasma treatment. *Clin Plasma Med*. 2015;3: 24–31. doi:10.1016/j.cpme.2015.05.003
169. Schuster M, Seebauer C, Rutkowski R, Hauschild A, Podmelle F, Metelmann C, et al. Visible tumor surface response to physical plasma and apoptotic cell kill in head and neck cancer. *J Cranio-Maxillo-fac Surg Off Publ Eur Assoc Cranio-Maxillo-fac Surg*. 2016;44: 1445–1452. doi:10.1016/j.jcms.2016.07.001
170. Sensenig R, Kalghatgi S, Cerchar E, Fridman G, Shereshevsky A, Torabi B, et al. Non-thermal plasma induces apoptosis in melanoma cells via production of intracellular reactive oxygen species. *Ann Biomed Eng*. 2011;39: 674–687. doi:10.1007/s10439-010-0197-x
171. Shi XM, Zhang GJ, Chang ZS, Wu XL, Liao WL, Li N. Viability Reduction of Melanoma Cells by Plasma Jet via Inducing G1/S and G2/M Cell Cycle Arrest and Cell Apoptosis. *IEEE Trans Plasma Sci*. 2014;42: 1640–1647. doi:10.1109/TPS.2014.2320765
172. Siu A, Volotskova O, Cheng X, Khalsa SS, Bian K, Murad F, et al. Differential Effects of Cold Atmospheric Plasma in the Treatment of Malignant Glioma. *PloS One*. 2015;10: e0126313. doi:10.1371/journal.pone.0126313
173. Stoffels E, Kieft IE, Sladek REJ, Van Zandvoort MAMJ, Slaaf DW. Cold Gas Plasma in Biology and Medicine. In: d'Agostino R, Favia P, Kawai Y, Ikegami H, Sato N, Arefi-Khonsari F, editors. *Advanced Plasma Technology*. Weinheim, Germany: Wiley-VCH Verlag GmbH & Co. KGaA; 2007. pp. 301–318. Available: <http://doi.wiley.com/10.1002/9783527622184.ch16>
174. Stoffels E. BIOMEDICAL APPLICATIONS OF ELECTRIC GAS DISCHARGES. *High Temp Mater Process Int Q High-Technol Plasma Process*. 2011;15.

doi:10.1615/HighTempMatProc.v15.i3.60

175. Tabuchi Y, Uchiyama H, Zhao Q-L, Yunoki T, Andocs G, Nojima N, et al. Effects of nitrogen on the apoptosis of and changes in gene expression in human lymphoma U937 cells exposed to argon-based cold atmospheric pressure plasma. *Int J Mol Med*. 2016;37: 1706–1714. doi:10.3892/ijmm.2016.2574
176. Tan X, Zhao S, Lei Q, Lu X, He G, Ostrikov K. Single-cell-precision microplasma-induced cancer cell apoptosis. *PloS One*. 2014;9: e101299. doi:10.1371/journal.pone.0101299
177. Takeda S, Yamada S, Hattori N, Nakamura K, Tanaka H, Kajiyama H, et al. Intraperitoneal Administration of Plasma-Activated Medium: Proposal of a Novel Treatment Option for Peritoneal Metastasis From Gastric Cancer. *Ann Surg Oncol*. 2017; doi:10.1245/s10434-016-5759-1
178. Tanaka H, Mizuno M, Ishikawa K, Nakamura K, Kajiyama H, Kano H, et al. Plasma-Activated Medium Selectively Kills Glioblastoma Brain Tumor Cells by Down-Regulating a Survival Signaling Molecule, AKT Kinase. *Plasma Med*. 2011;1. doi:10.1615/PlasmaMed.2012006275
179. Tanaka H, Nakamura K, Mizuno M, Ishikawa K, Takeda K, Kajiyama H, et al. Non-thermal atmospheric pressure plasma activates lactate in Ringer's solution for anti-tumor effects. *Sci Rep*. 2016;6. doi:10.1038/srep36282
180. Tanaka H, Mizuno M, Toyokuni S, Maruyama S, Kodera Y, Terasaki H, et al. Cancer therapy using non-thermal atmospheric pressure plasma with ultra-high electron density. *Phys Plasmas*. 2015;22: 122004. doi:10.1063/1.4933402
181. Tanaka H, Hori M. Medical applications of non-thermal atmospheric pressure plasma. *J Clin Biochem Nutr*. 2017;60: 29–32. doi:10.3164/jcfn.16-67
182. Taylor N, Dobrynin D, Fridman A, Choi EH. Power source effects of soft plasma jet and the differential response of skin cancer and normal cells. *APS Meeting Abstracts*. 2014. Available: <http://adsabs.harvard.edu/abs/2014APS..GECDT3006T>
183. ICTRP Search Portal [Internet]. [cited 4 Jul 2017]. Available: <http://apps.who.int/trialsearch/Trial2.aspx?TrialID=NCT02658851>
184. Thiyagarajan M, Sarani A, Gonzalez X. Characterization of Portable Resistive Barrier Plasma Jet and Its Direct and Indirect Treatment for Antibiotic Resistant Bacteria and THP-1 Leukemia Cancer Cells. *IEEE Trans Plasma Sci*. 2012;40: 3533–3545. doi:10.1109/TPS.2012.2222391
185. Thiyagarajan M, Anderson H, Gonzales XF. Induction of apoptosis in human myeloid leukemia cells by remote exposure of resistive barrier cold plasma. *Biotechnol Bioeng*. 2014;111: 565–574. doi:10.1002/bit.25114
186. Thiyagarajan M, Waldbeser L, Whitmill A. THP-1 leukemia cancer treatment using a portable plasma device. *Stud Health Technol Inform*. 2012;173: 515–517.
187. Toyokuni S. The origin and future of oxidative stress pathology: From the recognition of carcinogenesis as an iron addiction with ferroptosis-resistance to non-thermal plasma therapy. *Pathol Int*. 2016;66: 245–259. doi:10.1111/pin.12396
188. Turrini E, Laurita R, Stancampiano A, Catanzaro E, Calcabrini C, Maffei F, et al. Cold Atmospheric Plasma Induces Apoptosis and Oxidative Stress Pathway Regulation in T-Lymphoblastoid Leukemia Cells. *Oxid Med Cell Longev*. 2017;2017: 4271065. doi:10.1155/2017/4271065
189. Utsumi F, Kajiyama H, Nakamura K, Tanaka H, Hori M, Kikkawa F. Selective cytotoxicity of indirect nonequilibrium atmospheric pressure plasma against ovarian clear-cell carcinoma. *SpringerPlus*. 2014;3. doi:10.1186/2193-1801-3-398
190. UTSUMI F, KAJIYAMA H, NAKAMURA K, TANAKA H, MIZUNO M, TOYOKUNI S, et al. Variable susceptibility of ovarian cancer cells to non-thermal plasma-activated medium. *Oncol Rep*. 2016;35: 3169–3177. doi:10.3892/or.2016.4726
191. Utsumi F, Kajiyama H, Nakamura K, Tanaka H, Mizuno M, Ishikawa K, et al. Effect of Indirect Nonequilibrium Atmospheric Pressure Plasma on Anti-Proliferative Activity against Chronic Chemo-Resistant Ovarian Cancer Cells In Vitro and In Vivo. *PLoS ONE*. 2013;8.

doi:10.1371/journal.pone.0081576

192. Van Boxem W, Van der Paal J, Gorbanev Y, Vanuytsel S, Smits E, Dewilde S, et al. Anti-cancer capacity of plasma-treated PBS: effect of chemical composition on cancer cell cytotoxicity. *Sci Rep.* 2017;7: 16478. doi:10.1038/s41598-017-16758-8
193. Vandamme M, Robert E, Lerondel S, Sarron V, Ries D, Dozias S, et al. ROS implication in a new antitumor strategy based on non-thermal plasma. *Int J Cancer.* 2012;130: 2185–2194. doi:10.1002/ijc.26252
194. Vandamme M, Robert E, Pesnel S, Barbosa E, Dozias S, Sobilo J, et al. Antitumor Effect of Plasma Treatment on U87 Glioma Xenografts: Preliminary Results. *Plasma Process Polym.* 2010;7: 264–273. doi:10.1002/ppap.200900080
195. Vandamme M, Robert E, Dozias S, Sobilo J, Lerondel S, Pape AL, et al. Response of Human Glioma U87 Xenografted on Mice to Non Thermal Plasma Treatment. *Plasma Med.* 2011;1. doi:10.1615/PlasmaMed.v1.i1.30
196. Van der Paal J, Verheyen C, Neyts EC, Bogaerts A. Hampering Effect of Cholesterol on the Permeation of Reactive Oxygen Species through Phospholipids Bilayer: Possible Explanation for Plasma Cancer Selectivity. *Sci Rep.* 2017;7. doi:10.1038/srep39526
197. Vermeylen S, De Waele J, Vanuytsel S, De Backer J, Van der Paal J, Ramakers M, et al. Cold atmospheric plasma treatment of melanoma and glioblastoma cancer cells. *Plasma Process Polym.* 2016;13: 1195–1205. doi:10.1002/ppap.201600116
198. Vijayarangan V, Delalande A, Dozias S, Pouvesle JM, Pichon C, Robert E. Cold Atmospheric Plasma Parameters Investigation for Efficient Drug Delivery in HeLa Cells. *IEEE Trans Radiat Plasma Med Sci.* 2017;PP: 1–1. doi:10.1109/TRPMS.2017.2759322
199. Volotskova O, Hawley TS, Stepp MA, Keidar M. Targeting the cancer cell cycle by cold atmospheric plasma. *Sci Rep.* 2012;2. doi:10.1038/srep00636
200. Walk RM, Snyder JA, Srinivasan P, Kirsch J, Diaz SO, Blanco FC, et al. Cold atmospheric plasma for the ablative treatment of neuroblastoma. *J Pediatr Surg.* 2013;48: 67–73. doi:10.1016/j.jpedsurg.2012.10.020
201. Wada N, Ikeda J-I, Tanaka H, Sakakita H, Hori M, Ikehara Y, et al. Effect of plasma-activated medium on the decrease of tumorigenic population in lymphoma. *Pathol Res Pract.* 2017;213: 773–777. doi:10.1016/j.prp.2017.04.003
202. Wang S, Wang X, Ye Z, Xu C, Zhang M, Ruan B, et al. Curcumin promotes browning of white adipose tissue in a norepinephrine-dependent way. *Biochem Biophys Res Commun.* 2015;466: 247–253. doi:10.1016/j.bbrc.2015.09.018
203. Wang M, Holmes B, Cheng X, Zhu W, Keidar M, Zhang LG. Cold Atmospheric Plasma for Selectively Ablating Metastatic Breast Cancer Cells. *PLoS ONE.* 2013;8. doi:10.1371/journal.pone.0073741
204. Wang M, Geilich BM, Keidar M, Webster TJ. Killing malignant melanoma cells with protoporphyrin IX-loaded polymersome-mediated photodynamic therapy and cold atmospheric plasma. *Int J Nanomedicine.* 2017;12: 4117–4127. doi:10.2147/IJN.S129266
205. Weiss M, Gumbel D, Hanschmann E-M, Mandelkow R, Gelbrich N, Zimmermann U, et al. Cold Atmospheric Plasma Treatment Induces Anti-Proliferative Effects in Prostate Cancer Cells by Redox and Apoptotic Signaling Pathways. *PLOS ONE.* 2015;10: e0130350. doi:10.1371/journal.pone.0130350
206. Weiss M, Gumbel D, Gelbrich N, Brandenburg L-O, Mandelkow R, Zimmermann U, et al. Inhibition of Cell Growth of the Prostate Cancer Cell Model LNCaP by Cold Atmospheric Plasma. *Vivo Athens Greece.* 2015;29: 611–616.
207. Welz C, Emmert S, Canis M, Becker S, Baumeister P, Shimizu T, et al. Cold Atmospheric Plasma: A Promising Complementary Therapy for Squamous Head and Neck Cancer. *PloS One.* 2015;10: e0141827. doi:10.1371/journal.pone.0141827
208. Xu D, Luo X, Xu Y, Cui Q, Yang Y, Liu D, et al. The effects of cold atmospheric plasma on cell adhesion, differentiation, migration, apoptosis and drug sensitivity of multiple myeloma. *Biochem Biophys Res Commun.* 2016;473: 1125–1132. doi:10.1016/j.bbrc.2016.04.027



209. Xu D, Liu D, Wang B, Chen C, Chen Z, Li D, et al. In Situ OH Generation from O<sub>2</sub>- and H<sub>2</sub>O<sub>2</sub> Plays a Critical Role in Plasma-Induced Cell Death. *PloS One*. 2015;10: e0128205. doi:10.1371/journal.pone.0128205
210. Yajima I, Iida M, Kumasaka MY, Omata Y, Ohgami N, Chang J, et al. Non-equilibrium atmospheric pressure plasmas modulate cell cycle-related gene expressions in melanocytic tumors of RET-transgenic mice. *Exp Dermatol*. 2014;23: 424–425. doi:10.1111/exd.12415
211. Yan X, Zou F, Zhao S, Lu X, He G, Xiong Z, et al. On the Mechanism of Plasma Inducing Cell Apoptosis. *IEEE Trans Plasma Sci*. 2010;38: 2451–2457. doi:10.1109/TPS.2010.2056393
212. Yan D, Sherman JH, Cheng X, Ratovitski E, Canady J, Keidar M. Controlling plasma stimulated media in cancer treatment application. *Appl Phys Lett*. 2014;105: 224101.
213. Yan D, Talbot A, Nourmohammadi N, Cheng X, Canady J, Sherman J, et al. Principles of using Cold Atmospheric Plasma Stimulated Media for Cancer Treatment. *Sci Rep*. 2015;5: 18339. doi:10.1038/srep18339
214. Yan D, Nourmohammadi N, Talbot A, Sherman JH, Keidar M. The strong anti-glioblastoma capacity of the plasma-stimulated lysine-rich medium. *J Phys Appl Phys*. 2016;49: 274001. doi:10.1088/0022-3727/49/27/274001
215. Yan X, Xiong Z, Zou F, Zhao S, Lu X, Yang G, et al. Plasma-Induced Death of HepG2 Cancer Cells: Intracellular Effects of Reactive Species. *Plasma Process Polym*. 2012;9: 59–66. doi:10.1002/ppap.201100031
216. Yan D, Sherman JH, Keidar M. Cold atmospheric plasma, a novel promising anti-cancer treatment modality. *Oncotarget*. 2016; doi:10.18632/oncotarget.13304
217. Yan D, Talbot A, Nourmohammadi N, Sherman JH, Cheng X, Keidar M. Toward understanding the selective anticancer capacity of cold atmospheric plasma--a model based on aquaporins (Review). *Biointerphases*. 2015;10: 40801. doi:10.1116/1.4938020
218. Yan D, Cui H, Zhu W, Nourmohammadi N, Milberg J, Zhang LG, et al. The Specific Vulnerabilities of Cancer Cells to the Cold Atmospheric Plasma-Stimulated Solutions. *Sci Rep*. 2017;7: 4479. doi:10.1038/s41598-017-04770-x
219. Yan D, Cui H, Zhu W, Talbot A, Zhang LG, Sherman JH, et al. The Strong Cell-based Hydrogen Peroxide Generation Triggered by Cold Atmospheric Plasma. *Sci Rep*. 2017;7: 10831. doi:10.1038/s41598-017-11480-x
220. Yan D, Sherman JH, Keidar M. The Application of the Cold Atmospheric Plasma-Activated Solutions in Cancer Treatment. *Anticancer Agents Med Chem*. 2017; doi:10.2174/1871520617666170731115233
221. Yan X, Meng Z, Ouyang J, Qiao Y, Yuan F. New Application of an Atmospheric Pressure Plasma Jet as a Neuro-protective Agent Against Glucose Deprivation-induced Injury of SH-SY5Y Cells. *J Vis Exp JoVE*. 2017; doi:10.3791/56323
222. Yang H, Lu R, Xian Y, Gan L, Lu X, Yang X. Effects of atmospheric pressure cold plasma on human hepatocarcinoma cell and its 5-fluorouracil resistant cell line. *Phys Plasmas*. 2015;22: 122006. doi:10.1063/1.4933405
223. Yokoyama M, Johkura K, Sato T. Gene expression responses of HeLa cells to chemical species generated by an atmospheric plasma flow. *Biochem Biophys Res Commun*. 2014;450: 1266–1271. doi:10.1016/j.bbrc.2014.06.116
224. Zhao S, Xiong Z, Mao X, Meng D, Lei Q, Li Y, et al. Atmospheric Pressure Room Temperature Plasma Jets Facilitate Oxidative and Nitrate Stress and Lead to Endoplasmic Reticulum Stress Dependent Apoptosis in HepG2 Cells. *PLOS ONE*. 2013;8: e73665. doi:10.1371/journal.pone.0073665
225. Zhang X, Li M, Zhou R, Feng K, Yang S. Ablation of liver cancer cells in vitro by a plasma needle. *Appl Phys Lett*. 2008;93: 21502. doi:10.1063/1.2959735
226. Zhu W, Lee S-J, Castro NJ, Yan D, Keidar M, Zhang LG. Synergistic Effect of Cold Atmospheric Plasma and Drug Loaded Core-shell Nanoparticles on Inhibiting Breast Cancer Cell Growth. *Sci Rep*. 2016;6. doi:10.1038/srep21974
227. Zhunussova A, Vitol EA, Polyak B, Tuleukhanov S, Brooks AD, Sensenig R, et al.

Mitochondria-Mediated Anticancer Effects of Non-Thermal Atmospheric Plasma. PLoS ONE. 2016;11. doi:10.1371/journal.pone.0156818

228. Zirnheld JL, Zucker SN, DiSanto TM, Berezney R, Etemadi K. Nonthermal Plasma Needle: Development and Targeting of Melanoma Cells. IEEE Trans Plasma Sci. 2010;38: 948–952. doi:10.1109/TPS.2010.2041470

229. Zucker SN, Zirnheld J, Bagati A, DiSanto TM, Des Soye B, Wawrzyniak JA, et al. Preferential induction of apoptotic cell death in melanoma cells as compared with normal keratinocytes using a non-thermal plasma torch. Cancer Biol Ther. 2012;13: 1299–1306. doi:10.4161/cbt.21787