

Table 3. Information on clinical trials investigating CQ use in cancer (Source: ClinicalTrials.gov).

ClinicalTrials.gov ID	Type of cancer	Intervention	Study Phase	Location	Status	First received	Last verified
NCT00224978	GBM	CQ (+ conventional treatment)	Phase 3	Mexico	Completed	Sept 2005	Nov 2009
NCT01438177	Multiple myeloma	CQ, Velcade, Cyclophosphamide	Phase 2	US	Completed, has results	Sept 2011	June 2016
NCT01727531	Brain metastasis	CQ, Radiation therapy	Not provided	US	Completed	Nov 2012	Apr 2015
NCT01777477	Pancreatic cancer	CQ, Gemcitabine	Phase 1	Switzerland	Completed	Jan 2013	Sept 2015
NCT01894633	Brain metastasis	CQ, Radiotherapy	Phase 2	Mexico	Terminated	June 2013	July 2013
NCT01469455	Local metastatic melanoma	CQ, DT01, Radiotherapy	Phase 1	France	Completed	Oct 2011	June 2016
NCT01023477	Ductal carcinoma in situ	CQ (Procedure: breast biopsy)	Phase 1 - 2	US	Ongoing	Dec 2009	Sept 2016
NCT00969306	Small cell lung cancer	CQ	Phase 1	The Netherlands	Recruiting	Aug 2009	Feb 2016
NCT01446016	Breast cancer	CQ, Taxane, Taxotere, Abraxane, Ixabepilone	Phase 2	US	Recruiting	Sept 2011	Sept 2016
NCT01575782	Small cell lung cancer	CQ, Radiotherapy	Phase 1	The Netherlands	Recruiting	Apr 2012	Sept 2016
NCT02071537	Advanced solid tumours	CQ, Carboplatin, Gemcitabine	Phase 1	US	Recruiting	Feb 2014	Dec 2015
NCT02333890	Breast cancer	CQ (and placebo) (prior to surgery)	Phase 2	Canada	Recruiting	Jan 2015	Nov 2016
NCT02366884	Neoplasms	Anti-Bacterial Agents, Anti-Fungal Agents, Anti-Protozoal Agents	Phase 2	Mexico	Recruiting	Feb 2015	Aug 2015
NCT02496741	Glioma, Cholangiocarcinoma, Chondrosarcoma	CQ, Metformin	Phase 1 - 2	The Netherlands	Recruiting	June 2015	Nov 2015
NCT02378532	GBM	CQ, Radiotherapy, Temozolomide	Phase 1	The Netherlands	Recruiting	Feb 2015	Aug 2016
NCT02432417	Glioblastoma, Astrocytoma (Grade IV)	CQ, Radiotherapy	Phase 2	Not provided	Not yet recruiting	Apr 2015	Apr 2016

Table 3. continued.

NCT03243461	Glioblastoma WHO Grade IV, Diffuse Mid-line Glioma Histone 3 K27M, WHO Grade IV Anaplastic Astrocytoma WHO Grade III, Diffuse Intrinsic Pontine Glioma, Gliomatosis Cerebri	Radiochemotherapy with Temozolomide, Valproic Acid or Chloroquine	Phase 3	Germany	Not yet recruiting	Aug 2017	Oct 2017
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Table 4. Information on clinical trials investigating HCQ use in cancer (Source: ClinicalTrials.gov).

ClinicalTrials.gov ID	Type of cancer	Intervention	Study Phase	Location	Status	First received	Last verified
NCT00765765	Breast cancer	HCQ, Ixabepilone	Phase 1 - 2	US	Terminated, has results	Oct 2008	Nov 2013
NCT00786682	Prostate cancer	HCQ, Docetaxel	Phase 2	US	Terminated, has results	Nov 2008	Sept 2013
NCT00728845	Lung cancer	HCQ, Bevacizumab, Carboplatin, Paclitaxel	Phase 1 - 2	US	Terminated, has results	Aug 2008	Sept 2013
NCT01026844	Non-small cell lung cancer	HCQ, Erlotinib	Phase 1	US	Terminated, has results	Dec 2009	June 2013
NCT01842594	Soft tissue sarcoma	HCQ, Sirolimus	Phase 2	Taiwan	Terminated, has results	Dec 2012	Oct 2015
NCT01144169	Renal cell carcinoma	HCQ (prior to surgery)	Phase 1	US	Terminated	June 2010	Oct 2016
NCT01417403	Bone metastases unspecified adult solid tumour	HCQ, Radiation therapy	Phase 1	US	Terminated	Aug 2011	Feb 2015
NCT00771056	B-cell chronic lymphocytic leukaemia	HCQ	Phase 2	US	Terminated	Oct 2008	Aug 2016
NCT00714181	Unspecified adult solid tumour	HCQ, Temozolomide	Phase 1	US	Completed	July 2008	Feb 2016
NCT01396200	Multiple myeloma	HCQ, Rapamycin, Cyclophosphamide, Dexamethasone	Phase 0	US	Completed	July 2011	Feb 2013
NCT01634893	Refractory or relapsed solid tumours	HCQ, Sorafenib	Phase 1	US	Completed	July 2012	Mar 2016
NCT01828476	Prostate cancer	HCQ, Abiraterone, ABT-263	Phase 2	US	Completed	Mar 2013	Mar 2016
NCT01006369	Colorectal cancer	HCQ, Bevacizumab, FOLFOX6, XELOX regimen (capecitabine, oxaliplatin)	Phase 2	US	Suspended	Oct 2009	Dec 2014

Table 4. continued.

NCT00726596	Prostate cancer	HCQ	Phase 2	US	Ongoing	July 2008	Dec 2015
NCT00813423	Adult solid neoplasm	HCQ, Sunitinib malate	Phase 1	US	Ongoing	Dec 2008	Nov 2016
NCT00909831	Unspecified adult solid tumour	HCQ, Temsirrolimus	Phase 1	US	Ongoing	May 2009	Feb 2016
NCT00962845	Melanoma	HCQ (prior to surgery)	Phase 0	US	Ongoing	Aug 2009	July 2016
NCT00977470	Non-small cell lung cancer	HCQ, Erlotinib	Phase 2	US	Ongoing	Sept 2009	Sept 2016
NCT01128296	Pancreatic cancer	HCQ, Gemcitabine (prior to surgery)	Phase 1 - 2	US	Ongoing	May 2010	Jan 2015
NCT01273805	Pancreatic cancer	HCQ	Phase 2	US	Ongoing	Jan 2011	Jan 2016
NCT01480154	Advanced solid tumours, melanoma, prostate or kidney cancer	HCQ, Akt Inhibitor MK2206	Phase 1	US	Ongoing	Nov 2011	Feb 2016
NCT01689987	Relapsed or refractory multiple myeloma	HCQ, Cyclophosphamide, Dexamethasone, Sirolimus	Phase 1	US	Ongoing	Sept 2012	Aug 2016
NCT01897116	Melanoma	HCQ, Vemurafenib	Phase 1	US	Ongoing	June 2013	July 2016
NCT02421575	Prostate cancer	HCQ (before prostatectomy or local therapy)	Phase 0	US	Ongoing	Dec 2014	July 2016
NCT01494155	Pancreatic cancer	HCQ, Capecitabine, Radiation: Proton or Photon Radiation Therapy	Phase 2	US	Ongoing	July 2011	Sept 2016
NCT01602588	Glioblastoma	HCQ, Short Course radiotherapy	Phase 2	UK	Ongoing	May 2012	Nov 2016
NCT02470468	Stage IV non-small cell lung cancer	DCVAC, Standard of Care Chemotherapy (Carboplatin, Paclitaxel), Immune enhancers (Interferon- α and HCQ)	Phase 1 - 2	Czech Republic and Slovakia	Ongoing	June 2015	Nov 2016
NCT01023737	Malignant solid tumour	HCQ, Vorinostat	Phase 1	US	Recruiting	July 2009	Sept 2016
NCT01206530	Colorectal cancer	HCQ, Oxaliplatin, Leucovorin, 5-fluorouracil, Bevacizumab	Phase 1 - 2	US	Recruiting	Sept 2010	Sept 2016

Table 4. continued.

NCT01266057	Advanced cancers	HCQ, Sirolimus, Vorinostat	Phase 1	US	Recruiting	Dec 2010	Nov 2016
NCT01510119	Renal cell carcinoma	HCQ, RAD001	Phase 1 - 2	US	Recruiting	Jan 2012	Dec 2015
NCT01506973	Advanced and metastatic adenocarcinoma	HCQ, Gemcitabine/abiraxane	Phase 1 - 2	US	Recruiting	Jan 2012	Sept 2016
NCT01550367	Metastatic renal cell carcinoma	HCQ, IL-2	Phase 1 - 2	US	Recruiting	Feb 2012	May 2015
NCT01649947	Non-small cell lung cancer	HCQ, Paclitaxel, Carboplatin, Bevacizumab	Phase 2	US	Recruiting	July 2012	July 2016
NCT01978184	Pancreatic cancer	HCQ, Gemcitabine, Abraxane	Phase 2	US	Recruiting	Oct 2013	Dec 2015
NCT02013778	Hepatocellular carcinoma	HCQ, TACE	Phase 1 - 2	US	Recruiting	Dec 2013	Sept 2016
NCT02232243	Solid tumour	HCQ (prior to surgery)	Phase 1	US	Recruiting	Sept 2014	Oct 2016
NCT02257424	Advanced BRAF mutant melanoma	HCQ, Dabrafenib, Trametinib	Phase 1 - 2	US	Recruiting	Oct 2014	June 2016
NCT02316340	Colorectal cancer	HCQ, Vorinostat, Regorafenib	Phase 2	US	Recruiting	Dec 2014	Sept 2016
NCT02414776	Oestrogen receptor positive breast cancer	HCQ, Hormonal therapy	Phase 1 (1b/2)	US	Recruiting	Jan 2015	Apr 2015
NCT02631252	Acute myeloid leukaemia	HCQ, Mitoxantrone, Etoposide	Phase 1	US	Not yet recruiting	Dec 2015	Dec 2015
NCT02722369	Small cell lung cancer	HCQ, Gemcitabine, Carboplatin, Etoposide	Phase 2	Not provided	Not yet recruiting	Mar 2016	Nov 2016
NCT00486603	Brain and central nervous system tumours	HCQ, Temozolomide, Radiation	Phase 1 - 2	US	Unknown	June 2007	May 2012
NCT00568880	Multiple myeloma and plasma cell neoplasms	HCQ, Bortezomib	Phase 3	US	Unknown	Dec 2007	July 2009
NCT00809237	Non-small cell lung cancer	HCQ, Gefitinib	Phase 1 - 2	Singapore	Unknown	Dec 2008	Dec 2013
NCT01227135	Chronic myeloid leukaemia	HCQ, Imatinibmesylate	Phase 2	UK	Unknown	Oct 2010	Nov 2011
NCT01292408	Breast cancer	HCQ	Phase 2	The Netherlands	Unknown	Dec 2010	Jan 2012

Abbreviations: FOLFOX6 (folinic acid – 5- fluorouracil – oxaliplatin), XELOX (capecitabine – oxaliplatin), IL-2 (interleukin-2), TACE (trans catheter arterial chemoembolisation), DCVAC (dendritic-cell based immunotherapy)

Table 5. Publications reporting clinical trial results on CQ use in cancer.

Article	Tumour type	Phase	Intervention	CQ dose	# patients	Therapeutic response
Briceño <i>et al</i> [38]	Glioblastoma multiforme	Unknown	CQ + conventional cancer treatment	150 mg/day	18 (9 CQ + 9 control)	Positive
Sotelo <i>et al</i> [39]	Glioblastoma multiforme	Phase 3	CQ + conventional cancer treatment	150 mg/day	30 (15 CQ + 15 control)	Partial
Briceño <i>et al</i> [41]	Glioblastoma multiforme	Retrospective study based on patient data	CQ + conventional cancer treatment	150 mg/day	123 (41 CQ + 82 control)	Positive
Rojas-Puentes <i>et al</i> [43]	Brain metastases	Phase 2	CQ + radiotherapy	150 mg/day	73 (39 CQ + 34 control)	Partial
Eldredge <i>et al</i> [44]	Brain metastases	Unknown	CQ + radiotherapy	250 mg/day	20 (all CQ, no control)	Partial
Montanari <i>et al</i> [49]	Relapsed and refractory multiple myeloma	Phase 1 - 2	CQ + bortezomib + cyclophosphamide	500 mg/day	8 (all CQ, no control)	Partial
Kyle <i>et al</i> [50]	Multiple myeloma	Unknown	CQ + prednisone + cyclophosphamide + caffeine	2x 250 mg/day	38 (18 CQ + 20 control)	Absent

Table 6. Publications reporting clinical trial results on HCQ use in cancer.

Article	Tumour type	Phase	Intervention	HCQ dose	# patients	Therapeutic response
Rangwala <i>et al</i> [51]	Advanced solid tumours and melanoma	Phase 1	HCQ + temsirolimus	RD: 2x 600 mg/day	39 (all HCQ, no control)	Partial
Rangwala <i>et al</i> [52]	Advanced solid tumours and melanoma	Phase 1	HCQ + temozolomide	RD: 2x 600 mg/day	40 (all HCQ, no control)	Partial
Mahalingam <i>et al</i> [53]	Advanced solid tumours	Phase 1	HCQ + vorinostat	MTD: 600 mg/day	27 (all HCQ, no control)	Partial
Chi <i>et al</i> [54]	Stage IV solid tumours	Pilot	HCQ + sirolimus + chemotherapy	400 mg/day	25 (all HCQ, no control)	Partial
Rosenfeld <i>et al</i> [55]	GBM	Phase 1-2	HCQ + radiotherapy + temozolomide	MTD: 600 mg/day	92 (all HCQ, no control)	Absent
Goldberg <i>et al</i> [57]	Advanced NSCLC	Phase 1	HCQ + erlotinib	RD: 1000 mg/day	27 (all HCQ, no control)	Partial
Vogl <i>et al</i> [59]	Relapsed and refractory multiple myeloma	Phase 1	HCQ + bortezomib	RD: 2x 600 mg/day	25 (all HCQ, no control)	Partial
Boone <i>et al</i> [60]	Pancreatic adenocarcinoma	Phase 1-2	HCQ + gemcitabine	RD: 1200 mg/day	35 (all HCQ, no control)	Partial
Wolpin <i>et al</i> [61]	Metastatic pancreatic adenocarcinoma	Phase 2	HCQ	400 and 600 mg/day	20 (all HCQ, no control)	Absent
Chi <i>et al</i> [62]	Sarcoma	Phase 2	HCQ + sirolimus	2x 200 mg/day	10 (all HCQ, no control)	Absent, study was closed prematurely

Abbreviations: MTD (maximal tolerated dose), RD (recommended dose), NSCLC (non-small cell lung cancer)