

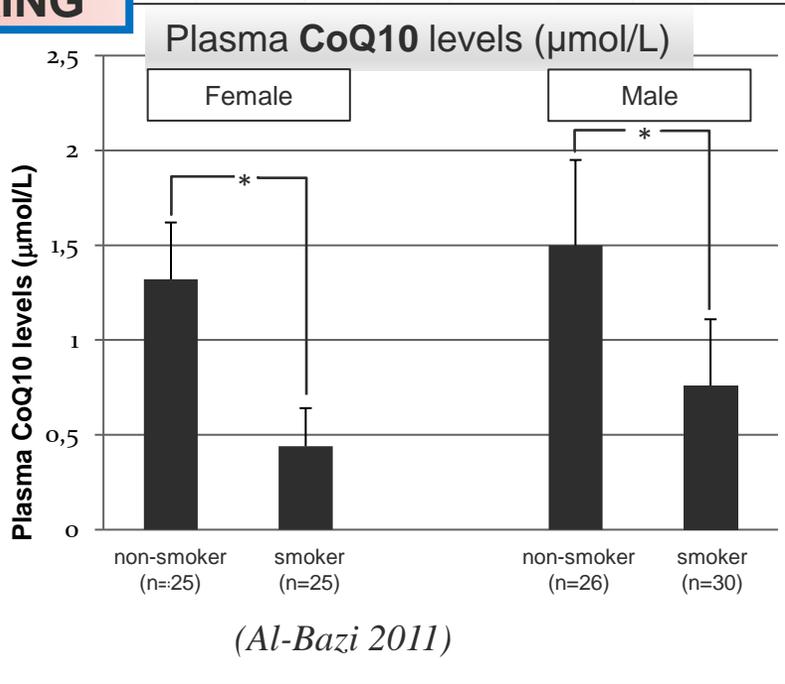
2020

*Q10 bioenergetic drink
for cancer patients*

★ Q IS GOOD ★

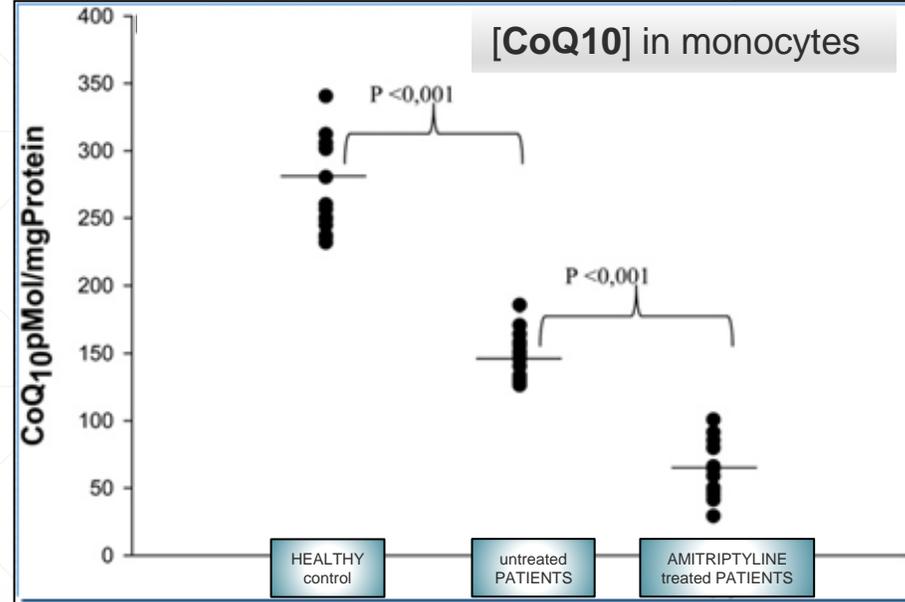


in SMOKING



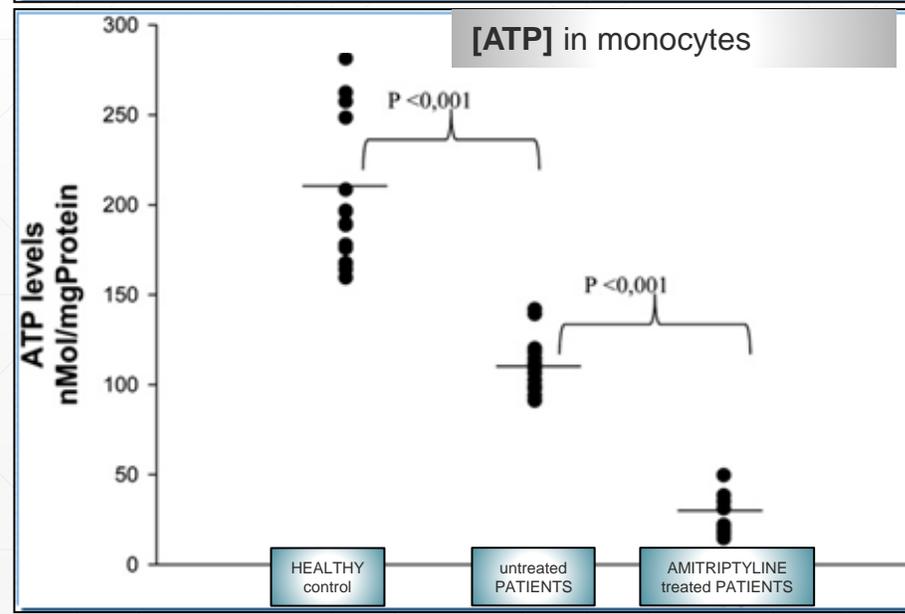
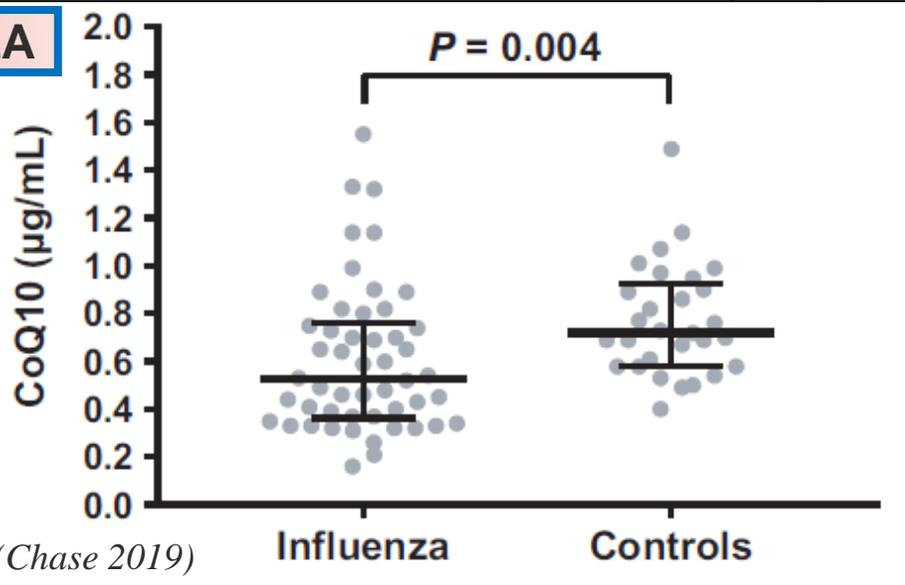
in MEDICATION taking patients

Tricyclic antidepressant (amitriptyline)



(Moreno-Fernández 2012)

in INFLUENZA



Q10 tissue deficiency as a risk factor

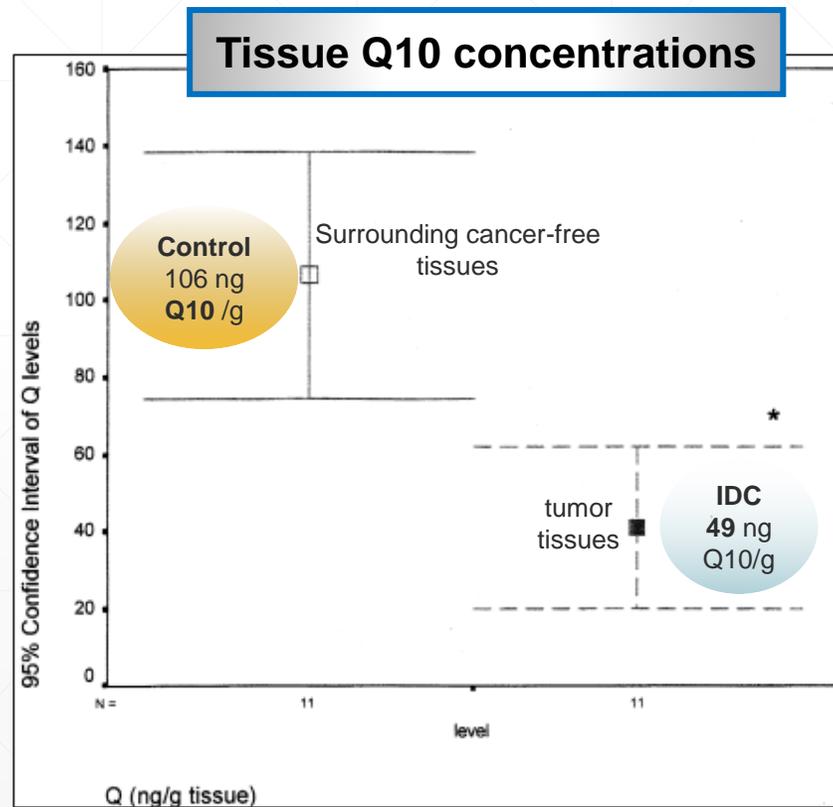
Study group:

21 breast cancer patients that underwent radical mastectomy and diagnosed with infiltrative ductal carcinoma

Conclusion:

Q10 levels in tumor tissues of the breast were lower than surrounding tumor-free tissues

This could reflect consumption of Q10 against peroxidative damage in tumor tissues



Q10 (Q) concentrations in **infiltrative ductal carcinoma (IDC)** group significantly decreased compared to the **controls**. Each bar represents the mean values \pm standard error (SE) of coenzyme Q10 levels. *Significant at $p < 0.001$

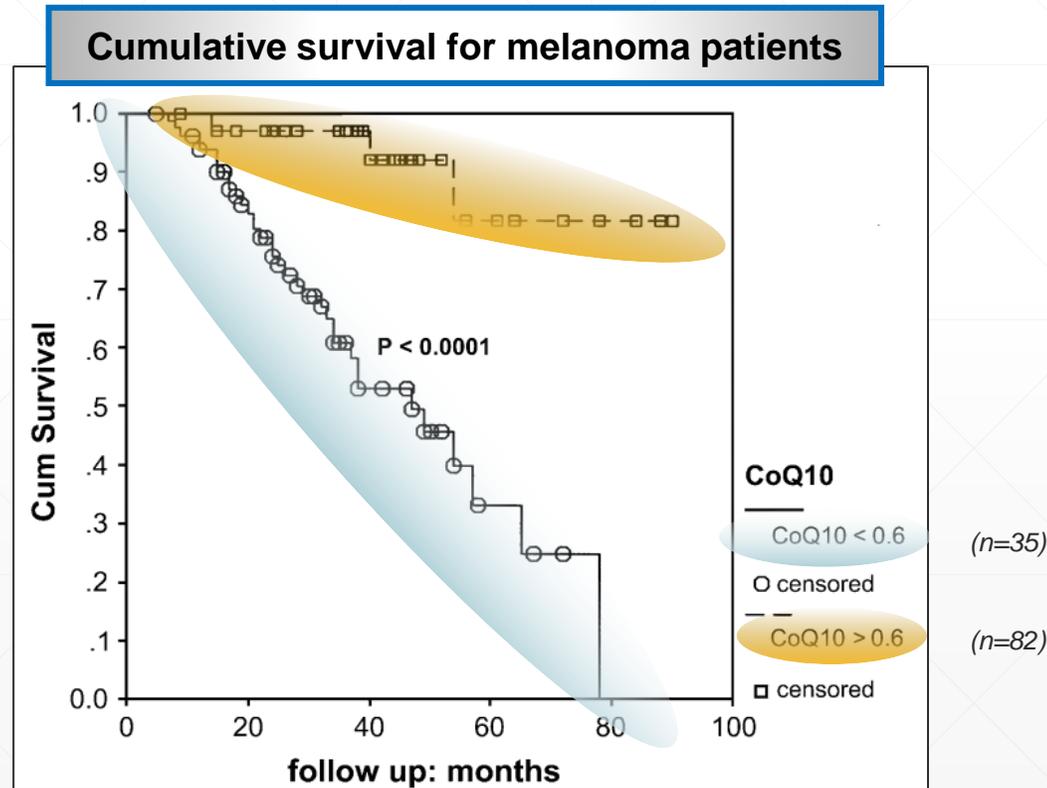
Q10 predictor of future metastases in melanoma patients

Study group:

117 melanoma patients without clinical or instrumental evidence of metastasis according to *American Joint Committee on Cancer criteria*

Conclusion:

Baseline plasma CoQ10 levels are a powerful and independent prognostic factor that can be used to estimate the risk for melanoma progression



(Rusciani 2006)

Q10 enhances DNA repair enzyme activity

Study group:

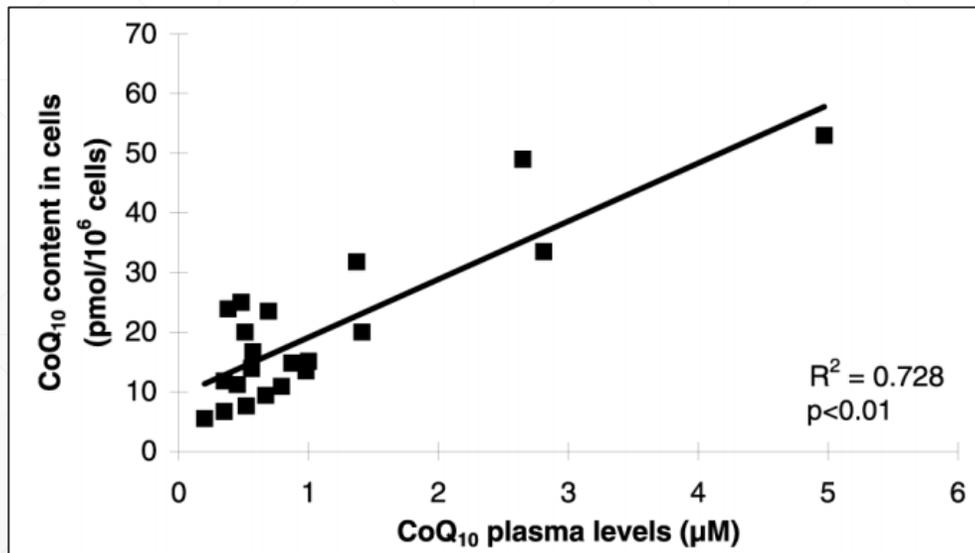
Six healthy non-smoking volunteers (3 males, 3 females), 20–50 years old
1 week 100 mg Q10/day and 1 week 300 mg Q10/day

Conclusion:

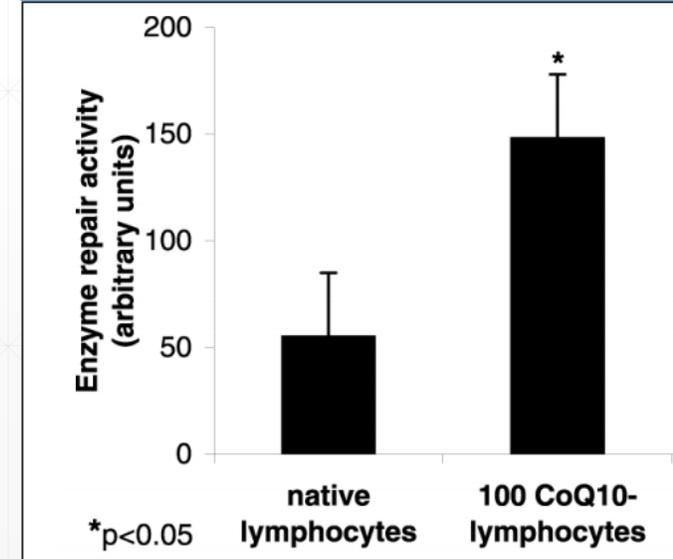
Q10 supplementation

- Increases Q10 plasma levels
- Increases Q10 lymphocyte content
- enhances DNA repair enzyme activity in ex-vivo primary lymphocyte culture.

Linear correlation between plasma and lymphocyte Q10 content



Enzyme repair activity in native and CoQ10 in vivo enriched lymphocytes



(Tomasetti 2001)

Q10 reduces serum tumor markers

Study group:

84 breast cancer patients & 46 matched healthy controls randomized to daily 100 mg **Coenzyme Q10**, 10 mg **Riboflavin** and 50 mg **Niacin (CoRN)** along with 10 mg **tamoxifen (TAM)** twice a day

Conclusion:

Supplementing Q10 (*and riboflavin and Niacin*) to breast cancer patients along with tamoxifen reduces the serum tumour marker level and thereby reduces the risk of cancer recurrence and metastases

Effect of CoRN Supplementation on Tumour Marker Levels in Breast Cancer Patients

Groups	CEA levels ($\mu\text{g/l}$)	CA 15-3 levels (U/ml)
Group I (46) Control, normal, age-matched women	1.07 \pm 0.18	5.59 \pm 1.36
Group II (84) Pre-treatment, untreated breast cancer women	18.45 \pm 4.13 ^{a*}	50.33 \pm 12.75 ^{a*}
Group III (84) Treatment with tamoxifen	7.8 \pm 3.2 ^{b*,c*}	36.42 \pm 9.64 ^{b*,c*}
Group IV (84) 45 d after treatment with CoRN along with tamoxifen	5.12 \pm 1.52 ^{d*}	26.09 \pm 7.23 ^{d*}
Group V (84) 90 d after treatment with CoRN along with tamoxifen	3.8 \pm 1.5 ^{e*,f,NS}	18.22 \pm 4.67 ^{e*,f,NS}

Values are expressed as mean \pm S.D. Number of subjects are indicated in parentheses. Comparisons were made between: a, Group I and Group II; b, Group II and Group III; c, group I and III; d, Group III and IV; e, Group III and V; f, Group I and V. Statistical significance expressed as; * $p < 0.05$; not significant as NS.

Circulating breast cancer tumor markers

Q10 enhances cancer cells sensitivity to chemotherapy and radiation

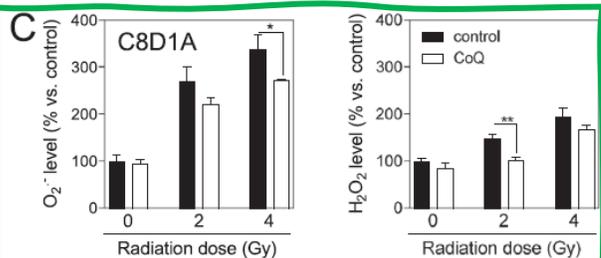
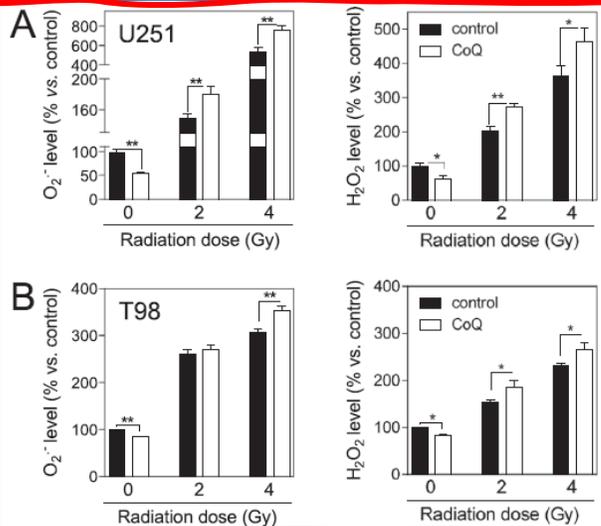
Study design:

Human glioblastoma **U251** and **T98** cells (a deadly form of brain cancer) & normal astrocytes **C8D1A** were loaded with coenzyme Q10

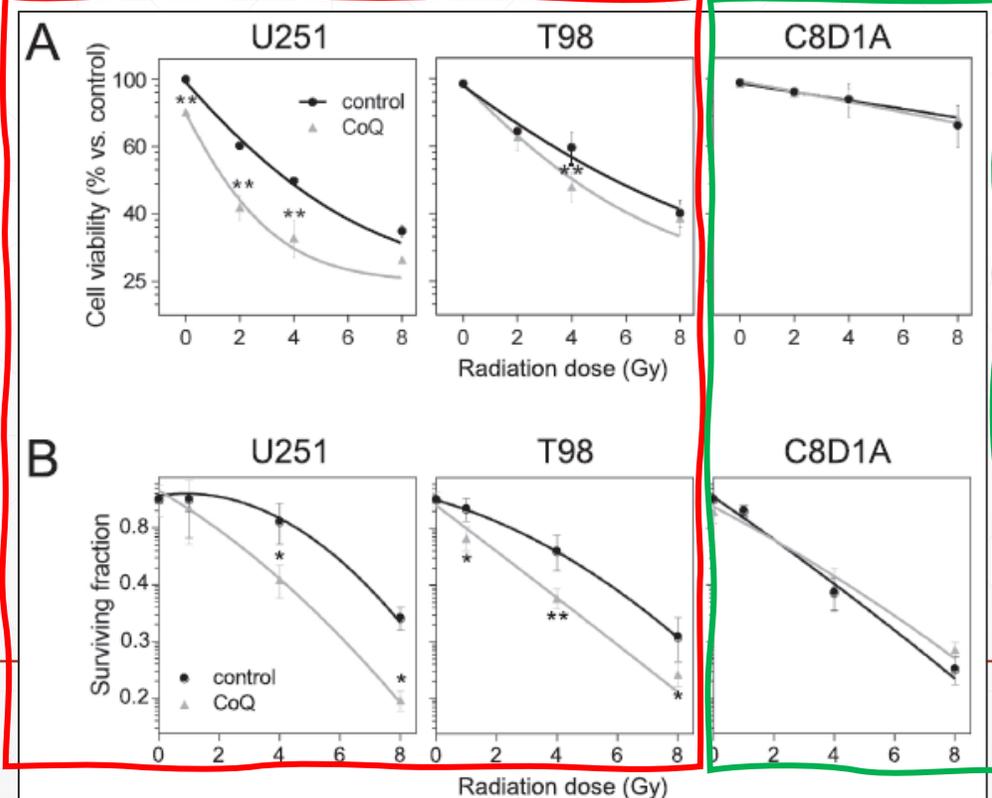
Conclusion:

Q10 treated **cancer cells were twofold more sensitive** than control to radiation-induced DNA damage and apoptosis in short and long-term clonogenic assays, potentiating TMZ-induced cytotoxicity, **without affecting non transformed astrocytes.**

Q10 potentiates radiation-induced rise in O2 and H2O2 levels



Q10 enhances radiation-induced DNA damage and apoptosis



(Frontiñán-Rubio 2018)

Q10 increases the lifespan of cancer patients

Study group:

41 patients with end-stage cancer who were treated with coenzyme Q10 and other antioxidants

Conclusion:

Q10 (300 mg) **prolongs survival** by an average of **seven months**; that is on average 40% longer than expected

Antioxidant treatments as a supplement to their usual cancer therapy

Antioxidants ^a	Daily dosage (divided in two daily doses)
Vitamin C	5.7 mg
α-Tocopherol	1.625 mg
Coenzyme Q ₁₀	300 mg
Selenium (as selenomethionine)	487 mg
Folic acid	5 mg
Vitamin A	25 000 IU
β-Carotene ^b	76 mg

^aIn addition, patients received small amounts of γ-linoleic acid (375 mg) and fish oil (1.5 mg), as well as niacin 45 mg, pantothenic acid 22.5 mg, vitamin B₁₂ 13.5 µg, vitamin B₆ 12.6 mg, vitamin B₂ 8.4 mg and vitamin B₁ 5.4 mg.

^bFor safety reasons, patients with lung cancer did not receive β-carotene.¹⁻³

Expected and actual survival for patients with end-stage cancer who were treated with Q10 and other antioxidants

Patient No.	Sex	Primary cancer	Metastases	Expected survival at inclusion (months)	Achieved survival (months)	Survival in excess of expected (month)
1	Male	Colon	Liver	10	11	1
2	Male	Colon	Liver	12	19	7
3	Male	Oesophagus	Lymph nodes	5	3	-2
4	Male	Oesophagus	Mediastinum	4	5	1
5	Male	Oesophagus	Lymph nodes	5	10	5
6	Male	Oesophagus	Stomach	3	13	10
7	Male	Glioblastoma Grade 4	Incomplete resection	13	16	3
8	Female	Kidney	Both lungs	7	8	1
9	Male	Kidney	Liver	10	25	15
10	Female	Kidney	None, declined operation	12	113	101
11	Male	Lung, non-small-cell	Inoperable	7	3	-4
12	Male	Lung, non-small-cell	Brain	6	3	-3
13	Male	Lung, non-small-cell	Inoperable	9	22	13
14	Male	Lung, non-small-cell	Inoperable	4	19	15
15	Male	Lung, small-cell	Supraclavicular lymph nodes	14	18	4
16	Female	Malignant melanoma	Brain	8	10	2
17	Female	Breast	Lung	14	1	-13
18	Female	Breast	Pleura	12	10	-2
19	Female	Breast	Brain	6	5	-1
20	Female	Breast	Liver	14	15	1
21	Female	Breast	Bones	20	25	5
22	Female	Breast	Pleura and bones	14	21	7
23	Female	Breast	Lungs	14	21	7
24	Female	Breast	Both lungs	10	17	7
25	Female	Breast	Bones	21	33	12
26	Female	Breast	Peritoneum, ovaries	14	34	20
27	Female	Breast	Both lungs, bones	14	37	23
28	Female	Breast	Lung and bones	14	43	29
29	Female	Breast	Bones	21	66	45
30	Female	Breast	Bones	21	82	61
31	Female	Breast	Scull, neurological signs	21	120	99
32	Female	Breast	Pleura	14	111	97
33	Female	Ovary	Liver	10	89	79
34	Female	Pancreas	Regional	5	6	1
35	Male	Pancreas	Regional	4	2	-2
36	Male	Pancreas	Regional	3	13	10
37	Female	Pancreas	Liver	5	25	20
38	Male	Prostate	Bones	28	8	-20
39	Male	Prostate	Bones	27	13	-14
40	Male	Prostate	Bones	29	79	50
41	Male	Stomach	Regional	6	4	-2
		Mean		11.9	28.7	16.8
		Median		12	17	7**

(Hertz, 2009)

**P < 0.002, 95% CI 4.0, 18.5 months (two-tailed Wilcoxon signed rank test).

Conklin 2008: Cancer therapy review

Q10 administered concurrently with anthracyclines (chemotherapy drugs)

- help protect normal cells
- maintains the integrity of mitochondria
- prevents damage to the heart
- enhances the anti-cancer activity of the anthracyclines
- increases the therapeutic ratio

Tafazoli 2017: Systematic review

There is considerable amount of evidence that shows potential benefits of Q10 supplementation for breast cancer patients. Reported benefits include

- potential preventive effects
 - increasing therapy effectiveness
 - amelioration of constitutional symptoms
 - controlling cancer therapy complications
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