

Supplemental Table 1. Cancer-Telomere length association studies

Cancer Type (sample n case/control)	Ethnicity	Study type	Controls	DNA source	DNA extraction	Telomere length method	Risk Association	Reference
Bladder* (53/148)	Caucasian	Retrospective	Population	Buccal	QIAamp	Relative qPCR	Yes, short TL	(1)
Bladder HPFS (123/125)	Primarily Caucasian	Prospective	Population	PBL	QIAamp	Relative qPCR	Yes, short TL	(2)
Bladder NHS (61/67)	Mixed	Prospective	Population	PBL	QIAamp	Relative qPCR	Yes, short TL	(2)
Bladder (135/135)	Caucasian	Retrospective	Hospital based	PBL	NA	Q-FISH	Yes, short TL	(3)
Breast (1122/1147)	Caucasian	Retrospective	Population	PBL	QIAamp	Relative qPCR	No	(4)
Breast (102/50)	Mixed	Retrospective	Population	Whole blood	Genra PureGene (salting out)	Relative qPCR	Yes, long TL	(5)
Breast SEARCH (2243/2181)	Mixed	Retrospective	Population	PBL	Phenol/chloroform	Relative qPCR	No	(6)
Breast EPIC Norfolk (199/420)	Mixed	Prospective	Population	PBL	Phenol/chloroform	Relative qPCR	Yes, short	(6)
Breast (287/350)	European	Retrospective	Family based	PBL	Salting-out	Relative qPCR	No	(7)
Breast 1067/11100	European	Retrospective	Population	PBL	Phenol/Chloroform	Relative qPCR	No	(8)
Breast (256/446)	European	Retrospective	Population	PBL	Breast cancer by QIAamp; and Malmo controls QIAamp;	Relative qPCR	Yes, long TL	(9)

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Cancer Type (sample n case/control)	Ethnicity	Study type	Controls	DNA source	DNA extraction	Telomere length method	Risk Association	Reference
					MONICA controls; Qiagen Flexigene (Column)			
Breast (153/159)	Mixed	Retrospective	Hospital based	PBL	NA	Q-FISH (chr 9)	Yes, short TL	(10)
Breast (152/176)	Mixed	Retrospective	Hospital based	PBL	NA	Q-FISH	No	(11)
Breast (18/35)	Caucasian	Retrospective	Hospital based	PBL	Salting out	Southern blot	Yes, short TL	(12)
Breast (198 familial; 71 sporadic ; 267 controls)	Spanish	Prospective	Hospital based	PBL	MagNA Pure LC 2.0 System (Roche) (Column)	Relative q PCR	Yes, short TL in hereditary cases	(13)
Colorectal (2517/3912)	Caucasian	Prospective	Hospital based	PBL	Magnetic particle DNA kit (Maxwell)[Column]	Relative qPCR	Yes, long TL	(14)
Colorectal SEARCH (2249/2161)	Caucasian	Retrospective	Population	PBL	Phenol/Chloroform	Relative qPCR	No	(6)
Colorectal (185/446)	Caucasian	Prospective	Population	PBL	Phenol/Chloroform		Yes, short TL	(6)
Colorectal (134/357)	Caucasian women	Prospective	Population	PBL	QIAamp	Relative qPCR	No	(15)
Colorectal (191/306)	Caucasian men		Population	Whole blood	QIAamp	Relative qPCR	No	(16)
Colorectal (441/549)	Asian women	Prospective	Population	PBL	QIAamp	Relative qPCR	U shaped	(17)

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Cancer Type (sample n case/control)	Ethnicity	Study type	Controls	DNA source	DNA extraction	Telomere length method	Risk Association	Reference
Endometrial NHS, WHS (130/389)	Caucasian	Prospective	Population	PBL	QIAamp	Relative qPCR	No	(18)
Esophageal (94/94)	Caucasian	Retrospective	Hospital based	PBL	QIAamp	Relative qPCR	Yes, short TL chr 17p,12p but not 11q	(19)
Esophageal (300 Barrett's, 38 cancer)	Not specified	Prospective	Hospital based	PBL	Salting out	Relative qPCR	Yes, short TL	(20)
Gastric (300/416)	Caucasian (Poland)	Retrospective	population	PBL	Phenol/Chloroform	Relative qPCR	Yes, short TL	(21)
Gastric (398/378)	Asian	Retrospective	Hospital based	Whole blood	Omega Bio-Tek EZNA midi Column	Relative qPCR	Yes, short TL	(22)
Head & neck (92/92)	Caucasian	Retrospective	Hospital based	PBL	NA for Q-FISH; Not specified for Southern blot	Q-FISH, Southern blot	Yes, short TL	(3)
Incident cancer (92/787)	European	Prospective	Population	PBL	Invisorb (carrier binding and isopropanol)	Relative qPCR	Yes, short TL	(23)
Lung (120/110)	Asian	Prospective	Population	Sputum	Phenol chloroform	Relative qPCR	No	(24)
Lung (243/243)	Asian	Retrospective	Hospital based	PBL	Autogen Quick gene (salting out) solution or column based	Relative qPCR	Yes, short TL	(25)
Lung (54/54)	Caucasian	Retrospective	Hospital based	PBL	NA for Q-FISH; Not specified for Southern	Q-FISH, Southern	Yes, short TL	(3)

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Cancer Type (sample n case/control)	Ethnicity	Study type	Controls	DNA source	DNA extraction	Telomere length method	Risk Association	Reference
NHL (107/107)	Caucasian	Prospective	Population	Whole blood	blot Phenol/Chloroform	blot Southern blot	Yes, long TL	(26)
NHL (40/40)	Caucasian	Prospective	Hospital based	PBL	NA	Q-FISH	Yes, short TL	(27)
Osteosarcoma (69/69)	Mixed PLCO	Retrospective	Population	PBL	Genra AutoPure (Salting out)	Relative qPCR	Yes, short TL	(28)
Ovarian (99/100)	European (Polish)	Retrospective	Population	PBL	Genra AutoPure (Salting out)	Relative qPCR	Yes, short TL (serous cases)	(29)
Ovarian (178 sporadic; 168 hereditary; 267 controls)	European European European	Prospective Prospective Prospective	Population Hospital based Population	PBL	Sporadic: Phenol Chloroform Hereditary and Controls: MagNA Pure LC 2.0 System (Roche) [Column]	Relative qPCR	Yes, short TL	(30)
Pancreas (499/963)	Caucasian	Retrospective	Hospital based	PBL	PureGene (Salting out)	qPCR	Yes, short TL	(31)
Prostate (612/1049)	Mixed PLCO	Retrospective	Population	PBL	QIAamp	Relative qPCR	No (but yes with lifestyle factors)	(32)
Renal (65/65)	Mixed	Retrospective	Hospital based	PBL	NA	Q-FISH	Yes, short TL	(33)
Renal (32/32)	Caucasian	Retrospective	Hospital based	PBL	NA	Q-FISH	Yes, short TL	(3)
Renal Cell (891/894)	Mixed	Prospective	Population	Whole blood;	QIAamp	Relative qPCR	No	(34)

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Cancer Type (sample n case/control)	Ethnicity	Study type	Controls	DNA source	DNA extraction	Telomere length method	Risk Association	Reference
				PBL				
Skin BCC HPFS	Primarily Caucasian	Prospective	Population	PBL	QIAamp	Relative qPCR	No	(35)
Skin BCC NHS1, 2 (260/260, 363/1683)	Mixed?	Prospective	Population	PBL	QIAamp	Relative qPCR	No	(35)
Skin SCC NHS,HPFS (241/241)	Primarily Caucasian	Prospective	Population	PBL	QIAamp	Relative qPCR	No	(35)
Skin SCC NHS (285/870)	European	Prospective	Population	PBL	QIAamp	Relative qPCR	No	(36)
Skin Melanoma NHS (218/870)	European	Prospective	Population	PBL	QIAamp	Relative qPCR	Yes, longer TL	(36)
Skin Melanoma includes NHS (203/222)	European	Prospective	Population	PBL	QIAamp	Relative qPCR	Shorter TL, decreased risk	(37)
WHI-OS (233/237)								
HPFS (120/120)								

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Sample n: number of samples for cases/controls; Bladder*: urinary bladder; NHL: Non-Hodgkin's lymphoma; BCC: basal cell cancer; SCC: squamous cell cancer; PBL: peripheral blood leukocyte; TL: telomere length; qPCR: quantitative polymerase chain reaction; Q-FISH : quantitative fluorescence in situ hybridization; NA: not applicable.

Supplemental Table 2: Validation Set: Differences in Peripheral Blood RTL by DNA Extraction Method (Southern Blots)

Sample	Extraction Method	N	Mean (SD)	Base Pairs	
				Minimum	Maximum
All	Phenol/Chloroform	16	1.18 (0.55)	0.52	2.27
	PureGene	16	1.49 (0.57)	0.78	3.15
	QiaAmp	17	1.20 (0.49)	0.68	2.33

RTL: Relative Telomere Length (T/S ratio); SD: Standard Deviation

Supplemental Table 3: Fixed Effects and Variance Estimates of relative telomere length (log T/S ratio) by Extraction Method (Southern Blots)

	Fixed Effects		
	(SE)	p-value	Residual Variance
Intercept	8.77 (0.03)		--
Phenol/Chloroform	-0.01 (0.03)	0.721	0.015
PureGene	0.08 (0.03)	0.008	0.010
QiaAmp	REFERENCE		0.004

SE: Standard Error

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