

**Received: 6.15.09**  
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**Project Title** Telomere Length and Risk for Second Malignancy in Pediatric Cancer Survivors  
**Planned research population (eligibility criteria)** Subject Population: By searching the CCSS database, we have identified 5790 buccal cell samples from childhood cancer survivors. Within this population, 384 individuals have documented second malignancies. Inclusion Criteria: All individuals, male and female, who are childhood cancer survivors and have a germ line sample available in the form of buccal DNA. Exclusion Criteria: None. Requested Variables: Sex Ethnicity Family history of malignancy Cancer Diagnosis Second Cancer Diagnosis(es) (if applicable) Age at first cancer diagnosis (and second, third, fourth, if applicable) Age at time of sample donation Tobacco exposure history Chemotherapy Protocol and list of agents History of exposure to fractionated total body irradiation and/or stem cell transplantation

**Proposed specific aims** Primary Aim: To investigate the relationship between buccal cell telomere length and incidence of second malignancy in childhood cancer survivors. Objectives: 1. To determine if, after adjustment for age at time of sample donation and tobacco exposure, shortened telomere length in buccal DNA samples from childhood cancer survivors correlates with incidence of second malignancy. 2. To assess whether buccal DNA telomere length is related to type and dose of chemotherapy received, including exposure to stem cell transplantation. Hypothesis: We hypothesize that shortened telomeres will be associated with both increased chemotherapy/radiation exposure as well as increased incidence of second malignancy in childhood cancer survivors.

**Will the project require non-CCSS funding to complete?** Yes

**If yes, what would be the anticipated source(s) and timeline(s) for securing funding?** Dr. Gramatges has been accepted into the faculty fellowship program at Baylor, and has research funding set aside by the university for her project.

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Does this project require contact of CCSS study subjects for . . .

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**Additional self-reported information** No

**Biological Samples** No

**Medical record data** Yes

**If yes to any of the above, please briefly describe.** Only if the data requested is not included in the CCSS research database.

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What CCSS Working Group(s) would likely be involved? (Check all that apply)

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**Second Malignancy**

Primary - Yes                      Secondary - No

**Chronic Disease**

Primary - No                      Secondary - No

**Reproductive**

Primary - No                      Secondary - No

**Neurologic**

Primary - No

Secondary - No

**Psychology / Neuropsychology**

Primary - No

Secondary - No

**Genetics**

Primary - No

Secondary - Yes

**Cancer Control**

Primary - No

Secondary - No

**Epidemiology / Biostatistics**

Primary - No

Secondary - Yes

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To describe the anticipated scope of the study, please indicate the specific CCSS data to be included as outcome (primary or secondary) or correlative factors. (Check all that apply)

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**Late mortality**

Primary - No

Secondary - No

Correlative Factors - No

**Second Malignancy**

Primary - Yes

Secondary - No

Correlative Factors - No

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**Health Behaviors**


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**Tobacco**

Primary - No

Secondary - No

Correlative Factors - Yes

**Alcohol**

Primary - No

Secondary - No

Correlative Factors - No

**Physical activity**

Primary - No

Secondary - No

Correlative Factors - No

**Medical screening**

Primary - No

Secondary - No

Correlative Factors - No

**Other**

Primary - No

Secondary - No

Correlative Factors - No

**If other, please specify**


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**Psychosocial**


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**Insurance**

Primary - No

Secondary - No

Correlative Factors - No

**Marriage**

Primary - No

Secondary - No

Correlative Factors - No

**Education**

Primary - No

Secondary - No

Correlative Factors - No

**Employment**

Primary - No

Secondary - No

Correlative Factors - No

**Other**

Primary - No

Secondary - No

Correlative Factors - No

**If other, please specify**

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Medical conditions

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**Hearing/Vision/Speech**

Primary - No

Secondary - No

Correlative Factors - No

**Hormonal systems**

Primary - No

Secondary - No

Correlative Factors - No

**Heart and vascular**

Primary - No

Secondary - No

Correlative Factors - No

**Respiratory**

Primary - No

Secondary - No

Correlative Factors - No

**Digestive**

Primary - No

Secondary - No

Correlative Factors - No

**Surgical procedures**

Primary - No

Secondary - No

Correlative Factors - No

**Brain and nervous system**

Primary - No

Secondary - No

Correlative Factors - No

**Other**

Primary - No

Secondary - No

Correlative Factors - No

**If other, please specify**

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Medications

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**Describe medications**

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**Pregnancy and offspring**

Primary - No

Secondary - No

Correlative Factors - No

**Family History**

Primary - No

Secondary - No

Correlative Factors - Yes

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**Psychologic/Quality of Life**

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**BSI-18**

Primary - No

Secondary - No

Correlative Factors - No

**SF-36**

Primary - No                      Secondary - No                      Correlative Factors - No

**CCSS-NCQ**

Primary - No                      Secondary - No                      Correlative Factors - No

**PTS**

Primary - No                      Secondary - No                      Correlative Factors - No

**PTG**

Primary - No                      Secondary - No                      Correlative Factors - No

**Other**

Primary - No                      Secondary - No                      Correlative Factors - No

**If other, please specify**

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**Chronic conditions (CTCAE v3)**

Primary - No                      Secondary - No                      Correlative Factors - No

**Health status**

Primary - No                      Secondary - No                      Correlative Factors - No

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Demographic

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**Age**

Primary - No                      Secondary - No                      Correlative Factors - Yes

**Race**

Primary - No                      Secondary - No                      Correlative Factors - Yes

**Sex**

Primary - No                      Secondary - No                      Correlative Factors - Yes

**Others**

Primary - No                      Secondary - No                      Correlative Factors - No

**If others, please specify**

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Cancer treatment

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**Chemotherapy**

Correlative Factors - Yes

**Radiation therapy**

Correlative Factors - Yes

**Surgery**

Correlative Factors - No

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Anticipated sources of statistical support

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**CCSS Statistical Center** Yes

**Local institutional statistician**

**If local, please provide the name(s) and contact information of the statistician(s) to be involved.**

**Will this project utilize CCSS biologic samples?** Yes

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If yes, which of the following?

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**Buccal cell DNA** Yes

**Peripheral blood**

**Lymphoblastoid cell lines**

**Second malignancy pathology samples**

**Other requiring collection of samples**

**If other, please explain**

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**Other general comments** This proposed analysis utilizes real-time PCR to determine relative telomere length, and requires less than 20ng of DNA per sample. Buccal cell samples should provide ample DNA for this project.