**Section: Contact Information**

First Name: Liang  
Last Name: Zhu  
Institution: St. Jude Children's Research Hospital  
Address 1: MS 768, Room R6031  
Address 2: 262 Danny Thomas Place  
City: Memphis  
State/Province/Region: TN  
Country: US  
Zip/Postal Code: 38105-3678  
Phone Number: 9015955240  
Alternate Phone Number:  
Email Address: liang.zhu@stjude.org

**Section: Project Requirements and Description**

**Group: Requirements to submit AOI**

A comprehensive review of previously published data has been completed. : Yes  
The specific aims are clear and focused. : Yes  
The investigator has appropriate experience and expertise to develop the concept proposal; if not, has identified a mentor or senior co-investigator. : Yes  
The investigator agrees to develop an initial draft of the concept proposal within 6 weeks of approval of the AOI and to finalize the concept proposal within 6 months. : Yes  
Project Title: Statistical analysis for various outcome measures in recurrent event study

**Planned research population (eligibility criteria):**

**Proposed specific aims:**

Aim 1 - Develop likelihood-based semiparametric estimation methods for regression analysis of panel binary data and apply them to CCSS and SOF data.  
Aim 2 - Develop likelihood-based semiparametric estimation methods for regression analysis of panel ordinal data and apply them to CCSS and SOF data.  
Aim 3 - Develop likelihood-based semiparametric estimation methods for regression analysis of mixed panel binary/ordinal/count data and recurrent event data and apply them to CCSS and SOF data.

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? :  
It will be submitted for NCI R03 support. The anticipated date for securing funding is July 01, 2016

**Group: Does this project require contact of CCSS study subjects for:**

Additional self-reported information : No  
Biological samples : No  
Medical record data : No
If yes to any of the above, please briefly describe.

**Group: What CCSS Working Group(s) would likely be involved? (Check all that apply)**
- Second Malignancy
- Chronic Disease
- Psychology / Neuropsychology
- Genetics
- Cancer Control
- Epidemiology / Biostatistics: Primary

**Section: Outcomes or Correlative Factors**
- Late mortality
- Second Malignancy

**Group: Health Behaviors**
- Tobacco
- Alcohol
- Physical activity
- Medical screening
- Other
- If other, please specify

**Group: Psychosocial**
- Insurance
- Marriage
- Education
- Employment
- Other
- If other, please specify

**Group: Medical Conditions**
- Hearing/Vision/Speech
- Hormonal systems
- Heart and vascular
- Respiratory
- Digestive
- Surgical procedures
- Brain and nervous system
- Other
- If other, please specify

**Group: Medications**
- Describe medications
**Group: Psychologic/Quality of Life**

- BSI-18
- SF-36
- CCSS-NCQ
- PTS
- PTG
- Other
- If other, please specify

**Group: Other**

- Pregnancy and offspring: **Primary**
- Family history:
- Chronic conditions (CTCAE v3): **Secondary**
- Health status:

**Group: Demographic**

- Age:
- Race:
- Sex:
- Other:
- If other, please specify:

**Group: Cancer treatment**

- Chemotherapy:
- Radiation therapy:
- Surgery:

**Section: Anticipated Sources of Statistical Support**

- CCSS Statistical Center:
- Local institutional statistician: **Yes**
- If local, please provide the name(s) and contact information of the statistician(s) to be involved:
  - Liang Zhu: liang.zhu@stjude.org
  - Deo Kumar Srivastava: Kumar.Srivastava@STJUDE.ORG
  - Yutaka Yasui: yyasui@ualberta.ca

- Will this project utilize CCSS biologic samples?: **No**
- If yes, which of the following?:
- If other, please explain:

**Section: Other General Comments**

- Other General Comments: