NIH Award from the Eunice Kennedy Shriver National Institute of Child Health and Human Development

Principal investigator: Jian-Jun Wei, pathology
Feinberg School of Medicine

- Project: Racial Disparity for miRNAs in Uterine Leiomyomas
- Start Date: May 8, 2009
- Total Award Amount: $90,250

How the results of this project will benefit society:
African American women have a higher rate, larger size and worse morbidity of uterine leiomyomata (ULM) (benign tumors of smooth muscle) than white women. Identification of the genetic variants and differences in gene expression in these tumors of different races will greatly benefit our understanding of the molecular basis of disease risk.

The problem the project is trying to solve:
We intend to identify the molecular differences in uterine leiomyomas between African American and white women. Identification of the genetic variants and differences in gene expression in ULM of different races will greatly benefit our understanding of the molecular basis of disease risk.

How this project will work:
MicroRNAs are a group of small non-coding RNAs that are associated with tumorigenesis in many benign and malignant tumors. In our previous pilot study, we found some microRNAs were significantly differentially expressed in ULM between African American and white women. To determine whether the differentially expressed microRNAs in ULM of different races can be used as markers for risk evaluation in this study, we intend to validate our findings of miRNA expression between racial groups by examining a new large cohort ULM population of African American and white women.
Specifically, we would like to know whether the racial differences in miRNA expression are evident in the disease related myometrium or only in ULM.

Since several racially related miRNAs are aberrantly expressed in many other solid tumors, we propose that these highly dysregulated microRNAs in ULM of African American women are important contributors to ULM morbidity, due to their downregulation of some major target genes. Their functional roles in relation to leiomyoma growth will be investigated. The study can be accomplished by examining whether the significantly dysregulated microRNAs in ULM of African American women (African American-related microRNAs) can regulate major target genes that are significantly dysregulated in ULMs. Accomplishment of the study will allow us to identify the microRNAs and their target genes in ULM as important molecular markers. The long term goal is to find molecular markers for early detections, prediction and prevention.

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