Loan Repayment Personal Statement (example)

I am a fellowship-trained geriatrician with dual skill sets in basic and clinical translational research. As a clinician scientist, my long-term career goal is to improve the well being of vulnerable older adults at high risk for adverse clinical events by promoting medical care that is scientifically validated, evidence based, and disseminated through innovative clinical models. To achieve this goal, I have identified the following set of objectives: (1) determine and modify age-related molecular mechanisms that increase risks for poor outcomes such as muscle atrophy, weakness, immobility, and falls; (2) develop and implement mechanism-driven interventions that prevent, attenuate or reverse these adverse outcomes in frail older adults; and (3) teach this translational approach to the next generation of clinician scientists. The funding opportunity offered by the NIH Clinical Research Loan Repayment Program will continue to help me repay my qualified student loan debt and therefore facilitate my undivided focus on developing a fully independent research program at the Mount Sinai School of Medicine.

I have a long-standing interest in the biological bases of chronic diseases and aging. As an undergraduate and graduate student at UCLA, I was fascinated by the complex biology of chronic diseases affecting older adults. As a result, I joined Drs. XX and XX research group at the West Los Angeles VAMC Geriatric Research, Education, and Clinical Center (GRECC) to further my training in chronic disease research. During this period of training, I was able to build a solid foundation in disease-focused laboratory research and developed the necessary analytical skills to think critically in scientific investigations. Due to these research efforts, I was awarded a Master of Science degree in Physiology from UCLA and co-authored three peer-reviewed original research articles in the field of rheumatoid and osteoarthritis. Drs. XX and XX, both geriatrics clinician scientists and my early mentors, were instrumental in stimulating my interest in Geriatric Medicine and in scientific discovery related to chronic diseases of older adults.

Academic Geriatric Medicine remained my career of choice throughout medical school and residency training at George Washington University. Despite the rigors of medical education, I participated in oncology research that focused on the clinical outcomes of cancer patients, a frail population with exceedingly high morbidity and mortality. This experience significantly impacted my ultimate decision to become an academic geriatrician and to solidify my skill sets in aging-related basic science and translational research and in caring for frail older adults by pursuing a unique three-year Clinical and Research Fellowship program at Johns Hopkins University. During my fellowship training and working under the mentorship of Dr. XX, we successfully characterized several important biological changes in the interleukin 10 homozygous knockout mouse (IL-$10^{tm/tm}$), a model of chronic inflammation and frailty. Novel findings in this mouse included significant midlife elevation in serum insulin-like growth factor 1, alterations in inflammatory cytokine profile (IL-6, IL-1β, TNF-α, and IFN-γ), accelerated mortality, and altered skeletal muscle mitophagy. These findings suggest that endocrine-inflammation interaction and autophagy dysregulation may have a pathologic role in frailty. To further translate research into clinical practice, we designed and implemented a clinical study at Johns Hopkins Bayview Hospital to determine whether inflammatory mediators, in aggregate or alone, predict adverse cognitive outcomes in older adults undergoing general anesthesia and elective surgery. The Inflammation and Cognitive Decline Study (ICD) has completed its analysis phase and its findings are currently being drafted into a manuscript for publication.

My current research at Mount Sinai School of Medicine has grown out of my previous scientific training and experience. Building upon my work in chronic disease, inflammation, frailty, and cognition research both at the bench and the bedside, I have focused recent translational studies on the roles of inflammation (cytokines, chemokines, inflammation-related miRNAs) and oxidative stress in the development of physical decline, persistent pain, delirium, and mortality after laparotomy in mice and hip fracture surgery in older adults. In a collaborative effort with Dr. XX (co-mentor), we developed a mouse model of laparotomy that allowed us to better characterize biological stress responses after surgery. Novel findings from this mouse model included the identification of 8 highly coordinated inflammatory and oxidative stress gene expression in blood cells post-surgery. In order to further translate these findings from mice to humans, we tested the hypothesis that elevated inflammatory mediators in blood after surgery are associated with adverse clinical outcomes such as decreased post-operative ambulatory and functional ability and increased pain. Using blood samples collected

from 40 hip fracture patients ≥60 years of age who were admitted to Mount Sinai Hospital between 2011 and 2013 (Hoar Study, co-mentor – Dr. XX), we determined that: (1) elevated POD3 level of IL-1rn is associated with decreased ambulatory ability 3 days after hip fracture surgery; (2) elevated POD3 level of IL-18 is associated with increased functional decline 6 weeks after surgery; and (3) elevated POD3 levels of TNF-α and its receptors are associated with increased post-operative pain.

My ultimate research goal is to develop and implement mechanism-driven interventions that prevent, attenuate or reverse adverse clinical outcomes in frail older adults. Thus, I am participating in several multi-center randomized clinical trials in my role as a site investigator including: (1) MULTIMOD Hip Fracture Trial - a Pepper Center CTSA collaborative trial (Multimodality Interventions for Patients with Hip Fracture Who Have Mobility and ADL Disability) aimed to investigate the efficacy of multimodality pharmacologic interventions in improving mobility and disability in older patients with hip fracture; and (2) STRIDE Study - a PCORI/NIA-funded multisite cluster randomized clinical trial aimed to determine the effectiveness of an evidence-based, multi-factorial, individually-tailored intervention to reduce the risk of serious fall injuries among non-institutionalized older persons. This NIH LRP application details the rationale and experimental design of the STRIDE Study. I believe that successful completion of the STRIDE Study will lead to improved coordinated delivery of community-based interventions that reduce adverse outcomes associated with falls in older adults. Working under the supervision of Dr. XX (Mount Sinai Clinical Trial Site PI), I will continue to oversee the design, execution, and management of STRIDE at the Mount Sinai Health System clinical trial site during the study's funding period (2014-2019). Thus, these practical experiences will enhance and solidify my expertise and leadership skills in the conduct of clinical trials in geriatric patients.

Mount Sinai School of Medicine offers me the ideal environment to develop an independent research program in gerontology. The research infrastructure for translational investigation in geriatrics at Mount Sinai is well established by my mentors Drs. XX. In addition, I have strong institutional support from the Department of Geriatrics as evidenced by my protected effort for research activities and unrestricted access to the laboratory of Dr. XX. Moreover, I will continue to be guided by an experienced mentoring team consisting of Drs. XX (clinical and outcomes research), Dr. XX (laboratory research in mechanisms of aging), Dr. XX (inflammation and pharmacology), Dr. XX (muscle biology), and Dr. XX (biostatistics). These abundant physical and intellectual resources have helped me to successfully compete for various awards and fellowships from the New York Academy of Medicine, Mount Sinai Pepper Center (OAIC), Mount Sinai Conduits KL2 (CTSA), Hartford Foundation, and an NIA K08 over the past 5 years. Training activities that stemmed from these programs included my recent completion of a Master of Science degree in Clinical Research from Mount Sinai School of Medicine. In the next few years, I will continue to participate in various educational and training opportunities offered by the OAIC and CTSA including didactics, journal clubs, and seminars to further enhance my skills in research design, data management, statistical methods, grant and manuscript writing, leadership, and academic program financing in order to fully develop my research agenda. Lastly, I aim to successfully compete for an independent research award (R01 or a VA Merit Award) within the next 3 years in order to fully transition as an independent investigator.

In summary, I believe that the proposed NIH LRP application is worthy of support because: (1) it addresses fundamentally important questions in the prevention and treatment of falls and falls-related adverse outcomes in older adults; (2) it is seamlessly integrated into the existing research infrastructure and intellectual resources at Mount Sinai; and (3) it has a strong probability of successful completion because of my training record and current mentorship, strong research interest in gerontology, and determination to achieve my overall research goals. Finally, and most importantly, support from the NIH Clinical Research Loan Repayment Program for my research effort will undoubtedly contribute to improving clinical care for frail older adults through independent translational research.