# LIST OF AWARD RECIPIENTS
## UB2020 RESEARCH AND DEVELOPMENT ACTIVITIES FUND (IRDF)

**Corresponding Investigators**
**and Co-Investigators**
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**"The Limits of Ownership: Residential Foreclosure and Its Impact in Buffalo, NY"**


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Project Description

Residential foreclosures have been on the rise over the last twenty years. Within the context of a sub-prime lending market, and continuing racial and class residential segregation, this trend has ominous implications. We seek to better understand foreclosures, or mortgage defaults, generally, and in Buffalo, New York, specifically. With the assistance of the Buffalo Housing Court, we will interview fifty individuals. Some of these individuals will have experienced a foreclosure, while others will have successfully navigated the Buffalo Housing Court to maintain their property. For both sets of people, we will perform in-depth life-histories that will include special attention to mortgage history and pathways to the Buffalo Housing Court, in addition to an assortment of other factors that may help us understand residential foreclosure. From these case histories, the research team, in association with Buffalo Housing Court personnel and community workers from People United for Sustainable Housing (PUSH), a non-profit community organization working on issues related to housing in Buffalo, will construct a profile of foreclosures and non-foreclosures, and use these data to develop a foreclosure mediation program that will be pilot tested upon the receipt of additional external funds. Without systematic attention to residential foreclosures, and attempts to reduce them, more individuals and families will become vulnerable to the social and economic consequences of the limits of ownership.

**"A Transgenic Mouse Model of Autism"**

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Program Description

Autism is a devastating developmental disorder characterized by a number of symptoms, including profound deficits in social behavior. Autistic children exhibit a variety of gastrointestinal symptoms such as chronic abdominal pain and diarrhea. Environmental factors such as dietary composition and heavy metal exposure (e.g., mercury contamination in immunizations) have been associated with these disorders. Understanding the underlying pathologies of gastrointestinal symptoms could lead to therapies and explain the mechanisms of autism. The purpose of this project is to develop a multi-disciplinary research effort to understand the molecular and environmental basis of autism. We have constructed a unique transgenic mouse model of Timothy Syndrome. Timothy Syndrome results from a spontaneously occurring mutation of cell membrane calcium ion channels in humans that results in autism and associated chronic gastrointestinal symptoms. Our preliminary results suggest that Timothy Syndrome mice may preferentially absorb dietary mercury, suggesting a link between environmental factors and this disorder. Our goals are: First, to conduct comprehensive behavioral screens to determine how the Timothy Syndrome mutation affects specific behavior. Second, to characterize intestinal smooth muscle activity and ion transport in Timothy Syndrome mice to reveal abnormalities, especially in the metabolism of heavy metals. Third, to determine the molecular and biophysical properties of mutated calcium ion channels in the Timothy Syndrome mouse, and to identify mechanisms that link heavy metals and autism. Overall, our results will allow us to relate cellular and biophysical properties to organ function, and to integrate these properties with the complex behavioral defects of autism.

**"Neural Stem Cells in Nfix KO Mice**

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Program Description

Early studies showed that most brain growth and development occurs in the prenatal period, in infancy, and in early to late childhood. However more recent studies have shown that significant brain development and cell renewal occurs throughout adult life. The cells in older brains that proliferate and form new neurons and glia are sometimes called adult neural stem cells. In the mouse, these cells express a gene called Pax6, which is termed a marker for adult neural stem cells. Together with collaborators at the University of Queenland, Australia, we have found a large increase in Pax6-expressing cells in the brains of a mutant mouse that we generated. This mutant mouse is missing a gene called Nuclear Factor I (one) X. NFIX is a member of a multigene family in both mice and humans, and we showed earlier that the loss of other NFI genes, NFIA and NFIB, causes severe defects in brain development. In this study we will ask what other genes are expressed in this over-abundant population of Pax6-expressing cells in NFIX mutant mice, and whether these cells are true adult stem cells as shown by their ability to both renew themselves (self-renewal) and to form neurons and glial cells (differentiation). The results of these studies will give us a better understanding of the properties of adult neural stem cells and potentially provide a means to increase the number of such cells for future therapeutic use.

## **"Intracranial Aneurysm Model for Neurointervention"**

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Project Description

Brain aneurysms can rupture and result in the most devastating form of stroke. Half of aneurysm rupture patients die right away or become permanently disabled before receiving medical attention. With 5% of the general population harboring intracranial aneurysms, doctors frequently must decide whether to treat an unruptured aneurysm by weighing the risk of its rupture against risks of complications of treatment, whether it is open-skull surgery or endovascular intervention.

Unfortunately, there is little reliable knowledge upon which to base treatment decisions. We understand very little about why aneurysms develop, grow, and rupture. Patient-to-patient variability, difficulty in accessing intracranial lesions, and lack of appropriate models present unique challenges. If this field is to advance and more lives are to be saved, animal models of intracranial aneurysm that capture its etiology, pathobiology and allow 3D imaging, blood flow mapping, and intervention become a high priority.

We propose to develop a canine intracranial aneurysm model induced hemodynamically in dogs. Surgical ligation of carotid arteries will force a chronic increase in blood flow through the basilar

artery and result in aggravated hemodynamic stress at the basilar tip, causing the local vessel wall to degrade and form an aneurysm. Creating this model will allow us to study hemodynamic factors and molecular mechanisms in initiation, growth and rupture of aneurysms, and to investigate endovascular treatment through pharmacologic intervention and flow modulation. This will have a dramatic impact, increasing our understanding of this disease, and providing better diagnosis, safer treatment and decreased probability of aneurysm rupture.

**"James Joyce Traveling Exhibiton"**

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Project Description

The University Libraries, the University Art Galleries and the School of Architecture and Planning are collaborating on an exhibition featuring selections from the Poetry Collection's unique James Joyce archive. It will open during the 2009 International James Joyce Conference in Buffalo then travel to selected cities throughout the United States. The exhibition will highlight the scholarly and pedagogical research potential of the archive by linking the exhibition materials to Joyce studies, Modernism and twentieth century literature. Targeted destinations include repositories that are centers of Joyce research, study and scholarship and institutions wherein resides substantial Joyce archival material that complements UB's archive. The nature of the exhibit, the timing of the opening and the destinations to which it will travel will all contribute to raising the profile of the archive, highlighting its research potential and placing it in a context where collaborative and cross-institutional research is invited.

External funding will be sought to support all aspects of the exhibition, including preservation of the materials to be exhibited, construction of exhibit cases and preparation of an exhibition catalogue. Students in the School of Architecture and Planning will conduct research and prepare a series of design studies--including drawings, models and large-scale prototypes--for the exhibition cases, layout, display, text panels and catalogue. Internationally recognized Joyce textual scholars will be invited to campus to advise in the process of selecting the most visually and scholarly compelling and important items for the exhibition and to deliver lectures on the significance of the archive.