



## INTERNATIONAL RESEARCH GRANT PROGRAM ANNOUNCEMENT

### New Investigators Program

August 2015 - January 2016

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## INTERNATIONAL RESEARCH GRANT PROGRAM ANNOUNCEMENT

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*The purpose of the International Research Grant Program Announcement is to help applicants understand the context and history of the Alzheimer's Association International Research Grant Program and to publicize high-priority areas of focus for the current fiscal year. However, applicants should not consider areas of focus restrictive—projects exploring other topics are actively encouraged, even if they fall outside the areas discussed below.*

#### I. BACKGROUND: ASSOCIATION MISSION AND SCIENTIFIC AGENDA

The Alzheimer's Association was founded in 1980 by a small group of family members caring for loved ones with Alzheimer's disease. These individuals were united in disappointment with the quality of information available to them and in dissatisfaction with the lack of medical and social awareness of this devastating condition. Two years after its founding, the fledgling organization funded its first research grant, awarding a total of about \$80,000 to a handful of investigators. Since then, the Association has grown into the largest nonprofit funder of Alzheimer's research. Currently we awarded over \$80 million in more than 350 active projects in over 20 countries.

The Association supplements its own funding efforts with public policy initiatives directed toward increasing Alzheimer's research funding at the federal level. The Association also works tirelessly to support and educate its constituents by providing high-quality information in non-specialist language about its grants program and general issues in Alzheimer's research, prevention, treatment and care.

The Association's International Research Grant Program has served historically as an incubator for novel ideas, complementing the programs of the National Institute on Aging and the other institutes of the National Institutes of Health. As our funding initiative has grown and matured, grant categories have expanded to support researchers at every stage in their careers. Funded projects now explore the broadest possible spectrum of biological approaches to understanding, preventing and treating Alzheimer's; social and behavioral strategies for ameliorating the effects of the disease on individuals and their families and professional caregivers; clinical studies; and adaptive technologies.

Surveys conducted on behalf of the Association continue to affirm that research support is the highest priority of our constituents and the general public. In response to this overwhelming sentiment, the Association's National Board mandates research as an ongoing major emphasis. For the 2015 grant cycle, our areas of focus include historically underserved populations, as well as the growing number of specific cultural and ethnic

groups, and their aging members, in this rapidly diversifying society.

Expanding our emphasis in these directions affirms the Association's long support of research and emphasizes the following strategy in the Association's 2012–2014 Strategic Plan:

**Strategic Objective:** Accelerate progress in global Alzheimer's research by increasing funding by the Association, engaging more people in Alzheimer's science priorities, leading global efforts to advance key issues and supporting emerging needs.

There are three priority activities the Alzheimer's Association is committed to moving forward to help achieve this strategic objective:

1. Increase participation by 30 percent in Alzheimer's disease science priorities by engaging individuals, chapters and institutions in the global research effort.
2. Advance key issues in Alzheimer's research by leading global efforts in the creation, standardization, validation and qualification of diagnostic and interventional tools for the scientific community. Initiate and/or facilitate two global or national efforts.
3. Accelerate progress in global Alzheimer's research by addressing emerging needs with a focus on new investigators and the launch of three novel and innovative programs that reshape the field.

In addition, there are three overarching objectives embedded in all programs of the Association, as well as the Strategic Plan:

1. Support and extend the ability of people with Alzheimer's disease to function independently through safe and effective interventions, using pharmacological, behavioral and other approaches.
2. Find the cause(s) of Alzheimer's disease, from its biological underpinnings to the impact of cultural, behavioral, social and environmental factors on disease progression.
3. Prevent Alzheimer's disease through improved methods of detection, early intervention and the discovery of risk factors, including the interactions of molecular, genetic, environmental and cultural variables.

The thrust of the Association's research program can be summed up in three words: quality of life. All of the Association's research efforts are aimed at some aspect of improving the quality of life of people with the disease, their families and care providers. This will be accomplished through social and behavioral research, studies to improve diagnosis or design new treatments, research to elucidate the cause of the disease and ultimately, studies and programs to eradicate Alzheimer's disease.

## **II. AREAS OF FOCUS FOR THE 2016 INTERNATIONAL RESEARCH GRANT PROGRAM, NEW INVESTIGATORS PROGRAM**

Areas of focus are high-priority research areas in which the Association actively seeks proposals. The areas are defined broadly, and the examples cited are not intended to preclude or constrain other investigator-initiated projects or proposals. Potential applicants are strongly encouraged to submit proposals in their own areas of interest or formulate questions different from those presented in this announcement. Investigator-initiated research projects are the core of the Association's scientific program.

### **i. Research in Diverse Populations: Closing the Gap**

Results of the 2000 census confirm that the overall population of the United States is rapidly becoming more diverse. However, the language and techniques often used to characterize diverse populations fail to reflect the true richness of origin, culture, and genetic variation represented in our society. This failure is well illustrated by the following excerpt: "Today, discussion of cultural diversity—ethnicity—most often identifies four major U.S. ethnic subgroups: African Americans (Blacks), Asian Americans and Pacific Islanders (or Pan Asian populations), American Indians and Alaska Natives, and Hispanics (or Latinos). Indeed, the term 'Asian Americans' represents more than 50 distinct linguistic groups. African Americans include persons who trace their roots to Africa, who were born in Africa, or who were born in the Caribbean Islands. Hispanics count more than 25 different countries of national origin. American Indians and Alaska Natives encompass over 500 federally recognized tribes and groups, with at least 30 different languages." (From *The Fourth Report of the Advisory Panel on Alzheimer's Disease, 1992: A Report to the U.S. Congress and the U.S. Department of Health and Human Services*; NIH Publication 03-3520.)

As the general population reflects a richer ethnic mix, subpopulations of older adults and those at risk for Alzheimer's disease are also growing more diverse. These extraordinarily rapid demographic changes are forcing organizations to re-evaluate whether they have sufficient knowledge of all groups within their potential clientele to deliver programs and services effectively. The Alzheimer's Association has concluded that there are significant information and data deficits about ethnic and cultural groups in most major research areas in Alzheimer's disease. These include screening and neuropsychological testing instruments; diagnostic procedures; recruitment and retention in research protocols and clinical trials; clinical and neuropathological correlative studies; caregiving and family studies; basic laboratory investigations; genetics projects; development of new models of long-term care and management of these services; epidemiological and health services research; and the economics of care.

Our understanding of Alzheimer's disease is limited by the characteristics of the people who have traditionally been included in investigations. There is a need for basic sociological and anthropological data about Alzheimer's disease, families and caregiving in specific cultural, social, and regional contexts to provide a working platform for effective service, education and program delivery.

To fill these gaps in knowledge, projects must address the following issues:

**Socioeconomic status:** What is the effect of high or low socioeconomic status on Alzheimer's disease and its meaning in diverse populations? How can services for people with Alzheimer's disease and their families be developed most effectively to reach the range of socioeconomic levels of people and those from minority-groups. What level of importance do information and funds have on purchasing help and services? What is the best method to convey information about Alzheimer's disease to specific diverse groups?

**Values and beliefs:** How do values and beliefs shape receptivity to and perceptions about community-based and institutional services for Alzheimer's disease? How do values, beliefs, and perceptions vary among groups? How do the beliefs about Alzheimer's disease and normal aging encourage or prevent use of services? How must services and programs respond to be effective in the face of values and beliefs?

**Role of the family and community:** In specific diverse groups, how does the role of family differ in the long-term care of older members with dementia? How does the decision-making process differ in these groups? Is it necessary to understand family dynamics before planning interventions and services?

**Geographical and regional variation:** How do these factors affect the development and provision of services and programs? How do they interact with socioeconomic status and minority group membership in majority locales?

**Interactions among factors:** How do socioeconomic status, values and beliefs, the role of the family, and geographical and regional differences interact to influence care and service delivery to people with Alzheimer's disease and their families?

Incidence, prevalence and risk factors—key facts about the epidemiology of Alzheimer's disease—remain unknown in many defined ethnic and cultural groups. To better quantify the public health implications of Alzheimer's and support the development of necessary programs and services, reliable and valid data on the distribution of the disease in the U.S. population must be obtained.

Acquiring meaningful epidemiological data for diverse groups will require the ability to accurately detect and monitor Alzheimer's disease in the target population. In most cases, adequate tools for detection and monitoring do not exist. These research instrument deficits inhibit epidemiological investigations and limit the conduct of behavioral, social and clinical studies.

The following points outline some of the tools, instruments and strategies needed to address these deficiencies. Although very large population studies fall outside the funding scope of the Alzheimer's Association, smaller, well-designed studies can effectively address a number of the information and instrument gaps that must be filled. This list is not exhaustive but is intended to highlight the types of research needed:

**Screening and assessment instruments** that are valid and reliable for specific age, gender, cultural, language, and ethnic groups, as well as for different levels of education and literacy, are needed as soon as possible. Expansion of epidemiological, behavioral, social and clinical research is hampered by the lack of these instruments.

**Test norms standardized for age and gender for specific ethnic groups** are also needed urgently. These norms must take into account language, education level, and literacy as well as educational equivalency between cultures and countries of origin. Norms derived from majority group data are often applied to minority groups and can result in misleading interpretations. This misapplication is especially serious for people with little or no formal education.

In research on Alzheimer's disease—especially in clinical drug trials— identification, recruitment, enrollment and retention of members of diverse cultural groups have lagged. Minority group members have been underrepresented in much of the research in Alzheimer's disease. The published literature on barriers to enrollment and retention has been largely descriptive and anecdotal. It is time to initiate a program of hypothesis-driven research to determine the efficacy of specific methods to enlist and retain ethnic minority and cultural group members in Alzheimer's disease research. Some of the issues of interest include:

**Cross validation:** Programs that are successful in the recruitment, enrollment, and retention of cultural group members must be cross-validated with other cultural groups and in different geographic areas to determine their broad-based usefulness in research.

**Contacts:** The differences in the effectiveness of recruitment approaches, and the mechanisms underlying these differences, must be explored. For example, under what circumstances are individual or local community-rooted approaches more effective than large mass media or marketing approaches? How do specific, clearly defined cultural groups differ from one another in the acceptability of various approaches and methods of contact?

**Culturally competent investigators or investigators who are members of the cultural group:** What difference does the cultural identity of the investigator make in successful identification, recruitment, enrollment and retention of specific cultural group members? Does it enhance long-term successful retention to have investigators who are of the same cultural group as the people to be recruited? Or, is it adequate that the investigator be culturally competent? And what, precisely, does it mean to be culturally competent for the purposes of Alzheimer's research?

**Community barriers:** What are the real and perceived barriers to participation in Alzheimer's disease research in specific cultural groups? How can these barriers be overcome?

## **ii. Social/Behavioral and Cognitive/Functional Focus: Evaluating Interventions and Translating Knowledge into Practice**

Social and behavioral research has the potential to increase our understanding of the effects of Alzheimer's disease and other dementias on individuals with the disease, their families and other caregivers. At the same time, it can increase our knowledge about interventions that improve care practices, health, functional and emotional outcomes and quality of life, as well as prevent or reduce symptoms for millions of individuals and their families.

It is important to consider the influence of socioeconomic status, cultural and ethnic diversity, health/lifestyle practices, stigma and family attitudes about seeking care, availability of services and regional variation when proposing research about social and behavioral issues. Alzheimer's disease is heterogeneous, and the people with Alzheimer's disease are heterogeneous. Research into understanding these factors and how they might influence treatment outcomes (both in pharmacological and non-pharmacological trials) as well as the natural course of the disease are needed.

In addition, earlier detection and diagnosis are increasing the number of individuals identified with early-stage dementia. The characteristics and care needs of diagnosed individuals and their families in early, middle and late stages of Alzheimer's disease differ greatly. Social and behavioral research proposals should consider these differences in the design of proposed studies and the translation of findings from research into practice.

A wide range of questions in the social and behavioral arenas are applicable for research. The answers to these questions, if broadly applied, would improve the quality of daily life for people with Alzheimer's disease and their families. The questions under each domain are provided as examples to facilitate the development of more specific research questions. Each investigator is encouraged to tailor his or her question to particular populations.

**(1) Person with dementia:** Over time, we have been able to gain an understanding of the experience of the person with dementia. This can be attributed to such things as people in the early stages speaking and writing about their experiences and the development of individualized approaches to care. Some questions include, but are not limited to:

- How can the experience of the person with dementia be characterized throughout the disease course to provide insight into areas such as decision-making capacity, quality of life and advance planning?
- How can the perspective of the person early in the disease process help shape decisions and care?
- Do personal or social factors influence the experience of the person with dementia in important and measurable ways?
-

**(2) Physical and social environment:** Environmental design for persons with dementia is a multi-dimensional construct that purports to satisfy the need for autonomy, dignity, safety, comfort and community as well as enhance one's mobility, cognition and memory. We need to gain a better understanding of the specific dimensions of the environment, as well as their interaction, and how they produce desired outcomes, such as:

- What characteristics of one's physical and social environment contribute to an individual's quality of life? How do these characteristics change through the course of illness?
- What are the components of a supportive environment in the home or residential care setting for someone with cognitive impairment? How do these components change through the course of illness?

**(3) Family and household:** The family of a person with dementia often plays a critical role in providing care and navigating the health and long-term care systems. Although caregiving has been studied intensively, there is still a need to understand how best to support the families that provide care and enhance (or ameliorate) the impact on the family. Research in this area may include, but is not limited to:

- What unique problems are encountered by families of persons with various types of dementia (e.g., early-onset dementia), and what interventions, services and policies are needed to mitigate those problems? How are these problems affected by the characteristics (e.g., socioeconomic status, culture and ethnicity, region of the country) of the families?
- What interventions can improve communication among family caregivers, persons with dementia and their health and long-term care providers and have a positive effect on care and outcomes?
- What effect do family attitudes about dementia have on the self-image and functioning of persons with dementia?

**(4) Identification and evaluation of services and interventions:** Researchers and care providers together must identify and evaluate the broad range of factors that can affect programmatic interventions. Examples include:

- What interventions or programs are most likely to have positive effects for people with Alzheimer's disease and/or their families in the community?
- What interventions or programs are most likely to have positive impact on people with Alzheimer's and the staff providing care in residential care settings?
- What characteristics of programs and services render them most acceptable to people with the illness and their families?
- What are the most effective strategies to motivate physicians and other health care providers to improve the quality of care they provide to people with dementia in clinical and long-term care settings?
- How can we translate programs developed in research settings to be effectively delivered in the community?
- What are the best strategies for effectively sustaining improved practices – either in the home or care setting?



**(5) Health policy:** Research can guide the adoption of policies that reshape systems of support in the home, community and health and long-term care settings. Researchers and policy makers together must ensure that public and private policies respond to the unique needs of those with dementia. Research may investigate questions like:

- What techniques should be used to determine consumer preferences for and satisfaction with their health and long-term care when the consumers have dementia?
- What techniques should publicly funded programs use to identify and properly care for people with dementia, including those with multiple chronic conditions?

**(6) Maintaining cognitive function:** Growing evidence suggests that lifestyle factors and behaviors interact with biological functions in maintaining cognitive function. It is important to find ways to effectively share information about prevention and about the potential benefits of changing behaviors.

**(7) Implementation and dissemination of knowledge:** With the development of novel interventions and the investigation of these interventions in scientifically valid ways, strategies for disseminating them must be established. Studies must bridge the gap between what has been demonstrated empirically and the daily care practices for people with Alzheimer's disease. Often, lack of knowledge about what constitutes a successful intervention hinders the transfer of the technique to everyday care settings. The research world is fragmented and disseminates its findings in ways that are not easily or routinely available to various audiences. Finding ways to meet this challenge and getting the information out to those who need it is essential.

- What strategies are effective for getting the science of prevention and treatment out to the general public?
- How can we measure and evaluate public response to (or acceptance of) such information?
- How can we measure and evaluate people's use of the information to change important behaviors? What help do people need to support important lifestyle changes?
- How can the effect of these strategies be measured in relation to their impact on cognitive decline?

#### **(8) Cognitive/functional focus**

By definition, dementia impacts cognitive function and day-to-day abilities. It is important to understand the nature of these changes, as well as their biological basis. This can lead to better diagnoses, potential targets for treatment, and better understanding of the disease itself.

There are several themes that are considered important foci of potential proposals, including but not limited to:

1. Identification of cognitive/functional profiles:
  - Differentiation of cognitive/functional profiles in different forms of dementia

- Identification of earliest cognitive/functional changes in the MCI or “predementia phase”
2. Development of better measures for diagnosis, testing, clinical trials
  3. Identification of neural/biological correlates of cognition/function:
    - Identification of underpinnings of cognitive change
    - Correlation of imaging measures such as brain volume, cortical thickness, white matter hyperintensities, regional cerebral blood flow, brain amyloid with cognitive and functional changes
    - Correlation of biological measures from blood or CSF with cognitive and functional changes
  4. Investigation of how cognitive and functional changes impact medical, legal, and day-to-day issues:
    - Relation of cognitive changes to the ability to consent
    - Exploring the impact of disease on medical or financial decision-making
    - Exploring metacognition, the recognition of deficit
  5. Use the cognitive neuroscience approach to better understand and characterize cognitive/functional changes:
    - Use functional MRI, EEG, or other functional imaging measures to help identify functional brain changes underlying cognitive/functional change

### **iii. Biological Focus: Causes, Early Detection, Treatment, Models, Prevention and Risk Factors**

Although vast advances have been made in Alzheimer's research, the field still faces a great number of serious impediments to progress in translating basic science discoveries into effective treatments and evidence-based clinical practices for dementia. Some of the many challenges that remain for investigators to address include:

***Cause(s) of the Disease: How and why do specific sets of neurons in select brain structures become dysfunctional? Why is there selective neuronal death in specific brain regions and not in others? What initiates these processes? What is the key step in the cascade of events leading to cell death? How do genetic factors interact with other factors to influence these processes?***

The primary neuropathological events in Alzheimer's disease involve abnormal expression and processing of proteins. Advances in molecular biology have provided the tools needed to begin to unravel the mechanisms of synthesis, trafficking and accumulation of these proteins in the brain. Research in this area has begun to produce promising leads about the role of these proteins in neural function, dysfunction, and cell death and to suggest strategies to correct this molecular damage. Although these insights into the neurobiology of the disease have generated a number of ideas, the precise etiology of the disease is still not known. While there are many theories on possible mechanisms of neural dysfunction

and/or cell death, critical questions remain unanswered.

None of these theories has been validated by crucial experiments designed to demonstrate the functional relationship(s) between characteristic molecular aberrations and the clinical manifestations of the disease. One of the most difficult challenges for the field is to link the perspectives of investigators inhabiting two totally different worlds: those who view Alzheimer's disease through the prism of molecular/neuropathological events and those who know it through its behavioral and clinical manifestations.

The precise relationships between the clinical symptomatology and the neuropathology of the disease are not well defined. There is a critical need to understand not only the presumptive causal links between the neurobiology and clinical course of the disease but also the mechanisms for the heterogeneity of presentation. These mechanisms may vary widely and may influence differential diagnosis and differences in adverse events/responses to treatments.

***Early and Accurate Detection and Diagnosis: What are the most sensitive, specific and cost-effective diagnostic procedures? What are the most sensitive, specific and cost-effective procedures for assessing change through the course of the disease?***

Several converging lines of evidence suggest that the neurodegenerative processes associated with dementia begin several years before the first clinical features can be detected with current instruments. The precise duration of the preclinical period and the details of the early molecular events are not known. This uncertainty about symptom-free early stages of the disease stems from the lack of well-validated tools or technologies for detection.

Although clinical information can be gleaned from longitudinal studies, even these data are usually obtained in the middle to later stages of the disease when some of the cognitive and behavioral signs appear. As a result, there is little or no information on manifestations of the disease during its earliest preclinical stages or the very earliest behaviors of individuals at risk. These gaps result from the lack of appropriate technologies for noninvasive observation and early detection of the disease. Finding sensitive and specific markers will become even more important as pressure increases to develop very early treatments, especially if these early interventions have the potential for harmful side effects, it is crucial that they be targeted appropriately. Thus, there is an urgent need to find accurate biological markers of the disease, including improved imaging techniques and more sensitive cognitive and behavioral assessment instruments.

Any effective biomarker must not only detect a fundamental biological process in the disease, but should also be validated in an adequately powered study with neuropathologically confirmed cases. The ideal marker should have sensitivity greater than 80 percent for detecting disease and specificity also greater than 80 percent for distinguishing Alzheimer's from other dementias. Testing for the marker should be reliable, reproducible, non-invasive, simple to perform and inexpensive. In addition, a putative biomarker should have confirmation by at least two independent studies conducted by qualified investigators. Currently, none of the putative biochemical markers have been

validated in adequately powered investigations.

Well-tested biological markers for Alzheimer's disease are not the only critical need—it is also important for investigators to explore the observational and subjective perspective that family members, care providers and people with the illness can provide about the very earliest events. The observations of family members, nurses, social workers and other care providers have already provided some important insights about early cognitive and behavioral events.

***Treatment: What are the most effective and safe pharmacological treatment strategies, behavioral management techniques, and combinations of therapies?***

Research on interventions is poised for a revolution. The timing of the revolution is open to speculation—it may take two years, it may take ten—but it will happen. Dramatic advances in understanding the neurobiology of Alzheimer's—including elucidation of many genetic and molecular mechanisms involved in the disease—have provided numerous promising leads for drug development. It is now generally agreed that the most critical neurobiological events underlying the behavioral problems and clinical manifestations of the disease concern dysfunctions in nerve cell signal transduction, loss of synapses, and premature cell death. The primary scientific dispute revolves around theories concerning the precise cause or source of these destructive processes. Currently, the field of Alzheimer's therapy has a rich array of promising leads as therapeutic targets. If such potential treatments, using a variety of approaches, could be validated by well-powered clinical trials, they will have a profound effect on addressing the disease. The eventual utility/efficacy of any intervention can only be evaluated through clinical trials, which are expensive.

Until recently, strategies for developing interventions focused primarily on symptomatic treatments for middle and late stages of the disease. It is anticipated that as new therapeutic targets are discovered, it will be possible to improve the quality of signal transduction and the ability of nerve cells to communicate. As even more is learned about the neurobiology of Alzheimer's disease, there will be greater reliance on techniques to design specific molecules aimed at correcting a particular cellular dysfunction. Some important therapeutic approaches should involve the discovery of interventions aimed at preventing premature cell death and restoring or prolonging the function of surviving damaged nerve cells.

Until effective pharmacological treatments are discovered, family and facility-based care providers must rely on a variety of behavioral and social interventions to assist in managing symptoms and maintaining the highest quality of life for people with Alzheimer's disease. The development and testing of new social and behavioral interventions, in the appropriate cultural context, is a priority and is discussed under Social/ Behavioral Research and Cognitive/Functional Focus.

***Experimental Models of the Disease: Advances and Limitations***

Considerable advances have been made in the development of animal models—especially transgenic mice carrying human genes for key Alzheimer proteins and variant forms of

genes shown to be involved in dementia. Because these models make it possible to study the effects of specific factors such as A $\beta$ , tau, and apolipoprotein E4 (apoE4) on memory and other cognitive functions, they have shed light on what each of these proteins may contribute to the development of Alzheimer's disease. For example, transgenic mice producing human amyloid precursor proteins have revealed that A $\beta$  can cause neuronal dysfunction and memory problems even when it is not clumped together in large amyloid plaques, which can be visualized in live individuals by radiological imaging. They have revealed similar dissociations between neurofibrillary tangles and memory problems and highlighted the disease-causing potential of smaller clusters of A $\beta$  and tau that cannot yet be detected in brains of live individuals. In addition, these models have helped unravel the intricate processes by which these poisonous aggregates impair brain functions.

However, a limitation of these models is that they do not capture the full complexity of the human condition, which is problematic if one wants to use them to predict the success of specific therapeutic interventions in individuals with Alzheimer's disease. For example, anti-A $\beta$  treatments may be effective if the only protein causing problems is A $\beta$ , but it may not be enough to treat Alzheimer's disease in an individual who also has two apoE4 genes causing additional problems. To address these complexities, scientists are developing animal models that combine different factors. Determining whether these compound models can predict the success of therapeutic interventions for Alzheimer's disease will have to await the first truly effective drug trial in humans. This benchmark will prove or disprove these models.

To circumvent species differences that may complicate the use of rodent models for human disorders, investigators are now turning to new technologies that make it possible to turn a person's skin or blood cells back into stem cells and from there into mature neurons. Through this "induced pluripotent stem cell (iPSC)" approach, researchers can create individual- and disease-specific cell culture models that could have advantages over animal models. However, the full potential of this technology remains to be determined.

### ***Prevention: What are the prospects and strategies for prevention?***

One of the most important priorities is research on strategies to prevent Alzheimer's. The importance of prevention is rooted in the severe effects of the disease on individuals and their families, the very large number of people with the illness and the anticipated growth of these numbers with the aging of populations in the United States and other countries. Developing effective preventive strategies will bring significant benefit in reducing the economic and social costs, preserving the economic productivity of those who are or will be family caregivers, and lessening the impact on the health care system.

The most convincing argument, however, is the humanitarian one—effective prevention can spare future generations from one of the most feared and disabling infirmities associated with advancing age.

Research into basic disease mechanisms can have immense benefit for development of strategies for disease prevention, but there is not always a tight link between understanding the mechanisms of a disease and preventing it. In fact, highly successful

prevention efforts have been designed and conducted under circumstances in which disease mechanisms were understood poorly, or not at all.

In general, it makes sense that intervening early in the process that causes a disease is easier and more effective than intervening at later stages when the disease has already taken its toll and has gained momentum. The prevention of cardiovascular disease by early and aggressive treatment of high blood pressure or high cholesterol levels is a good case in point. Besides genotyping for apoE4 and other risk genes, there is currently no measurement that can identify people at increased risk for Alzheimer's decades before the typical onset of the disease. Extensive efforts have been launched to change this situation. However, widespread genotyping for apoE4 is not currently recommended because of the lack of effective treatments for Alzheimer's disease.

***Risk Factors: What are the characteristics, either genetic or acquired, that increase the risk of Alzheimer's disease or offer protection against or delay the onset? How do the risk factors vary among specific diverse populations? Are any risk factors modifiable?***

Epidemiological studies reveal growing evidence that most cases of Alzheimer's disease likely involve a combination of genetic and environmental risk factors. Identifying and validating these risk factors remains one of the most critical scientific challenges. The main risk factors so far validated for late-onset disease are age, family history and certain susceptibility genes.

The potential link between cerebral blood vessel disease and Alzheimer's is one promising area of research. Vascular disease in the aged appears to have strong implications for neurodegeneration leading to dementia. Preliminary studies indicate that a broad spectrum of cerebrovascular lesions could lead to a decline in cognitive function. In addition, recent epidemiological studies have begun to implicate vascular conditions outside the central nervous system—such as heart disease and high blood pressure—as potential risk factors for dementia. The broader implication is the hypothesis that systemic vascular factors are risk factors for developing Alzheimer's disease. This risk encompasses different forms of cardiovascular disease, including coronary artery disease, carotid atherosclerosis, history of hypertension or high cholesterol, Type II diabetes and stroke or transient ischemic attacks.

The e4 allele of the apolipoprotein E gene (apoE4)—which has been associated with increased risk of cardiovascular disease—is the best-validated susceptibility gene to date, with more widespread effects than any other genetic factor implicated in the late-onset, sporadic form of Alzheimer's. Several mechanisms have been identified by which apoE4 could increase the risk of developing Alzheimer's disease; most of them involve detrimental effects on brain cells rather than effects on the cardiovascular system.

### III. International Research Grant Program

#### i. Program Summary and Key Dates: New Investigators Program

Grant Competition	New Investigator Research Grant (NIRG)	New Investigator Research Grant to Promote Diversity (NIRGD)	Mentored New Investigator Research Grant to Promote Diversity (MNIRGD)
Letter of Intent:	<b>Letter of Intent Opens: August 14, 2015</b> <b>Letter of Intent Deadline: September 25, 2015, 5:00 PM EST</b>		
Application Deadline Date:	<b>October 30, 2015, 5:00 PM EST</b>		
Review Process:	<b>November 2015 – January 2016</b>		
Award Announcement:	<b>January 30, 2016</b>		
Number of Awards:	Anticipate funding up to 15	Anticipate funding up to 1-2	Anticipate funding up to 1-2
Request per year (in any given year) may not exceed:	\$60,000	\$60,000	\$60,000
Maximum per award:	\$100,000	\$100,000	\$150,000
Maximum number of years:	2	2	3 (minimum, 2 years)

**Scientists from underrepresented groups are encouraged to apply.**

Currently we awarded over \$80 million in more than 350 active projects in over 20 countries.

The New Investigator programs (NIRG, NIRGD, MNIRGD) share the preceding areas of focus for fiscal year 2016, covered in Section II. Section IV of this program announcement provides complete details about each individual competition, including areas of focus for

other specified programs, program objectives, funding and award period, eligibility, receipt and award dates, mechanism of award, reporting requirements and allowable costs.

Procedures and processes common to all of the grant competitions are discussed here.

## **ii. Scientific Categories of Proposals**

Each proposal must be submitted to a specific grant competition. In addition, all applicants in every competition are asked to classify their proposals according to five broad categories of scientific inquiry: (1) social and behavioral research, (2) clinical investigations, (3) basic biology, (4) adaptive technology, and (5) cognitive/functional. During second-level review, these categories help the Alzheimer's Association Medical and Scientific Advisory Council ensure a balanced, well-distributed award portfolio.

Topics that would fall into the five cross-competition categories might include, but are not limited to:

**1. Social and behavioral research** (relevant to all competitions): research in diverse populations; assessment of novel approaches to care and support diagnosed individuals and caregivers; special needs of early-stage and early-onset individuals; analysis of the impact of the physical and social environment; evaluation of services and interventions; quality of life; ethical issues; and health policy.

**2. Clinical investigations** (relevant to all competitions): projects in which the majority of data is derived directly from studies involving active participation of human subjects. Examples include pilot studies of new therapies; neuropsychological testing; drug administration; biomarker collection; imaging technology; and risk factors including genetics, cardiovascular issues, diabetes and metabolic factors and lifestyle issues. *In vitro* projects conducted in human samples should be categorized as basic biology (the category below) rather than clinical investigations.

**3. Basic biology** (relevant to all competitions.): these are bench science projects involving *in vitro* or animal work pertaining to the causes of dementia; early and accurate detection and diagnosis; animal models; treatments; and prevention. Please note that *in vitro* work involving human samples falls into this category.

**4. Adaptive technology** (relevant to all competitions): research focusing on the use of emerging technologies and their clinical and social implications, including mobile computing, high-bandwidth sensing, "smart" environments, robotics, imaging, face recognition, natural language processing and behavioral monitoring for early detection.

**5. Cognitive/ functional** (relevant to all competitions): research focusing on identification of cognitive/functional profiles, development of better measures for diagnosis, testing, clinical trials, identification of neural/biological correlates of cognition/function, investigation of how cognitive and functional changes impact on medical, legal, and day-to-day issues; and the use of the cognitive neuroscience approach to better understand and characterize cognitive/functional changes.



### **iii. Eligibility, Ineligibility and Nondiscrimination Statement**

To avoid disqualification, investigators are encouraged to carefully consider these eligibility and ineligibility requirements before applying. The Alzheimer's Association reserves the right to find an investigator ineligible to submit for a particular program, based on the below guidelines.

#### ***Eligibility***

In general, public, private, domestic and foreign research laboratories, medical centers, hospitals and universities are eligible to apply. State and federal government-appropriated laboratories in the U.S. and abroad and for-profit organizations are prohibited from serving as the applicant institution. However, state and federal government scientists can participate as collaborating scientists with research teams from other eligible applicant institutions. For the Letter of Intent, you will be required to upload proof of your organization's not-for-profit status, ***the IRS determination letter needs to be within the last 5 years***. For non-profit organizations (non-academic), additional documentation may be required to confirm your organization has segregation of duties between transaction execution and transaction recording.

**Applications for a New Investigator Research Grant (NIRG), New Investigator Research Grant to Promote Diversity (NIRGD) will be accepted from postdoctoral fellows and other junior faculty members (for example: Instructor, Research Associate Scientist, etc) who can provide a letter of employment verification indicating they will have a full-time faculty position as an Assistant Professor and above by the application deadline.**

**Please note, new eligibility for those individuals applying to the MNIRGD program will be accepted from applicants with full time positions at their respective institution, including senior postdoctoral fellows (minimum 2yrs), instructors, and above.**

#### ***Ineligibility***

This section describes general exclusion criteria. Specific requirements and additional exclusions to eligibility are noted in some detailed competition descriptions.

**1.) Overlapping funding** of more than one Alzheimer's Association grant **is not allowed. Investigators who currently have an active Association grant may apply for another award in the last year of their grant if that last year concludes by June 30th** before the start of the new funding year on July 1.

**2.) Investigators delinquent in reporting:** The Alzheimer's Association will not accept new grant applications from currently funded investigators who are delinquent in submitting required reports and other deliverables on active grants. Investigators that have previous Alzheimer's Association awards closed as 'Incomplete' are not eligible to apply without

exception. **This policy will be strictly adhered to with no exceptions.**

**3.) Current and past holders of a Zenith Fellows Award** will not be considered for another award in the Zenith competition.

**4.) Active members of the Association's Medical and Scientific Advisory Council (MSAC)** are ineligible to compete for any research grant. In addition, active MSAC members are ineligible to be included as co-investigator or to receive any financial benefit from an application.

**5.) Applications for a New Investigator Research Grant (NIRG), New Investigator Research Grant to Promote Diversity (NIRGD) will be accepted from postdoctoral fellows and other junior faculty members (for example: Instructor, Research Associate Scientist, etc) who can provide a letter of employment verification indicating they will have a full-time faculty position as an Assistant Professor or above by the application deadline.**

The letter of employment for NIRG and NIRGD programs must be uploaded to your application, printed on the hiring institution letterhead, signed by an authorized institutional official (i.e. Grants and Contracts officer or authorized organizational signature) and must indicate that the position will be activated by the grant award date. If the anticipated position is not activated by the award date for any reason, any offer of funding will be withdrawn. There will be no exceptions. In the event your application is funded, you will be required to provide an official letter on organizational letterhead, signed by an institutional signing official, stating you have a full-time faculty position of an Assistant Professor and above.

**If the applicant institution does not have an Assistant Professor position, the letter of employment should include sufficient information to allow the Alzheimer's Association staff to evaluate the eligibility of the applicant.**

**Please note, new eligibility for those individuals applying to the MNIRGD program will be accepted from applicants with full time positions at their respective institution, including senior postdoctoral fellows (minimum 2yrs), instructors, and above.**

**6.) Checks are awarded to the institution, not to the individual principal investigator.** The principal investigator or a first degree relative cannot be listed as the signing official or financial officer, or have checks sent to their attention if awarded.

**7.) The Alzheimer's Association reserves the right to request additional documentation and/or materials to verify an applicant's status should any of the eligibility requirements be unconfirmed.**

## ***Nondiscrimination statement***

The Alzheimer's Association values diversity and seeks applicants from diverse backgrounds. The Alzheimer's Association does not discriminate on the basis of race, sex, sexual orientation, religion, color, nationality or ethnic origin, age, disability, or status as a Vietnam Era Veteran or disabled veteran, in the administration of educational policies, programs or activities.

## **iv. Application Procedures**

### ***Submitting a Letter of Intent on-line via proposalCENTRAL***

The first step in applying to the Alzheimer's Association for any research grant is to submit a Letter of Intent (LOI) through the *proposalCENTRAL* on-line application system at <http://proposalcentral.altum.com>. Applications will not be accepted without an approved LOI. First-time users **must** register and fill out a Professional Profile in *proposalCENTRAL* to begin the application process. The Alzheimer's Association requires that all applicants must be registered as a reviewer with the Association to submit a letter of Intent. If you submit a letter of intent/application and are NOT currently registered as a reviewer, you will be automatically added to the Alzheimer's Association reviewer roster. **Additionally, it is required that you review at least one grant proposal within your area of expertise, outside the grant competition to which you are applying.**

**The application materials, including the application format, templates, and instructions, will be available online at proposalCENTRAL after your LOI has been approved.**

**The LOI and completed application must be submitted by a single Principal Investigator (PI).** Additionally, a PI cannot submit an LOI that had been approved or rejected during a previous grant cycle. All LOIs must be approved or rejected in the current grant cycle. Hard copies of the LOI will not be accepted. The purpose of the LOI is to ensure that all applicants are eligible for the competition they are applying to and to assist Association staff in planning for peer reviews. **LOIs will not be accepted after the deadline date. No exceptions will be made.** The applicant is responsible for adhering to the space limitations (described below) and any decision regarding moving an LOI will be evaluated based on the submitted information.

### ***The LOI must include:***

- Name of the principal investigator
- Contact information for the principal investigator (**complete** mailing address, telephone number, fax number and primary institution e-mail address (do not list Yahoo, Google or other g-mail accounts as your primary e-mail))
- Institution involved in the research proposal (***institution/organization name must be in English***)
- Academic rank/position title
- Title of the investigation limited to 75 characters including spaces
- Each section is limited to 1,000 characters including spaces

- Area of focus of the submission, such as diverse populations, social and behavioral or biological, as outlined in Section II
- Grant competition for which you are applying (New Investigator Research Grant, New Investigator Research to Promote Diversity, Mentored New Investigator Research Grant to Promote Diversity).
- Brief project description, including methodology, specific aims of the project, innovation/novelty of the project, and the impact of the Alzheimer's disease and related dementia field are required. **Each section is limited to 1,000 characters, including spaces** and **it is the responsibility of the applicant to ensure space limit is adhered.**
- Employer (institution) Identification Number (EIN), *must match the EIN on the non-profit documentation*
- A current (within the last five (5) years) non-profit verification for the institution or organization of the applicant; if the documentation is not dated within the last five (5) years, please provide a signed letter on organizational letterhead with authorized signature stating there has been no change in the status.
- Bio-sketch, use the Alzheimer's Association-provided template or the **old NIH** template **without** the personal statement included.

### **LOI Review Procedures**

All LOIs will be evaluated prior to invitation to submit a full application.

### **Full Grant Application via proposalCENTRAL**

Once the on-line LOI is approved and a full proposal is invited, an email notification will be sent from **proposalCENTRAL** granting access to the on-line application at *proposalCENTRAL*. **The online system must be used to submit a grant application—**hard copies of the application will not be accepted.

**The full grant application consists of the following (additional attachments might be required, see each individual program for additional requirements):**

1. Problem Statement – 1page
2. Work Plan – 5 pages
3. Available Resources & Budget Justification – 2 pages
4. Biosketch (PI/Co-PI) – 4 pages each

**The application materials, including the application format, templates, and instructions, will be available online at proposalCENTRAL after your LOI has been approved.**

**The PI who submits the LOI must be the same PI who submits the application.** LOIs submitted on behalf of other applicants or administrators will result in a rejected application. Once the applicant enters the application system, on-screen instructions will be provided to complete the application process. The application does not need to be completed in one session; a partially completed application can be saved and completed

at any time before the deadline. **(Important Note:** It is **imperative** that you proofread your application before submission; you will not be allowed to make **any** changes to the application after the deadline or once applications are under review).

**It is the responsibility of the applicant to ensure and verify that:**

(1) The application is submitted by the receipt date/time deadline. **Once submitted, you will receive a confirmation e-mail from proposalCENTRAL that your application was successfully accepted.**

(2) The application is complete and accurate before submission. Only a single copy of an application will be accepted. **Signatures are not required at the time of submission, the signature page provided is for your use should your institution/organization require signatures, please do not submit with your application.**

(3) Revisions, additional materials, letters of collaboration/support and/or reference, manuscripts, appendices, etc., are not allowed and if attached, will be removed from your application.

(4) Application biosketch attachment(s) are on the Alzheimer's Association-provided template (available at proposalCENTRAL) or the **old NIH** template **without** the personal statement included.

#### **v. Multiple and Overlapping Submissions**

If an applicant submits proposals to different grant competitions in the same grant cycle, each proposal submitted must address **a distinctly different topic**. Only one proposal will be funded if scores for multiple submissions fall within the funding range of different grant competitions.

Applicants may revise and resubmit an application that was previously submitted for an earlier grant cycle; however, a new LOI is required each year. A current LOI corresponding to the application year must accompany each application. **Revisions of previous submissions will be treated as new applications. Efforts will be made to provide some continuity in reviews.**

Overlapping funding of more than one Alzheimer's Association grant is not allowed. Investigators who are receiving an **active** Association grant may apply for another award in the last year of their grant **if** that last year concludes by June 30th before the start of the new funding year, which begins on July 1.

#### **vi. Review Procedures**

All proposals are subject to a multiple stage peer-review process carried out with an on-line system. Certain grant programs have an additional review process as described. In the first stage, applications are reviewed and rated by a minimum of three peer scientists

with expertise in the proposed area of research. Applicants may include recommended reviewers or may exclude specific reviewers from evaluating their application. **Conflict of Interest includes:**

- (1) The Applicant trained with/ by the reviewer.
- (2) Reviewer published with the Applicant in the last four (4) years. This excludes work shop or large consortia (i.e. ADNI, IGAP, etc).
- (3) Reviewer has been a co-investigator on a grant application or award with the Applicant in the last four (4) years.
- (4) Reviewer has a conceptual difference of opinion with the Applicant that will prevent a fair review.
- (5) Reviewer will receive financial benefit from the Applicant receiving an award.

The second stage includes further review and discussion of the scores and comments resulting from the initial review process. This second review is carried out by the Alzheimer's Association Medical and Scientific Advisory Council (MSAC) to ensure fairness and equity in the initial review procedures and to make funding recommendations to the Association. Members of the MSAC are internationally recognized experts with distinguished careers in Alzheimer's and related dementias. A complete list of current MSAC members is available on the Alzheimer's Association Web site ([http://www.alz.org/research/funding/advisory\\_council\\_alzheimers\\_association.asp](http://www.alz.org/research/funding/advisory_council_alzheimers_association.asp)).

This two-stage process is central to our award decisions and is designed to ensure both scientific rigor and fairness in the review of all submitted applications.

**Applicants Please Note: During peer-review, we are not able to contact reviewers with additional information to update, change or adjust your application such as recent publication, published manuscripts, new data etc.**

If you are interested in being considered a reviewer for the Alzheimer's Association International Research Grant Program, please submit your CV to [grantsapp@alz.org](mailto:grantsapp@alz.org).

### **General Requirements**

- You must be a recognized authority in your field.
- You must be dedicated to conducting high-quality, fair reviews.
- You must be able to articulate your views succinctly, engage in productive exchanges and actively participate in the on-line discussion of applications.

### **vii. Appeals of Scientific Peer Review**

To maintain a fair and rigorous review system, the Alzheimer's Association has established a process for appeal of funding decisions. An appeal is intended to address extraordinary circumstances. Appropriate reasons for initiating an appeal might include:

- Evidence that a reviewer has an undeclared conflict of interest
- An egregious error or misunderstanding in the review process
- Active malfeasance or demonstrable lack of due diligence

The appeal process is not intended to provide a mechanism for routine protest of failure to receive a grant. Disparities in peer reviewers' enthusiasm for a proposal and the scores they assign are nearly always considered part of the normal variation in human judgment. The reality is that the Alzheimer's Association International Research Grant Program is extremely competitive and is limited by availability of funds. In recent grant cycles, 8 to 10 percent of proposals have been awarded grants, although about twice that number fall into the "fundable" category based on overall score.

If an applicant believes an extraordinary circumstance has contributed to failure to receive funding, the principal investigator may send as a Word document, a two-page, double-spaced formal letter of appeal to [grantsappeals@alz.org](mailto:grantsappeals@alz.org) – supporting documents must be submitted in PDF. **Appeals must be submitted within two weeks from the date your application outcome notification is sent to be considered by the Alzheimer's Association.** Notification of action on the appeal will be made via email, usually within 90 days of the appeal deadline.

#### **viii. Animal and Human Subject Assurances**

Animal welfare and human subject certifications are not required at the time of application. Investigators have up to 90 days after receipt of their award notification to submit these documents. **However, the Alzheimer's Association encourages investigators to initiate their certification applications on a schedule that recognizes that rDNA, IRB/IACUC approval at many institutions can take more than 90 days.** The Association accepts only certifications that apply specifically to the funded project and must include the name of the awardee. An award letter will not be issued unless the appropriate certifications are in place and include the name of the awardee within the 90 days from award notification.

#### **ix. Reporting Requirements**

##### **Interim and final scientific progress reports**

Investigators receiving Alzheimer's Association research grants are required to file annual progress reports.

- An Interim Scientific Progress Report must be filed at the end of each reporting period as long as the grant remains active.
- A Final Scientific Progress Report **must** be filed within 90 days of the grant's end date.



## **Financial progress report**

Annual financial progress reports must be filed at the end of each reporting period while the grant remains active and within 90 days after the grant ends. These reports must be submitted **ELECTRONICALLY** by the signing official or someone else with financial authority in the Office of Research and Sponsored Programs at the recipient's institution.

For questions about reporting requirements or these forms, please contact Mary Grilli, ([mary.grilli@alz.org](mailto:mary.grilli@alz.org)) or Rita Freeman ([rita.freeman@alz.org](mailto:rita.freeman@alz.org)), the Alzheimer's Association post-award grant specialists.

## **Publications, Presentation and Abstracts**

Electronic copies of publications, presentations and abstracts that report research supported by funds from the Alzheimer's Association must be submitted **ELECTRONICALLY** at the time of publication. These copies will become part of the official file of the grant and will be provided to the Communications Division of the Alzheimer's Association to assist in the efforts to further inform the public about the International Research Grant Program of the Association.

## **x. Contact Information**

This program announcement is posted on the website of the Alzheimer's Association at [http://www.alz.org/research/alzheimers\\_grants/overview.asp](http://www.alz.org/research/alzheimers_grants/overview.asp) For additional information, send inquiries to [grantsapp@alz.org](mailto:grantsapp@alz.org) or call 1.312.335.5747 or 1.312.335.5862.



## ii. New Investigator Research Grant (NIRG)

**Competition objectives:** The competition, formerly known as the Pilot Research Grant Program, has become the New Investigator Research Grant Program. This change is designed to reinforce the historical emphasis of this competition—to fund investigators who are less than 10 years past their doctoral degree. The purpose of this program is to provide newly independent investigators with funding that will allow them to develop preliminary or pilot data, to test procedures and to develop hypotheses. The intent is to support early-career development that will lay the groundwork for future research grant applications to the National Institutes of Health, National Science Foundation and other funding agencies and groups, including future proposals to the Alzheimer's Association. All NIRG applications must target defined areas of focus for fiscal year 2016 to be considered responsive to the program announcement (see Section II).

The Alzheimer's Association recognizes the need to increase the number of scientists from underrepresented groups in the research enterprise. Young scientists from these groups are encouraged to apply.

**Funding and award period:** Each NIRG total award is limited to \$100,000 (direct and indirect costs) for up to two years. Requests in any given year may not exceed \$60,000 (direct and indirect costs). Indirect costs are capped at 10 percent (rent for laboratory/office space is expected to be covered by indirect costs paid to the institution).

**Eligibility:** Applicants must be Assistant Professors or above at their respective institution. For individuals who are at non-academic institutions, please contact the Alzheimer's Association at [grantsapp@alz.org](mailto:grantsapp@alz.org) to verify your eligibility. Eligibility to apply for this grant competition is restricted to investigators who have less than 10 years of research experience after receipt of their terminal degree. The 10-year period applies to the date of submission of the grant application. Adjustments for career interruptions can be made. Applicant must contact the Alzheimer's Association regarding any possible exception ([grantsapp@alz.org](mailto:grantsapp@alz.org)). These would include, but are not limited to, family leave, military service, and major illness or injury. It is the responsibility of the applicant to point out and document such interruptions within their application.

**Applications for a New Investigator Research Grant (NIRG) and New Investigator Research Grant to Promote Diversity (NIRGD) will be accepted from postdoctoral fellows and other junior faculty members (for example: Instructor, Research Associate Scientist, etc.) who can provide a letter of employment verification indicating they will have a full-time faculty position of an Assistant Professor and above by the award date should the proposal be in funding range and funded.**

The letter of employment must be uploaded to the application, printed on the hiring institution letterhead, signed by an authorized institutional official (i.e. Grants and Contracts officer) and must indicate that the position will be activated by the grant award date. If the anticipated position is not activated by the award date for any reason, any offer

of funding will be withdrawn. There will be no exceptions. In the event your application is funded, you will be required to provide an official letter on organizational letterhead, signed by an institutional signing official, stating you have a full-time faculty position of an Assistant Professor and above.

**Please note:** If the applicant's institution does not have an Assistant Professor position, the letter of employment should include sufficient information to allow the Alzheimer's Association staff to evaluate the eligibility of the applicant.

**Ineligibility:** The Alzheimer's Association will not accept new grant applications from currently funded investigators who are delinquent in submitting required reports and other deliverables on active grants. Investigators that have previous Alzheimer's Association awards closed as 'Incomplete' are not eligible to apply without exception. **This policy will be strictly adhered to with no exceptions.**

**Deadlines and award dates:** Letters of Intent must be received by 5:00 PM EASTERN STANDARD TIME, September 25, 2015. Letters of Intent will not be accepted after this date. No exceptions will be made.

**Applications must be received by 5:00 PM EASTERN STANDARD TIME, October 30, 2015.**

Scientific and technical review will be conducted from November 2015 – January 2016. The second-level review by the Medical and Scientific Advisory Council will be conducted during January 2016. Funding will be awarded by January 2016.

**Applications will be reviewed with special attention to:**

- Significance of the question being studied
- Applicant information
- Quality of the work plan
- Quality and adequacy of available resources and budget
- Impact-Risk

**Mechanism of Award, Reporting Requirements and Allowable Costs:** The mechanism of the award is the individual research grant. The maximum allowable duration is two years. Annual scientific progress and financial reports are required. **Continuation of the grant over the awarded duration is contingent upon the timely receipt of scientific progress and financial reports.**

**Budget:** A "budget summary" for the proposed research project is required and must be submitted with the application and within the allowable page limits. However, if the application is to be awarded, a more detailed budget will be required and must be approved before the disbursement of funds. **Your budget must not exceed the maximum amount of the award, \$100,000 or \$60,000 per year.**

**Allowable costs under this award:**

It is required that most of the funds awarded under this program be used for direct research support.

**Other allowable costs include:**

- Purchase and care of laboratory animals
- Small pieces of laboratory equipment and laboratory supplies
- Computer software if used strictly for data collection
- Salary for the principal investigator, scientific (including postdoctoral fellows) and technical staff (including laboratory technicians and administrative support directly related to the funded grant)
- Support for travel to scientific and professional meetings not to exceed \$1,000 per year
- Additional support for travel expenses necessary to carry out research planned not to exceed \$1,000 per year

**Direct Costs not allowed under this award include:**

- Computer hardware or standard software (e.g. Microsoft Office)
- Construction or renovation costs
- Tuition
- Rent for laboratory/office space

**For more information:** Contact [grantsapp@alz.org](mailto:grantsapp@alz.org) or call 1.312.335-5747 or 1.312.335.5862.

### iii. New Investigator Research Grant to Promote Diversity (NIRGD)

**Competition objectives:** The New Investigator Research Grant to Promote Diversity in Alzheimer's research is a two-year award to investigators who are currently underrepresented at academic institutions in Alzheimer's or related dementias research. The objective of this award is to increase the number of highly trained investigators from diverse backgrounds whose basic, clinical and social/behavioral research interests are grounded in the advanced methods and experimental approaches needed to solve problems related to Alzheimer's and related dementias in general and in health disparities populations. The Alzheimer's Association recognizes the need to increase the number of underrepresented scientists participating in biomedical and behavioral research. The Association anticipates that by providing these research opportunities, the number of underrepresented scientists entering and remaining in biomedical research careers in Alzheimer's disease will increase.

The purpose of this program is to provide underrepresented new investigators with funding that will allow them to develop preliminary or pilot data, to test procedures, and to develop hypotheses. The intent is to support early-career development that will lay the groundwork for future research grant applications to the National Institutes of Health, National Science Foundation and other funding agencies and groups, including future proposals to the Alzheimer's Association. All NIRGD applications must target defined areas of focus outlined in this Program Announcement (see Section II).

**Funding and award period:** Each NIRGD award is limited to \$100,000 (direct and indirect costs) for up to two years. Requests in any given year may not exceed \$60,000 (direct and indirect costs). Indirect costs are capped at 10 percent (rent for laboratory/office space is expected to be covered by indirect costs paid to the institution).

**Eligibility:** Applicants must be Assistant Professors or above at their respective institution. For individuals who are at non-academic institutions, please contact the Alzheimer's Association at [grantsapp@alz.org](mailto:grantsapp@alz.org) to verify your eligibility. Eligibility to apply for this grant competition is restricted to investigators who have less than 10 years of research experience after receipt of their terminal degree. The 10-year period applies to the date of submission of the grant application. Adjustments for career interruptions can be made. Applicant must contact the Alzheimer's Association regarding any possible exception ([grantsapp@alz.org](mailto:grantsapp@alz.org)). These would include, but are not limited to, family leave, military service, and major illness or injury. It is the responsibility of the applicant to point out and document such interruptions within their application.

Specific for the NIRGD and MNIRGD grant programs, eligible applicants are faculty members who have been determined to be underrepresented faculty in biomedical and behavioral research on a national or institutional basis. The Alzheimer's Association will require documentation to support the faculty member's underrepresented status at their institution. Applicants in the United States will be subject to the definitions as stated by the National Institutes of Health:

1. Individuals from racial and ethnic groups that have been shown by the National Science Foundation to be underrepresented in health-related sciences on a national basis. The following racial and ethnic groups have been shown to be underrepresented in biomedical research: African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, and other Pacific Islanders. In addition, it is recognized that underrepresentation can vary from setting to setting; individuals from racial or ethnic groups that can be convincingly demonstrated to be underrepresented by the grantee institution should be encouraged to participate in this program.
2. Individuals with disabilities, who are defined as those with a physical or mental impairment that substantially limits one or more major life activities.
3. Individuals from disadvantaged backgrounds who are defined as:
  - Individuals who come from a family with an annual income below established low-income thresholds. These thresholds are based on family size; published by the U.S. Bureau of the Census; adjusted annually for changes in the Consumer Price Index; and adjusted by the Secretary for use in all health professions programs. The Secretary periodically publishes these income levels at HHS - Poverty Guidelines, Research, and Measurement. For individuals from low income backgrounds, the institution must be able to demonstrate that such participants have qualified for Federal disadvantaged assistance or they have received any of the following student loans: Health Professions Student Loans (HPSL), Loans for Disadvantaged Student Program, or they have received scholarships from the U.S. Department of Health and Human Services under the Scholarship for Individuals with Exceptional Financial Need.
  - Individuals who come from a social, cultural, or educational environment such as that found in certain rural or inner-city environments that have demonstrably and recently directly inhibited the individual from obtaining the knowledge, skills, and abilities necessary to develop and participate in a research career.
  - Disadvantaged background (C1 and C2) are most applicable to high school and perhaps undergraduate candidates, but would be more difficult to justify for individuals beyond that level of achievement.

Applicants must submit a letter printed on the hiring institution letterhead, signed by an authorized institutional official (i.e. Grants and Contracts officer) that states you have been determined by your institution to be underrepresented in the above areas at the time of Letter of Intent (LOI) for verification. The Alzheimer's Association reserves the right to require additional documentation to help confirm the applicant's eligibility. **Non-US Applicants in addition to letter must provide official documentation from their institutional materials, such as, website, manual or other legal documentation that indicates their eligibility for this program.**

**Applications for a New Investigator Research Grant (NIRG) and New Investigator Research Grant to Promote Diversity (NIRGD) will be accepted from postdoctoral fellows and other junior faculty members (for example: Instructor, Research Associate Scientist, etc.) who can provide a letter of employment verification indicating you will have a full-time faculty position of an Assistant Professor and above by the award date should the proposal be in funding range and funded.**

The letter of employment must be uploaded to your application, printed on the hiring institution letterhead, signed by an authorized institutional official (i.e. Grants and Contracts officer) and must indicate that the position will be activated by the grant award date. If the anticipated position is not activated by the award date for any reason, any offer of funding will be withdrawn. There will be no exceptions. In the event your application is funded, you will be required to provide an official letter on organizational letterhead, signed by an institutional signing official, stating you will have a full-time faculty position of an assistant professor and above.

**Please note:** If the applicant institution does not have an Assistant Professor position, the letter of employment should include sufficient information to allow the Alzheimer's Association staff to evaluate the eligibility of the applicant.

**Ineligibility:** The Alzheimer's Association will not accept new grant applications from currently funded investigators who are delinquent in submitting required reports and other deliverables on active grants. Investigators that have previous Alzheimer's Association awards closed as 'Incomplete' are not eligible to apply without exception. **This policy will be strictly adhered to with no exceptions.**

**Deadlines and award dates:** Letters of Intent must be received by 5:00 PM EASTERN STANDARD TIME, September 25, 2015. Letters of Intent will not be accepted after this date. No exceptions will be made.

**Applications must be received by 5:00 PM EASTERN STANDARD TIME, October 30, 2015.**

Scientific and technical review will be conducted from November 2015 – January 2016. The second-level review by the Medical and Scientific Advisory Council will be conducted during January 2016. Funding will be awarded by January 2016.

**Applications will be reviewed with special attention to:**

- Significance of the question being studied
- Applicant information
- Quality of the work plan
- Quality and adequacy of available resources and budget
- Impact-Risk

**Mechanism of award, reporting requirements and allowable costs:** The mechanism of the award is the individual research grant. The maximum allowable duration is two years. Annual scientific progress and financial reports are required. **Continuation of the grant over the awarded duration is contingent upon the timely receipt of scientific progress and financial reports.**

**Budget:** A "budget summary" for the proposed research project is required and must be submitted with the application and within the allowable page limits. However, if the application is to be awarded, a more detailed budget will be required and must be approved before the disbursement of funds. **Your budget must not exceed the maximum amount of the award, \$100,000 or \$60,000 per year.**

**Allowable costs under this award:**

It is required that most of the funds awarded under this program be used for direct research support.

**Allowable costs under this award include:**

- Purchase and care of laboratory animals
- Small pieces of laboratory equipment and laboratory supplies
- Computer equipment if used strictly for data collection
- Support for travel to scientific and professional meetings not to exceed \$1,000 per year
- Additional support for travel expenses necessary to carry out research planned not to exceed \$1,000 per year
- Salary for the principal investigator, scientific (including post-doctoral fellows) and technical staff (including laboratory technicians and administrative support related directly to the funded project)

**Direct Costs not allowed under this award include:**

- Tuition
- Computer hardware or software for investigators
- Rent for laboratory/office space
- Construction or renovation costs

**For more information:** Contact [grantsapp@alz.org](mailto:grantsapp@alz.org) or call 1.312.335-5747 or 1.312.335.5862.

#### iv. Mentored New Investigator Research Grant to Promote Diversity (MNIRGD)

**Competition objectives:** The Mentored New Investigator Research Grant to Promote Diversity is a three-year award intended to be a research-based and mentoring investment to help close disparities between diverse and non-diverse investigator populations. The Alzheimer's Association feels strongly that the mentoring and involvement of diverse researchers in independently funded Alzheimer's research is a pressing need. The MNIRGD is intended to enhance the capacity of diverse and non-diverse scientists to conduct basic, clinical and social/behavioral research.

***The MNIRGD competition has the following general requirements:***

- Foster mentoring relationships between experienced researchers and those not previously funded or considered newly independent investigators (under 10 years post degree);
- Increase the presence of scientists from diverse backgrounds who are conducting research on Alzheimer's and related dementias;
- Enhance the research skills and scientific visibility of junior faculty members from diverse backgrounds;
- Support mentoring relationships that will establish enduring research careers of diverse scientists.

The purpose of this competition is to provide underrepresented new investigators with mentored funding that will allow them to develop preliminary or pilot data, to test procedures and to develop hypotheses. The intent is to support early-career development through mentorship that will lay the groundwork for future research grant applications to the National Institutes of Health, National Science Foundation and other funding agencies and groups, including future proposals to the Alzheimer's Association. All MNIRGD applications must target defined areas of focus in this Program Announcement (see Section II).

***Mentor's statement required for MNIRGD:*** The mentor should be experienced in conducting research and in mentoring investigators. The application must include a statement from the selected mentor that includes information on his/her research qualifications and experience as a research supervisor. **Please note: the mentor's statement is limited to three pages and should highlight both the potential of the application and the role the mentor will play in helping the applicant be successful during the award period.** The application must also include information to describe the mentor's research support relevant to the applicant's research plan and the nature and extent of supervision and training that he/she will provide during the period of the award. The primary mentor must agree to provide annual evaluations of the applicant's progress for the duration of the award, as required for the yearly progress report. Applicants may have two mentors, however, one must be primary and only one mentored statement can be submitted. **A component of the review criteria for these applications will be based on the primary mentor; the role they will play in carrying forth the individual's planned research and achieving the MNIRD milestones.**



Mentoring selections may include early-career researchers and/or mid-career scientists who choose to shift into Alzheimer's and related dementia research. The applicant and proposed mentor must specify a mechanism for ensuring effective mentoring. The application should contain a plan for and an evaluation strategy of the mentoring process for enhancing diversity in the professional research workforce. Specific benchmarks are outlined below and considered by the Alzheimer's Association as critical for the development of early-career investigators. A successful mentorship plan should include some of these benchmarks but should not be limited to these alone.

***REQUIRED MNIRGD benchmarks:***

- Attendance at an Association-sponsored event for new investigators at the Alzheimer's Association's International Conference (AAIC)
- Acceptance of an abstract at AAIC
- Mandatory documentation of hours spent on face-to-face mentoring
- Citation of specific exercises of mentorship such as supervision of manuscript writing and submission or grant writing and submission
- Specific instances of the facilitation of networking, introductions to colleagues and/or inclusion in discussions at scientific meetings
- Submission of a proposal to an Alzheimer's Association grant program (other than the MNIRGD) or submission of a grant proposal to the National Institutes of Health or National Science Foundation

***SUGGESTED MNIRGD benchmark (not required)***

- Submission of an application to the National Institute on Aging's Summer Institute

***Funding and award period:*** Each MNIRGD award is limited to \$170,000. A total of \$150,000 will be awarded for costs related to the proposed research for up to three years (direct and indirect costs). Requests in any given year may not exceed \$60,000 (direct and indirect costs). Indirect costs are capped at 10 percent (rent for laboratory/office space is expected to be covered by indirect costs paid to the institution). The Principal Investigator must commit to a 50 percent effort toward the proposed project over the funding period.

The remaining funds, \$10,000 to the applicant and \$10,000 to the primary mentor, will be awarded upon successful completion of the three-year program. These additional funds are to be applied to sustaining ongoing research in the Alzheimer's field and will be awarded through the applicant's and mentor's institutions. Successful completion of the program includes, but is not limited to, reaching all of the demonstrable benchmarks listed above.

***Eligibility:*** Please note, individuals applying to the MNIRGD program will be accepted from applicants with full time positions at their respective institution, including senior postdoctoral fellows (minimum 2yrs), instructors, and above. For individuals who are at non-academic institutions, please contact the Alzheimer's Association at [grantsapp@alz.org](mailto:grantsapp@alz.org) to verify your eligibility. Eligibility to apply for this grant competition is restricted to investigators who have less than 10 years of research experience after receipt of their terminal degree. The 10-year period applies to the date

of submission of the grant application. Adjustments for career interruptions can be made. Applicant must contact the Alzheimer's Association regarding any possible exception ([grantsapp@alz.org](mailto:grantsapp@alz.org)). These would include, but are not limited to, family leave, military service, and major illness or injury. It is the responsibility of the applicant to point out and document such interruptions within their application.

Specific for the NIRGD and MNIRGD grant programs, eligible applicants are faculty members who have been determined to be underrepresented faculty in biomedical and behavioral research on a national or institutional basis. The Alzheimer's Association will require documentation to support the faculty member's underrepresented status at their institution. Applicants in the United States will be subject to the definitions as stated by the National Institutes of Health:

1. Individuals from racial and ethnic groups that have been shown by the National Science Foundation to be underrepresented in health-related sciences on a national basis. The following racial and ethnic groups have been shown to be underrepresented in biomedical research: African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians, and other Pacific Islanders. In addition, it is recognized that underrepresentation can vary from setting to setting; individuals from racial or ethnic groups that can be convincingly demonstrated to be underrepresented by the grantee institution should be encouraged to participate in this program.
2. Individuals with disabilities, who are defined as those with a physical or mental impairment that substantially limits one or more major life activities.
3. Individuals from disadvantaged backgrounds who are defined as:
  - Individuals who come from a family with an annual income below established low-income thresholds. These thresholds are based on family size; published by the U.S. Bureau of the Census; adjusted annually for changes in the Consumer Price Index; and adjusted by the Secretary for use in all health professions programs. The Secretary periodically publishes these income levels at HHS - Poverty Guidelines, Research, and Measurement. For individuals from low income backgrounds, the institution must be able to demonstrate that such participants have qualified for Federal disadvantaged assistance or they have received any of the following student loans: Health Professions Student Loans (HPSL), Loans for Disadvantaged Student Program, or they have received scholarships from the U.S. Department of Health and Human Services under the Scholarship for Individuals with Exceptional Financial Need.
  - Individuals who come from a social, cultural, or educational environment such as that found in certain rural or inner-city environments that have demonstrably and recently directly inhibited the individual from obtaining the knowledge, skills, and abilities necessary to develop and participate in a research career.
  - Disadvantaged background (C1 and C2) are most applicable to high school and perhaps undergraduate candidates, but would be more difficult to

justify for individuals beyond that level of achievement.

Applicants must submit a letter printed on the hiring institution letterhead, signed by an authorized institutional official (i.e. Grants and Contracts officer) that states you have been determined by your institution to be underrepresented in the above areas at the time of Letter of Intent (LOI) for verification. The Alzheimer's Association reserves the right to require additional documentation to help confirm the applicant's eligibility. **Non-US Applicants in addition to letter must provide official documentation from their institutional materials, such as, website, manual or other legal documentation that indicates their eligibility for this program.**

***Ineligibility:*** The Alzheimer's Association will not accept new grant applications from currently funded investigators who are delinquent in submitting required reports and other deliverables on active grants. Investigators that have previous Alzheimer's Association awards closed as 'Incomplete' are not eligible to apply without exception. **This policy will be strictly adhered to with no exceptions.**

***Deadlines and award dates:*** Letters of Intent must be received by 5:00 PM EASTERN STANDARD TIME, September 25, 2015. Letters of Intent will not be accepted after this date. No exceptions will be made.

**Applications must be received by 5:00 PM EASTERN STANDARD TIME, October 30, 2015.**

Scientific and technical review will be conducted from November 2015 – January 2016. The second-level review by the Medical and Scientific Advisory Council will be conducted during January 2016. Funding will be awarded by January 2016.

**Applications will be reviewed with special attention to:**

- Significance of the question being studied
- Applicant and mentor information
- Quality of the work plan
- Quality and adequacy of available resources and budget
- Impact-Risk

***Mechanism of award, reporting requirements and allowable costs:*** The mechanism of the award is the individual research grant. The maximum allowable duration is three years. Annual scientific progress and financial reports are required from both the applicant and the mentor throughout the award period. **Continuation of the grant over the awarded duration is contingent upon the timely receipt of scientific progress and financial reports as well as a mentor's report outlining progress toward meeting MNIRGD benchmarks.**

**Budget:** A “budget summary” for the proposed research project is required and must be submitted with the application and within the allowable page limits. However, if the application is to be awarded, a more detailed budget will be required and must be approved before the disbursement of funds. **Your budget must not exceed the maximum amount of the award, \$150,000 or \$60,000 per year.**

**Allowable costs under this award:**

It is required that most of the funds awarded under this program be used for direct research support.

**Allowable costs under this award include:**

- Purchase and care of laboratory animals
- Small pieces of laboratory equipment and laboratory supplies
- Computer equipment if used strictly for data collection
- Support for travel to scientific and professional meetings not to exceed \$1,000 per year
- Additional support for travel expenses necessary to carry out research planned not to exceed \$1,000 per year
- Salary for the principal investigator, scientific (including post-doctoral fellows) and technical staff (including laboratory technicians and administrative support related directly to the funded project)

**Direct Costs not allowed under this award include:**

- Tuition
- Computer hardware or software for investigators
- Rent for laboratory/office space
- Construction or renovation costs

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