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CHICAGO, October 20, 2011 – Research Down Syndrome (RDS), has announced funding for six grants to support Down syndrome cognitive research. This field of research has seen tremendous progress in recent years, including the September 2011 announcement by Roche of a human clinical trial to investigate the safety and tolerability of a molecule designed to address the cognitive and behavioral deficits associated with Down syndrome.

Research Down Syndrome, among the leading sources of private funding for Down syndrome related cognitive research, prioritizes funding towards programs with a high probability of readily contributing to the development of safe and effective therapies. Continued private donations are needed to support the constantly expanding research efforts that will lead to potential medical treatments. The 2011/2012 RDS Research Grants include:

Johns Hopkins University School of Medicine: RDS Research Center Grant entitled “*A Down Syndrome Virtual Center for Basic and Translational Studies-Cognition and Therapy in Down Syndrome*” to Principal Investigators Dr. Roger Reeves, Professor, Department of Physiology and McKusick Nathans Institute for Genetic Medicine, and Dr. Stephanie Sherman, Professor, Department of Human Genetics Emory University School

of Medicine. Co-Principal Investigators include Len Abbeduto, Ph.D. (MIND Institute, University of California, Davis); George Capone, M.D., Iser DeLeon, Ph.D. and Connie Smith-Hicks, M.D., Ph.D., (Kennedy Krieger Institute, Baltimore); Paul Worley, M.D. and Valerie DeLeon, Ph.D. (Johns Hopkins University School of Medicine); Lynn Nadel, Ph.D. and Jamie Edgin, Ph.D. (University of Arizona); Eleanor Feingold, Ph.D. (University of Pittsburgh); Cheryl Maslen, Ph.D. (Oregon Health and Science University); and, Emily Kushner, Ph.D. (Children's National Medical Center, Washington DC).

- Investigation of the mechanism by which a single-dose treatment, early in life of Down syndrome mouse model, with a specific SHH growth factor-like drug completely restores hippocampal function involving learning and memory in adults which may lead to significant new therapeutic strategies.
- Investigation of hippocampal neural circuit/network dysfunction and abnormalities in synaptic function which may lead to important insights to refine GABA-A receptor-mediated therapeutic approaches and identify new potential therapeutic drug targets.
- Further expansion and development of Down Syndrome Cognition Project and collaborative network to encompass eight biomedical research institutions for clinical studies to correlate genetic and cognitive variability in individuals with Down syndrome, incorporate and validate language assessment tools, extend validation and acceptance of the ACTB as specific new biomedical standard and critical efficacy assessment component in clinical trials, and to further establish scaffold for clinical trials network.

- More -

University of California, San Diego School of Medicine: RDS Research Center Grant entitled “*Deciphering the Genetic and Mechanistic Bases for Cognitive Deficits in People with Down Syndrome: Pursuing High Priority Projects to Accelerate Development of Effective Treatments*” to Principal Investigator Dr. William Mobley, Professor and Chair, Department of Neurosciences. Co-Principal Investigators include Pavel Belichenko, M.D., Ph.D., Alexander Kleschevnikov, Ph.D., Steve Wagner, Ph.D. and Chengbiao Wu, Ph.D.

- Further investigation of the roles of GABA-A and GABA-B receptors and Girk2 potassium channel in the imbalance in excitatory and inhibitory neurotransmission and cognitive dysfunction in mouse DS models which may lead to the identification of new drug targets, potential drugs, and therapeutic strategies to improve cognition.
- Continuing investigation on mechanism(s) by which excess APP, and/or its products, may be involved in degeneration of specific neural circuits with age which may lead to the identification of new drug targets, potential drugs, and therapeutic strategies to decrease APP and/or its products, and ameliorate age-related cognitive dysfunction and Alzheimer’s disease pathology associated with Down syndrome. Investigation of age-related structural and cognitive changes in mouse models for Down syndrome.

- More -

University of Arizona: RDS Innovation Research Grant entitled “*The Neuropsychology of Down Syndrome*” to Principal Investigators Drs. Lynn Nadel, Regent’s Professor and Jamie Edgin, Senior Research Associate, Department of Psychology.

- Extension and expansion of Arizona Cognitive Test Battery (ACTB) to include development and evaluation of specific language and communication assessment tests and for testing in a wider range of ages and ability. This will include expansion of ACTB application to toddlers and children under age 10 as well as adults, for detection of changes associated with decline from dementia, to support clinical trials in these groups, and further advance validation and acceptance of the ACTB as specific new biomedical standard in Down syndrome research and clinical trials.
- Application of ACTB to sleep studies as well as analysis of genetic variations in children with Down syndrome to provide new insights for evidence-based therapeutic strategies for addressing sleep disorders and also improve cognitive function.
- Investigation and development of specific biomarker assessments of cognitive function and associated changes to provide critical additional functional and efficacy tests for Down syndrome cognitive research and clinical trials.

Stanford University School of Medicine: RDS Innovation Research Grant entitled “*Reducing Cognitive Disability in Down Syndrome-Exploration of the Mechanisms of Hippocampal Dysfunction and Pharmacotherapy*” to Principal Investigator Dr. H. Craig Heller, Lokey/Business Professor Department of Biology, and co-Principal Investigator Dr. Craig Garner, Professor Department of Psychiatry and Behavioral Sciences, and co-Directors Stanford Down Syndrome Research Center.

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- Continuing investigation of the mechanism(s) of action of drugs that block GABA-A receptor function in mouse DS models which may provide additional insights on and modifications for potential therapeutic strategies to improve memory and sleep in Down syndrome.
- Development and application of optogenetic technologies in mouse model for Down syndrome to investigate abnormal sleep mechanisms and specific correlations to learning and memory dysfunction
- Investigation of the role of App dosage in abnormal sleep mechanisms in mouse models and specific correlations to learning and memory dysfunctions in Down syndrome to identify potential therapeutic strategies for improvement.

University of Texas, Austin: RDS Innovation Research Pilot Grant entitled “*Molecular analysis of proneurogenic, neuroprotective drugs on prevention of APP-induced neurodegeneration in a model of Down syndrome*” to Principal Investigator Dr. Jon Pierce-Shimomura, Assistant Professor, Section of Neurobiology.

- Investigation of drugs that prevent APP-induced neurodegeneration in *C. elegans* to identify specific molecular targets and mechanisms of action which may lead to new therapeutic strategies to ameliorate age-related neurodegeneration in Down syndrome.
- Continuing identification of over-expressed human chromosome 21-equivalent genes involved in neural dysfunction, including neurodegeneration, using automated behavioral analysis with different sets of transgenic *C. elegans* as new animal models for Down syndrome research.

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VA Palo Alto Health Care System: RDS Innovation Research Pilot Grant entitled “*Improving Beta-adrenergic Signaling in the Treatment of Cognitive Dysfunction, an in vivo Study in the Ts65Dn Mouse Model of Down Syndrome*” to Principal Investigator Dr. Ahmad Salehi, Research Health Science Specialist and Clinical Associate Professor, Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine.

- Continuing evaluation of FDA-approved norepinephrine re-uptake inhibitor, Atomoxetine, to improve learning and memory in a mouse model for Down syndrome which may provide a basis for accelerated clinical evaluation of Atomoxetine in individuals with Down syndrome.
- Continuing investigation into roles of hippocampal beta-adrenergic receptor subtypes in restoring cognitive function and preventing age-related neurodegeneration in mouse model for Down syndrome.

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About Research Down Syndrome

Research Down Syndrome (RDS) is among the leading sources of private funding for Down syndrome related cognitive research. RDS supports and funds Down syndrome cognitive research conducted at research institutions that are studying the basis of the intellectual impairments associated with Down syndrome - including Johns Hopkins University; Stanford University; University of Arizona; University of California, San Diego; University of Colorado; University of Texas, Austin; and VA Palo Alto Health Care System. Research Down Syndrome is a legal corporate entity, and is a 501(c) (3) nonprofit organization designated by the Internal Revenue Code. For more information, go to www.researchds.org, or contact RDS: info@researchds.org or 877.863.2121.