McDonnell Foundation Announces 2010 Grants for
The 21st Century Science Initiative Awards

$24 Million in Grants Continue the Commitment to Founder's Vision

(St. Louis, MO) The Officers of the James S. McDonnell Foundation today announced more than $24 million in grants in their ongoing program, the 21st Century Science Initiative.

Founded in 1950 by the late aerospace pioneer and founder of what would become the McDonnell Douglas Corporation, James S. McDonnell believed that science and technology gives mankind the power to shape knowledge for the future while improving our lives. "Mr. Mac's" vision continues to be realized through the research these grants are supporting. Since the inception of the program in 2000, more than $172 million in funding has been awarded.

The 21st Century Science Initiative funded research in three program areas and Cognitive Rehabilitation. Scholar Awards in the program area Understanding Human Cognition were provided to a select group of researchers identified by their peers as likely to continue to make important contributions to the ongoing effort to better understand the neural underpinnings and behavioral ramifications of human cognition. Two other program areas supported research primarily through a competitive research awards process. Brain Cancer Research supports research leading to new knowledge that will eventually lead to increased rates of survival and improve functional recovery for individuals with brain cancer. Studying Complex Systems supports scholarship and research directed toward the development of theoretical and mathematical tools that can be applied to the study of complex, adaptive, nonlinear systems.

“Support of research and applications of research findings to important problems remains a pivotal role for private philanthropy and for the McDonnell Foundation. The foundation is committed to the ideal that having a diversity of private and public funders helps ensure that the most creative work will obtain needed support”, said McDonnell Foundation Vice President, Dr. Susan Fitzpatrick.

The McDonnell Foundation's 2010 21st Century Science Initiative Awards are:

Scholar Awards: Understanding Human Cognition
University of California-Davis
Principal Investigator: Simona Ghetti, $600,000 over six years.
Building blocks of episodic memory: Insight from typical and atypical development

Stanford University, Stanford, California
Principal Investigator: Lera Boroditsky, $600,000 over six years.
Mental representations of abstract domains

The New School for Social Research, New York, New York
Principal Investigator: Daniel Casasanto, $600,000 over six years.
How experience shapes the mind: Roles of language, culture, and body

University College London, London, United Kingdom
Principal Investigator: Marko Nardini, $600,000 over six years.
Development of human spatial cognition

Stanford University, Stanford, California
Principal Investigator: Noah D. Goodman, $600,000 over six years.
Compositionality in probabilistic models of cognition

University of Illinois at Urbana-Champaign, Champaign, Illinois
Principal Investigator: Kara D. Federmeier, $600,000 over six years.
Cognitive and neural mechanisms of meaning comprehension

Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil
Principal Investigator: Suzana Herculano-Houzel, $600,000 over six years.
The human brain in numbers: Comparative quantitative studies of the cellular composition of the nervous system of humans and other mammals to investigate the morphological bases of our cognitive advantage

Princeton University, Princeton, New Jersey
Vocal communication emerges and evolves through coupled oscillations
Principal Investigator: Asif A. Ghazanfar, $600,000 over six years.

Karolinska Institute, Stockholm, Sweden
Principal Investigator: H. Henrik Ehrsson, $600,000 over six years.
Multisensory mechanism of body ownership and the projection of ownership onto artificial bodies

Trinity College Dublin, Dublin, Ireland
How is sensory information encoded in spike trains?
Principal Investigator: Conor J. Houghton, $600,000 over six years.

INSERM (Institut National de la Santé et de la Recherche Médicale), Bron, France
Spatial awareness: Normality, pathology and rehabilitation
Principal Investigator: Alessandro Farnè, $600,000 over six years.

Yale University, New Haven, Connecticut
To err is human?: Exploring the evolutionary origins of cognitive biases
Principal Investigator: Laurie R. Santos, $600,000 over six years.

Collaborative Activity Awards: Understanding Human Cognition
Rotman Research Institute of Baycrest Centre Hospital, Toronto, Canada
Brain Network Recovery Group (Brain NRG) Phase II
Principal Investigator:  A. Randall McIntosh, $6,106,569 over three years.

Washington University in St. Louis, St. Louis, Missouri
Communities and criticality in brain networks across development and in ADHD
Principal Investigator: Steven E. Petersen, $1,170,403 over three years.

Research Awards: Studying Complex Systems

Beth Israel Deaconess Medical Center, Boston, Massachusetts
Principal Investigator: Madalena D. Costa, $235,310 over three years.
Exploring the multiscale world of biological dynamics: From concepts to computational tools

Harvard University, Cambridge, Massachusetts
Principal Investigator: Michael M. Desai, $449,113 over five years.
The evolutionary dynamics and population genetics of selection in asexual populations

The Hebrew University of Jerusalem, Jerusalem, Israel
Principal Investigator: Jay Fineberg, $450,000 over five years.
The physics of rupture: From the laboratory scale to the scale of our planet

Northwestern University, Evanston, Illinois
Principal Investigator: Daniel M. Abrams, $278,860 over three years.
Modeling social dynamics in competitive systems

The University of Albany, Albany, New York
Principal Investigator: Sanjay Goel, $378,375 over five years.
Understanding the implications of a self-organized traffic grid

University of Arizona, Tucson, Arizona
Principal Investigator: Pierre A. Deymier, $437,060 over three years.
Theoretical and experimental investigations of architecture-dependent signaling in multicellular networks

University of British Columbia, Vancouver, British Columbia, Canada
Principal Investigator: Leticia Avilés, $345,664 over four years.
Evolution to the edge of chaos: Multilevel selection and life history evolution in metapopulations

University of Chicago, Chicago, Illinois
Principal Investigator: Stefano Allesina, $449,817 over four years.
Bacteria test theories of biodiversity

University of Michigan-Ann Arbor, Ann Arbor, Michigan
Principal Investigator: Santiago Schnell, $413,487 over three years.
Identification of bistable network topologies associated with toxic aggregation thresholds found in conformational diseases

Universitat Rovira i Virgili-ICREA, Tarragona, Spain
Co-Principal Investigators: Roger Guimera and Marta Sales, $445,663 over five years.
Discovery, decomposition and dynamics of complex networks

Yale University, New Haven, Connecticut
Principal Investigator: Thierry Emonet, $448,317 over four years.
Shaping individual diversity for collective success

Research Awards: Researching Brain Cancer

Baylor College of Medicine, Houston, Texas
Principal Investigator: Mostafa W. Gaber, $450,000 over three years.
Identifying preclinical imaging markers of radiation side effects: An animal brain tumor model to correlate radiation-induced imaging changes, neurogenesis and cognitive impairment

Massachusetts General Hospital, Boston Massachusetts
Principal Investigator: Khalid Shah, $450,000 over four years.
Evaluating novel stem cell based therapies for brain tumors

Memorial Sloan-Kettering Cancer Center, New York, New York
Principal Investigator: Anna Marie Kenney, $450,000 over three years.
Hedgehog and hippo signaling as drivers of medulloblastoma and cell division-associated metabolic choices

University of California-San Francisco, San Francisco, California
Principal Investigator: C. David James, $450,000 over three years.
BRAF-driven pediatric malignant astrocytoma: Etiology & treatment

University of Pittsburgh, Pittsburgh, Pennsylvania
Principal Investigator: Bo Hu, $450,000 over five years.
Mechanisms and inhibition of anti-angiogenic therapy-induced glioma invasion

University of Texas M.D. Anderson Cancer Center, Houston, Texas
Principal Investigator: Daniel P. Cahill, $100,000 over one year.
Molecular predictors of the mechanism of chemotherapy failure in malignant gliomas

Virginia Commonwealth University, Richmond, Virginia
Principal Investigator: Devanand Sarkar, $450,000 over five years.
Analyzing the role of Astrocyte Elevated Gene-1 (AEG-1) in malignant glioma

Vanderbilt University Medical Center, Nashville, Tennessee
Principal Investigator: H. Alex Brown, $150,000 over one year.
Novel lipid targets in the treatment of human glioblastomas

St. Jude Children's Research Hospital, Memphis, Tennessee
Principal Investigator: Martine F. Roussel, $150,000 over one year.
Small molecule BMP agonists as therapeutic agents for brain tumors

Collaborative Award: Cognitive Rehabilitation

Johns Hopkins University School of Medicine, Baltimore, Maryland
Project Manager/Principal Investigator: John W. Krakauer Co-Principal Investigator and Director of the Outpatient Neuro-rehabilitation Program: Pablo Celnick, $2,424,202 over three years.
Tracking and altering the time course of spontaneous biological recovery after stroke

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