Recent Autism Science

Thomas Insel, M.D.
Chair, IACC
IACC Full Committee Meeting
December 14, 2010

These slides do not reflect decisions of the IACC and are for discussion purposes only.

Autism “Hot Topic” at SFN

SOCIETY FOR NEUROSCIENCE

Advancing the Understanding of the Brain and Nervous System

In 2009: 255 abstracts

In 2010: 337 abstracts and a public symposium

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Cell 11/10

A Model for Neural Development and Treatment of Rett Syndrome Using Human Induced Pluripotent Stem Cells

Maria C.N. Marchetto,[1,5] Cassiano Carromeu,[2,5] Allan Acab,[2] Diana Yu,[1] Gene W. Yeo,[3] Yangling Mu,[1] Gong Chen,[4] Fred H. Gage,[1] and Alysson R. Muotri[2,*]

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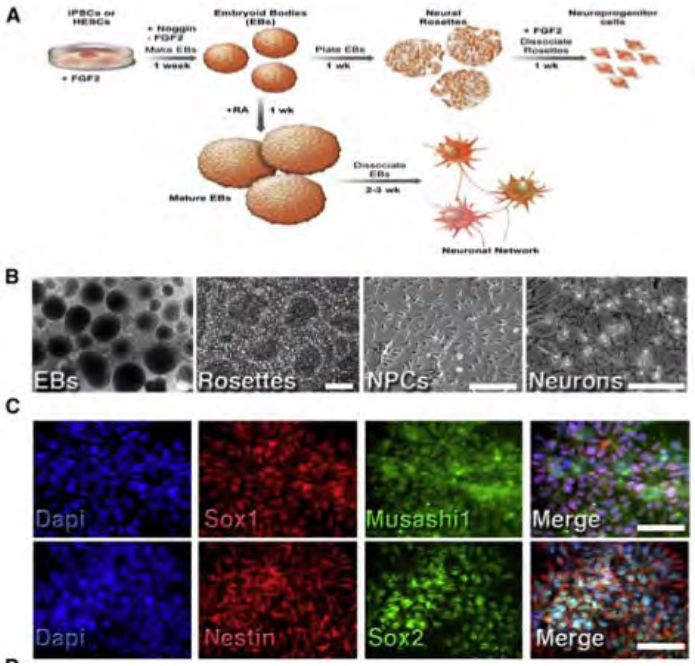


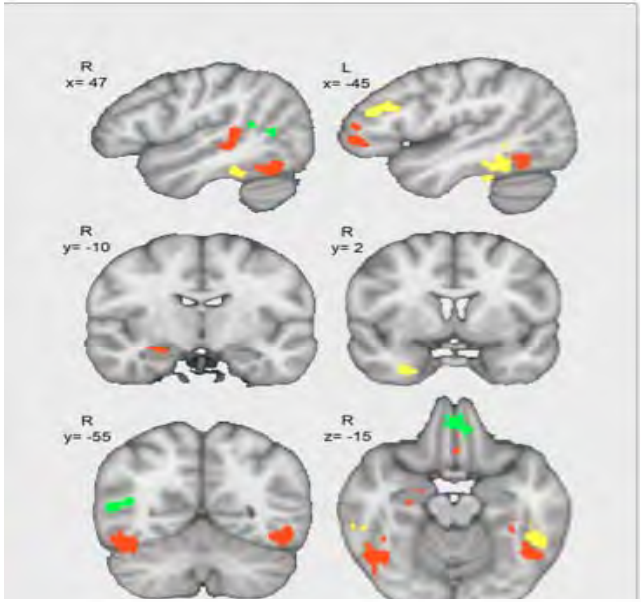
Rescue with
IGF1 and Gentamycin

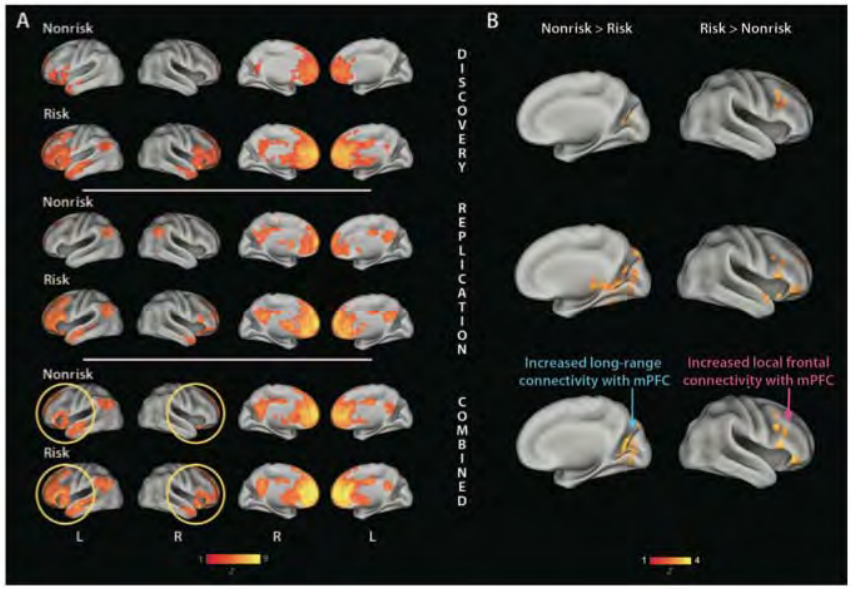
Neural signatures of autism

PNAS 12/7/10

Martha D. Kaiser[a], Caitlin M. Hudac[a], Sarah Shultz[a,b], Su Mei Lee[a,b], Celeste Cheung[a], Allison M. Berken[a], Ben Deen[a], Naomi B. Pitskel[a], Daniel R. Sugrue[a], Avery C. Voos[a], Celine A. Saulnier[a], Pamela Ventola[a], Julie M. Wolf[a], Ami Klin[a], Brent C. Vander Wyk[a], and Kevin A. Pelphrey[a,b,1]

[a]Yale Child Study Center, Yale School of Medicine, New Haven, CT 06520, and [b]Department of Psychology, Yale University, New Haven, CT 06520





Altered Functional Connectivity in Frontal Lobe Circuits Is Associated with Variation in the Autism Risk Gene *CNTNAP2*

Ashley A. Scott-Van Zeeland,[1,2,3] Brett S. Abrahams,[4*] Ana I. Alvarez-Retuerto,[4,5] Lisa I. Sonnenblick,[4] Jeffrey D. Rudie,[2] Dara Ghahremani,[6] Jeanette A. Mumford,[7] Russell A. Poldrack,[7] Mirella Dapretto,[5,6,8] Daniel H. Geschwind,[4,5†‡] Susan Y. Bookheimer[1,5,6,7†‡]

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INTERAGENCY AUTISM COORDINATING COMMITTEE

Describing the Brain in Autism in Five Dimensions—Magnetic Resonance Imaging-Assisted Diagnosis of Autism Spectrum Disorder Using a Multiparameter Classification Approach

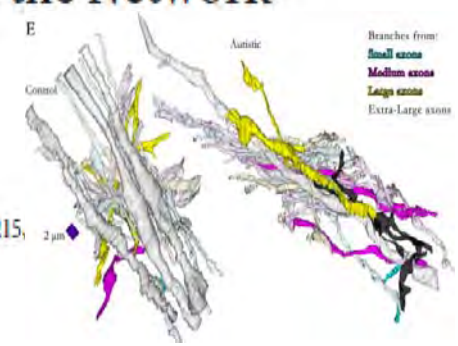
Christine Ecker,[1] Andre Marquand,[2] Janaina Mourão-Miranda,[3,4] Patrick Johnston,[1] Eileen M. Daly,[1] Michael J. Brammer,[2] Stefanos Maltezos,[1] Clodagh M. Murphy,[1] Dene Robertson,[1] Steven C. Williams,[3] and Declan G. M. Murphy[1]

[1]Section of Brain Maturation, Department of Psychological Medicine, Institute of Psychiatry, [2]Brain Image Analysis Unit, Department of Biostatistics, Institute of Psychiatry, and [3]Centre for Neuroimaging Sciences, Institute of Psychiatry, King's College, London SE5 8AF, United Kingdom, and [4]Centre for Computational Statistics and Machine Learning, Department of Computer Science, University College London, London WC1E 6BT, United Kingdom

The Journal of Neuroscience, November 3, 2010 • 30(44):14595–14609 • 14595

Neurobiology of Disease

Changes in Prefrontal Axons May Disrupt the Network in Autism



Basilis Zikopoulos[1,2] and Helen Barbas[1,2,3]

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JAMA 12/1/10

Mitochondrial Dysfunction in Autism

Cecilia Giulivi, PhD
Yi-Fan Zhang, BS
Alicja Omanska-Klusek, MS
Catherine Ross-Inta, BS
Sarah Wong, BS
Irva Hertz-Picciotto, PhD
Flora Tassone, PhD
Isaac N. Pessah, PhD

Context Impaired mitochondrial function may influence processes highly dependent on energy, such as neurodevelopment, and contribute to autism. No studies have evaluated mitochondrial dysfunction and mitochondrial DNA (mtDNA) abnormalities in a well-defined population of children with autism.

Objective To evaluate mitochondrial defects in children with autism.

Design, Setting, and Patients Observational study using data collected from patients aged 2 to 5 years who were a subset of children participating in the Childhood Autism Risk From Genes and Environment study in California, which is a population-based, case-control investigation with confirmed autism cases and age-matched, genetically unrelated, typically developing controls, that was launched in 2003 and is still ongoing. Mitochondrial dysfunction and mtDNA abnormalities were evaluated in lymphocytes from 10 children with autism and 10 controls.

A UTISM SPECTRUM DISORDERS

Parental Autoimmune Diseases Associated With Autism Spectrum Disorders in Offspring

Epidemiology 9/10

Alexander Keil,[a] Julie L. Daniels,[a,b] Ulla Forssen,[c,d] Christina Hultman,[e] Sven Cnattingius,[f] Karin C. Söderberg,[g] Maria Feychting,[d] and Par Sparen[e]

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PNAS 6/10

Characterization and reversal of synaptic defects in the amygdala in a mouse model of fragile X syndrome

Aparna Suvrathan[a], Charles A. Hoeffer[b], Helen Wong[b], Eric Klann[b], and Sumantra Chattarji[a,1]

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