

## PERIMETER LETTER 3.22.05

### ADULT ADHD

- *High doses of methylphenidate led to decreased ADHD symptoms in adults, in this randomized controlled trial. Figure 1 has the main results:* Spencer T, Biederman J, Wilens T, Doyle R, Surman C, Prince J, Mick E, Aleari M, Herzig K, Faraone S. A large, double-blind, randomized clinical trial of methylphenidate in the treatment of adults with attention-deficit/hyperactivity disorder. *Biol Psychiatry*. 2005 Mar 1;57:456-63.

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- *A related article:* *Annu Rev Med*. 2002;53:113-31.

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- *A related textbook entry:* *Health Services/Technology Assessment Text (HSTAT)*. Number 11.

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### GERIATRICS

- *A small set of genes was associated with aging in postmortem human frontal cortex. Figures 2 and 3 have the main results:* Erraji-Benchekroun L, Underwood MD, Arango V, Galfalvy H, Pavlidis P, Smyrniotopoulos P, Mann JJ, Sibille E. Molecular aging in human prefrontal cortex is selective and continuous throughout adult life. *Biol Psychiatry*. 2005 Mar 1;57:549-58.

[http://www.sciencedirect.com/science?\\_ob=MIimg&\\_imagekey=B6T4S-4FC8V54-1-1&\\_cdi=4982&\\_user=38557&\\_orig=browse&\\_coverDate=03%2F01%2F2005&\\_sk=999429994&\\_view=c&\\_wchp=dGLbVtz-zSkzk&\\_md5=9acd620ea792e55a50066d37abf7d3d6&\\_ie=/sdarticle.pdf](http://www.sciencedirect.com/science?_ob=MIimg&_imagekey=B6T4S-4FC8V54-1-1&_cdi=4982&_user=38557&_orig=browse&_coverDate=03%2F01%2F2005&_sk=999429994&_view=c&_wchp=dGLbVtz-zSkzk&_md5=9acd620ea792e55a50066d37abf7d3d6&_ie=/sdarticle.pdf)

- *A related article:* *Cereb Cortex*. 1999 Mar;9:151-60.

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- *A related textbook entry:* *Basic Neurochemistry: Molecular, Cellular and Medical Aspects Sixth Edition*. Part 4: 30.

<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Search&db=books&doptcmdl=GenBookHL&term=aging+gene+expression+AND+bnchm%5Bbook%5D+AND+160986%5Buid%5D&rid=bnchm.section.2137#2140>

- *A DNA barcode assay for amyloid-beta-derived diffusible ligands in CSF differentiated Alzheimer's disease patients from controls. Figure 2 has the main results:* Georganopoulou DG, Chang L, Nam JM, Thaxton CS, Mufson EJ, Klein WL, Mirkin CA. Nanoparticle-based detection in cerebral spinal fluid of a soluble pathogenic biomarker for Alzheimer's disease. *Proc Natl Acad Sci U S A*. 2005 Feb 15;102:2273-6.

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- *A related article:* *Clin Biochem*. 2000 Nov;33:663-7.

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- *A related textbook entry:* *Basic Neurochemistry: Molecular, Cellular and Medical Aspects Sixth Edition*. Part 6: 46.

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- *Glial cell line-derived neurotrophic factor delivered by adeno-associated viral vector to striatum led to behavioral improvement in a marmoset model of Parkinson's disease. Figure 1 has the main results:* Eslamboli A, Georgievskia B, Ridley RM, Baker HF, Muzyczka N, Burger C, Mandel RJ, Annett L, Kirik D. Continuous low-level glial cell line-derived neurotrophic factor delivery using recombinant adeno-associated viral vectors provides neuroprotection and induces behavioral recovery in a primate model of Parkinson's disease. *J Neurosci*. 2005 Jan 26;25:769-77.

<http://www.jneurosci.org/cgi/reprint/25/4/769>

- *A related article:* *Science*. 1997 Feb 7;275:838-41.

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- A related textbook entry: Basic Neurochemistry: Molecular, Cellular and Medical Aspects Sixth Edition. Part 6: 45.  
<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Search&db=books&doptcmdl=GenBookHL&term=n eurotrophic+Parkinson's++AND+161484%5Buid%5D&rid=bnchm.section.3223#3228>

## LEARNING

- In conditional association learning in monkeys, fast changes in the caudate precede slow changes in the frontal cortex. Figure 2 has the main results: Pasupathy A, Miller EK. Different time courses of learning-related activity in the prefrontal cortex and striatum. Nature. 2005 Feb 24;433:873-6.

[http://www.nature.com/cgi-taf/DynaPage.taf?file=/nature/journal/v433/n7028/full/nature03287\\_fs.html&content\\_filetype=pdf](http://www.nature.com/cgi-taf/DynaPage.taf?file=/nature/journal/v433/n7028/full/nature03287_fs.html&content_filetype=pdf)

- A related article: Neuron. 2003 Apr 24;38:329-37.

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- A related textbook entry: Eurekah Bioscience Collection

<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Search&db=books&doptcmdl=GenBookHL&term=learning+prefrontal+cortex+striatum+AND+179263%5Buid%5D&rid=eurekah.section.25892>

## SUBSTANCE ABUSE

- JHW007 is a dopamine transporter agonist that antagonizes cocaine and lacks cocaine-like effects. Figures 3 and 4 have the main results: Desai RI, Kopajtic TA, Koffarnus M, Newman AH, Katz JL. Identification of a dopamine transporter ligand that blocks the stimulant effects of cocaine. J Neurosci. 2005 Feb 23;25:1889-93.

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- A related textbook entry: Health Services/Technology Assessment Text (HSTAT). No. 33: Chapter 2.

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- A functional mu-opioid receptor polymorphism is associated with alcohol dependence, in this case-control association study: Bart G, Kreek MJ, Ott J, LaForge KS, Proudnikov D, Pollak L, Heilig M. Increased attributable risk related to a functional mu-opioid receptor gene polymorphism in association with alcohol dependence in central Sweden. Neuropsychopharmacology. 2005 Feb;30:417-22.

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- A related article: Ann Med. 2003;35:94-121.

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- Increased cocaine seeking in rats after one month of withdrawal was associated with increased phosphorylation of ERK in the central amygdala. Figures 2 and 4 have the main results: Lu L, Hope BT, Dempsey J, Liu SY, Bossert JM, Shaham Y. Central amygdala ERK signaling pathway is critical to incubation of cocaine craving. Nat Neurosci. 2005 Feb;8:212-9.

<http://www.nature.com/neuro/journal/v8/n2/pdf/nn1383.pdf>

- A related article: Physiol Rev. 2001 Jan;81:299-343.

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- A related textbook entry: Health Services/Technology Assessment Text (HSTAT). No. 33: Chapter 2.

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## SCHIZOPHRENIA

- Valproate reversed methionine-induced reelin promoter hypermethylation and associated decreased social interaction in mice. Figure 3 and Table 3 have the main results: Tremolizzo L, Doueiri MS, Dong E, Grayson DR, Davis J, Pinna G, Tueting P, Rodriguez-Menendez V, Costa E, Guidotti A. Valproate

corrects the schizophrenia-like epigenetic behavioral modifications induced by methionine in mice. *Biol Psychiatry*. 2005 Mar 1;57:500-9.

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- A related textbook entry: *Eurekah Bioscience Collection*

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- *Increased DNA methyltransferase 1 and decreased GAD67 mRNA are seen in postmortem cortex of patients with psychosis. Figure 3 has the main results:* Veldic M, Guidotti A, Maloku E, Davis JM, Costa E. In psychosis, cortical interneurons overexpress DNA-methyltransferase 1. *Proc Natl Acad Sci U S A*. 2005 Feb 8;102:2152-7.

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#### rTMS

- *Brief theta stimulation of human motor cortex with repetitive transcranial magnetic stimulation caused predictable, persistent changes in motor evoked potentials. Figure 1 has the main results:* Huang YZ, Edwards MJ, Rounis E, Bhatia KP, Rothwell JC. Theta burst stimulation of the human motor cortex. *Neuron*. 2005 Jan 20;45:201-6.

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- A related article: *J Neurophysiol*. 1996 May;75:1765-78.

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#### BDNF

- *Decreased brain-derived neurotrophic factor signaling is associated with decreased survival of new neurons after chronic antidepressant exposure, in transgenic mouse hippocampus. Figure 3 has the main results:* Sairanen M, Lucas G, Ernfors P, Castren M, Castren E. Brain-derived neurotrophic factor and antidepressant drugs have different but coordinated effects on neuronal turnover, proliferation, and survival in the adult dentate gyrus. *J Neurosci*. 2005 Feb 2;25:1089-94.

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- A related article: *Depress Anxiety*. 2002;15:126-47.

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#### ROBOTICS

- *A device based on the hippocampus demonstrates spatial memory. Figures 2 and 3 have the main results:* Krichmar JL, Nitz DA, Gally JA, Edelman GM. Characterizing functional hippocampal pathways in a brain-based device as it solves a spatial memory task. *Proc Natl Acad Sci U S A*. 2005 Feb 8;102:2111-6.

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## PSYCHOLOGY

- *The hippocampus and substantia nigra showed increased activity when reward-related pictures were remembered after a 3-week delay, in this fMRI study of healthy adults. Figure 4 has the main results:* Wittmann BC, Schott BH, Guderian S, Frey JU, Heinze HJ, Duzel E. Reward-related FMRI activation of dopaminergic midbrain is associated with enhanced hippocampus-dependent long-term memory formation. *Neuron*. 2005 Feb 3;45:459-67.

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- *A functional COMT polymorphism is associated with increased activity in amygdala and frontal cortex in response to unpleasant visual stimuli, in this fMRI study of healthy subjects. Figure 2 has the main results:* Smolka MN, Schumann G, Wrase J, Grusser SM, Flor H, Mann K, Braus DF, Goldman D, Buchel C, Heinz A. Catechol-O-methyltransferase val158met genotype affects processing of emotional stimuli in the amygdala and prefrontal cortex. *J Neurosci*. 2005 Jan 26;25:836-42.

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## DUKE RESEARCH

### MED-PSYCH

O'connor CM, Glassman AH, Harrison DJ. Pharmacoeconomic Analysis of Sertraline Treatment of Depression in Patients With Unstable Angina or a Recent Myocardial Infarction. *J Clin Psychiatry*. 2005 Mar;66:346-352.

### BIPOLAR DISORDER

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### GERIATRICS

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