This presentation will review recent findings in these studies, and discuss the potential implications of this work for prevention and treatment.

PRESIDENTIAL INVITED LECTURE
Psychiatry in the New Millennium
Thursday, May 11, 11:15 AM–12:00 PM
Location: Regency A & B
Speaker: Steven E. Hyman

5. PSYCHIATRY IN THE NEW MILLENNIUM
S.E. Hyman
National Institute of Mental Health, Bethesda, Maryland

Psychiatry enters the new millennium grappling with complexity at many levels. Gone are many simple ideas, for example, that there is “a gene for schizophrenia” or “a gene aggression”. Gone are simple ideas that related single neurotransmitters to mental disorders. Gone too are the ideas that correlated circumscribed brain regions with particular cognitive or emotional functions. Instead behavioral tendencies and risk of mental disorders turn out to be genetically complex, involving the interaction of multiple genes and nongenetic factors—indeed our comfortable picture of genes acting in simple additive ways, and of their product, proteins, acting in simple linear signaling pathways has proven woefully inadequate. At the same time, it is clear that the brain must be understood in terms of distributed information processing, with its cellular components being remarkably plastic. Not only is it the case that synapses are constantly being physically remodeled by the environment, but contrary to old dogmas, neurogenesis in the mature brain is now an established fact. Even clinical trial design must adapt to the need to be generalizable to a complex “real world”. These new views introduce new needs for computation and informatics, and for new models to replace the old. Ultimately, however, with our new ideas and new technologies, we will be on track to answer the central age-old questions of psychiatry: How is the human brain built? How does it change over the life span? What are the precise genetic and environmental risk factors for mental illnesses? What are the pathophysiological processes of the brain that produce the symptoms and disabilities? How do our treatments, including psychotherapy work? What objective markers can we discover to monitor the progression of the pathophysiology and the effects of treatment? How will we discover preventive measures and cures that will be effective in diverse populations and settings?

6. AN UPDATE ON NEW SOMATIC TREATMENTS FOR DEPRESSION—ECT, TMS, VNS, DBS

M.S. George (1), H.A. Sackeim (2), A.J. Rush (3), R. Kumar (4)

(1) Medical University of South Carolina, Charleston, SC 29425; (2) Columbia University College of Physicians & Surgeons, New York State Psychiatric Institute, New York, NY 10032; (3) University of Texas Southwestern Medical Center, Dallas, TX 75390-9086; (4) Colorado Movement Disorders Center, Englewood, CO 80110

Recently, several new brain stimulation methods have been introduced with reported antidepressant effects. These improvements in older technologies (ECT), or invention of new approaches (TMS—transcranial magnetic stimulation, VNS—vagus nerve stimulation, DBS—deep brain stimulation) build on advances in functional neuroimaging and improved knowledge of the brain circuits involved in regulating mood and anxiety. This workshop will include brief presentations of recent data in each of these fields, although full presentation of the findings with each tool are also presented at other parts of the Biological Psychiatry Meeting (Drs. Sackeim (ECT) and Kumar (DBS)-Sat. Morning). Following the brief presentations of the newest findings in each field, the workshop will focus critical discussion on common issues across these fields. These include but are not limited to the following:

- the effects of different frequencies, pulse widths and dose on brain function,
- relative invasiveness and known side effects of each approach, the potential for studies in normal subjects as opposed to pathology,
- future use of the techniques in informed algorithms of clinical treatment (what to use when and in what order, if and when they are approved for clinical use),
- progress in using animal models of depression to understand these new tools,
- and using imaging techniques to understand the brain effects of the technologies and measure effectiveness.

7. GABA/GLUTAMATE DYSREGULATION IN DEPRESSION

H. Murck (1), I.A. Antonijevic (1), F. Petty (2), P. Skolnick (3), R.S. El Mallakh (4)

(1) Max-Planck-Institute of Psychiatry, Munich 80804, Germany; (2) Vet. Affairs Med Ctr., Univ. Texas Southwestern Med Center, Dallas, Texas, 75235; (3) Eli Lilly & Co, Indianapolis, IN 46285; (4) University of Louisville School of Medicine, Louisville, Kentucky 40292

Robust biological markers of depression are endocrine changes, especially hypercortisolism, and changes in the sleep EEG, especially a more disrupted...