

# Mind Matters

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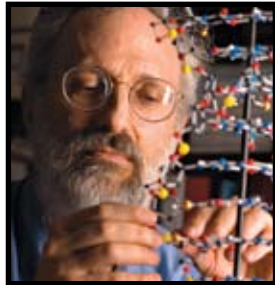
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## Ken Kendler: 25 Years of Firsts

Dr. Kenneth Kendler has been called one of the brightest psychiatric researchers in the world. One of only three physicians in the VCU School of Medicine who is a member of the prestigious Institute of Medicine, Dr. Kendler has created a world-renowned team of behavioral scientists at the Virginia Institute of Psychiatric and Behavioral Genetics (VIPBG), located in downtown Richmond's BioTech Park. His publications are among the most-cited in the field of psychiatry.

*“Ken Kendler has been and will continue to be one of the most intellectually productive scientists of our generation.”*

Dr. Kendler's fascination with schizophrenic patients during medical school led him to become a psychiatrist. Of the time, he says, “I sensed that science was ready to rigorously answer psychiatric questions.” A supervisor who was unwilling to differentiate between

paranoia and schizophrenia in a patient led him to research the literature and write to Seymour Kety at McLean Hospital in Boston. Dr. Kety gave him access to detailed psychiatric interviews that he coded blindly. His successful identification of biological relatives of schizophrenic adoptees who themselves had schizophrenia spectrum disorders was “a trumpet call” that led him to a career studying psychiatric and behavioral genetics.

Dr. Kendler sought out others who shared his passion and was referred to Dr. Lindon Eaves, who worked at VCU. Dr. Kendler flew in to meet him and began a two-day conversation that has never ended. Dr. Robert Friedel, former chair of Psychiatry at the time Kendler was hired says that “My contribution in recruiting Dr. Kendler to MCV was to provide him with an appropriate position on the faculty in the Department of Psychiatry, obtain the funding needed to initially support him and his work, then stand back.” Kendler's work took him to Birmingham, England, where he lived in a small apartment with his wife and two young children and “dreamed formulas”. He visited Ireland and obtained a grant for genetic studies of schizophrenia that has been continuously funded since that time.

*Continued on page 2*

V i r g i n i a C o m m o n w e a l t h U n i v e r s i t y

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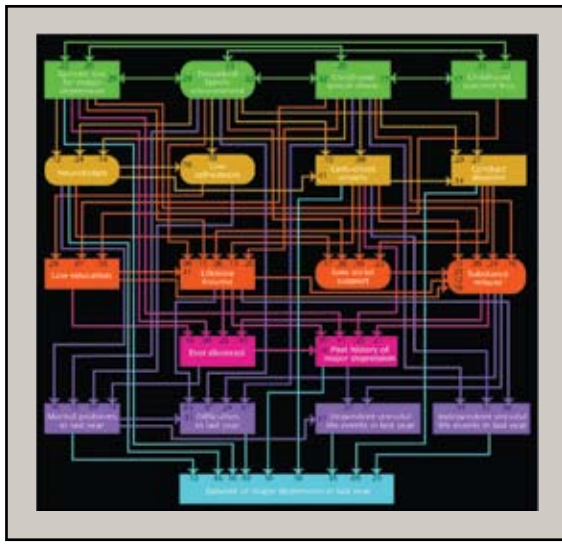
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Dr. Kendler's work in the Virginia twin registry, along with close colleagues including Dr. Eaves, led them to develop a new paradigm for behavioral genetics that was biometric, population-based, and measured the effects of the environment. This remains a leading model used by other research groups throughout the world. With Dr. Eaves, Dr. Kendler initiated the largest, most comprehensive twin study of psychiatric and drug use disorders ever conducted in the United States, based on 20,000 interviews with twins and their parents. His work investigated the genetics of schizophrenia, resulting in the identification of one of the first genes associated with the development of schizophrenia, a finding that has been replicated several times. He developed an integrative etiological model for depression that is taught in medical schools throughout the country. He also began to study genetic factors in alcohol abuse. With a twinkle in his eye, he notes that studies he has encouraged of alcohol response in fruit flies at VCU can help us understand alcoholism in humans because fruit flies and humans share "a deep genetic commonality".

Dr. Kendler is quick to give credit to his frequent collaborators, Dr. Lindon Eaves and Dr.



*The developmental model for the etiology of major depression was developed by Dr. Kendler and Dr. Mike Neale. This model has become the standard and is used by both the academic and scientific communities to understand the genetic and environmental factors contributing to Depression.*

Mike Neale. Together they have "merged traditional genetics, epidemiology, and statistical sophistication to ask relevant clinical questions in a conceptually clear way." He views his own contribution to this partnership as "taking important clinical constructs and translating them into rigorous statistical models." Dr. Kendler sees himself as a synthesizer and translator

who is able to speak the different languages of clinical psychiatry, epidemiology, biometrics, and research, and bring them together. His collaboration with Dr. Eaves and Dr. Neale has grown the VIPBG into a haven for some of the best researchers in the field of psychiatric and behavioral genetics.

When asked about the potential to translate his work into clinical treatment, Dr. Kendler says that the most promising advances will come in the area of drug development, where he expects that the team at the VIPBG may be able to identify genetic markers that can serve as drug targets. "One day," he says "we can hope to have medications for psychiatric illness that are designed on an understanding of the biological abnormalities that cause the illness instead of the accidental discoveries that we have had to date." Ultimately, he hopes that epidemiological research will allow us to ask more intelligent questions to understand the etiology of psychiatric illness.

Dr. Kendler's office is decorated by pictures of his heroes. Many of them are familiar, such as Charles Darwin; DNA pioneers James Watson and Francis Crick; and early psychiatrists Eugen Bleuler and Emil Kraepelin. But there are a few surprises on his wall of luminaries as well,

## Awards and Honors

In September, 2008, Voices for Virginia's Children, the National Alliance for Mental Illness, Mental Health America of Virginia, the Virginia Federation of Families, the Psychiatric Society of Virginia, and the Virginia Association of Community Service Boards gave out the first Heroes in the Fight awards to honor people who have made important contributions to the field of mental health in Virginia. Three of the seven honorees selected were from the Department of Psychiatry at VCUHS. **Robert Cohen, Ph.D., Brian Meyer, Ph.D., and Aradhana (Bela) Sood, M.D.,** were chosen for their dedication and leadership in children's mental health in the Commonwealth. They were selected by their peers for their steadfast fight for advocacy, research, education and patient care for children with mental health problems.

"This is a well-deserved honor for Drs. Cohen, Sood and Meyer. Having three of the seven awards in the state go to VCU Psychiatry faculty shows what dedicated and distinguished individuals we have on our team. Our department is driven by a commitment to advocating for and providing the best mental health care for the citizens of the Commonwealth," said Joel Silverman, M.D., Chair of the Department of Psychiatry.

President Eugene P. Trani and Provost and Vice President for Academic Affairs Stephen D. Gottfredson recognized **Mary Ellen Olbrisch, Ph.D.,** for her outstanding accomplishments in the areas of teaching, scholarship, service and overall excellence and honored her with the Distinguished Faculty Award at the formal opening of the academic year in 2008. Throughout her career and in her 23 years in the Department of Psychiatry at VCUHS, Dr. Olbrisch has maintained a tradition of service that has carried over to her roles as a clinical health psychology educator and practitioner. She specializes in the psychology of obesity and weight loss surgery, living organ donors, and post-traumatic stress disorders.

### Support Genetics Research

We are pleased to announce the **Virginia Psychiatric Institute of Behavioral Genetics'** newest addition: 2,500 square feet of laboratory space. We need to equip this space utilizing the latest technology to help maintain our prominence in the field of psychiatric and behavioral genetics.

The technical aspects of genetics are changing very rapidly. We plan to utilize our new lab space to develop specialized labs in Molecular

Neurobiology (to understand how the brain works at a molecular level) and Bioinformatics (to analyze biogenetic systems using computers and mathematics).

Funding for up-to-date laboratory equipment is important in another way: to recruit and retain the best in the field, we need to provide them with the latest equipment to conduct their research. This equipment will help keep our world-leading researchers at VCU and put us first in line when we recruit the next generation of top researchers.

We seek a total of \$750,000 for genetics laboratory equipment to support the VIPBG in its ground-breaking work. Funds would be used to purchase a variety of equipment ranging from an incubator for culturing bacterial cells for gene manipulation, to PCR machines that amplify DNA to detect variations found in mental illness, to fluorescent plate readers that collect genotype data. Some equipment we need can be obtained for as little as \$2,500, and naming opportunities are available. Please contact Rupa Murthy at 804-628-3878 or [rsmurthy@vcu.edu](mailto:rsmurthy@vcu.edu) for more information.

This laboratory equipment will help keep the VIPBG in its role as a world leader in the field of psychiatric genetics. We hope you'll support us as we grow the Institute.

# The Irish Connection

including Ronald Fisher, the eminent statistician, and Philippe Pinel, the French psychiatrist who took the iron chains off the patients in the mental institution where he worked in 1797.

When asked what keeps him at VCU – he is highly sought after – Dr. Kendler cites the fact that he has felt valued and well-supported here by the Department and by the Dean. He feels highly invested in VIPBG, which now employs over 80 people and continues to grow. Under his direction, this year the VIPBG has \$10 million in grants. He also enjoys the lifestyle in Richmond, where he can bike to work every day.

Perhaps surprisingly from so eminent a researcher, Dr. Kendler misses treating patients. He had to stop seeing patients several years ago because of the time demands of his research. He says he might “in semi-retirement” work part-time at a community service board and treat patients clinically again. This is part of what is so remarkable about Dr. Kendler: his research holds the potential to bring great good to many, but he is still concerned about the well-being of individuals. His work has been a gift to his patients, to VCU, to the field of psychiatry, and to people who suffer from mental illness around the world.



*Dr. Kenneth Kendler in Ireland, where he's studied mental illness and heredity for a quarter of a century.*

*By Brien Riley, Rupa Murthy, and Brian Meyer*

When you tour the labs in the Virginia Institute of Psychiatry and Behavioral Genetics, you pass by refrigerators full of Irish DNA. The Irish have played an important role in our understanding of the genetic underpinnings of mental illness. Dr. Kendler began compiling data in Ireland over 25 years ago because their close-knit culture lends itself to family lore and genealogy. In many instances, the nurse at the hospital can tell stories of her patient's uncle with detailed accuracy, which allows genetics researchers to compile data more easily than in the United States.

The first large VIPBG study involving the sampling of DNA from Irish people was the Irish Study of High Density Schizophrenia Families. Genealogical histories and DNA samples were taken from over 4,000 Irish patients to create a linkage study in schizophrenia. Because schizophrenia is a complex illness, Dr. Kendler and his colleagues determined that they needed to study the genetics of schizophrenia using a different method. Therefore, they collected

DNA samples from an additional 2,300 Irish to study between 500,000 and 1 million genetic variants from each individual using an association method. This approach essentially interrogates every gene in the human genome for involvement in a disease. The first round of this large project studied seven common psychiatric diseases and provided many of the most significant advances in the study of common complex traits yet made.

The Institute is engaged in two studies of alcohol dependence in Ireland. The first, a linkage study of 575 multiply affected families, provided tantalizing clues regarding underlying genetic risk factors for alcoholism. VIPBG has recently acquired funding to collect a new sample of an additional 2,000 cases of alcohol dependence in Ireland, and will undertake a genome-wide association study for alcohol dependence in 2012 when all of the DNA samples have been collected. We can be grateful to the Irish for contributing so much to our knowledge of psychiatric and behavioral genetics.

## We're Pleased to Announce:

The Department of Psychiatry received a \$1.3M gift from Mr. William Balaban this winter. The money will support the **Center for Human – Animal Interaction led by Dr. Sandra Barker**. The benefactor worked with us to establish his bequest, so that the breakthrough research conducted at the Center between animals and humans will continue in his honor for years to come.

For more information on the Center for Human – Animal Interaction, please visit our website: [www.chai.vcu.edu](http://www.chai.vcu.edu)



The “Dogs On Call” program keeps our patients smiling.

# Q&A with Danielle M. Dick, Ph.D.

*Danielle M. Dick, Ph.D. is an Assistant Professor in Psychiatry, Psychology and Human and Molecular Genetics. Dr. Dick has been a faculty member in the Department of Psychiatry for two years. She works to determine how genetic and environmental influences contribute to substance use and other related problems, such as antisocial behavior and depression.*

**Q: Why did you come to VCUHS?**

“I knew this was a top place for the kind of research I do, and as a UVA grad with family in Virginia, Richmond offered a wonderful opportunity to work with an excellent research group and be close to family.”

**Q: What created your passion for psychiatry and genetic research?**

“As an undergrad, my favorite classes were abnormal psychology and genetics; I knew I wanted to pursue a career that would combine the two. I find studying alcohol dependence to be fascinating because (it co-occurs with) so many psychiatric disorders. Genes are important, but so is the environment; the phenotype is complex and varied; usually patients show signs of risk-related behavior that is evident long before the manifestation of the disorder. There are just so many interesting pieces of the puzzle to put together!”

**Q: What is your most exciting discovery to date?**

“I was responsible for running the analyses that yielded the first evidence of association with a gene involved in alcohol dependence (GABRA2) that has been replicated across many independent samples around the world – a rare thing in psychiatric genetics! We found that children who carried the high risk genetic variant at GABRA2 had nearly twice the rate of conduct disorder. We replicated the association between GABRA2 and externalizing behavior across adolescents in a community-based sample of children and found that the genetic association was stronger under conditions of low parental monitoring. It has been incredibly exciting to see all of these findings coming together to tell a story about how risk associated with specific genes unfolds.”

**Q: Why is it important for the public to be aware of genetic research?**

“Most people know that genetics is a hot topic, but don’t have a good appreciation of how it will affect them. We were taught basic genetics in school, how our genes give us our brown hair or blue eyes, but most of the major medical conditions that affect large percentages of the population and incur tremendous costs on society have genetic components that aren’t that simple. Instead, there are many genes involved, each of only small effect, and the environment plays a large role. So genes only alter risk and confer susceptibility; they don’t determine an outcome/illness. I think that making the public aware of that distinc-



*Dr. Danielle Dick, a scientist at the Virginia Institute of Psychiatric and Behavioral Genetics, has received over \$1 Million in federal grants to study how genetic and environmental influences contribute to the development patterns of substance abuse, and how substance abuse is related to anti-social disorders and depression. Danielle also teaches six courses to undergraduates and graduates at VCU.*

tion and allowing the public to understand that many genes and external factors play a role in illnesses will be critical to translate complex disease genetics into useful information for patient care.”

**Q: What might people find most surprising about your work?**

“You can study genetics without wearing a white lab coat or holding a pipette.”

## Support Our Department

Every family is affected by mental illness. We hope you’ll join us as we work to make their journeys a little easier.

The VCU Department of Psychiatry is making remarkable strides towards important discoveries daily. We translate those discoveries into compassionate care.

We educate young doctors, treat thousands of patients, and conduct research at the frontiers of mental health. From Alzheimer’s to anxiety, autism to depression, and ADHD to substance abuse, our Department has broad expertise that reaches across the spectrum of mental health and wellness. With over 80 faculty working throughout the region to serve those who are struggling with their mental health issues, our Department is excited to be on the forefront of mental health. Thank you for helping us continue this standard of excellence and grow our Department.

If you would like to know more about opportunities to support the Department of Psychiatry at VCUHS, please email Rupa S. Murthy at [rsmurthy@vcu.edu](mailto:rsmurthy@vcu.edu) or call 804.628.3878.

**Please Support Us As We Launch Our Annual Fund Drive This Fall !  
Check out our website at [www.vcu.edu/psych](http://www.vcu.edu/psych).**

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**Mind Matters** is published three times a year by the Virginia Commonwealth University Department of Psychiatry on the Medical College of Virginia campus. Reader comments and suggestions are welcome. Please call 804.628.3878 or email [rsmurthy@vcu.edu](mailto:rsmurthy@vcu.edu) or write to P.O. Box 980710, Dept. of Psychiatry, Richmond, VA 23298-0710.

Mind Matters provides an opportunity for friends and alumni to stay in touch with the Department of Psychiatry while we work to prevent and reduce the impact of mental illness on society. Donors support the Department’s endeavors in ways that traditional funding sources do not.

Please email [rsmurthy@vcu.edu](mailto:rsmurthy@vcu.edu) to subscribe to our E-Newsletter.

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