

Photo by Ann Stroth



Joseph Berger, M.D., chair of the Neurology Department, leads a team of clinician scientists dedicated to advancing the state of medical knowledge affecting a wide range of debilitating diseases.

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Alzheimer's disease. Epilepsy. Multiple sclerosis. Parkinson's disease. Stroke. Helping people with diseases like these is the challenge facing the Department of Neurology.

"The neurosciences at UK have been very strong, and that's not by chance," says Joseph Berger, M.D., chair. "Basic science chairs were recruited who had a fundamental interest in neuroscience. They developed large research programs. This was coupled with university resources that enabled high-quality neuroscience research,

particularly the creation of centers such as the Magnetic Resonance Imaging and Spectroscopy Center (MRISC) and the internationally renowned Sanders-Brown Center on Aging." The opportunity to grow a strong Department of Neurology with the existing resources is what brought Berger to UK from the University of Miami 11 years ago.

That infrastructure assisted the growth of the department, as did the establishment of the state-funded Spinal Cord and Brain Injury Research Center, (SCoBIRC) under the direction of Ed Hall, Ph.D., and the Neurorehabilitation program with Cardinal Hill Rehabilitation Center under Joseph Springer, Ph.D. Additionally, there is the Kentucky Neuroscience Institute, which has facilitated the already close working relationship between Neurology and Neurosurgery. "Both departments have people with international reputations," says Berger, who along with nine other department faculty is a member of the American Neurological Association.

As for research, Berger is keenly interested in Progressive Multifocal Leukoencephalopathy, a formerly rare disorder of the nervous system that affects those with suppressed immune systems. In the era before the development of highly active antiretroviral therapy, one in 20 individuals with HIV developed PML. The disease, which is caused by a common human polyomavirus, JC virus, is characterized by demyelination of nerve cells. The occurrence of this formerly rare disease in multiple sclerosis patients being treated in a clinical trial with the drug Tysabri® (natalizumab) has increased interest in this disorder. Scientists are concerned that not only Tysabri®, but other monoclonal antibodies directed against specific sites of the immune system, may increase the risk of PML. The Department of

Neurology recently recruited Sidney Houff, M.D., Ph.D., former chair of Neurology at Loyola University, who has also devoted his scientific career to an understanding of the biology of PML. Houff and Berger are planning additional studies to improve our understanding of this viral induced demyelinating disease.

The department is also engaged in a host of studies about dementing illnesses coordinated through the Sanders-Brown Center on Aging. A team of researchers is studying Alzheimer's disease, each approaching the condition in different ways. Charles D. Smith, M.D., is using fMRI to observe brain activity in women genetically at risk for Alzheimer's disease. Gregory A. Jicha, M.D., Ph.D., is conducting research into degenerative dementias and mild cognitive impairment. Frederick Schmitt, Ph.D., is a neuropsychologist studying longitudinal changes in mentation and pathologic changes in the brains of older individuals, as well as conducting a placebo-controlled trial of Simvastatin® to slow the progression of Alzheimer's disease.

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Other research interests in the department cover a range of conditions. Edward J. Kasarskis, M.D., Ph.D., is engaged in a large multi-disciplinary, multi-institutional \$2.1 million study funded by the NIH. Kasarskis is looking at various methods of nutritional and respiratory support for amyotrophic lateral sclerosis patients, and to what extent changes in these areas may improve quality of life. The results of the study may have a significant impact on how patients with motor neuron disease are managed. John Slevin, M.D., is the principal investigator of a trial examining the safety and efficacy of glial cell line-derived neurotrophic factor, or GDNF, in Parkinson's disease patients. William Maragos, M.D., Ph.D., is focused on movement disorders found in patients with Huntington's disease and some HIV positive patients. L. Creed Pettigrew, M.D., is doing bench science, researching stroke, and conducting stroke prevention clinical trials in collaboration with Anand Vaishnav, M.D.

"This department is replete with clinician scientists. Virtually everyone has an area of research interest and investigation. Seventy percent of our faculty have a research project. Some are grander than others. Some are funded. Some are unfunded. But we're all doing important work," Berger said. "That's why we're here – to advance the state of medical knowledge."