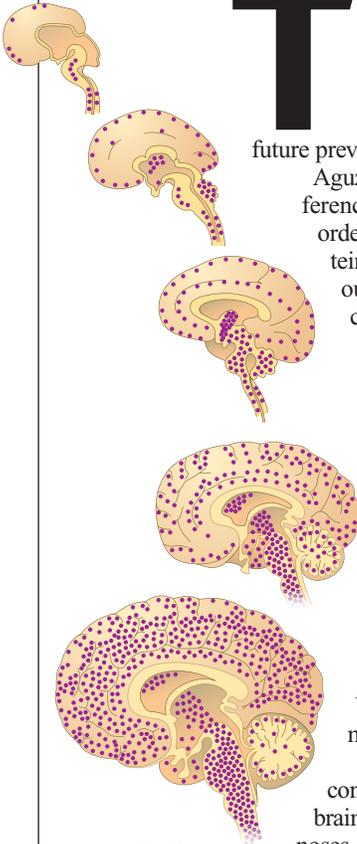


INTRODUCTION

Problems and Progress



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This special issue of *Science* focuses on a wide range of brain diseases. The past years have seen tremendous progress in the battle against these diseases. Most promising in the long run, our understanding of the basic mechanisms underlying many of these diseases has grown. There have also been improvements in diagnostics and important additions to our arsenal of treatments and interventions. Our contributors describe some of the most exciting recent developments in the field and give a sense of the prospects for future prevention and therapy.

Aguzzi and Haass (p. 814) review the common features and the differences in the pathogenesis of Alzheimer's disease and prion disorders, both of which involve the accumulation of misfolded proteins. Dawson and Dawson (p. 819) overview the present state of our knowledge of Parkinson's disease. Their main focus is on recent progress in the unraveling of the molecular pathways that cause neurodegeneration in this disease. Kennedy *et al.* (p. 822) look at the complexities of the genetics underlying many neurodegenerative and neuropsychiatric disorders, such as schizophrenia or frontotemporal dementia. Zoghbi (p. 826) reviews recent developments in our understanding of autism and Rett syndrome, a developmental disorder in young children, and proposes a new model to explain the relation between these two diseases. DeKosky and Marek (p. 830) review the different imaging, biochemical, and clinical measures presently available for early detection of neurodegenerative disorders. This may trigger interventions, some of which slow the course of disease, before a large part of the damage has been done. Monsonego and Weiner (p. 834) describe the promising concept of immunotherapeutic approaches to treat Alzheimer's disease.

The News section focuses on mental illness. Psychiatrists are contemplating a major overhaul of the manual they use to define brain diseases (Helmuth, p. 808). One of the most problematic diagnoses is depression. While researchers explore possible causes of depression and associated brain dysfunction, several treatment options are wending their way through clinical trials (Holden, p. 810).

At *Science*'s Signal Transduction Knowledge Environment (STKE, www.stke.org), Manji *et al.* discuss a possible role of the phosphatase calcineurin in schizophrenia; Robinson reviews contributions of neurotransmitter transporters in psychiatric disorders; and MacDonald examines evidence for the signaling functions of huntingtin, a protein altered in Huntington's disease.

In the Science of Aging Knowledge Environment (SAGE KE, www.sageke.org), Groves *et al.* present the case of a 48-year-old man who suffered from Huntington's disease. The case study includes pathology slides and a movie of the patient's neurological testing. An updated introduction to Alzheimer's disease by Helmuth covers diagnosis, pathology, prevention, and treatment.

—PETER STERN AND LAURA HELMUTH

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Science

Problems and Progress

Peter Stern and Laura Helmuth

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