

Molecules and Psychiatry

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While the importance of molecules for psychiatry today may not be immediately obvious, the articles on molecular mechanisms in this issue represent groundbreaking research (1–5). They concern themselves with specific molecular mechanisms of psychopathology in schizophrenia, bipolar disorder, and depression. Several investigate mechanisms of gene expression in the brain, how genes express their information from the DNA of the chromosome to the mRNA transcriptome that makes the proteins, and other regulatory molecules like microRNAs that control how neurons function. These investigations rely on postmortem brain specimens. The investment in these resources and the methodological training to use them, which take years to develop, is considerable. The positron emission tomography study (5) is an equally sophisticated investigation, as is the epidemiological study of smoking and schizophrenia (6).

What general messages might readers take away? First, despite heroic efforts, the long-sought gene that causes mental disorders has yet to emerge. The chromosomes themselves have not yet yielded the keys as they have for many other illnesses. However, the molecular mechanisms of mental illness are being identified through the type of research reported in this issue—detailed examinations of how specific genes work in the brain itself and act to support its function. One could speculate on which strategy is more daunting—to understand how mental disorders are inherited or to understand how nerve cells misfunction in mental illness—but each approach is making considerable progress.

Second, the convergence between research and practice is already here, as is well illustrated in the Review and Overview by Kiecolt-Glaser et al. on depression and inflammation (7). The authors discuss their work on the molecular basis of the co-occurrence of depression and inflammation and then give clinical readers specific strategies to recognize the co-occurrence, validate it through biomarkers, and address it therapeutically. Their description of the interaction with

the two frequent co-travelers of mental disorders—lack of exercise and metabolic problems—also comes from their basic research.

Third, patients and their families and our other medical colleagues and students often wonder if psychiatry is a backwater of medicine. The articles in this issue remind us all that our field is as forward thinking in its approach to illness as any other. As one family member once told me, “I don’t expect you to solve mental illness in my lifetime. I take comfort in knowing that capable people are now working on my family’s illness just like other families can point to research for their illnesses.”

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