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Dr Nurnberger and Colleagues Reply

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To the Editor: We would like to respond to the letter by de Leon regarding our recently published article on what a psychiatrist should know about genetics.¹ We appreciate Dr de Leon's interests, as this is the type of critical thinking about genetics that we are ultimately hoping to spark among psychiatrists in training and in current practice. We would also like to stress that the main objective of our article was to provide a framework for the identification of areas of genetics that psychiatrists should know, as well as mechanisms and resources to acquire that knowledge.

We agree with Dr de Leon that pharmacologists were very important in the origins of pharmacogenetics—for example, the term was first coined by a pharmacologist, Dr Werner Kalow, in the late 1950s.² However, specialists from many areas of expertise have contributed to the development of pharmacogenetics, including oncologists, neurologists, psychiatrists, cardiologists, and others.

We agree that it is useful for our readers to be aware of the Clinical Pharmacogenetics Implementation Consortium (CPIC). The most up-to-date information can be obtained on the CPIC website (<http://cpicpgx.org/guidelines>). It is worth noting that CPIC guidelines point out relationships between genetic variations and blood levels of drugs, but not between

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Potential conflicts of interest: Dr Nurnberger has been an investigator for Assurex and is an investigator for Janssen. Dr Kennedy has been on the scientific advisory board for Assurex (unpaid) and received honoraria from Shire and Novartis for lectures. The other authors report no potential conflict of interest.

genetic variations and outcomes of treatment, at least in the realm of depression. This isn't surprising since, except for the tricyclic antidepressants, there are no robust data correlating blood levels of medications with treatment response. As this information may change in the future, we encourage readers to obtain the most updated studies when questions arise. We would also call attention to the guidelines on genetic testing in psychiatry from the International Society of Psychiatric Genetics (<https://ispg.net/genetic-testing-statement>); this statement includes information on pharmacogenetics and describes the value of CPIC.

It should be noted that no pharmaceutical or pharmacogenetic testing company contributed to the content or the interpretation of data in our published article.¹ Furthermore, at the time when our article was written, there were few controlled clinical trials of pharmacogenetic tests in psychiatry. Very recently, evidence from a large randomized controlled trial has added to the database in this important area.³ Results were equivocal but promising. We certainly encourage additional controlled studies in this area.

To conclude, this is a rapidly evolving field, and we expect that what psychiatrists need to know about genetics will be changing year to year, with new advances continually being published. Our aim with our recent publication is to provide readers with a framework that helps guide the acquisition of such new knowledge. Although the use of testing and DNA results will certainly improve rapidly, the basic knowledge about genetics and its usefulness that we outline in our article will not change.

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