Letters to the Editor

Letter to the Editor: Reply to Rudy and Keith

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It is indeed a disquieting experience to engage in a public dialogue with participants who baldly state that they "had no preconceptions" and then a couple of sentences later start talking about their *a priori* attitudes. Come, Messrs. Rudy and Keith, you (like the rest of us) do have preconceptions, and even the "protected" *t* test will not insulate your thinking from them. In three separate experiments, we found that AP5-treated rats performed randomly during the first five trials of a two-odor discrimination problem and at near chance levels on the next five trials; controls usually exhibited learning in the first block of five trials and always performed well on the second block. A total impairment of learning would lead to chance responding and the size of deficit was limited by this. The comments by Rudy and Keith obscure these points but in any event have little to do with their original complaint, which is that the AP5 rats *do* learn if given enough trials or if trained in a different paradigm. Why doesn't the drug block memory encoding across circumstances? This is

where those "nonexistent" preconceptions come creeping into the argument. We see a brain world filled with parallel pathways using a variety of plasticities; Rudy and Keith deal with a psychological world dominated by one or two forms of memory. From our perspective, it would be most suspicious if AP5 blocked all variants of learning; from Rudy and Keith's (the "animal psychologists") perspective, it is suspicious that it does not.

Finally, the reader can imagine our surprise and disappointment that Rudy and Keith, having in their initial commentary emphasized the need for controlling "sensorimotor" effects, now tell us that they cannot cite even *one* study in which appropriate controls were achieved.

The very selectivity of drug effects that we observed, as well as comparisons of behavior using novel as opposed to familiar cues, argue that AP5 did not produce generalized impairments. But the many poorly defined variables (e.g., motivation, attention) presumably operational in any experimental study of learning can at best be only partially controlled by behavioral tests alone. What is needed are hypotheses that are constrained by both psychological and biological variables, that make predictions about both brain and behavior. The possibility of developing such ideas is one of the reasons why there is so much excitement surrounding NMDA receptors and LTP.