In the first of these papers, the existence of a specific binding site for radiolabeled phencyclidine (PCP) was demonstrated in rat brain. These sites were shown to be selective for compounds capable of exerting PCP-like behavioral effects; moreover, drug potencies in the receptor assay correlated highly with their potencies in assays of PCP-specific behavioral effects. A unique regional distribution of the sites was also described. Taken together, the data suggested that the unique anesthetic and psychotomimetic properties of PCP-like drugs are mediated at specific PCP receptors. The observation that a benzomorphan opiate, Kallyl normetazocine (SKF-10047) bound to the PCP receptor, together with behavioral evidence that this opiate had PCP-like behavioral effects, led to the hypothesis that the PCP receptor might represent a common binding site for PCP derivatives and opiates. This was confirmed in the second paper, in which it was shown that a radiolabeled opiate could label PCP as well as K opioids and possibly K opoid receptors. This hypothesis was fully elaborated in the third paper. The PCP receptor is now known to represent a site within the N-methyl-D-aspartate (NMDA) receptor gated cation channel, and PCP actions are used as probes of NMDA receptor functioning in physiological as well as biochemical paradigms in the explosively developing area of NMDA receptor research. In retrospect we can consider that the demonstration of the PCP receptor was in fact the biochemical demonstration of the NMDA receptor complex.


Received November 28, 1990