

9.10/9.100 REVIEW QUESTIONS

Spatial Memory and Plasticity

1. What are place fields?
2. Which hippocampal fields contain place cells?
3. Are place fields stable over time? What factors might cause them to change?
4. What is the possible significance of the fact that only a small percentage of hippocampal cells are activate at any location?
5. Can you predict a rat's location by examining the activity of hippocampal place cells? What effects do the variables of number of cells in the sample and time have on the accuracy of the prediction?
6. With regard to the variables mentioned above, what ecological factors would conspire to keep them small?
7. What happens to place fields when NMDA receptors are eliminated? What behavioral consequences does this have?
8. Describe evidence that the hippocampus supports memory consolidation during sleep.