Immunolesioning: From Spinal Cord to Brain

(continued from page 1)

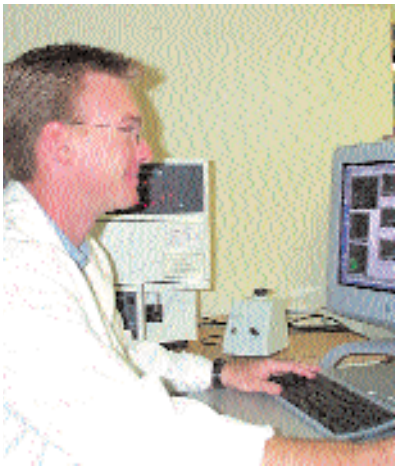
depletion of either class of presympathetic neuron was not possible because the C1 cells are insensitive to classic catecholaminergic neurotoxins, such as 6-hydroxydopamine, and a marker for the non-C1 cells has not been identified. The recent development of the immunolesioning tool, saporin conjugated to an antibody for dopamine beta hydroxylase (anti-DBH-SAP), has provided an effective tool for examining the effects of the selective elimination of the catecholaminergic bulbospinal RVLM neurons.

We depleted bulbospinal C1 cells in rats by microinjection of anti-DBH-SAP bilaterally into two levels of the upper thoracic spinal cord (21 ng/100 nl/injection; 4 injections/rat). To directly examine the depletion of the bulbospinal RVLM neurons we also injected the retrograde tracer Fast Blue into two alternate levels of the spinal cord in some rats. This protocol produced an average depletion of >74% of bulbospinal C1 cells (range, 50-95%) and several other bulbospinal catecholaminergic cell groups (84% of C3 cells and 98% of A5 cells).[1,2,3] After 3-5 weeks these rats have a normal mean AP, and a sympathetic nerve activity (SNA) that continues to be modulated by baroreceptor inputs,[1,3] although the range of this reflex is reduced.[1] Stimuli that inhibit SNA and decrease AP, such as intravenous phenyl biguanide[1] or clonidine,[2] appear to be unaffected by treatment with anti-DBH-SAP. In contrast, stimuli that increase SNA and AP, such as intravenous cyanide[1] or electrical stimulation of the RVLM itself,[3] appear to be markedly reduced or absent after treatment with anti-DBH-SAP. These data suggest that the non-C1 bulbospinal RVLM neurons may be sufficient to maintain the basal SNA that maintains resting AP; however the C1 cells may be critical for the full expression of sympatho-excitatory responses mediated by the RVLM.

Anti-DBH-SAP is an effective tool for examining the effects of catecholaminergic bulbospinal RVLM neurons.

References

1. Schreihofer AM and Guyenet PG. *Am J Physiol Regulatory Integrative Comp Physiol* 279:R729-R742, 2000.
2. Schreihofer AM and Guyenet PG. *Am J Physiol Regulatory Integrative Comp Physiol* 279:R1753-R1762, 2000.
3. Schreihofer AM, Stornetta RL and Guyenet PG. *J Physiol* (Lond.), in press, 2000.



Brian Russell, Research Assistant for Cytometry Research, assists customers in FACS analysis (see cover story)

Targeting Ticklers

Lab Rats

The National Institutes of Health have announced that they will no longer be using rats for medical experimentation. In their place, they will use attorneys. They have given three reasons for this decision:

1. There are now more attorneys than there are rats.
2. The medical researchers don't become as emotionally attached to the attorneys as they did to the rats.
3. No matter how hard you try, there are some things that rats won't do.

Targeting Teaser Winners

Congratulations to the puzzle solvers from our last newsletter. Each winner receives $100 credit towards research product purchases from Advanced Targeting Systems.

The solution to the puzzle was:

Jumbles: SAPORIN CHOLERA FRONTAL KNOCKOUT

Answer: Why the scientists couldn't finish their experiment --- THEY WERE OUT OF CONTROL

WINNERS: Mark DeSantis, *Dept Biol Sci, Univ of Idaho* * Michelle Edwards, *MRB 10134, UTMB* * Dr. Wen Sheng, *Univ of Minnesota* * Ken Giuliano, *Cellomics, Inc* * James Doll, *Castro Valley, CA* * Dr. Gail Johnson, *Univ of Alabama* * Barbara Ferbel, *Univ Rochester Med Ctr*