

Targeting Talk

by Dr. Douglas Lappi

Q: Can you tell me how I would calculate the amount of a SAP-type targeted toxin that I might want to buy based on a desire to bilaterally kill cells of interest within a typical diffusion zone around an injection site in a rodent brain? Use CRF-SAP (Cat. #IT-13) as an example. Are we talking a few hundred dollars to run 40 animals or thousands of dollars?

A: For intraparenchymal application, usually 100 nanograms per injection site is too much; on the order of 5-10 nanograms is appropriate (see, for example, Lappi DA, Wiley RG, Entering through the doors of perception: Characterization of a highly selective Substance P receptor-targeted toxin. *Neuropeptides* 34(5):323-328, 2000.)

So for CRF-SAP: at 10 nanograms per site, 20 nanograms per animal times 30 animals is 600 nanograms. Actual end price will depend on whether you purchase direct or from a distributor. However, the average cost for this experiment using one vial of CRF-SAP in the 25-microgram size will run \$8-\$10 to treat all 30 animals. The CRF-SAP kit includes unconjugated saporin and a control immunotoxin; if you purchase that, the cost for the experiment described with 30 animals will be \$12-\$15.

Your question about how many injections are needed depends on the diffusion at the site of injection of the agent. Usually, peptide ligand toxins do not diffuse very far and in some cases (such as SSP-SAP, Cat. #IT-11) more than one injection is required. For the antibody targeted toxins, the antibody targeting agent is more resistant to tissue proteases and so there is a greater diffusion, though many researchers like to use several injections to completely cover an area. We're not sure how big of an area you need or want to deplete; that would, of course, require a dosing regimen to determine.

Q: Will one injection permanently and reliably accomplish the deed?

A: One injection might or might not deplete the entire area that you are interested in; again, it depends on diffusion distance of the agent. However, those cells that are eliminated are eliminated permanently and will not come back. Plasticity to replace them is usually not seen.

Q: What are the typical criticisms (e.g., perhaps related to non-specific effects or interpretive difficulties) that the use of such products engender?

A: The typical reviewer requests demonstration of specificity and making a determination that, in fact, the proper cell type is hit and non-target cells are left intact is important.

Society for Neuroscience
November 3-7, 2007
San Diego, CA
Booth #1022



Upcoming Events

Amer Society for Cell Biology
December 1-5, 2007
Washington, DC
Booth #602

Targeting Teaser Winners

The solution to the puzzle was:

Jumbles: OLFATORY
ASCITES
PATHWAY
MULTIPLE
RESTRAINT

Answer: WATT'S UP?!



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

WINNERS: Ruth Stornetta- Univ of Virginia, Dept of Pharmacology, Charlottesville VA * Seto Chice- SUNY HSC at Brooklyn, Brooklyn NY * Robert Speth- University of Mississippi, School of Pharmacy, University MS