# Targeting Talk: *Eliminating CBF Neurons*

*by Dr. Ronald G. Wiley*

*Q. What dosage of 192-Saporin should be used in the lateral ventricle to eliminate cholinergic neurons in the basal forebrain, including substantia innominata (SI)? I read that Calza et al (1) used 2 or 3 micrograms/4.5 ul and found this was highly effective.*

A. It has been our experience that two- or three-micrograms into the lateral ventricle is necessary to obtain a maximum cholinergic basal forebrain (CBF) lesion. However, these doses typically kill some cerebellar Purkinje cells. Another issue is that some cholinergic neurons in the NBM region are never killed by 192-Saporin.

*Q. Should we expect to be able to kill all or almost all ChAT SI neurons?*

A. Mesulam's lab has some data (2,3) to suggest that these neurons innervate the amygdala and adjacent cortex. Generally lesions of the septum and diagonal band are complete, but when you get more caudal, i.e. SI region, there will be some cholinergic neurons left. When you do ChAT or AChE stains, the amygdala and adjacent cortex are not denervated whereas the hippocampus, olfactory system and all the rest of the cortex are devoid of cholinergic terminals.

*Q. Is there another toxin that will eliminate the remaining ChAT SI neurons?*

A. There may be other targeted conjugates that could clean out the residual cells in the SI region if we knew what markers they co-express. For example, our SSP-saporin conjugate is very good at removing cells that express the NK-1 receptor such as striatal cholinergic interneurons.

**REFERENCES**:

1. Calza L, Giuliani A, Fernandez M, Pirondi S, D'Intino G, Aloe L, Giardino L(2003) *Proc Natl Acad Sci U S A*.100(12):7325-7330.
2. Hecker S, Mesulam MM (1994) *Neuroscience* 60(2):383-397.
3. Hecker S, Ohtake T, Wiley RG, Lappi DA, Geula C, Mesulam MM (1994) *J Neurosci* 14(3 Pt 1):1271-1289.

## Upcoming Events

FENS
July 10-14, 2004
Lisbon, Portugal
Booth 42

Society for Neuroscience
October 23-27, 2004
San Diego, CA
www.atsbio.com/golf

*Join ATS at the Torrey Pines Golf Course*

## 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: DOCTORATE
POLISH
CHEMISTRY
RADIOACTIVE
LEUKEMIA

Answer: MARIE CURIE

WINNERS: Angela Finney, Panacea Pharmaceuticals Inc * Brian Bacskai, Massachusetts General Hospital * Fiona Hemming, Univ Joseph Fourier * Thomas Breithaupt, Des Moines Univ * Dr. Douglas J. Taatjes, Univ Vermont * Seto Chice, SUNYHSC Brooklyn * Filomena Dimayuga, Univ Kentucky * Ching-Hui Yang, Univ Texas Health Ctr * Kristen Phend, Univ North Carolina * Julie Bielawski, Univ Health Network

**Marie Curie** was born Maria Sklodowska, in Warsaw on November 7, 1867. She received a general education in **Polish** schools and then went to Paris to continue her studies at the Sorbonne where she gained her **Doctorate** of Science in 1903, the first awarded to a woman in Europe. Following the tragic death of her husband, Pierre Curie, in 1906, she took his place as Professor of General Physics in the Faculty of Sciences, the first time a woman had held this position.

Madame Curie developed methods for the separation of radium from **radioactive** residues in sufficient quantities to allow for its characterization and the careful study of its properties, therapeutic properties in particular. Together with her husband, she was awarded half of the Nobel Prize for Physics in 1903, for their study into the spontaneous radiation discovered by Becquerel, who was awarded the other half of the Prize. In 1911 she received a second Nobel Prize, this time in **Chemistry**, in recognition of her work in radioactivity.

Unfortunately, the repeated contact with radioactive elements took their toll on Madame Curie. She was afflicted with a double cataract and then died from **leukemia** on July 4, 1934.