

Targeting Talk: *Effective Toxins - continued from last issue*

by Dr. Douglas Lappi

Dear Targeting Talk:

In the most recent issue (Oct-Nov-Dec 2004), you addressed the question of one molecule of saporin killing a cell. Your response overlooked the data on ricin, abrin and modeccin (Eiklid, Olsnes and Pihl, Exp Cell Res, 126:321-326, 1980). In that paper, they showed that these RIP toxins applied to cells in culture produce all-or-none lethality. They used radioactive amino acid uptake and incorporation (as memory serves) and found only two types of cells, those with absolutely no uptake of label or those that were entirely normal - nothing in between.

Also, if the data on ricin-induced apoptosis is correct (numerous authors), and I believe it is, then at low doses, the cells die from triggering apoptosis which seem possible with a single molecule of RIP free in the cytoplasm. To further complete your answer, someone (I haven't found the article yet) showed that it took, on average, about 10,000 molecules of ricin/cell to kill cells in culture. This gives a hint at the efficiency of internalization and translocation in that cell

type. I am not aware anyone else has looked at these issues with saporin conjugates.

Fascinated reader

Dear Fascinated,

Overlooking literature is actually a favorite sport of mine, but in this case I would respectfully point out conflicting information. There is a study of something that is quite between an all-or-none phenomenon: Barbieri *et al.* *FEBS Lett*, 2003 Mar 13;538(1-3):178-82. These authors document that ribosome-inactivating proteins have transforming activity on the classic FDA assay cell line: NIH3T3 cells. This would be a non-toxic activity that one presumes is due to internalization, and is somewhat on the none side of all or none, but hey, it's an activity nonetheless.

My personal feeling is that there is material in the literature that can and should be questioned, and that Targeting Talk should actually go back to being done by my clever colleague, Dr. Ronald G. Wiley.

Targeting Talk

Experimental Biology
April 2-6, 2005
San Diego, CA
Booth 716



Upcoming Events

American Assoc for Cancer Research
April 17-20, 2005
Anaheim, CA
Booth 371

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: DIENCEPHALON
WINNER
PSYCHIC
OPHTHALMOLOG
RESPIRATION

Answer: WALTER HESS

WINNERS:

Catheline Gwenaelle, INSERM ERHE Inst.
Magendie * Jan Pieter Konsman, INSERM
U394 Inst. Magendie * Maria Christensen,
Creighton University * Darlene Martineau, Idun
Pharmaceuticals * Robert Speth, University of
Mississippi * Laura Emond, Dartmouth Medical
School * B. Peteri-Brunback, Univ Nice SA *
Richard Greene, PerkinElmer Life and Analytical
Sci * Valery Nelson, Panacea Pharmaceuticals
Inc. * Andrew Johnston, National Univ Hospital,
Iceland * Joseph Menonna, E. Orange VA Med.
Center



Walter Rudolf Hess was born in

Frauenfeld, East Switzerland, on March 17, 1881. Although his aim was to be a physiologist, external reasons first necessitated him to be an assistant in surgery, later in ophthalmology, and finally a practicing ophthalmologist. This detour, however, was by no means a disadvantage, as he learned, particularly in ophthalmology, to investigate and operate with precision.

The scientific interests of Hess were primarily directed towards haemodynamics and the regulation of respiration. Due to his work, a comprehensive picture has emerged of the representation of the vegetative nervous system in the diencephalon, which was accorded distinction when Hess became a winner of the Nobel Prize.

Hess observed that, in the experiments on diencephalic stimulation, modes of behavior were occasionally evident in the experimental animal, which suggested a manifestation of psychic powers. This was the theme of *The Biological Aspect of Psychology* (1962).