The Placental Transfer of Red Tide Toxin, Brevetoxin 3, in Rodents

Conducted for the

Aquatic Toxins Program
Division of Environmental Health
Florida Department of Health

under

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by

Lovelace Respiratory Research Institute, Albuquerque, NM
and
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The Placental Transfer of Brevetoxin 3 in Rodents: Personnel

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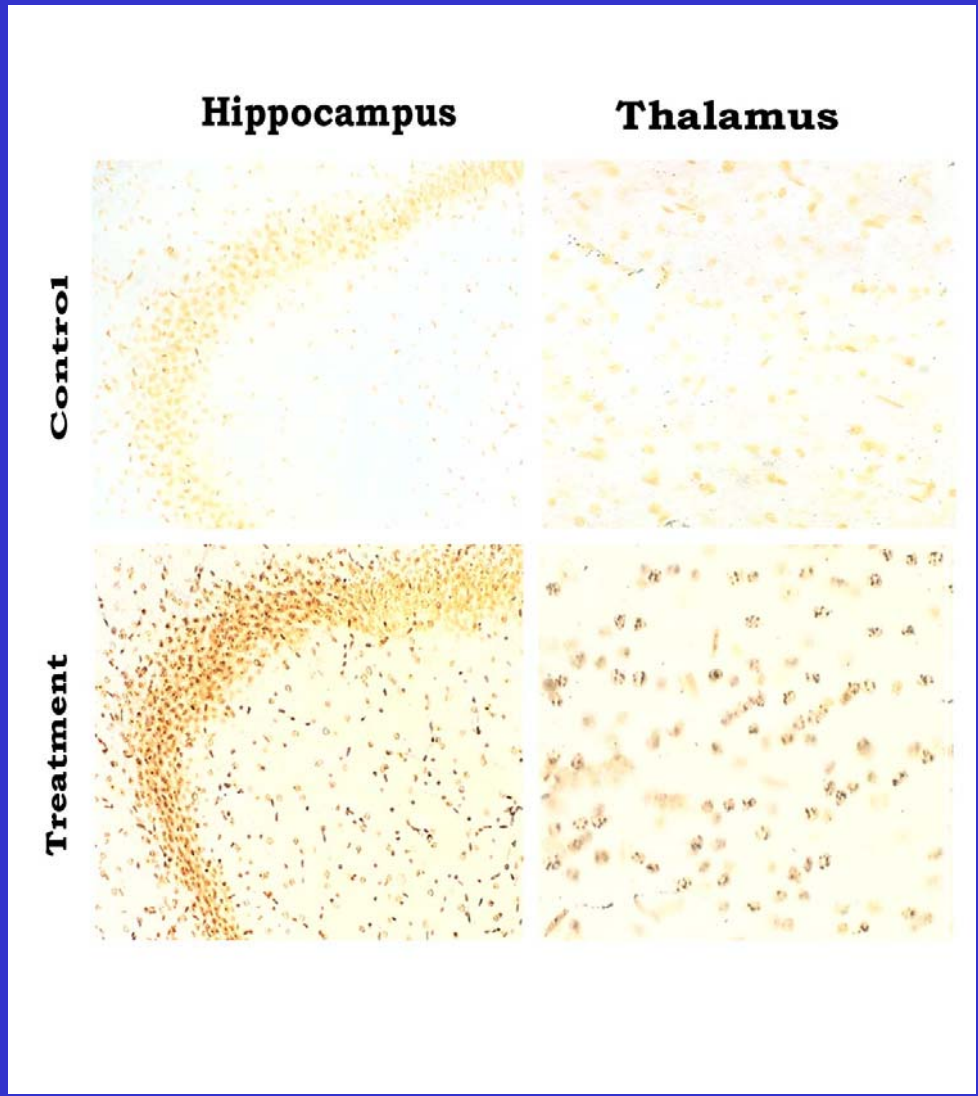
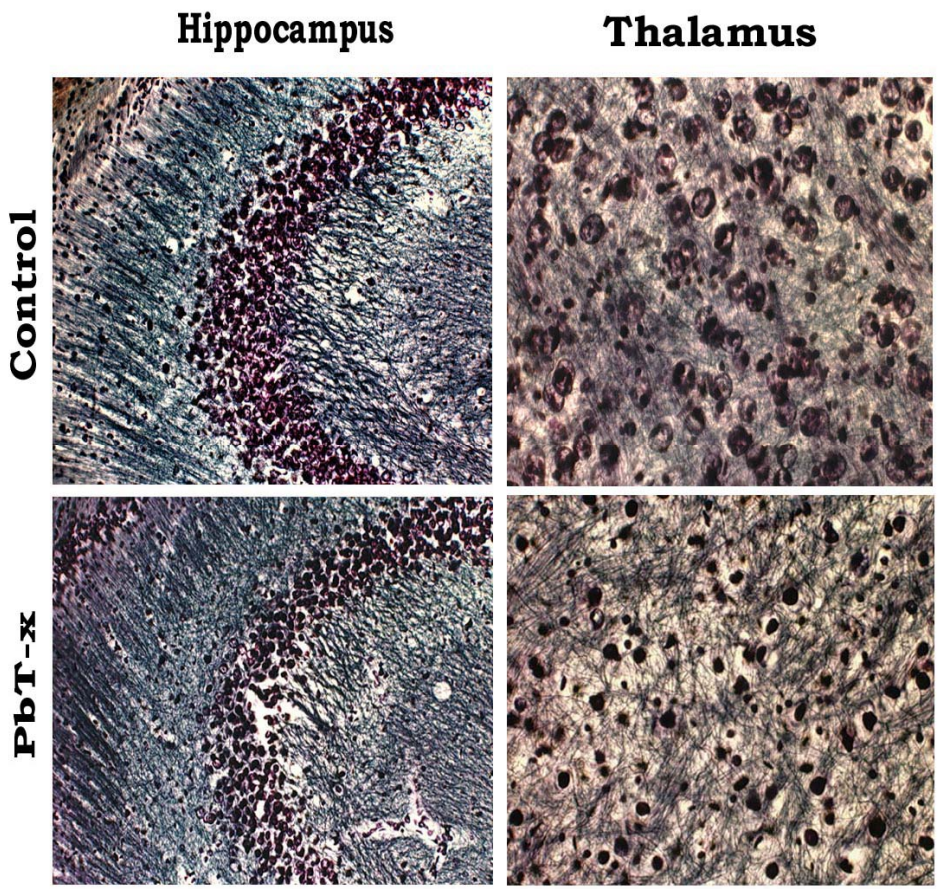
The Placental Transfer of Brevetoxin 3 in Rodents:Objectives

- To determine the extent of brevetoxin uptake by fetuses following a single administration to pregnant dams by intratracheal instillation to the lung.
- To determine the extent of brevetoxin uptake by fetuses following 3 days of constant administration in pregnant dams by osmotic minipump.
- Determine the occupancy of sodium channels (target for brevetoxin toxicity) by brevetoxin in fetal and maternal brain and the extent of neuronal damage following 3 days of exposure by minipump.

The Placental Transfer of Brevetoxin 3 in Rodents: Preliminary Results in Mice

- Exposure of mice to approximately 250 µg brevetoxin/meter cubed of air for 2 days (total of 6 hours) resulted in neuronal toxicity in the cerebellum, hippocampus and thalamus of the mice.
- More recent studies indicate neuronal toxicity in mice exposed 2 hours/day, for 5 days to 50 µ g brevetoxin 3/meter cubed.


Hippocampus
Thalamus
Control
Treatment


Hippocampus
Thalamus
Control
PbT-x

The Placental Transfer of Brevetoxin 3 in Rodents: Synergy

- This project will assist the CDC and Florida Department of health by answering an important question regarding the potential for fetal exposure and toxicity when pregnant women are exposed to brevetoxin-containing aerosols along red tide-affected beaches.
- Synergy is obtained through close collaboration with research conducted under NIEHS Program Project entitled “Effects of Inhaled Florida Red Tide Brevetoxins”.

Support for these activities were provided by the

Centers for Disease Control and Prevention

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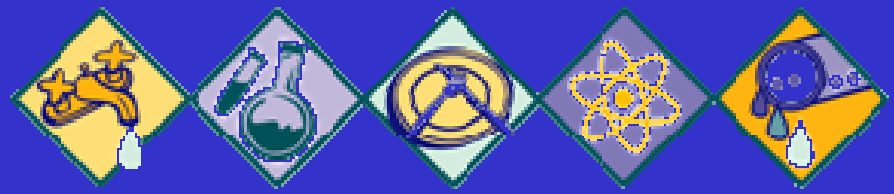

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