

# Fetal exposure to PVC plastic chemical linked to obesity in offspring

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Exposing pregnant mice to low doses of the chemical tributyltin – which is used in marine hull paint and PVC plastic – can lead to obesity for multiple generations without subsequent exposure, a UC Irvine study has found.

After exposing [pregnant mice](#) to TBT in concentrations similar to those found in the environment, researchers saw increased body fat, [liver](#) fat and fat-specific gene expression in their "children," "grandchildren" and "great-grandchildren" – none of which had been exposed to the chemical.

These findings suggest that early-life exposure to endocrine-disrupting [compounds](#) such as TBT can have permanent effects of fat accumulation without further exposure, said study leader Bruce Blumberg, UC Irvine professor of [pharmaceutical sciences](#) and developmental & cell biology. These effects appear to be inherited without DNA mutations occurring.

The study appears online Jan. 15 in *Environmental Health Perspectives*, a publication of the National Institute for Environmental Health Sciences.

Human exposure to TBT can occur through PVC plastic particles in dust and via leaching of the chemical and other related organotin compounds from PVC pipes and containers.

Significant levels of TBT have been reported in house dust – which is particularly relevant for young children who may spend significant time

on floors and carpets. Some people are exposed by ingesting seafood contaminated with TBT, which has been used in marine hull paint and is pervasive in the environment.

Blumberg categorizes TBT as an obesogen, a class of chemicals that promote [obesity](#) by increasing the number of fat cells or the storage of fat in existing cells. He and his colleagues first identified the role of obesogens in a 2006 publication and showed in 2010 that TBT acts in part by modifying the fate of mesenchymal stem cells during development, predisposing them to become fat cells.

Provided by University of California, Irvine

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