

Exposure to secondhand smoke in the womb has lifelong impact

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Newborns of non-smoking moms exposed to secondhand smoke during pregnancy have genetic mutations that may affect long-term health, according to a University of Pittsburgh Graduate School of Public Health study published online in the *Open Pediatric Medicine Journal*. The abnormalities, which were indistinguishable from those found in newborns of mothers who were active smokers, may affect survival, birth weight and lifelong susceptibility to diseases like cancer.

The study confirms previous research in which study author Stephen G. Grant, Ph.D., associate professor of environmental and occupational health at Pitt's Graduate School of Public Health, discovered evidence of abnormalities in the HPRT gene located on the [X chromosome](#) in cord blood from newborns of non-smokers exposed to environmental tobacco smoke.

In the current study, Dr. Grant confirmed smoke-induced mutation in another gene called glycoporphin A, or GPA, that is representative of oncogenes - genes that transform normal cells into [cancer cells](#) and cause solid tumors. The GPA mutation was the same level and type in newborns of mothers who were active smokers and of non-smoking mothers exposed to tobacco smoke. Likewise, the mutations were discernable in newborns of women who had stopped smoking during their pregnancies, but who did not actively avoid [secondhand smoke](#).

"These findings back up our previous conclusion that passive, or secondary, smoke causes permanent genetic damage in [newborns](#) that is

very similar to the damage caused by active smoking," said Dr. Grant. "By using a different assay, we were able to pick up a completely distinct yet equally important type of genetic mutation that is likely to persist throughout a child's lifetime. Pregnant women should not only stop smoking, but be aware of their exposure to tobacco smoke from other family members, work and social situations."

Provided by University of Pittsburgh

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