Air pollution influences gene expression and disease more than our ancestry

Exposure to air pollution doesn't just lead to illnesses like asthma and lung ailments, it can also alter the way genes are expressed in our bodies, according to a new study published March 6 in the journal Nature Communications.

The study, conducted by a team of scientists and biostatisticians in Canada, suggests that the impact of air pollution on an individual's gene expression is much more significant than a person's ancestry.

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The study's 13-member research team, led by Philip Awadalla of the Ontario Institute for Cancer Research, assembled a cohort of 1,000 individuals living in different parts of Canada's Quebec province, including Montreal, Quebec City, and Saguenay—Lac-Saint-Jean.

The group was comprised of men and women between the ages of 40 and 70 years. Each of the participants provided information to a biobank and health database called CARTaGENE, including blood pressure, blood cell counts, blood sugar levels, cardiovascular function, and disease history…They also reported information on environmental factors like their proximity to green space, residential history, and exposure to ultraviolet radiation. All individuals studied were of French-Canadian descent in order to minimize variability in ethnicity, Awadalla said.

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"This helped us show how most gene expression is not derived by ancestry, and that environmental exposures associated with living in a particular city or region are more impactful on gene expression associated with disease traits," Awadalla said.

Read full, original post: Air Pollution Can Have a Greater Effect on Human Gene Expression Than Ancestry