EXHIBIT 54

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Stain repellent chemicals linked to liver damage in people.

Jun 22, 2012

Gallo, V, G Leonardi, B Genser, M-J Lopez-Espinosa, SJ Frisbee, L Karlsson, AM Ducatman and T Fletcher. 2012. **Serum perfluorooctanoate (PFOA) and perfluorosulfonate (PFOS) concentrations and liver function biomarkers in a population with elevated PFOA expsoure.** Environmental Health Perspectives http://dx.doi.org/10.1289/ehp.1104436.

Synopsis by Craig Butt

Elevated levels of two stain-resistant chemicals in the blood of adults living near a DuPont plant in the Mid-Ohio Valley were associated with enzyme activity that indicates liver damage and possible liver disease. The results of this large study of PFOA and PFOS, which are used to make cookware, food packaging and fabrics, mirror the findings of studies of lab animals and chemical plant workers.

A study of 47,000 people from West Virginia's Mid-Ohio Valley who have high exposure to chemicals widely used on fabrics and food packaging to resist stains and water finds an association between increased blood levels of two of the chemicals and an enzyme marker for liver cell damage.

The results suggest exposure to higher levels of the perfluorinated acids known as PFOA and PFOS can change liver function in ways that may lead to disease. Animal studies show PFOA and PFOS congregate in the liver and cause diseases, such as enlarged livers and liver tumors. Results from human studies are murkier with some showing associations and others not.

This study is important because it compares blood levels of the chemicals and an enzyme's activity in multiple ways – among water districts, among individuals and within the population – and finds a strong and clear link in each comparison. The findings from this population are consistent with studies looking at people exposed at work.

PFOA and PFOS are used to manufacture stain and water repellent chemicals commonly used in cookware, fabrics and paper coatings. Both PFOA and PFOS are found in the commercial products at very low levels. However, the commercial products also contain small amounts of other fluorinated chemicals that form PFOA and PFOS when they degrade in the atmosphere or break down in the body. Scientists think that a main source of PFOA and PFOS comes from the degradation of these precursor chemicals.

As a result of their widespread use in commercial products, nearly every American has low levels – in the parts per billion – of PFOA and PFOS in their blood. The chemicals are also found in breast milk and food packaging. People can be exposed at work and at home through drinking water, dust, food and air.

Because of global contamination and health concerns, industries have voluntarily phased out production and use of both compounds. Exposures will continue because the long-lived fluorinated chemicals break down slowly.

The study population included people living near a DuPont manufacturing plant in Parkersburg, W. Va., that are part of a larger, ongoing study – the C8 Health Project – examining health effects of PFOA exposure. The plant manufactured fluorinated chemicals from 1950-2005 that caused the contamination of local drinking water supplies with very high levels of PFOA. As a result of the polluted drinking water, the local population has PFOA blood levels that are 20-times greater than the general U.S. population. PFOS levels mimic the general population.

Researchers analyzed blood samples for five enzymes related to liver cell damage and dysfunction that can indicate injury, disorders and disease. They compared the markers to blood levels of PFOA and PFOS. They statistically controlled for age, income, smoking and other factors that could influence the associations.

The enzyme alanine aminotransferase (ALT) was linked to PFOA and PFOS blood levels. As the blood levels of the chemicals rose, so did the enzyme's activity.

While the study found links consistent with prior reports, it did not explore if the rise in enzyme activity directly leads to liver disease or if ALT would decrease if exposures dropped.