



# American Drug Testing

*Drug-Free Workplace Programs*

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## DRUG-FREE WORKPLACE ADVISOR

AN ONGOING SERIES TO PROTECT YOUR COMPANY BY HELPING TO KEEP DRUGS OUT OF YOUR WORK-

### In Search of Alcoholism Genes, Part I

The vast majority of drug Millions of Americans know all too painfully that alcoholism runs in families.

Children of alcoholic parents are four times as likely to develop drinking problems as the general population. Sons of alcoholic fathers face up to nine times the usual risk. Even babies of alcoholics adopted into non-drinking homes have nearly the same risk of alcoholism as they would if they'd stayed with their biological parents, studies have shown.

#### Hidden Risks

But untangling just which genes pass along the predisposition for problem drinking is devilishly difficult—largely because alcoholism itself is so complex. Genes that affect how fast the liver metabolizes alcohol and how the brain reacts to stress, reward and pleasure have all been implicated, as have genes for anxiety and depression. Some overlap with genes for nicotine, cocaine and other addictions.

About one in 10 Americans fit

the criteria for alcohol dependence—mainly the inability to cut down—at some point in their lives. Environmental influences and social pressures also play complicated roles.

"All too often, you read that they've found a gene for this

*“About one in 10 Americans fit the criteria for alcohol dependence—mainly the inability to cut down...”*

and a gene for that, and it's very rarely that simple. We don't expect to find a single gene in everyone," says Howard J. Edenberg, a professor of biochemistry and molecular biology at the Indiana University School of Medicine. Dr. Edenberg is one of four principal investigators in the government-funded Collaborative Study on the Genetics of Alcoholism (COGA), which has been tracking alcoholism in families since 1989. To date, COGA researchers have interviewed more than 14,000 people and sampled the DNA of 262 families. They've found evidence for several alcohol-related genes—and are increasingly convinced that different types of alcoholics reflect many genetic variations. That idea is already showing promise in one area: identifying drugs that can help treat

alcoholics based on their individual DNA profile. Most of the drugs currently on the market aim to cut alcohol cravings but don't work on everyone and compliance is a problem. That could change, experts say, if drugs could be targeted to patients with specific types of alcoholism.

#### Who Is an Alcoholic?

If you've done any three of these seven, you meet the criteria for alcohol-dependent:

- Drunk more or longer than you intended
- Been unable to stop or cut down
- Needed more alcohol to get the same effect
- Had withdrawal symptoms without it
- Spent an increasing amount of time drinking or recovering
- Neglected other activities due to drinking
- Continued to drink despite negative consequences
- About 5% of Americans currently meet the criteria, and more than 10% do at some time in their lives, according to the National Institute on Alcohol Abuse and Alcoholism.

In one of the first such studies, reported in the American Journal of Psychiatry last month, alcoholics with two specific variations of a gene related to the neurotransmitter serotonin were able to cut their alcohol consumption significantly using the drug onadansetron. The anti-nausea drug often used

with cancer treatments, also known as Zofran, blocks serotonin receptors and seems to diminish the buzz some alcoholics get from drinking. Subjects with different versions of the serotonin-receptor genes and those taking a placebo had less success cutting down.

"Imagine this scenario: You go to your doctor and say, 'I'm drinking and I need help,'" says Bankole Johnson, chairman of psychiatry and neurobehavioral sciences at the University of Virginia and the study's lead author. "The doctor can do a blood test and if you qualify, you can get tablets the next day and they're very likely to be effective. You don't even have to detox first. If you do not qualify, you don't waste your time with the medicine." Since ondansetron has long been approved in larger doses, that scenario could be a reality in just a few years, predicts Dr. Johnson, who has a financial stake in a company that hopes to develop it as an alcohol treatment. *Next issue, Part II* For additional tips, see the "client area" at [www.AmericanDrugTesting.net](http://www.AmericanDrugTesting.net) or call 843-747-4111.



**The Drug-Free Workplace Advisor** is published by American Drug Testing, a leading drug-free

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