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Doctor Pitching DNA Testing to Prove Toxic Exposure:

A Los Angeles toxicologist is pitching a trademarked process that uses DNA testing to determine whether exposure to harmful chemicals has caused permanent disability.

Dr. Bruce S. Gillis, chief executive officer of the Cytokine Institute, said his application of a testing process pioneered by the University of Illinois has already been used in about two-dozen California workers' compensation cases. He said the tests can determine within 99.9% accuracy whether a person has had injurious exposure to toxic substances.

Cytokine testing can also be used to verify whether an injured worker suffers from chronic pain, he said.

Attorney Neal Jardine said he has used Gillis' cytokine testing in a civil suit to prove that the plaintiff had had no exposure to toxic substances.

"DNA results are extremely reliable," said Jardine, of the Zurawsky Jardine and Houston law firm in Los Angeles. "In terms of criminal procedure, the tests are sufficient to exclude 99.9% of the population. That's not bad and we're not talking criminal cases here—we're talking about workers' compensation."

Gillis said his test meets the standards set by the Daubert principle used in federal courts to determine the validity of scientific evidence, and the Kelly Frye rule in California courts. He has published papers on the efficacy of the testing in two scientific journals: "Genomics" and "Environmental and Molecular Mutagenesis."

Gillis said his system works by mapping the release patterns of tiny proteins—cytokines—that are shed by DNA strands when cells are exposed to harmful substances. He said every substance creates its own "signature" of cytokine releases, so the test can identify the type of substance that caused the release.

Chronic pain also releases cytokines from the DNA in cells, so Gillis said the same process can be used to verify diagnoses such as fibromyalgia or complex regional pain syndrome.

While Jardine sees cytokine testing as a boon for defense attorneys, California Applicants' Attorneys Association President Linda Atcherley said the science can work both ways. Claimants' and plaintiff's lawyers can also use the test to prove that their clients have been exposed to toxic substances at work.

As it happens, however, the one time that Atcherley used a cytokine test produced a result that was not favorable to her client.

Atcherley's claimant had claimed permanent disability from exposure to various chemicals while working for the Invitrogen bio-tech firm in Carlsbad, Calif. Ironically, the woman picked Gillis from a panel of qualified medical evaluators supplied by the Division of Workers' Compensation.

Gillis determined that the woman did suffer respiratory damage from exposure toxins, but he recommended cytokine testing to determine whether the toxins had also damaged her white blood cells.

Atcherley said the employer resisted paying for the test, which costs \$6,250, but eventually relented when she scheduled an expedited hearing. Unfortunately for the claimant, Gillis' test showed no exposure.

Still, Atcherley believes cytokine is sound science.

"It's money well spent because it's absolute scientific evidence," she said. "It seems to be widely accepted as an appropriate mechanism to test for a variety of responses or problems with the immune system."

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