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Deciphering Daddy's DNA

Genetic advances have improved paternity tests

By Nancy Shute

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Not so very long ago, fatherhood had a bit of mystery to it. No more. Advances in genetics have made paternity tests one of the simplest and most reliable medical tests ever available. Being able to be 99.99 percent sure has helped fuel the frenzy over the fate of little Dannielynn, the late Anna Nicole Smith's infant daughter, and her four would-be daddies. It also made last week's announcement that DNA samples would be taken from the body of the late soul legend James Brown before burial—to settle new paternity claims—seem almost commonplace.



POP QUIZ. Two of the four men who claim to be the father of Anna Nicole Smith's daughter LOU TOMAN-AP

Far from Hollywood, DNA-based paternity tests are used every day to determine child support and custody or to put a worried mind at ease. "It was a relief," says Mandy, 32, of Kansas, who asked that her last name not be used. Her father had died at age 16 and hadn't told his parents he'd gotten a girl pregnant. A few months ago, Mandy decided she wanted a family medical history for her children, ages 8 and 11. She asked her father's parents, and they said they'd like to do DNA testing first. Last week, she found out that they are indeed her grandparents. "I was scared to death that maybe my mom wasn't honest with me," she says. "It's neat having the confirmation that everything I had been told was in fact the situation."

As DNA technology has become more precise, paternity tests like Mandy's, which could be done without her father's DNA, are becoming cheaper and easier. It's now possible to determine paternity using DNA from cousins or grandparents, or from a discarded coffee cup. Procedures such as

amniocentesis can be used to determine paternity well before a baby's birth. And sometime soon, noninvasive tests may be able to ID Dad through bits of fetal DNA floating in a pregnant woman's blood.

Paternity testing first hit the headlines in 1943 when starlet Joan Berry sued Charlie Chaplin, claiming he was the father of her child. A simple blood-type test proved Chaplin could not be the father, but at the time such tests weren't admissible in court, and Chaplin was ordered to pay child support. The case prompted new laws allowing blood tests in paternity cases, but those tests could eliminate just 40 percent of males as the father. In the 1970s, new tests based on variations in white blood cells raised the exclusion rate to 80 percent. DNA testing, which entered the market in the late 1980s, has made paternity testing almost foolproof, raising the accuracy rate to 99.99 percent for the most common tests. Further testing can raise the odds to astronomical levels in contested cases. "The accuracy has greatly increased," says David Gjertson, a professor of biostatistics at the University of California-Los Angeles who helped develop DNA-based paternity tests.

Then there's the *CSI* approach. Current DNA tests make it possible to use old or degraded DNA samples, such as random cells from a man's razor or even from earwax on a used Q-Tip. Sometimes dental floss tells the tale. In 2002, millionaire Steve Bing alleged that MGM mogul Kirk Kerkorian, then 84, had hired private investigators to go through the trash can outside Bing's home. Bing had been romantically linked with Kerkorian's ex-wife, Lisa Bonder Kerkorian. DNA on dental floss fingered Bing as 4-year-old Kira's father. "You can send us almost anything, and we can get DNA out of it," says Howard Coleman, CEO of Genelex, a genetics-testing lab in Seattle. "Anything that someone's had contact with ... and we can give you a very conclusive answer."