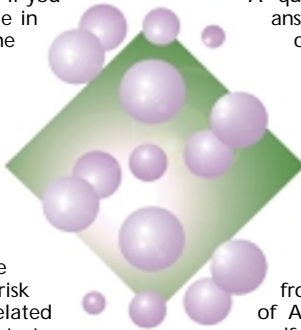


TOUCHINGbase

● Hip hop genetics

Break-dancing may not be in your genes, especially if you suffer from osteoarthritis of the hip. What may be in your genes, however, is the propensity to develop the disease. In a recent study published in the *British Medical Journal* (vol. 321, 1179–1183), Peter Lanyon and colleagues from Nottingham University demonstrate a strong genetic influence underlying osteoarthritis of the hip. They carried out a study of 392 people with osteoarthritis of the hip sufficiently severe to warrant total hip replacement, and 604 of their siblings, and compared them with a group of 1,718 people with no osteoarthritis. The study reports that siblings have a fivefold increased risk of developing the condition, compared with unrelated individuals. Although there is evidence that demonstrates a familial link between osteoarthritis of the hand and knee, this is the first study to indicate that hip osteoarthritis is also under genetic influence. It also indicates that family history may be a major risk factor and important in early detection and treatment.



● Family of kings?

A question of royal, ancient paternity may soon be answered. The Egyptian king Tutankhamun was installed on the throne at the tender age of 8 years, and reigned until he died in 1343 B.C. at the age of 17. He is believed to have succeeded King Amenhotep IV, who was also called Akhenaten. At the time, King 'Tut' was presumed to be the son of the pharaoh. But some branches of the family tree are obscure, and many Egyptologists question whether he was in fact a blood relative of Akhenaten. In an attempt to resolve this issue, a team of scientists from Waseda University (Japan) and Ein Shams University (Egypt) will test DNA from Tutankhamun's mummy and compare it with that of Amenhotep III, father of Akhenaten and presumed grandfather of King Tut. The operation will begin on 12 December at Tut's tomb in the Valley of Kings. Samples will be taken from Amenhotep's mummy, which is on exhibit in the Egyptian museum in Cairo. If the tests reveal that Akhenaten is not the biological father of Tut, who was? Egyptologists point out that a general named Horemheb controlled the country during the reign of Tutankhamun, and that he and other generals are known to have claimed royal blood. Whatever the results, one may sleep easy at night with the knowledge that Egyptian scholars and archaeologists agree that Tutankhamun carried at least some 'royal' genes. It is hoped that the tests will resolve his paternity despite the poor record of DNA testing in archaeological studies. The spectre of PCR artefact looms large, and the controls that are necessary to rule it out are not trivial. If the tests prove successful, however, one may expect additional analyses of ancient DNA, with a view to ferreting out other social relations and family structures of ancient Egypt.

Now, hang on tight, 'cause this story tells
Why you're YOU—not someone else!
So perk up your ears. Make your fingers snap.
And let's get into the YOUUnique RAP.

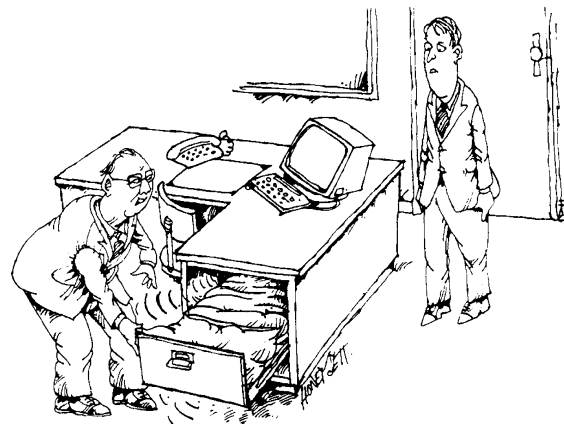
Just as life's more than work or play
Your body's more than DNA.
Most of you's water. You prob'ly know that.
You're also carbohydrate, protein, and fat.

(two stanzas from YOUUnique RAP by Irwin Herskovitz)

'Inifya did'n know that, you could do worse than pick up a copy of the latest oeuvre from the house of Herskovitz. A man of the times, and 80-year-old father of twins, Irwin Herskovitz is father of Ira and Joel, geneticists with a musical bent (see *Nature Genet* 15, 11; 1997). Irwin has now come up with a rap that picks up where *Double Talking Helix Blues*, a riff released by Joel in 1993, left off. The rap describes the journey from gene to protein and the genetic basis of variation. In fact, the professa wrapped the rap some seven years ago. It wasn't until his 76th birthday, when Eric Henderson (Iowa State Univ.) presented him with some tunes, that the gig came together. Herskovitz claims that he never tried to learn rap: "you just have to make sure each line has the same number of beats." But if his delivery over the 'phone is anything to go by, YOUUnique RAP is on the map. See <http://hometown.aol.com/royaj Joel/myhomepage/business.html> for lyrics and details on the cassette and compact disc.

● Time to shed light on histones

What keeps one's clock ticking? A study by Claudia Crosio and colleagues in December's issue of *Nature Neuroscience* (vol. 3, 1241–1247; 2000) indicates that the molecular players may be more than previously suspected. In mammals, light signals that 'reset' the circadian clock are perceived by as-yet-unidentified cells in the retina and transmitted to neurons of the suprachiasmatic nucleus (SCN), where the central circadian pacemaker is located. In constant darkness, the pacemaker maintains an animal's activity cycle, which accords with 'subjective' days and nights. Light pulses cause phase shifts in this cycle, and induce immediate early gene (IEG) expression, but only when delivered during the 'subjective' night. It has been proposed, but not yet established, that the induction of IEGs such as those encoding c-Fos, Nur-77, Jun-B, Per-1 and Per-2 might help to reset the circadian clock. Crosio *et al.* now show that the same light pulses elicit transient phosphorylation of the histone H3. They demonstrate that this effect is rapid, transient and, like the induction of IEG expression, limited to the SCN. Although it has yet to be demonstrated that H3 modification contributes to a resetting of the clock, this indicates that light induces extensive chromatin remodelling in neurons of the SCN. Indeed, immunofluorescence experiments reveal a scattered distribution of phosphorylated H3 throughout the nucleus after exposure to light, in contrast with the localized 'speckles' observed when P-H3 is generated in response to mitogens. So, the signalling pathways both upstream and downstream of P-H3 might be specific to the clock-resetting mechanism. The basis for such specificity, however, remains largely obscure.



"As I explained at your interview, the job entails long hours"

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