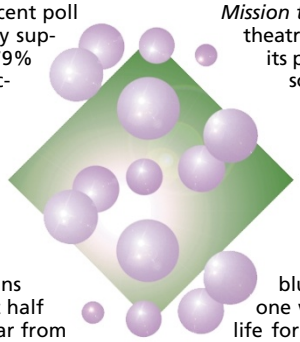
TOUCHING**base**

Not in Kansas anymore?

As reported in *The New York Times*, results of a recent poll indicate that, whereas 83% of Americans generally support the teaching of evolution in public schools, 79% think that creationism also has a place in the public-school curriculum. Many respondents feel that the topic should be presented as a belief rather than a competing scientific theory. About 30% believe that creationism should be taught as a scientific theory, either alongside evolution or without it. This contrasts with the 20% who think that evolution should be taught without any mention of creationism. Although these results indicate that most Americans believe there is room for both world-views, almost half of them believe that evolution is a theory that is far from being proven scientifically.



Out in orbit

Mission to Mars, the number-one-box office hit in US movie theatres, is not a low-budget movie, and so it is fitting that its producers have obtained detailed advice from NASA scientists to get the details right. Unfortunately, the movie also contains some biology, and consultation with biologists is less evident. After the first manned mission to Mars ends in disaster, the single survivor together with a rescue crew finds the key to the planet's secret. It seems that there had once been life on Mars, life dependent on the DNA double helix as its heritable principle. When an asteroid hit the formerly blue-and-green planet, transforming it into the red one we know and are fascinated by, the highly evolved life form fled to a galaxy far, far away, but not without sending a small package of its DNA to neighbouring Earth. As we learn, the parcel landed in water, and, presumably by some means of horizontal gene transfer, triggered the Cambrian species explosion, ultimately leading to the creation of the human species. So far, so good for science fiction, but the fact that the scientifically trained heroes don't know the difference between DNA structure and chromosomes—they stare at the image of a double helix on a computer monitor and explain that this "looks like human DNA, except one small pair of chromosomes is missing"—elicits a collective wince from an audience which has any knowledge of molecular biology or genetics. The problem is that not everyone has. One would have hoped that Touchstone Pictures would have sought a biologist's advice on the relevant parts of the movie. The heroes (despite their sketchy knowledge of biology) figure out the Martians' riddle, and, having re-established the common history, are happily reunited with the related species. Good science fiction depends partly on credibility; if there has to be life on Mars, movie makers should at least do their homework.

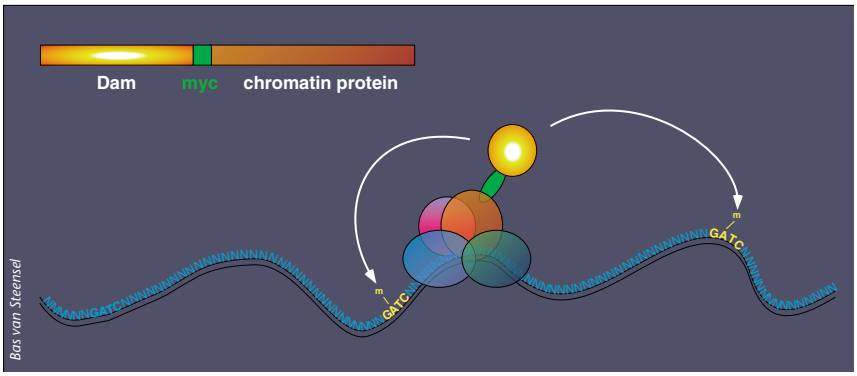
Keep your Foxes in a row

Eleven years ago, Detlef Weigel and colleagues cloned the *fork head* gene (*Cell* **57**, 645–658; 1989), which, when mutated, leads to a dead *Drosophila* embryo with an abnormal head skeleton. The gene encodes a transcription factor of the winged-helix category, and over 100 related genes have since been identified across eukaryotic species. As the members of this rapidly expanding family have suffered from confusion over their names and relationships, the need for standardized nomenclature has been recognized and acted upon. Fox (for Forkhead box) gene nomenclature now has its own small committee under the wings of the Human and Mouse Gene Nomenclature Committees. The committee's guidelines have been published (*Genes Dev*. **14**, 142–146; 2000), and updates can be found at its website (http://www.biology.pomona.edu/fox.html).

> *"Most of the effects of DNA on human society will prove to be no more predetermined than most of its effects on individual human beings."*
>
> —Henry Greely

Dam methylation

Protein-DNA interactions are the essence of gene regulation, but many of them are transient and extremely difficult to study within living cells. Moreover, the techniques used to catch proteins in the act—such as chemical cross-linking and *in situ* hybridizaton with fluorescent probes—can create artefactual results. But there's another option: adenine methylation, not normally found in eukaryotes, can be used to 'mark' DNA, and the methyl group, unlike most proteins, will remain attached no matter how harshly any particular procedure treats the DNA. Adenine methylation has previously been used to mark accessible, or comparatively 'open', regions of DNA throughout the genomes of yeast and *Drosophila*. In this month's issue of *Nature Biotechnology*, Bas van Steensel and Steven Henikoff report the development of a new technique, which they call DamID (for Dam identification), to identify the target sites of chromatin proteins in living cells. They tethered *Escherichia coli* Dam methylase to different chromatin proteins, and then detected the molecular 'fingerprints'—methylated adenines within the GATC recognition site—left behind by the enzyme. They were able to reconstruct the chromatin proteins' interactions with specific DNA sequences. Providing proof-of-principle, van Steensel and Henikoff showed that Dam methylase tethered to GAL4 resulted in adenine methylation—detected by methylation-specific restriction enzymes or antibodies—exclusively in the vicinity of a GAL4 binding site in fruit flies. When the methylase was tethered to endogenous *Drosophila* HP1 (heterochromatin protein 1), the interaction revealed a number of expected as well as unexpected target loci. These results suggest that DamID will be a useful tool in reconstructing protein-DNA interactions in monitoring access of proteins to highly condensed sequences.



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