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Monkey model for filariasis

Experimental chemotherapy and pathological studies of several human diseases have benefitted greatly from the use of animal models. Filariasis is a tropical disease that affects the lives of millions of people. In the chronic stages of one type of filariasis, called lymphatic filariasis, the parasites block the lymphatic system, causing oedema which leads to the repulsive condition known as elephantiasis. The need for a suitable nonhuman-primate model for filariasis has long been felt, and earlier attempts to establish infection in rhesus monkeys failed. P. K. Murthy *et al.* now report (**page 1236**) studies on Indian langur monkeys (*Presbytis entellus*) artificially infected with filarial parasites (*Brugia malayi*). The study shows that langurs are susceptible to infection by the strain of parasite used, although there was no correlation between the amount of infective inoculum administered and the intensity of microfilaraemia. The authors also tried to simulate natural exposure in an endemic area by infecting different batches of animals in different multiple and single doses, with different intervals between successive inoculations. Again there were no clearly discernible differences in progress of infection. Some infected langurs also developed oedematous swellings, and the authors feel that langurs carrying *Brugia malayi* infection can serve as a model for studies of filariasis-induced swelling.

DNA sequencing by 2D NMR

R. Ajay Kumar *et al.* describe (**page 1256**) a method of obtaining the sequence of a short stretch of DNA using two-dimensional ^{1}H-NMR spectroscopy. The four nucleotides in DNA can be distinguished on the basis of the chemical shifts, or nuclear resonance frequencies, of their base and sugar protons, although the discrimination between deoxycytidine and deoxythymidine is not so good. In a two-dimensional ^{1}H-NMR spectrum, a resonance at frequencies (chemical shifts) F_1 and F_2 indicates an interaction between two specific protons, one with a resonance frequency F_1 and the other a resonance frequency F_2. To obtain the sequence of nucleotides in a piece of DNA, one must then have a method to identify (i) adjacent nucleotides from the resonances (cross peaks) in the two-dimensional spectrum, (ii) adjacent nucleotide pairs with a common nucleotide, and (iii) the terminal nucleotides. Employing a combination of nuclear Overhauser effect and J-correlated 2D NMR spectroscopy, Ajay Kumar *et al.* use the method on a published spectrum and obtain the correct sequence of a 10-nucleotide DNA fragment. Although the method can be used to determine the sequence of a short DNA fragment, it requires much more material (DNA) than do the chemical methods of DNA sequencing, and cannot replace the latter.

A wild reaction

The death of five tigers in a national park in South India, where a team of wildlife biologists was studying tigers, led to a ministerial order terminating the research and threatening to ban similar work. The wildlife biologists had only a year ago begun to track tigers by fitting them with radio transmitters. Although only one of the five tigers that died had been fitted with a radio transmitter, and an inquiry by a representative of the Government of India absolved the researchers of responsibility for the deaths, the state forest minister withdrew permission for the research project. R. Sukumar, who has himself studied elephants in the wild in South India, comments on the issue (**page 1213**) and raises important questions concerning scientists' freedom of inquiry, policy for wildlife research, and the importance of such research for conservation efforts. The article also shows why the death of five tigers over a two-month period in a 641-square-kilometre area is not unusual, considering tiger biology, territoriality and behaviour in the wild.