Research Update • Le point sur la recherche

Cystic fibrosis cured in fetal mice

Cystic fibrosis (CF) has been permanently and completely reversed in fetal mice, marking the first time that a fatal genetic disease has been completely reversed in a mammal through gene therapy.

In a letter to the *Lancet* (1997;349[9052]), researchers in Louisiana state that they overcame obstacles encountered in previous attempts at gene therapy for CF by performing the therapy in utero.

They believe that amniotic fluid may help bypass the immune response that has made gene therapy impossible after birth. This means that, if the technique proves possible in humans, CF would need to be diagnosed and treated when the child is still in the womb.

The researchers infected fetal mice with a recombinant adenovirus containing the cftr transgene in order to provide the CF transmembrane receptor protein functions that are lacking in animals and people with CF. Only small doses of virus — which had disappeared by birth — were needed to target somatic stem cells.

A control group of mice was infected with a control form of the virus. Thirteen mice given the transgene had remained healthy after 250 days, well into mouse adulthood, whereas all of the control mice died before adulthood.

This research has changed the view of how CF develops. "These results suggest that the presence of CFTR protein early in the developing fetus plays an essential role in normal development and its absence leads to the disease phenotype in the intestine," the researchers stated. — *C.J. Brown*

In the news . . .

Epidurals and fever

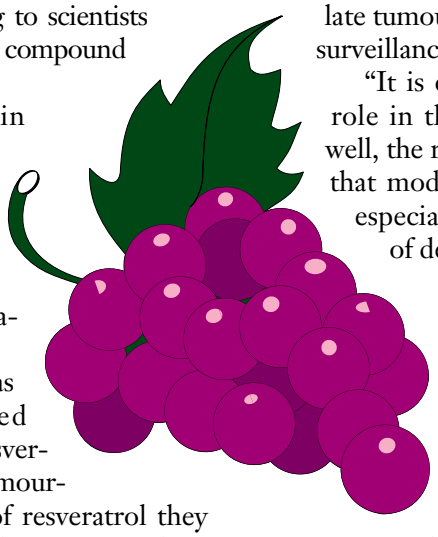
Epidural analgesia during labour can cause fever in mothers and lead to unnecessary sepsis evaluations and antibiotic treatment in newborns, according to a study by Boston researchers published in *Pediatrics* (1997;99:415-9). The researchers studied 1657 women who were giving birth, and fever occurred in 14.5% of those who received an epidural and only 1.0% of those who did not. Furthermore, a much higher proportion of babies born to mothers who received an epidural were evaluated for sepsis and treated with antibiotics, possibly because of the fever in the mother. The study raises questions about the effects of epidural analgesia on the mother and the evaluation of infection in babies born from mothers who received an epidural.

The grapes of health

A compound found in high quantities in grapes prevents cancer at all stages, according to scientists in the US and Spain who tested the compound in mice (*Science* 1997;275:218-20).

Resveratrol is found mainly in grape skins and red wine, although it is also found in white and rosé wine, mulberries and peanuts. Researchers found that resveratrol inhibited the cell changes that lead to tumour initiation, promotion and progression.

Mice in which breast cancer was experimentally induced fared markedly better if they received resveratrol. Furthermore, mice were tumour-free longer the greater the dose of resveratrol they received. The researchers believe that resveratrol inhibits cyclo-oxygenase activity, which can stimulate tumour cell growth and suppress immune surveillance.



"It is conceivable that resveratrol plays a role in the prevention of heart disease" as well, the researchers report, in light of studies that moderate consumption of alcohol, and especially red wine, decreases the chance of death due to coronary artery disease.

Although these findings sound like an excellent excuse to drink more wine, the researchers caution: "In light of the adverse health effects of long-term alcohol consumption, however, foods and nonalcoholic beverages derived from grapes should be considered as alternative dietary sources." — *C.J. Brown*