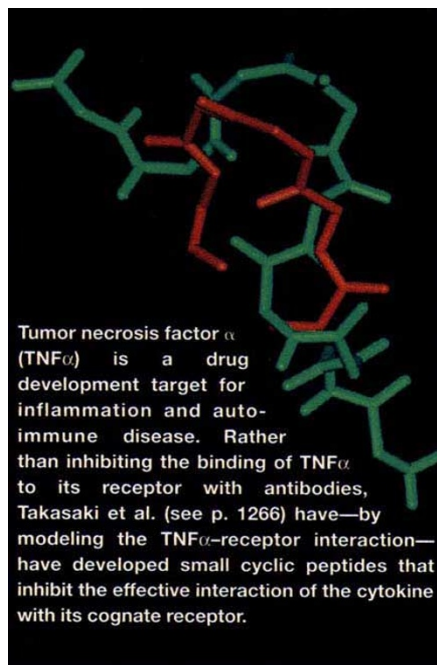


Stimulating development in GH technology

The administration of recombinant growth hormone results in increased milk production in cows and enhanced growth, along with reduced fat, in pigs. In an effort to delay the necessity of frequent repeated injections of growth hormone to achieve these ends, Draghia-Akli et al. have developed a DNA vector for the expression of growth hormone releasing hormone (GHRH) upon injection into murine quadriceps. *In vivo* expression of GHRH results in increased serum levels of growth hormone and liver insulin-like growth factor-1 expression, which ultimately stimulate animal growth (see p. 1285).

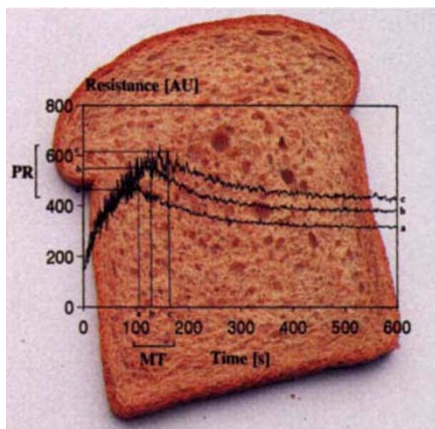
Ribonuclease-mediated pathogen resistance

While viroids do not have the capacity to synthesize proteins, they can nonetheless devastate agricultural crops such as potatoes. Unfortunately, short of removing all the infected crops from a field, there is a paucity of treatments for viroid infection. Sano et al. (see pp. 1247 and 1290) have shown that a promising strategy for the prevention of virus infection in crops, namely the creation of transgenic plants expressing a double stranded RNA-specific ribonuclease, may also limit the infectivity of viroids in similarly designed transgenic potato tubers.



Heterologous expression—and purification—by baculovirus

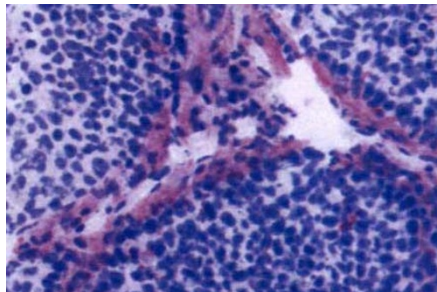
Recombinant baculovirus infection of insect cells is often the expression system of choice when the heterologous protein is dependent upon eukaryotic post-translational processing. Membrane receptors can be expressed in this system in the presence of the p55 HIV-1 Gag protein, resulting in the release of Gag particles that contain plasma cell membrane along with the receptor. Loisel et al. (see p. 1300) co-express the β_2 adrenergic receptor (β_2 AR) along with HIV-Gag in insect cells. Rather than recovering the receptor in the released Gag particles—where they might have been expected to be located—the active glycosylated receptor was found in the membrane of the budding baculovirus particle from which the β_2 AR could be purified.



In order to enhance its bread-making characteristics, Barro et al. (see p. 1295) have transformed wheat to express an altered content of high molecular weight glutenin subunits. Dough from the engineered wheat exhibited increased strength, mixing time, peak resistance, and resistance breakdown, which promises better bread.

Protein within a protein

Fusion proteins are single molecules engineered to possess two distinct functional groups. Now Betton et al. (p. 1276) have shown that the traditional end-to-end concatomerization need not be the only method of developing bifunctional proteins. This group has succeeded in inserting the entire β -lactamase enzyme within the maltodextrin binding protein, creating a hybrid that retains both the individual maltose binding and penicillinase activities of its constituents, while increasing functional penicillinase stability.



By virtue of its presence in neoplastic tissues during angiogenesis, the oncofetal fibronectin isoform B-FN has been used for specific imaging of murine tumors, opening up the possibility of using this target in the diagnosis and treatment of human disease (see pp. 1243 and 1271).

Vaccine epitopes on a string

To develop more effective protein vaccines through the use of recombinant protein technology, it would be beneficial to present epitopes (from different antigens) able to elicit a cytotoxic T lymphocyte (CTL) response irrespective of the patient's major histocompatibility type. Gilbert et al. (see p. 1280) have developed a candidate malaria vaccine in which several conserved epitopes of *Plasmodium falciparum* have been strung together in a Ty virus-like particle, which can sensitize target cells for CTL recognition.