

Pengantar Bioteknologi



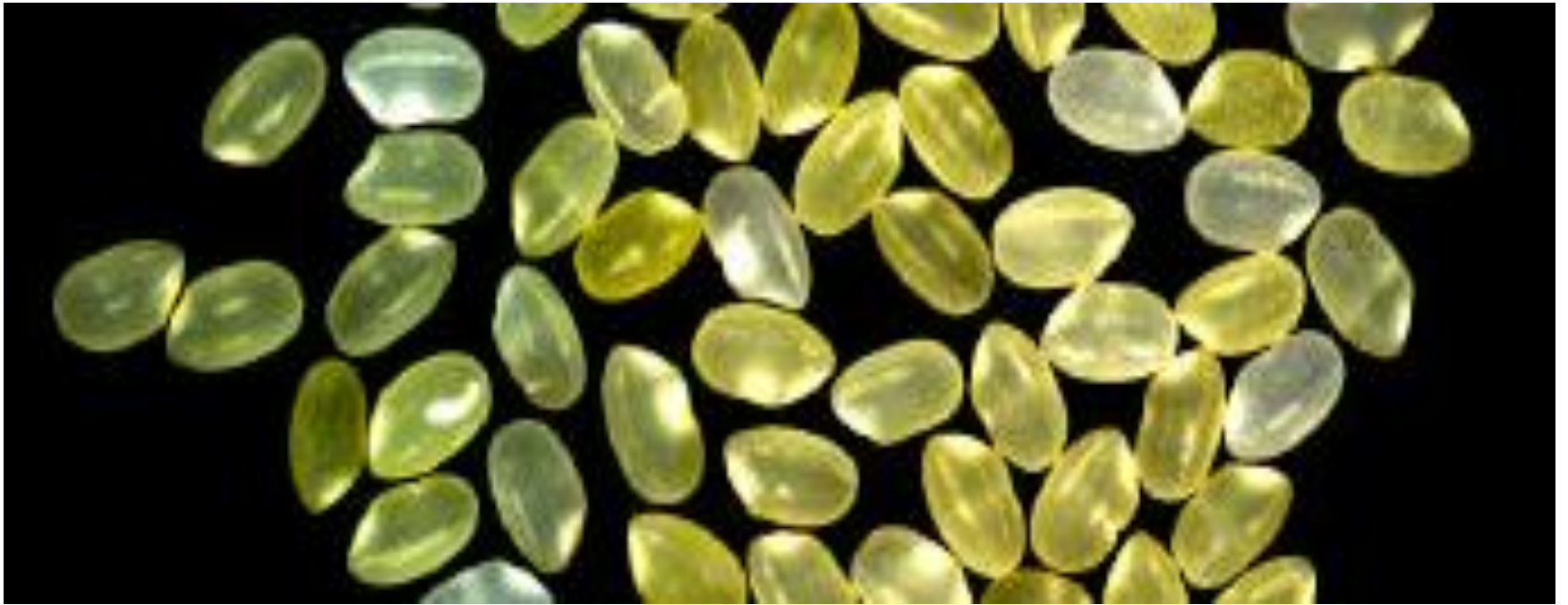
Aplikasi Bioteknologi

- **Bioteknologi Pangan dan Pertanian**
- **Bioteknologi Industri**
- **Bioteknologi Kedokteran dan Farmasi**
- **Bioteknologi Lingkungan**

Bioteknologi Pertanian/Pangan



Golden Rice (Vit A)



**Views of 117-day-old IR64-Sub1 and Samba
Mahsuri-Sub1 after 17
days of submergence at IRRI.**

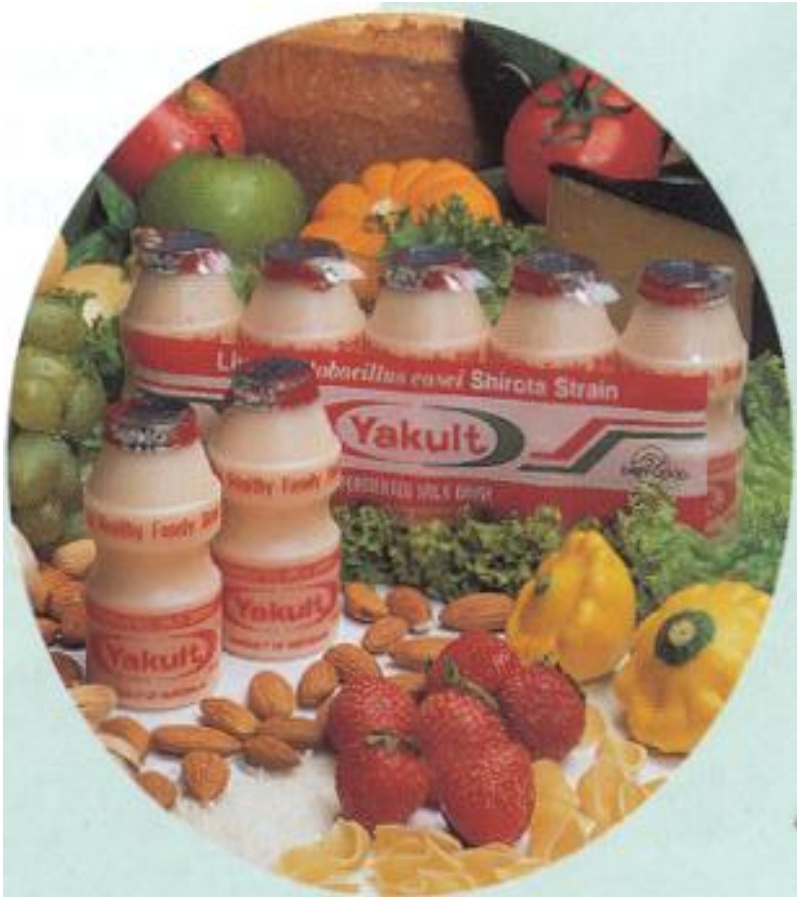


Abiotic Stress Tolerance

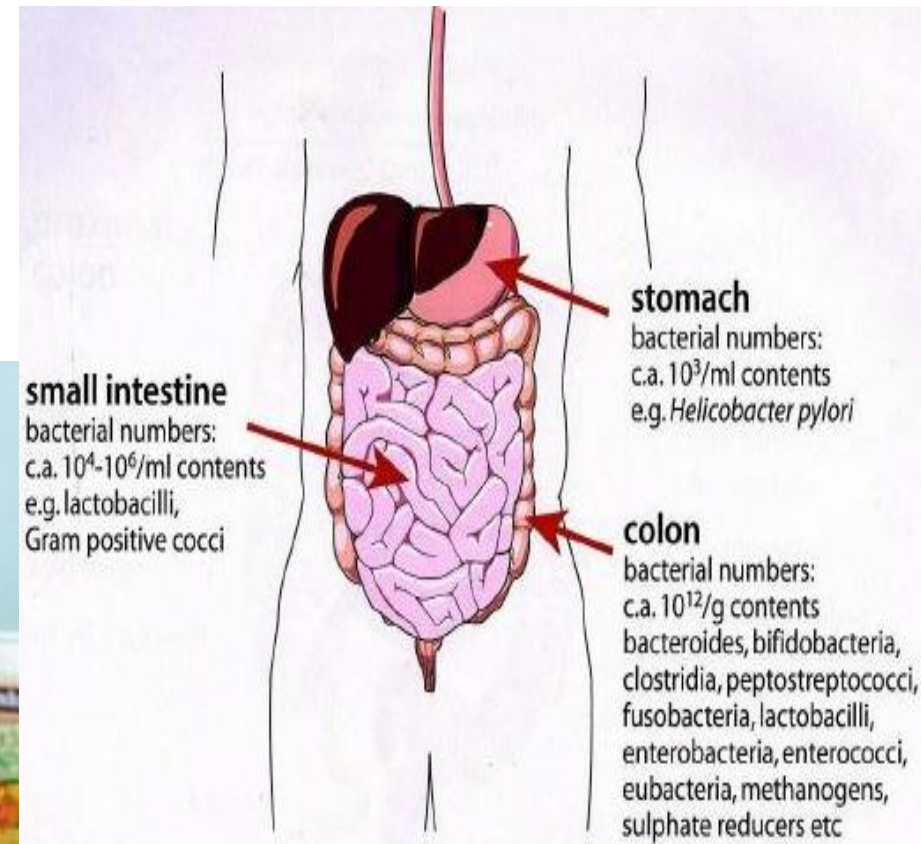


BIOTEKNOLOGI BAKTERI ASAM LAKTAT :

Aplikasi dan Potensi Pengembangannya pada Produk Susu



Probiotik dan Prebiotik



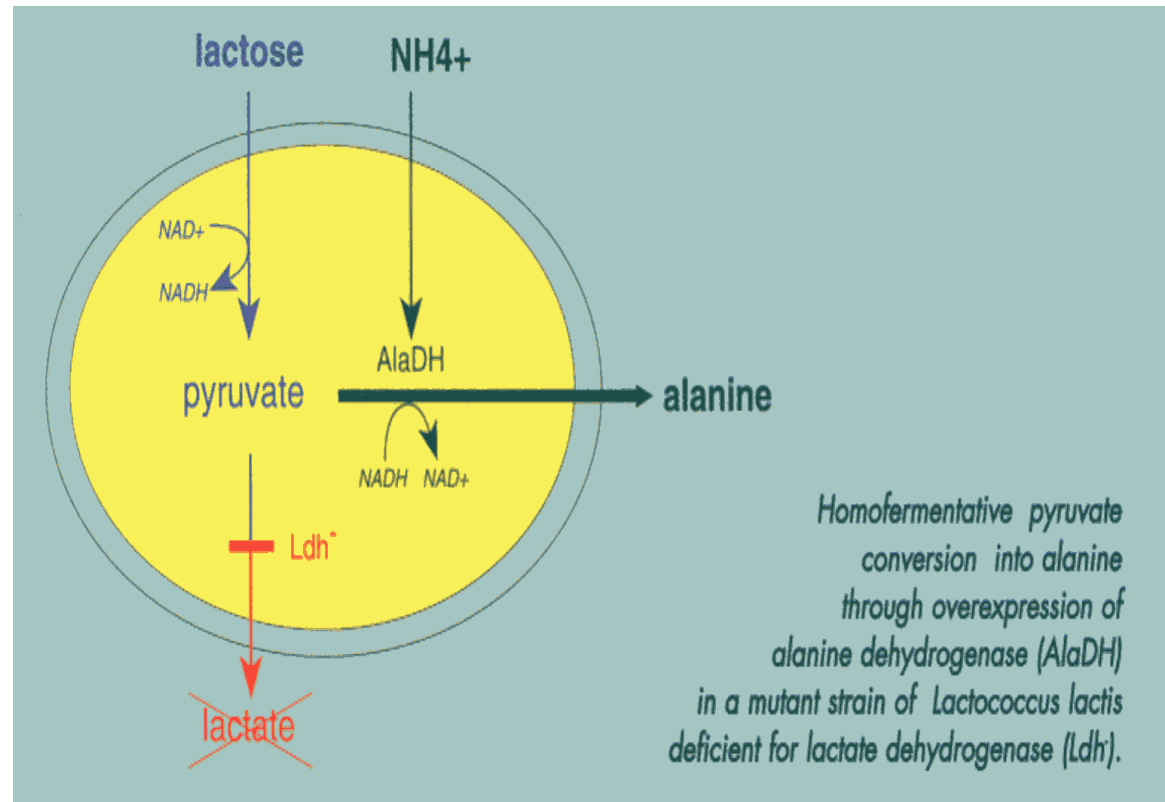
Biokapsul Probiotik



- **Memperpanjang Masa Simpan**
- **Meningkatkan Efektivitas**
- ***Ready for Use***

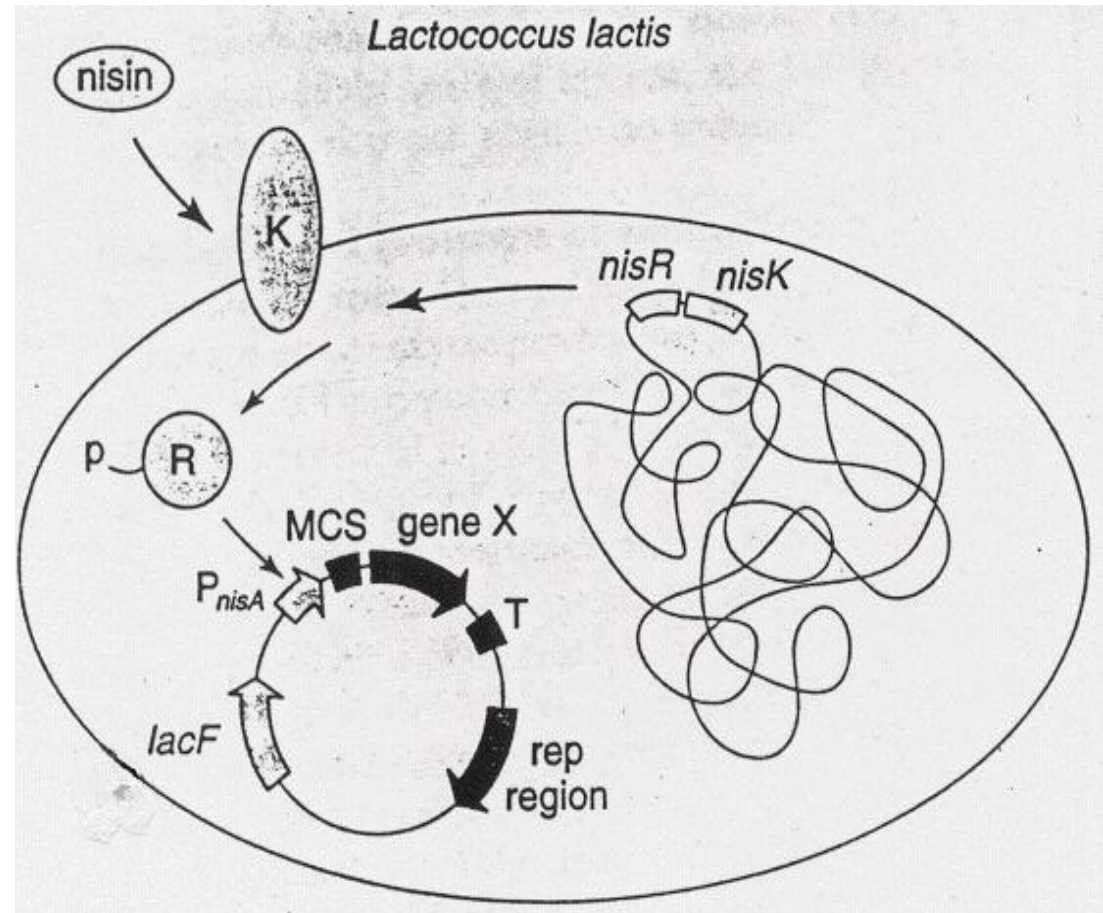
REKAYASA METABOLIT

- Merupakan bahan pemanis yang secara alami tidak dihasilkan
- Produksi dengan memotong jalur enzim *lactate dehydrogenase* (strain defisien gen *ldh*)

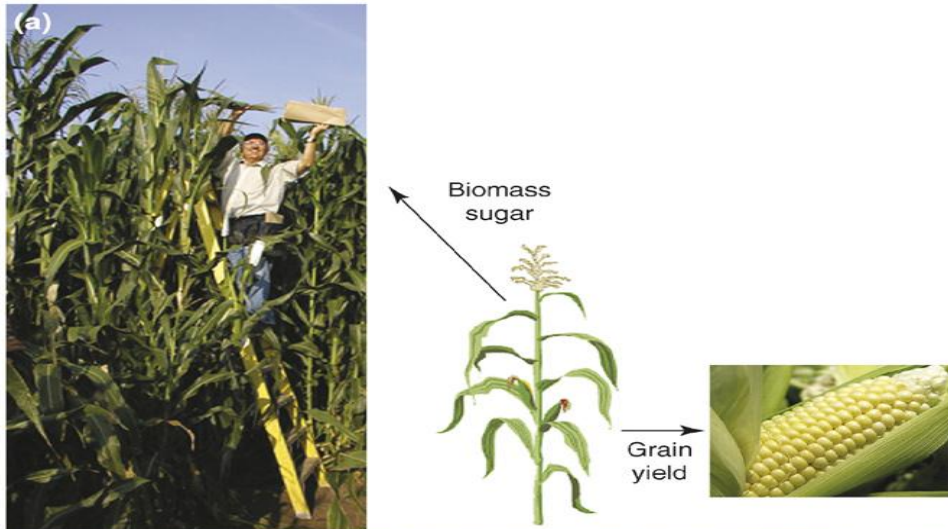


NICE (*Nisin Induced Expression*) System

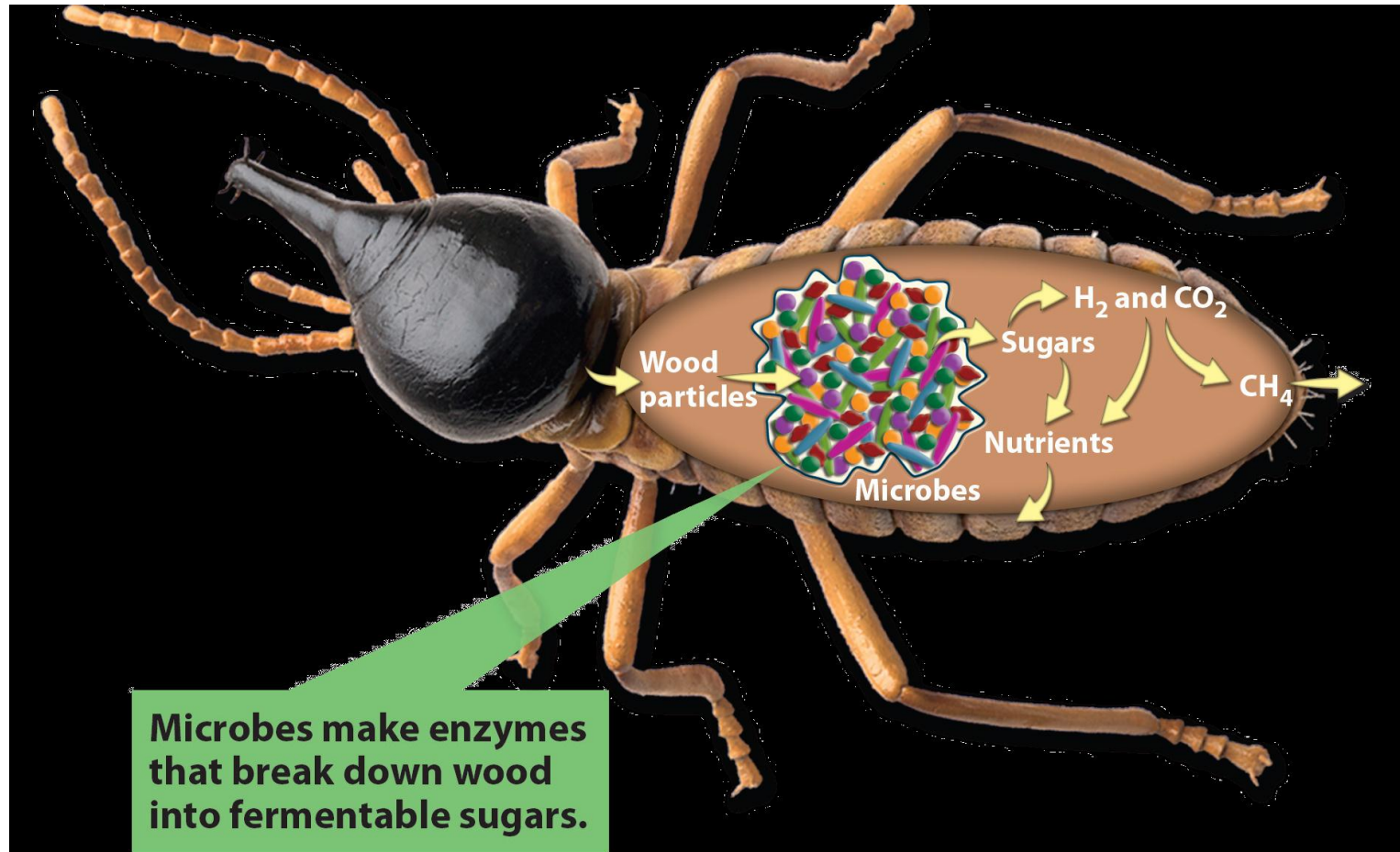
- Sistem ekspresi gen yang diinduksi oleh nisin (*low level*)
- Aplikatif untuk sistem ekspresi gen di BAL
- Gen akan diekspresikan > 1000 X biasanya



Tanaman untuk Pangan, Pakan atau Biofuel



Bioteknologi Lingkungan

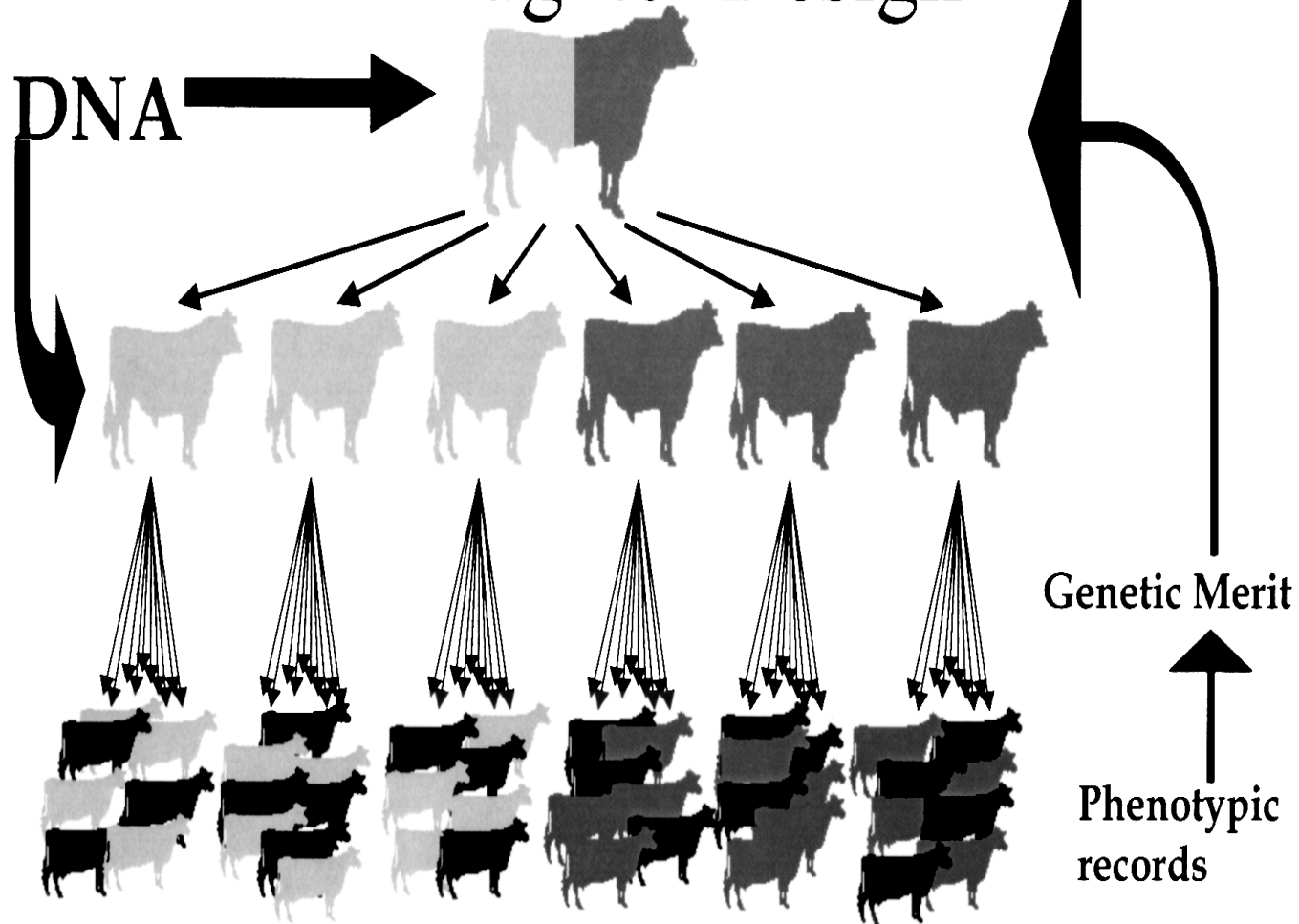


Bioteknologi Peternakan

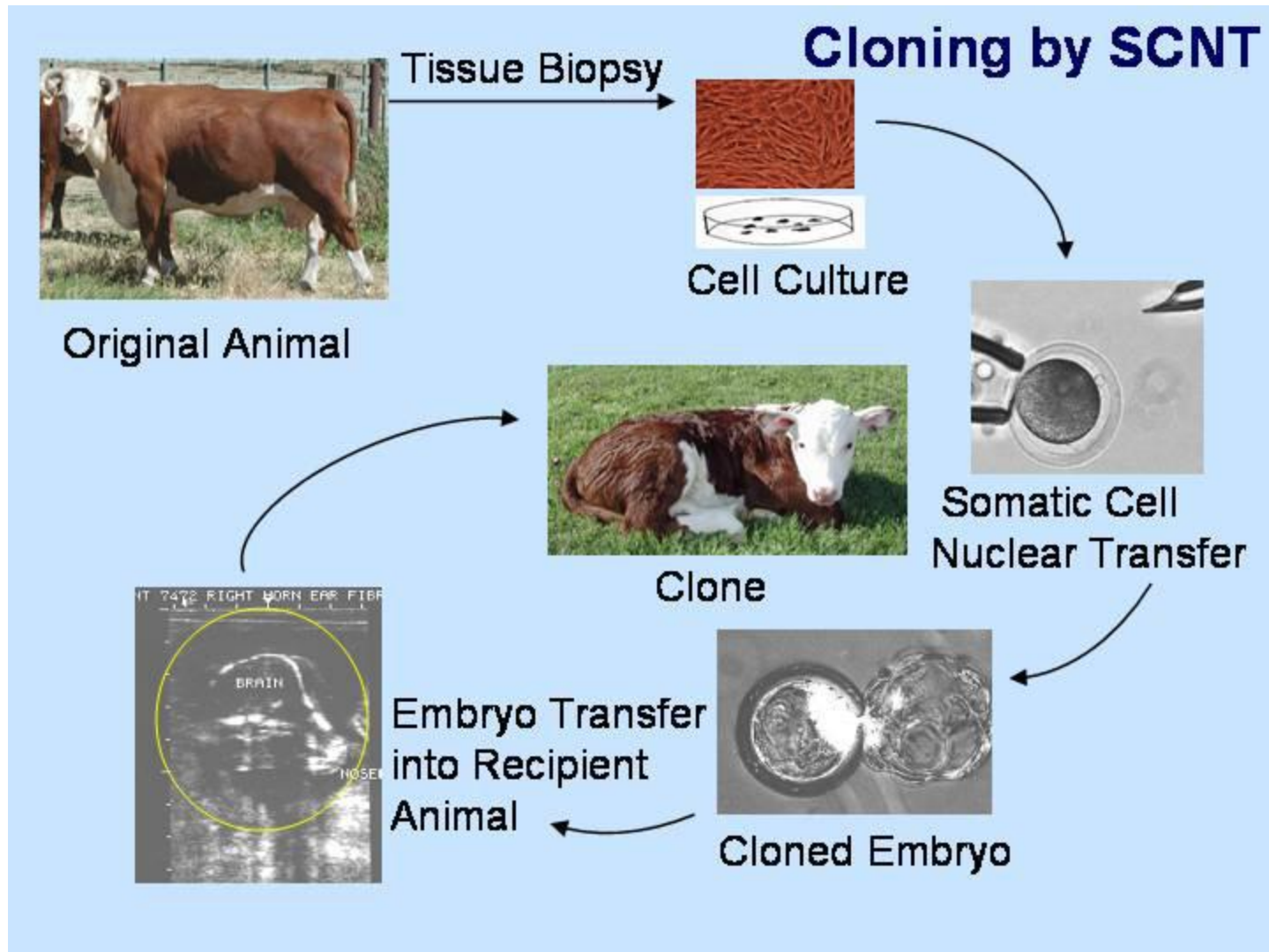


Marker-assisted Breeding

Granddaughter Design



Animal Cloning



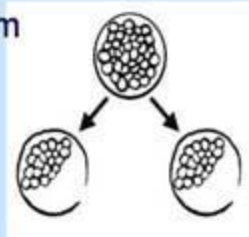
Hasil Cloning



Animal Cloning

Cloning by Embryo Splitting

Embryo is split to form two half-embryos



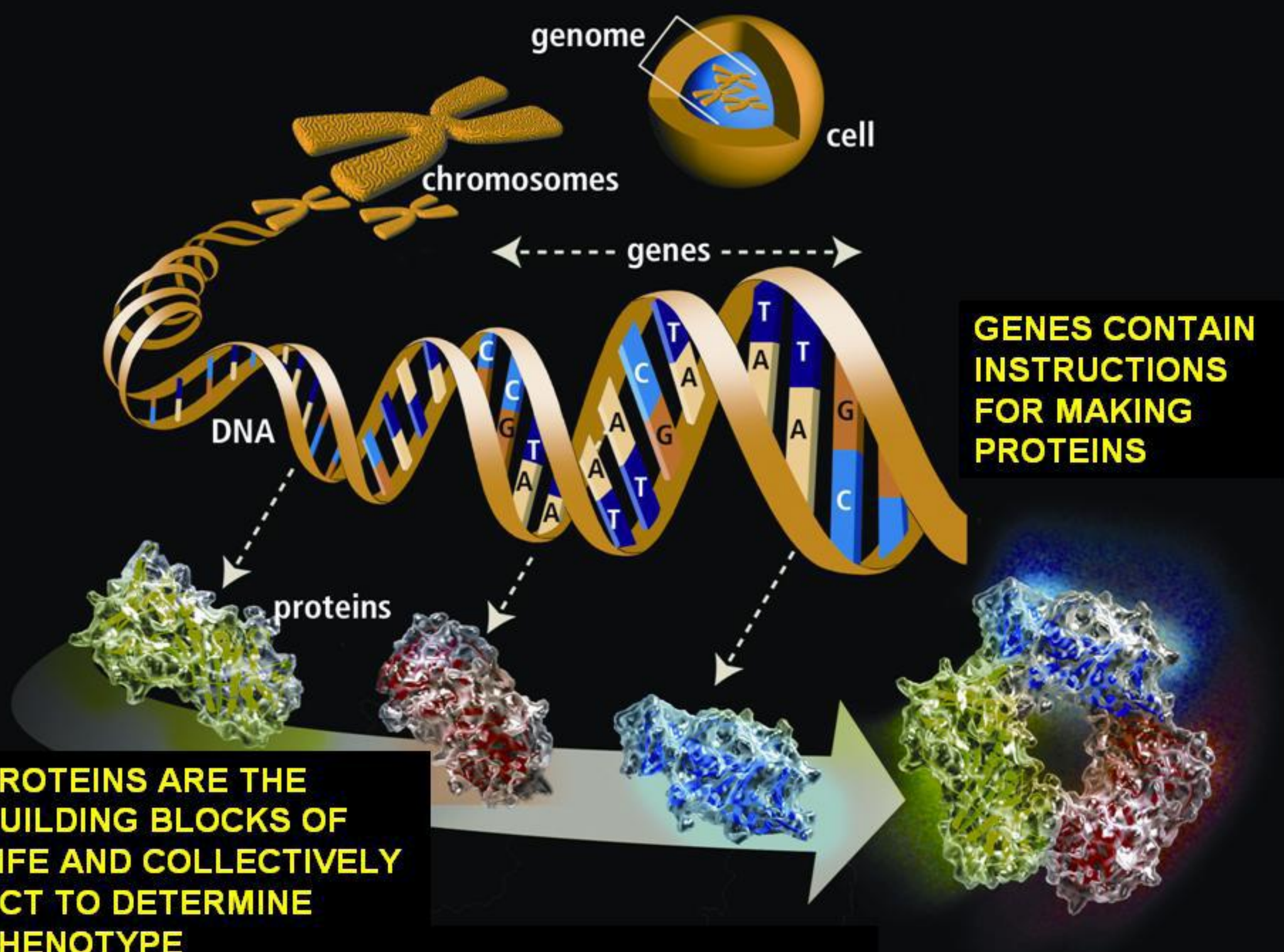
Embryos are transferred to an unrelated surrogate mother



Pregnancy is monitored by ultrasound



Sheep gives birth to identical twins



genome

cell

chromosomes

genes

DNA

proteins

GENES CONTAIN INSTRUCTIONS FOR MAKING PROTEINS

PROTEINS ARE THE BUILDING BLOCKS OF LIFE AND COLLECTIVELY ACT TO DETERMINE PHENOTYPE