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Transplastomic tomatoes

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Plants have three genomes, each contained in a separate cellular compartment; the nucleus, the mitochondrion and the plastid. The higher plant plastid genome is a double-stranded circle of 120-160 kb, encoding about 130 genes. The development of plastid transgene applications has been hampered by the technical limitations of tissue culture and regeneration protocols. In the September issue of Nature Biotechnology, Ruf *et al.* report the development of a plastid transformation system for tomato, *Lycopersicon esculentum*, and generation of the first edible transplastomic fruits (*Nature Biotechnology* 2001, **19:**870-875). Ruf *et al.* developed new transformation vectors for efficient delivery of foreign genes to chlororoplasts. They then created tomato plants expressing a selectable spectinomycin-resistance marker gene, *aadA*. Transformation procedures were modified by using low-light conditions and an extended selection phase, to optimize success. Ruf *et al.* found that the AadA protein was expressed at high levels in the tomato fruit, comprising about 0.5-1% of the total soluble cellular protein. This technology will open up new possibilities for the development of plants expressing edible vaccines, antibodies ('plantibodies') and drugs.

References

1. The chloroplast genome

2. Engineering chloroplasts: an alternative site for foreign genes, proteins, reactions and products.

3. *Nature Biotechnology* , [http://biotech.nature.com]

4. Transgenic plants as factories for biopharmaceuticals.