

Natural Carotenoids

What is this technology?

A new, general cloning method developed and used to make recombinant fungal strains that produce beta-carotene and lycopene.



What problem does it address?

There is a growing demand for natural carotenoids as a dietary supplement, with pure carotenoids worth approximately \$1,000/kg.

Current methods of natural beta-carotene extraction are limited and subject to contamination. Beta-carotene is a mature market, fairly stable at about \$1 billion annually, worldwide; most of this is synthetic. The natural beta-carotene segment commands two-to-three times the price of synthetic and is expected to grow.

Options for lycopene extraction are limited and costly. Lycopene is a small, but rapidly growing, emerging market; it has generated tremendous interest for its use as supplements to prevent cancer.

Who could use this technology?

- Producers of carotenoids could take advantage of the recombinant fungi already developed to grow on agricultural byproducts, benefiting farmers and processors.
- Industrial scientists developing new, recombinant products will find the general cloning method of value.

How is this technology unique?

The fungus chosen for this work:

- Comes from a novel cloning method that is unprecedented.
- Can produce very high yields of compounds related to carotenoids.
- Grows well on inexpensive agricultural byproducts; it is easy to culture and harvest.
- Might be able to be consumed directly as an “enriched mycoprotein”.

Licensing Opportunity

This technology needs partners for application, process development and scale-up.

Stage of Development

Carotenoids have been produced on a laboratory scale; recombinant fungi for carotenoid production are immediately available for developmental testing.

IP Status

Awarded U.S. Patents 6,184,000; 6,372,479; 6,696,282

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