Photovoltaic Cell from Thermophilic Cyanobacteria (Yissum)

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Photochemical nanoelectrode stable up to 80°C

Categories	Energy, Optoelectronics/Photonics, Nano Structures, Cleantech
Development Stage	Advanced research stage – proof of concept
Patent Status	Pending
Market	Global nanoelectronics market to reach $409.6 billion by 2015. Integration of molecular biology and nanoelectronics creates avenues for developing hybrid devices for utilization in a wide range of biological and medical applications.

Highlights

- System that uses the natural photosynthetic light-harnessing system of cyanobacteria to convert light to electricity or fuels.
- In vitro system derived by isolating the photosynthetic complex from native bacteria that grow in hot springs and adding platinum to convert light into electric current or fuels.
- Combines nanotechnology, complex chemistry, and biotechnology to produce a functional biological molecule
- Significant current already achieved - >2°A/cm2 of electrode surface with relatively high efficiency (5%)

Our Innovation

Heat-stable, nano-size photoelectrochemical cell based on the photosynthetic system derived from thermophilic bacteria

Key Features

- Proteins of the photosynthetic system are stable up to 80°C
- Good coverage of solar spectrum
- Scientific methodology of assemble the photosynthetic systems on electrodes

Development Milestones

Seeking funding for further development of the system directed to increase its efficiency.

The Opportunity

- The solar market is growing at about 40% per annum
- Unique biomaterial based energy conversion system

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