Nanotechnology Innovations for Healthcare

Nanoscale medical devices, particles, diagnostic tools, and drug-delivery technologies will improve future public health, and provide effective new means to fight cancer.
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Nanotechnology Innovations for Healthcare
Bioengineered, Nanotechnology-Based Sunscreen
Yale University, New Haven, Connecticut, USA

Unmet Needs /Trends
- Many sunscreens fail to offer proper broad-band UVA/UVB protection to human skin, to forestall skin cancer
- ...

Potential Applications
- The applications for humans are well understood—skin protection
- ...

Innovation Attributes
- The key innovation is encapsulation of UV-blocking compounds within bio-adhesive nanoparticles that attach to skin quite well, adherent one or more days before falling off. Skin is not penetrated

Future Plans
- The researchers want to move beyond favorable mouse trials to 3-stage FDA-supervised clinical trials. These trials must show effectiveness in the sun with no skin irritation, or other ill effects

Who
- A research team of scientists at Yale University’s Department of Dermatology ...

Where
- Yale University, hundreds of years old, is located in southern CT and is an original member of the “Ivy League” of Northeast US universities

What
- The Yale researchers have developed a sunscreen utilizing bioadhesive nanoparticles. The research was published in a September ...

Funding
- Yale’s work appeared to be self-funded. However, the investment of a major skin-care company could cover further funding

Analyst Insights
- TechVision is impressed by innovations such as this that can address unmet needs and improve the health of millions of people by helping to block insidious skin cancers, including: dangerous and aggressive melanoma, squamous cell carcinoma, and basal cell carcinoma
STRATEGIC INSIGHTS
## Strategic Insights

### Drivers
- ✔ Long-term national goals to promote improved wellness of the population.
- ✔ ...

### Challenges
- ✗ Nanomedicine is burdened by the lack of proof for effectiveness and safety.
- ✗ ..

### R&D Focus Areas
- ○ Development of new drug delivery methods (such as nanoparticles that can directly enter cancer cells on a stealthy basis, and deliver killer doses of drugs)
- ○ ....

### Funding & Market Potential
- ○ Large amounts of funding, easily worth hundreds of millions or dollars more over time have been directed to nanomedicine R&D projects
- ○ ...

### The 2020 Scenario
- ☐ So many of the nanomedical developments are at such an early stage, and lacking valid clinical trials, TechVision does not expect huge market activity on or before
- ☐ ...

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