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Nanoparticles being developed to help prevent abuse of narcotics

By Rosemary Clandos

Altair Nanotechnologies, Inc., (NASDAQ:ALTI) is developing multi-purpose wiffle ball-like structures made from nanoparticles that could help prevent the abuse of narcotics.

Specializing in the production of low cost nanocrystalline particles, the Reno, NV-based company has found a way to prevent abuse of codeine, morphine, amphetamines and other Class 4 narcotics that have outer shells which provide sustained time release of the drug. Some people remove that layer to get a more powerful response from the drug. Altair's TiNano spheres could help put a stop to pill shaving and place the company on the playing field in a multi-billion dollar market for Class 4 drugs.

The spheres could also be used as a unique delivery system for medications that require a pro-drug -- a drug that helps another drug to work -- or it could be coated with a cytochrome P450 inhibitor to take advantage of so-called grapefruit effect, which increases the overall absorption of a drug. The technology could even be applied to drugs that have a high molecular weight and poor absorption qualities in the stomach.

"The technology is a way for drug manufacturers to extend the patent on their drugs," says Rudi E. Moerck, president of Altair Nanotechnologies.

Still in the early stages of development, the nanowiffle balls are generated from Altair's process for developing white titanium oxide pigment, commonly used in paint. One of the first products in that process is the development of non-crystalline hollow spheres in the micron-range. When additives and controlled heat are applied, the hollow spheres form an outer shell of nanoparticles with a porous and hollow structure.

"If you put a narcotic in TiNano spheres and press the nanospheres into a tab and crush it, the powder will have the originally intended time-release action," says Moerck. "Narcotics containing TiNano spheres cannot be crushed like other organic or convention drug delivery systems."

The FDA generally recognizes titanium dioxide as safe, but some testing may be needed. Altair has a patent for the materials for the wiffle ball technology.¹

Gearing up to accelerate R&D

Recently, Altair generated \$6.1 million in funding by the exercise of warrants to purchase the company's common stock. The company plans to use much of the money to accelerate research and development in the area of pigment and drug delivery systems.

Altair is in the process of hiring three specialists in material science, dispersion and drug delivery.

The company will also be using the money to further develop RenaZorb, a 40 nm agglomerated nanoparticle that works by irreversibly binding phosphates from ingested food in the gastrointestinal tract of kidney dialysis patients.

"We plan to announce some efforts at doing more animal testing with RenaZorb," says Moerck.

In the meantime, Altair is lobbying in Washington, DC, for political support and government sponsorship for further development of systems for making narcotics drugs safer. They're also seeking federal funds from various government agencies relating to drug enforcement.

Looking for partners, Altair is talking with manufacturers of Class 4 drugs. "Our main thrust will be to out-license this technology," says Moerck. To generate more revenue and use their technology in established drugs, Altair is working with pharmaceutical companies on a contract basis.

Editor's Note: Contact Rudi Moerck at (210) 632-0695.

Reference

1. U.S. Patent 6,375,923: Processing titaniferous ore to titanium dioxide pigment. ©