

Cellulose nanocrystal research could lead to new vaccines, computer inks

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Maren Roman is taking nanocrystal research to a new level that may lead to a new generation of vaccines and better computer printer ink.

The assistant professor in the wood science and forest products department of the College of Natural Resources at Virginia Tech will be delivering her findings at the American Chemical Society 233rd National Meeting and Exposition in Chicago on March 25-29. The focus of her research deals with cellulose drug delivery and ink jet printing.

Roman experimented with taking cellulose nanocrystals and attaching antibodies to the surface of the crystals. This design enables the nanocrystals to block cell receptors in the body. The process may eventually be used to create vaccines. Through the same receptor-blocking method, this process can combat the effects of some diseases involving inflammation of blood vessels, including diabetes, rheumatoid arthritis, and certain cancers.

Ink jet printing was another research project for Roman. She experimented with using ink jet printers to deposit the crystals because the printers' main focus is precision. Nanocrystals are tiny and pose many difficulties to the people using them. A typical remedy involves converting the nanocrystals to a powder. This has risks as well, as the powder can be a serious health hazard if inhaled. The ink jet printing allows for a safe method of deposition of the nanocrystals.

Source: Virginia Tech

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