



Say hello to safe and synthetic heparin

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Has a purer and safer alternative to heparin been created? Robert Linhardt, Professor of Biocatalysis and Metabolic Engineering at the Rensselaer Polytechnic Institute (NY, USA), seems to think so after he and his team created a large dose of synthetic heparin in the laboratory; the largest dose that has ever been created.

The main source of heparin used in many hospitals is the intestines of foreign livestock, where there is often a high risk of contamination. Linhardt was on the international team that identified the suspected contaminant in the Chinese heparin, a structurally similar carbohydrate called oversulfated chondroitin sulfate.

"When we found the contamination, it was another sign that the way we currently manufacture heparin is simply unsafe," says Linhardt. "Unlike the current heparin that is harvested from possibly disease-carrying animals that are often kept in very poor conditions, our fully synthetic heparin will be created in a pharmaceutical manufacturing environment from fermentation to packaging. This will give drug manufacturers extreme control over the safety and purity of the product."

The synthetic 'recipe' for the heparin was discovered by Linhardt together with Jian Liu from the University of North Carolina (NC, USA) in 2006. The dose that has been created with the method is a million times higher than any other alternative created to date. Linhardt says he will now continue to work with his team to take the milligram dose and expand it into kilograms.

"Ultimately, drug companies are going to need to produce tons of this drug to keep up with global demand," says Linhardt. "Such levels of production are further down the road. We think that in 5 years it is very possible that this drug could reach human clinical trials."

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