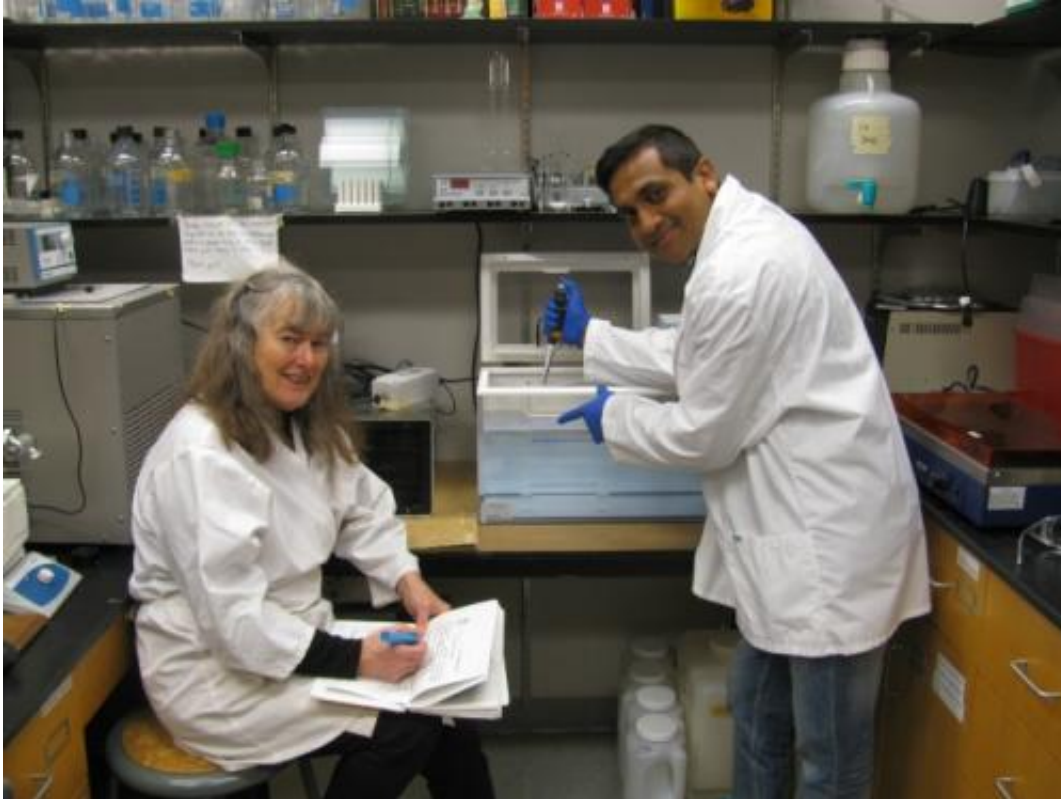


A gut reaction

November 19 2014, by Anne Craig



Virginia Walker (l) and Pranab Das have shown nanosilver could be causing issues with your gut.

Queen's University biologist Virginia Walker and Queen's SARC Awarded Postdoctoral Fellow Pranab Das have shown nanosilver, which is often added to water purification units, can upset your gut. The discovery is important as people are being exposed to nanoparticles every day.

Nanosilver is also used in biomedical applications, toys, sunscreen, cosmetics, clothing and other items.

"We were surprised to see significant upset of the human gut community at the lowest concentration of nanosilver in this study," says Dr. Das. "To our knowledge, this is the first time anyone has looked at this. It is important as we are more and more exposed to [nanoparticles](#) in our everyday lives through different routes such as inhalation, direct contact or ingestion."

To conduct the research, Drs. Walker and Das utilized another Queen's discovery, rePOOPulate, created by Elaine Petrof (Medicine). rePOOPulate is a synthetic stool substitute, which Dr. Petrof designed to treat *C. difficile* infections. In this instance, rather than being used as therapy, the synthetic stool was used to examine the impact of nanoparticles on the human gut.

The research showed that the addition of nanosilver reduced metabolic activity in the synthetic stool sample, perturbed fatty acids and significantly changed the population of bacteria. This information can help lead to an understanding of how nanoparticles could impact our "[gut](#) ecosystem."

"There is no doubt that the nanosilver shifted the bacterial community, but the impact of [nanosilver](#) ingestion on our long-term health is currently unknown," Dr. Walker says. "This is another area of research we need to explore."

The findings by Drs. Das and Walker, Julie AK McDonald (Kingston General Hospital), Dr. Petrof (KGH) and Emma Allen-Vercoe (University of Guelph) were published in the *Journal of Nanomedicine and Nanotechnology*.

More information: [omicsonline.org/open-access/nanotechnology-157-7439.1000235.pdf](https://www.omicsonline.org/open-access/nanotechnology-157-7439.1000235.pdf)

Provided by Queen's University

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