

# Russian and Indian Researchers Develop Biosensors for Domestic and Medical Use

The cooperation in bioengineering between Siberian Federal University and Indian research and educational institutions took off in 2016. Currently, Dr Pande Shubhra and Prof Ranjan Rajeev, assistant professors at the Chair of Biophysics, conduct several studies at the Laboratory of Bioluminescent Biotechnology.



SibFU has initiated cooperation with Jamia Hamdard University and prepared a project with leading researcher Sheikh Raisuddin. Since January 2020, Prof Verma Yeshvandra has been undergoing internship in the Laboratory of Bioluminescent Biotechnology (SibFU), whose list of research interests includes:

- elucidation of mechanisms of toxicity of silver nanoparticles (AgNP) for membrane ion channels in bacteria and P2X receptors in cancer cell lines;
- development of a cartridge with luminous bacteria for ecotoxicological analyses on a portable luminometer;
- development of a measuring bench for bioluminescent testing of cells in capillaries;
- comparison of the functional health of the dairy herd under intensive cattle breeding (in Russia) and organic agriculture (in India).

*'It was a pleasant discovery for me that in Krasnoyarsk they develop and apply bioassays based on the enzymes of luminous bacteria, and these studies are of very high quality. In India, I study toxicology, namely methods of testing food and various biological environments: water, soil. It is essential to assess the toxicity of silver nanoparticles as, currently, they are widely used in medicine, and we have to be absolutely confident about their safety. I believe that under the supervision of Dr Valentina Kratasyuk, Dr. Sci. (Biol.), head of the Chair of Biophysics, the developing biotests can significantly speed up and simplify some of the challenges of toxicological testing. I am also into studying stress of farm animals using saliva bioluminescent tests. The non-invasive method developed by the young researchers under supervision of Prof Oksana Kolenchukova (Chair of Biophysics) can become relevant in India where working with dairy cows requires a special approach due to cultural and religious prescriptions,' — said Prof **Verma Yeshvandra**.*



27 march 2020

© Siberian federal university. Website editorial staff: +7 (391) 246-98-60, [info@sfu-kras.ru](mailto:info@sfu-kras.ru).

Web page address: <https://news.sfu-kras.ru/node/23010>