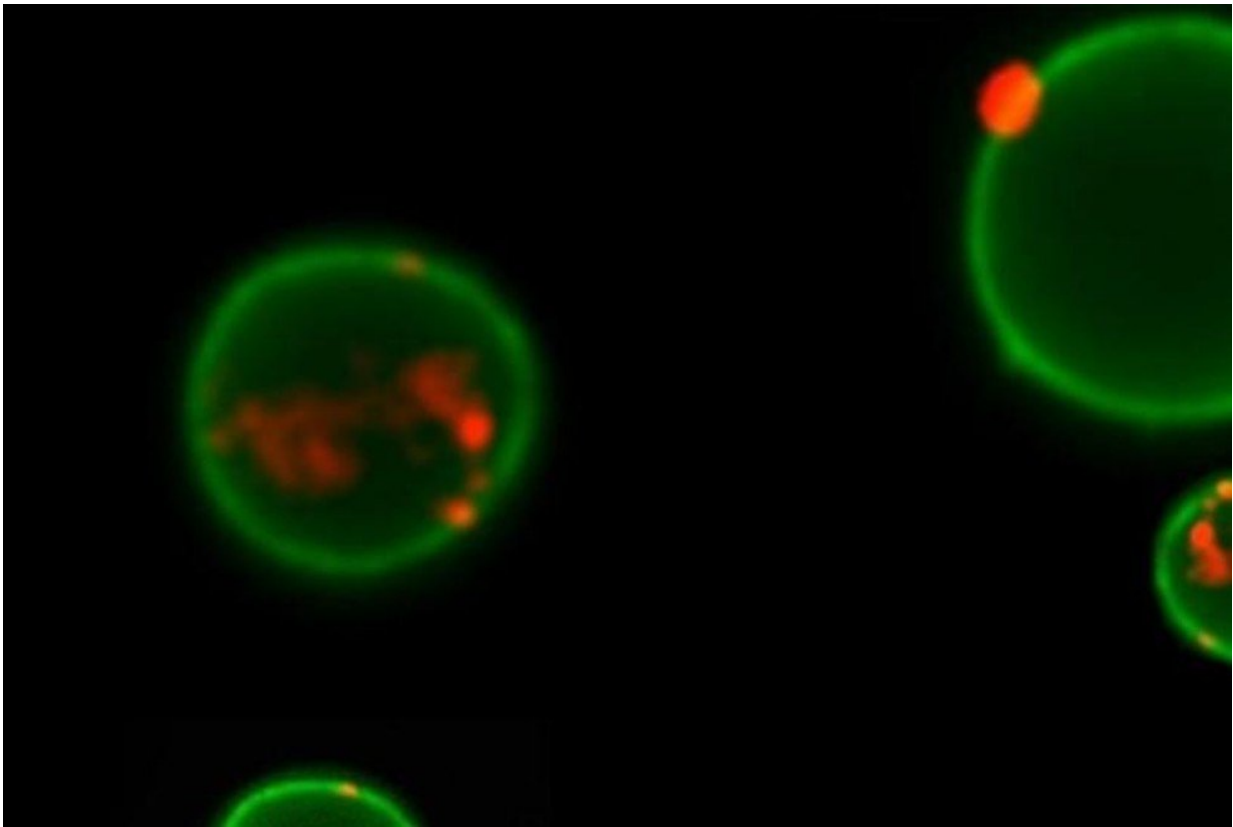


Evaluation of induced membrane vesicles fusion specificity with target cells

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Credit: Kazan Federal University

Extracellular vesicles (EV) represent a promising vector system for biomolecules and drug delivery due to their natural origin and participation in intercellular communication. As the quantity of EVs is

limited, the researchers proposed to induce the release of membrane vesicles from the surfaces of human cells by treatment with cytochalasin B. Cytochalasin B-induced membrane vesicles (CIMVs) were successfully tested as a vector for delivery of dye, nanoparticles, and as a chemotherapeutic.

As team leader Marina Gomzikova explains, "The understanding of the interaction between cytochalasin B-induced microvesicles (CIMVs) and [target cells](#) can help create specific vectors for anti-tumor drug delivery. This will allow for the decrease of toxic effects on [normal cells](#) and the enhancement of therapeutic results."

In this new research, the authors conducted a study of specificity of vesicle fusion with target cells. They evaluated the contribution of endocytosis, i. e. active transport of molecules into cells via the folding of plasma membrane. It was found out that proteinase K treatment effectively inhibited the internalization of induced [membrane vesicles](#) into target cells. Inhibition of interaction of membrane proteins of CIMVS with surface proteins of target cells is the biggest influence on the effectiveness of internalization of CIMVs.

Professor Albert Rizvanov, Head of Gene and Cell Technologies Lab, adds that this particular research is a very good example of an inquiry into biomimetic technology. In this case, it's the introduction of artificial microvesicles which are very similar to natural ones. As the research has shown so far, CIMVs can become the basis for a new class of effective and safe anti-tumor medications.

More information: Marina Gomzikova et al, Evaluation of Cytochalasin B-Induced Membrane Vesicles Fusion Specificity with Target Cells, *BioMed Research International* (2018). [DOI: 10.1155/2018/7053623](https://doi.org/10.1155/2018/7053623)

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