

Singapore uses nanotechnology to destroy, prevent relapse of solid tumour cancers

10 June 2022 | News

Researchers formulate a novel vaccine for treating tumours



In a breakthrough development, a team of scientists led by Nasrat Muzayyin Chair Professor Chen Xiaoyuan from the National University of Singapore Yong Loo Lin School of Medicine and Professor Liu Gang from Xiamen University (China) has formulated a novel vaccine which showed high efficacy in the treatment of solid tumors, achieving complete clearance of solid tumors and inducing long-lasting immune memory.

This prevents the relapse of tumour growth that the patient originally presented with and provides immunity against similar tumour types. This was proven through the application of this vaccine on melanoma tumour models.

The team was able to engineer a dendritic cell (a type of antigen presenting cells) membrane that was used to naturally stimulate the immune system and activate multi-dimensional anti-tumor immunity. This was done through an antigen self-presentation and immunosuppression reversal nanovesicle vaccine platform, which prompted the team to coin its moniker, ASPIRE.

“The field of cancer immunotherapy is offering tremendous hope to cancer patients. However, there are some shortcomings with the current technologies. The present innovation overcome some of these deficiencies and improved the effectiveness and sustainability of the immune response to these treatments. This will provide a significant advance that will have important impact on patients”, said the researchers.

The team hopes to establish a standard operating procedure for scaled synthesis of the vaccine.