

Development of lectin–Janus nanoparticles for the detection of pancreatic cancer cell secreted
exosome

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Pancreatic cancer has the highest mortality rate among of all major cancers, with 5 year survival rate below 4%. Main obstacles for improving clinical trial result are diagnosis at early stage and limited therapeutic efficacy. For overcome this problem, recently tumour derived exosomes are attracting interest in cancer diagnosis and treatment field. Membranous vesicles that may include novel markers same as proteins, RNAs and DNA, can be found in the circulating blood. Here we demonstrate recent technologies highlighting the cancer exosome detection and isolation simultaneously by introducing lectin and Janus nanoparticles. Lectins are glycoproteins that exhibit specific binding affinity for the saccharide moiety of glycoproteins. Cancer cells are known to express or secrete glycoproteins with specific saccharide chain like sialic acid in pancreatic cancer. Therefore we have been screening lectins that has affinity with sialic acid. In this study, we test SNA lectin for capturing pancreatic cancer exosomes through bioconjugation with Janus nanoparticles that has two kinds of physiochemical characteristics.