RS-2024-00443388

Development of Lead Compound of Personalized Circular mRNA Therapeutic Cancer Vaccine for the treatment of triple-negative breast cancer

PentaMedix

ONCOLOGY | Lead

Product Type	Personalized cancer vaccine (circular mRNA)
Indication	Solid tumor including TNBC
Target	Tumor specific neoantigens predicted from deep learning platform technology
MoA(Mechanism of Action)	1) Selection of effective neoantigen targets essential for tumor cell proliferation DeepNeoVx® platform 2) Production of personalized circular mRNA vaccine 3) Antigen presenting by antigen-presenting cells (APC) after vaccine injection 4) Activation of Cytotoxic T lymphocytes with antigen recognition 5) Tumor cell recognition and destruction
Competitiveness	A. Our unique DeepNeoVx® platform technology for predicting effective neoantigen targets using deep learning is divided by two elemental technologies as follows *1)DeepDependency* : a novel method to predict neoantigen targets originated from genes essential for cancer cell growth, that can be the best strategy to overcome immune evasion of cancer *2)DeepNeo* : the first algorithm to predict the affinity for binding neoantigen-MHC complex to TCR, as well as the binding between neoantigen and MHC Comparing to existing technologies, we have innovative and novel approach for neoantigen prediction tools with low cost and high efficiency B. circular mRNA platform (RiboTech; co-developer) shows the highest circularization efficiency for >1.5 kb long mRNAs and ensures >3 days long expression in various cell types. Circular mRNA with a 2.3 kb long antigen has been produced in high quantity and purity and has shown high vaccine efficacy in virus-infected mice
Development Stage	Lead
Route of Administration	im

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