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Carmine Therapeutics teams up with Takeda for non-viral gene therapies

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Carmine Therapeutics and Takeda Collaborate to Discover and Develop Rare Disease Gene Therapies Using Novel Red Blood Cell Extracellular Vesicles Platform



Singapore based startup Carmine Therapeutics has announced that it has signed a research collaboration agreement with Japanese firm Takeda Pharmaceutical Company Limited o discover, develop and commercialize transformative non-viral gene therapies for two rare disease targets using Carmine's REGENT(TM) technology, based on red blood cell extracellular vesicles. In addition, Takeda has committed a $5M convertible loan in support of the development of Carmine's novel REGENT™ platform.

Under the terms of the agreement, Carmine will receive an upfront payment, research funding support, and is eligible for over $900M in total milestone payments plus tiered royalties.

Takeda has an option to license the programs following the completion of pre-clinical proof of concept studies and would be responsible for clinical development and commercialization.

Carmine Therapeutics is pioneering a novel class of therapeutics based on its REGENT(TM) technology which leverages red blood cell extracellular vesicles (RBCEVs), first published in Nature Communications in 2018.

An initial focus is non-viral gene therapies. Compared to adeno-associated virus (AAV)-based gene therapy, RBCEV-based gene therapy has the potential for repeat dosing, a significantly larger transgene payload capacity in excess of 11KB, and enhanced bio-distribution in selected tissues through RBCEV surface modification.