High purity is required for identification of exosome secretory proteins

Development of a platform for exosome engineering using a novel and selective scaffold protein for surface display

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IL-12-FL
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High density exosome surface display

PTGFRN is a highly abundant, exosome-specific protein

Stable cellular expression of PTGFRN resulted in 150-fold enrichment of PTGFRN on exosome surface

PTGFRN overexpression enhanced activity of exosome-mediated delivery of STING agonist

IL-12 engineered exosomes elicited a potent anti-tumor response and exhibited superior PK/PD to soluble IL-12

Summary

- Optimized exosome purification protocol enabled research into and discovery of exosome-specific scaffold proteins, including surface display of bioactive molecules mediated by PTGFRN enables production of potent exosomes.

- Overexpression of PTGFRN in a producer cell resulted in a 150-fold increase in exosome surface expression.

- Both terminal of PTGFRN are amenable to genetic fusion with bioactive molecules.

- High density surface display of bioactive molecules mediated by PTGFRN enables production of potent exosomes.