



Delivery Platforms: The New Currency of Biopharma Deals?

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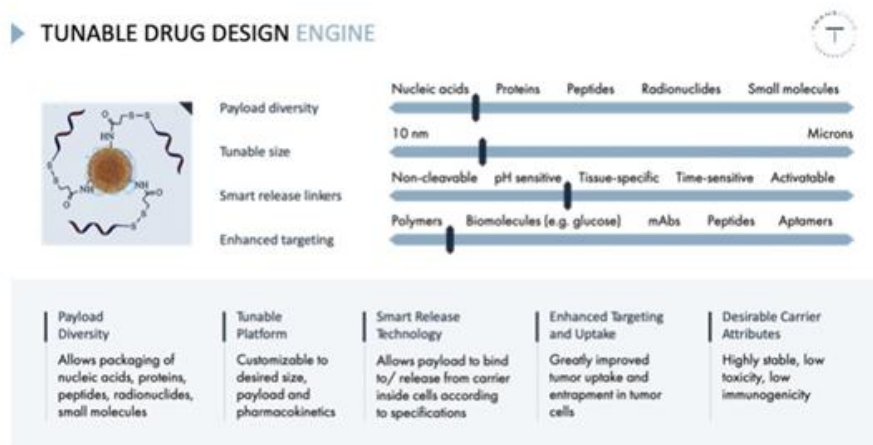
Here we look at delivery platforms that may become the new currency of biopharma business development, and what that means for strategy in 2026 and beyond.

Biopharma has spent the past decade developing competing payload technologies, RNA vs. gene editing, ADCs vs. radiopharmaceuticals, autologous vs. allogeneic cell therapy etc.. But if you look at size and strategy of many deals in recent years (see below) value for delivery platform assets that are cell- and/or tissue-specific modality agnostic or specific and programmable can be substantial. Once an innovator/partner owns a delivery "rail," it can potentially run multiple payloads across it.

A great example of this type of platform is the Phospholipid Drug Conjugate technology from [Collectar Biosciences, Inc. \(CLRB\)](#) which is addressing radiopharmaceuticals in the near term with expansion plans across other modalities within an indication space (PXX).

| THERAPUTIC MODALITIES | CONJUGATES | ONCOLOGY PAYLOADS |
|--------------------------|---|--|
| Radioconjugate (PRC) | <p>Radioconjugate</p> <ul style="list-style-type: none"> Targeted delivery of any radioisotope Auger, alpha and beta emitters Iopofosine I 131 - confirmatory study | <ul style="list-style-type: none"> Beta emitter (¹³¹I, ¹⁷⁷Lu, ⁹⁰Y, ⁶⁷Cu, etc.) Alpha emitter (²¹¹At, ²²⁵Ac, ²²³Ra, ²¹³Bi, etc.) Auger emitter (¹²⁵I, ¹²³I, ²⁰¹Tl, etc.) Additional isotopes (¹⁵³Gd, ⁶⁷Ga, etc.) |
| Cytotoxic Molecule (PCC) | <p>Small-molecule Conjugates</p> <ul style="list-style-type: none"> Observed in vivo tolerability and activity in multiple animal models Pico and nanomolar activity | <ul style="list-style-type: none"> PLK-1 Seco-duba MMAF Collaboration - undisclosed target |
| Biologics (PPC) | <p>Peptide and Nanobody Conjugates</p> <ul style="list-style-type: none"> Targeting intracellular pathways that cannot be targeted with small molecules | <ul style="list-style-type: none"> Ribosomal peptide Protein inhibitors Collaboration - undisclosed target |
| Nucleic Acid (POC) | <p>Oligo Conjugates</p> <ul style="list-style-type: none"> Intracellular delivery of nucleic acids providing knockdown or knock-in gene control in cancer cells | <ul style="list-style-type: none"> RNAi-/siRNA mRNA cDNA Collaboration - undisclosed target |

TransCode Therapeutics, Inc (RNAZ) has also developed tuneable delivery technology in the oncology space.



Repeat-use delivery systems that unlock entire organ or cellular systems may accumulate value within a given engineering need for a therapeutic area.

In January [Kristine Dorward](#) wrote an excellent piece on [RNA therapeutics](#), and this is one of the key areas where delivery technology will have a huge impact on deals and company success. **Alnylam** is great example in the RNA space where **RNA therapeutics** were historically biased to liver distribution using GalNAc targeting. Alnylam’s GalNAc platform has been explicitly licensed to multiple partners, supported a substantial, “collaboration revenue” on

top of approved product sales revenue and is evolving outside of GalNAc.

Alnylam deals

| Partner | Year | Deal Type | Upfront | Milestones | Royalties | Alnylam 10-K or Press Release |
|-------------------|-------------|--------------------|----------------------|-------------------|------------------|--------------------------------------|
| PeptiDream | 2023 | Discovery | Not disclosed | \$2.2B | Not disclosed | "Alternatives to GalNAc conjugates" |
| Roche | 2021 | Platform Expansion | \$300M | \$2.8B | Not disclosed | "GalNAc conjugate delivery" |
| Vir Biotech | 2020 | Expansion | Not disclosed | Not disclosed | Not disclosed | "ESC-GalNAc conjugate platform" |
| Regeneron | 2019 | Platform + Co-Dev | \$400M | \$200M | Not disclosed | "GalNAc conjugate technology" |
| Novartis | 2019 | Asset (royalty) | N/A | N/A | Royalties | "GalNAc-conjugated siRNA" |
| Dicerna / Novo | 2018 | Cross-License | \$2M | \$25M | Low single-digit | "GalNAc conjugate technology" |
| Vir Biotechnology | 2017 | Platform + Assets | \$20M + \$10M equity | \$1.1B | Tiered | "ESC-GalNAc conjugate technology" |



Alnylam Stock Price

Stepping outside of the liver has been no-less attractive to pharmaceutical partners looking for innovation in **extrahepatic RNA delivery platforms** if not perhaps more perilous where specific assets are involved. **Arrowhead Pharmaceuticals** has repeatedly demonstrated that its TRiM™ (Targeted RNAi Molecule) technology is a partner-validated extrahepatic RNA delivery system although this is only recently approved and has yet to translate to substantial product sales for assets derived from the technology (e.g., Redempto).

Arrowhead deals

| Partner | Year | Deal Type | Upfront | Milestones | Royalties | Arrowhead 10-K or Press Release |
|---------------|------|-------------------|---------|------------|----------------------------------|--|
| GSK | 2022 | Asset | \$120M | \$1.0B | Tiered | “Developed using Arrowhead’s TRiM™ platform” |
| Novartis | 2021 | Platform + Assets | \$75M | \$1.0B | Not disclosed | “Targeted RNAi Molecule (TRiM™) platform” |
| Horizon | 2021 | Asset | \$40M | \$660M | Tiered | “Designed using Arrowhead’s TRiM™ platform” |
| Takeda | 2020 | Co-Dev | \$300M | \$740M | Profit split + royalties | “Developed using Arrowhead’s TRiM™ platform” |
| Janssen (J&J) | 2018 | Asset + Option | \$175M | \$1.6B | Mid-teen to low-twenties | “TRiM™-enabled RNAi therapeutic” |
| Amgen | 2016 | Asset | \$56.5M | \$617M | Single-digit to low double-digit | “Developed using Arrowhead’s TRiM™ technology” |



Arrowhead stock price

Central nervous system (CNS) penetrating and blood-brain-barrier (BBB)-defeating delivery platforms have been a persistent challenge for drug development programs targeting some of the largest unmet needs and markets where Disability Adjusted Life Years (DALY) are still increased on longitudinal analysis (e.g., Alzheimer’s, Parkinsons, Motor Neuron Disease [etc.](#)). **Denali Therapeutics** has built a suite of partner-validated transport vehicle (XTV) BBB-shuttle platforms that are modality-agnostic (TV) or specific for antibodies (A), oligonucleotides (O) and enzymes (E) to address these issues.

Denali deals

| Partner | Year | Platform | Deal Type | Upfront | Milestones | Royalties | Denali 10-K or Press release |
|-----------------|------|----------|-------------------|---------|------------|-----------|---|
| Sanofi | 2023 | ATV™ | Platform + Assets | \$125M | \$1.125B | Tiered | “ATV™ platform” |
| Vertex | 2023 | OTV™ | Platform | \$100M | \$1.6B | Tiered | “Oligonucleotide Transport Vehicle (OTV™) platform” |
| Biogen | 2020 | ATV™ | Platform + Assets | \$560M | \$1.125B | Tiered | “Antibody Transport Vehicle (ATV™) platform” |
| Takeda | 2018 | ETV™ | Co-Dev | \$150M | \$1.05B | Tiered | “Enzyme Transport Vehicle (ETV™) platform” |
| Genentech/Roche | 2016 | TV™ | Platform | \$150M | \$1.0B | Tiered | “Transport Vehicle (TV™) platform” |



Denali stock price

Radiopharmaceuticals is a delivery problem disguised as a modality. **Novartis** has made a concerted effort to address this issue with **radiopharmaceutical targeting platform** acquisitions that have propelled it into the lead of radiopharmaceutical therapeutics sales leaders independent of market capitalization based on sales of Lutathera (Advanced Accelerator Applications; **Peptide Receptor Radionuclide Therapy (PRRT)**) and Pluvicto (Endocyte; **Prostate-Specific Membrane Antigen (PSMA)**).

Novartis radiopharmaceutical deals

| Partner | Year | Deal Type | Upfront | Milestones | Royalties | Novartis 10-K or Press Release |
|-----------------------------------|------|---------------|---------|------------|-----------|---|
| Mariana Oncology | 2024 | Acquisition | \$1B | \$750M | N/A | “Radiopharmaceutical platform” |
| Aktis Oncology | 2024 | Collaboration | \$60M | \$1.1B | Tiered | “Actinium-based radiopharmaceutical platform” |
| Endocyte | 2018 | Acquisition | ~\$2.1B | N/A | N/A | “PSMA-targeted radioligand therapy platform” |
| Advanced Accelerator Applications | 2017 | Acquisition | ~\$3.9B | N/A | N/A | “Radioligand therapeutics” |

