

Outcome Capital Life Sciences Market Pulse

March 2024

Reach the Right Outcome







Market Trends & Strategic Transactional Insights





A highly-specialized life sciences & healthcare advisory & investment banking firm providing middle-market transactional expertise underpinned by a value-added, market-aligned approach to strategy execution. Our industry-dedicated specialists leverage significant operational, strategic & scientific knowledge in sharing their insights on industry-defining transactions.

Life Sciences Verticals:

- MedTech
- Diagnostics
- Pharma
- Life Sciences Services
- Biotech
- Digital Health

Transaction Focus:

- M&A
- Management Buyouts & Roll-Ups
- Partnering
- Equity Financings



Outcome Capital Pulse: Monthly Insights of Life Sciences Deal Action & Drivers

Outcome Index Tracker

 Custom medtech, biotech/pharma, diagnostics, services & healthtech indices benchmarked to the S&P500

Transaction Lineup

 Snapshot of noteworthy life sciences deals highlighting industry-defining activity

Highlighted Transactions

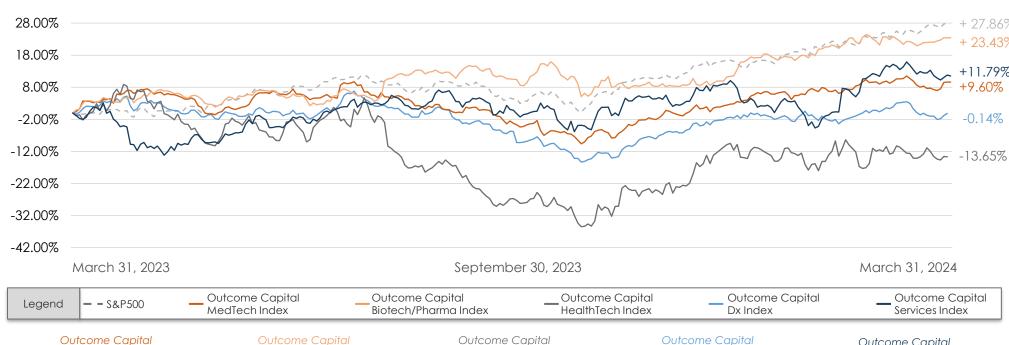
 Strategic analysis from Outcome Capital's life sciences-dedicated deal team



Outcome Index Tracker



Outcome Capital Index Tracker (LTM)















March 2024 | Transaction Lineup



March 2024 Transaction Lineup

Date	Target	Buyer/ Investor	Target Description	Deal Type	Deal Value (\$M)	Up-Front Payment (\$M)	Vertical
3/5/2024	attune medical*	HAEMONETICS*	Manufacturer of FDA approved esophageal cooling device for use during RF cardiac ablation procedures	M&A	\$160	\$160	MedTech
3/6/2024	alumis	HBM Healthcare	Clinical-stage biopharma company focused on precision oral therapies for immune-mediated diseases	Financing	\$259	N/A	Biotech / Pharma
3/6/2024	sionna	TTPG OrbiMed SENANTE PROCESSES TROWCHICE ALLAS VENTURE RACAPITAL VIKING TO CONTROLLED TO CONTROLL	Focused on the development of novel therapies to treat cystic fibrosis	Financing	\$182	N/A	Biotech / Pharma
3/7/2024	Merus	GILEAD	Developer of tri-specific antibody therapies used in the treatment of various types of cancers	Partnership	\$1,500	\$81	Biotech / Pharma
3/11/2024	SOSEI HEPTARES	Boehringer Ingelheim	Exclusive option to license a portfolio of GPR52 agonists with hopes to improve symptoms of Schizophrenia	Partnership	\$733	\$27	Biotech / Pharma
3/12/2024	Fortrea endpoint & Fortrea Patient Access Businesses	Arsenal Capital Partners	Global CRO providing clinical development & patient access solutions to the life sciences industry	M&A	\$345	\$295	Services



















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3/12/2024	PEARLÉBIO	MERCK	Proprietary biomaterial platform couples genome & ribosome engineering to create novel biologics	Partnership	\$1,000	Undisclosed	Biotech / Pharma
3/13/2024	ZEPHYR AI	EPIQ CAPTEAL GROUP	Al platform focused on generating insights & opportunities for precision medicine & drug discovery	Financing	\$111	N/A	HealthTech
3/13/2024	agiliti	THL	Provider of medical devices, equipment management & service solutions to the healthcare industry	M&A	\$2,500	\$2,500	HealthTech
3/13/2024	ELOXX	almirall	Exclusive global rights to ZKN-013, a Phase 1 ready nonsense mutation readthrough drug for RDEB, JEB, & FAP	Partnership	\$470	\$3	Biotech / Pharma
3/14/2024	AMOLYT PHARMA	AstraZeneca 🕏	Clinical-stage biotech company focused on the advancement of treatments in endocrinology	M&A	\$1,050	\$800	Biotech / Pharma
3/14/2024	IFMDUE €	U NOVARTIS	Developer of small molecule drug candidates to treat aberrant inflammatory responses	M&A	\$835	\$90	Biotech / Pharma



















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3/15/2024	BIOTHEUS 普米斯生物技术	HANSOH P H A R M A	Clinical-stage biotech company focused on the use of biologics to treat cancer & inflammatory disease	Partnership	\$690	Undisclosed	Biotech / Pharma
3/18/2024	carlsmed	Bothel A A Group dama dangar Service Service Con Con Water Con Con Control Control Control Control Con	Developer of Al-enabled personalized spinal surgery platform	Financing	\$53	N/A	MedTech
3/18/2024	TTITAN MEDICAL.	CONAVI*	Medical technology licensing company focused on robotic assisted surgery	M&A	\$70	\$70	MedTech
3/19/2024	Fusion	AstraZeneca 2	Clinical-stage biopharma company focused on the development of next-generation radiopharmaceuticals	M&A	\$2,400	\$2,000	Biotech / Pharma
3/19/2024	() Engrail	* RIVERVEST * YSIOS CAPITAL S" ROADS * CLOBATO A RED TREE PROCESS NORWEST WILLIAM F-PRIME FORMAL LONGWOOD FUND	Focused on using precision-targeted therapies to treat neuropsychiatric & neurodevelopmental disorders	Financing	\$157	N/A	Biotech / Pharma
3/21/2024	Capstan	PROCESSIVE SECTION OF THE PROCESSIVE SECTION	Advancing <i>in vivo</i> chimeric antigen receptor T cell (CAR-T) therapies for treating autoimmune disorders	Financing	\$175	N/A	Biotech / Pharma

















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Date	Target	Buyer/ Investor	Target Description	Deal Type	Deal Value (\$M)	Up-Front Payment (\$M)	Vertical
3/25/2024	Cardior	novo nordisk [®]	Discovering & developing RNA-based therapeutics to prevent, repair & reverse cardiovascular disease	M&A	\$1,100	Undisclosed	Biotech / Pharma
3/25/2024	≸ KELIX bio	MUBADALA	Developer of specialty generics to treat underserved populations across emerging markets	M&A	Undisclosed	Undisclosed	Biotech / Pharma
3/25/2024	VERGE genomics	5 ferrer	Leverages Al-powered drug discovery platform to discover & develop drugs across various indications	Partnership	\$122	Undisclosed	Biotech / Pharma
3/26/2024	LANDOS	abbvie	Clinical-stage biopharma company developing oral therapeutics intended to treat autoimmune diseases	M&A	\$213	\$138	Biotech / Pharma
3/27/2024	AVENZO THERAPEUTICS	OrbiMed QUÂN. DEFINATO SIRVEYDE A SANDS CAPITAL LINGUISMES SOFINNOVA THE BIRTH STATE OF SANDERS	Focused on the development of next- gen therapies intended to treat various types of cancer	Financing	\$223	N/A	Biotech / Pharma
3/28/2024	BioReference® Clinical Diagnostics & Reproductive / Women's Health Testing Businesses	labcorp	Full service medical diagnostic laboratory offering testing & diagnostic services	M&A	\$238	Undisclosed	Diagnostics

Hyperlinked to Press Release

















Highlighted Transactions



AstraZeneca Bolsters Rare Disease Pipeline With Acquisition Of Amolyt Pharma



\$835M

Deal Size



Buyer







In an effort to expand it's late-stage rare disease portfolio, AstraZeneca announced the acquisition of Amolyt Pharma. This transaction will expand AstraZeneca's bone metabolism franchise with the addition of eneboparatide, a Phase III therapeutic peptide, which binds with high affinity to a specific conformation of parathyroid hormone (PTH) receptor 1, thereby representing a novel mechanism of action for the treatment of hypoparathyroidism. In these patients, a deficiency in PTH synthesis results in dysregulation of calcium and phosphate, leading to life-altering symptoms such as depression, anxiety, gastrointestinal distress, neuromuscular impairment and chronic kidney disease. Phase II data showed that eneboparatide achieved normalisation of serum calcium levels as well as the potential to eliminate dependence on daily calcium and vitamin D supplementation. In this transaction, AstraZeneca will acquire all of Amolyt Pharma's outstanding shares for a total consideration of up to \$1.05 billion, comprising of \$800 million upfront at deal closing, plus a right for Amolyt Pharma's shareholders to receive an additional contingent payment of \$250 million payable upon achieving a regulatory milestone.





AstraZeneca Joins Radioconjugates Bandwagon With Fusion Acquisition



\$2.4B



Target

Deal Size

Buyer







AstraZeneca is the latest large pharmaceutical company to make a sizable bet on radiopharmaceutical drugs for cancer, agreeing to acquire longtime biotechnology partner Fusion Pharmaceuticals in a deal worth up to \$2.4 billion. It's the third recent large transaction involving a maker of radiopharmaceuticals, following Eli Lilly's \$1.4 billion deal for Point Biopharma in October and Bristol Myers Squibb's \$4.1 billion takeout of RayzeBio in December (see Outcome's December 2023 Pulse). The acquisition provides AstraZeneca with access to clinical-stage, next-generation radioconjugates for oncology. Between 30% and 50% of patients with cancer today receive radiotherapy at some point during treatment, and the acquisition of Fusion furthers AZ's ambition to be at the forefront of cancer treatment and outcomes for patients, replacing traditional regimens like chemotherapy and radiotherapy with more targeted treatments. This acquisition complements AstraZeneca's emerging oncology portfolio with the addition of the Fusion pipeline of radioconjugates, including their most advanced program, FPI-2265, a potential new treatment for patients with metastatic castration-resistant prostate cancer (mCRPC). FPI-2265 targets prostate-specific membrane antigen (PSMA), a protein that is highly expressed in mCRPC, and is currently in a Phase II trial. The acquisition brings new expertise, pioneering R&D, manufacturing and supply chain capabilities in actiniumbased radioconjugates to AstraZeneca.





Neuro Investment Shows Strength As Engrail Therapeutics Closes \$157M Series B



\$157M

Deal Size









GABA modulation has long been the domain of barbiturates and benzodiazepines, but they each have had their drawbacks. Engrail's lead asset is somewhat of a "super valium" with greater receptor selectivity and, therefore, an optimized side effect profile. Investors are receptive to improvements on established pharmacological mechanisms with clear predicates for the addressable market. With an ongoing Phase 2 trial for generalized anxiety disorder, Engrail has added over \$150M of fresh capital to its coffers. To date, the private company is approaching a quarter billion dollars raised. The funding is also intended to move forward Engrail's other pipeline assets; however, these are still preclinical, so equity valuation is driven by the most advanced clinical asset. Congratulations to the Pivotal Life Sciences team that incubated Engrail. Don't be surprised if the current round is the precursor to an IPO.





Zephyr Al Raises \$111 Million Series A For Expansion



\$111M

Lilly





Target

Deal Size

Investors







Zephyr AI, a HealthTech, precision medicine firm founded in 2020 and formed out of the incubator/investor Red Cell Partners, has just completed a Series A raise of just over \$111 million from a group of over 30 investors, a raise that began in October of 2023. Zephyr Al's business model involves the creation of "distinctive strategic healthcare partnerships to radically enhance personalized care", i.e., forming partnerships to gain access to the numerous types of real-world data sources (such as claims, EHR, medical device, genetic sequencing, cancer registry, molecular clinical, as well as from other sources), which the Zephyr Al platform then ingests. Zephyr then uses transparent artificial intelligence and machine learning to develop predictions about outcomes, including opportunities to intervene to improve outcomes and lower costs of care, with a current focus on oncology and cardiometabolic conditions. Zephyr Al's stated use cases range from identifying novel biomarkers for cancer therapeutics, to clinical trial design, to "driving nuanced reimbursement rules for next-generation weight loss drugs", among others. Zephyr previously raised an \$18.5 million seed round in March of 2022.





Labcorp Acquires BioReference Clinical Diagnostic & Women Health Testing Business

BioReference®

Clinical Diagnostics & Reproductive / Women's Health Testing Businesses

Target

\$238M

Deal Size



Buyer







Split personality disorder is a horrible disease to manage in any patient, and we see this in business as well. OPKO Health's recent divestiture of BioReference Health's (a subsidiary of OPKO Health) US clinical diagnostic and reproductive and women's health business for \$237.5M to LabCorp may still be an indicator they are still suffering from this disorder. This divested business generated ~\$100M in annual revenue for OPKO and will provide patient service centers and specific contracts to LabCorp, expanding their outreach across the US. OPKO will receive needed capital to rightsize OPKO's clinical diagnostic operations to continue to focus on their oncology and urology testing services across the US. This restructuring of the diagnostic business is an attempt to move OPKO Health into a biopharmaceutical company and may continue to confuse the market, which is clear by the stock performance and current share price.





Conavi Medical Acquires Titan For Access To Public Market



\$70M



Target

Deal Size







The Titan Medical story continues with a new chapter on the heels of their merger with Conavi Medical. The merger may be a harbinger of things to come in Medtech, as some single-asset companies struggle to gain traction in capital markets, with M&A markets no more receptive (unless strong revenue/margins underpin the asset). Strategically, the deal is sound with the combined entity raising \$15-20M to fund adoption of the Novasight Hybrid System.





Raises Growth Equity To Commercial Personalize Spinal Fusion Technology



\$52.5M



Investors

Target

Deal Size





In an economic environment that has been challenging for MedTech companies seeking to raise equity financings, Carlsmed was able to separate themselves from the pack with the March announcement of their \$52.5 million Series C. In line with current market dynamics where investors are seeking to limit development risk in favor of growth stage companies, the recent round led by B Capital and USVP will enable accelerated commercialization of the aprevo platform expanding the availability personalized spinal fusions. The aprevo platform, which integrates Al-based imaging technologies to develop personalized implants and surgical plans, offers the next stage of innovation within the spinal surgery market. With expanded scale, Carlsmed will increasingly be on the radar of the larger strategics seeking differentiation and accretive deals in a crowded market place. Will we continue to see consolidation in the space led by the likes of J&J, Stryker, Medtronic and Globus?



Nick Frame, PhD Outcome Capital, LLC nframe@outcomecapital.com





Partnership With Synthetic Biology Platform For New Cancer Therapeutics



\$1.0B



Target

Deal Size

Partner







As the sun begins to fade on Merck's patent protection for its lead therapeutic, Keytruda, the company remains highly active in deal making with their latest transaction with Pearl Bio. As the company earns ~45% of its pharmaceutical revenue from Keytruda alone (~\$25B globally in 2023), Merck has inked multiple billion dollar deals to replace the upcoming revenue cliff as generic manufacturers have long signaled their intent to market biosimilars of the blockbuster drug. That trend continues as Merck & Pearl Bio enter a license, option, and development deal worth up to \$1B in upfront, option, and milestone payments. A major bottleneck in the R&D process for developing a Keytruda replacement is overcoming metabolic, pharmacokinetic, and toxicological issues inherent in the biologic drug class. Merck hopes to capitalize on Pearl Bio's synthetic biology platform technology to incorporate synthetically derived amino acids into the primary structure of protein-based biologics to create tunable therapeutics with improved drug characteristics. As big pharma's thirst for novel biologics grows, investment in enabling technologies like Pearl Bio's is a trend we expect to continue. Sanofi, Johnson & Johnson, AbbVie, and Pfizer among others have all inked deals with companies highlighting the promise of their synthetic biology platforms to improve clinical attributes of a wide range of molecule classes including antibodies, cell & gene therapies, & RNAbased therapeutics. The power and flexibility of synthetic biology to enable next gen therapeutics is highly valued by leading strategics, and we expect these types of partnerships to continue to make headlines.





Collaboration To Discover Novel Antibody-Based Trispecific T-Cell Engagers

Merus Target

\$1.5B

Deal Size



Partner







Why have one when you can have three – an approach adopted by Gilead in its quest to find gold at the end of the "partnership rainbow". To combat the company's recent termination of magrolimab (treatment of blood cancers) due to MACEs within a Phase 3 trial, Gilead's latest partnership with Merus aims to de-risk the development of not one, not two, but potentially three trispecific T-cell engagers. Merus, a company which, in its own right, has experienced setbacks within their oncology program [stemming from an unsuccessful interim data readout (three patient deaths)] also seeks to benefit. The newly minted agreement showcases a [relatively] modest upfront payment of \$56M, with major bio bucks on the back end, culminating in a deal value of roughly \$1.5B, and granting Gilead an exclusive option to license the [potentially] robust anti-tumor immune response therapeutics upon the completion of select research activities. Gilead aims to leverage Merus' Triclonics® platform to develop novel dual tumor-associated antigens (TAA) targeting trispecific antibodies and has agreed to support Merus in its efforts to lead early-stage research activities around clinical candidate development. T-cell engagers, specifically bispecific, are not novel approaches to inducing potent tumor-directed T-cell activation and antitumor responses - Amgen has been one of the leaders in the space with its BiTE platform and Merck & Co. also recently invested heavily, buying Harpoon Therapeutics for \$680M (announced 1/8/24, closed 3/11/24). It will be interesting to see how the Gilead | Merus partnership positions the respective players at the forefront of immunotherapy.





Novo Nordisk Strengthens Cardiovascular Therapeutic Pipeline



\$1.1B



Target

Deal Size

Buyer







In a push to strengthen its therapeutic pipeline and establish a presence in the cardiovascular space, Novo Nordisk has agreed to acquire Cardior Pharmaceuticals for up to \$1.01B, including upfront and milestone payments for achieving developmental and commercial success. Cardior's antisense oligonucleotides (ASOs) target and counteract non-coding RNAs that activate disease associated pathways in cardiac dysfunctions. Their lead candidate molecule CDR132L, which is in a phase 2 clinical study for heart failure, is an ASO antagonist of the microRNA miR-132 that is upregulated in heart disease and drives cardiomyocyte growth and adverse cardiac remodeling. CDR132L is being touted as a transformative, first in class therapy with the potential to halt and even partially reverse heart disease, thereby surpassing the limitations of current therapies that only slow disease progression. With Novo Nordisk's strong history of bringing drugs to market in the diabetes and obesity markets, as well as their substantial commercial and clinical capacity, this acquisition puts them in a strong position to enter the global heart failure market containing more than 65 million people in need of better treatments.





Capstan Therapeutics Excites With Disruptive Innovation In Cell Therapy



Target

\$175M

Deal Size









Capstan Therapeutics turned heads last month with a \$175 million over-subscribed Series B financing, continuing forward momentum in the cell therapy space. With an impressive syndicate of strategic investors featuring a handful of leading drugmakers and venture capitalists, Capstan has raised \$340 million since 2021. Capstan's scientific founding team included 2023 Nobel Prize winner Drew Weissman and cell therapy pioneer and Tmunity founder Carl June. Their proprietary targeted lipid nanoparticles (tLNPs) are designed to deliver payloads, including mRNA, capable of reprogramming specific cell types inside the body. This is a significant departure from conventional chimeric antigen receptor (CAR) T cell therapy, in which a patient's T cells are modified outside the body to add a gene for a receptor, enabling them to target cancer cells. Other companies making strides in the in vivo editing space include Asgard Therapeutics, Ensoma, and Umoja Biopharma, all aiming to develop one-time, off-the-shelf treatments that can precisely engineer the immune system without time-consuming and complex manufacturing and logistics challenges. Capstan intends to use the proceeds from the financing to further develop its tLNP pipeline and advance the company's lead in vivo CAR T cell candidate to early clinical proof of concept in autoimmune disorders. Further bolstering confidence is the leadership of successful serial entrepreneur Laura Shawver, CEO, formerly of Synthorx (led by Shawver to a \$2.5 billion acquisition by Sanofi) and Silverback Therapeutics. Success using the in vivo editing approach has the potential to revolutionize cell therapy for a broad range of disease areas.





Fortrea Divests Its Patient Solution Businesses To Become Pure-Play CRO



\$345M

Deal Size



Arsenal Capital Partners

Buyer

Target





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Fortrea recently divested its Endpoint Clinical and Patient Access businesses to Arsenal Capital Partners. This comes not even a year after Fortrea was spun out of LabCorp in July 2023, to separate LabCorp's CRO business from its core laboratory testing business. The ultimate goal of this transaction was for Fortrea to convert to a pure-play CRO, focusing specifically on clinical development phases 1 through 4. Arsenal Capital will pay \$345M for the two business units (\$295M upfront + \$50M upon completion of transition milestones); this healthy deal value will further support Fortrea in providing financial flexibility to execute a targeted strategy. It will be exciting to see if future M&A opportunities are the next step for Fortrea in bolstering its CRO offerings.





A Power Play In The Global Life Sciences Arena



Undisclosed

MUBADALA Buyer

Target

Deal Size



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Mubadala Investment Company's recent acquisition of Kelix Bio is not just a deal, it's a calculated chess move. By swallowing this pan-African specialty pharmaceutical company whole, Mubadala isn't just bolstering the UAE's domestic biopharma scene – it's flexing its muscles on the world stage. Kelix Bio's established presence in emerging markets across six continents instantly strengthens Mubadala's regional and global reach. This not only aligns with the UAE's vision of becoming a life sciences leader, but also grants Mubadala access to Kelix Bio's well-oiled distribution channels. The implications are intriguing, and the timing couldn't be better. Mubadala's recent \$1 billion co-investment with Goldman Sachs in Asia Pacific suggests a broader strategy for this move. Kelix Bio's established footprint could serve as a springboard that propels Mubadala towards dominance in the life sciences.





Abbvie Boosts Autoimmune Diseases Portfolio With Landos Biopharma Acquisition



\$212M

abbvie

Target

Deal Size

Buyer

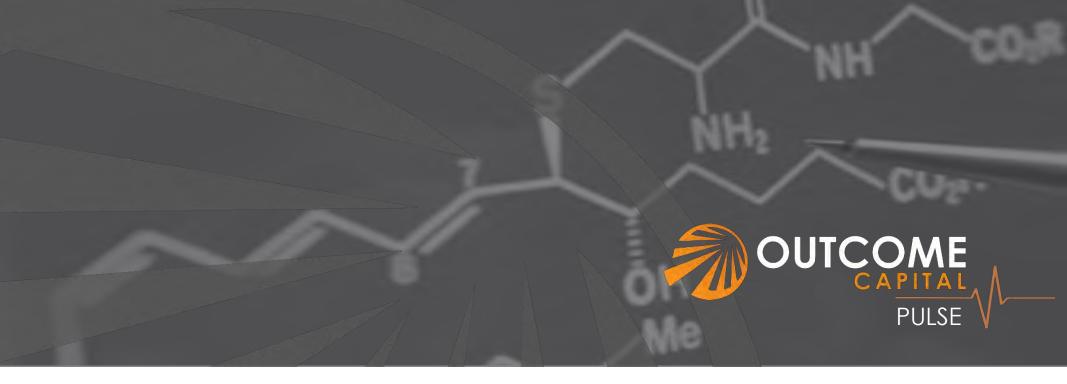






Some might say Abbvie found their pot of gold this St. Patrick's day season with Landos Biopharma, a clinical stage company focused on developing first-in-class, oral therapeutics for patients with autoimmune diseases. This strategic acquisition boosts AbbVie's portfolio with the addition of four potentially once-daily therapeutics. Landos' lead investigational asset, NX-13, is a potential first-in-class oral NOD-like receptor X1 (NLRX1) agonist with a dual anti-inflammatory mechanism that promotes epithelial repair. By activating NLRX1, NX-13 helps regulates inflammatory proteins associated with Chron's disease and ulcerative colitis. NX-13 is currently advancing through Phase II NEXUS clinical trial for moderate to severe ulcerative colitis as a randomized, double-blind, placebocontrolled, proof-of-concept study. Its once daily oral dosing will provide a more convenient delivery method compared to current disease-modifying therapies like biologics for people living with these diseases. Once approved, NX-13 will sit among Abbvie's strong suit of inflammatory bowl disease therapeutics including blockbusters Humira, Rinvog, and Skyrizi. The transaction includes a cash payment of \$137M on closure and further payments of up to \$75M in clinical development milestone for a total value of \$212M.





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