RESEARCH PAPER

Event-Driven Valuation and Risk Modeling in Biotech

Use Case: MedinCell

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1 Executive Summary

This report provides an event-driven risk assessment of a listed biotechnology company, designed to help investors and strategic partners **evaluate the valuation impact of upcoming binary clinical and regulatory events**. It builds on our prior research on the valuation of the company's licensing transactions, which focused on asset-level valuation and methodological foundations.

A key challenge in biotechnology valuation is accurately assessing the timing, probability of success, and valuation impact of discrete development milestones. Traditional deterministic valuation models, which rely on single-point assumptions, tend to underestimate uncertainty and fail to capture the asymmetric risk profile of early- and mid-stage pipelines. For decision-makers, a clear understanding of binary event risk is therefore critical.

To address this limitation, we employ a portfolio-based event-tree framework that maps clinical and regulatory gating events to projected commercial outcomes across programs. This structure enables a dynamic assessment of **downside exposure using Value at Risk (VaR) and Conditional Value at Risk (cVaR) metrics**, calculated on a quarterly basis to reflect the evolving risk profile of the company.

Key findings for MedinCell include:

- **Market capitalization alignment**: the current market capitalization of approximately \$1Bn (€900M) is broadly in line with our estimated rNPV of \$980M, suggesting limited valuation disconnect at present.
- **Elevated downside risk in 2026**: the risk profile is skewed to the downside, driven by major binary catalysts expected during the year, notably the FDA decisions on TEV-749 and the entry of the first AbbVie-sponsored asset into clinical development.
- **Trading implications**: from a tactical perspective, a conservative or hedged stance around TEV-749 regulatory milestones in 2026 should be applied, while selectively positioning for upside optionality linked to the first AbbVie compound IND.

In conclusion, the systematic modeling of event-driven risk and valuation impact has important practical implications. By identifying the **milestones that drive the largest valuation swings**, the framework enhances risk-mitigation strategies and supports more effective capital allocation by providing clear visibility on how **risks evolve over time**.

NB: USD has been retained in this note because the actual deal terms and product estimates disclosed by the company and its partners are denominated in USD. An exchange rate of €1 = \$1.15 has been applied.

2 Event-Driven Risks as Primary Drivers of Valuation

2.1 Company Valuation and Assumptions

MedinCell is a clinical-stage biopharmaceutical company specializing in the development and out-licensing of its proprietary **BEPO** long-acting subcutaneous injectable technology to leading pharmaceutical partners. The company has secured two major licensing partnerships. The first is with **Teva**, covering Uzedy, which has been commercialized since 2023, and TEV-749, which was filed for regulatory approval in December 2025. The second strategic collaboration is with **AbbVie**, encompassing up to six development programs (*see AbbVie–MedinCell transaction overview, December 2025*).

Beyond these partnered assets, MedinCell's pipeline includes additional programs in celecoxib, long-acting contraception, and malaria. Detailed project descriptions and valuation assumptions are provided in Table 2. Consistent with a conservative valuation approach, no net present value (NPV) has been assigned to the malaria program at this stage.

Based on a risk-adjusted net present value (rNPV) analysis of the partnered and unpartnered portfolio, MedinCell's pipeline supports a fundamental valuation baseline of approximately **$980 million (€850M)**.

2.2 Event Risks timing and impact

2.2.1 Event Definition

This paper focuses exclusively on asset-related, event-driven risks, primarily clinical development milestones and the regulatory approval pathway. We intentionally exclude other potential valuation drivers such as financial performance, revisions to commercial assumptions or refinancing events.

The valuation impact of each event is based on an independent deal-by-deal assessment, using a proprietary framework previously described in our earlier publications, available on the blog.

2.2.2 Upcoming Events timing and risk

The table below outlines the **major upcoming binary events**, detailing the expected timing of key milestones, the nature of each event, and their potential impact on the baseline risk-adjusted net present value (rNPV) of $980 million (€850M). This analysis is focused exclusively on event-level impacts at the pipeline level and does not incorporate implications for MedinCell's enterprise value, which will be addressed in a forthcoming research note.

Table 1: Summary of Key Binary Events and Valuation Impact Assumptions

Date	Product	Event	PoS	ΔNPV($M)	ΔNPV($M)	ΔNPV%	ΔNPV%
01/09/2026	TEV-749	Approval	92%	23	-269	2.4%	-27.5%
01/12/2026	AbbVie_1	IND	92%	11	-128	1.1%	-13.1%
01/12/2027	AbbVie_1	Start P2	87%	15	-99	1.5%	-10.1%
01/12/2028	AbbVie_1	Start P3	81%	23	-99	2.3%	-10.1%
30/11/2028	AbbVie_2	IND	78%	23	-83	2.4%	-8.5%

Probabilities of success are derived from a Monte Carlo–based gating framework, incorporating the core assumptions detailed in Tables 1 and 2. The metrics presented reflect event-specific risk, rather than cumulative portfolio evolution. Each quarter therefore captures the potential valuation swing associated with milestones scheduled during that period, independently of prior outcomes.

By construction, events are dynamically updated as development outcomes unfold. For example, should an AbbVie-sponsored program fail at the end of Phase 1 and not advance to Phase 2, subsequent milestones, such as Phase 3 initiation would be automatically removed from future updates.

The timing and probabilities associated with upcoming milestones are derived predominantly from independent due diligence. While event timelines are subject to change, greater visibility is expected following FDA acceptance of the TEV-749 filing, at which point a formal PDUFA date would provide a more precise regulatory milestone.

Overall upcoming risks and their valuation implications are detailed in table 3.

3 Quantifying Upcoming Binary Risks

This section examines the impact of binary event risk on the company's fundamental valuation. We apply an investment portfolio risk management framework to quantify idiosyncratic risks that are characteristic of biotechnology companies, where value creation is largely driven by discrete clinical and regulatory outcomes.

To capture the asymmetric and discontinuous nature of these risks, we employ **Value at Risk (VaR) and Conditional Value at Risk (cVaR) metrics**, which are well suited to binary, event-driven payoff distributions. These measures provide a more appropriate representation of downside exposure than traditional volatility-based models, such as Merton-style continuous diffusion or Bernoulli-based variance approaches, which are less effective in reflecting step-function valuation changes associated with clinical and regulatory events.

3.1 Event-Driven Quarterly Value at Risk

Value at Risk (VaR) measures the potential portfolio downside from binary gate events (clinical trials, regulatory approvals, milestones) resolving each quarter. VaR(95%) represents the maximum loss threshold in 95% of scenarios vs the baseline rNPV. As a mirror the same methodology was applied to the Upside potential vs the baseline rNPV.

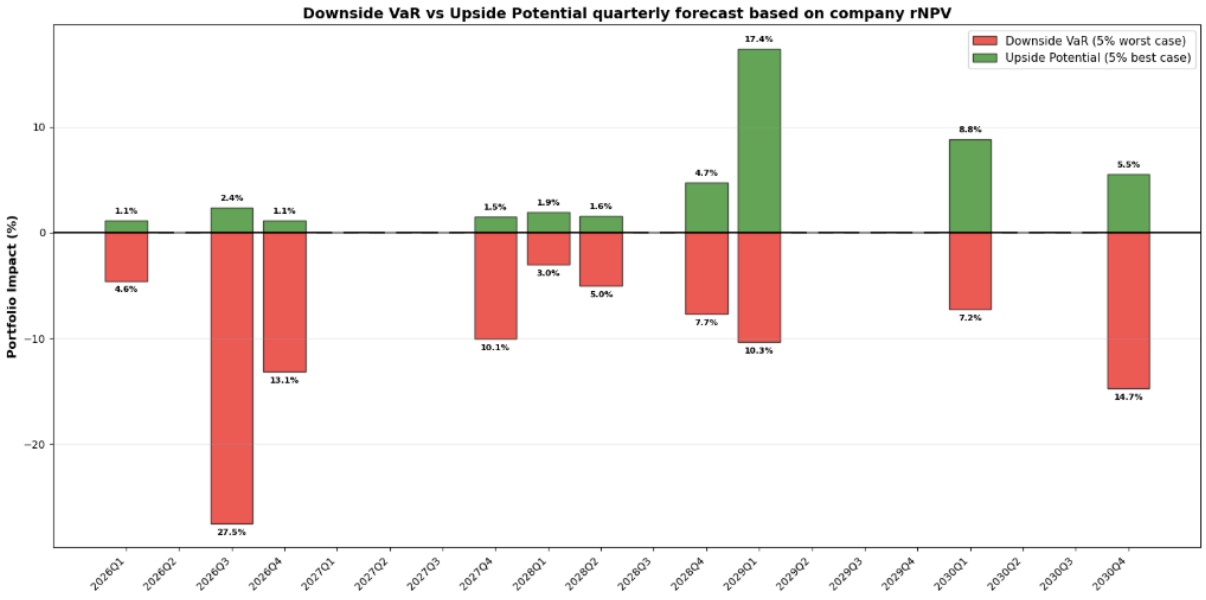

Figure. 1: Quarterly VaR and Upside relative to baseline rNPV

Based on our assumptions, 2026 represents a period of **highly asymmetric risk**, primarily driven by the following binary events:

- **TEV-749 FDA filing and approval pathway**: the NDA filing acceptance is expected in the first quarter of the year, leading to a potential approval decision toward the end of the third quarter of 2026.
- **AbbVie first compound IND submission**: management has communicated an initiation target in 2026. Given the lack of precise disclosure, we conservatively position this event toward the end of 2026, highlighting the risk of increased market impatience in the absence of interim milestones.

3.2 Quarterly Conditional Value at Risk and Tail Exposure

Conditional Value at Risk (cVaR), also known as Expected Shortfall, measures the average **loss in tail scenarios** beyond the VaR threshold. While VaR(95%) identifies the 5th percentile loss, cVaR(95%) calculates the expected loss conditional on being in that worst 5%.

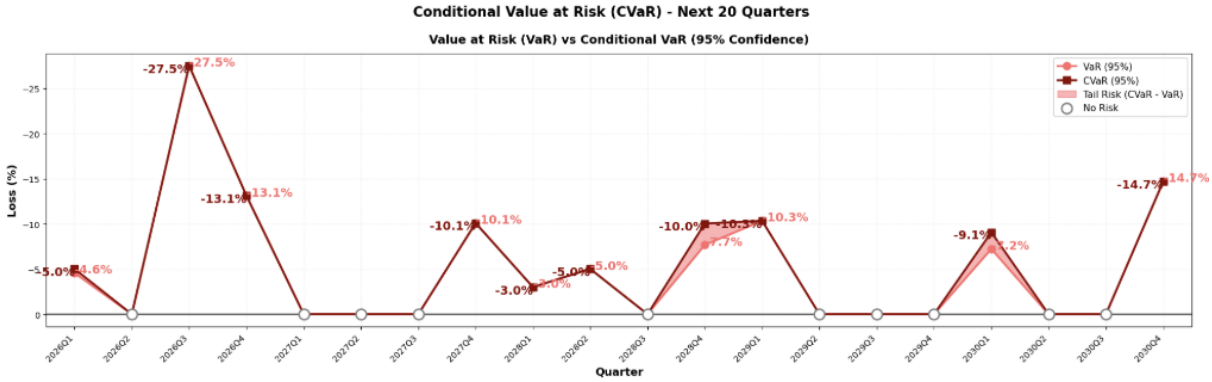

Figure. 2: Quarterly cVaR impact to baseline rNPV

As most quarters contain only a single gating event, cVaR is generally close to VaR for those periods. Quarters featuring multiple concurrent gates exhibit higher cVaR levels, reflected in an elevated cVaR/VaR ratio (Tail Risk Ratio).

Our analysis indicates Tail Risk Ratios in the range of 1.05x to 1.25x, suggesting that the portfolio displays thin-tailed risk characteristics. This confirms the absence of unmodeled catastrophic downside scenarios beyond the explicitly incorporated binary gate outcomes and is consistent with the assumption of independent clinical and regulatory events.

4 Methodology and Framework

A detailed description of the full methodology and valuation framework is provided in the previous paper; the key elements of the approach are summarized below:

- Development risk is modeled using Monte Carlo simulation with a gated progression system, applying probabilistic success rates and timing delays that propagate across milestones.
- Milestone achievements trigger the corresponding contractual cash payments, ensuring alignment between development uncertainty and financial flows.
- Commercial valuation relies on simulated long-term revenue forecasts incorporating launch timing, peak sales, loss of exclusivity, and sales-curve dynamics, using multimodal distributions where appropriate.
- Royalty rates and sales-based milestone triggers are modeled probabilistically to reflect limited public disclosure and threshold uncertainty.
- The license value is determined by discounting simulated cash flows using a 12% WACC, with risk captured through simulation inputs rather than the discount rate.
- VaR and cVaR are computed from the simulated distribution of quarterly valuation changes.

For this paper we added a dedicated risk module using ouputs from previous models to compute and display VaR and cVaR.

Table 2: Milestone Schedule, Gate Probabilities, and Commercial Assumptions

Product	Event Name	Event Level (min)	Trigger Date	P_GATE	Payment	Peak Sales
TEV-749	Filing		2026-02-01	90%	0	
TEV-749	Approval		2026-09-01	90%	4	
TEV-749	Sales_Milestone	1000/2000			105	2000
Usedy	Sales_Milestone	1000/2000			105	1500
Celecoxib	Start_P3		2026-03-31	90%	0	
Celecoxib	Filing		2028-06-30	80%	0	
Celecoxib	Approval		2030-01-01	80%	0	500
Contraceptive	IND		2026-03-31	90%	0	
Contraceptive	Licensing		2028-01-01	75%	10	
Contraceptive	Start_P3		2030-01-02	75%	5	
Contraceptive	Filing		2033-01-01	75%	5	
Contraceptive	Approval		2034-01-01	80%	10	
Contraceptive	Sales_Milestone	1000/2000			50	1000
Abbvie_1	IND		2026-12-01	90%	35	
Abbvie_1	Start_P2		2027-12-01	90%	0	
Abbvie_1	Start_P3		2028-12-01	80%	35	
Abbvie_1	End_P3		2030-12-01	80%	35	
Abbvie_1	Approval		2031-12-01	80%	35	
Abbvie_1	Sales_Milestone	1000/2000			210	1000
Abbvie_2	IND		2028-11-30	75%	35	
Abbvie_3	Start_P2		2029-01-01	90%	0	
Abbvie_2	Start_P3		2030-12-02	80%	35	
Abbvie_2	End_P3		2032-11-30	80%	35	
Abbvie_2	Approval		2033-12-01	80%	35	
Abbvie_2	Sales_Milestone	1000/2000			210	1000
Abbvie_3	IND		2029-01-01	50%	35	
Abbvie_3	Start_P2		2030-01-01	80%	0	
Abbvie_3	Start_P3		2031-12-02	80%	35	
Abbvie_3	End_P3		2033-11-30	80%	35	
Abbvie_3	Approval		2034-12-01	80%	35	
Abbvie_3	Sales_Milestone	1000/2000			210	1000
Abbvie_4	IND		2030-01-01	33%	35	
Abbvie_4	Start_P2		2031-01-01	80%	0	
Abbvie_4	Start_P3		2032-12-01	80%	35	
Abbvie_4	End_P3		2034-11-30	80%	35	
Abbvie_4	Approval		2035-12-01	80%	35	
Abbvie_4	Sales_Milestone	1000/2000			210	1000
Abbvie_5	IND		2031-01-01	25%	35	
Abbvie_5	Start_P2		2032-01-01	80%	0	
Abbvie_5	Start_P3		2033-12-02	80%	35	
Abbvie_5	End_P3		2035-12-01	80%	35	
Abbvie_5	Approval		2036-11-30	80%	35	
Abbvie_5	Sales_Milestone	1000/2000			210	1000
Abbvie_6	IND		2032-01-01	10%	35	
Abbvie_7	Start_P2		2033-01-01	80%	0	
Abbvie_6	Start_P3		2034-12-02	80%	35	
Abbvie_6	End_P3		2036-11-30	80%	35	
Abbvie_6	Approval		2037-12-01	80%	35	
Abbvie_6	Sales_Milestone	1000/2000			210	1000

Table 3: Full Pipeline Binary Event Schedule and baseline rNPV Impact

Date	Product	Event	PoS	ΔNPV$_{(+)}$	ΔNPV$_{(-)}$	ΔNPV%$_{(+)}$	ΔNPV%$_{(-)}$
31/03/2026	Celecoxib	Start P3	88%	7	-49	0.7	-5.0
31/03/2026	Contraceptive	IND	87%	4	-29	0.4	-3.0
01/09/2026	TEV-749	Approval	92%	23	-269	2.4	-27.5
01/12/2026	Abbvie_1	IND	92%	11	-128	1.1	-13.1
01/12/2027	Abbvie_1	Start P2	87%	15	-99	1.5	-10.1
01/01/2028	Contraceptive	Licensing	61%	19	-29	1.9	-3.0
30/06/2028	Celecoxib	Filing	76%	15	-49	1.6	-5.0
30/11/2028	Abbvie_2	IND	78%	23	-83	2.4	-8.5
01/12/2028	Abbvie_1	Start P3	81%	23	-99	2.3	-10.1
01/01/2029	Abbvie_3	Start P2	88%	5	-37	0.5	-3.8
01/01/2029	Abbvie_3	IND	40%	56	-37	5.7	-3.8
01/01/2029	Usedy	milestone_s	20%	109	-27	11.2	-2.8
01/01/2030	Abbvie_3	Start P2	86%	5	-29	0.5	-2.9
01/01/2030	Abbvie_4	IND	28%	64	-25	6.5	-2.5
01/01/2030	Celecoxib	Approval	85%	9	-49	0.9	-5.0
02/01/2030	Contraceptive	Start P3	74%	9	-26	0.9	-2.6
01/12/2030	Abbvie_1	End P3	72%	31	-81	3.2	-8.3
02/12/2030	Abbvie_2	Start P3	73%	23	-63	2.4	-6.4
01/01/2031	Abbvie_4	Start P2	89%	2	-19	0.2	-1.9
01/01/2031	Abbvie_5	IND	16%	68	-13	7.0	-1.3
01/12/2031	Abbvie_1	Approval	87%	11	-74	1.1	-7.5
02/12/2031	Abbvie_3	Start P3	80%	7	-28	0.7	-2.9
01/01/2032	Abbvie_5	Start P2	81%	2	-10	0.2	-1.0
01/01/2032	Abbvie_6	IND	10%	99	-11	10.2	-1.1
01/01/2032	TEV-749	milestone_s	76%	17	-54	1.7	-5.5
30/11/2032	Abbvie_2	End P3	79%	17	-62	1.7	-6.4
01/12/2032	Abbvie_4	Start P3	84%	4	-19	0.4	-1.9
01/01/2033	Contraceptive	Filing	69%	11	-25	1.1	-2.6
30/11/2033	Abbvie_3	End P3	88%	3	-24	0.3	-2.4
01/12/2033	Abbvie_2	Approval	87%	8	-55	0.9	-5.6
02/12/2033	Abbvie_5	Start P3	85%	2	-10	0.2	-1.0
01/01/2034	Contraceptive	Approval	78%	7	-24	0.7	-2.5
30/11/2034	Abbvie_4	End P3	76%	5	-15	0.5	-1.6
01/12/2034	Abbvie_3	Approval	76%	6	-21	0.7	-2.1
02/12/2034	Abbvie_6	Start P3	90%	1	-9	0.1	-0.9
01/01/2035	Abbvie_1	milestone_s	34%	64	-33	6.5	-3.4
01/12/2035	Abbvie_4	Approval	75%	4	-13	0.4	-1.3
01/12/2035	Abbvie_5	End P3	73%	3	-8	0.3	-0.8
30/11/2036	Abbvie_5	Approval	88%	1	-8	0.1	-0.8
30/11/2036	Abbvie_6	End P3	89%	1	-8	0.1	-0.8
01/01/2037	Abbvie_2	milestone_s	34%	52	-27	5.3	-2.8
01/12/2037	Abbvie_6	Approval	100%	0	-11	0.0	-1.1
01/01/2040	Abbvie_3	milestone_s	34%	19	-10	2.0	-1.0
01/01/2042	Abbvie_4	milestone_s	34%	13	-7	1.3	-0.7
01/01/2043	Abbvie_5	milestone_s	34%	7	-4	0.8	-0.4
01/01/2044	Abbvie_6	milestone_s	34%	8	-4	0.8	-0.4

Limitations & Disclaimers

This analysis is based solely on information available as of January 2026. Future clinical, regulatory, competitive, or commercial developments may materially alter the outcomes presented in this report.

All assumptions, estimates, and projections used in this valuation are derived exclusively from publicly available information, which has not been independently verified. As a result, the conclusions herein are subject to the accuracy and completeness of the underlying data.

This report does not constitute an audit opinion, investment recommendation, or fairness opinion. All valuations are expressed in nominal USD and discounted to January 1st 2026 to incorporate the 2026 upcoming milestone events, unless otherwise specified. USD has been retained because the actual deal terms and product estimates disclosed by the company and its partners are denominated in USD. Echange rate of 1€ = 1.15$.

Given the inherent uncertainties associated with early and mid stage pharmaceutical assets including clinical success rates, regulatory outcomes, competitive dynamics, and pricing—actual results may differ materially from the modeled scenarios.

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