THE OPERATOR’S TOOLKIT

A worked example

A tool is only as good as what you type into it. This example fills in every tab for a made-up company, Halverson Immunology, so you can see what good inputs look like, where each number comes from, and what the toolkit says back.

> **Halverson Immunology is fictional.** Its programs, numbers, people and partners are invented for this example and don’t describe any real company. Nothing here is investment, legal, medical or financial advice.

The company

Cash	**$310M**	Cash and short-term investments at December 31, 2026
Burn	**$38M a quarter**	Rising to $52M a quarter from July 2027
HVN-301	**Phase 3**	Oral small molecule for ulcerative colitis. Two induction trials and a maintenance trial. A Japanese partner holds the rights in Japan.
HVN-202	**Phase 2b**	Antibody for atopic dermatitis, with a biomarker to select patients. An offer for rights outside the U.S. is on the table.
HVN-105	**Phase 1**	First-in-human dose escalation for lupus
Debt	**Term loan**	A second $25M tranche is due in March 2027

How to read this

Each section shows what we entered, why, and what the toolkit said. The pages after each section are the toolkit’s own printout, exactly as you’d get it. Open the toolkit next to this and type the same numbers in to follow along.

Five rules for good inputs

1. **Use your own budget, not an average.** Presets are a starting point. Your trial budgets are the answer.
2. **Date readouts to when the data reaches you,** not when the last patient finishes.
3. **Count firm money first.** Money that depends on a milestone belongs in the what-if, not the base case.
4. **Be honest about odds.** Use industry rates unless you have evidence your program is different.
5. **Write “done” so a director could check it.** If it can’t be checked, it can’t be scored.

Does the cash reach the data?

FIELD	ENTERED	WHY
Cash today, as of	**$310M, 12/31/2026**	From the year-end balance sheet. The Japan milestone isn't included because it hasn't been paid.
Net burn per quarter	**$38M**	Average operating cash burn over the last two quarters, after interest income.
New burn, starts on	**$52M, 07/01/2027**	When the HVN-301 maintenance trial is fully enrolling and HVN-202 manufacturing scales up. Use the date the spending starts, not the date the board approved it.
Readouts and milestones	**Four rows**	HVN-105's Phase 1 data is a safety check, so it isn't ticked as value-changing. HVN-202's topline and both HVN-301 readouts are.
Cash coming in	**Loan $25M, Firm; Japan milestone $20M, If hit**	The loan draw is contractual, so it's firm. The milestone depends on enrollment, so it stays out of the base case.
Planned raise	**$200M net, 11/15/2027**	After the HVN-202 data. We assumed fees come off the top, so this is the net figure.
Stress test	**Burn +20%, 3-month slip**	Trials often run over budget and late. The stress case shows how much room that costs.

What the toolkit says. Cash lasts to September 2028, about 21 months, or about 18 months under stress. HVN-202's topline clears with 12 months to spare, but only 5.8 months under stress, so the verdict is to line up the financing before the data. The table shows the bigger problem: HVN-301's Phase 3 data in March 2028 has six months of cushion in the base case and runs short under stress, and its maintenance data lands as the cash runs out. The planned raise carries cash to September 2029, but it closes after HVN-202's data, so it depends on that result.

GARBAGE IN, GARBAGE OUT

Two common mistakes: leaving the new burn rate blank when a bigger trial is about to start, and marking milestone money as firm. Here, either one would hide that HVN-301's maintenance data lands after the cash runs out.

Runway in readouts

Count runway in results, not months. The test: does your cash reach the next readout or milestone that changes your value, with two quarters to spare?

Cash today ($M): 310
As of: 12/31/2026
Net burn per quarter ($M): 38
New burn per quarter ($M), optional: 52
New burn starts on (for example, when a Phase 2 starts): 07/01/2027

Readouts and milestones

Readout or milestone	Expected	Changes our value
HVN-105 Phase 1	03/31/2027	☐
HVN-202 Phase 2b	09/30/2027	☑
HVN-301 Phase 3	03/31/2028	☑
HVN-301 maintena	09/30/2028	☑

Cash coming in

Firm money counts in every case. Money that depends on hitting a milestone counts only if you tick the box below.

Source	Date	Amount ($M)	Type
Term loan, se	03/31/2027	25	Firm
Japan partne	06/30/2027	20	If hit

Planned raise (optional)

Add the raise you're planning, net of fees. It's drawn as a third line so you can see what it buys.

Net proceeds ($M): 200
Expected close: 11/15/2027

Stress test

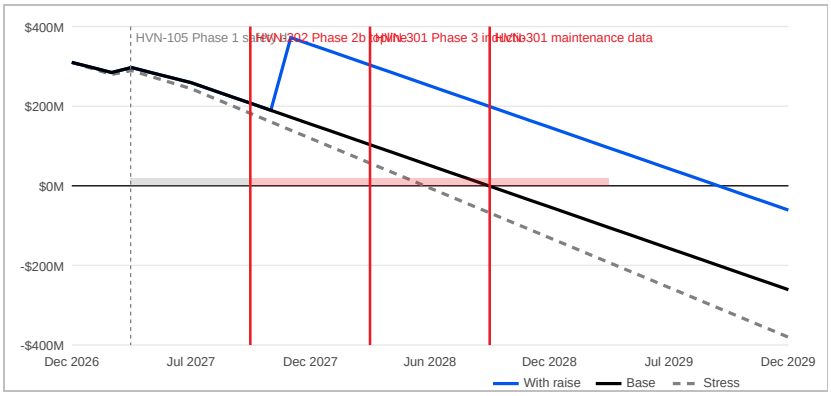
☐ Count money that depends on a milestone

Stress: burn runs higher by 20%

Stress: every readout slips by: 3 months

Sep 2028	20.9	17.7 mo
CASH LASTS TO	MONTHS OF RUNWAY	UNDER STRESS

HVN-202 Phase 2b topline: the base case reaches it with 12.0 months to spare. Under stress, the cushion shrinks to 5.8 months. Line up the financing before the data, not after. Runway band: 12 to 24 months.
With the planned raise of **$200M** closing Nov 2027, cash lasts to **Sep 2029**, after HVN-202 Phase 2b topline, so it depends on that result. The next one after that, HVN-301 Phase 3 induction topline, has 17.5 months to spare.



Each readout or milestone, base case and stress case

READOUT OR MILESTONE	DATE	CUSHION AFTER	BASE	STRESS
HVN-105 Phase 1 safety data (not value-changing)	Mar 2027	18.0 mo	Clear	Clear
HVN-202 Phase 2b topline	Sep 2027	12.0 mo	Clear	Tight
HVN-301 Phase 3 induction topline	Mar 2028	6.0 mo	Tight	Short
HVN-301 maintenance data	Sep 2028	-0.1 mo	Short	Short

Cushion is the months between the readout or milestone and the day the cash runs out. The planned raise, if you add one, is shown separately and isn't in these columns. Two quarters (6 months) or more is Clear; 0 to 6 is Tight; below 0 means the cash runs out first. Net burn spreads evenly within each quarter. Illustration only.

What is the HVN-202 offer really worth?

FIELD	ENTERED	WHY
Headline value	**$900M**	The number in the partner’s draft press release.
Cash up front, equity	**$60M, plus $15M of shares**	The equity counts as cash in the door, but it costs ownership.
Where the asset is today	**Phase 2**	HVN-202 hasn’t read out yet, so every later milestone carries Phase 2 odds.
Milestones	**Five, $825M in total**	Phase 3 start, filing, approval and two sales milestones, each with a realistic year. Together with the upfront and equity they match the $900M headline.
Discount rate, sales odds	**12%, 50%**	The rate Halverson’s board uses for project decisions, and an even chance of hitting the sales thresholds once approved.
Royalties	**12% on $600M peak, first sales in 6 years, 10 years**	Peak sales for the partner’s territory only. A worldwide number here would overstate the royalty several times.

What the toolkit says. $75M arrives at signing, so the headline runs 12 to 1, about 8 cents of every headline dollar. Weighted by industry odds and discounted, the milestones add about $46M and the royalties about $28M. The offer reads closer to $149M than $900M, which is in the range of 2026’s large licenses.

GARBAGE IN, GARBAGE OUT

The headline isn’t the deal. Set the stage to Phase 3 when the asset is in Phase 2, and every later milestone looks more than three times as likely as it is.

Read the upfront

Headline deal values add up every milestone. Only part of it is cash at signing, and most milestones depend on clinical odds. In Mind Club's count of 2026 licenses with $100 million or more up front, headlines ran about 12 times the cash paid at signing.

Headline value ($M): 900
Cash up front ($M): 60
Equity bought at signing ($M): 15
Where the asset is today: Phase 2

Milestones

Milestone	Amount ($M)	Paid on	Years out
Phase 3 start	40	Phase 3	1.5
Filing	80	Filing	4
Approval	120	Approva	5
First sales miles	250	Sales mi	7
Second sales m	335	Sales mi	9

Assumptions

Discount rate (% a year): 12
Odds a sales milestone is hit, once approved (%): 50

Royalties (optional)

Headlines usually leave royalties out. Add them here to see what they're worth, weighted by the odds of approval.

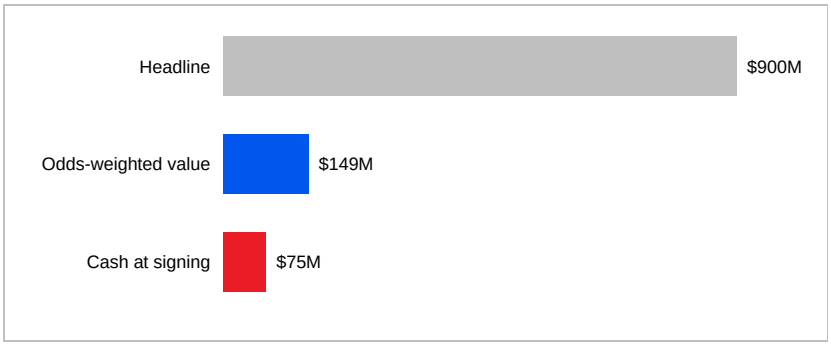
Royalty rate (% of sales): 12
Peak annual sales ($M): 600
Years until first sales: 6
Years of royalties: 10

$75M
CASH AT SIGNING

12.0 to 1
HEADLINE TO CASH

$149M
ODDS-WEIGHTED VALUE

About **8 cents** of every headline dollar is paid at signing. Weighted by industry odds and discounted at 12%, the milestones add about $46.2M and the royalties about $28M, so the deal reads closer to **$149M** than $900M. That's in the range of 2026's large licenses.



Milestone by milestone

MILESTONE	AMOUNT	ODDS	ODDS-WEIGHTED, TODAY'S DOLLARS
Phase 3 start	$40M	28.9%	$9.8M
Filing	$80M	16.7%	$8.5M
Approval	$120M	15.1%	$10.3M
First sales milestone	$250M	7.6%	$8.6M
Second sales milestone	$335M	7.6%	$9.1M
Royalties (12.0% of sales, ramp to $600M peak over 3 years, 10 years)	not in headline	15.1%	$28M

Odds come from industry-wide phase success rates for 2011 to 2020 programs, not from your asset. Royalties count only if you enter them: sales ramp evenly to peak over three years, then hold, discounted and weighted by the odds of approval. This is a way to read a headline, not a valuation.

What does each approval cost Halverson?

FIELD	ENTERED	WHY
Start from	**My own numbers**	Halverson’s own budgets per program, not a preset.
Phase 1, 2, 3, filing	**$14M, $55M, $310M, $4M**	An ulcerative colitis Phase 3 typically needs both induction and maintenance trials, so it costs far more than the HHS model’s immunology average of $52.4M.
Scenario	**Both**	Halverson is working on selection and on stopping failures early.
Phase 2 success rate	**32%**	HVN-202 uses a biomarker to choose patients. We kept the lift to three points above the industry rate because the biomarker is unproven.
Interim looks	**Phase 2 at 55%, Phase 3 at 65%**	The planned futility analyses in Halverson’s protocols, measured as the share of each trial’s budget spent by then.

What the toolkit says. With Halverson’s costs and industry odds, each approval costs about $1.14B, and 66% of the spend goes to programs that fail. With better selection and earlier stops, it falls to about $897M, 21% less. To cut it by a quarter, Halverson would need a Phase 2 success rate of about 37%.

GARBAGE IN, GARBAGE OUT

Pick the HHS immunology preset instead of Halverson’s budget and the cost per approval drops to about $350M, under a third of the real figure. A wrong starting number makes every scenario look better than it is.

What a success costs

Most of what a new medicine costs is spent on the programs that don't make it. Start 100 programs in Phase 1, see how many reach approval and what the whole group spends, then test two ways to make each approval cheaper.

1 Your cost to run one program through each stage

Cash spent per program, in $M. Start from a published estimate, then type over any number with yours. These stay fixed while you try scenarios.

Start from: My own numbers

Phase 1	Phase 2
14	55
Phase 3	**Filing and review**
310	4

2 Pick a scenario to compare with industry odds

- ○ **Pick better.** Better selection means more Phase 2 programs succeed.
- ○ **Stop sooner.** A planned interim look, partway through each trial, ends the ones that are failing before they spend their full budget.
- ◉ **Both.**

Phase 2 success rate: **32.0%** (industry 28.9%)

Phase 2 interim look: a failing trial stops with **55%** of its budget spent

Phase 3 interim look: a failing trial stops with **65%** of its budget spent

Other phases use the industry success rates from tab 02: Phase 1 to 2, 52.0%; Phase 3 to filing, 57.8%; filing to approval, 90.6%.

$1.14B	$897M	$240M
PER APPROVAL, INDUSTRY ODDS	PER APPROVAL, YOUR SCENARIO	SAVED PER APPROVAL

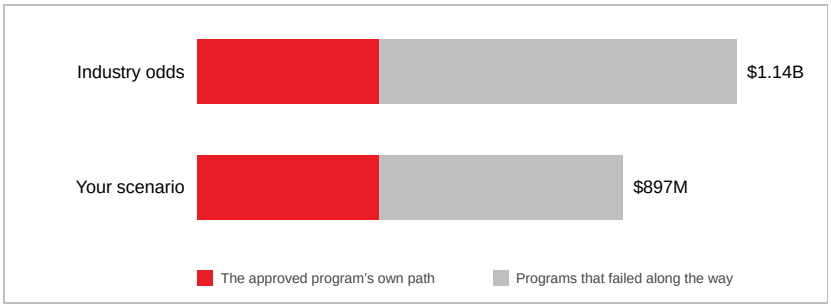
These are cash costs. The often-quoted $2.6 billion per approval from Tufts also counts the cost of the money tied up during the years of development. Tufts' cash-only figure was $1.4 billion. Both are in 2013 dollars.

At industry odds, 100 programs in Phase 1 yield about **7.9 approvals**, and 66% of the spend goes to programs that fail. More approvals (8.7 instead of 7.9) and less spent on failures. Each approval costs **$897M** instead of $1.14B (21% less).

Break-even: To cut the cost of each approval by a quarter, to $853M, you'd need a Phase 2 success rate of about 36.8%, with your interim-look settings, against an industry rate of 28.9%.

100 programs entering Phase 1

STAGE	PROGRAMS, INDUSTRY	PROGRAMS, SCENARIO	SPEND, INDUSTRY	SPEND, SCENARIO
Phase 1	100	100	$1.4B	$1.4B
Phase 2	52	52	$2.86B	$1.98B
Phase 3	15.0	16.6	$4.66B	$4.4B
Filing and review	8.7	9.6	$34.7M	$38.5M
Approvals	**7.9**	**8.7**	**$8.95B**	**$7.82B**



Expected out-of-pocket spend, counting every program that starts Phase 1. It leaves out discovery, the cost of capital and time, so it runs below published capitalized estimates. Cost presets: Tufts CSDD (DiMasi, Grabowski and Hansen, 2016), mean cost per program by phase, 2013 dollars; HHS, ASPE report by Eastern Research Group (2024), out-of-pocket cost by phase, 2018 dollars. Filing and review uses the HHS figure in every preset. Industry odds apply to every disease area. Illustration only.

Where does Halverson stand going into 2027?

#	ANSWER	OWNER, BY	WHY
1	**Yes, two quarters or more**	CFO, Jan 15	Tab 01 shows 12 months of cushion at HVN-202's readout.
2	**Partly ready**	CFO, Mar 31	Counsel is lined up; investor meetings aren't booked yet.
3	**No plan yet**	CEO, Feb 28	Nobody has written down what happens if HVN-202 fails.
4	**Being built**	Chief Business Officer, Apr 30	HVN-202's data room needs its manufacturing section.
5	**A number is agreed**	CEO and board chair, Jan 31	The board set its minimum upfront before the HVN-202 talks began.
6	**Some explored**	CFO, Mar 31	Debt is priced; a royalty sale hasn't been tested.
7	**Not modeled**	Head of Market Access, Jun 30	HVN-301 is the first program near launch, and pricing hasn't been modeled.
8	**Mapped, no fallback yet**	COO, May 31	One supplier for HVN-301's starting material.
9	**Pilots, not yet measured**	Chief Scientific Officer, Jun 30	Two pilots running, no measures agreed.

What the toolkit says. Two ready, five in progress, two open. Start with question 3, the plan B for HVN-202, and question 7, HVN-301's pricing.

GARBAGE IN, GARBAGE OUT

The temptation is to answer "partly" to everything. Answer as your most skeptical director would. Two honest "No" answers are worth more than nine comfortable maybes.

Board check for 2027

Nine questions, adapted from the playbook in the Mind Club edition of "The State of Biotech." Pick the answer that fits, name an owner and a date, and print it for the board pack.

WHERE YOU STAND

2 ready, 5 in progress, 2 open. Start with questions 3, 7: the list runs in order of urgency.

1. Does our cash reach the next readout or milestone that changes our value, with two quarters to spare?

(●) Yes, with two quarters or more ( ) Yes, but under two quarters ( ) No ( ) We haven't run the numbers

CFO 01/15/2027

2. If that result is positive, could we raise within days?

( ) Ready: shelf, counsel and investors lined up (●) Partly ready ( ) Not started

CFO 03/31/2027

3. If it's negative, do we have a plan B, and do we know who decides?

( ) Written plan, named decision-maker ( ) Discussed, not written down (●) No plan yet

CEO 02/28/2027

4. Is the data room ready for the program a buyer would pay for today?

( ) Ready now (●) Being built ( ) Not started ( ) No program is ready for that yet

Chief Business Officer 04/30/2027

5. Has the board agreed the least it would accept up front for a regional or global license?

(●) A number is agreed ( ) A range has been discussed ( ) Not discussed ( ) Not licensing

CEO and board chair 01/31/2027

6. Have we priced the non-dilutive routes (royalty, debt, partnering) against an equity raise?

( ) Priced and compared (●) Some explored ( ) Not explored

CFO 03/31/2027

7. Have we modeled our price under most-favored-nation pricing and earlier Medicare negotiation?

( ) Modeled ( ) Partly (●) Not modeled ( ) Too early to matter

Head of Market Access 06/30/2027

8. Have we mapped where tariffs or BIOSECURE could hit our supply chain?

( ) Mapped, with a fallback (●) Mapped, no fallback yet ( ) Not mapped

COO 05/31/2027

9. Do we measure what AI changes in our cost or our odds?

( ) Yes, with results we track (●) Pilots, not yet measured ( ) Not using AI here yet

Chief Scientific Officer 06/30/2027

Halverson’s 2027 corporate goals

#	MILESTONE	OWNER	TARGET	WAITS ON	WEIGHT	CONFIDENCE
1	HVN-301: finish Phase 3 induction enrollment	CMO	Jun 30		20%	High
2	HVN-202: Phase 2b topline ◆	VP Clinical Development	Sep 30		20%	Medium
3	HVN-105: finish Phase 1 dose escalation	CMO	Mar 31		10%	High
4	HVN-202: end-of-Phase 2 meeting with FDA	Head of Regulatory	Dec 15	2	10%	Medium
5	Fund HVN-301 through its approval decision ◆	CFO	Nov 30	2	20%	Medium
6	HVN-301: validate commercial-scale manufacturing	COO	Nov 30		10%	Medium
7	HVN-202: sign an ex-U.S. license	Chief Business Officer	Sep 30		10%	Low

◆ changes Halverson’s value. Each card also carries a budget ($101M in total) and a test for done, such as “Meeting minutes received.” The slip test is set to HVN-202’s topline running three months late.

What the toolkit says. Seven goals, weights at 100%, every goal owned and testable, and cash lasting past all of them. The expected score is 56%. The slip test finds the weak point: if HVN-202’s data runs three months late, the FDA meeting and the financing both slide into 2028, because both wait on it. The plan’s money and its regulatory path hang on one readout.

GARBAGE IN, GARBAGE OUT

“Advance HVN-202” can’t be scored. “Topline results reported to the board” can. And if you skip the “waits on” links, the chart will show a plan that looks safe and isn’t.

Corporate milestones

Set next year's corporate goals the way a board will judge them: few, owned, weighted, dated, funded and in the right order. The chart shows when each one lands and what it waits on.

Fiscal year starts: 01/01/2027

Slip test: if this runs late: 2. HVN-202: Phase 2b topline

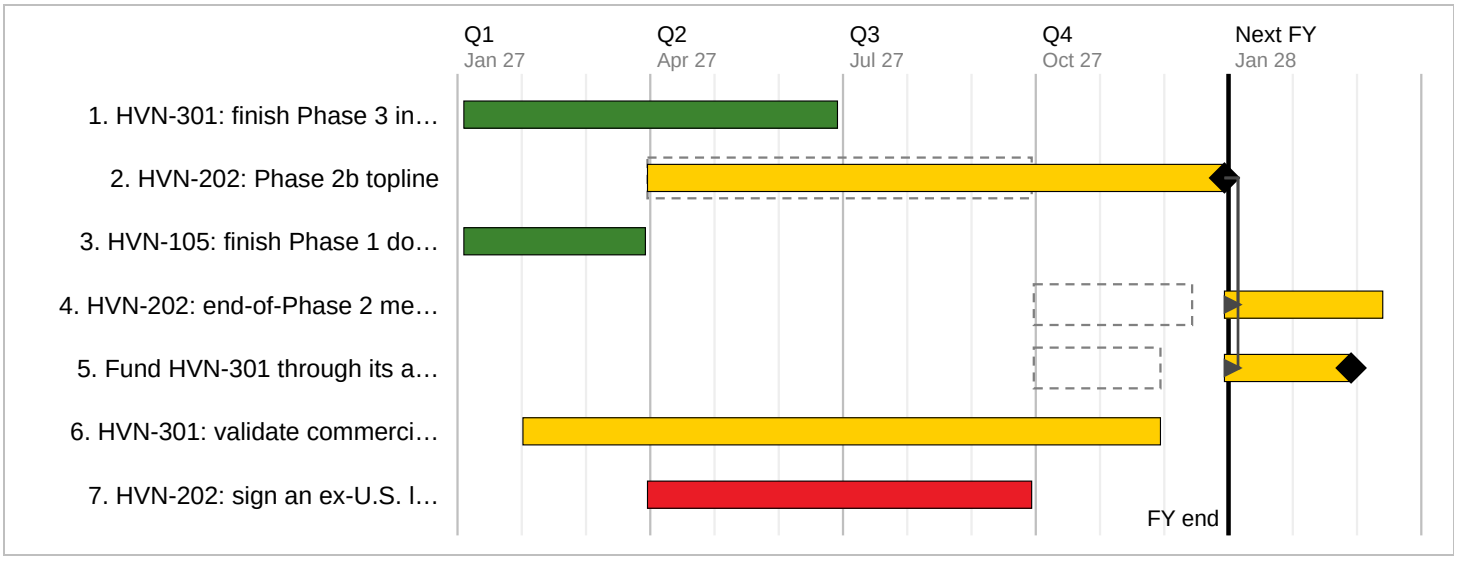
by: 3 months

7	56%	Mar 2028
MILESTONES	EXPECTED SCORE	LAST ONE LANDS

Board checks

Clear	7 milestones. Few enough that everyone knows which ones matter most.
Clear	Weights add up to 100%.
Clear	Every milestone has an owner and a test for done.
Clear	2 marked as changing your value: 2, 5.
Fix	Milestones 4, 5 now land after the fiscal year ends with the slip test: 4 in Mar 2028; 5 in Feb 2028.
Clear	40% of the weight is due in the last quarter.
Clear	Cash from tab 01 lasts past every milestone, to Sep 2028.
Clear	Milestone budgets add up to $101M, 33% of cash today.
Clear	Expected score is 56% of the full scorecard.

When they land



Bars run from start to projected finish, colored by confidence: green high, yellow medium, red low. A dashed outline shows the planned dates when a milestone has moved. A black diamond marks a milestone that changes your value. Arrows show what each one waits on.

Milestones

1. HVN-301: finish Phase 3 induction enrollment

Category: Clinical | Owner: CMO | Start: 01/04/2027 | Target: 06/30/2027

Waits on: Nothing | Confidence: High | Weight (%): 20 | Budget ($M): 60

Done means: Last patient randomized in both induction trials

☐ Changes our value

2. HVN-202: Phase 2b topline

Category: Clinical | Owner: VP Clinical Development | Start: 04/01/2027 | Target: 09/30/2027

Waits on: Nothing | Confidence: Medium | Weight (%): 20 | Budget ($M): 18

Done means: Topline results reported to the board

☑ Changes our value

3. HVN-105: finish Phase 1 dose escalation

Category: Clinical | Owner: CMO | Start: 01/04/2027 | Target: 03/31/2027

Waits on: Nothing | Confidence: High | Weight (%): 10 | Budget ($M): 6

Done means: Safety review committee signs off on the top dose

☐ Changes our value

4. HVN-202: end-of-Phase 2 meeting with FDA

Category: Regulatory | Owner: Head of Regulatory | Start: 10/01/2027 | Target: 12/15/2027

Waits on: 2. HVN-202: Phase 2b topline | Confidence: Medium | Weight (%): 10 | Budget ($M): 1

Done means: Meeting minutes received

☐ Changes our value

5. Fund HVN-301 through its approval decision

Category: Financing | Owner: CFO | Start: 10/01/2027 | Target: 11/30/2027

Waits on: 2. HVN-202: Phase 2b topline | Confidence: Medium | Weight (%): 20 | Budget ($M): 3

Done means: Cash in hand covers HVN-301 to an FDA decision

☑ Changes our value

6. HVN-301: validate commercial-scale manufacturing

Category: Manufacturing | Owner: COO | Start: 02/01/2027 | Target: 11/30/2027

Waits on: Nothing | Confidence: Medium | Weight (%): 10 | Budget ($M): 12

Done means: Three validation batches released

☐ Changes our value

7. HVN-202: sign an ex-U.S. license

Category: Business development | Owner: Chief Business Officer | Start: 04/01/2027 | Target: 09/30/2027

Waits on: Nothing | Confidence: Low | Weight (%): 10 | Budget ($M): 1

Done means: License signed with cash up front

☐ Changes our value

Schedule

#	MILESTONE	OWNER	WAITS ON	TARGET	PROJECTED	WEIGHT	STATUS
1	HVN-301: finish Phase 3 induction enrollment	CMO		Jun 2027	Jun 2027	20%	On plan
2	HVN-202: Phase 2b topline ◆	VP Clinical Development		Sep 2027	Dec 2027	20%	Moved
3	HVN-105: finish Phase 1 dose escalation	CMO		Mar 2027	Mar 2027	10%	On plan
4	HVN-202: end-of-Phase 2 meeting with FDA	Head of Regulatory	2	Dec 2027	Mar 2028	10%	After FY
5	Fund HVN-301 through its approval decision ◆	CFO	2	Nov 2027	Feb 2028	20%	After FY
6	HVN-301: validate commercial-scale manufacturing	COO		Nov 2027	Nov 2027	10%	On plan
7	HVN-202: sign an ex-U.S. license	Chief Business Officer		Sep 2027	Sep 2027	10%	On plan

Confidence counts as rough odds of hitting the date: high 80%, medium 50%, low 25%. These are rules of thumb, not data. A milestone that waits on another starts when that one finishes, if that's later than its own start date, and keeps its planned length. Illustration only.

Notes and sources

The toolkit is an illustration built from public base rates and the numbers you enter. It doesn’t speak for any company I lead. Halverson Immunology, its programs, people, partners and figures are fictional.

Phase success rates: BIO, Informa Pharma Intelligence and QLS, Clinical Development Success Rates 2011 to 2020 (2021). Drug development costs: DiMasi, Grabowski and Hansen, Journal of Health Economics (2016); Eastern Research Group for HHS ASPE (2024). Licensing ratio: Mind Club count of 35 licenses with $100 million or more up front, 01.01 to 11.21.2026.

Try it with your own numbers at **punitdhillon.com/operators-toolkit**.