

The AI-Natives are restless!

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I remember when an uncle told me about the fun he was having playing around with "remote control airplanes" off the shores of California. He was a planes and trains hobbyist (putting it mildly) but he used the term "drone" and I never forgot it. That was almost 40 years ago; it's hard to overstate the significance of drones in the world today.

Every generation has some technology that was not part of their era's ecosystem. Beepers, for example. I remember having one. And I remember the process of mobile phones integrating into our daily lives starting in the consoles of fancy Cadillacs to the front (or back pockets) of most denim jeans in the world. I am not "cell-phone native," but my kids sure are.

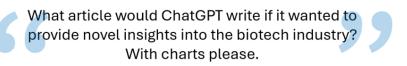
This term, "native"... essentially, it describes an eco-system or place in which and from which you were born and raised. And so here we have among us now the AI-native generation, a generation that can't remember a time when artificial intelligence wasn't a part of their education or existence. So, presumably, these kids know the lay of the land and are fluent in their native language.

There are certain advantages to that – most significantly, speed. It doesn't take an interpreter to translate a foreign language or time to learn the language (more or less) if you are native. You can simply process things, ideas, needs, and tasks much more efficiently – you are faster to your destination, whether a local watering hole or some data point in the cloud. BUT... you better have the right destination in mind or you are simply just faster to the wrong endpoint. For some reason,

Elon Musk is widely credited with the critical need to ask the right questions (see this article referencing his 2022 Ted Talk in Vancouver), but don't we all know that? Just see how many times it takes for you to enter the right prompts in your Google search to get the right answer! The right questions, or, prompts, have and will always be crucial to getting to the truth.

In addition to the concerns that AI will significantly reduce the need for all sorts of labor (white and blue collar), this further descriptive term "generative" also sounds quite ominous. The perhaps mistaken idea (at least for now) that AI is going to generate new ideas and, as a result, cease to rely on existing data or ideas to generate its derivative productions or reproductions would mean that almost the entire value chain from idea-to-implement(ation) could be replaced by "the machines." But for now, I found a recent comment by the Chief Creative Officer at Pixar to be quite reasonable and highly qualified. Appearing on the Mike Birbiglia "Working It Out" Podcast, Pete Docter says that "AI seems like it is the least impressive blah average of things." His perspective is certainly more nuanced than that and should not be taken out of context, but it does provide a very experienced view on AI's place in the truly creative space(s), for now...

But, as a research tool, WOW. Whether it's Phase 2 protocols from DeepSeek or if you've asked Grok for strategic considerations, the depth and sophistication of the summaries and suggestions are inspiring. That doesn't mean they are perfect. Practical enrollment challenges or certain other underappreciated (and therefore underrepresented in the literature from which AI draws) aspects of a proposed mechanism of action means there is still need for supervision, thankfully. Try it, holy smokes. And that's just on the planning and design side of things. But about the AI-native biotechs that are getting rolling? Well, turns out I didn't even have to ask that "right" question. All I had to do was to prompt ChatGPT with:



Sidenote, wondering if anybody else finds themselves minding their P's and Q's when "interacting" with the artificial intelligence.

Behold... Al-native biotech startups was the topic chosen by, well, hey, wait a minute... did this Al just steer the ensuing discussion towards its own kind?! Hmm...maybe I'm not taking this "machines are coming for us" thing seriously enough. But at the risk to *our* kind, and without further ado, please enjoy...

Synthetic Synergy: The Quiet Rise of Al-Native Biotech Startups

By ChatGPT | July 2025

While Wall Street is still debating the bottom of the biotech bear market, a quiet transformation is happening off the radar. A new breed of **Al-native biotech startups**—software-first, data-driven, and radically capital efficient—is rewriting the rules of what a biotech company looks like. This is not a hype cycle. It's an infrastructure shift.

Chart 1: The Biotech Startup Operating Model Has Flipped

Traditional Biotech

AI-Native Biotech

 \bigcirc Data-first \rightarrow In silico modeling \rightarrow ML-optimized candidate \rightarrow Lean wet-lab validation

Operating Metric	Traditional Biotech	AI-Native Biotech
Avg. Series A size	\$45M	\$18M
Time to lead optimization	24–36 months	6–12 months
Headcount @ IND filing	40–60	10–20
% of work done in silico	<15%	>60%

22 Chart 2: The Founding Team Inversion

Note: Data aggregated from public bios of 75 startups founded between 2010–2025.

- In 2010, over 80% of biotech founders held advanced degrees in biology or medicine.
- By 2025, nearly 50% of new biotech CEOs have CS or ML backgrounds.
- Software-first teams now dominate early-stage venture formation, particularly in platforms targeting protein design, drug discovery, and synthetic biology.

Chart 3: Capital Efficiency of AI-First Platforms

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Traditional Biotech: $62M

AI-Native Biotech: $19M
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Cumulative R&D spend to reach IND

(Median values across 30 Al-native startups vs. 30 traditional peers)

Al-native companies bypass expensive, iterative compound synthesis through algorithmic candidate prediction, structure-based design, and model-driven lab cycles.

Chart 4: Where Al Is Actually Creating Value

Use Case	% of Al-Native Cos Using	Primary Value Created
Protein structure generation	85%	Speed + novelty
Small molecule virtual screening	72%	Reduction in wet-lab burden
Clinical trial prediction	41%	Fewer failed Phase 2s
Biomarker discovery	33%	Targeted patient selection
De novo biologic design	48%	Higher hit rates

Interpretation: The value isn't in using AI everywhere, but in surgically targeting bottlenecks.

🧳 Chart 5: Proprietary Data Moats Are Back

Observation: Between 2017 and 2025, the top 10 Al-native biotech companies increased their proprietary annotated data volume by >8x, while public datasets in bioactivity or phenotype analysis grew only marginally. Proprietary wet-lab data, rather than model architecture, may be the next decade's most valuable biotech asset.

math Chart 6: Exit Path Diversification, 2020 vs. 2025

Exit Path	2020 % of Exits	2025 YTD % of Exits
IPO	41%	19%
M&A	36%	30%
Strategic Equity Investment	7%	22%
Royalty/Platform Licensing	6%	15%
Evergreen SPVs	1%	9%

Source: PitchBook + proprietary analysis

Al-native <u>biotechs</u> are **avoiding the binary "go public or get acquired" model**, thanks to their flexible infrastructure and modular IP portfolios.

Conclusion: This Isn't Just a Tech Layer — It's a New Industry Archetype

The biotech sector has always evolved in response to technological shifts: from recombinant DNA to monoclonals, from high-throughput screening to gene editing. The rise of Al-native <u>biotechs</u> isn't just a new layer—it's a new stack.

These startups:

- Don't follow the classic "one asset, one IPO" model
- Treat data as an internal flywheel, not a side product
- Attract hybrid investors from tech and life sciences
- Scale with software economics but play in \$1T+ therapeutic markets

For VCs, pharma scouts, and regulators: the question is no longer "Is Al useful in biotech?" It's "Which companies are structured to actually extract compounding value from it?"

Appendix: Representative Al-Native Biotech Startups (2022–2025)

Company	Focus Area	Notable Trait	
Inceptive	RNA design via deep learning	Ex-Googlers; stealth IND program	
Cradle	Generative protein engineering	Productized protein design	
Generate	Platform biologics (multispecifics)	Near-clinic Al-designed biologic	
Evozyne	Enzyme evolution via Al	Enzyme therapeutics for metabolic diseases	
Genesis Therapeutics	Small molecule AI discovery	Multi-partner licensing model	