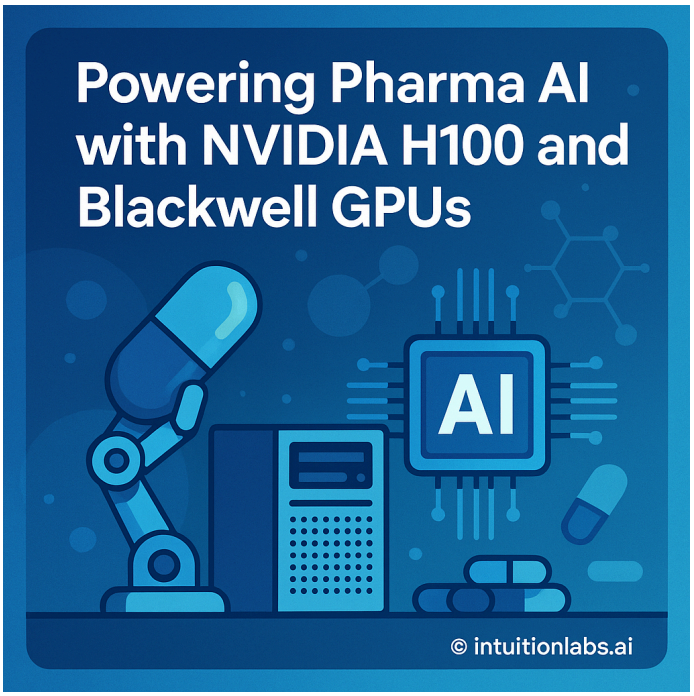
Powering Pharma AI with NVIDIA H100 and Blackwell GPUs

By IntuitionLabs • 4/18/2025 • 25 min read

nvidia gpu ai machine-learning drug-discovery pharmaceutical biotechnology supercomputing protein-folding generative-ai high-performance-computing research-and-development computational-biology molecular-dynamics



Powering Pharma AI with NVIDIA H100 and Blackwell GPUs

The pharmaceutical and biotech industry is embracing cutting-edge AI hardware to accelerate drug discovery and biomedical research. In particular, many companies are **investing in NVIDIA's latest GPUs** – notably the **H100 Tensor Core GPUs** (based on the Hopper architecture) – and even eyeing the next-generation **Blackwell** series – to power advanced machine learning workloads. These GPUs, often deployed in clusters or supercomputers, provide the massive compute needed for **training large models** (e.g. generative models, protein-folding algorithms) and **analyzing enormous datasets** in drug R&D. This article explores **which pharma and biotech companies around the world have publicly announced the use or purchase of NVIDIA H100/Blackwell GPUs**, backed by evidence such as press releases and official reports. We also highlight **how these companies apply GPU-accelerated AI** for tasks like drug design, protein structure prediction, molecular simulation, and more.

Why Pharma is Investing in AI Supercomputers

Recent breakthroughs in **generative AI and large language models (LLMs)** have shown that scaling up models with more data and compute can yield dramatic performance gains. Pharma companies are keen to apply similar approaches to biological and chemical data. Training AI models on millions of compounds or genetic sequences demands **extensive parallel computing power**, which modern GPUs excel at. NVIDIA's H100 GPU, for example, is currently one of the most powerful chips for AI, delivering exaflop-scale performance when many are used in tandem (Drug Discovery, STAT! NVIDIA, Recursion Speed Pharma R&D With AI Supercomputer - NVIDIA Blog) (Drug Discovery, STAT! NVIDIA, Recursion Speed Pharma R&D With AI Supercomputer - NVIDIA Blog). As **Recursion's CTO Ben Mabey** put it, *"we see AI models in the biology domain improve performance substantially as we scale our training with more data and compute horsepower"* – ultimately leading to better outcomes for patients (Drug Discovery, STAT! NVIDIA, Recursion Speed Pharma R&D With AI Supercomputer - NVIDIA Blog). This need for scale has driven the industry to adopt GPU-based supercomputers and cloud GPU clusters.

Key AI use cases driving GPU adoption in pharma/biotech include:

- **Generative AI for drug design:** e.g. models that **generate novel molecular structures** with desired properties (akin to how LLMs generate text). Companies use generative models to propose new drug candidates (small molecules or even biologics) and optimize them (Nvidia collaborates with AstraZeneca, University of Florida on AI-driven drug discovery - Fierce Healthcare).
- **Protein structure and interaction prediction:** GPUs enable **protein folding simulations** (like AlphaFold-style models) and prediction of how drugs bind to targets (docking). For instance, NVIDIA's BioNeMo service offers models like DiffDock for predicting ligand-protein binding (Expanding Computer-Aided Drug Discovery With New AI Models - NVIDIA Blog).
- **Molecular dynamics (MD) and simulations:** High-end GPUs can perform MD simulations of molecular systems at high speed, helping researchers observe how proteins and compounds behave over time (Japan's First Generative AI Supercomputer for Pharma Industry - NVIDIA Blog).
- **Analyzing 'omics' and imaging data:** AI models for genomics or microscopy images (e.g. high-content cell imaging) require GPUs to train on terabytes of data. **Vision transformers** applied to cell images or models analyzing genomic sequences are used to discover disease biomarkers and new targets (Amgen to Build Generative AI Models for Drug Discovery - NVIDIA Blog) (Amgen to Build Generative AI Models for Drug Discovery - NVIDIA Blog).

To support these efforts, pharma and biotech firms are either **procuring on-premises GPU supercomputers** or **leveraging cloud HPC** with GPUs. Below, we profile several leading companies that have publicly confirmed deployments of NVIDIA H100 (and plans for Blackwell) in their AI infrastructure, along with the specific use cases enabled by this hardware.

Recursion (USA) – BioHive-2 Supercomputer with 504× H100 GPUs

One standout example in biotech is **Recursion Pharmaceuticals**, a tech-driven drug discovery company. Recursion built **BioHive-2**, described as *"the largest system in the pharmaceutical industry"*, which debuted on the TOP500 supercomputer list at #35 (Drug Discovery, STAT! NVIDIA, Recursion Speed Pharma R&D With AI Supercomputer - NVIDIA Blog). This AI supercomputer is powered by **504 NVIDIA H100 Tensor Core GPUs** connected via NVIDIA's Quantum-2 InfiniBand network, configured as an NVIDIA DGX SuperPOD (Drug Discovery, STAT! NVIDIA, Recursion Speed Pharma R&D With AI Supercomputer - NVIDIA Blog). The result is about **2 exaflops** of AI performance – nearly 5× faster than Recursion's previous cluster (BioHive-1) (Drug Discovery, STAT! NVIDIA, Recursion Speed Pharma R&D With AI Supercomputer - NVIDIA Blog) (Drug Discovery, STAT! NVIDIA, Recursion Speed Pharma R&D With AI Supercomputer - NVIDIA Blog).

How Recursion uses this GPU powerhouse: Their mission is to **accelerate drug discovery** by combining **biological datasets at massive scale with AI models**. Recursion has generated over **50 petabytes of biological images and data** from automated experiments (Drug Discovery, STAT! NVIDIA, Recursion Speed Pharma R&D With AI Supercomputer - NVIDIA Blog). With BioHive-2's compute muscle, they train **foundation models** on these data – for example, the **"Phenom" family** of vision-transformer models that turn high-resolution cellular images into useful biological representations (Drug Discovery, STAT! NVIDIA, Recursion Speed Pharma R&D With AI Supercomputer - NVIDIA Blog). One such model, *Phenom-1*, was trained on **3.5 billion microscopy images** to learn patterns of disease and treatment effects (Drug Discovery, STAT! NVIDIA, Recursion Speed Pharma R&D With AI Supercomputer - NVIDIA Blog). These models can predict how cells react to new compounds, helping identify promising drug candidates faster.

Recursion's H100 cluster also enables enormous **virtual screening** tasks. In a collaboration with NVIDIA, Recursion demonstrated that combining BioHive-1 (earlier system) with cloud GPUs could **screen ~36 billion chemical compounds in under 30 days**, predicting potential protein targets for each (Drug Discovery, STAT! NVIDIA, Recursion Speed Pharma R&D With AI Supercomputer - NVIDIA Blog). With BioHive-2's expanded capacity, such analyses will be even faster. The company is integrating this AI supercomputer into an end-to-end workflow (called "LOWE") with natural language interfaces for scientists (Drug Discovery, STAT! NVIDIA, Recursion Speed Pharma R&D With AI Supercomputer - NVIDIA Blog). In short, Recursion's investment in H100 GPUs is core to its identity as a "techbio" firm – it treats **AI and compute as critical infrastructure** for discovering new therapeutics.

Amgen (USA) – "Freyja" DGX SuperPOD (248× H100) for Generative AI in Drug Discovery

Global biotech leader **Amgen** has made a bold move to integrate **AI at scale** into its R&D. In January 2024, Amgen announced it will deploy an **NVIDIA DGX SuperPOD** AI supercomputer – nicknamed **"Freyja"** – at its deCODE Genetics subsidiary in Iceland (Amgen to Build Generative AI Models for Drug Discovery - NVIDIA Blog) (Amgen to Build Generative AI Models for Drug Discovery - NVIDIA Blog). Freyja will consist of **31 NVIDIA DGX H100 nodes (248 H100 GPUs total)** and will be used to train state-of-the-art AI models in a fraction of the time previously required (Amgen to Build Generative AI Models for Drug Discovery - NVIDIA Blog). This essentially

gives Amgen a dedicated, full-stack AI data center platform on-premises (Amgen to Build Generative AI Models for Drug Discovery - NVIDIA Blog).

What Amgen aims to do with Freyja: A key goal is to leverage deCODE's unique human genomic data for drug discovery. deCODE (acquired by Amgen) has amassed **over 200 petabytes of de-identified human genetic and health data** from ~3 million individuals, including a large portion of Iceland's population (Amgen to Build Generative AI Models for Drug Discovery - NVIDIA Blog). Amgen plans to use Freyja to **build a "human diversity atlas"** – AI models that can find drug targets and disease biomarkers by analyzing genetic variation across this vast dataset (Amgen to Build Generative AI Models for Drug Discovery - NVIDIA Blog) (Amgen to Build Generative AI Models for Drug Discovery - NVIDIA Blog). For example, they will train generative AI models on genomic and clinical data to uncover patterns that predict disease progression or drug response (Amgen to Build Generative AI Models for Drug Discovery - NVIDIA Blog). This could enable more precise identification of therapeutic targets and even aid in **developing personalized medicines** (by finding patient subgroups with particular biomarker signatures).

Freyja's **248× H100 GPUs** will drastically speed up model training, allowing Amgen's researchers to iterate faster (NVIDIA to Collaborate with Amgen at JP Morgan Healthcare - European Pharmaceutical Manufacturer). Instead of taking months to train large models on CPU clusters or small GPU setups, they expect to train in **days** (NVIDIA to Collaborate with Amgen at JP Morgan Healthcare - European Pharmaceutical Manufacturer). This accelerated cycle is crucial given the complexity of Amgen's AI tasks (which range from **LLMs for DNA/RNA** to deep neural nets for predicting protein functions). Amgen's embrace of a top-tier NVIDIA SuperPOD – and the public announcement of this collaboration – signals that *big biotech sees AI and GPUs as integral to its future*. David Reese, Amgen's CTO, noted that this union of technology and biotech is a "hinge moment" for the industry (NVIDIA to Collaborate with Amgen at JP Morgan Healthcare - European Pharmaceutical Manufacturer), underscoring the seriousness of the investment.

BioNTech (Germany) – InstaDeep's "Kyber" Cluster (224× H100) for AI-Driven Drug Design

German biotech **BioNTech** (famous for its mRNA vaccine) has also placed AI at the center of its R&D strategy. In 2023, BioNTech acquired **InstaDeep**, an AI startup, to bolster its machine learning expertise. As part of this effort, BioNTech/InstaDeep built a new in-house AI supercomputing cluster called **"Kyber"**, unveiled in late 2024 (AI Day 2024: InstaDeep Showcases Innovations in Biology and AI as Part of the BioNTech Innovation Series - InstaDeep - Decision-Making AI For The Enterprise). **Kyber is equipped with 224 NVIDIA H100 GPUs**, 86,000 CPU cores, and high-speed networking, delivering on the order of **0.5 exaFLOPs** of AI performance (AI Day 2024: InstaDeep Showcases Innovations in Biology and AI as Part of the BioNTech Innovation Series - InstaDeep - Decision-Making AI For The Enterprise). This makes it one of the world's top 100 most powerful computer clusters and among the top 20 H100 GPU clusters globally (AI Day 2024: InstaDeep Showcases Innovations in Biology and AI as Part of the BioNTech Innovation Series - InstaDeep - Decision-Making AI For The Enterprise).

Applications of Kyber at BioNTech: The cluster is intended to **accelerate BioNTech's pipeline in areas like immunotherapy and vaccine development** by enabling large-scale AI research. At the **BioNTech AI Day 2024**, InstaDeep showcased how Kyber powers new AI innovations in biology (AI Day 2024: InstaDeep Showcases Innovations in Biology and AI as Part of the BioNTech Innovation Series - InstaDeep - Decision-Making AI For The Enterprise). For example, they introduced **Bayesian Flow Networks (BFN)** – a novel class of generative AI models for biotech applications (AI Day 2024: InstaDeep Showcases Innovations in Biology and AI as Part of the BioNTech Innovation Series - InstaDeep - Decision-Making AI For The Enterprise). BFNs can generate biological sequences (such as protein or antibody sequences) in a continuous, controllable manner, which could be useful in designing new proteins or optimizing vaccine immunogens. Unlike standard diffusion models, these BFNs allow

researchers to more precisely guide the generation process, potentially **speeding up the discovery of drug candidates or vaccines** by exploring sequence space more efficiently (AI Day 2024: InstaDeep Showcases Innovations in Biology and AI as Part of the BioNTech Innovation Series - InstaDeep - Decision-Making AI For The Enterprise).

Beyond BFNs, BioNTech likely uses Kyber for a spectrum of AI tasks: training large **language models on immune system data**, running **simulations for personalized cancer therapy** design, and enhancing its bioinformatics workflows. The **massive computing headroom** provided by 224 H100s means BioNTech's scientists and modelers can experiment with bigger models (including multimodal models that combine genetic, imaging, and clinical data) without being bottlenecked by compute. This investment clearly signals BioNTech's commitment to being at the forefront of **AI-enabled drug development**. Uğur Şahin, BioNTech's CEO, has indicated that integrating such AI capabilities is crucial for the company's vision of developing *"personalized medicines at scale."*

Astellas & Tokyo-1 (Japan) – Consortium Supercomputer (DGX H100) for Pharma

In Japan, several pharma companies are banding together to access world-class AI infrastructure. A prominent example is **Astellas Pharma**, one of Japan's top pharmaceutical firms, which is participating in the **"Tokyo-1"** initiative (Expanding Computer-Aided Drug Discovery With New AI Models - NVIDIA Blog). Tokyo-1, announced in 2023 by Mitsui & Co. in collaboration with NVIDIA, is **Japan's first generative AI supercomputer for the pharmaceutical industry (Japan's First Generative AI Supercomputer for Pharma Industry - NVIDIA Blog)**. It is essentially a **DGX SuperPOD based on NVIDIA H100 nodes**, hosted as a shared resource for pharma companies and startups in Japan (Japan's First Generative AI Supercomputer for Pharma Industry - NVIDIA Blog) (Japan's First Generative AI Supercomputer for Pharma Industry - NVIDIA Blog).

Astellas is using **BioNeMo (NVIDIA's drug discovery AI platform) on Tokyo-1** to accelerate its research (Expanding Computer-Aided Drug Discovery With New AI Models - NVIDIA Blog). Concretely, Astellas plans to leverage this H100-powered supercomputer for tasks like **molecular simulations and large language models** applied to drug discovery (Expanding Computer-Aided Drug Discovery With New AI Models - NVIDIA Blog). By tapping into Tokyo-1, Astellas scientists can run **high-resolution molecular dynamics** to study how drug molecules behave, or train LLMs on chemical and biomedical text data to aid in drug design. The Tokyo-1 infrastructure supports **generative chemistry models**, allowing users to create novel molecular structures in silico, and also enables running **quantum chemistry calculations** faster than before (Japan's First Generative AI Supercomputer for Pharma Industry - NVIDIA Blog). In short, it provides Japanese pharma companies a competitive **AI-as-a-service platform with H100-scale performance**.

For Astellas, which might not have built its own giant supercomputer in-house, participating in Tokyo-1 is a way to still get access to **state-of-the-art GPU hardware**. According to NVIDIA, *"the project will provide customers with access to DGX H100 nodes"* for all these advanced applications (Japan's First Generative AI Supercomputer for Pharma Industry - NVIDIA Blog). The **collaborative model** (with Mitsui's Xeureka unit operating the facility (Japan's First Generative AI Supercomputer for Pharma Industry - NVIDIA Blog)) means multiple pharmas can benefit. We know Astellas is on board; other major Japanese pharmas like Takeda or Daiichi Sankyo could join as well. This reflects a trend in some regions to invest in **shared AI infrastructure** for pharma R&D, rather than each company building from scratch. Nonetheless, it underscores that even in Japan (historically more focused on wet-lab research), there is now a push to **embrace AI and GPU-accelerated computing** in drug development (Japan's First Generative AI Supercomputer for Pharma Industry - NVIDIA Blog).

Other Notable Efforts and Future Outlook (Blackwell GPUs)

Beyond the examples above, numerous other pharma and biotech players have signaled serious investments in AI hardware:

- **AstraZeneca and GSK (UK):** These pharma giants were among the first to partner with NVIDIA on pharma supercomputing. They utilized **Cambridge-1**, NVIDIA's £40M supercomputer in the UK, which launched in 2021 with 80 DGX A100 nodes (older generation GPUs) (Nvidia collaborates with AstraZeneca, University of Florida on AI-driven drug discovery - Fierce Healthcare) (Nvidia collaborates with AstraZeneca, University of Florida on AI-driven drug discovery - Fierce Healthcare). AstraZeneca worked with NVIDIA to develop the **MegaMolBART** generative model for molecules on Cambridge-1, aiming to evaluate billions of compounds for drug discovery (Nvidia collaborates with AstraZeneca, University of Florida on AI-driven drug discovery - Fierce Healthcare). While Cambridge-1 used A100 GPUs, it laid the groundwork and **proved the value of GPU-accelerated drug AI**, likely paving the way for these companies to adopt H100s in the future. (As of 2025, we anticipate upgrades or new systems to bring Hopper/Blackwell GPUs to their research centers.)

- **Insilico Medicine (USA/Hong Kong):** A well-known AI-driven biotech startup, Insilico has leveraged NVIDIA GPUs via cloud services and NVIDIA's Inception program. Its generative chemistry platform (Chemistry42) and target discovery tools run on NVIDIA Tensor Core GPUs, though specific hardware details aren't publicly enumerated (Insilico Medicine Uses Generative AI to Accelerate Drug Discovery) (Insilico Medicine Identifies Therapeutic Targets for ALS With AI). Insilico is collaborating with NVIDIA to integrate generative models into drug discovery, and it reportedly used GPU-powered AI to design a novel anti-fibrosis drug that entered clinical trials in under 2.5 years – a process speed-up credited in part to NVIDIA technology (Insilico Medicine Taps Gen AI to Accelerate Drug Discovery). While Insilico hasn't announced owning an H100 SuperPOD outright, it is **clearly "all-in" on NVIDIA's AI ecosystem**, and would likely adopt H100/Blackwell via cloud or partnerships.

- **IQVIA (USA) and Illumina (USA):** Outside of pure pharma, even contract research organizations and genomics tech firms are adopting NVIDIA's latest AI hardware. **IQVIA**, a leading CRO, is using NVIDIA's AI Foundry (which presumably runs on high-end GPUs) to train custom AI models on its 64 petabyte real-world data repository (NVIDIA Partners With Industry Leaders to Advance Genomics, Drug Discovery and Healthcare - NVIDIA Newsroom). **Illumina**, a genomics sequencing leader, is partnering with NVIDIA to accelerate its software with GPUs, making genomic analysis (e.g. DNA sequencing data processing with DRAGEN) faster for pharma and biotech clients (NVIDIA Partners With Industry Leaders to Advance Genomics, Drug Discovery and Healthcare - NVIDIA Newsroom) (NVIDIA Partners With Industry Leaders to Advance Genomics, Drug Discovery and Healthcare - NVIDIA Newsroom). These moves show that not just drug developers, but also the **supporting ecosystem (CROs, data providers)** are investing in GPU acceleration to serve the pharma AI boom.

Looking ahead, **NVIDIA's upcoming Blackwell GPUs** are poised to further boost AI in life sciences. Blackwell-based systems (branded as B100 or GB100 series) were unveiled in 2024 with claims of **25× lower energy usage and cost for training large AI models** (Nvidia unveils next-gen Blackwell GPUs with 25X lower costs and energy consumption - VentureBeat). This next-gen platform – featuring Grace-Blackwell superchips (combining CPU and GPU) – is specifically targeting **trillion-parameter models and advanced simulations** relevant to drug design, genomics, and other scientific computing (Nvidia unveils next-gen Blackwell GPUs with 25X lower costs and energy consumption - VentureBeat). We are already seeing immense demand: NVIDIA's CEO Jensen Huang noted that many industry players (across tech and likely pharma too) are lining up for Blackwell GPUs as they become available (Nvidia's Blackwell GPUs See Unwavering Demand as AI ...) (Nvidia expected to produce 450000 Blackwell AI GPUs in Q4). For example, **Meta (Facebook)** and others have ordered tens of thousands of Blackwell GPUs for their AI factories (Nvidia expected to produce 450000 Blackwell AI GPUs in Q4). In pharma, large companies with established AI programs – the Pfizer, Roche, Novartis of the world – will likely upgrade to Blackwell architecture to stay at the cutting edge. In fact, reports suggest NVIDIA plans to produce hundreds of thousands of Blackwell chips to meet global demand in 2025 (Nvidia expected to produce 450000 Blackwell AI GPUs in Q4).

In summary, the **pharma/biotech sector worldwide is "getting serious" about AI**, evidenced by substantial investments in NVIDIA's top-tier GPUs. From startup biotechs like Recursion building record-breaking supercomputers, to biopharma leaders like Amgen and BioNTech standing up their own AI clusters, and consortium efforts in Japan and Europe – the trend is clear. These organizations are not just dabbling; they are **establishing AI as a core competency** and backing it with the necessary infrastructure. The table below compiles some of the key players and initiatives, along with their known NVIDIA GPU deployments and AI use cases, as documented by publicly available sources.

Pharma/Biotech Companies Using NVIDIA H100/Blackwell GPUs

Company	Country	Type	NVIDIA GPU Used	AI Use Case(s)	Source / Evidence
Recursion Pharmaceuticals	USA	Biotech (TechBio)	**H100** (504 GPUs via DGX SuperPOD)	AI-driven drug discovery; training vision **foundation models** on cellular images; massive virtual screening of chemical libraries	(Drug Discovery, STAT! NVIDIA, Recursion Speed Pharma R&D With AI Supercomputer - NVIDIA Blog) (Drug Discovery, STAT! NVIDIA, Recursion Speed Pharma R&D With AI Supercomputer - NVIDIA Blog) (504× H100 supercomputer for drug discovery)
Amgen (deCODE Genetics)	USA (Iceland site)	Biotech/Pharma	**H100** (31× DGX H100 nodes = 248 GPUs)	**Generative AI** on one of the world's largest human genomic datasets; creating a "human diversity atlas" for target discovery and **precision**	(NVIDIA to Collaborate with Amgen at JP Morgan Healthcare - European Pharmaceutical Manufacturer) (SuperPOD with 248×

Company	Country	Type	NVIDIA GPU Used	AI Use Case(s)	Source / Evidence
				medicine models	H100 for drug discovery AI)
BioNTech (with InstaDeep)	Germany	Biotech/Pharma	**H100** (224 GPUs in "Kyber" cluster)	Scaling AI for immunotherapy and drug design; e.g. training novel generative models (Bayesian Flow Networks) for **protein and molecule generation**; large-scale multi-omics analytics	(AI Day 2024: InstaDeep Showcases Innovations in Biology and AI as Part of the BioNTech Innovation Series - InstaDeep - Decision-Making AI For The Enterprise) (Kyber cluster with 224× H100 for BioNTech's AI research)
Astellas Pharma (via Tokyo-1)	Japan	Pharma	**H100** (DGX SuperPOD nodes on Tokyo-1)	Accelerating R&D with HPC-as-a-service; **molecular dynamics simulations**, **large language models** and generative chemistry for drug discovery (on shared H100 supercomputer)	(Expanding Computer-Aided Drug Discovery With New AI Models - NVIDIA Blog) (Astellas using Tokyo-1 H100 AI supercomputer for drug discovery)
AstraZeneca (Cambridge-1)	UK	Pharma	*A100 (for context)*	Transformer-based generative models for chemistry (MegaMolBART);	(Nvidia collaborates with AstraZeneca, University of Florida on AI-

Company	Country	Type	NVIDIA GPU Used	AI Use Case(s)	Source / Evidence
				early adopter of AI supercomputing in drug discovery (Cambridge-1 was UK's most powerful supercomputer in 2021)	driven drug discovery - Fierce Healthcare) (Nvidia collaborates with AstraZeneca, University of Florida on AI-driven drug discovery - Fierce Healthcare) (Collaboration with NVIDIA using DGX SuperPOD on Cambridge-1 for drug discovery)
Novo Nordisk Foundation (Danish Center for AI)	Denmark	Non-profit/Research (Life Sci)	**H100** (1,528 GPUs in *"Gefion"* supercomputer)	National AI supercomputer for **biotech, genomics, and healthcare** research; aims to tackle drug discovery, precision medicine, and other scientific challenges with AI at exascale	(Denmark Launches Leading Sovereign AI Supercomputer to Solve Scientific Challenges With Social Impact - NVIDIA Blog) (Denmark Launches Leading Sovereign AI Supercomputer to Solve Scientific Challenges With Social

Company	Country	Type	NVIDIA GPU Used	AI Use Case(s)	Source / Evidence
					Impact - NVIDIA Blog) (Gefion SuperPOD with 1,528× H100 for Denmark's AI biotech initiatives)

(Table notes: AstraZeneca's entry is included as a historical example of pharma AI investment using the prior-gen A100 GPUs; most others are using H100. Novo Nordisk Foundation's Gefion is a broad initiative, not a single company's asset, but it underscores large-scale adoption in life sciences. All other listed companies are confirmed to be using NVIDIA H100 GPUs. No public instances of Blackwell GPU usage in pharma have been announced as of early 2025, but many are expected to upgrade to Blackwell as it becomes available.)

Conclusion

The rapid adoption of **NVIDIA's cutting-edge GPUs (H100 and soon Blackwell)** by pharmaceutical and biotech companies illustrates a paradigm shift in the industry. Drug discovery and development – once the realm of slow, trial-and-error experiments – is being transformed into a **compute-intensive, AI-driven process**. Companies that invest in powerful AI infrastructure can iterate faster on ideas, sift through vast chemical and biological spaces, and potentially bring therapies to patients more efficiently. Whether it's a nimble startup building the world's fastest pharma supercomputer, or an established pharma giant partnering to stand up a national AI center, these efforts all point to an **AI arms race in life sciences**.

Importantly, these are not theoretical experiments; they are backed by concrete evidence of GPU purchases, deployments, and projects delivering early results. **Generative AI models are churning out drug leads, AI vision models are deciphering cell images, and language models are reading biomedical literature at scale** – all enabled by the computational heft of modern GPUs. As NVIDIA continues to advance its GPU architecture (with Blackwell and beyond), we can expect even more ambitious AI projects in pharma. The endgame is compelling: a future where **"AI factories" for drug discovery** run within pharma companies, continuously designing and testing virtual drugs, much like automated fabs. The companies highlighted here have positioned themselves at the forefront of this revolution, and their work is likely to shape how quickly AI delivers new medicines and health breakthroughs to society.

In summary, **pharma and biotech firms serious about AI are investing heavily in NVIDIA GPU technology**. They are coupling these hardware investments with talent and data to create a new kind of R&D engine – one where **computing power and scientific insight go hand in hand**. The early adopters have set a high bar, demonstrating that with the right supercomputing resources, tasks once deemed intractable (like searching a chemical universe of billions of molecules) become feasible (Drug Discovery, STAT! NVIDIA, Recursion Speed Pharma R&D With AI Supercomputer - NVIDIA Blog). This is an exciting time at the intersection of computing and biology, and it's likely that the coming years will see even more pharma companies join the fray, ensuring they have the **GPUs and AI models needed to compete in the next era of drug discovery**.

DISCLAIMER

The information contained in this document is provided for educational and informational purposes only. We make no representations or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability, or availability of the information contained herein.

Any reliance you place on such information is strictly at your own risk. In no event will IntuitionLabs.ai or its representatives be liable for any loss or damage including without limitation, indirect or consequential loss or damage, or any loss or damage whatsoever arising from the use of information presented in this document.

This document may contain content generated with the assistance of artificial intelligence technologies. Despite our quality control measures, AI-generated content may contain errors, omissions, or inaccuracies. Readers are advised to independently verify any critical information before acting upon it.

All product names, logos, brands, trademarks, and registered trademarks mentioned in this document are the property of their respective owners. All company, product, and service names used in this document are for identification purposes only. Use of these names, logos, trademarks, and brands does not imply endorsement by the respective trademark holders.

IntuitionLabs.ai is an innovative AI consulting firm specializing in software, CRM, and Veeva solutions for the pharmaceutical industry. Founded in 2023 by Adrien Laurent and based in San Jose, California, we leverage artificial intelligence to enhance business processes and strategic decision-making for our clients.

This document does not constitute professional or legal advice. For specific guidance related to your business needs, please consult with appropriate qualified professionals.