OncoLaB : Pioneering the ANGel platform for next-generation cancer therapy

OncoLab is an innovative biotech venture (founded May 2024) developing **ANGel**, a groundbreaking Antibody-conjugated NanoGel platform for cancer drug delivery. ANGel is a *modular, scalable* therapeutic platform uniquely designed to load and deliver a wide range of anti-cancer agents with high precision. Focused on **immuno-oncology** and hard-to-treat cancers like **triple-negative breast cancer (TNBC)**, OncoLab aims to revolutionize cancer treatment by improving drug targeting, efficacy, and safety. With seed funding and recognition as a Deep Tech TIPS company in 2024, OncoLab is poised for global partnerships and growth.

ANGel Platform: Original & Scalable Drug Delivery

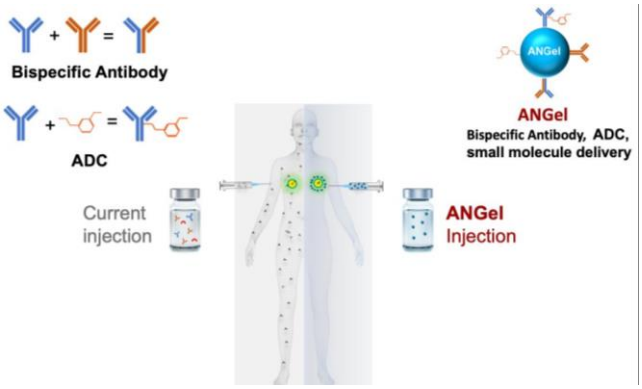
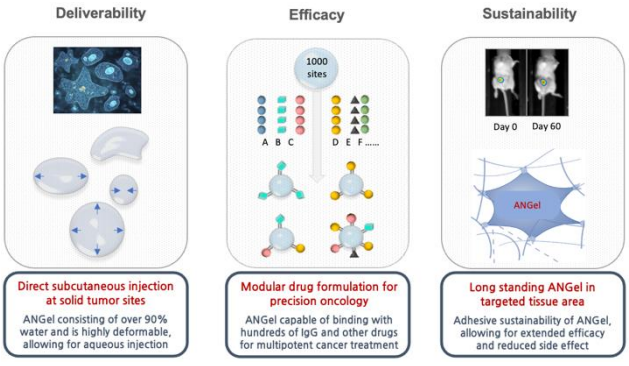


Illustration: **ANGel vs. conventional ADC delivery.** ANGel's nanoparticle hydrogel is injected directly at the tumor site (right, green target), concentrating therapy in the cancer tissue, whereas traditional antibody-drug conjugates (left, ADC, etc.) circulate systemically via IV infusion. This localized delivery increases drug impact on the tumor while sparing healthy cells from toxicity.

ANGel (Antibody-conjugated NanoGel) is a next-generation **drug loading and delivery platform** engineered for superior cancer therapy. Unlike existing delivery systems that meet only some requirements for efficacy or safety, ANGel was designed to excel in **three key areas** – **deliverability, efficacy, and sustainability**. Its **hydrogel nanoparticle** structure (over 90% water content) gives it remarkable flexibility and capacity, enabling **direct subcutaneous injection** into solid tumors. By releasing treatment **locally** at the tumor, ANGel selectively targets cancer cells and minimizes side effects on normal tissue. This novel approach overcomes the limitations of systemic chemotherapy and conventional immunotherapies, representing a **new paradigm** for treating aggressive cancers.



Key Advantages of the ANGel Platform:

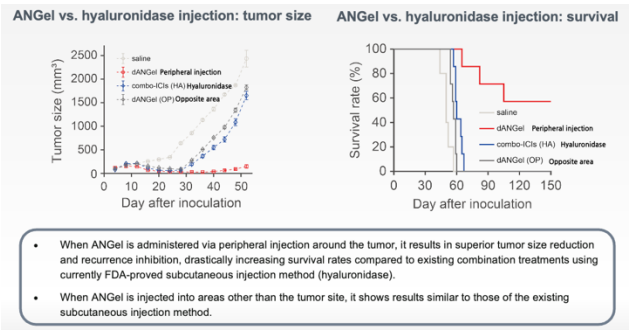
*** High Loading & Personalization:** Each ANGel can be conjugated with **>1,000 antibody molecules** on a single particle, allowing multiple anti-cancer agents to be loaded simultaneously . This **modular capacity** means therapies (e.g. dual checkpoint inhibitors like anti-PD-L1 + anti-CTLA4) can be tailored to a patient's tumor profile, creating truly **personalized immunotherapy**.

*** Targeted Delivery with Low Toxicity:** ANGel's **localized delivery** to the tumor site ensures concentrated action on cancer cells while sparing healthy organs. This **selective targeting** dramatically reduces systemic toxicity and side effects, addressing a major gap in current cancer treatments.

*** Sustained Therapeutic Effect:** The nanogel's strong adhesion within tissue allows it to **remain at the injection site**, releasing drugs over an extended period. This translates to a **prolonged immune attack** on the tumor, helping prevent recurrence with fewer doses. ANGel effectively turns the tumor microenvironment into a sustained treatment depot.

*** Broad Scalability:** The ANGel platform is highly **versatile** and scalable to different diseases. It can incorporate various therapeutic modalities (antibodies, cytokines, small drugs, etc.) and is being applied first to TNBC and **solid tumors**, with potential expansion to other cancers, immune disorders, and inflammatory diseases . This broad applicability makes ANGel a pipeline *platform* rather than a single drug, multiplying its value.

*** Cost-Effective & Faster Development:** By delivering existing immuno-agents more effectively, ANGel can shorten development timelines and lower R&D costs compared to de novo drug discovery. Manufacturing is less complex than traditional ADCs (no cytotoxic payload handling), and **patent-expired immunotherapies** can be repurposed via ANGel delivery. Overall, ANGel promises a *lower-risk, high-return* development model for investors.



Notably, the ANGel technology has already demonstrated **preclinical success**. In 2024, OncoLab published a study in *Advanced Healthcare Materials* showcasing a nanogel conjugated with **two immune checkpoint inhibitors** for enhanced cancer immunotherapy. These results validate ANGel's potential to boost immuno-oncology outcomes by synergistically delivering combination therapies in one platform.

Market Need & Opportunity – Why ANGel, Why Now?

The **market opportunity** for ANGel is immense and timely. Cancer immunotherapy is a rapidly growing field, yet current treatments face critical gaps that ANGel can fill:

*** Unmet Need in TNBC:** TNBC comprises ~15% of breast cancers and lacks hormone or HER2 targets, making treatment challenging. Standard chemo and recently approved immunotherapies have limited success, and relapse rates remain high. ANGel's targeted, multi-agent approach is ideally suited to **hard-to-treat tumors** like TNBC, where more potent and localized immunotherapy could significantly improve outcomes.

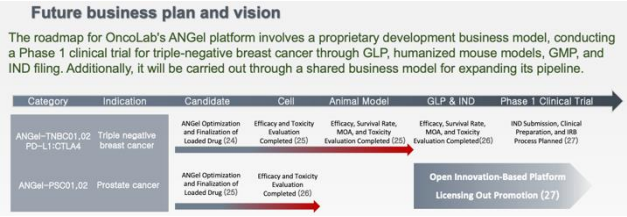
*** Limitations of Current Immuno-Oncology:** Checkpoint inhibitors and CAR-Ts have revolutionized cancer care, but many patients still do not respond or suffer severe systemic side effects. **Deliverability** is an issue – drugs given intravenously spread throughout the body, diluting their effect at the tumor and causing off-target toxicity. ANGel directly addresses this by **focusing therapy at the tumor** (increasing local efficacy) and **reducing systemic exposure**. It effectively enhances existing immuno-oncology agents' performance, potentially converting non-responders into responders by overcoming tumor immune evasion .

* **Right Time – Patent Cliffs & Demand for Innovation:** Starting in 2025, many first-generation immuno-oncology drugs face patent expirations . Pharma companies are actively seeking next-generation platforms to extend their oncology portfolios. ANGel arrives *at the perfect time* to offer a fresh solution – a **globally competitive, innovative technology** that can be licensed or partnered to refresh pipelines. Its ability to revive older drugs with new delivery (and to enable novel combo therapies) is highly attractive in the post-patent era.

* **Growing Market & Investor Interest:** The market for therapies targeting **refractory cancers** is expanding rapidly, with immunotherapies leading the charge. ANGel's promise of **groundbreaking treatment solutions** in this growing market underpins a high market potential. The platform has already garnered attention from global pharma and biotech circles due to its unique approach. OncoLab plans to engage in technology **transfer deals, collaborations, and co-development** opportunities worldwide – creating multiple value streams (licensing, co-development, royalty income). For venture investors and partners, ANGel represents a timely convergence of scientific innovation and market need.

Development Roadmap and Milestones

OncoLab has a clear roadmap to bring the ANGel platform to patients, with aggressive but achievable milestones over the next 2–3 years:



* **2024 – Company Founded:** *OncoLab Co., Ltd.* was established in May 2024 by CEO Jongseong Kim. Early achievements include securing ~$2M in seed funding/grants (including Deep Tech TIPS) and assembling a seasoned scientific advisory board. Initial R&D focused on optimizing the ANGel and demonstrating proof-of-concept in TNBC models.

* **2025 – Preclinical Studies (GLP):** In 2025, OncoLab is executing **GLP-standard preclinical studies** for its lead ANGel-TNBC candidate. Efficacy and toxicity evaluations in cell and animal models are ongoing, with **promising results already achieved** (e.g. significant tumor suppression with minimal side effects). This year will also see scale-up manufacturing development and preparation for regulatory filing. Importantly, OncoLab has partnered with specialized CROs and **GMP/GLP organizations** domestically and abroad to ensure quality and compliance.

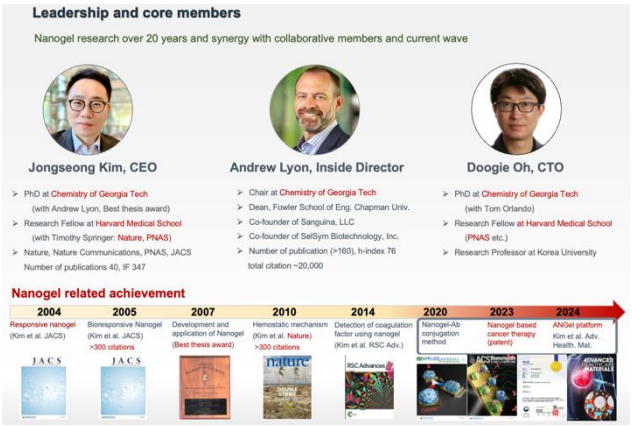
* **2026 – IND Submission:** By 2026, OncoLab plans to submit an **Investigational New Drug (IND)** application (or equivalent regulatory filing) for the ANGel-based therapy. This IND will likely cover a first-in-class **combination immunotherapy** for TNBC delivered via the ANGel device. The company's goal is to receive approval to initiate human trials in late 2026. Concurrently, discussions for **strategic partnerships or licensing** are expected to intensify once IND is cleared, leveraging ANGel's non-exclusive platform model.

* **2027 – First-in-Human Trial (Phase I):** OncoLab is targeting the start of **Phase I clinical trials** in 2027 for its ANGel-TNBC therapy (regulated as a novel drug-device combination). This *"medical device Phase 1"* trial will evaluate safety, tolerability, and preliminary efficacy in cancer patients. By Q4 2027, the company aims to have initial human data validating ANGel's performance. Positive Phase I results would not only de-risk the platform but also pave the way for **wider oncology applications** (e.g. ANGel in other solid tumors or delivering different immunotherapies). OncoLab's roadmap emphasizes speed: by leveraging the ANGel platform, the company expects **faster clinical translation** compared to traditional drug development, achieving value-creating milestones on an accelerated timeline.

*(Beyond 2027, OncoLab envisions expanding clinical programs to Phase II trials in broader patient populations and initiating new pipeline projects (e.g. prostate cancer ANGel therapy by 2028). The ultimate goal is to establish ANGel as a versatile platform adopted through **open-innovation partnerships**, delivering both medical impact and business growth.)*

Leadership & Team – Driving Innovation

CEO Dr. Jongseong Kim leads OncoLab with a rare blend of scientific ingenuity and entrepreneurial experience. Dr. Kim is the **inventor and technical lead** behind the ANGel platform, drawing on **20+ years of nanogel research** in drug delivery. He earned his Ph.D. in Chemistry at **Georgia Institute of Technology** (winning the institute's Best Doctoral Dissertation Award) and conducted postdoctoral research at **Harvard Medical School's Springer Lab**, where he published extensively in top journals like *Nature* and *PNAS* . This U.S. biotech experience not only honed his expertise in immunotherapy and nanotechnology, but also built a strong **global network** of collaborators.



Before founding OncoLab, Dr. Kim successfully **commercialized a thrombin-factor diagnostic technology**, demonstrating his ability to translate science into marketable products. Under his leadership, OncoLab's team of skilled scientists and industry professionals is committed to rapidly advancing ANGel. The company has also engaged world-class advisors (including collaborators from Harvard and other leading institutes) and forged partnerships for clinical and regulatory development. This experienced management and support network gives OncoLab a strategic edge in bringing its innovations to the global stage.

OncoLab's Value Proposition: *A first-of-its-kind drug delivery platform that makes cancer treatment more targeted, effective, and patient-friendly.* With ANGel's **original design and scalable potential**, OncoLab offers pharma companies and investors a compelling opportunity – to be part of the **next wave of cancer therapy innovation** that can address unmet patient needs and create substantial commercial value. As the oncology field enters a new era of post-patent immunotherapies and precision medicine, OncoLab stands ready to collaborate and lead with its ANGel platform.