PharmAbcine, Inc
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PharmAbcine
Antibody Therapeutics for Life

# PharmAbcine: building a pipeline of oncology antibody therapeutics

**Clinical-stage biotech company PharmAbcine is advancing its lead antibody candidate olinvacimab through the clinic, alone and in combination, while developing a portfolio of clinical candidates that target key molecules implicated in oncology, angiogenesis and immune surveillance.**

Republic of Korea-based PharmAbcine has spent the past decade building a pipeline of clinical and preclinical candidates with clear mechanisms of action underpinned by solid scientific evidence. Initial investment from groups such as Orbimed and Novartis Venture Fund enabled PharmAbcine to grow into a KOSDAQ-listed company with a solid immuno-oncology pipeline.

Having successfully established core technology platforms and a solid pipeline with a clear trajectory, PharmAbcine is entering a key period in its history. Based upon the success of developing olinvacimab and a broad range of conventional and bispecific antibodies, the clinical-stage biotech is poised to achieve a series of milestones and further accelerate its growth in the coming years.

## A broad antibody pipeline

PharmAbcine's pipeline is spearheaded by olinvacimab, an antibody targeting vascular endothelial growth factor receptor 2 (VEGFR-2; also known as KDR). The VEGF/VEGFR-2 pathways are central to angiogenesis, the process through which blood vessels that support the growth of colon, lung, breast and renal tumors are formed. Approved drugs including Avastin and Sutent target these pathways.

Data from a phase 2a clinical trial in recurrent glioblastoma (rGBM) showed olinvacimab is safer than current approved and experimental antiangiogenic drugs. Patients treated with olinvacimab did not show typical adverse effects associated with antiangiogenic drugs such as high rates of hypertension, hemorrhage and gastric perforation. The trial also uncovered encouraging signs of efficacy, including the shrinkage of tumors and a significant reduction in brain edema.

Based on the promising safety and efficacy data, PharmAbcine is conducting phase 1b combination trials with olinvacimab and pembrolizumab to treat rGBM and triple-negative breast cancer (TNBC) and will further investigate the safety of this combination.

Besides olinvacimab, PharmAbcine is developing other preclinical candidates (**Fig. 1**).

PMC-402 mimics the function of angiopoietin and acts as an active vessel stabilizer. As stabilized vessels are less leaky than typical tumor blood vessels, the microenvironment around the cancer becomes more favorable allowing immune cells and cytotoxic small molecules to reach the target tissues. Thus, PMC-402 could improve the delivery of the therapeutic agents and increase the efficacy and safety of treatment.

PMC-402 is advancing in parallel with PMC-309, a first-in-class anti-V-type immunoglobulin domain-containing suppressor of T cell activation (VISTA) antibody. VISTA suppresses T cell activation, rendering immuno-oncology drugs less effective. PMC-309 unlocks T cell activation and enables T cells unleashed by checkpoint inhibitors to attack tumor cells. In mice, PharmAbcine demonstrated that PMC-309 and anti-programmed cell death 1 antibodies work synergistically.

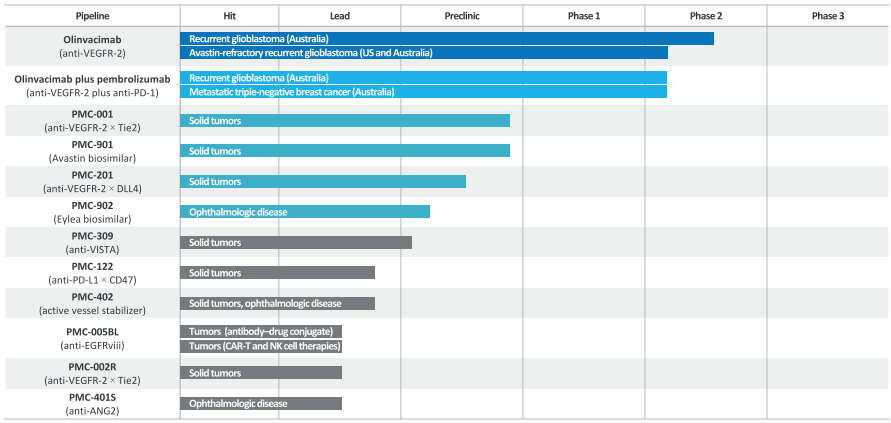


**Fig. 1 | PharmAbcine's current clinical pipeline.** ANG2, angiopoietin 2; DLL4, Delta-like ligand 4; EGFRviii, epidermal growth factor receptor variant iii; PD-1, programmed cell death 1; PD-L1, programmed cell death 1 ligand 1; VEGFR-2, vascular endothelial growth factor receptor 2; VISTA, V-type immunoglobulin domain-containing suppressor of T cell activation.

PharmAbcine is also developing another drug, PMC-122, a bispecific antibody that targets programmed cell death 1 ligand 1 and CD47, an inhibitor of cancer-killing immune cells. Combination therapies of CD47 drugs in conjunction with checkpoint inhibitors are being developed by multiple companies. Unlike many drugs targeting CD47, PMC-122 does not deplete red blood cells and is therefore predicted to be safer.

PharmAbcine is developing PMC-201, another bispecific molecule that targets VEGFR-2 and Delta-like ligand 4, and the epidermal growth factor receptor variant iii (EGFRviii)-targeting PMC-005BL. EGFRviii is a variant of EGFR that is expressed in some cancer cells, such as glioblastoma. PharmAbcine has developed a strategy to use this antibody in an antibody–drug conjugate or incorporated into chimeric antigen receptor T cell or natural killer cell therapies.

In addition to the cancer therapeutic portfolio summarized above, PharmAbcine is developing PMC-401S, which targets angiogenesis regulator angiopoietin 2 for the treatment of eye diseases such as diabetic retinopathy.

## Hitting milestones to drive growth

PharmAbcine is set to advance pipeline programs at multiple stages from preclinical to clinical development. This year, olinvacimab will be tested in patients with rGBM who have progressed following bevacizumab treatment. A phase 2 combination trial with pembrolizumab in rGBM and TNBC will also be conducted soon.

PMC-309 is on schedule to enter clinical trials by the end of 2021. PharmAbcine is conducting investigational new drug (IND)-enabling studies for PMC-402, setting the stage for clinical studies in the near future.

In summary, PharmAbcine's trajectory is to advance olinvacimab through the clinic while developing multiple clinical candidates that target key molecules implicated in angiogenesis and immune surveillance. PharmAbcine is dedicated to establishing life-saving drugs for patients with cancer as well as expanding its portfolio to other disease indications. By achieving these milestones, PharmAbcine will position itself to become a leading, successful research and development-based, clinical-stage drug developer.

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