BIOTECH®

Break Boundaries.
Ignite Change.

IO Biotech: Break Boundaries. Ignite Change.

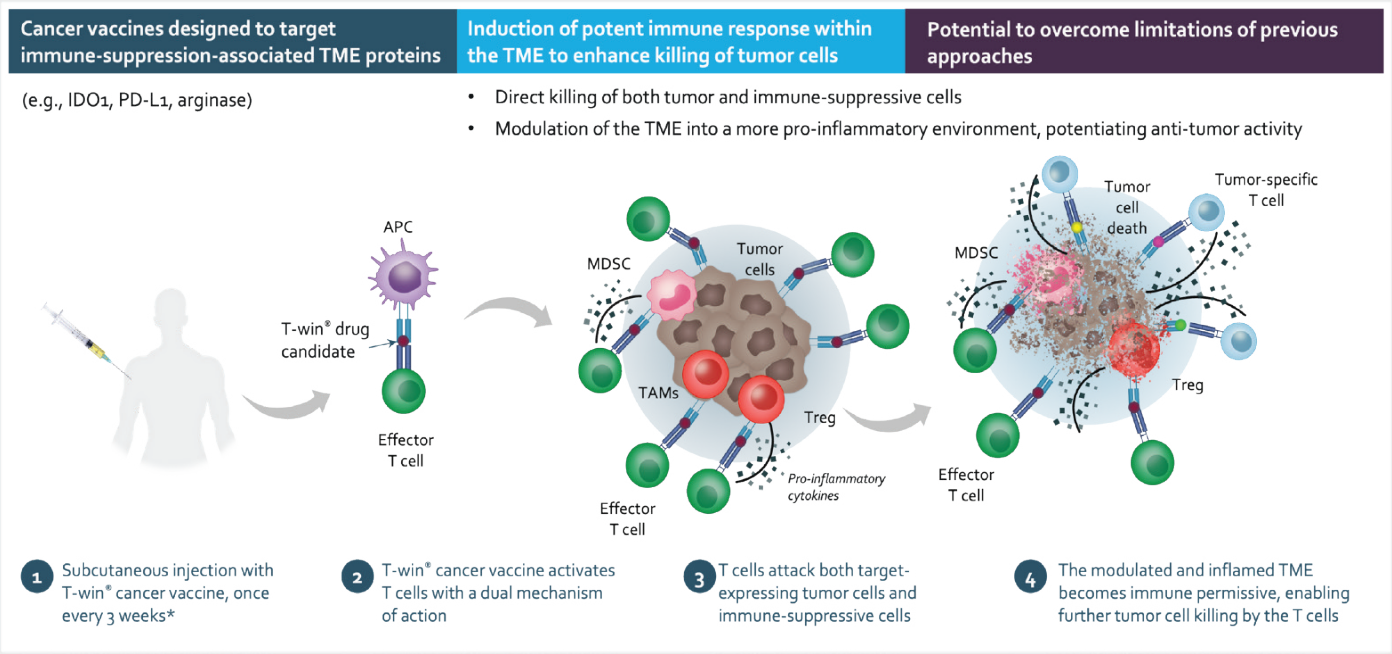
At IO Biotech, we are pioneering a new era of immune-modulatory, off-the-shelf therapeutic cancer vaccines with the potential to redefine the immuno-oncology (IO) treatment paradigm, amplifying treatment effects across the spectrum of melanoma and other tumor types.

Our goal is to improve patient outcomes in hard-to-treat cancers by achieving deep and durable efficacy without adding systemic toxicity.

T-win® platform

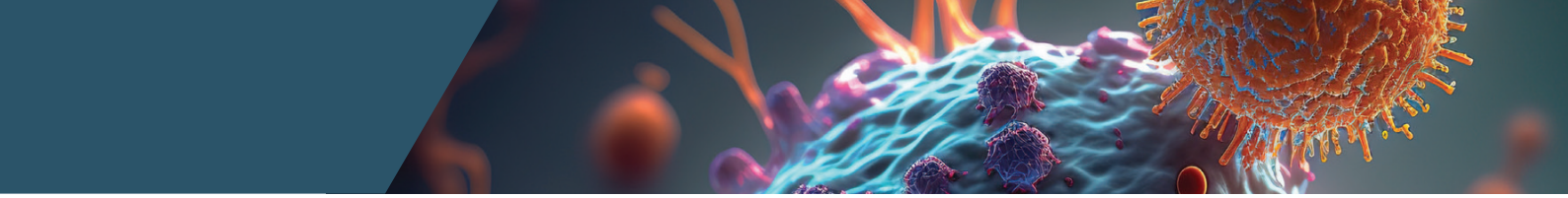
The T-win® platform provides a new therapeutic strategy with the potential to improve clinical outcomes for patients with cancer by targeting both tumor cells and immune-suppressive cells in the tumor microenvironment (TME). The TME is regulated by various cell types including tumor cells and a range of immune-suppressive cells such as tumor-associated macrophages (TAMs), myeloid-derived suppressor cells (MDSCs) and regulatory T cells (Tregs).[1] These cells express proteins such as indoleamine 2,3-dioxygenase 1 (IDO1), programmed cell death ligand 1 (PD-L1), arginase 1 and transforming growth factor beta (TGFβ), which contribute to establishment and maintenance of immune suppression.[2,3]

Naturally-occurring cytotoxic T cells against these proteins are found in the blood of cancer patients.[2–11] Therefore, targeting of tumoral immune escape mechanisms by a vaccination approach to augment these T cells offers a generalizable and innovative approach to treat cancer.[12,13]



* An additional loading dose is administered on Day 8 of Cycles 1 and 2.

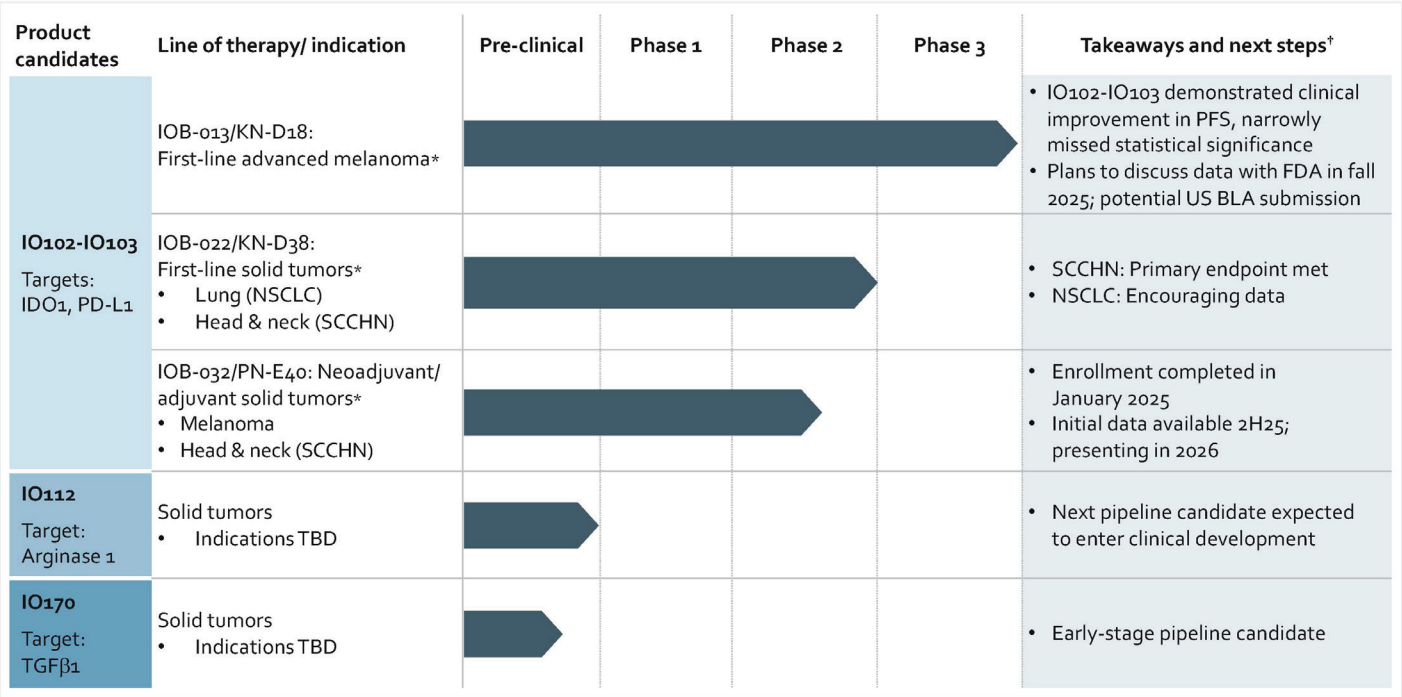
APC, antigen-presenting cell; IDO1, indoleamine 2,3-dioxygenase 1; MDSC, myeloid-derived suppressor cell; PD-L1, programmed cell death ligand 1; TAM, tumor-associated macrophage; TME, tumor microenvironment; Treg, regulatory T cell.



T-win® immune-modulatory therapeutic cancer vaccines are designed to be an off-the-shelf treatment, engaging critical antigens expressed by both tumor cells and immune-suppressive cells across different tumor types. Therefore, they have the potential to be effective across a broad range of tumor types and settings. This avoids the need for personalization and therefore provides immediate access to treatment.[12,13]

Pipeline and clinical trials

The T-win® platform with three product candidates in multiple cancer indications



*** In combination with pembrolizumab; † Milestones include forward-looking statements regarding future events that are based on current assumptions and expectations; actual outcomes may differ materially due to various risks and uncertainties.**
BLA, Biologics License Application; FDA, Food and Drug Administration; IDO1, indoleamine 2,3-dioxygenase 1; NSCLC, non-small cell lung cancer; PD-L1, programmed cell death ligand 1; PFS, progression-free survival; SCCHN, squamous cell carcinoma of the head and neck; TBD, to be decided; TGFβ1, transforming growth factor beta 1.

IO102-IO103

Our lead product candidate, IO102-IO103, is an investigational, immune-modulatory, off-the-shelf therapeutic cancer vaccine designed to kill both tumor cells and immune-suppressive cells in the TME by stimulating activation and expansion of T cells against IDO1+ and PD-L1+ cells.

IDO1+ and PD-L1+ cells can comprise largely distinct cell populations within the TME. IO102-IO103 can therefore target two separate immune-resistant pathways, and the combination of IO102 and IO103 may lead to more enhanced anti-tumor activity compared to either vaccine alone.[14,15]

IO102-IO103's mechanism of action demonstrated proof-of-concept in combination with anti-programmed cell death protein 1 (anti-PD-1) antibody (nivolumab) as first-line therapy for metastatic melanoma in the MM1636 Phase 1/2 trial.[13,16]

Here, IO102-IO103 in combination with an anti-PD-1 antibody demonstrated clinically meaningful tumor regression and an established, durable anti-tumor response in patients with metastatic melanoma, regardless of unfavorable prognostic baseline characteristics.[16] There was no increase in the incidence of systemic adverse events when combining IO102-IO103 with anti-PD-1 therapy when compared with historical safety profile of anti-PD-1 alone.[13,16] Based on results from this trial, IO102-IO103 in combination with pembrolizumab, was granted Breakthrough Therapy Designation in 2020 by the FDA for the treatment of unresectable/metastatic melanoma.[17]

MM1636 trial data (N=30)[13,16]

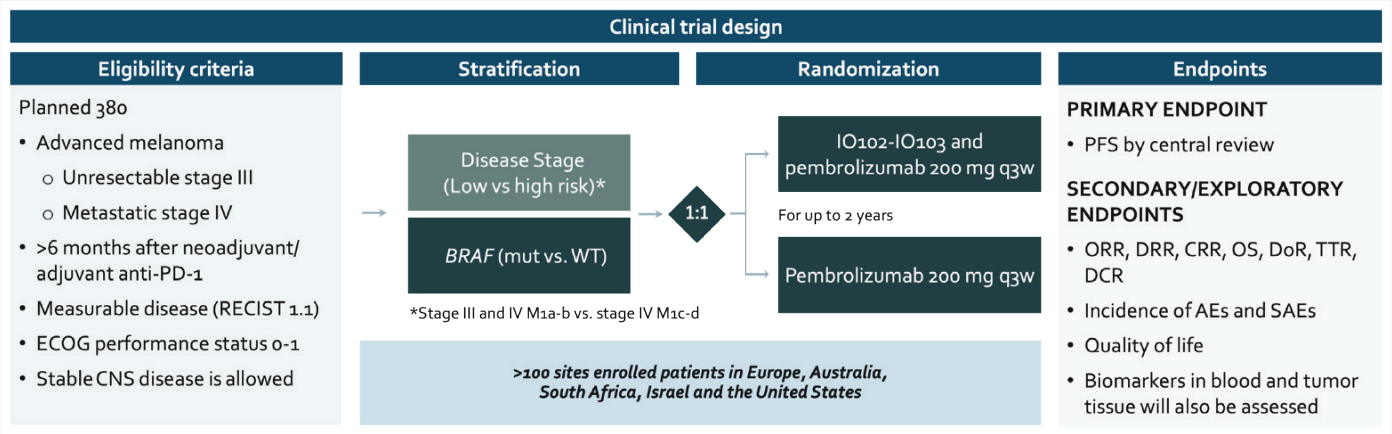
- ORR 80% (confirmed ORR 73.3% per RECIST 1.1) with CR 50%[16]
- mPFS 25.5 months[16]
- No increase in systemic toxicity versus anti-PD-1 monotherapy[13,16]

CR, complete response; mPFS, medium progression-free survival; ORR, objective response rate; PD-1, programmed cell death protein 1; RECIST, Response Evaluation Criteria in Solid Tumors.

Ongoing clinical trials

IOB-013/KN-D18: Pivotal Phase 3 trial

IOB-013/KN-D18 is a Phase 3 trial investigating the efficacy and safety of IO102-IO103 in combination with pembrolizumab versus pembrolizumab alone as first-line therapy in patients with advanced melanoma.[18]



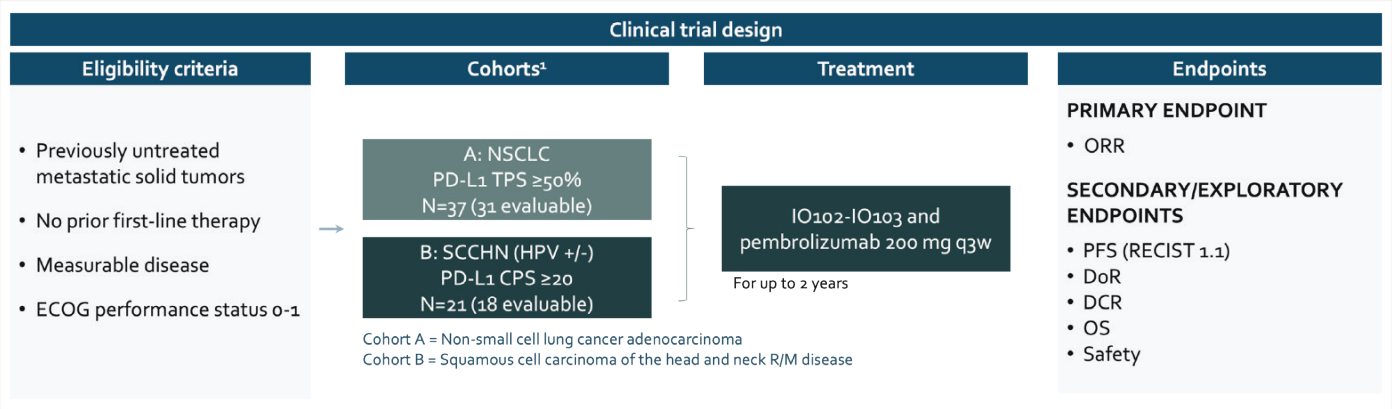
AE, adverse event; CNS, central nervous system; CRR, complete response rate; DCR, disease control rate; DoR, duration of response; DRR, durable response rate; ECOG, Eastern Cooperative Oncology Group; mut, mutation; ORR, objective response rate; OS, overall survival; PD-1, programmed cell death protein 1; PFS, progression-free survival; q3w, once every 3 weeks; RECIST, Response Evaluation Criteria in Solid Tumors; SAE, serious adverse event; TTR, time to response; WT, wild-type.

The trial is fully recruited with 407 patients.[19] An Independent Data Monitoring Committee (IDMC) review in August recommended the trial continue without modification and noted no new safety signals were observed.[20] The latest data from the primary endpoint readout will be presented at the European Society for Medical Oncology.*

*Milestones include forward-looking statements regarding future events that are based on current assumptions and expectations; actual outcomes may differ materially due to various risks and uncertainties.

IOB-022/KN-D38: Phase 2 basket trial in advanced solid tumors

IOB-022/KN-D38 is a Phase 2 basket trial investigating the safety and efficacy of IO102-IO103 in combination with pembrolizumab as first-line treatment in patients with metastatic non-small cell lung cancer (NSCLC) or unresectable/metastatic squamous cell carcinoma of the head and neck (SCCHN).[21]



CPS, combined positive score; DCR, disease control rate; DoR, duration of response; ECOG, Eastern Cooperative Oncology Group; HPV, human papillomavirus; NSCLC, non-small cell lung cancer; ORR, objective response rate; OS, overall survival; PD-L1, programmed cell death ligand 1; PFS, progression-free survival; q3w, once every 3 weeks; RECIST, Response Evaluation Criteria in Solid Tumors; R/M, recurrent/metastatic; SCCHN, squamous cell carcinoma of the head and neck; TPS, tumor proportion score.

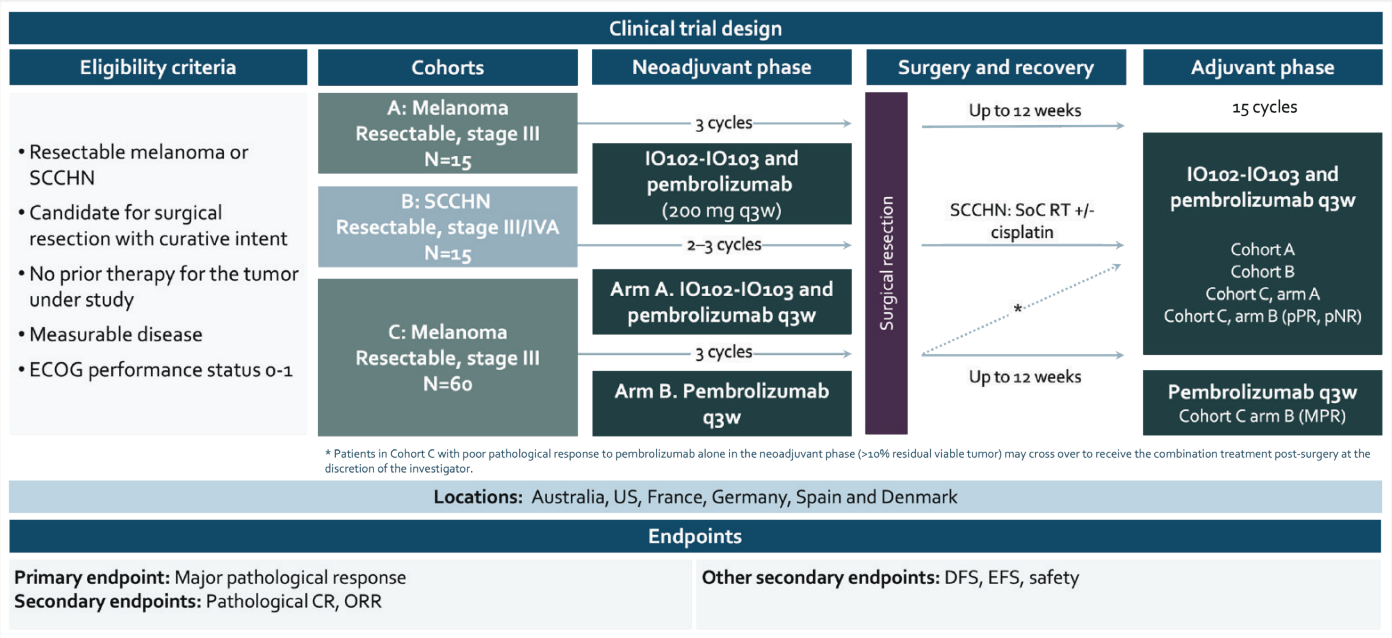
The SCCHN cohort met its primary endpoint of objective response rate (ORR), and encouraging median PFS (mPFS) was observed in both the SCCHN and NSCLC cohorts.[22,23] There was no increase in the incidence of systemic adverse events when combining IO102-IO103 with anti-PD-1 therapy.[22,23] Longer-term data will be presented at the European Society for Medical Oncology.*

SCCHN data presented at the European Society for Medical Oncology 2024:[22]	NSCLC data presented at the Society for Immunotherapy of Cancer 2024:[23]
ORR 44.4%	ORR 48%
mPFS 6.6 months	mPFS 8.1 months
No unexpected safety signals	No unexpected safety signals

*Milestones include forward-looking statements regarding future events that are based on current assumptions and expectations; actual outcomes may differ materially due to various risks and uncertainties.

IOB-032/PN-E40: Phase 2 basket trial in neoadjuvant/adjuvant settings

IOB-032/PN-E40 is a Phase 2 basket trial investigating the safety and efficacy of IO102-IO103 in combination with pembrolizumab as neoadjuvant/adjuvant treatment of patients with resectable melanoma or SCCHN.[24]



CR, complete response; DFS, disease-free survival; ECOG, Eastern Cooperative Oncology Group; EFS, event-free survival; MPR, major pathologic response; NR, no response; ORR, objective response rate; p, pathological; PR, partial response; q3w, once every 3 weeks; RT, radiotherapy; SCCHN, squamous cell carcinoma of the head and neck; SoC, standard of care.

The trial completed enrollment ahead of schedule and preliminary data are expected in the second half of 2025.[19]*

IO112

IO112 is an investigational, immune-modulatory, off-the-shelf therapeutic cancer vaccine candidate from IO Biotech's T-win® platform that targets both arginase 1+ (Arg1+) tumor cells and immune-suppressive cells by activating and expanding T cells specific for Arg1. IO112 presents a unique immunomodulatory approach, whereby Arg1+ immune-suppressive TAMs are targeted via vaccination to boost T cell immunity.[9,25] Pre-clinical data demonstrate that the T cells induced by IO112 directly reprogram TAMs, skewing the balance from an immune-suppressive to a pro-inflammatory TME, leading to effective anti-tumor responses.[9,25] The data strongly support IO Biotech's plans to submit an Investigational New Drug Application (IND) for IO112 to the FDA in 2026, presenting an alternative approach to other strategies to treat a wide range of cancer indications.[9,19,25]

IO170

IO170 is an investigational, immune-modulatory, off-the-shelf therapeutic cancer vaccine against TGFβ-expressing cells based on IO Biotech's T-win® platform. It is currently in pre-clinical development and showing promising in vivo results: the vaccination led to significant tumor growth inhibition in pancreatic ductal adenocarcinoma, prostate cancer and triple-negative breast cancer (4T1) models, coupled with immune responses and changes in the local TME.[26,27] The treatment did not cause overt off-target effects.[26]

* Milestones include forward-looking statements regarding future events that are based on current assumptions and expectations; actual outcomes may differ materially due to various risks and uncertainties.

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IO Biotech has been recognized as one of Fast Company's 10 Most Innovative Biotech Companies for 2025