

# Immunotherapy in Oncology

Startup Identification – June 2020

*What are the startups that have emerged in Onco-Immunotherapy?  
What are they working on? Who are the key people in these companies?*

## REPORT OUTLINE

- Immunotherapy in Oncology
- Startup Identification Report
- June 2020
- Ref.: KM20004
- PDF: 280+ slides
- € 1,990 for a multi-user license



## REPORT'S KEY FEATURES:

- **Identification & mapping of the startups** that recently started to work in the field of Onco-Immunotherapy.
- **Segmentation by technology.**
- **Description** of the startups and their pipeline, funding rounds and subsidies.
- Presentation of **all their published patent families.**
- Description of **key people** and their background.

## This report will help you:

- Identify new business opportunities.
- Identify new competitors-to-be.
- Understand the evolution of key trends in IP and technology development.

## RELATED REPORTS

- [CTC: isolation & detection – Patent Landscape Analysis](#)
- [Microfluidics Startup Identification](#)
- [Other related reports](#)

## Over 110 startups working in the field of Onco-Immunotherapy were identified

Cancer Immunotherapy is a very dynamic technological field and the global market is expected to grow and reach US\$ 126.9 billion by 2026, with a CAGR of 9.6% from 2019 to 2026 (Grand View Research). With an increasing number of people with cancer (17 million of new cases of cancer worldwide) and the need of new treatments, the immunotherapy domain sees the arrival of numerous startups every year. In this highly diverse and rapidly changing ecosystem, it is crucial to identify new players and monitor their activities to determine opportunities, threats, potential partnerships and collaborations. Because of their small size and technological diversity, these young companies are hard to identify by conventional approaches (web searches, workshops etc.). In this report, Knowmade has therefore investigated Onco-Immunotherapy-related patents in order to identify startups through their patent filings. **More than 110 startups incorporated between 2010 and 2019 were thus identified**, and for over 50 of them, the report describes their main activity, products, patents, and key people among their staff. This study reveals that Cell Adoptive Transfer (e.g. CAR-T cell) is by far the market explored the most by startups working in the field of immunotherapy in oncology. Immune checkpoint inhibitor/modulator, bispecific antibody and vaccine are also markets of interest for some startups identified.

### Why use patents to identify startups?



Startup identification



Technology assessment



Company's key people

**Detecting hidden companies** – Looking at patent documents makes it possible to identify companies that do not communicate much or even at all. It is a good way to detect companies that could not be found using more conventional methods (e.g. trade fairs, conferences, web searches, etc.).

**Assessing the technology** – Technology is one of the keys to a startup's success and being able to understand and assess it is highly valuable. The specification of a patent document includes a lot of technical information that can be used to determine the advantages brought by new inventions. The patent claims can also be used to determine the protection the applicant is asking for, and therefore where its interest resides.

**Identifying the key people** – The success of a startup is strongly linked to the team that composes it. It is therefore important to know the founders and inventors to assess the odds of its success. Patents enable the identification of inventors inside the companies. These inventors are technical experts who have laid the foundation of the technology the startup is developing. Describing the background of key people can help in understanding the startup project, and their history can reveal the extent of the know-how they have accumulated.

## Startup Identification

Startups have been identified by screening the patent documents published in 2019/2020 claiming Immunotherapy in Oncology. For each startup identified, the report provides a complete description of its activity and pipeline, with a link for ongoing clinical trials. Information about funding rounds and subsidies are also described.

### OncoOne

#### Company description



**OncoOne** is an Austrian biotech start-up founded in 2018 by three individuals with a long history in drug development and oncology research from the pharmaceutical industry. The company is dedicated to developing innovative therapeutics to treat patients with solid tumors. The aim of OncoOne is to be a research engine for anti-cancer medicines that meet serious unmet medical needs in oncology.

In an effort to contribute to the global combat against cancer, OncoOne aims to develop first-in-class drugs and novel, highly potent therapeutics in order to treat underserved patients suffering from solid tumor cancers. As a business model, OncoOne intends to license drug candidates to pharmaceutical companies, taking advantage of well-established production processes and commercialization routes. Revenues will be invested in future research projects.

In March 2020, the company announced the close of a €13 million Series A financing round, marking its industry debut. OncoOne will develop several drug modalities to target oxidized macrophage migration inhibitory factor (oxMIF), an isoform of macrophage migration inhibitory factor (MIF) and a new drug target in solid tumor cancer indications with the goal of rapidly entering clinical trials in pancreatic, colorectal, lung and ovarian cancer. Investors participating in the Series A included the Austrian Research Promotion Agency (FFG), the Austria Wirtschaftsservice Gesellschaft (AWS), and two family-offices. Further details regarding the funding round have not been disclosed.

## Patent Description

This report includes a detailed description of all the patents filed by identified startups. The elements provided in each overview slide provide essential information to quickly understand the patented technology. For each patent family described, the publication number of Granted/Registered and Pending members are provided, as well as the abstract, the first claim, relevant information about the invention and the most relevant figure explaining how the invention can be carried out.

### OncoOne

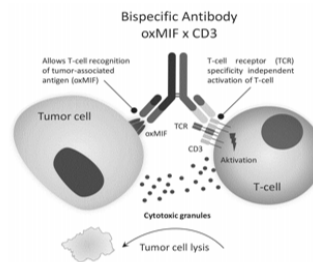
#### Patent description



<b>Title</b>	Anti-oxMIF/anti-CD3 antibody for cancer treatment
<b>Inventor(s)</b>	THIELE MICHAEL ROBERT, SCHINAGL ALEXANDER, KERSCHBAUMER RANDOLF
<b>Abstract</b>	The invention refers to an anti-ox MIF/anti-CD3 antibody comprising at least one binding site specifically recognizing ox MIF and at least one binding site specifically recognizing CD3 and its use in the treatment of hyperproliferative diseases, specifically in the treatment of cancers.
<b>Claim 1</b>	An anti-oxMIF/anti-CD3 antibody comprising at least one binding site specifically recognizing oxMIF and at least one binding site specifically recognizing CD3.
<b>Other relevant information</b>	<p>The cytokine Macrophage Migration Inhibitory Factor (MIF) is markedly different from other cytokines and chemokines because it is constitutively expressed, stored in the cytoplasm and present in the circulation of healthy subjects. Due to the ubiquitous nature of this protein, MIF can be considered as an inappropriate target for therapeutic intervention. However, MIF occurs in two immunologically distinct conformational isoforms, termed reduced MIF (redMIF) and oxidized MIF (oxMIF). RedMIF was found to be the abundantly expressed isoform of MIF that can be found in the cytoplasm and in the circulation of any subject. RedMIF seems to represent a latent non-active storage form. In contrast, oxMIF seems to be the physiologic relevant and disease related isoform which can be detected specifically in tumor tissue from patients with colorectal, pancreatic, ovarian and lung cancer.</p> <p>OxMIF seems to be highly tumor specific, and antibodies targeting oxMIF show efficacy in vitro and in animal studies. AnoxMIF specific antibody demonstrated an acceptable safety profile, satisfactory tissue penetration and indications for anti-tumor activity in a phase I clinical trial. However, the mode of action of anti-oxMIF antibodies seems to be solely based on neutralization of the biologic activity of oxMIF. The antibodies did not show any bystander effect such as complement-dependent cellular toxicity (CDC) or antibody-dependent cellular cytotoxicity (ADCC).</p> <p>A need exists for solving the problem on how to develop an immune cell mediated therapy, which has enhanced specificity and effectiveness. Specifically, there is an unmet need for overcoming limitations of therapeutic antibodies such as anti-oxMIF antibodies in oncology.</p> <p>The anti-oxMIF/anti-CD3 antibody of the invention has advantageous properties compared to the single antibody binding to oxMIF. Specifically, the bispecific formation of the inventive antibody brings tumor cells and T-cells in proximity to enable the T-cell to kill the tumor cells, thereby having the potential to significantly reduce tumor and metastasis burden. According to a specific embodiment, the antibody induces T-cell-mediated cytotoxicity to a higher degree than the combination of anti-oxMIF and anti-CD3 antibodies. Furthermore, the oxMIF binding site is specific for oxidized MIF and does not bind to reduced MIF.</p>

<b>Legal status of alive documents</b>	Granted	No granted patent yet
	Pending	WO2019/234241
<b>1<sup>st</sup> publication date:</b>	2019-12-12	

**Key figure:**



Schematic picture of the anti-oxMIF/anti-CD3 bispecific antibody of oxMIF and CD3 that brings T cell in close proximity to tumor cell.

## Key People Description

This report includes a description of the key people and/or inventors involved in each selected startup. Knowing the key people behind a startup helps assessing its chances of success by determining their individual strength and their complementarity. This report is focused on the description of the people who have a technical background. For each key person, the report shows a summary of their educational background, employment history, as well as their other current activities and a link to their LinkedIn profiles.

### OncoOne

#### Key people and inventors



**Randolf XXXXXX**, Co-founder and CEO  
Education: PhD, Molecular Biology (Vienna University of Natural Resources and Life Sciences - BOKU)  
Other current activities: Founder and Senior Consultant at Bio&logic Consulting  
Experience: Manager R&D, Associate Director and then Director R&D Head of Antibody Technology at Baxter, Director R&D at Baxalta, Head Oncology Research at Shire  
[Linkedin profile](#)

**Michael XXXXXX**, Co-founder and CSO  
Education: PhD, Biology (Rheinisch-Westfälische Technische Hochschule – RWTH Aachen University, Germany)  
Other current activities: No information  
Experience: Postdoctoral Fellow and then Senior Scientist at Baxter, Manager R&D at Baxalta, Manager Cell Biology and then Associate Director at Shire  
[Linkedin profile](#)

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## ABOUT KNOWMADE

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## Immunotherapy in Oncology

Startup Identification – June 2020

Ref.: KM20004

### SHIP TO

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Job Title:

Company:

Address:

City:

State:

Postcode/Zip:

Country:

VAT ID Number for EU members:

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Email:

Date:

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06560 Valbonne Sophia Antipolis  
FRANCE

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IBAN: FR76 1460 7003 6360 6214 5695 139  
BIC/SWIFT: CCBPFRPPMAR

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BIC or SWIFT code: CCBPFRPPMAR

IBAN: : FR76 1460 7003 6360 6214 5695 139

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