

# INTELEXON



LEARNING FROM LIFE

# INTELLEXON TEASER - EXECUTIVE SUMMARY

## INTRODUCTION

Are you aware that a pathologist cannot distinguish between the nidation of a blastocyst and the invasion of a tumor cell by just looking through a microscope? This means pregnancy, as the miracle of life on the one hand and tumor cells, as the tragedy of life on the other hand cannot be differentiated at their onset.

Founded in April 2018, **INTELLEXON** has elucidated the true basis of immune control in cancer overruling the classical check point approaches. Using long-standing experience and expert knowledge from reproductive medicine, **INTELLEXON** has proven that the invasive behavior of embryos is adopted by tumors. Embryonic cells take advantage of a specific HLA (Human Leukocyte Antigens) mediated mechanism, briefly after fertilization, to manipulate the mother's immune system in order to protect themselves against rejection. Exactly this immune suppression technique is efficiently misused by cancer cells, building the foundation of **INTELLEXON's** disruptive, paradigm shifting principle: New Immuno-Oncology (IO) based targets for diagnostics and modern selective therapeutics challenge an over 80 billion-dollar market<sup>1</sup>.

*How about joining forces with **INTELLEXON** beyond the limited scope of current, competitive checkpoint attempts in Immuno-Oncology diagnostics and therapeutics?*

## INTELLEXON'S STRATEGIC APPROACH & TARGETED MARKETS

By assessing this underlying and unique HLA-mediated mechanism, especially the embryonic HLA system, prognostic and diagnostic biomarkers as well as specific targets were found. Modern biopharmaceuticals can be customized for a targeted anti-tumor treatment with an expected large therapeutic index. **INTELLEXON's** approach aims to block the HLA specific interaction with immune cells as well as demask cancer cells in order to activate the immune system. This allows to attack cancer cells again.

The principle of transferring the immunological embryonic patterns on the treatment of cancer is based on the granted patent EP 2 561 890 and currently 9 more filed patent applications, seeking PCT/WO protection, 6 thereof in 2019. **INTELLEXON** targets highly malignant and recurring tumors as well as metastasis for tumor types where traditional cancer treatments fail. A series of novel targets and diagnostic biomarkers have been identified, that can be used for patient stratification as well as subsequent tailored treatments.

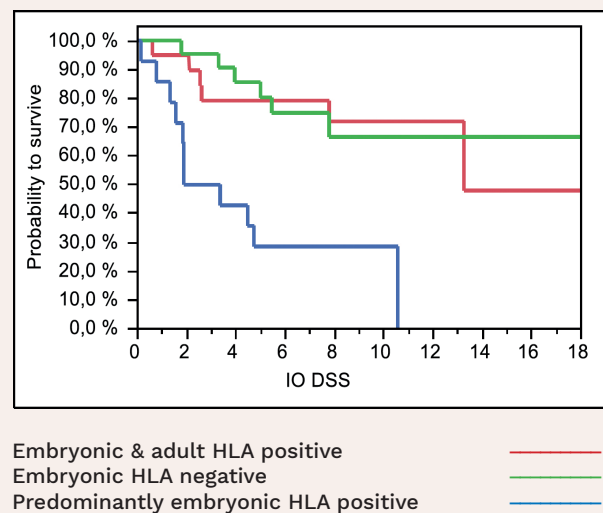
## IP AND PATENT PIPELINE

The above-mentioned patents foster **INTELLEXON's** position for potential diagnostic applications and therapeutic treatments, whereby two of those patents will be briefly described below:

### ■ DIAGNOSTIC / COMBINATORIC PATENT

This granted patent is based on the stratification of adult and embryonic HLAs on tumor

### Disease Specific Survival of IO treated metastatic bladder cancer



**Figure 1:** Kaplan Meier Plot for Disease Specific Survival of metastatic bladder cancer patients after IO treatment with PD-1/PD-L1 antibodies (in months).

<sup>1</sup> <https://www.globenewswire.com/news-release/2019/07/17/1884118/0/en/Cancer-Immunotherapy-Market-To-Reach-USD-242-86-Billion-By-2026-Reports-And-Data.html>

cells. Similar to trophoblast cells, the absence of classical HLA genes and presence of embryonic HLAs correlate with aggressiveness and worse prognosis. **INTELLEXON's** strategy is the combination of the inter- and intragenic interplay of HLA genes. Embryonic HLA expression analysis alone serves as a robust prognostic marker. However, in combination with expression ratios to adult HLA genes, the prognostic power becomes even more superior.

This is a prerequisite to maximize effectiveness of immuno-therapies and to reduce risks of potential hazards associated with combinations of chemotherapy and immuno-therapies. It further shows the power of the working hypothesis of **INTELLEXON** - not a single marker, but instead a precise and unique system with various therapy options.

#### ■ PATENT WITH THERAPEUTIC FOCUS

One of the published patent applications, PCT/EP 2019/060606 defines the stratification of aggressive tumors such as ovarian cancer and cancers with failed anti-PD-1/PD-L1 therapy by the determination of HLA-J. **INTELLEXON** could prove that expression of a formerly, falsely classified “pseudogene” is of functional and prognostic value in several cancers. For example, in ovarian cancer **INTELLEXON** proved that HLA-J is upregulated after **neoadjuvant chemotherapy**. Moreover, substantial increase of HLA-J expression coincided with worse outcome.

#### INVESTMENT OPPORTUNITY & PROCESS TIMING

Seed funding was concluded in 2018/2019. **INTELLEXON** targets an additional funding for the next 24-30 months by the planned capital raising of around € 5m. The funding is intended for the pull-through development of new targets as well as for initiation of phase 1 clinical trials in a selected cancer type. After signing a NDA, interested parties will get access

to a detailed information memorandum and a virtual data room (VDD by Intralinks). The first round of the investor process will be kicked-off in February 2020.

#### SUMMARY: UNIQUE, HIGHLY ATTRACTIVE VALUE PROPOSITION

##### (1) INTELLEXON's IMMUNO-ONCOLOGY PLATFORM - TUMORS MISUSE PREGNANCY SIGNATURES

**INTELLEXON** does not only offer one new oncology drug, but a **full platform of new immunology-based diagnostic and personalized therapeutic oncology treatments**. The **INTELLEXON** approach transfers the in-depth knowledge of immune system mechanisms from pregnancy to oncology. The IP is protected by an extensive patent portfolio.

##### (2) HLA SYSTEM - HIGH IMPACT IMMUNO-ONCOLOGY APPROACH SUPERIOR TO CHECKPOINTS

**INTELLEXON** applies an **innovative HLA gene-based cancer diagnostic and therapeutic concept** for the development of novel targets. As the HLA system is a more powerful and superior part of the immune system compared to checkpoint inhibitors, **INTELLEXON's platform** offers a holistic approach **beyond PD-1/PD-L1 inhibitor treatments**. This will give access to a new multibillion-oncology market with an even more powerful toolbox compared to checkpoint inhibitors.

##### (3) EXCEPTIONAL THERAPEUTIC INDEX EXPECTED

**INTELLEXON's** approach will also eliminate adverse side effects due to its specificity on targets, which are normally only expressed during pregnancy. This minimal therapeutic burden of **INTELLEXON's** therapy approach offers a significant improvement to the standard of care in oncology (e.g. chemo- or radio-oncology), but also other oncology targets.



## TEAM

**INTELLEXON's** team combines a unique set of capabilities: Long-standing experience and in-depth medical, biotechnological and pharma expertise combined with industry diversity:



### Christoph Winterhalter

**PhD – Founder & CEO:** Start Up investor and CEO of **INTELLEXON**.

Industry veteran with 25+ years of experience in Life Science (Currently SVP Business Development AGC Biologics, prior positions were SVP BD Rentschler Biopharma, VP Biosolutions Wacker Chemical Corp. (Michigan US & Germany)). Ph.D. in Microbiology at TUM.



### Wolfgang Würfel

**MD, PhD, Professor – Founder:** Inventor of the scientific approach of **INTELLEXON** and lead investor.

Founder and one of the CEOs of the Kinderwunsch Centrum Munich (KCM). Former assistant professor at the University of Chicago and faculty member of the Julius-Maximilians-University in Würzburg. Board member of the German Society of Gynecological Endocrinology & Reproductive Medicine (DGEEF).



### Wolfgang Röck

**Founder:** Shareholder of **INTELLEXON**.

Managing Partner and investor of Wöhr + Bauer GmbH. Study of Engineering at TUM.



### Peter Trenkwalder

**MD, PhD, Professor – Founder:** Head of the Medical Clinic Starnberg.

Visiting Professor at Cornell Medical University College. International lectures in the fields of hypertension and cardiology. Deputy Chairman of the German High-Pressure League.

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