Corporate Overview

Immuno-Oncology And Autoimmune Diseases

Breakthrough Immuno-Science for Patients

OSE IMMUNO THERAPEUTICS

Forward Looking Statement

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This presentation includes only summary information and should be read with the OSE Immunotherapeutics Universal Registration Document filed with the AMF on 15 April 2021 including the 2020 Financial results, and the Amendment to the Universal Registration Document filed with the AMF on 2 June 2021 under number D. 21-0310-A01, all available on the OSE Immunotherapeutics' website.

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Investment Highlights and OSE Immunotherapeutics Opportunity

Tedopi® in NSCLC post-ICIs

- **Positive phase III** with first asset in monotherapy clinically demonstrating a significant survival benefit in mNSCLC secondary resistant to ICIs vs. chemo (docetaxel)
- **Supports engaging discussions with regulatory agencies** with potential to address a defined unmet need in Second Line NSCLC post-ICIs
- US orphan drug designation offering 7 years market exclusivity

Innovative IO Portfolio

- **BI 765063 (SIRPα mAb) – First-in-class**
  - **Differentiated from CD47 agents**
  - **Encouraging** safety, tolerability and clinical activity in multiple solid tumours in combination with ezabenlimab
  - **Continued** enrolment in Phase 1b expansion cohorts in MSS endometrial and MSS CRC
- **Potential First-in-Class** early-stage IO Drugs: bispecific BiCKi IL-7, CLEC-1 mAb)

Innovative I&I portfolio

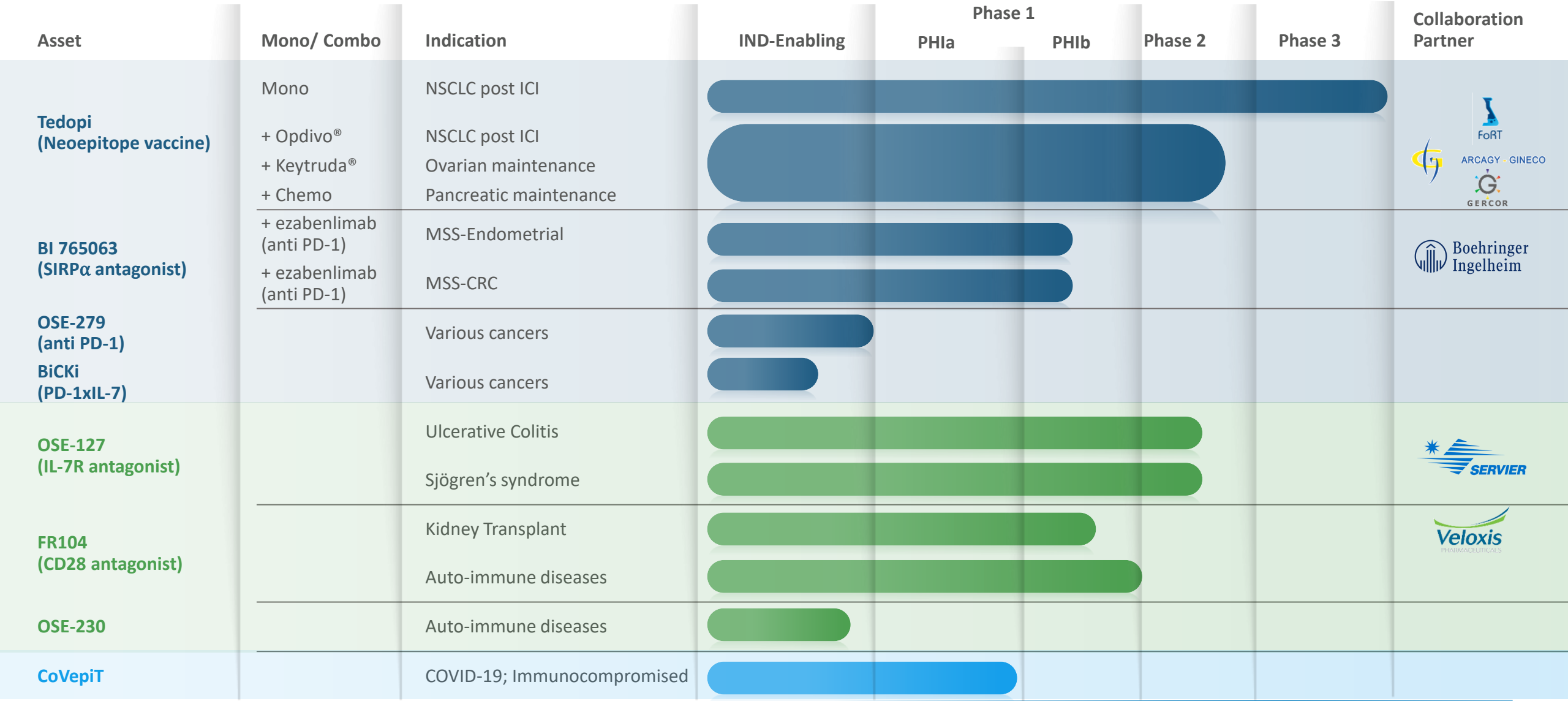
- **OSE-127 (IL-7R mAb) – First-in-class**
  - **Positive** futility analysis announced in UC
  - **First disease-modifying** treatment opportunity in pSS
- **FR104 (CD28 mAb) – First-in-class**
  - Significant unmet need in transplantation to prolong graft survival , reducing side effects due to Immunosuppressors
- **Potential First-in-Class early-stage Inflammation/ Resolution mAb: OSE230**

Company Growth

- Well-capitalized with EUR 27m cash & investments as of Jun 30, 2021
- Strategic partners (Boehringer, Servier, Veloxis) provide External Validation of Targets & Approach
- Up to EUR 1.6bn in development and commercial milestones

IO: Immuno Oncology
I&I: Immunology and IInflammation

Complementary Platforms and Balanced Pipeline

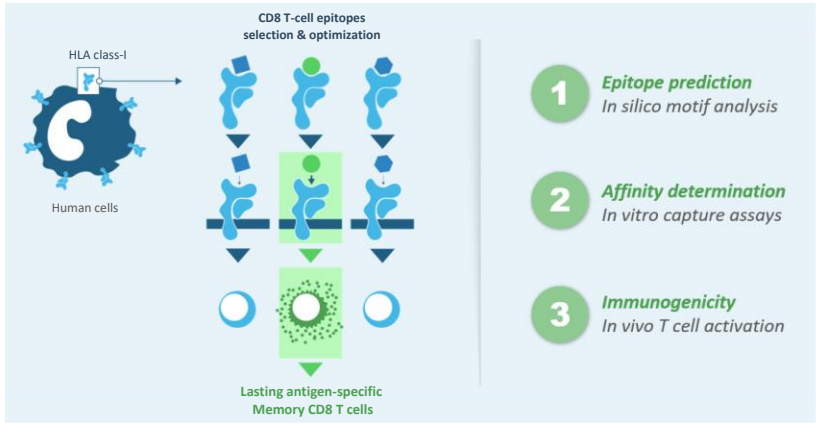


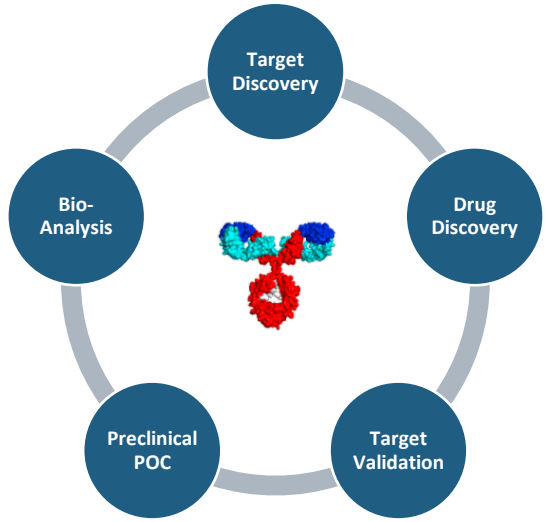
OSE IMMUNO THERAPEUTICS

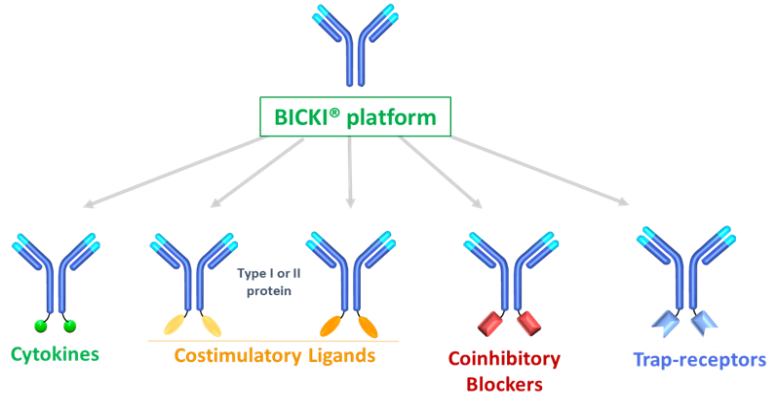
Proprietary Technologies Allow OSE to Build a World-class Pipeline

In-house know-how & platforms covering all stages of early drug discovery

MEMOPI®	Identifying Epitopes to Trigger Optimal Immunogenicity
mAb	Engineering powerful Monoclonal Antibodies
BiCKI®	Selective bispecific for anti-PD-(L)1 resistant tumors



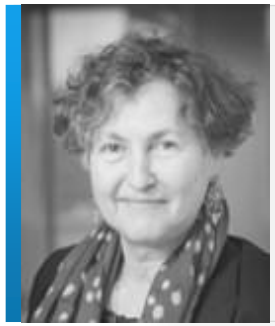




Building The Next Wave Of Cutting-Edge Medicines By Investing In Diversified Modalities

OSE IMMUNO THERAPEUTICS

Diverse Experienced Leadership Team



Dominique Costantini, MD

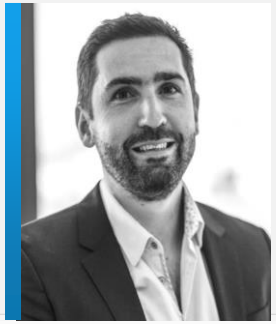
Interim Chief Executive Officer, Chairwoman and cofounder

- Co-founded OSE in 2012, completed the Company's IPO in 2015 and acquired Effimune in 2016
- 30+ years in product development, marketing and corporate funding notably at BioAlliance Pharma

Laurence De Schoulepnikoff

Chief Operating Officer

- 25+ years in business development and transactions in the pharmaceutical industry
- Joins OSE from AMAL Therapeutics acquired by Boehringer Ingelheim in 2019, where she spent the last three years as CBO and COO
- Previously at Novartis (11+ years)



Nicolas Poirier, PhD

Chief Scientific Officer

- 15+ years experience in Immunotherapy
- Led research efforts to advance 5 novel therapies to clinic
- >50 publications and >35 patent families
- Global Management, INSEAD

Anne-Laure Autret-Cornet

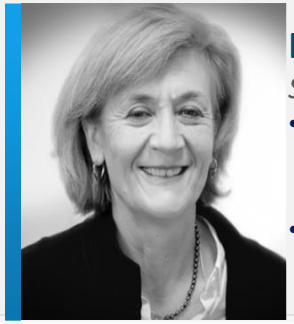
Chief Financial Officer

- Specialized in Audit-Finance, Anne-Laure has 7+ experience within Deloitte In 2016
- Appointed CFO of OSE in 2016
- Graduated from ESSCA Management school

Linda Lebon

Chief Regulatory Officer

- 25+ years regulatory expertise from early development up to approval
- Has held international managerial positions in biotech (ArgenX), pharmaceutical (BMS, GSK Vaccine, Pfizer Animal Health) and consulting companies (IQVIA)



Francoise Bono, PhD

Strategic Development Director

- 30+ years of experience in pharmaceutical industry either in Big Pharma (Sanofi) and biotech companies (Evotec and Onxeo)
- Author of more than 80 publications and co-inventor of 25 patents

Thomas Guillot, PharmD

Investor Relations, Director

- 8+ years experience in sell-side research and ECM raising more than EUR 300m
- Previously senior sell-side biotech analyst with Degroof Petercam and Kepler Cheuvreux
- Joined OSE in 2021

Silvia Comis, MD

Head of Clinical Development

- 30+ years experience and leadership in the pharmaceutical industry
- Previously Senior Medical Director IQVIA, and European Head of Early Products Medical Affairs in oncology at Novartis

Strong Financial Foundation With Our Notable Strategic Partners

Over €1.6 billion in potential milestones & royalties; €80m already received[1]

SERVIER	Veloxis PHARMACEUTICALS	Boehringer Ingelheim
Up to €272m in milestones	Up to €315m in milestones	Up to €1.1bn in milestones
€25m received	€7m received	€38m received
+ Low teens royalties on Global Sales	+ Tiered royalties on Global Sales	+ High-single digit to low teens royalties on Global Sales

1 - Including €10m received from JnJ on FR104

TEDOPI®

Market opportunity in advanced NSCLC post-Immune Checkpoint Inhibitors

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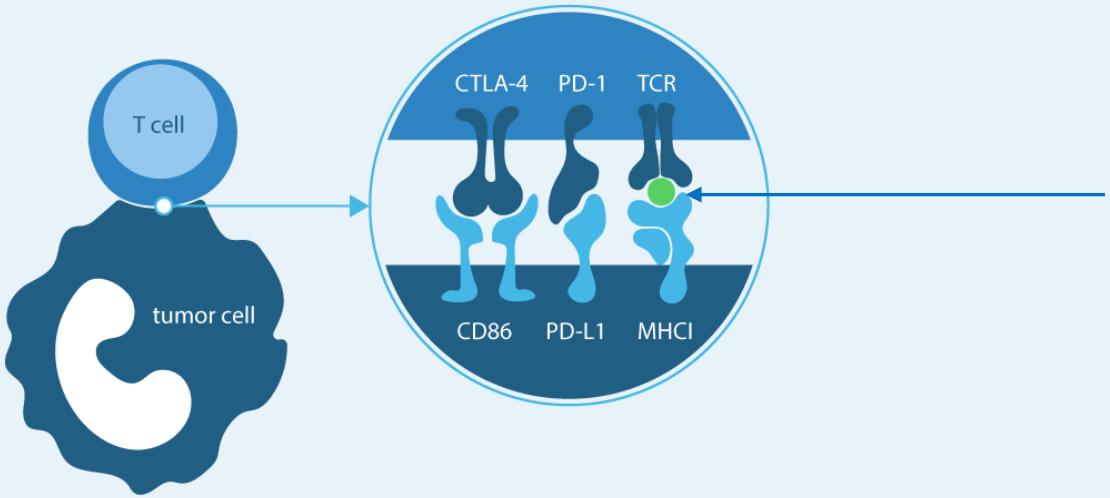
Tedopi® Identifying Epitopes to Trigger Optimal Immunogenicity



NEOEPITOPES / HLA / TCR binding*:

- ***Mandatory*** to activate cytotoxic T-cell response
- Neoepitopes: Small peptides deriving from ***tumor specific*** antigens expressed in various cancers
- 1st T-lymphocyte ***activation*** signal

TEDOPI®

Proprietary combination (9 ***optimized neoepitopes*** + 1 epitope giving universal T helper response)

Restores ***immuno-surveillance*** of cancer cells in HLA-A2 positive responder patients

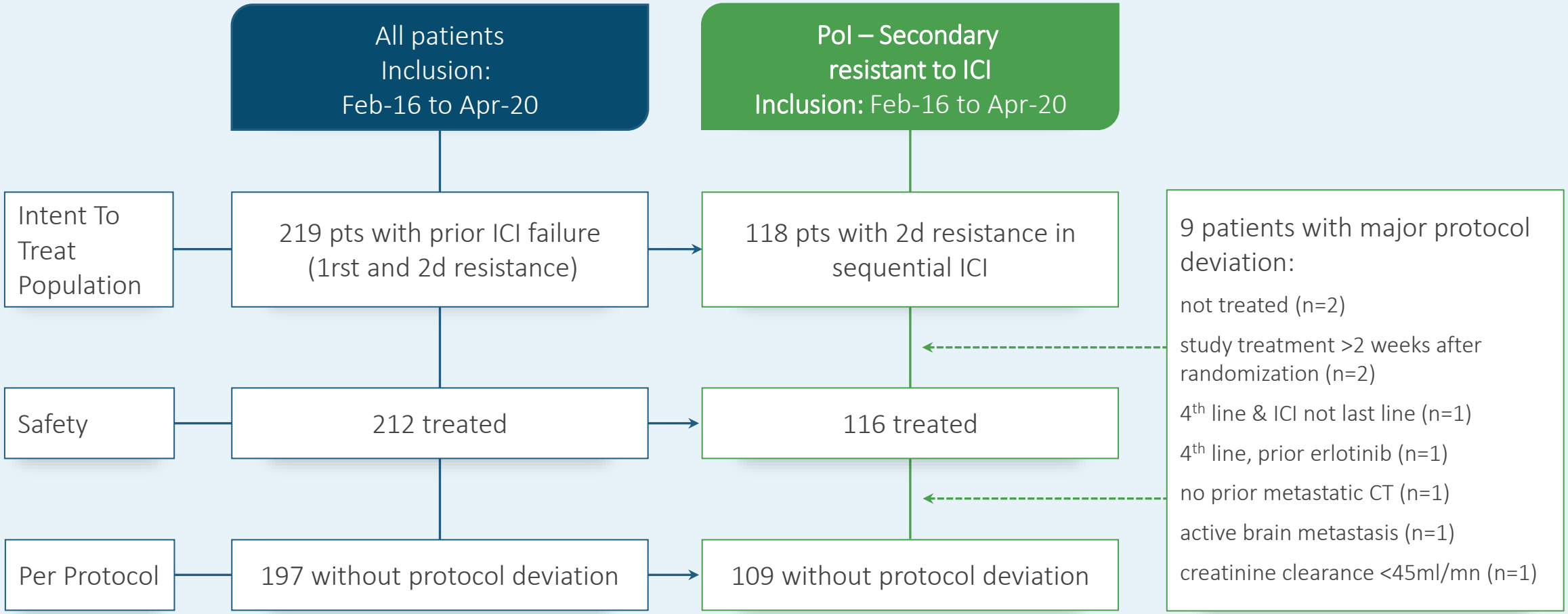
Induces early T cell ***memory*** responses

Strong patent family plus orphan status in the US

** Major Histocompatibility Complex*

1 Garrido et al 2012;
2 Mimura et al 2011- Sabapathy K et al 2008

Secondary Resistance to ICI Identified as Population of Interest

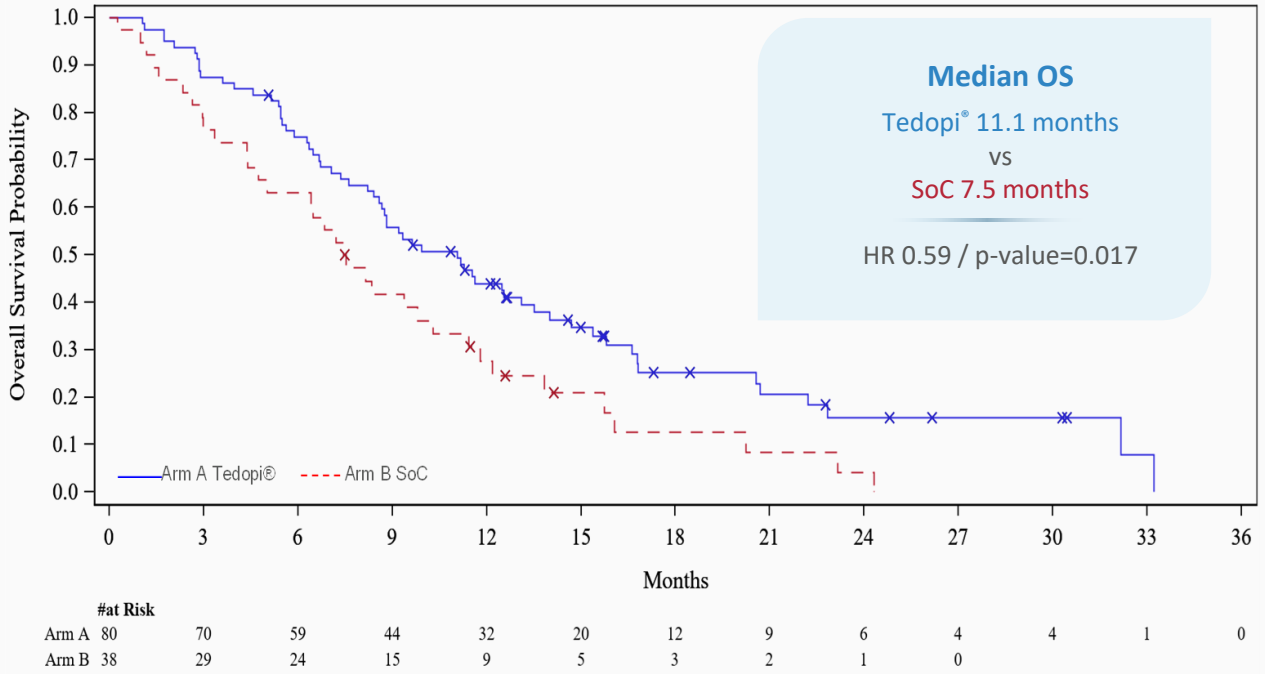


Cut-off 15 JAN 2021 ;
ICI=Immune checkpoint blockers
Poi: population of interest

Tedopi® Demonstrated Overall Survival Benefit in NSCLC post-ICI in Phase 3 in Patients Secondary Resistant to ICI

Overall Survival Benefit Clinically Meaningful

In patients secondary resistant to ICI



Median OS

Tedopi® 11.1 months

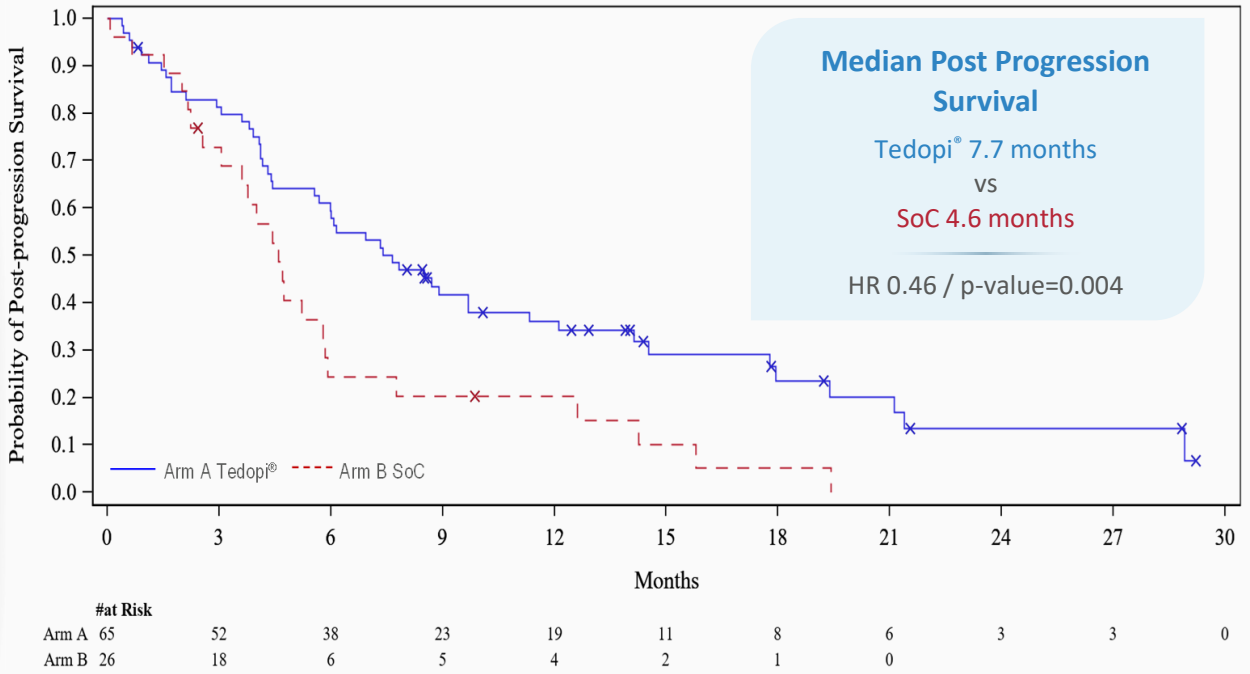
vs

SoC 7.5 months

HR 0.59 / p-value=0.017

Post Progression Survival

Benefit of Tedopi® Continued Beyond Progression



Median Post Progression Survival

Tedopi® 7.7 months

vs

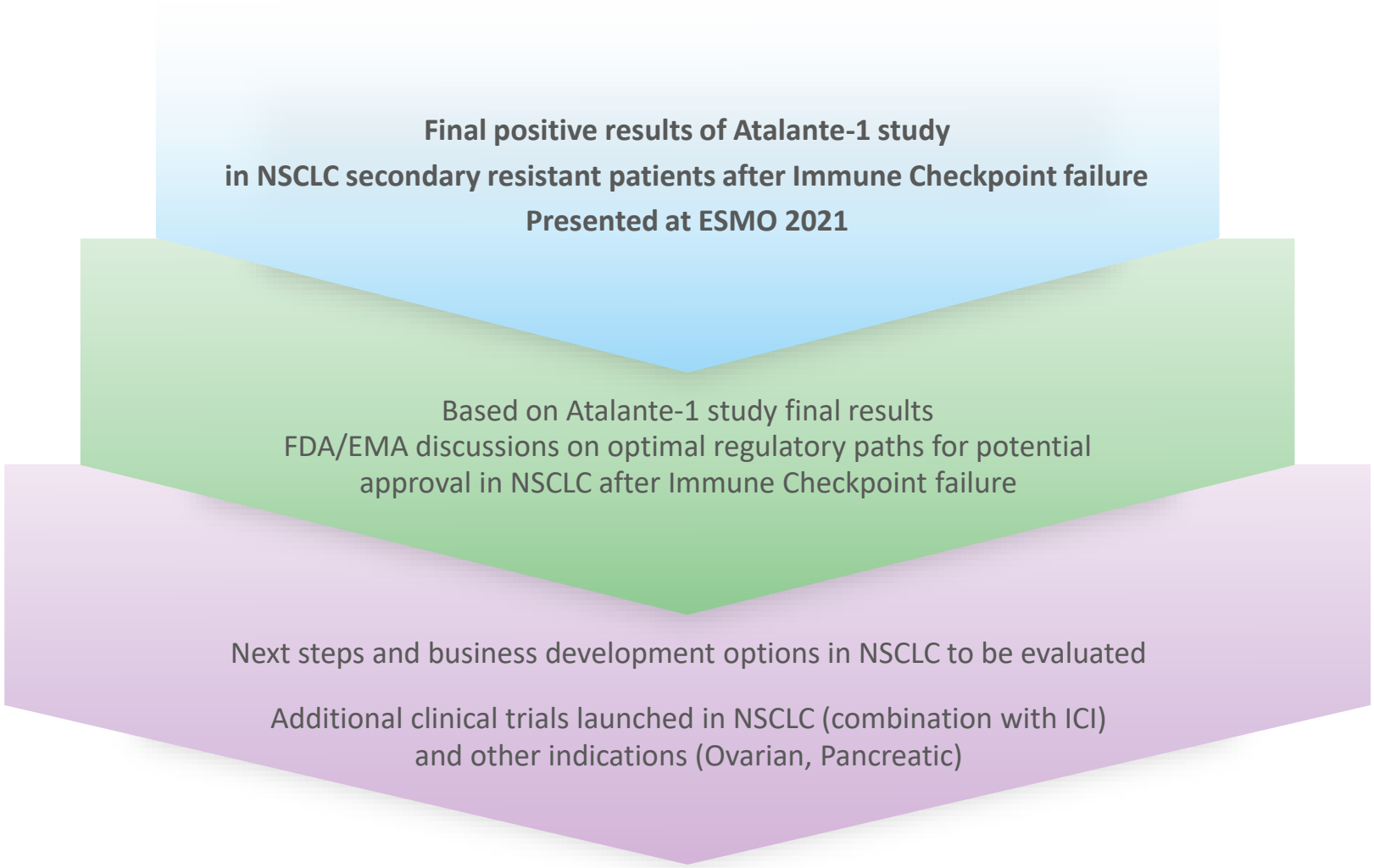
SoC 4.6 months

HR 0.46 / p-value=0.004

B.Besse et al., ESMO 2021

Cut-off 15JAN2021; median follow-up 25 months; *SoC=Standard of care; OS=Overall survival; HR=Hazard ratio; CI=Confidence interval; ICI=Immune Checkpoint Inhibitor*
ClinicalTrials.gov Identifier: NCT02654587

Positioning Tedopi® as a New Standard of Care in NSCLC after Checkpoint Failure



BI 765063 SIRPα-CD47 in Solid Tumors in collaboration with

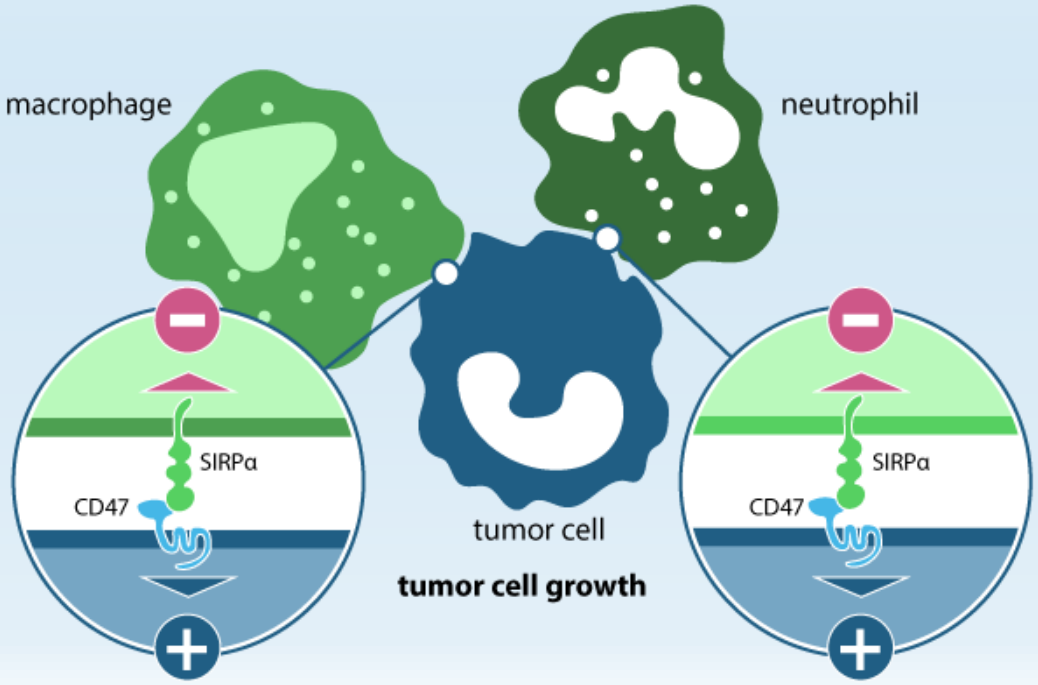
Boehringer Ingelheim

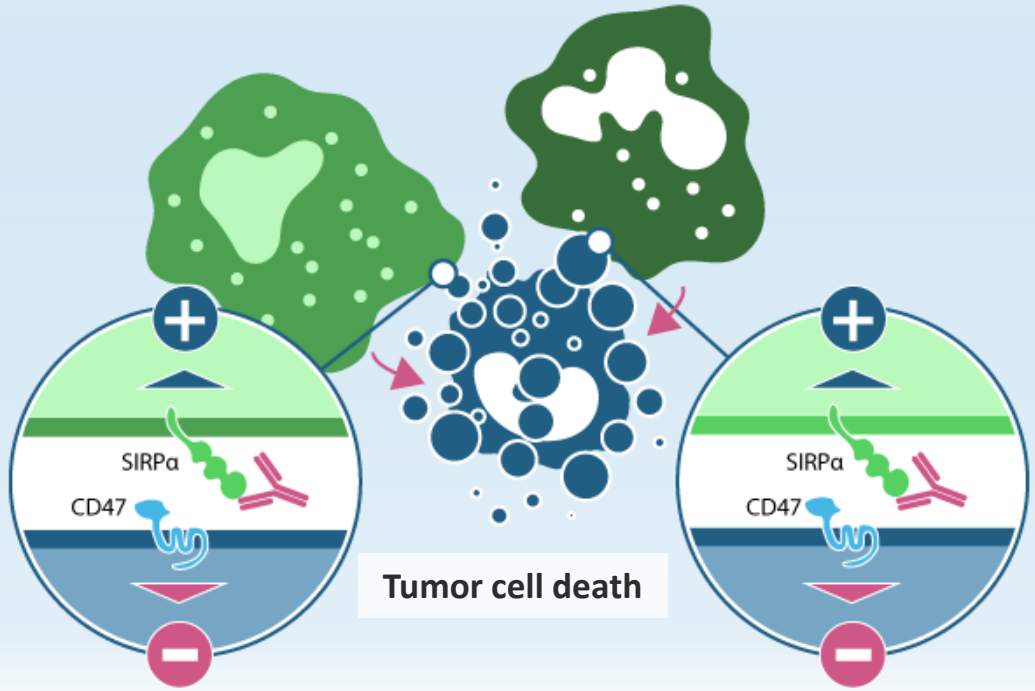
OSE IMMUNO THERAPEUTICS

BI 765063 Inhibits the Macrophage “Don’t-Eat-Me” Signal SIRPα

CD47- SIRPa interaction blocks immune cell activation leading to tumor cell growth

BI 765063: stops the “Don’t Eat Me” mechanism by which tumors evade immune detection and allows T lymphocytes to enter the tumor core





Source: Gauttier et al; JCI 2020

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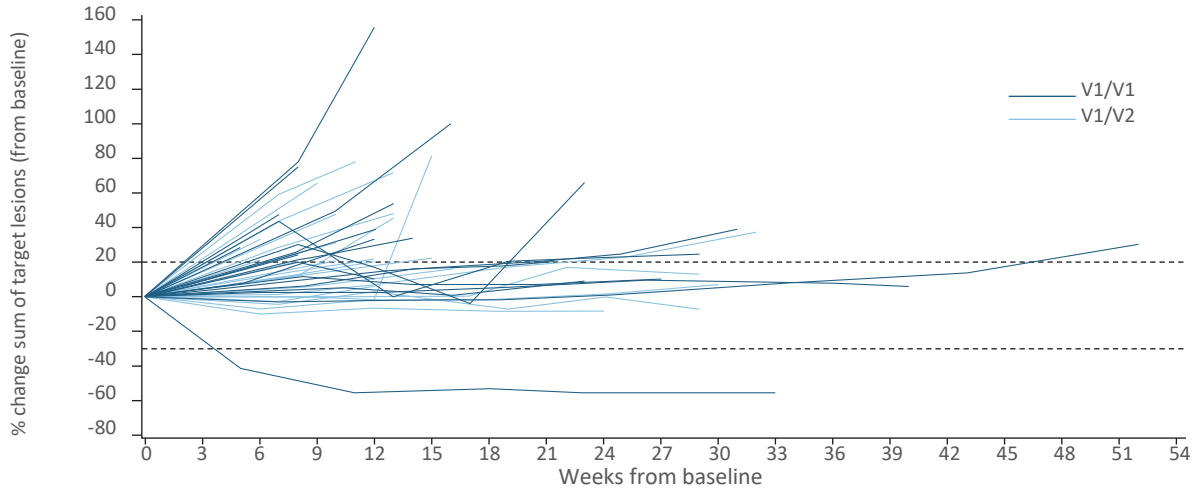
BI 765063 Observed Single Agent Activity With Durable Responses & Disease Control

Monotherapy (n=50)

Spider plot of percentage change in sum of target lesions from baseline (cut off May 2021)



Evaluable Patients	Best Response (n)		
n	CR	PR	SD
47	0	1	20

Partial Response for >1 year in advanced HCC patient treated by BI 765063 MONO

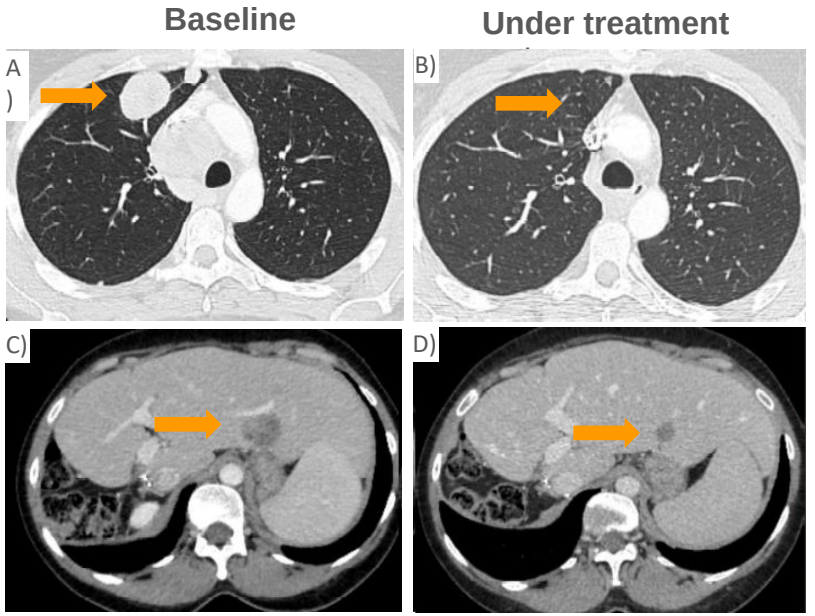


Figure 2. CT scans of HCC; A and B: lung before and during treatment, respectively; C and D: liver before and during treatment, respectively; Tumor shrinkage of 55% maintained after 12 months with BI 765063 MONO 24mg/kg Q3W (ongoing)

Champiat S, et al. J Clin Oncol 2021;39(Suppl15) #2623
CR: Complete Response
PR: Partial Response
SD: Stable Disease

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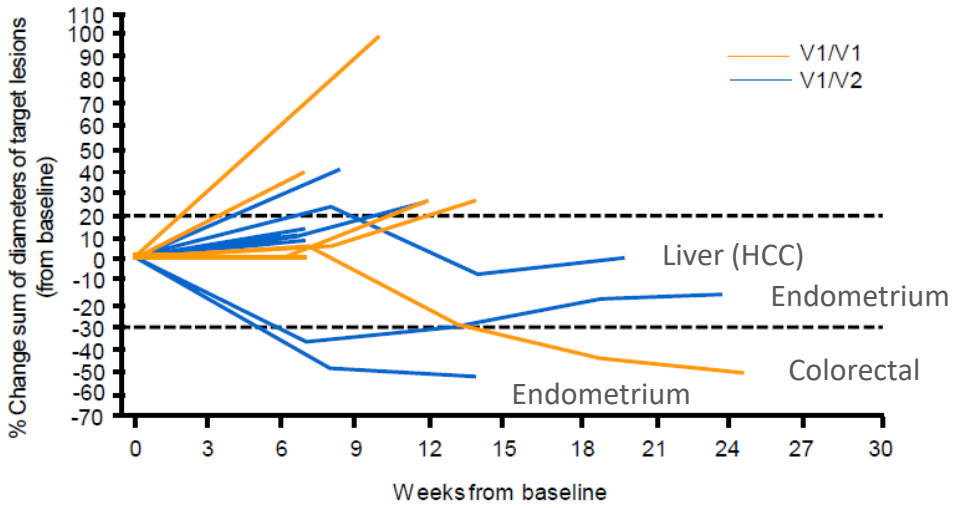
BI 765063 Preliminary Activity in Combination with Anti-PD1

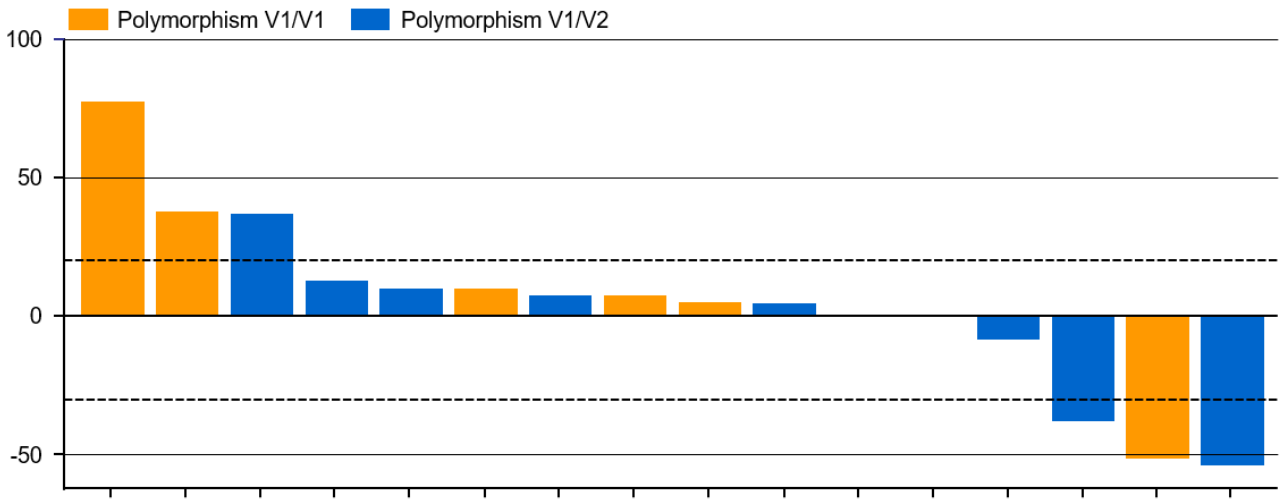
Dual Combination (n=18)

Spider plot of percentage change in sum of target lesions from baseline (cut off 04Aug21)



Evaluable Patients	Best Response (n)		
n	CR	PR	SD
16	0	3	1

Waterfall plot of percentage best change in sum of target lesions from baseline (cut off 04Aug21)



- In 16 patients evaluable for efficacy (RECIST/iRECIST), 3 (19%) shown a confirmed Partial Response: 2 patients with endometrial cancer (o/w 1 MSS) and 1 patient with colorectal cancer (MSS)
- Another patient with hepatocellular carcinoma (HCC) had stable disease (tumor shrinkage: -7%) with normalised levels of alpha fetoprotein (AFP)

Kotecki N. et al. ESMO 2021; #983;
RECIST=Response evaluation criteria in solid tumors;
iRECIST=ImmuneRECIST
MSS: Microsatellite Stable

OSE-127 in Ulcerative Colitis and Sjögren's Syndrome in collaboration with

OSE IMMUNO THERAPEUTICS

OSE-127 – Ulcerative Colitis

License Option to SERVIER after Phase 2

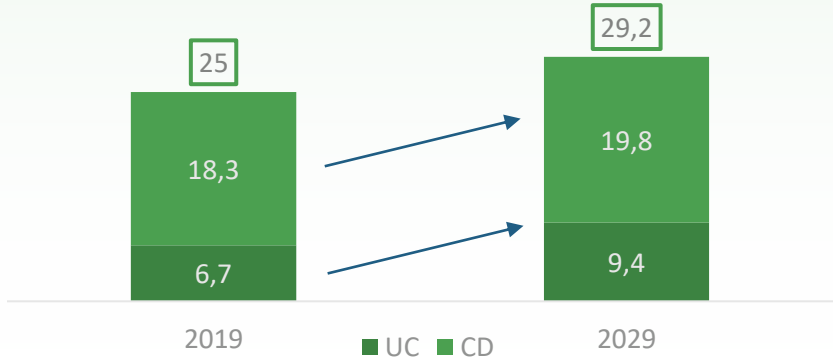
Positive Recent Futility Analysis

- Futility analysis conducted on 33% of the total patient enrolment (n=150)
- Primary endpoint is the efficacy assessment of OSE-127 vs. placebo on the reduction of the modified Mayo Score at Week 10
- Secondary endpoints include clinical remission, clinical response, endoscopic remission and endoscopic healing
- 24 weeks open-label extension study planned

Ulcerative Colitis Market Opportunity

- UC affects ***3.3 million patients*** in US, Europe and Japan
- ~50% UC patients "moderate to severe", requiring methotrexate, corticosteroids, anti-TNFa, JAK etc.
- Despite broad options, ***remission rates*** are of only 25-30%[1] leaving most patients without satisfactory treatment

IBD Global market projections for G7 major markets (USDbn[2])



Phase 2 read out expected 2023

1 - Drugs Context. 2019; 8: 212572– doi 10.7573/dic.212572
2 – DRG UC Disease Landscape & Forecast 2021

OSE-127 – Sjögren's Syndrome

License Option to SERVIER after Phase 2

On-going phase II developed by Servier

- Potential to become **first disease-modifying** therapy in Sjögren's **the 3rd** most prevalent autoimmune diseases
- Primary endpoint will assess the change in ESSDAI total score at Week 13
- Secondary endpoints include ESSPRI score by symptom and total score, Physician's global assessment (PhGA) and Patient's global assessment (PGA)

Sjögren's Syndrome Market Opportunity

- ***732k*** diagnosed prevalence and ***400k*** patients with moderate to severe Sjögren's disease in G7[1]
- **No disease-modifying treatment available**, systemic features in 40% patients, 5% develop Non-Hodgkin lymphoma
- Clinical presentation varies from mild symptoms such as dry eyes and dry mouth to severe systemic symptoms involving multiple organ systems
- **IL-7R is overexpressed** in the labial salivary glands, with these expression levels correlating to the severity of the Sjögren's Syndrome[2]

Phase 2 read out expected 2023

1 – OSE internal analysis based on publicly available data
2 – Hillen et al, doi: 10.1136/annrheumdis-2016-209236.

FR104 in Kidney Transplant

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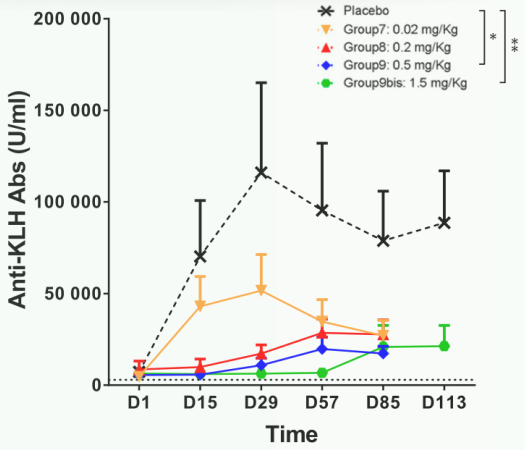
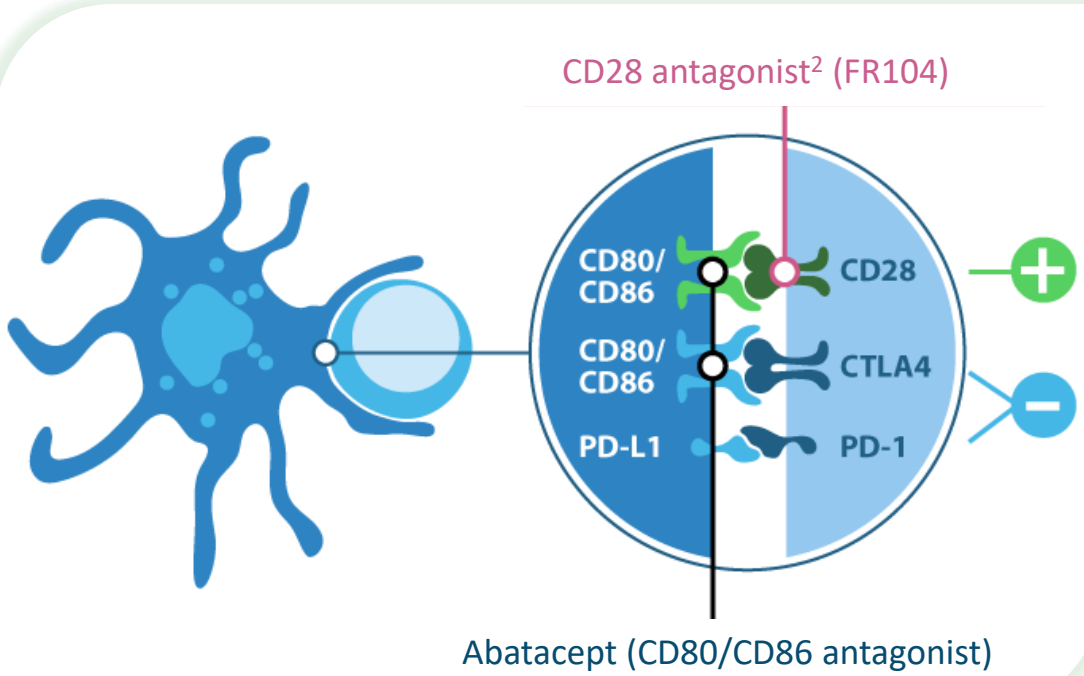
FR104 - CD28 Antagonist in Autoimmune Diseases & Transplantation

Phase 1 results: Selective CD28 antagonist FR104 persistently reduces antibody responses



- ***Good safety***[1] - demonstrated
  - Absence of clinical or biological events
  - No change in total lymphocyte counts
  - No cytokine elevation
- Controls model IgG (anti-KLH) response for up to 57 days
- Controls T follicular helper and IgG responses
- Tfh cells correlated with autoimmune diseases activity



1 – Poirier N. et al, Journal of Immunol, (2016), doi: 10.4049/jimmunol.1601538
2- Watkins, BK et al. J Clin Invest. 2018

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FR104 – Transforming Kidney Transplant Management

Ambitious Development Plan In Kidney Transplant

- Global partnership agreement with Veloxis, a leading transplantation company
  - To develop, manufacture and commercialize FR104 in the organ transplantation market
  - OSE eligible to receive up to €315 million in potential milestones, including a €7 million upfront, and tiered royalties on sales.
- Phase 1 / 2 in kidney transplantation, sponsored and conducted by the Nantes University Hospital is on-going

Kidney Transplant Market Opportunity

- ***40k+*** new kidney transplant annually for an estimated ***500k+*** people living with a functioning kidney graft in G7 countries[1]
- Chronic exposure to ***CNIs*** is associated with ***renal toxicity***, cardio-metabolic complications, ***insufficient*** graft protection as well as ***cancer*** and ***infections***
- FR104 seeks to address challenges associated with current immunosuppressive transplantation regimens using CNI-based therapies
- Potential to provide "One Transplant for Life" with improved patient and graft survival and become the new SoC in transplant

US IND: H1 2022

1 – OSE internal analysis based on publicly available data

Early-stage Pipeline and R&D Engine

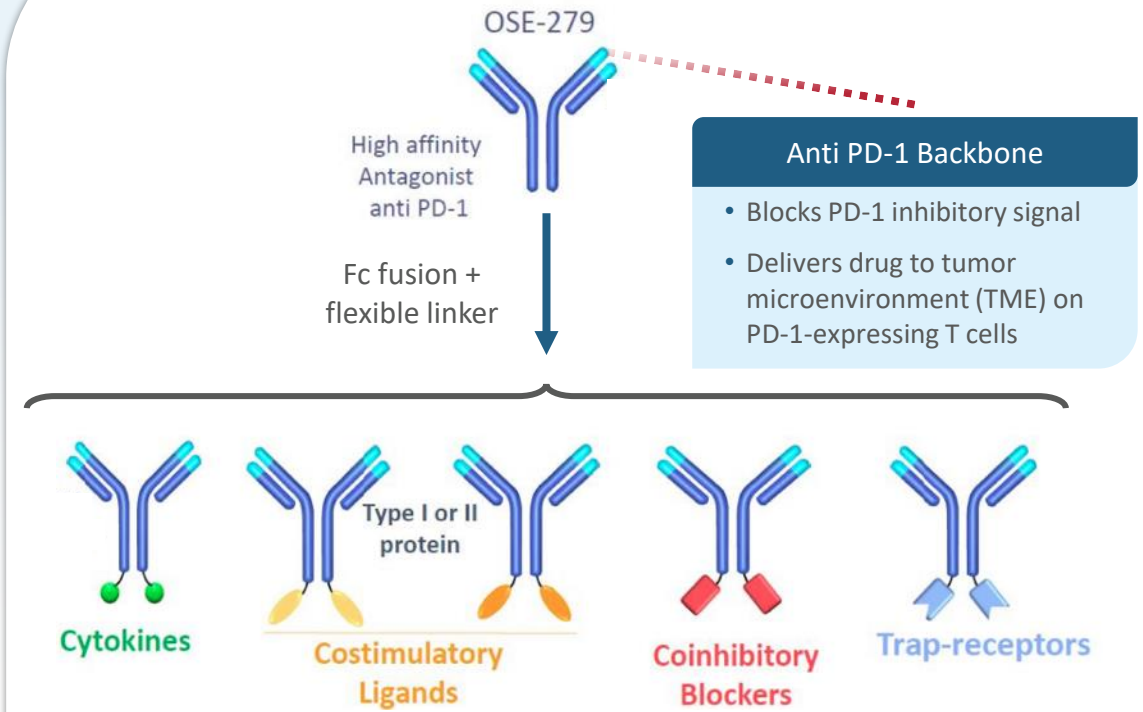
OSE IMMUNO THERAPEUTICS

Proprietary Early-Stage Assets : Creating Significant Value

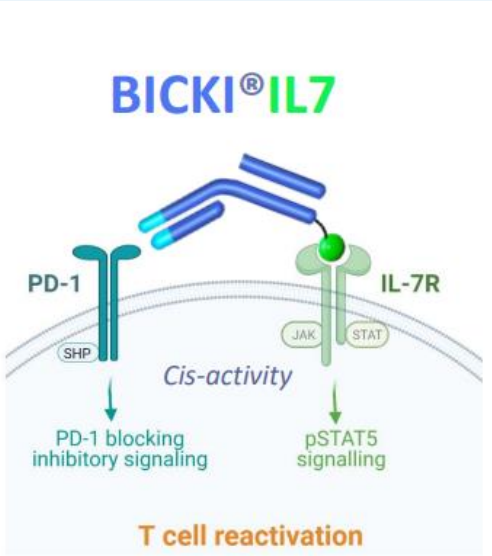
BiCKI® Bi-Functional Platform	CLEC-1	OSE-230
Innovative bifunctional anti-PD1 antibody backbone platform	***Blocking myeloid*** First-in-class new immune checkpoint	Anti-ChemR23 agonist Resolution of inflammation
OSE-279 (Anti-PD-1 mAb) Phase 1 Start ***H1 2022***	Phase 1 Start ***2024***	Phase 1 Start ***2023***

BiCKI® Bi-Functional Platform in Oncology

First candidate: BiCKi-IL7



BiCKI IL-7: our first bispecific candidate

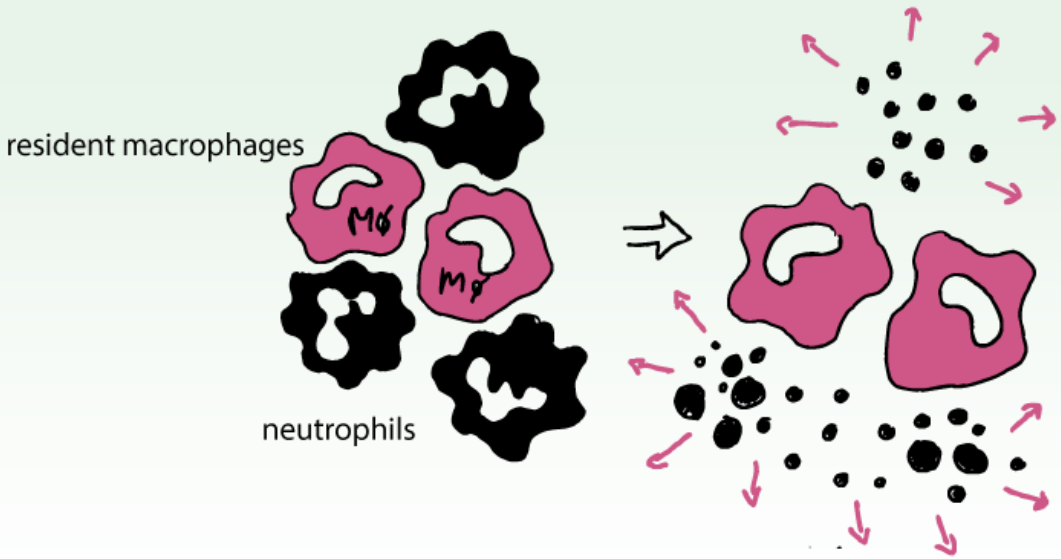


OSE-279 anti-PD1 backbone Phase 1 to start in H1 2022

Source: SITC 2021, Morello et al

OSE-230 – Resolving Inflammation is an Active Immune Process

During chronic inflammation



Dying neutrophils ***send out inflammatory signals*** that are important in maintaining chronic inflammation & recruiting Lymphocytes

With ChemR23 agonistic mAbs

Restoration of homeostasis

OSE-230-mediated activation of resident macrophages induces efferocytosis of apoptotic neutrophils, ***removing further inflammatory signals***

Start of clinical trial scheduled for 2023

Source: Trilleaud et al; Science advances 2021

Summary

Tedopi® in NSCLC post-ICI showed strong clinical benefit in secondary resistant patients
Strategy is to position Tedopi® as new standard of care in NSCLC after Chemo/ICIs

Position BI 765063 on the CD47 landscape in solid tumors together with its partner Boehringer Ingelheim to address unmet needs in ICI resistant cancers

Proprietary early-stage assets with 3 programs to enter into clinic in 2022-24 in blockbuster indications

Strong partnerships with Boehringer Ingelheim, Servier and Veloxis generating substantial revenues to reduce cash burn and risk

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Immuno-Oncology And Autoimmune Diseases

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