

ACTIVATING THE PATIENT'S IMMUNE SYSTEM TO FIGHT CANCER

DnB Healthcare
Conference 2021

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targovax

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THE IMMUNO-ONCOLOGY REVOLUTION

- > **500,000** patients treated per year
- > **3,000** ongoing clinical trials
- > **40%** of US cancer patients eligible
- > **10** approved products



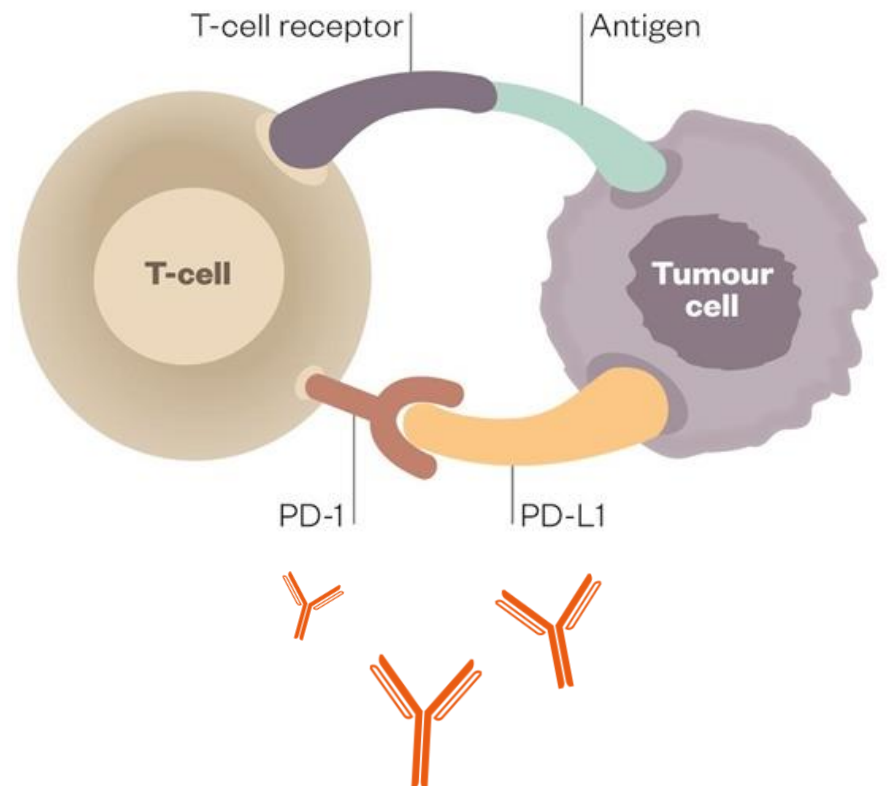
FIRST GENERATION IMMUNO-ONCOLOGY: CHECKPOINT INHIBITORS

Cornerstone of current
cancer treatment

Deep and durable responses

\$25b annual sales globally

8 products approved to date,
many more in development



THE CHALLENGE:

MAKE PD1 CHECKPOINT INHIBITORS WORK FOR MORE PATIENTS

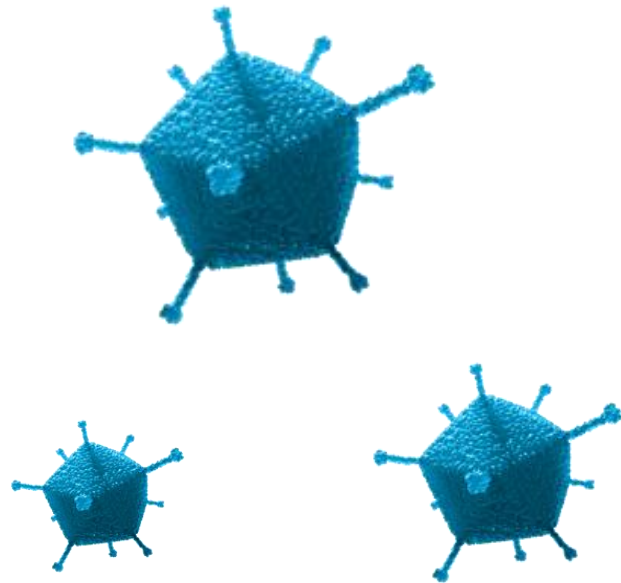


0-40% of treated patients
respond

>50% of responding
patients relapse

1 PD1 checkpoint inhibitor
monotherapy not sufficient

THE SOLUTION: ONCOS-102 IMMUNE ACTIVATION



Unblinds the tumor to the immune system

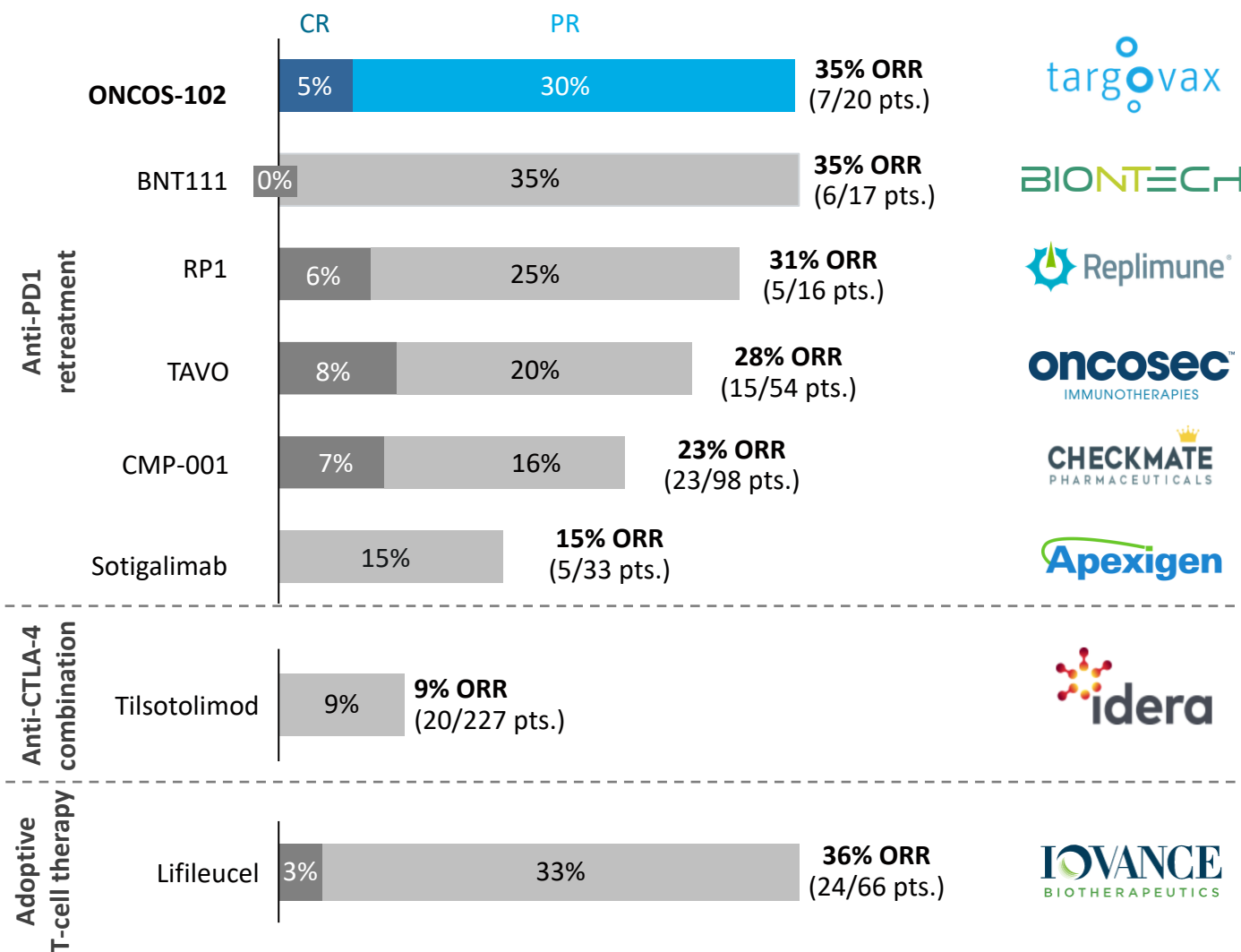
Activates the body's own T-cells against the cancer

Reverses immunosuppressive defence mechanisms in the tumor

CLINICAL AND PRECLINICAL PIPELINE

Product candidate	Preclinical	Phase 1	Phase 2	Phase 3	Next expected event
ONCOS-102	PD1 Refractory Melanoma Platform IO combination trial				2022 First patient
	Mesothelioma Combination w/pemetrexed/cisplatin				2H 2021 Survival update
	Metastatic Colorectal cancer Combination w/anti PDL1				1H 2022 Clinical data
NextGen ONCOS vectors					<i>Preclinical data and selection of candidates</i>
mutRAS immunotherapy					<i>Preclinical data and initiate clinical study</i>

ONCOS-102 HAS DEMONSTRATED CLASS-LEADING EFFICACY IN PD1 REFRACTORY MELANOMA



CASE EXAMPLE: PATIENT WITH COMPLETE RESPONSE

Tumor response, 1 of 1 injected lesion

Baseline

Week 3

Week 9

Week 18

Week 27 (EoS)



Progression on
pembrolizumab



3x ONCOS-102 only
(no pembrolizumab)



3x ONCOS-102 &
2x pembrolizumab



3x ONCOS-102 &
5x pembrolizumab



3x ONCOS-102 &
8x pembrolizumab

Discoloring and scar
tissue from injections
and biopsies

CASE EXAMPLE: PATIENT WITH COMPLETE RESPONSE TUMOR T-CELL INFILTRATION

T-cell infiltrate, 1 of 1 injected lesion

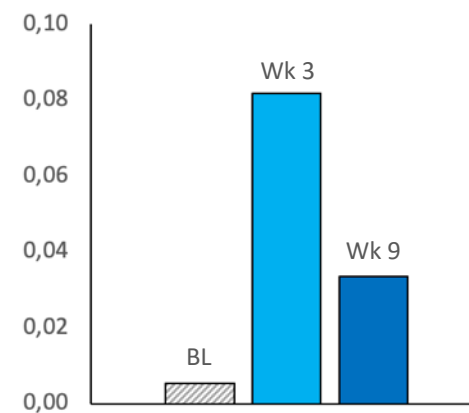
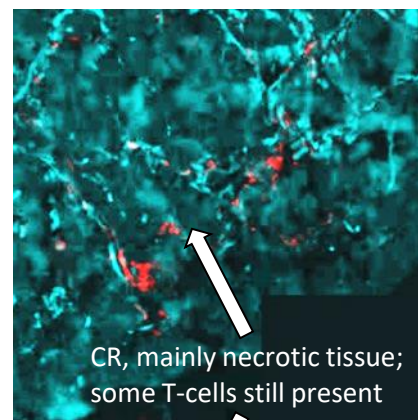
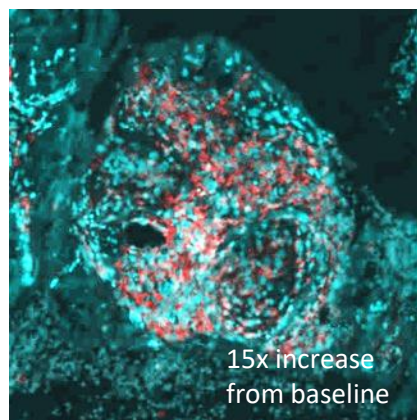
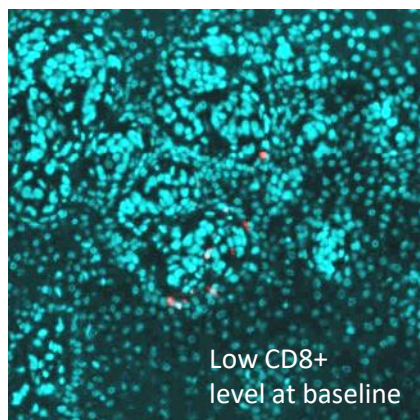
Baseline

Week 3

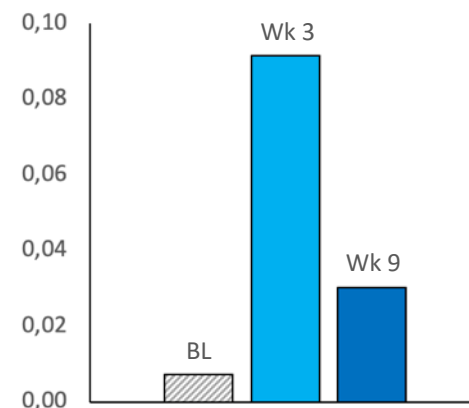
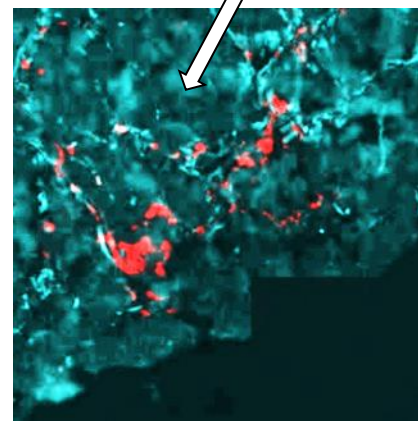
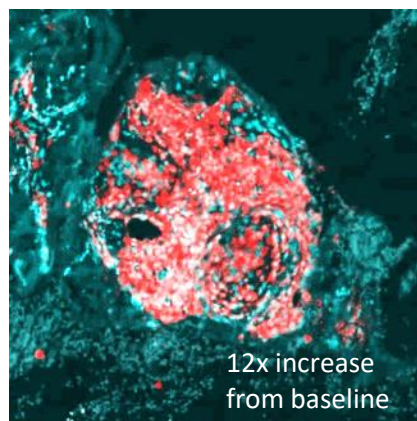
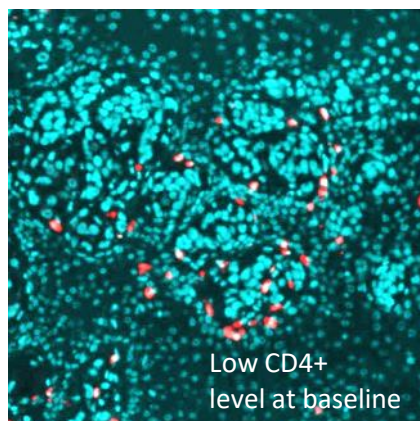
Week 9

Total level of T-cells

CD8+ T-cells



CD4+ T-cells*

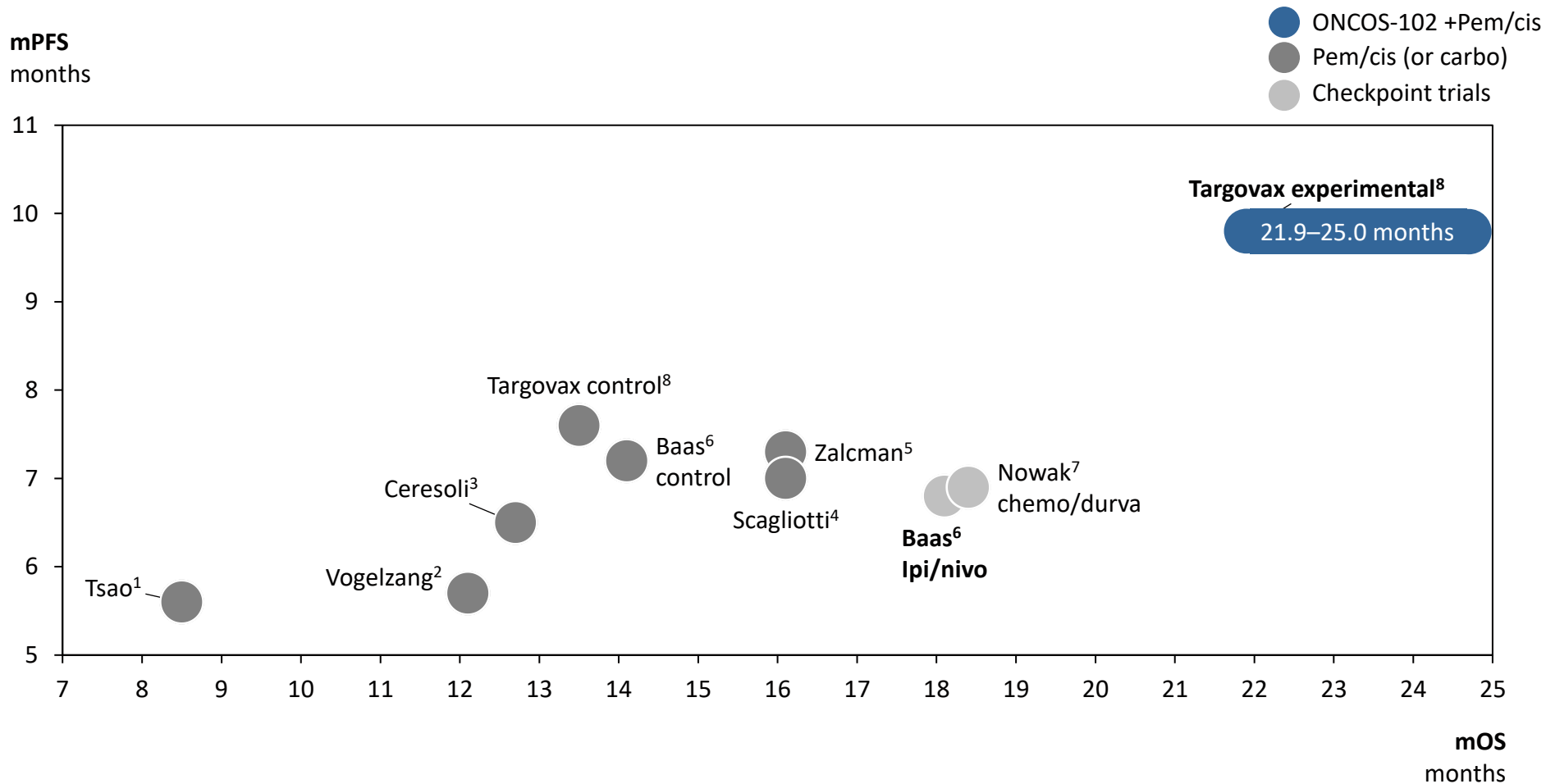


Progression on pembrolizumab

3x ONCOS-102 only

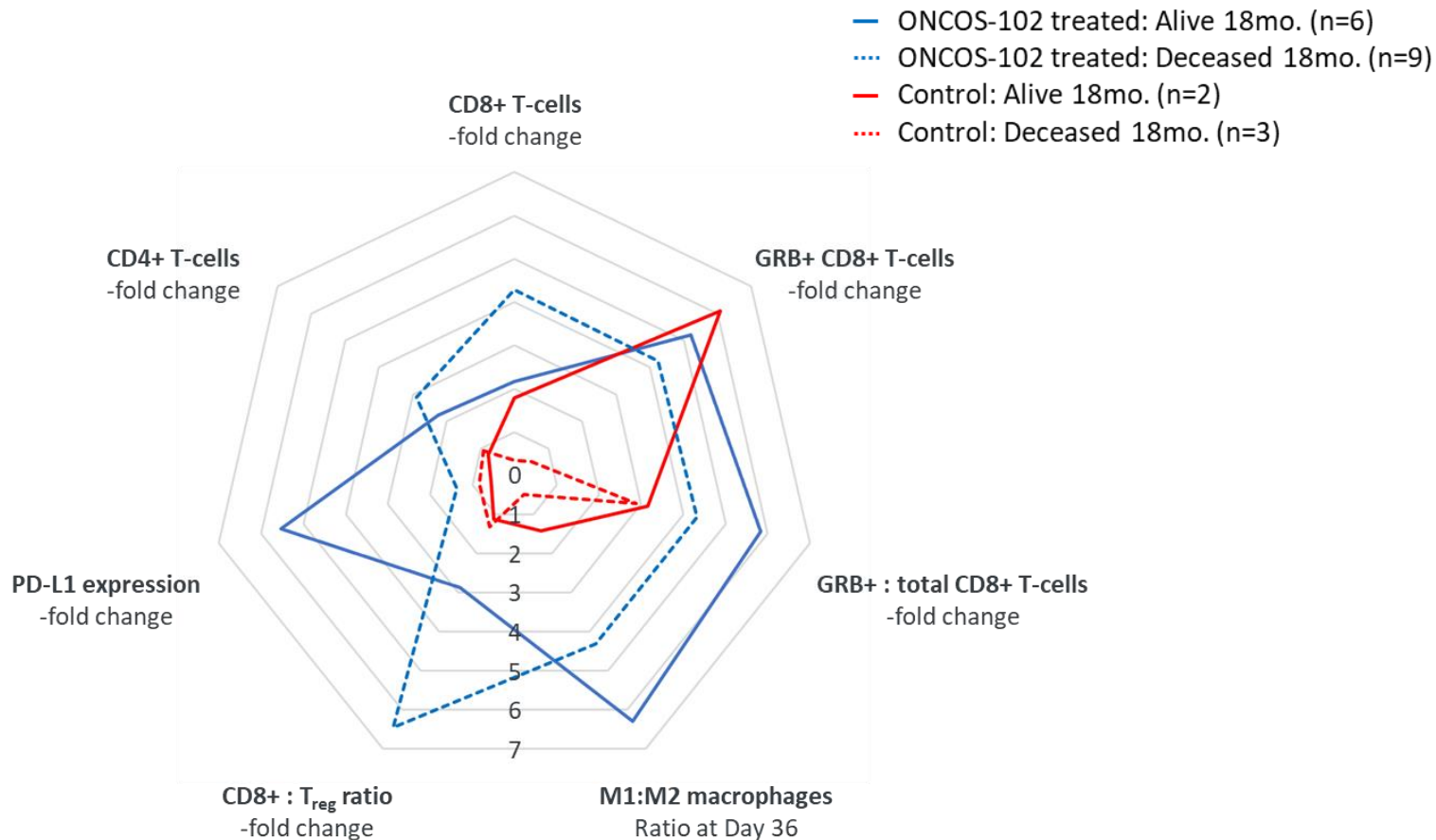
3x ONCOS-102 & 2x pembrolizumab

ONCOS-102 mOS OF 22-25 MONTHS IS THE BEST SURVIVAL DATA REPORTED IN 1L MESOTHELIOMA



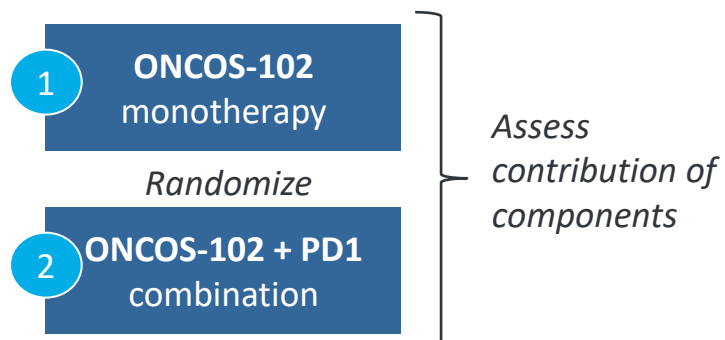
IMPROVED SURVIVAL OUTCOME IS ASSOCIATED WITH POWERFUL ONCOS-102 INDUCED IMMUNE ACTIVATION

Immuno-modulation in tumor tissue; Mesothelioma, Day 36 vs. baseline

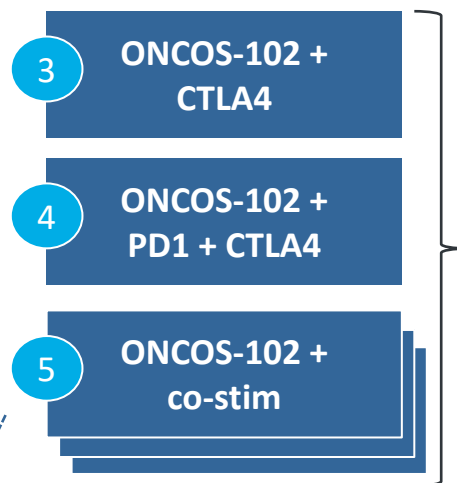


NEXT STEP: MELANOMA PHASE 2 PLATFORM TRIAL TO EXPLORE MULTIPLE ONCOS-102 COMBINATIONS

Part 1 – run-in



Part 2 – multi-cohort extension



- Additional cohorts to explore novel combinations
- Aim to further boost response rates beyond 35% ORR
- Collaboration with partners – dialogues ongoing

Several opportunities:
vaccine, bi-specifics, T-cell engagers, etc...

The cohorts can independently form the basis for subsequent registrational trial(s)

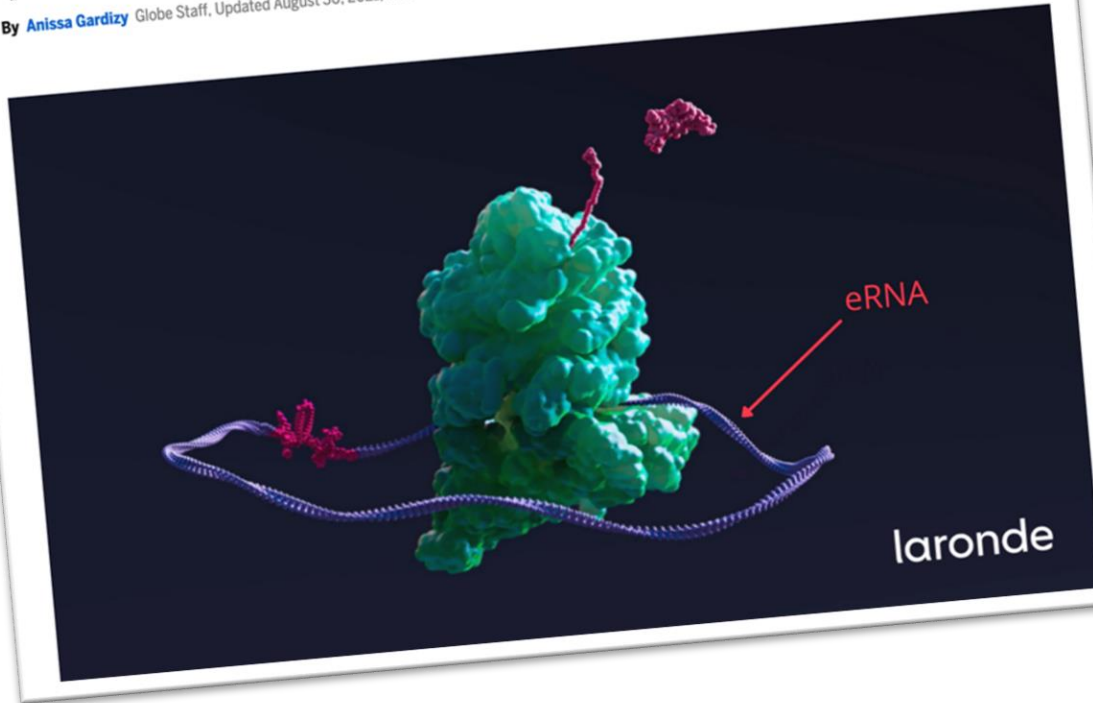
CLINICAL AND PRECLINICAL PIPELINE



TWO RECENT LAUNCHES OF CIRCULAR RNA BIOTECHS HAVE ATTRACTED MEGA SERIES A ROUNDS

As RNA remains hot, Flagship's Laronde raises \$440m for a new class of medicines

By [Anissa Gardizy](#) Globe Staff, Updated August 30, 2021, 6:30 a.m.



moderna

**Flagship
Pioneering**



RESEARCH CRO MEDTECH TRENDING TOPIC:

Virtual Events FiercePharma Jobs Resources Webinar

Biotech

Orna Therapeutics debuts with \$100M, engineered circular RNA treatments to rival cell therapies

nature biotechnology

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News | [Published: 02 September 2021](#)

Startups set off new wave of mRNA therapeutics

[Elie Dolgin](#)

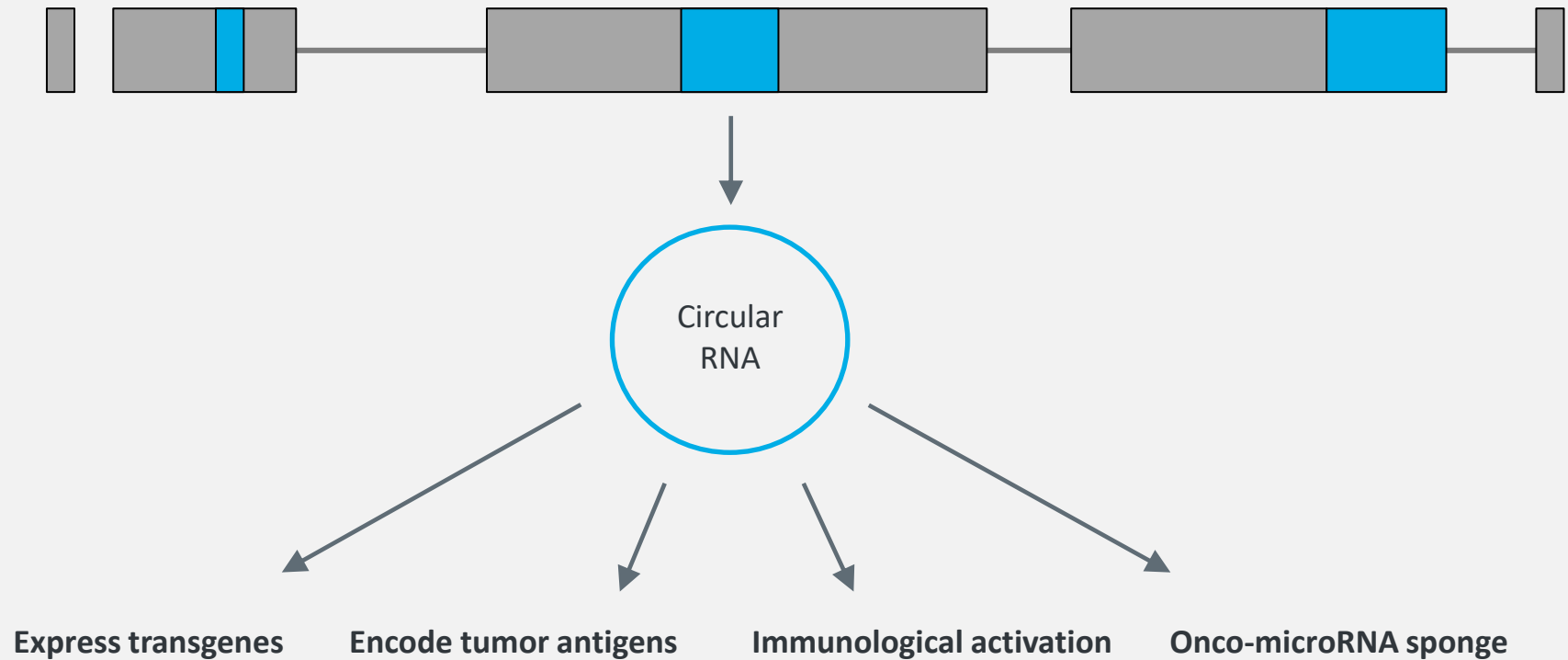
[Nature Biotechnology](#) 39, 1029–1031 (2021) | [Cite this article](#)

13k Accesses | 155 Altmetric | [Metrics](#)

After the vaccine triumphs of Pfizer/BioNTech and Moderna, a raft of startups is developing mRNA, circular RNA and self-amplifying RNA therapeutics.

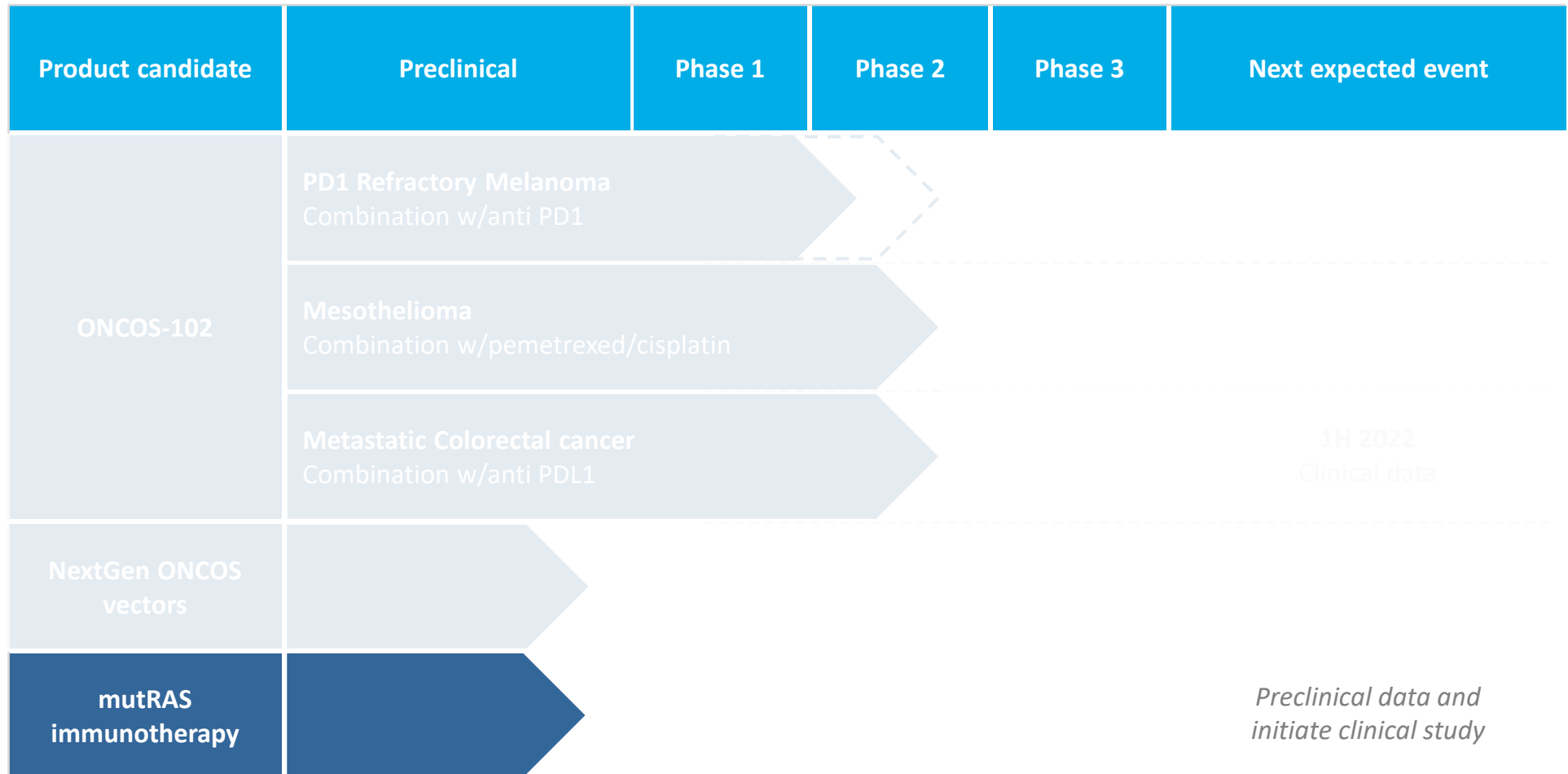
ONCOS PROVIDES AN IDEAL, CLINICALLY VALIDATED PLATFORM FOR CIRCULAR RNA

Novel ONCOS circular RNA vectors



Highly versatile delivery system

CLINICAL AND PRECLINICAL PIPELINE



BUILDING MUTANT RAS IMMUNOTHERAPY PROGRAM THROUGH STRATEGIC PARTNERSHIPS

Targovax mutRAS immunotherapy strategy

Enhanced mutRAS vaccination

Clinical stage

- Enhanced versions of TG vaccines and novel combination strategies
- NOK 9.8m grant from Norwegian Research Council (NFR)

Next generation mutRAS concepts

Pre-clinical discovery

- Innovative, first-in-class mutRAS IO concepts
- Leverage ONCOS platform
- Strategic R&D partnerships

Next generation mutant RAS pipeline



Boost TG vaccine immunogenicity
Next gen. adjuvants



IOVAXIS THERAPEUTICS

Option to license TG01/02 vaccines
for Greater China and Singapore



VALO
THERAPEUTICS

Oncolytic virus w/ mutRAS vaccine coating - Coat ONCOS-102 with mutant RAS neoantigen PeptiCRAd peptides



OBLIQUE
THERAPEUTICS

Oncolytic virus w/ mutRAS antibody payload - Express AbiProt mutant RAS targeting antibodies from ONCOS backbone

TARGOVAX OVERVIEW

ONCOS-102 is a
class-leading
immune activator
in PD1 refractory
melanoma

ONCOS-102: Leading immune activator with clinical efficacy in several solid tumors in monotherapy and in combination with anti-PD1 and chemotherapy

MoA confirmed in multiple indications: Broad local and systemic immune activation associated with clinical outcome

Preparing a platform trial based on class-leading responses: 35% ORR in PD1 refractory melanoma and 24 month mOS in mesothelioma

Market Exclusivity: ONCOS-102 is protected by composition of matter and method of use patents until 2037, 3 orphan and 2 fast track FDA designations

Innovative pipeline: Expanding ONCOS platform to deliver highly targeted novel circular RNA concepts; mutRAS immunotherapy program