

AlphaTAU

(NASDAQ:DRTS)
Company Overview

November 2024

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The Alpha Tau Mission

AlphaDeRT

A novel approach using localized alpha particle radiotherapy designed to precisely destroy solid tumors while sparing surrounding healthy tissue



- ✓ Platform technology may be utilized alone or synergistically with other cancer treatment modalities
- ✓ Radiation delivery can be customized to tumor type and geometry
- ✓ Milestones and data from multiple clinical trials in various stages in different indications expected in 2025
- ✓ 1st potential U.S. marketing authorization in 2026, with blockbuster market opportunity across multiple tumor types

Alpha Tau – Key Investment Highlights

- 1 Proprietary Alpha DaRT designed to safely deliver alpha radiation with localized precision in solid tumors, sparing surrounding healthy tissue
- 2 Broad potential and preclinical evidence supporting evaluation across various solid tumors (skin, pancreas, breast, GBM, etc.) with 23 peer-reviewed pre-clinical papers
- 3 Compelling potential immuno-stimulatory effect and synergetic combination with other therapies
- 4 Over 150 superficial tumors treated to date, with great results. 100% CR seen at 12 weeks in 1st US study. Strong interim safety and feasibility results and initial signs of efficacy in pancreatic cancer trial.
- 5 Favorable safety profile observed, no systemic toxicities, no serious late-onset toxicity.
- 6 Robust clinical-trial strategy with leading global centers, with U.S. pivotal study underway in recurrent cutaneous SCC. Two FDA Breakthrough Device Designations (skin & GBM)
- 7 Solid logistics based on purpose-built manufacturing facilities, built or in planning, in the US, Israel and Asia, with a highly scalable and optimized proprietary production process
- 8 Strong intellectual property (method and device) with over 100 issued and over 200 pending patents worldwide
- 9 Experienced management team, including Alpha DaRT's co-inventors, with expertise in oncology development, manufacturing scale up and commercialization

The logo for AlphaTAU, featuring the word "Alpha" in a bold, dark blue font, followed by "TAU" in a lighter blue font. A stylized circuit board or grid pattern is visible in the background behind the text.

Therapeutic Focus

We are focused on delivering solutions to three markets that we believe would be best served by the unique characteristics of the Alpha DaRT

Localized & Unresectable

- Localized tumors that are not surgical candidates and tumors that recur after surgery and are **resistant to other** therapies, specifically radiotherapy
- Alpha DaRT to be evaluated as a **later line therapy**
- Tumor types include **SCC, H&N SCC and prostate**



High Unmet Need

- Solid tumors that have **limited treatment options** with limited SOC offering
- Alpha DaRT could potentially target **broad patient populations**
- Tumor types include **GBM and pancreatic cancer**



Metastatic

- Alpha DaRT would be evaluated for its potential to induce an **immune response** in **metastatic** tumors
- Alpha DaRT would be evaluated **in combination with check point inhibitors** as an adjuvant therapy
- Tumor types include **liver, breast and H&N** (which includes lip, oral cavity, salivary glands, oropharynx & pharynx) cancers



Development Pipeline

- Our clinical trial strategy involves progressing our lead program (superficial tumors), particularly in the US, and conducting feasibility studies in other tumors to evaluate the Alpha DaRT in tumors of high unmet need or metastatic disease
- FDA Breakthrough Device Designation received for certain uses in skin cancer and GBM

Geography	Indication	Pre-Clinical Research	Feasibility Trial	Pivotal Trial	Marketing Authorization	Anticipated Milestones
North America	Rec. Cutaneous SCC	U.S.				• Complete patient recruitment in H1 2025
	Pancreatic Cancer	Canada				• Interim safety readout in Q4 2023; announcement of further data planned in Q1 2025
	Liver Metastases	Canada				• First patient treated in Q2 2024
Israel	Skin & Oral SCC					
	All Skin & Oral Cancers					• Trial completion and submission
	Ia/mHNSCC (combo with pembrolizumab)					• Feasibility combination trial with Keytruda initiated Q4 2021; interim results planned for H1 2025
	Pancreatic Cancer					• Interim data announcement planned in Q1 2025
	Breast Cancer					• Feasibility trial opened
	Lung Cancer					• First patient in feasibility trial treated Q4 2024
	Brain (GBM + mets)					• Targeting first patient in H1 2025
Europe	Prostate Cancer					• First patient treated in feasibility trial for focal treatment of recurrent prostate cancer in Q2 2024
	Skin Cancers					• Trials underway
	Vulvar SCC					• Trial initiated in Q2 2023
Japan	Pancreatic Cancer					• Trial in planning
	Head & Neck Cancer					• PMDA application sent Q4 2023, awaiting reply
	Pancreatic Cancer					• Trial in planning (TBD)

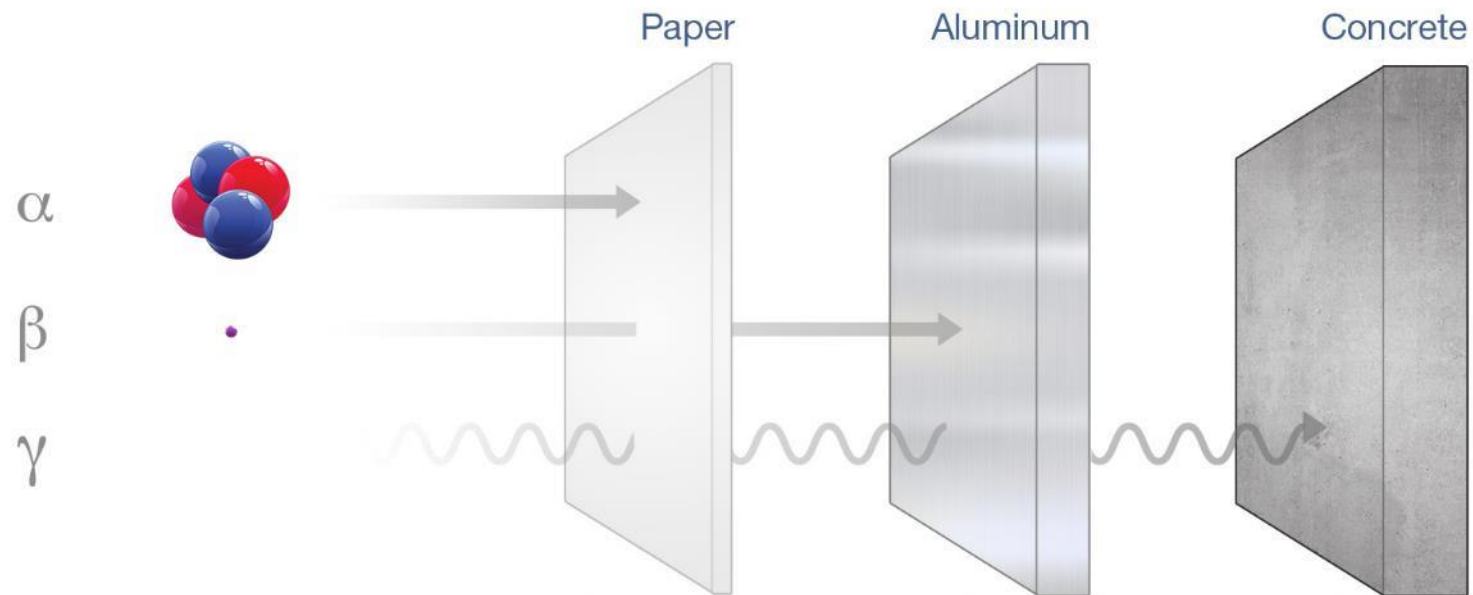
Trials may be conducted across multiple geographies, or there may be interaction between multiple studies (e.g. pooling of long-term response data)

Platform
Technology

**Alpha DaRT Mechanism of Action and Novel
Delivery Techniques Make the Treatment
Broadly Applicable**

Types of Radioactive Decay

Due to the mass of the alpha particle, in comparison to beta particle, alpha has a low penetration power. This means that the outside layer of the human skin, for example, can block these particles.



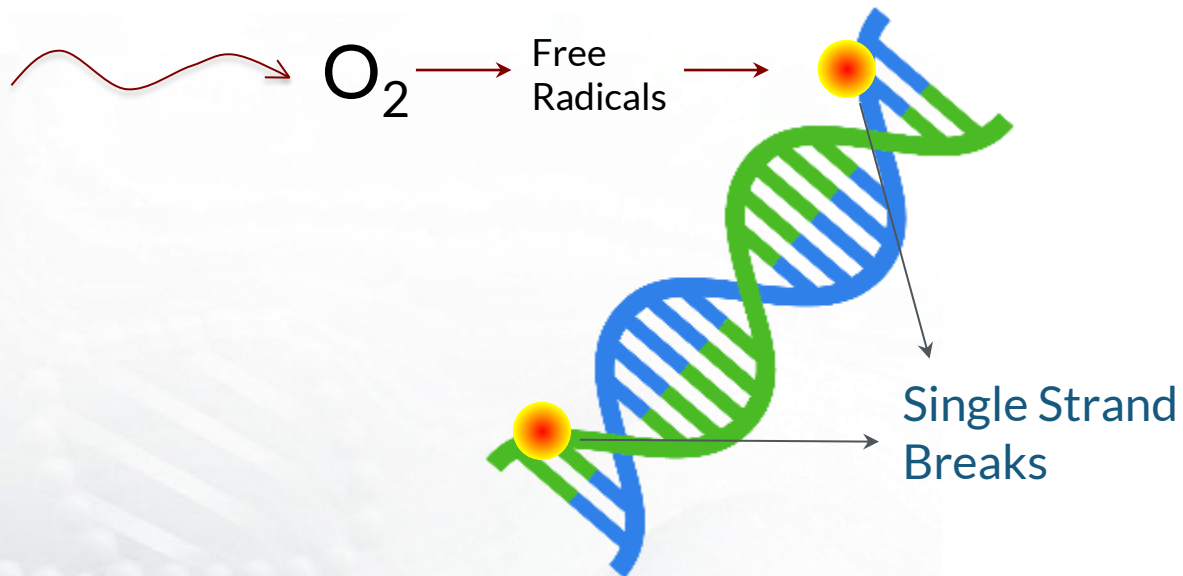
Potent Alpha Radiation: Extensively Damages the DNA

Local radiation therapy with gamma or beta radiation is a mainstay of cancer treatment, but requires high local dose to be effective, as it primarily relies on single-strand breaks in a process relying on oxygen. Alpha radiation can be significantly more efficient given its ability to destroy both strands of the DNA directly, requiring lower levels of radiation

Conventional Gamma/Beta Radiation

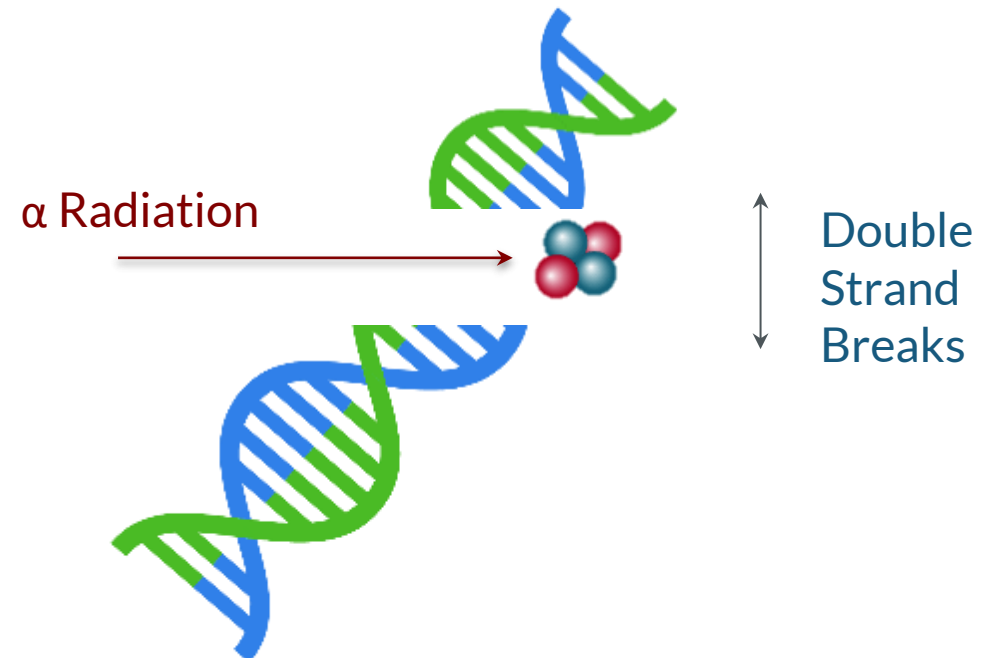
- Indirectly damaging the DNA
- Dependent on oxygen presence
- Repairable single strand breaks

γ/β Radiation



Alpha Radiation

- Directly damaging the DNA
- Independent of oxygen presence
- Irreparable double strand breaks

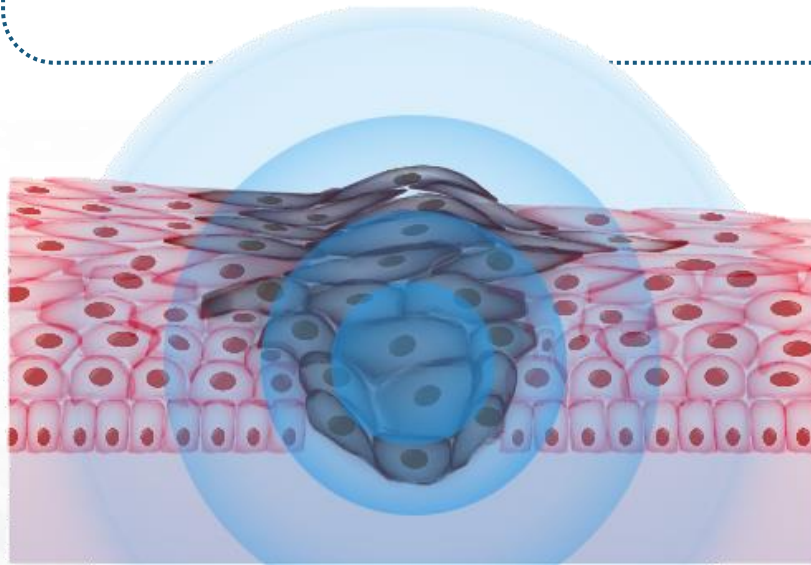


Alpha Radiation is Focal - Short Range Limits Clinical Use

Whereas beta and gamma radiation can penetrate tissue with sufficient range to facilitate tumor coverage (while risking damage to healthy tissue), alpha radiation has short range in tissue (< 100 μm), which limits its clinical usefulness in local delivery

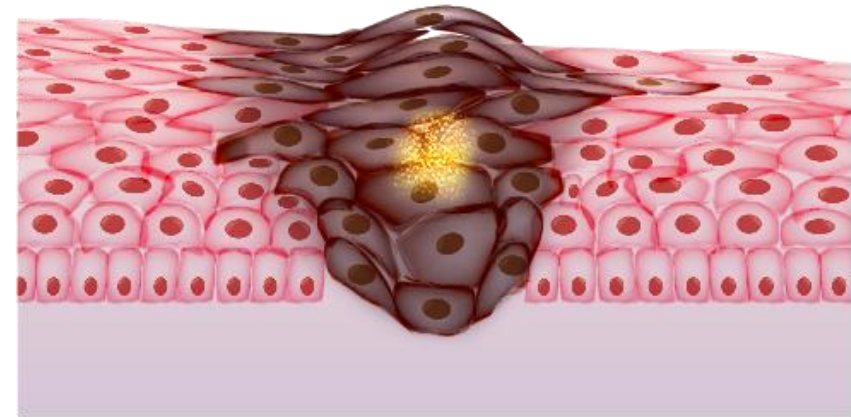
Beta/Gamma Radiation

Long therapeutic range with risk to surrounding organs



Alpha Radiation

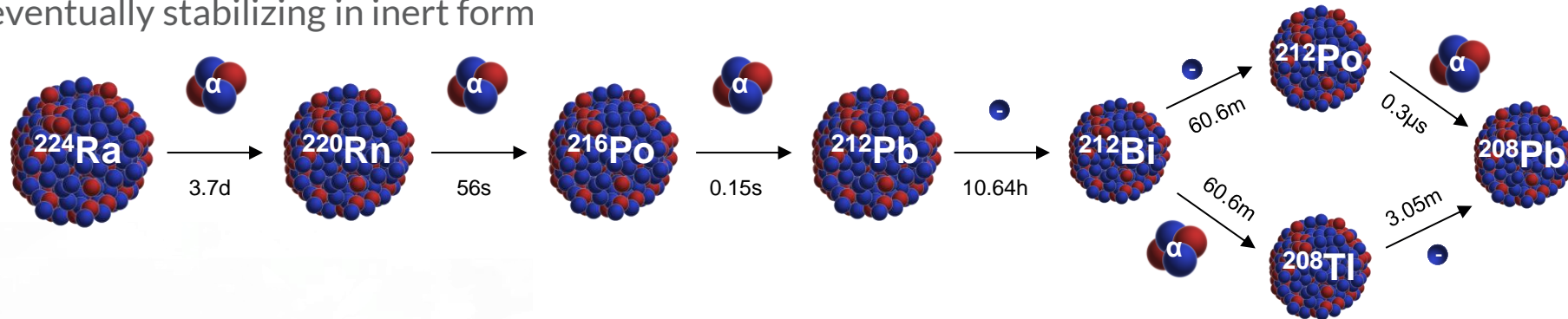
Short range in tissue limits damage to surrounding organs but also limits coverage



Mechanism of Action of the Alpha DaRT Technology

^{224}Ra Decay Chain

- Alpha DaRT leverages the innate decay chain of Radium-224
- The decay chain of Radium-224 includes four alpha particles
- Radium-224 has a half-life of ~3.7 days, while the remaining decay chain has a total half-life of approximately 12 hours, before eventually stabilizing in inert form



Alpha DaRT

- The Alpha DaRT utilizes stainless steel or titanium sources that are impregnated with Radium-224
- When the Alpha DaRT source is injected into the tumor, the radium remains attached to the source while its daughter atoms detach, emitting cytotoxic alpha particle payloads as they move deeper into the tumor until eventually stabilizing

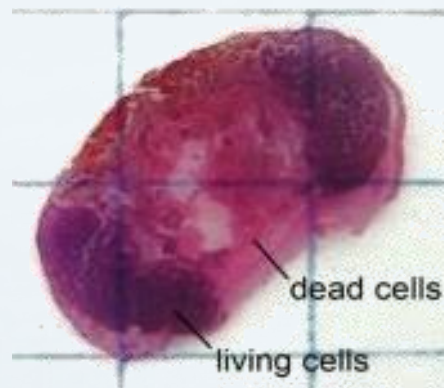
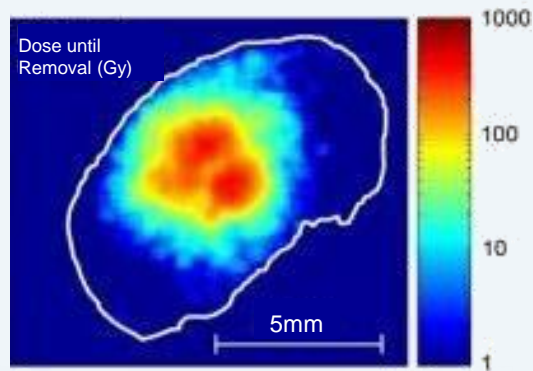
Alpha DaRT is designed to overcome the range limitations of alpha particles through precise release of alpha emitters into the tumor, generating a potent and tight distribution of alpha radiation

Alpha DaRT - Diffusing Alpha-emitters Radiation Therapy

<https://www.youtube.com/watch?v=nwfzJHm0fTQ>

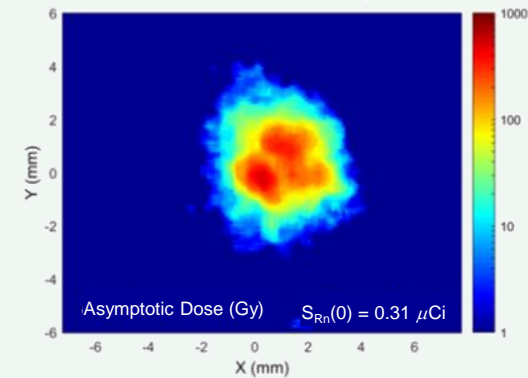
Alpha DaRT Has a Unique Potential to Preserve Healthy Tissues

Alpha DaRT is unique in its potential to deliver a high dose of radiation in a very conformal form, with sharp dose drop-off outside of a 5mm range

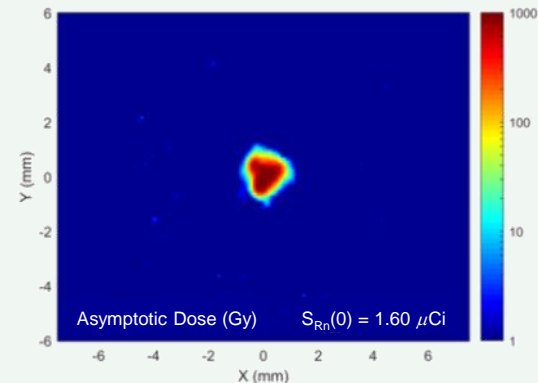


The range of the Alpha DaRT was observed to be meaningfully more extensive in tumor tissue than in healthy tissue in animal studies

Diffusion in SCC

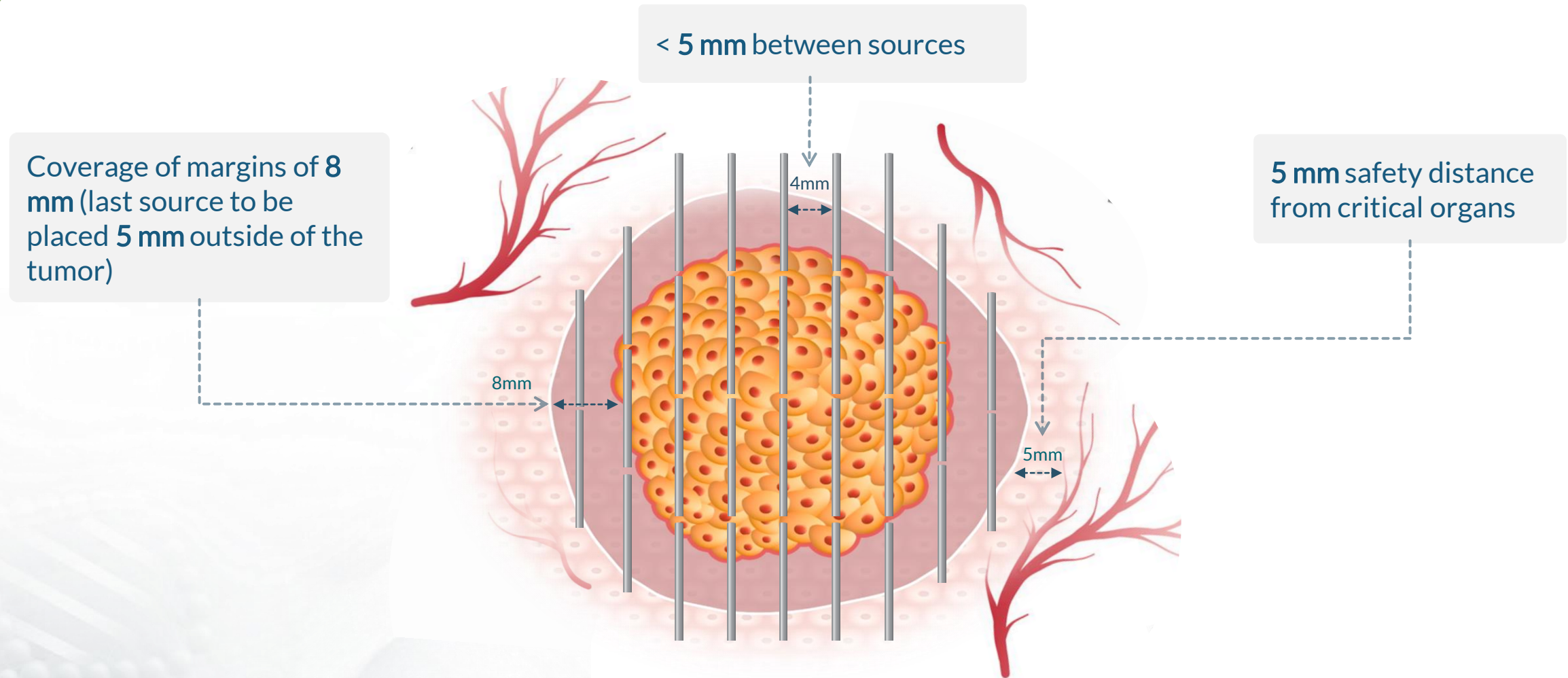


Diffusion in healthy tissue



Alpha DaRT Source Placement

Through a series of Alpha DaRT injections to the tumor, spread a few millimeters apart, a clinician can potentially deliver alpha radiation to the full geometry of the tumor while taking care to avoid sensitive healthy tissue around the tumor



Our Applicators Allow Delivery Into Both Superficial & Internal Tumors

We Have a Total of Seven Applicators Which Have Been Developed for a Range of Potential Uses to Accommodate for:

Treatment delivery method

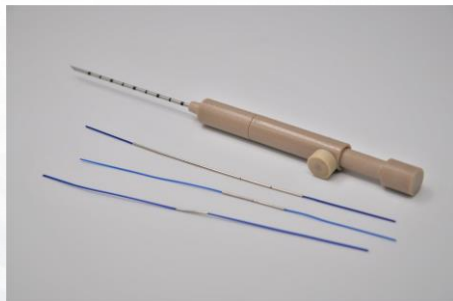
Duration of implantation

Tumor Location

Temporary Implants (Superficial Tumors)

Applicators are supplied preloaded, sealed and designed for immediate use
Sources are hollow and strung onto a surgical suture, allowing the clinician to insert the sources into the tumor and leave the suture in place

Alpha DaRT Needle Applicator



Needle Applicator in Action



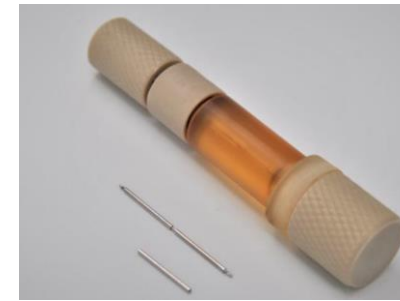
Example Indication: Superficial Tumors.

sources are affixed to a biocompatible suture and loaded inside the needle

Permanent Implants (Internal Tumors)

Applicators are designed to allow clinicians flexibility to receive the sources preloaded, or load the sources in the course of treatment, and to select how many sources to deliver

Loading Device



Procedure: FNA in Conjunction with Endoscopic Ultrasound



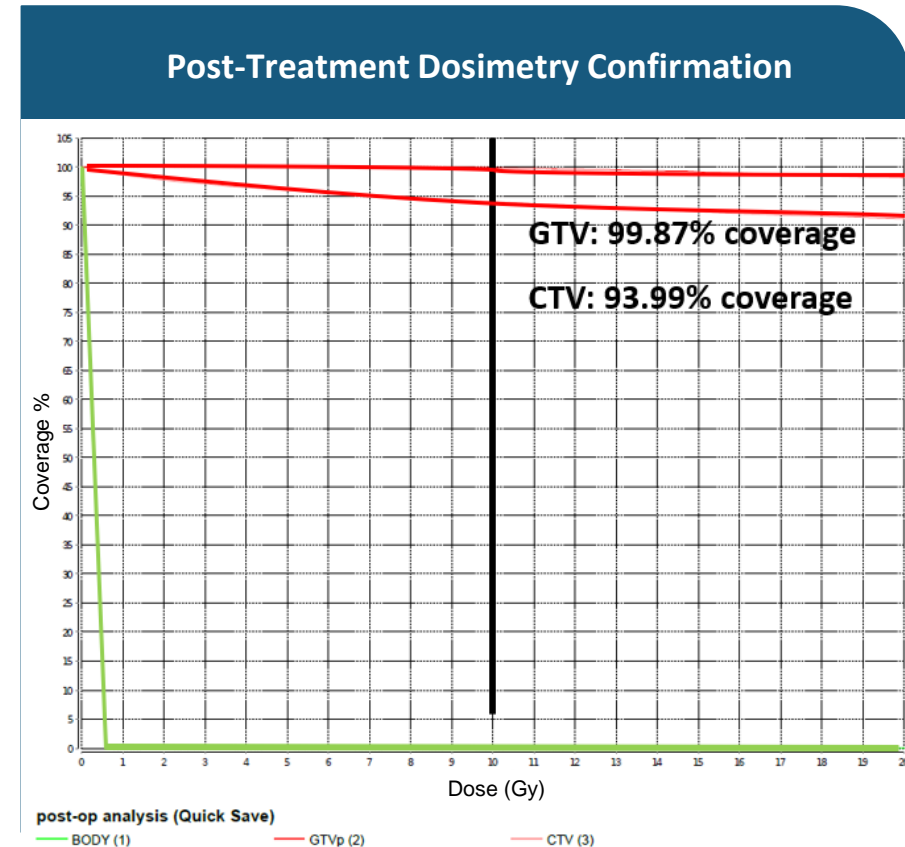
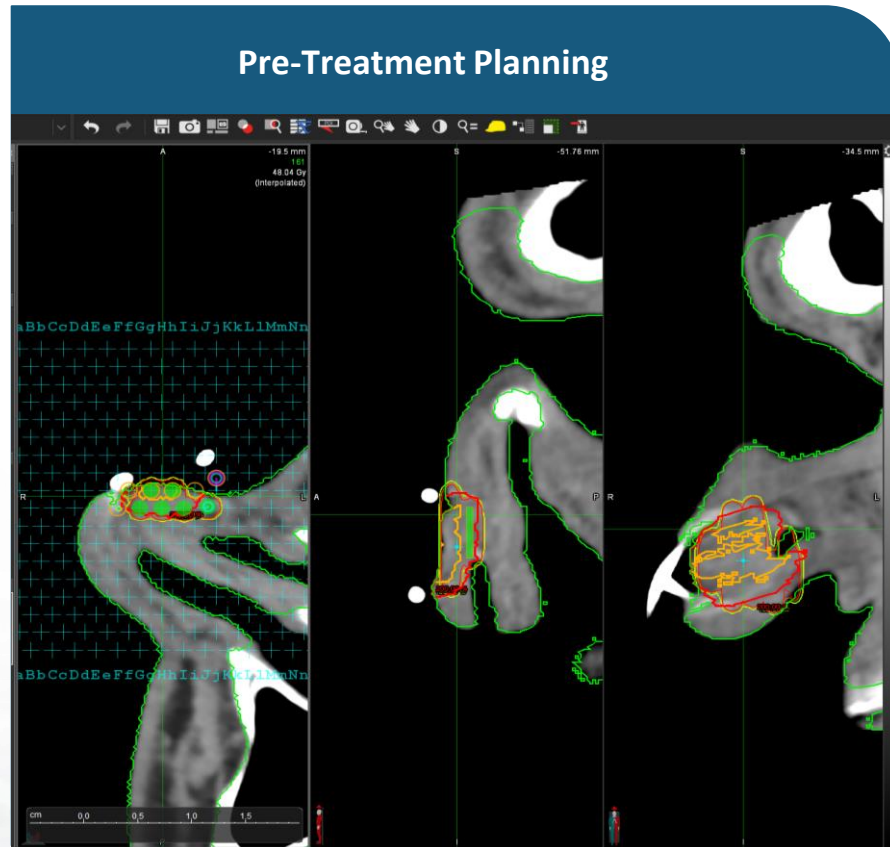
Example Indication: Pancreatic Tumors.

Device is designed to be fitted to existing needles such as standard Fine Needle Aspirator (FNA) to ultimately deliver sources into the tumor



Treatment Planning in Partnership with MIM Software

Treatment planning software may serve to increase the precision and robustness of Alpha DaRT use, by allowing the clinician to calculate the alpha-specific dosimetry for the desired plan before treatment, and then check the tumor coverage post treatment



Alpha Tau has announced an agreement with MIM Software for continued collaboration on Alpha DaRT treatment planning, including development of new features and support for the Alpha DaRT across multiple potential indications, integration into all clinical trials involving the Alpha DaRT, and bundling the MIM software with the Alpha DaRT for future commercial sales.

Preclinical Data

**Demonstrated Local and Immune Responses
Across a Variety of Tumor Types in Animal
Models**

Response Observed in All Tested Solid Tumors in Preclinical Studies

23 Published Preclinical Studies in Peer-Reviewed Journals

Across a variety of tumor types, we have not observed resistance to the radiation delivered by the Alpha DaRT

Squamous Cell Carcinoma

Colon Carcinoma

Lung Adenocarcinoma

Glioblastoma Multiforme

Lung Squamous Cell Carcinoma

Sarcoma

Pancreas Adenocarcinoma

Melanoma

Prostate Adenocarcinoma

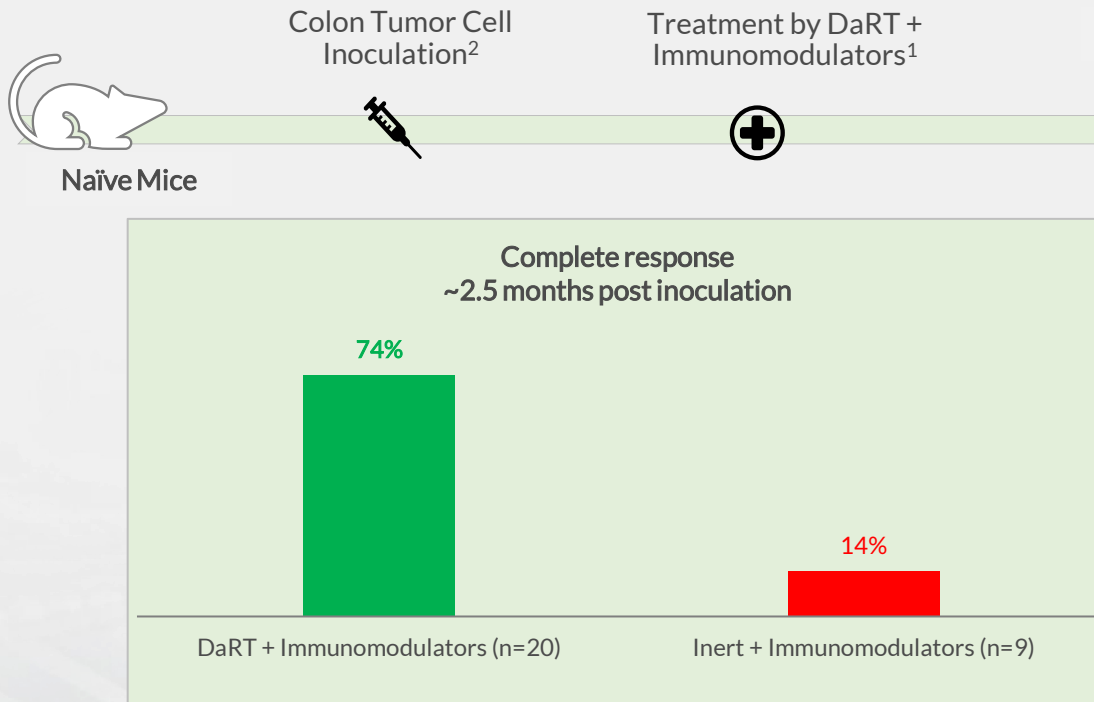
Breast Carcinoma



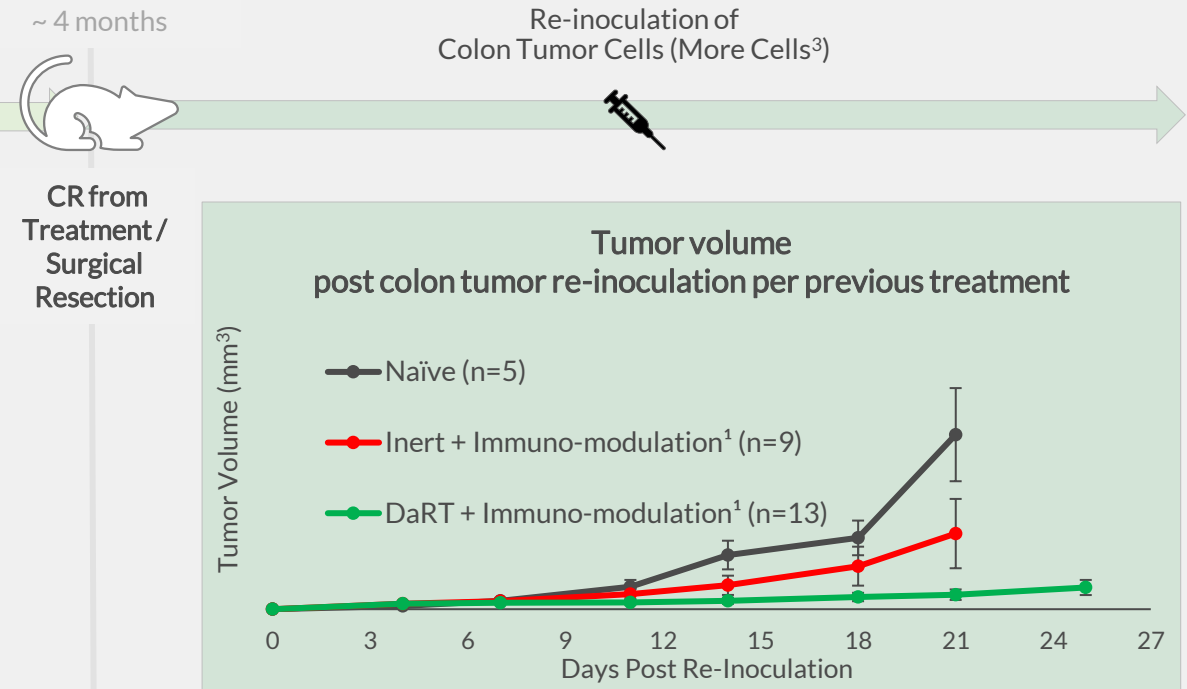
Observed Cancer-Specific Immune Protection (1/2)

In challenging mice 4 months after treatment, those previously treated by the Alpha DaRT displayed a meaningful retained protection against regrowth of the same tumor type, as compared to the two control groups

Tumor Treatment by DaRT + Immunomodulators¹



Tumor Re-Inoculation after Treatment by DaRT + Immunomodulators vs. Inert¹

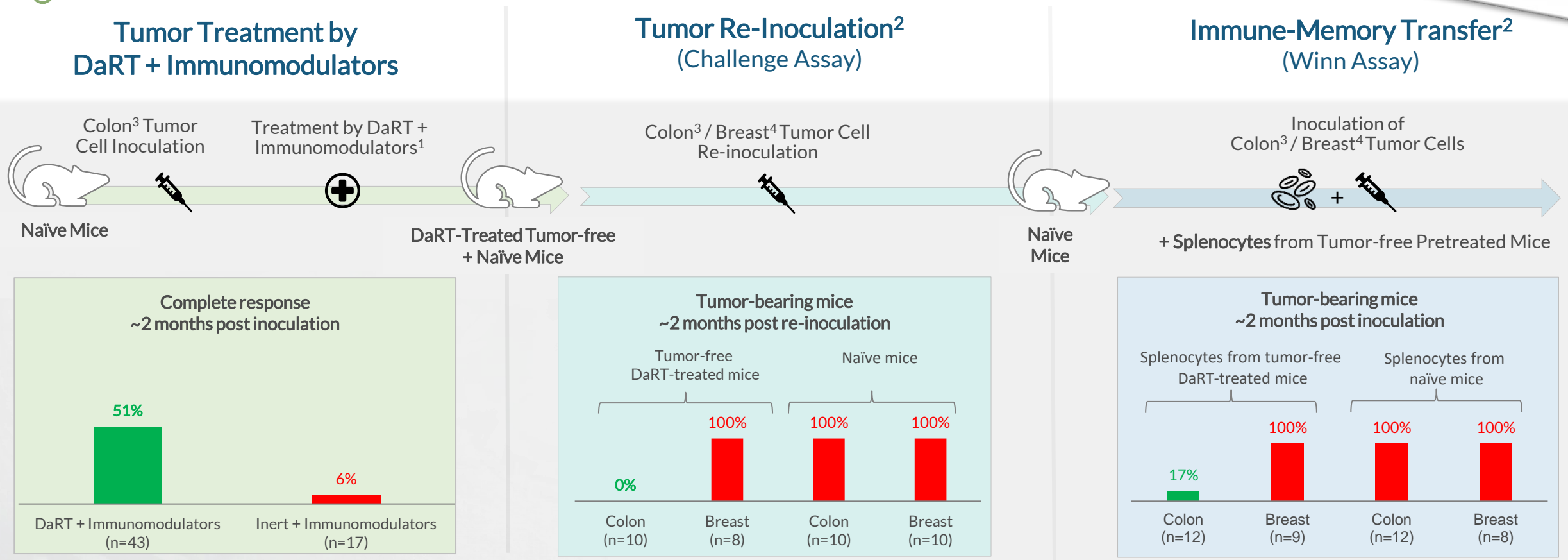


(1) Three groups of mice were inoculated with 5×10^5 CT26 tumor cells and then treated with (1) DaRT + CP, Sildenafil and 2xCpG, N=10 (2) DaRT + CP, Sildenafil and CpG, N=10 or (3) inert + CP, Sildenafil and 2xCpG, N=9. Complete responders or tumor-resected mice were re-challenged ~4 months after DaRT with 5×10^6 CT26 tumor cells.
 (2) $CT26 \ 5 \times 10^5$.
 (3) $CT26 \ 5 \times 10^6$.

Observed Cancer-Specific Immune Protection (2/2)

This activity was then shown to be tumor-specific – the challenge only resisted regrowth of the same tumor line. It was also shown to be transferrable via the transfer of splenocytes

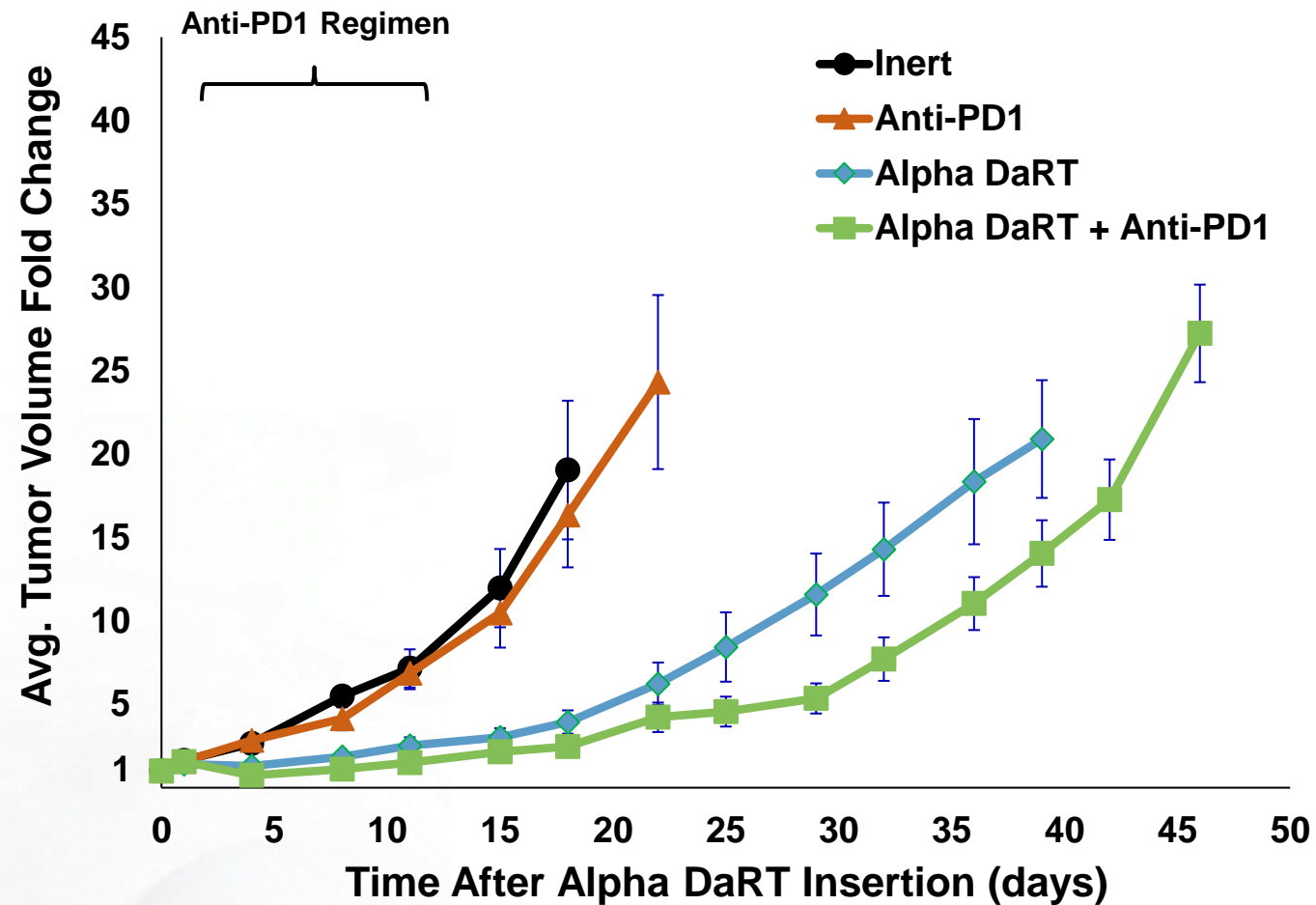
Combining alpha radiation-based brachytherapy with immunomodulators promotes complete tumor regression in mice via tumor-specific long-term immune response
 Vered Domankevich, Adi Cohen, Margalit Efrati, Michael Schmidt, Hans-Georg Rammensee, Sujit S. Nair, Ashutosh Tewari, Itzhak Kelson & Yona Keisari



(1) Immuno-modulation refers to a combination of low dose CP, Sildenafil and CpG.
 (2) Mice with CR from DaRT + immuno-modulators (n = 18) and naive mice (n = 20) were inoculated with 5 x 10⁵ CT26 or DA3 cells 52 days post inoculation (Challenge Assay). Naive mice were injected intradermally with splenocytes from either naive or CT26-bearing mice treated by DaRT and immunomodulators, coupled with CT26 or DA3 tumor cells (Winn assay). The presented results are based on cumulative data from two different experiments.
 (3) CT26 5 x 10⁵.
 (4) DA3 5 x 10⁵.

Alpha DaRT Elicits Effect from anti-PD1 in SCC Mouse Model (SQ2)

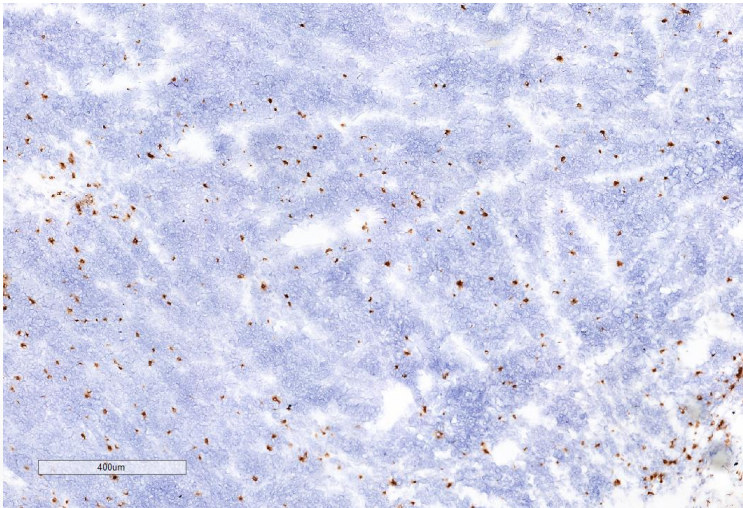
While mice with the SQ2 squamous cell carcinoma model showed little to no effect when treated with a murine anti-PD1 agent, the observed effect was larger for the combination with Alpha DaRT than for Alpha DaRT on its own



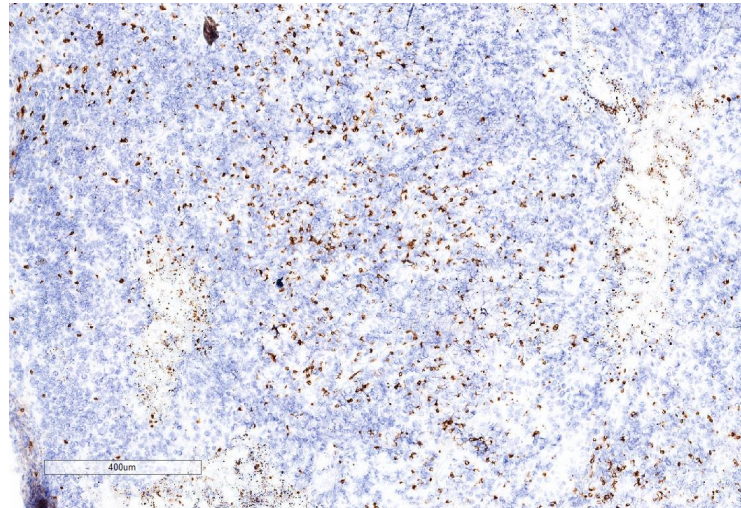
Alpha DaRT Increases Infiltration of CD3+ T-cells Into the Tumor

The combination of Alpha DaRT with anti-PD1 demonstrates the highest level of TILs in mice with SQ2 SCC tumors, potentially indicating an ability to potentiate the checkpoint blockade

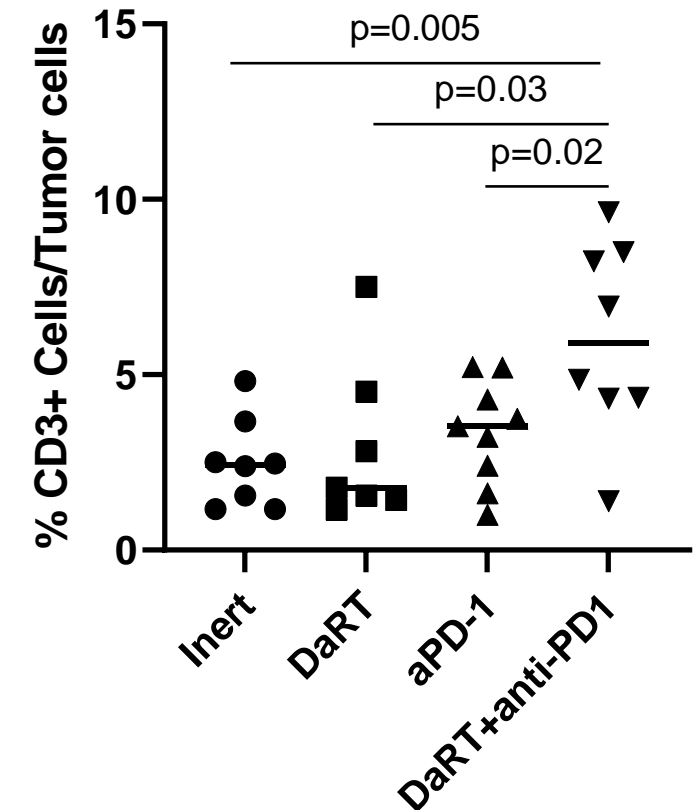
anti PD-1



Alpha DaRT + anti PD-1



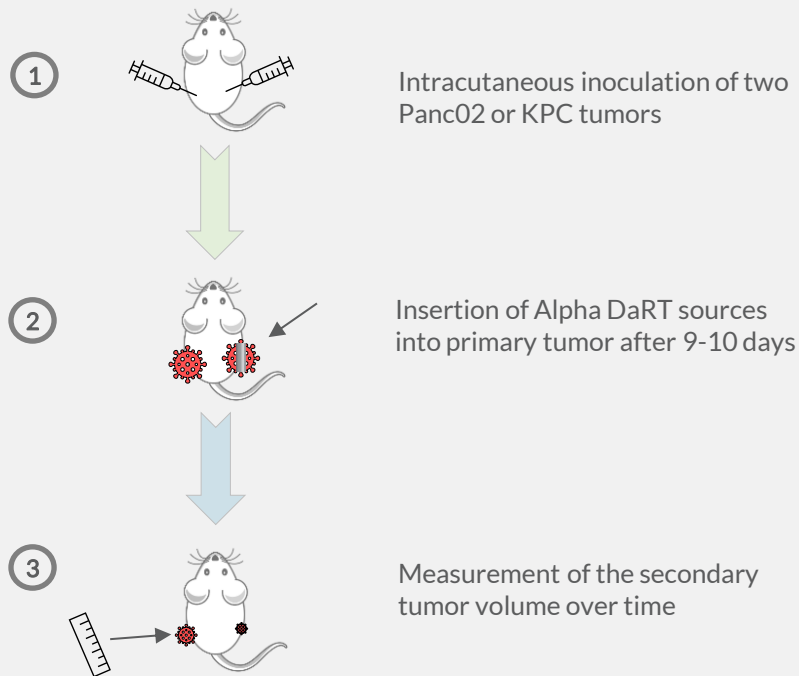
TILs in SQ2 tumors



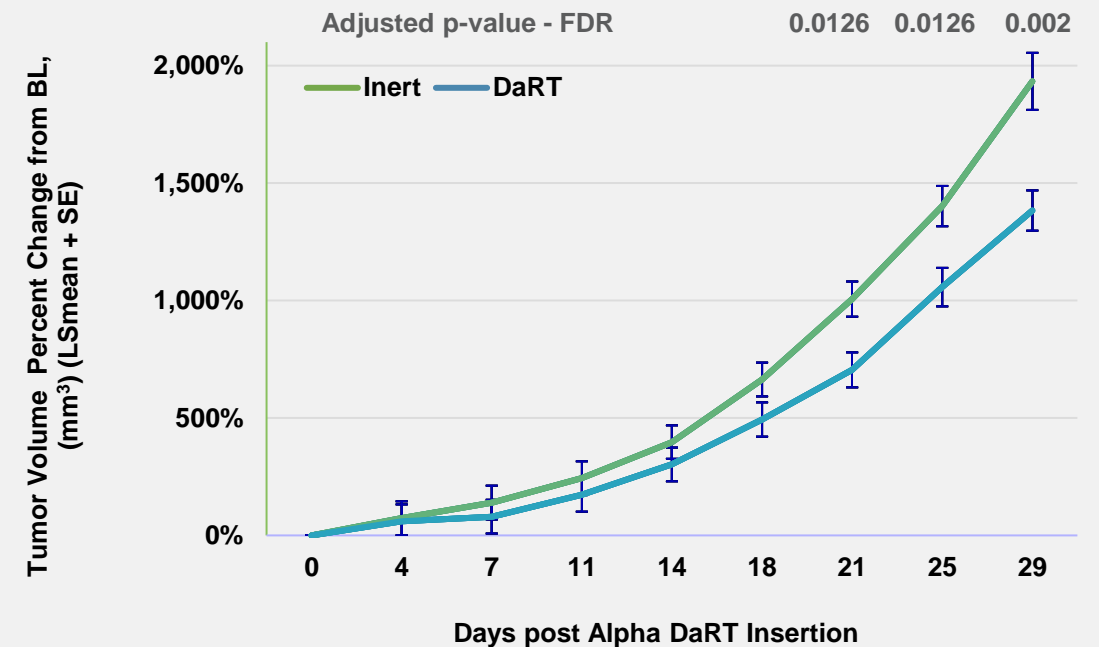
Immune Response Observed Even in “Cold” Pancreatic Tumor Model

When treating one pancreatic cancer tumor with Alpha DaRT sources instead of inert sources, a statistically significant decline in secondary tumor growth rate was seen.

Experiment Design



Secondary Tumor Growth (Untreated)



Similar effect also observed when examining the Panc02 and KPC tumor models individually rather than grouped into a larger analysis.

Clinical Data

Encouraging Results Across a Variety of Solid Tumor Types

Outline of Our First Clinical Study: Skin / Head & Neck SCC

Trial Sites: Israel, Italy

Primary objective: Evaluate feasibility & safety

Secondary objective: Evaluate initial tumor response & local progression-free survival

Key Eligibility Criteria



SCC histopathologically confirmed

Lesions ≤ 5 cm*

Age ≥ 18

ECOG performance scale ≤ 2

Patients W/O immunosuppression

Generally **previously treated by radiation or surgery, recurrent**

Treatment & Procedure



Treatment plan based on CT-simulation

Sources 1cm length, 0.7mm diam.

Activity per source 2 μ Ci

Outpatient setting

Local anesthesia

Number of sources inserted: min 3, max 169

Timeline and Follow-Up



Alpha DaRT sources insertion

Removal after 15 days

Check-up on days 4, 9 and 30 after insertion

Long term follow up based on standard of care

*in the longest diameter (without nodal spread).

Skin / Head & Neck SCC Study Results



100% overall response rate



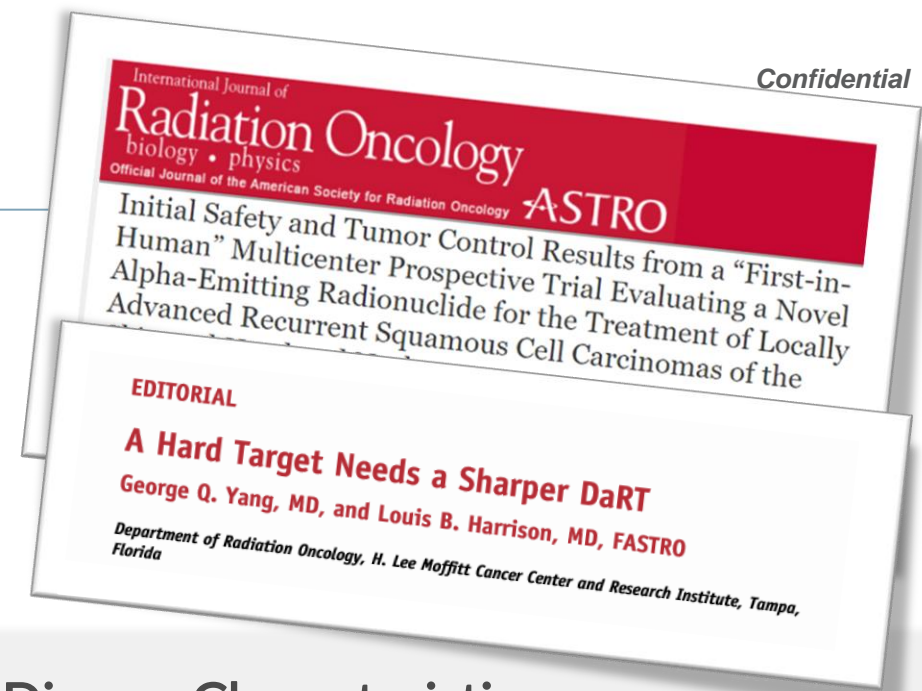
Durable responses observed



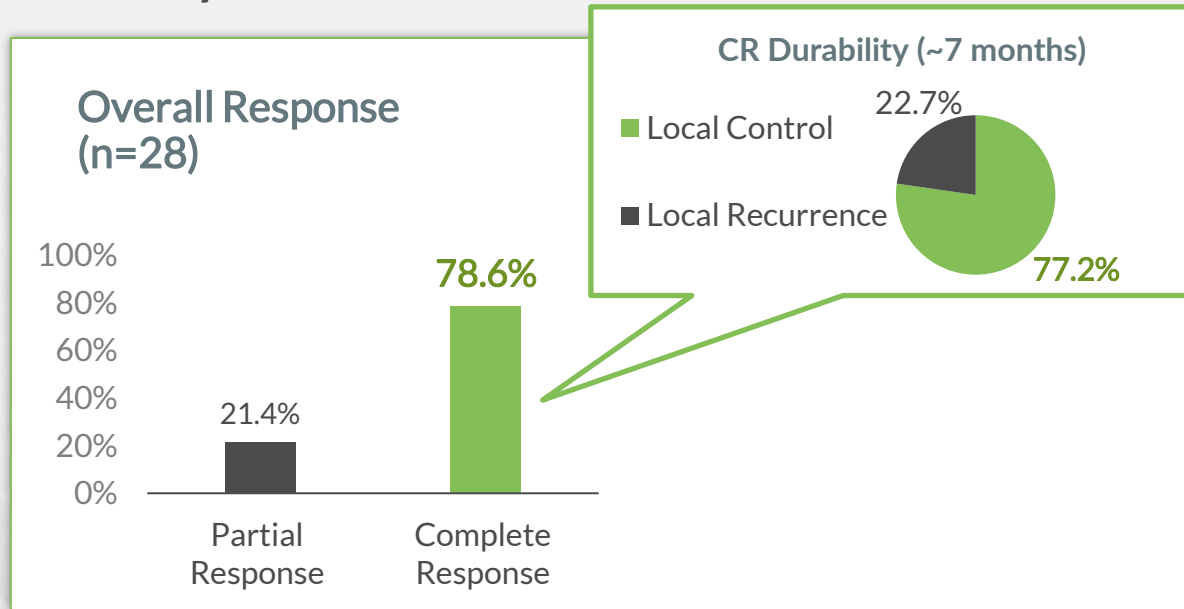
Responses observed within days



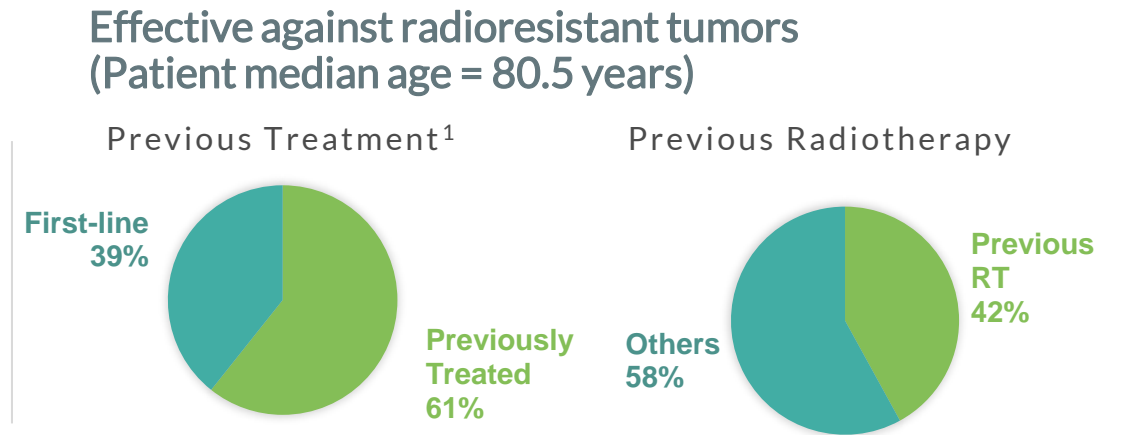
Well tolerated; no systemic toxicity observed



Efficacy Results



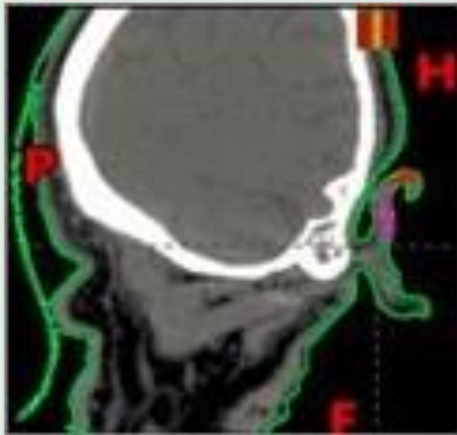
Baseline Disease Characteristics



¹Most patients (60.7%) had recurrent and previously treated disease by either surgery, prior external beam radiotherapy or both; 13 of 31 (42%) had received prior RT.

AP-02 Complete Response

Age	80	Applicators used	6
Previous treatments	Radiation, Surgery	Alpha DaRT sources inserted	10
Tumor initial volume [cm ³]	1.4	Total activity [μCi]	20



Planning



Before
21-Mar-2017



During
21-Mar-2017



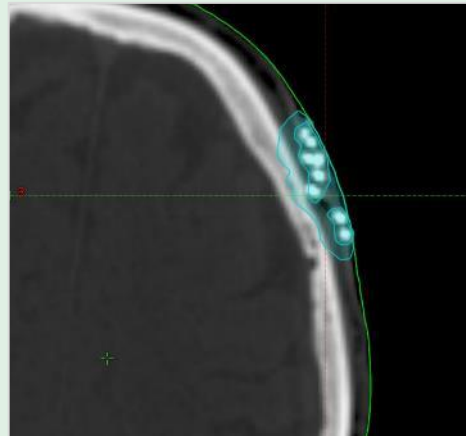
After
01-Jun-2017

AP-022 Complete Response

Age	68	Applicators used	12
Previous treatments	None	Alpha DaRT sources inserted	24
Tumor initial volume [cm ³]	1	Total activity [μCi]	48



Before
27-Aug-2018



During
30-Aug-2018



During
30-Aug-2018



After
30-Sep-2018

Alpha DaRT Treatment was Well Tolerated

No systemic toxicities and minimal (\leq grade 2) local toxicities observed to date



Targeted treatment

Designed to spare neighboring healthy tissue



No systemic toxicity observed

Negligible and short-term radioactivity in the patient's body



Minimal local toxicity observed

Minimal local toxicity with grade ≤ 2 resolved within a month



Safe procedure for caregivers

No special shielding required



No suppression of immune system observed

Critical in times of pandemic

Acute Local Toxicity	Incidence (%)		
	Severity Grade		
	1	2	3
Administration site erythema	11 (41%)	9 (33%)	0 (0%)
Administration site edema	9 (33%)	10 (37%)	0 (0%)
Administration site pain	8 (30%)	11 (41%)	0 (0%)
Administration site exudate	2 (7%)	8 (30%)	0 (0%)
Administration site ulcer	4 (15%)	5 (19%)	0 (0%)
Administration site numbness	1 (4%)	0 (0%)	0 (0%)
Administration site pruritus	3 (11%)	0 (0%)	0 (0%)
Administration site bleeding	1 (4%)	0 (0%)	0 (0%)
Aural myiasis (administration site)	1 (4%)	0 (0%)	0 (0%)
Decreased appetite	1 (4%)	0 (0%)	0 (0%)

Potential Systemic Immune Effect Observed in One Patient Where a Second, Untreated Lesion Manifested CR

✔ Complete Response + Potential Systemic Immune Effect



Treated Tumor

Before

30-Nov-17



After

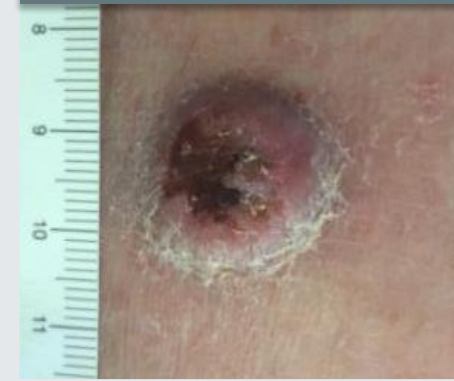
29-Dec-17



Untreated Tumors

Before

30-Nov-17



After

29-Dec-17



U.S. Pilot Feasibility Study – Trial Design

FDA Breakthrough Device Designation received in June 2021



Locations	5 centers in the US, led by Memorial Sloan Kettering Cancer Center
Treatment Timeframe	H2 2021
# of Patients	10
Tumor Type	Skin Cancers
Primary Objectives	Determine feasibility of delivering radiotherapy using Alpha DaRT, with successful delivery in at least 7 patients, and assess frequency and severity of acute AEs
Secondary Objectives	Assessments of radiotherapy-related AEs, tumor response, radiation safety, stability of device placement, and QoL
Eligibility	Malignant skin or superficial soft tissue tumor 1-5 cm in size that is suitable for percutaneous interstitial brachytherapy

Case Study - 77 Y/O with Recurrent BCC on the Nose



Prior treatments: Surgery (2005)

Tumor Size:

Longest diameter 1.59 cm

Depth 0.5 cm

Volume 0.65 ml

Alpha DaRT Treatment:

Applicators used 15

Alpha DaRT sources inserted 20

Total activity [μ Ci] 40

Case Study - 77 Y/O with Recurrent BCC on the Nose

Results



Simulation Day



Insertion Day



Removal Day
15 days



Complete Response
12 weeks

U.S. Pilot Feasibility Study – Safety Results

- Twenty-two (22) total adverse events (AEs) were reported in 7 subjects
- Most AEs were of mild or moderate severity
- Two (2) serious AEs (SAEs) in a single subject – **both not related to study device or procedure**

Number of Subjects with Procedure- or Device-Related* Adverse Events by Severity Grade

Adverse Event	Severity Grade		
	1	2	3
Dermatitis radiation	2	1	0
Localized edema	1	0	0
Joint range of motion decreased	0	1	0
Pain	0	1	0
Pruritis	2	0	0
Wound infection	0	1	0

Note: Adverse events are presented according to CTCAE V5 coded terms.

* Probably or possibly related

U.S. Pilot Feasibility Study – Efficacy Results



All 10 subjects achieved a **complete response (CR)** at the 12-week follow-up visit



There were **no reported relapses** of disease by the final study visit at 24 weeks

Impressive Efficacy & Safety Data Collected in Long-Term Follow-Up

Data Set Description

Data collected from four feasibility trials in unresectable, recurrent, or locally advanced head and neck or skin cancers

81 treated lesions in 71 patients

Median follow-up of 14 months (range: 2-51 months)

Efficacy

- ✓ 89% of treated lesions achieved complete response (CR)
- ✓ 77% two-year local recurrence-free survival (LRFS)



Safety

- ✓ ~20% of patients had acute grade 2 toxicities and no patients had acute grade 3 or higher toxicities
- ✓ No grade 2 or higher late toxicities observed 6 months post-treatment

Short-term local responses led to durable long-term control in difficult-to-treat tumors



Outline of Our Multicenter Pivotal Recurrent SCC study

-  **Primary / safety objectives:**
 - ORR based on Best Overall Response
 - DOR 6 months after initial response
 - Assess the safety based on statistics of device-related AEs (per CTCAE v5)
-  **Secondary objectives:** Evaluate O-DOR, local control, PFS and OS (all up to 12 months), and QoL Metrics

Key Eligibility Criteria



Recurrent non-metastatic cutaneous **SCC**

Patient with **no curative standard-of-care options**

No **previously untreated SCC**

Sample size N = 86 patients

Treatment and Procedure



Treatment plan based on CT-simulation

Sources 1cm length, 0.7mm diam.

Activity per source 3 μ Ci

Local anesthesia

20 U.S. sites including UCLA, Emory University, Mayo Clinic, etc.

Timeline and Follow-Up



Alpha DaRT sources insertion

Removal after 14 to 21 days

Weekly **follow-up** during the treatment period

Focus on Internal Organ Treatments

We continue to make progress across internal organ indications, with multiple indications in large animal testing and/or in the stage of regulatory protocol submission for upcoming clinical trials, expanding from Israel to elsewhere in the world.

Internal Organs in Focus



- Prostate – in Human Clinical Trials
- Pancreas – in Human Clinical Trials
- Liver – in Human Clinical Trial
- Brain – GBM + Brain Mets
- Breast
- Lungs
- Rectum



Internal Organs

**A Feasibility and Safety Study of Intratumoral
Diffusing Alpha Radiation Emitters on
Advanced Pancreatic Cancer**
AT-PANC-101

Outline of the Pancreas Pilot Study in Canada

-  **Primary objective:** Evaluate feasibility & safety of Alpha DaRT sources inserted into pancreas in terms of incidence of device related AEs & SAEs.
-  **Secondary objective:** Evaluate efficacy (radiological ORR and change in tumor markers), OS, stent durability, and QoL

Key Eligibility Criteria

Locally **advanced (Stage II or III)** or **metastatic (Stage IV)** pancreatic adenocarcinoma

Inoperable pancreatic cancer because:

- **Unresectable**
- **Metastatic** disease
- Medically **unfit** for surgery

No **concomitant chemotherapy** or **immunotherapy**

Sample size N = 37 patients

Treatment and Procedure

Treatment plan based on CT

Sources 0.7 mm in diameter and 10 or 20 mm in length

Activity per source 3 μ Ci

Source insertion using **endoscopic ultrasonography** under sedation

Timeline and Follow-Up

Alpha DaRT sources insertion

Check-up on days 6, 15, 21, 35, 60 after insertion

Follow-up duration up to 2 years

Limit of 1 patient / month for first 5 patients, to confirm safety

Canada Pancreas Trial Baseline Characteristics

Subject ID	Age (years)	Sex	ECOG Score	Tumor Stage	Tumor Location	Pancreatic Cancer Inoperability	Prior Treatments	Length of Alpha DaRT Sources (cm)	GTV Coverage @ 16 Gy Alpha Radiation Dose
PANC-101-02-001	78	M	1	Stage IV	Pancreatic head/uncinate	Metastatic disease	Chemotherapy: Gemcitabine and Paclitaxel; Gemcitabine	3	8%
PANC-101-02-002	68	F	2	Stage III	Pancreatic head	Unresectability	Chemotherapy: FOLFIRINOX (fluorouracil+leucovorin+oxaliplatin+irinotecan); Gemcitabine and Paclitaxel	11	13%
PANC-101-02-003	69	F	0	Stage II	Pancreatic head/neck	Unresectability	Chemotherapy: FOLFIRINOX; Abraxane and Gemcitabine	21	44%
PANC-101-02-004	84	F	1	Stage IV	Pancreatic head	Metastatic disease	Chemotherapy: Capecitabine	22	12.5%
PANC-101-02-005	71	F	0	Stage IV	Pancreatic neck	Metastatic disease	None	24	29.5%

Safety and Feasibility Outcomes

- ✔ Successful delivery to all 5 patients
- ✔ All patients were **discharged** from the hospital **on the same day** as the procedure
- ✔ All device- or procedure-associated adverse events (2) were **mild** (Grade 1)
- ✔ **No Grade 3** or higher associated events
- ✔ All SAEs were **not associated** with the Alpha DaRT or the procedure

Early Response Data

Accepted Manuscript

Submission Date: 2024-05-29
 Accepted Date: 2024-08-02
 Accepted Manuscript online: 2024-08-12

Endoscopy International Open

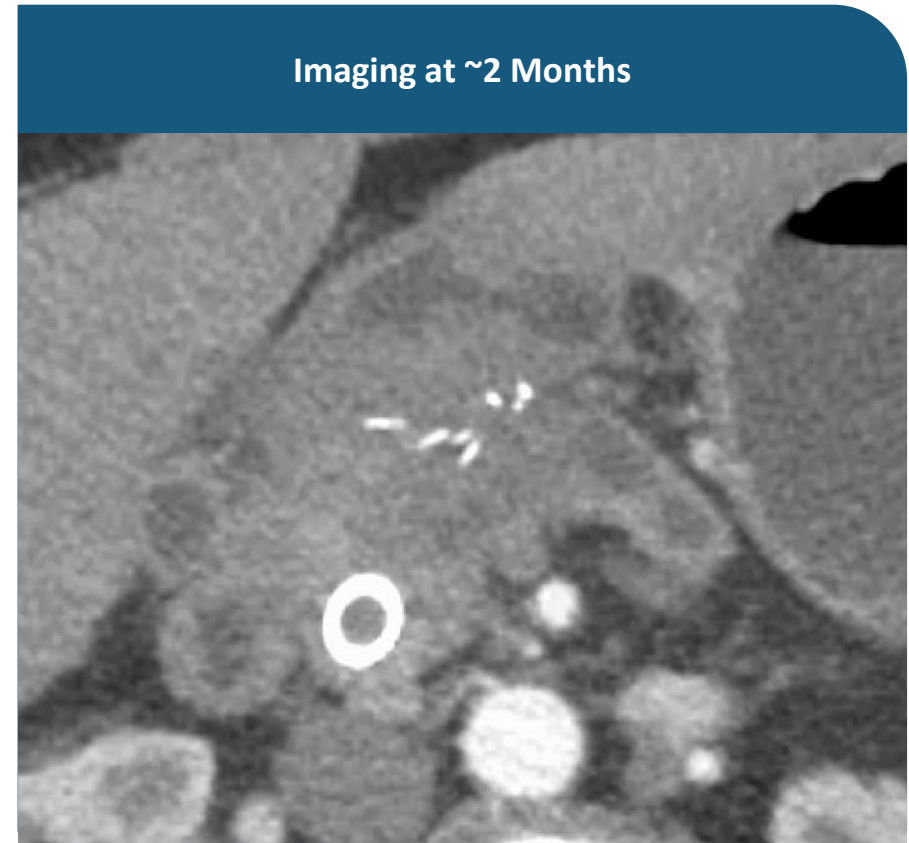
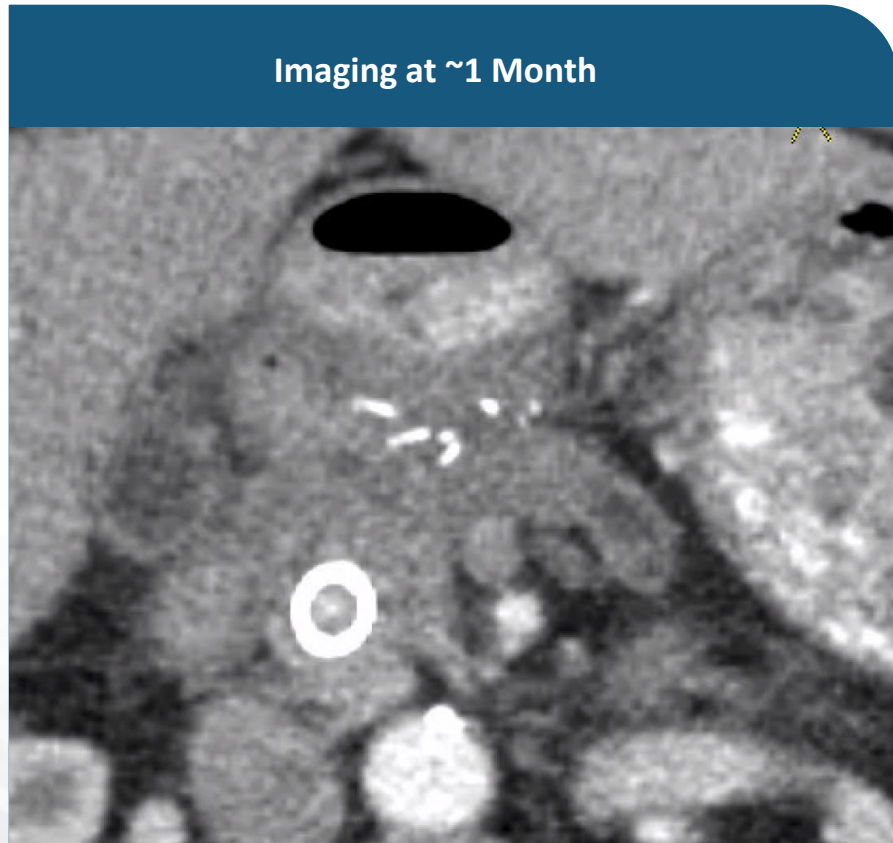
Feasibility and safety of endoscopic ultrasound-guided diffusing alpha emitter radiation therapy for advanced pancreatic cancer: Preliminary data

Corey S Miller, Magali Lecavalier-Barsoum, Kim Ma, Miriam Santos Dutra, Youri Kaitoukov, Boris Bahoric, Nada Tomic, Francine

Subject ID	Age (years)	Sex	ECOG Score	Tumor Stage	Tumor Location	Pancreatic Cancer Inoperability	Prior Treatments	Length of Alpha DaRT Sources (cm)	GTV Coverage @ 16 Gy Alpha Radiation Dose
Progressive Disease; Death ~3 months after treatment								3	8%
Progressive Disease; Death ~3 months after treatment								11	13%
Stable Disease at 28 days; Partial Response at 69 days								21	44%
Stable Disease at 28 and 98 days								22	12.5%
Stable Disease at 28 days								24	29.5%

PANC-101-02-003 – Partial Response

Patient #3 in the trial demonstrated a partial response at 69 days after treatment, as can be seen below, while the Alpha DaRT sources appear to stay largely in place

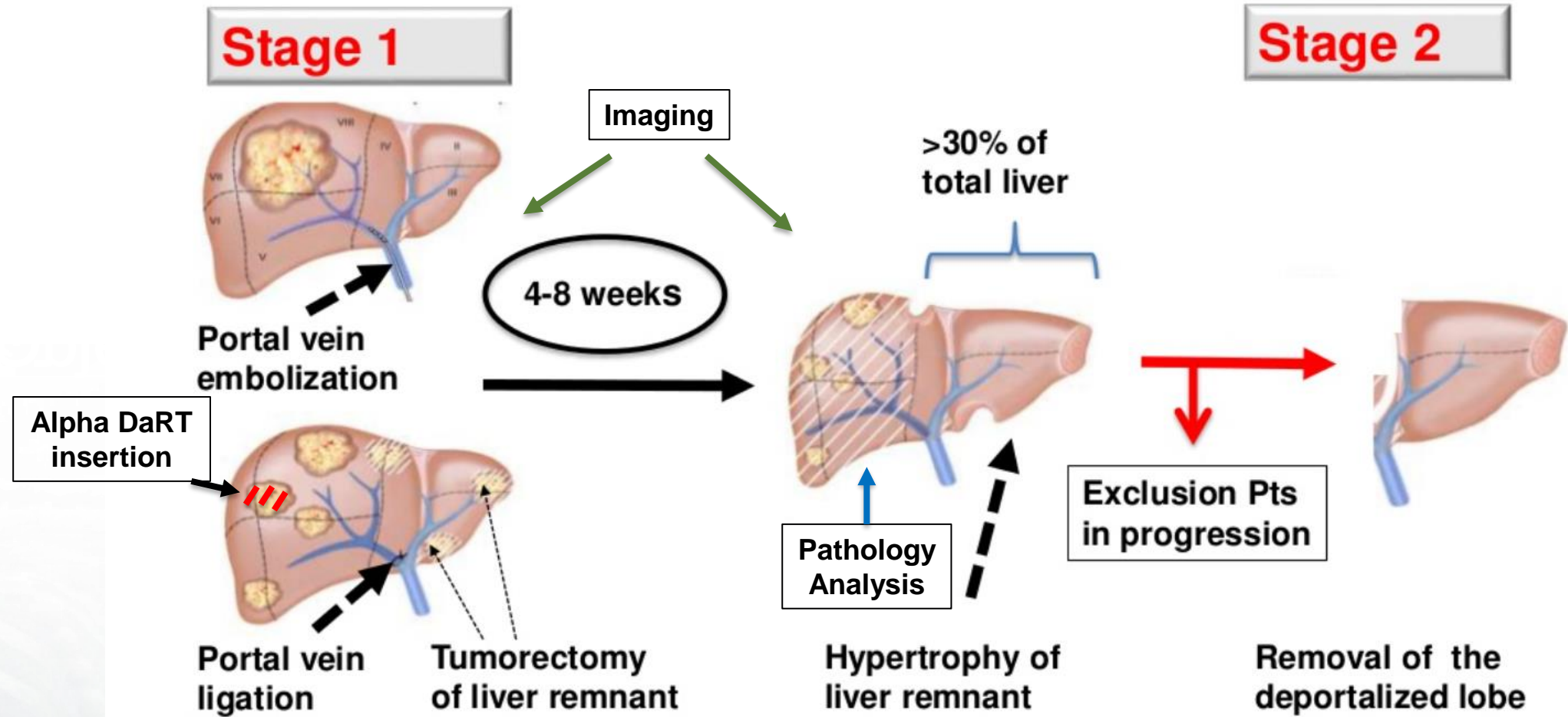


Internal Organs

**A Feasibility and Safety
Study of Intratumoral Diffusing
Alpha Radiation Emitters for the
Treatment of Liver Metastases**
CTP-LIV-00



Study Schema

Liver study



Clavien et al. Strategies for safer liver surgery. NEJM, 2017

Outline of Liver Metastases Study

-  **Primary objectives:** Evaluate feasibility & safety of Alpha DaRT implanted in liver metastases
-  **Secondary / exploratory objectives:** Evaluate pathological and radiological response, determine immunological impact, stratify differences in response by histopath. growth patterns (vascular / immuno.)

Key Eligibility Criteria



Referred for a **two-staged hepatectomy** to resect liver metastases of colorectal cancer

No prior use of **systemic investigational agents** for primary cancer

Sample size N = 10 patients

Treatment and Procedure



Treatment plan based on CT scan or MRI

Sources 0.7 mm in diameter and 1 cm in length

Activity per source 3 μ Ci

General anesthesia

Timeline



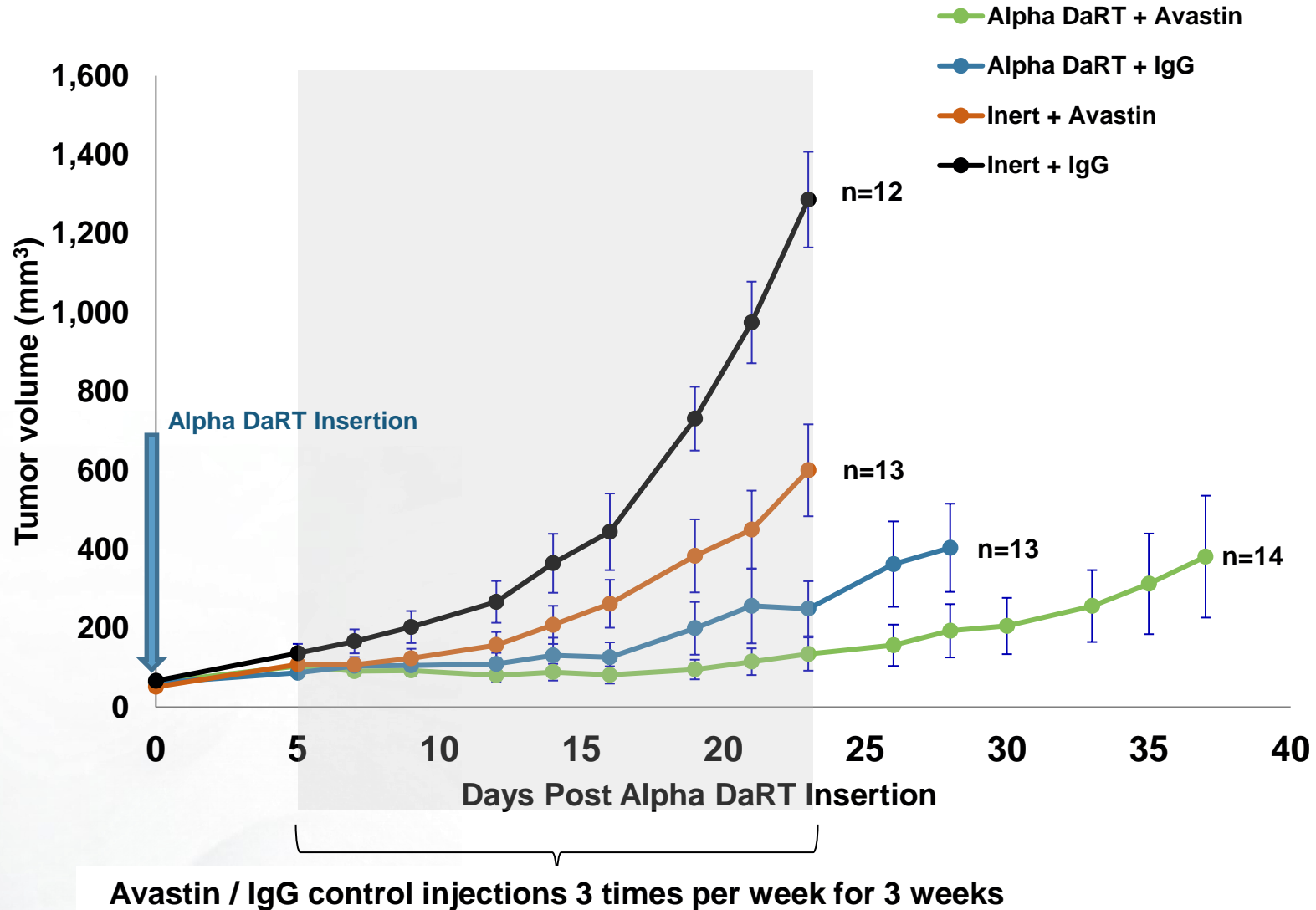
- 1st operation:** one side of the liver is cleared from its metastases & Alpha DaRT sources are implanted in the other side of the liver
- 3 - 4 cycles of **chemotherapy** (6 - 8 weeks)
- 2nd operation:** The liver lobe containing the metastasis with the sources is resected, to leave the patient with a disease-free liver



Internal Organs

Glioblastoma Multiforme

Alpha DaRT + Avastin Combo Showed Attenuated Growth of GBM Xenografts



Radial Applicator Overview

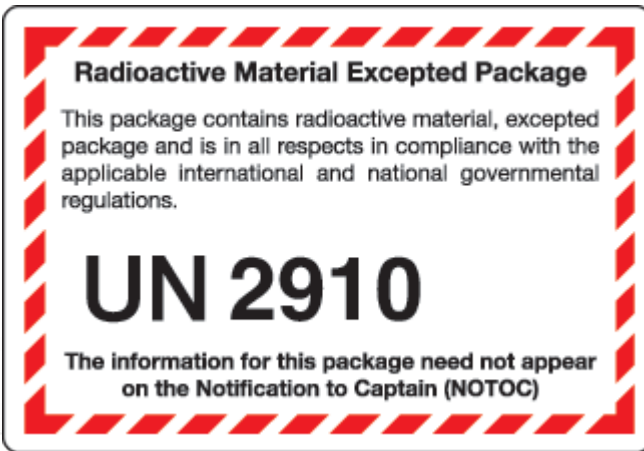
<https://www.youtube.com/watch?v=IJY965J0xMk>



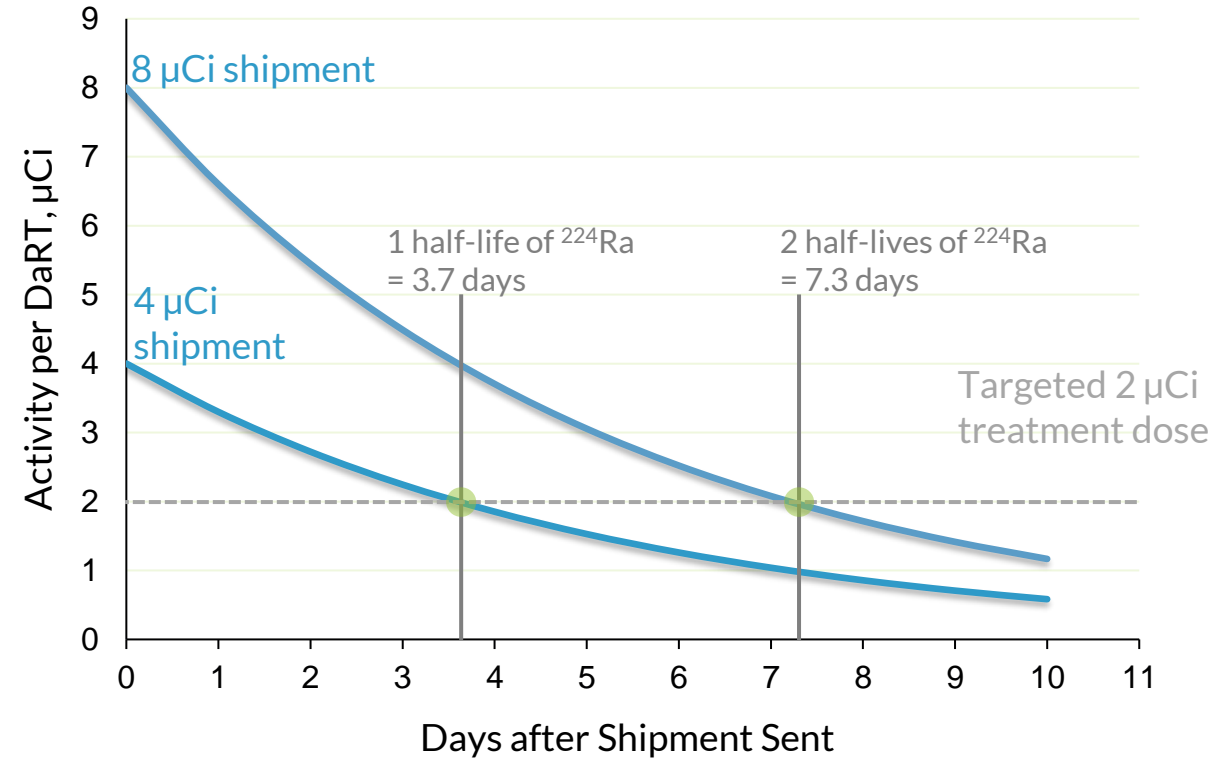
Simple Radioactive Supply Chain

Delivery does not require any special handling and simple planning ensures on-time arrival

Alpha DaRT is shipped in Excepted Packages (low levels of radioactivity) or Type A packages, and may therefore be dispatched in suitable applicators by standard courier, requiring no special handling or protective gear in transit



Alpha DaRT Radioactive Decay



Personalized treatment, shipped out on a per-patient basis
 Simple planning ensures that an Alpha DaRT arrives with the required amount of ^{224}Ra available, even when allowing for radioactive decay, based on the known half-life of the ^{224}Ra

Global Manufacturing Facilities

For efficient commercial operations, we look to establish manufacturing operations in multiple regions of the world, to enable relatively short shipping times to our core markets



Hudson, New Hampshire
(Under Construction)



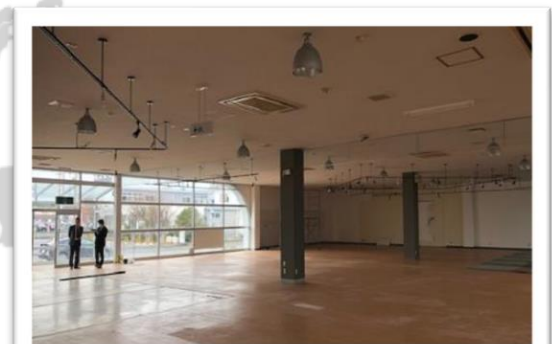
Jerusalem
(~400,000 sources per year - Ramping Up)

Lawrence, Massachusetts
(Ramping Up)



Jerusalem
(Land Granted - Facility in Planning)

Togane, Japan
(In Design)



The Alpha Tau Executive Team

Strong management team with years of experience across the scientific and medical device space



Uzi Sofer
CEO &
Chairman

- Co-Founder and CEO of BrainsWay (NASDAQ: BWAY)
- Medical device development, regulation, financing



Raphi Levy
Chief Financial
Officer

- Former executive director in charge of healthcare investment banking in Goldman Sachs Israel



Prof. Itzhak Kelson
Chief Physics
Officer

- Co-inventor of DaRT technology
- Emeritus professor of physics (taught at Tel Aviv University, Yale University, Weizmann Institute etc.)



Prof. Yona Keisari
Chief
Scientific
Officer

- Co-inventor of DaRT technology
- Professor of Immunology and Microbiology at Tel Aviv University, former NCI Post Doc Fellow



Peter Melnyk
Chief
Commercial
Officer

- Former CEO of Fortovia Therapeutics
- Former Chief Commercial Officer at Novocure
- Former Neuroscience marketing director at Bristol-Myers Squibb



Robert Den, MD
Chief Medical
Officer

- Radiation oncologist and Associate Professor at Thomas Jefferson University Hospital
- Medical degree from Harvard Medical School



Amnon Gat
Chief
Operations
Officer

- >20 years experience in medical devices and healthcare
- Marketing strategy specialist



Ronen Segal
Chief
Technology
Officer

- >20 years of top leadership roles, including medical device industry
- Chairman of the BSMT Consortium

Board of Directors

Diverse mix of cancer therapeutic, medical device and financial expertise providing value-added oversight and guidance to corporate leadership



Uzi Sofer
CEO & Chairman



Michael Avruch
Director



Morry Blumenfeld
Director



Meir Jakobsohn
Director



Alan Adler
Director



Ruth Alon
Director



Dr. David M. Milch
Director

- Co-Founder and CEO of BrainsWay (NASDAQ: BWAY)
- Medical device development, regulation, financing

- Expert in financing and restructuring
- CEO & CFO experience

- Former managing director at GE Healthcare, CEO of Qescon Consultants, Founding partner of Meditech Advisors Management, director at Mako

- Founder of Medison Ltd.
- Represents Amgen, Biogen, etc. for the marketing and distribution of their products in international markets

- 14 Years at McKinsey
- Senior Partner Evergreen Venture Capital
- Chairman and CEO of Oridion until its sale to Covidien

- Former founder/chair, Israel Life Science Industry
- Former/current board/chair of multiple companies, e.g., Brainsgate, Vascular Biotech
- Former GP, Pitango VC

- Former HCCC Chairman
- Active medical investor
- MD from Harvard Medical School

Significant Industry Experience:



GE Healthcare



Allium



Anticipated Milestones

Geography	Indication	H1 2025	H2 2025	H1 2026
North America	Recurrent Cutaneous SCC (United States)	Completion of multi-center pivotal trial recruitment	Potential FDA submission	
	Pancreatic Cancer (Canada + Israel)	Updated data readout		
Israel	Brain Cancer (GBM or Metastases)	Targeted first patient treated		
	Checkpoint Inhibitor Combination – Ia/mHNSCC	Initial data readout		
Japan	Head & Neck Cancer	Potential PMDA response		

Clinical

Regulatory

Financial Position

✓ Public Since Mar-2022 (NASDAQ:DRTS)

✓ \$68.4mm in Cash & Deposits at Q3 2024

✓ 2+ Years of Cash Runway



AlphaTAU

Saving Lives Globally



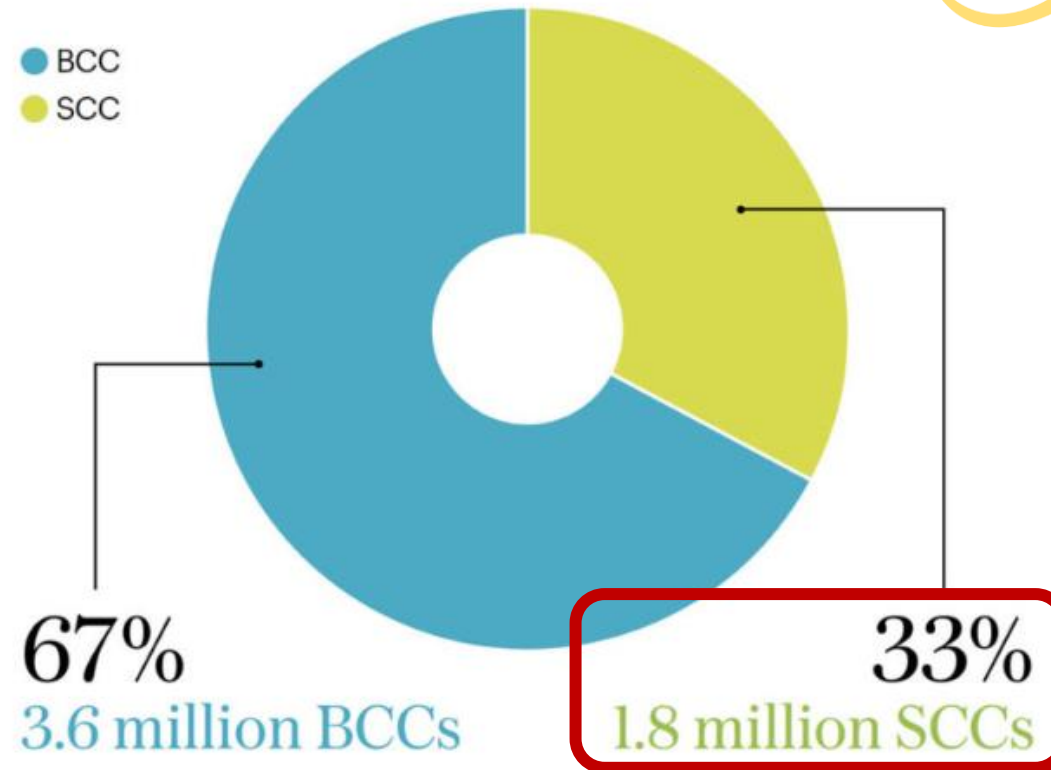
Appendix

Analysis of U.S. Market Opportunity in Cutaneous Squamous Cell Carcinoma

U.S. Annual Cutaneous Squamous Cell Carcinoma Incidence

Our New Approach to a Challenging Skin Cancer Statistic

BY SKIN CANCER FOUNDATION • APRIL 1, 2021



As of 2021

Risk Stratification Per NCCN Guidelines



NCCN Guidelines Version 1.2023 Squamous Cell Skin Cancer

[NCCN Guidelines Index](#)
[Table of Contents](#)
[Discussion](#)

STRATIFICATION TO DETERMINE TREATMENT OPTIONS AND FOLLOW-UP FOR LOCAL CSCC BASED ON RISK FACTORS FOR LOCAL RECURRENCE, METASTASES, OR DEATH FROM DISEASE

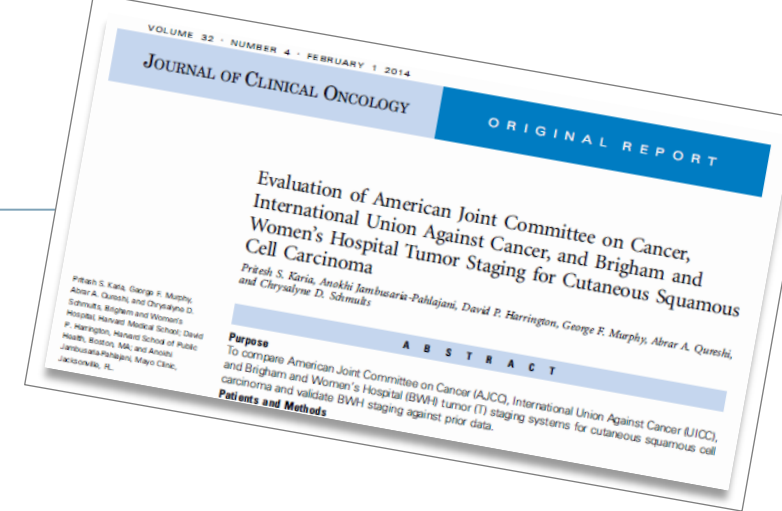
Risk Group ^a	Low Risk	High Risk	Very High Risk
Treatment options	SCC-2	SCC-3	SCC-3
H&P			
Location/size ^b	Trunk, extremities ≤2 cm	Trunk, extremities >2 cm – ≤4 cm Head, neck, hands, feet, pretibia, and anogenital (any size) ^e	>4 cm (any location)
Clinical extent	Well-defined	Poorly defined	
Primary vs. recurrent	Primary	Recurrent	
Immunosuppression	(-)	(+)	
Site of prior RT or chronic inflammatory process	(-)	(+)	
Rapidly growing tumor	(-)	(+)	
Neurologic symptoms	(-)	(+)	
Pathology (SCC-A)			
Degree of differentiation	Well or moderately differentiated		Poor differentiation
Histologic features: Acantholytic (adenoid), adenosquamous (showing mucin production), or metaplastic (carcinosarcomatous) subtypes	(-)	(+)	Desmoplastic SCC
Depth ^{c,d} : Thickness or level of invasion	<2 mm thick and no invasion beyond subcutaneous fat	2–6 mm depth	>6 mm or invasion beyond subcutaneous fat
Perineural involvement	(-)	(+)	Tumor cells within the nerve sheath of a nerve lying deeper than the dermis or measuring ≥0.1 mm
Lymphatic or vascular involvement	(-)	(-)	(+)

Focus Patients

Source: NCCN Guidelines for Cutaneous SCC: https://www.nccn.org/professionals/physician_gls/pdf/squamous.pdf

How Many Are “High/Very-High Risk”?

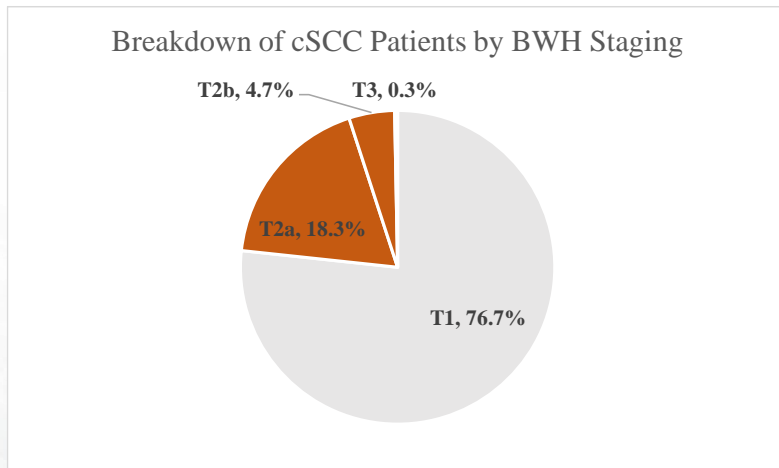
Staging from Brigham & Women’s Hospital (BWH) Researchers



BWH Tumor Stage	Description
T1	0 high-risk factors*
T2a	1 high-risk factor
T2b	2-3 high-risk factors
T3	≥ 4 high-risk factors

*Note: High-risk factors include tumor diameter ≥ 2 cm, poorly differentiated histology, perineural invasion ≥ 0.1 mm, or tumor invasion beyond fat (excluding bone invasion which automatically upgrades tumor to BWH stage T3).

Compare to high-risk factors from NCCN Guidelines on previous page!



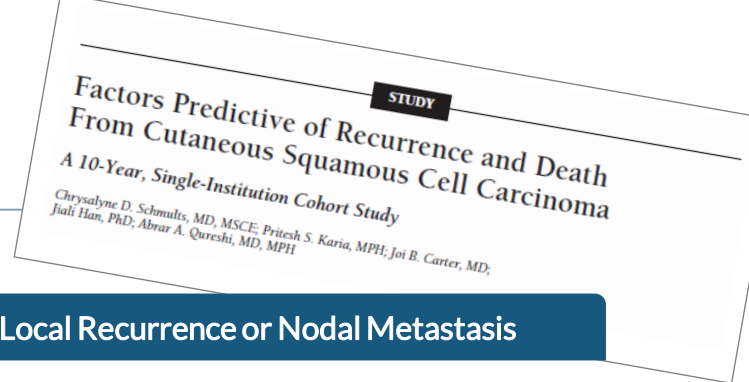
23.3% of cSCC are stages T2a – T3 (high-risk, i.e., at least 1 risk factor)

At 1.8 million cSCC incidences per year, that translates into **~419k high-risk cases per year!**

Source: [Evaluation of American Joint Committee on Cancer, International Union Against Cancer, and Brigham and Women's Hospital Tumor Staging for Cutaneous Squamous Cell Carcinoma](#)
 Pritesh S. Karia, Anokhi Jambusaria-Pahlajani, David P. Harrington, George F. Murphy, Abrar A. Qureshi, and Chrysalynne D. Schmults. *Journal of Clinical Oncology* 2014 32:4, 327-334

What Are cSCC Outcomes Like?

Data from Brigham & Women's Hospital (BWH) Researchers



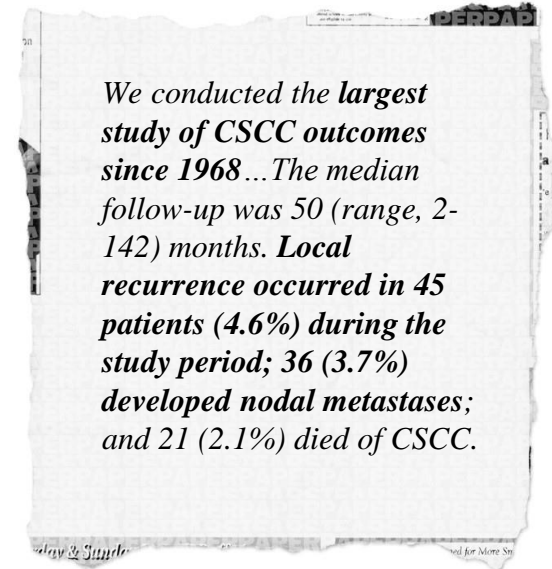
NCCN Risk Factors Correspond to Recurrence and Metastatic Outcomes

Table 3. Results of Univariate Analysis for Outcomes of Interest

	LR		NM		DSD		ACD	
	SHR (95% CI)	P Value	SHR (95% CI)	P Value	SHR (95% CI)	P Value	HR (95% CI)	P Value
Age, y								
<70	1 [Reference]		1 [Reference]		1 [Reference]		1 [Reference]	
70-80	2.1 (1.1-3.9)	.02	1.2 (0.6-2.5)	.66	1.1 (0.4-2.7)	.89	1.7 (1.4-2.0)	<.001
>80	1.7 (0.8-3.8)	.17	1.0 (0.4-2.8)	.99	0.9 (0.2-3.3)	.88	2.5 (2.0-3.1)	<.001
Sex								
Female	1 [Reference]		1 [Reference]		1 [Reference]		1 [Reference]	
Male	1.6 (0.9-3.0)	.11	2.4 (1.0-5.5)	.04	2.8 (1.9-8.3)	.06	1.9 (1.6-2.3)	<.001
Tumor diameter, cm								
<2	1 [Reference]		1 [Reference]		1 [Reference]		1 [Reference]	
≥2	8.9 (5.1-15.7)	<.001	15.2 (6.6-35.2)	<.001	28.5 (9.4-86.3)	<.001	1.0 (0.8-1.3)	.75
Tumor differentiation								
Well	1 [Reference]		1 [Reference]		1 [Reference]		1 [Reference]	
Moderate	2.7 (1.3-5.9)	.01	5.6 (1.6-19.1)	.006	2.5 (0.6-11.2)	.23	1.3 (1.1-1.6)	.02
Poor	10.4 (5.4-19.0)	<.001	29.8 (10.2-87.0)	<.001	19.4 (6.4-58.5)	<.001	1.7 (1.3-2.1)	<.001
Tumor depth								
Dermis	1 [Reference]		1 [Reference]		1 [Reference]		1 [Reference]	
Subcutaneous fat	5.9 (3.0-11.7)	<.001	7.2 (2.8-18.1)	<.001	8.8 (2.8-27.8)	<.001	1.5 (1.1-2.0)	.006
Beyond fat	24.4 (12.9-46.1)	<.001	43.0 (19.6-93.2)	<.001	51.4 (19.1-137.8)	<.001	1.7 (1.2-2.6)	.008
Perineural invasion								
No	1 [Reference]		1 [Reference]		1 [Reference]		1 [Reference]	
Yes	8.8 (4.8-16.4)	<.001	14.5 (7.1-29.8)	<.001	11.3 (4.5-28.1)	<.001	1.7 (1.2-2.3)	.003
Lymphovascular invasion								
No	1 [Reference]		1 [Reference]		1 [Reference]		1 [Reference]	
Yes	5.7 (2.4-13.4)	<.001	2.7 (0.6-11.3)	.17	2.1 (0.3-15.3)	.47	1.3 (0.8-2.1)	.33
Tumor location								
Other	1 [Reference]		1 [Reference]		1 [Reference]		1 [Reference]	
Head or neck (excluding ear and temple)	2.5 (1.5-4.4)	.001	2.4 (1.3-5.0)	.009	1.8 (0.8-4.3)	.18	1.1 (0.9-1.3)	.34
Ear	3.8 (1.4-10.4)	.01	3.1 (0.9-11.0)	.03	2.6 (0.8-9.0)	.12	1.4 (1.0-1.9)	.03
Temple	3.2 (1.1-9.0)	.03	3.8 (1.2-12.5)	.03	1.8 (0.2-13.5)	.56	1.5 (1.0-2.3)	.07
Perianal	17.4 (4.1-72.4)	<.001	64.3 (12.4-321.1)	<.001	39.0 (10.7-142.4)	<.001	1.0 (0.3-4.0)	.79
Genitalia	15.0 (2.6-88.2)	.003	69.4 (14.6-329.8)	<.001	47.6 (8.0-282.4)	<.001	0.9 (0.2-5.4)	.78

Abbreviations: ACD, all-cause death; DSD, disease-specific death; HR, hazard ratio; LR, local recurrence; NM, nodal metastasis; SHR, subhazard ratio.

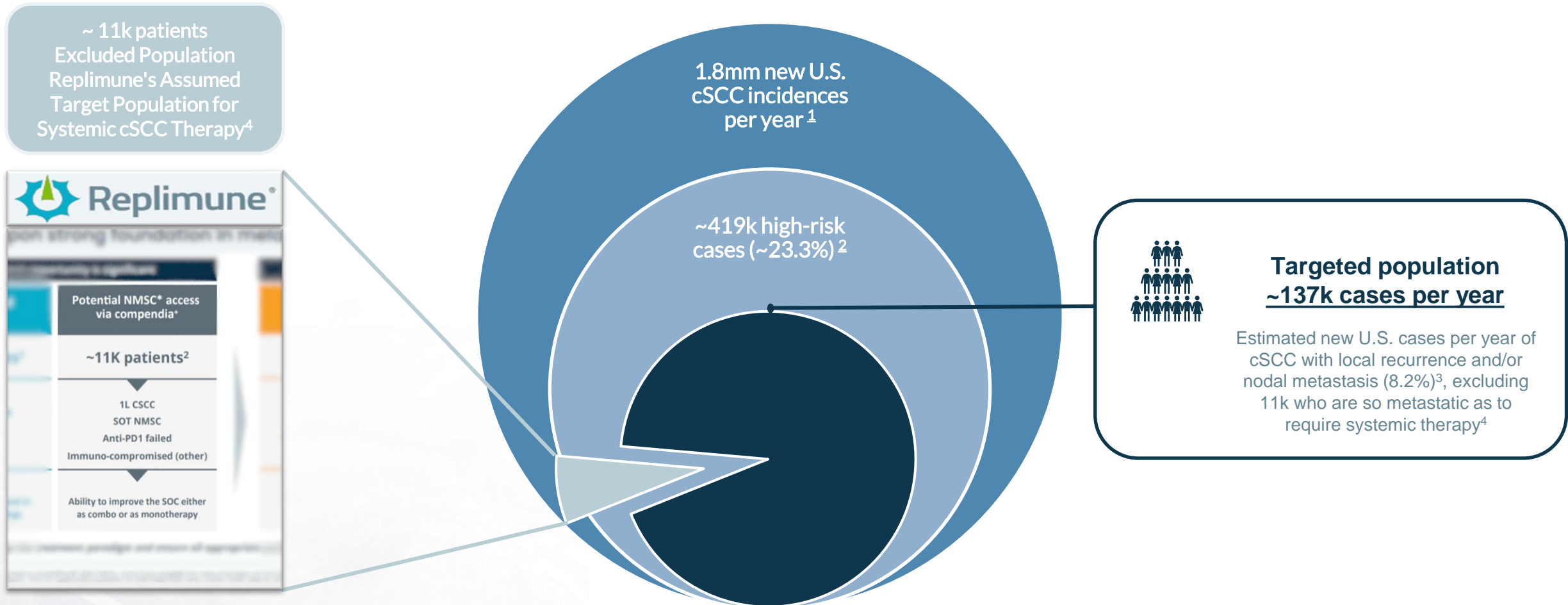
Estimate of Patient Pool with Local Recurrence or Nodal Metastasis



1.8 million incidences per year, with 4.6% local recurrence and another 3.7% nodal metastasis, translates into ~148 thousand recurrent / metastatic cases per year

Source: [Factors Predictive of Recurrence and Death From Cutaneous Squamous Cell Carcinoma: A 10-Year, Single-Institution Cohort Study](#) Schmults CD, Karia PS, Carter JB, Han J, Qureshi AA. JAMA Dermatol. 2013;149(5):541-547. doi:10.1001/jamadermatol.2013.2139

Potential cSCC Patient Breakdown - Estimated U.S. Incidence



¹ <https://www.skincancer.org/blog/our-new-approach-to-a-challenging-skin-cancer-statistic/>

² [Evaluation of American Joint Committee on Cancer, International Union Against Cancer, and Brigham and Women's Hospital Tumor Staging for Cutaneous Squamous Cell Carcinoma](#)
Pritesh S. Karia, Anokhi Jambusaria-Pahlajani, David P. Harrington, George F. Murphy, Abrar A. Qureshi, and Chrysalyne D. Schmults. *Journal of Clinical Oncology* 2014 32:4, 327-334

³ [Factors Predictive of Recurrence and Death From Cutaneous Squamous Cell Carcinoma: A 10-Year, Single-Institution Cohort Study](#)
Schmults CD, Karia PS, Carter JB, Han J, Qureshi AA. *JAMA Dermatol.* 2013;149(5):541-547. doi:10.1001/jamadermatol.2013.2139

⁴ <https://ir.replimune.com/static-files/41e9e141-6ff8-44c9-9b5e-e25c9acb5a8e>

Alpha DaRT – Analyst Views on Potential Treatment Selling Price

Wall street analysts' views – not company view

>\$20K

H.C.WAINWRIGHT&CO.

"We estimate that Alpha DaRT may be priced at over \$20,000 per treatment course per patient"

April 2023

\$60K

PIPER | SANDLER

"We've conservatively assumed an ASP per procedure of \$60K, although payment rates for therapies such as NVCR's Optune (\$100K+) represents upside opportunity to our estimates if DRTS could secure a commensurate therapy payment rate."

April 2022

\$65K

CANTOR
Fitzgerald

Alpha DaRT Gross Price	\$65,000
% Price Growth	2%

Source: Cantor Fitzgerald Estimates

April 2022

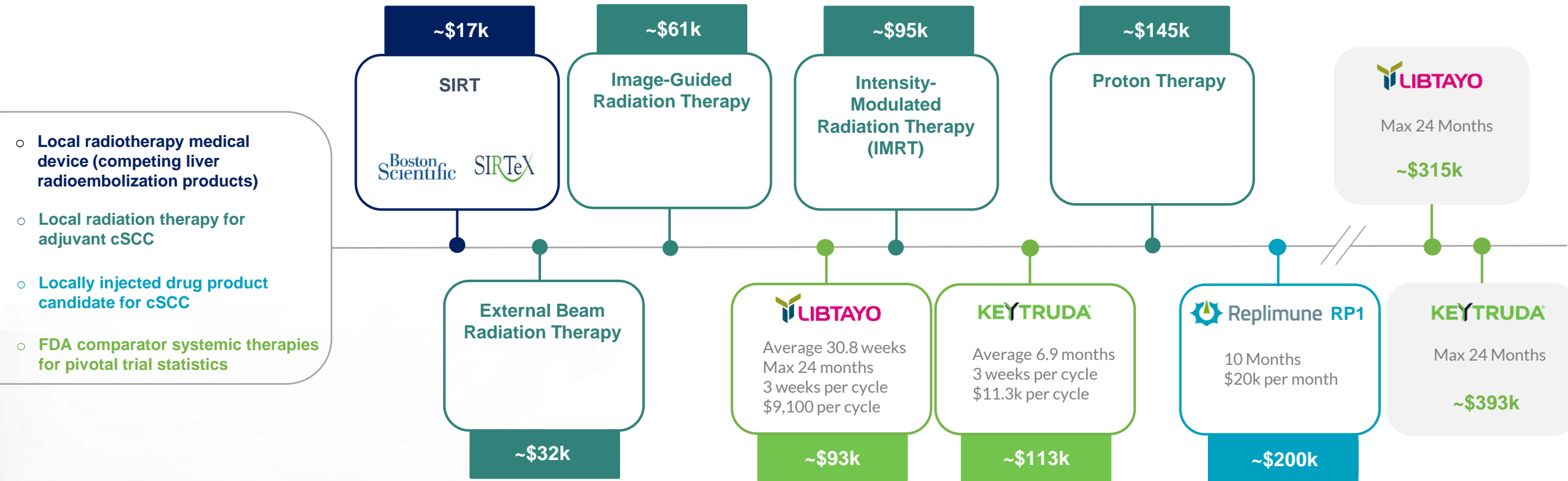
\$125K

citi

"We model per-patient pricing at \$125,000 at launch, consistent with the annualized cost of cancer immunotherapies (i.e., cemiplimab)."

December 2023

Benchmarking of U.S. Treatment Prices



Note: ReSTART trial inclusion criteria envisions usage when standard radiation therapy is not indicated, and uses systemic therapies as historical control arms

Source for SIRT pricing: https://www.sirtex.com/Media/womp5u2s/Sirtex%20Coding%20Guide_Hosp%20%28HEPRA-US-001-02-24%293.pdf

Source for cSCC radiation therapy pricing: <https://ncbi.nlm.nih.gov/pmc/articles/PMC10826833/#:~:text=Based%20on%20four%20radiation%20treatment,patient%2C%20detailed%20in%20Table%201B->

Source for Libtayo price and cycle length: <https://investor.regeneron.com/news-releases/news-release-details/fda-approves-libtaylor-cemiplimab-rwlc-first-and-only-treatment>

Source for Libtayo average treatment length <https://www.pharmaline.co.il/wp-content/uploads/2021/12/LIBTAYO-9.12D.pdf>

Source for Libtayo max treatment length: <https://www.medicalnewstoday.com/articles/drugs-libtayo-dosage#dosage>

Source for Keytruda price and cycle length: <https://www.keytruda.com/financial-support/#:~:text=The%20list%20price%20for%20each,out%2Dof%2Dpocket%20costs>

Source for Keytruda average treatment length: <https://www.merck.com/news/fda-approves-expanded-indication-for-mercks-keytruda-pembrolizumab-in-locally-advanced-cutaneous-squamous-cell-carcinoma-csc/>

Source for Keytruda max price: <https://www.keytrudahcp.com/dosing/options/>

Source for RP1 Replimune: Barclays research model as of 24-Feb-2024 for Replimune Group Inc

Appendix

The Role of Local Therapies in Treating Pancreatic Cancer

Breakdown of Pancreatic Cancer Incidence by Stage

FACS National Cancer Database - 2008-2017 All Types Hospitals in All States

There are over half a million new cases of pancreatic cancer per year. Approx. 66k of them are in the U.S.

Focus Area: 39%

Stage	I	II	III	IV
	Resectable	Borderline Resectable	Locally Advanced	Metastasized
Percent of Total	13%	29%	10%	48%

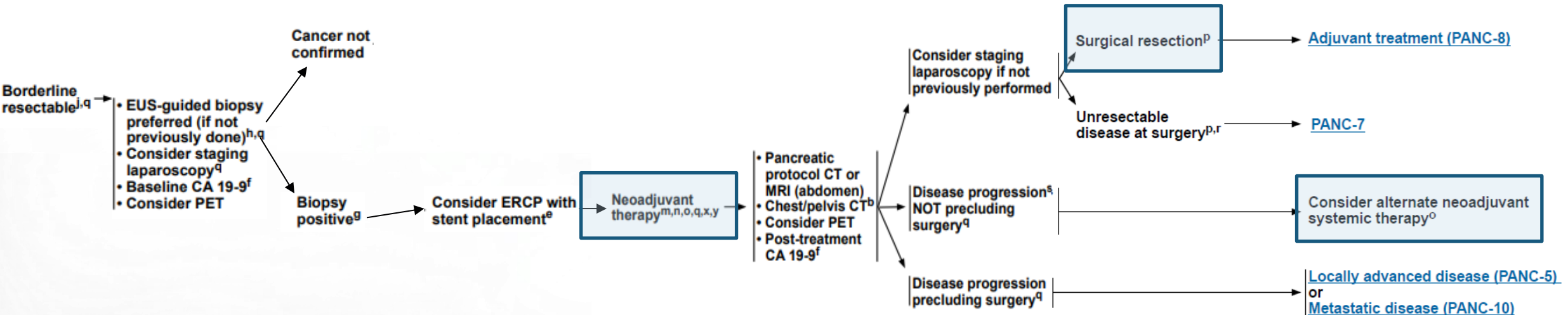
39% of pancreatic cancer cases are not yet metastasized at diagnosis but also not eligible for surgical resection

Note: Excludes cancers of stage "unknown" or "N/A" - data from 1400 Hospitals
 Source: <https://www.facs.org/media/ztlhkf/cancer-cases-reported-to-the-ncdb-by-tumor-type-and-ajcc-stage.pdf>
<https://gco.iarc.who.int/media/globocan/factsheets/cancers/13-pancreas-fact-sheet.pdf>
<https://www.cancer.org/cancer/types/pancreatic-cancer/about/key-statistics.html>

Pancreatic Adenocarcinoma Stage II: Borderline Resectable NCCN Guidelines



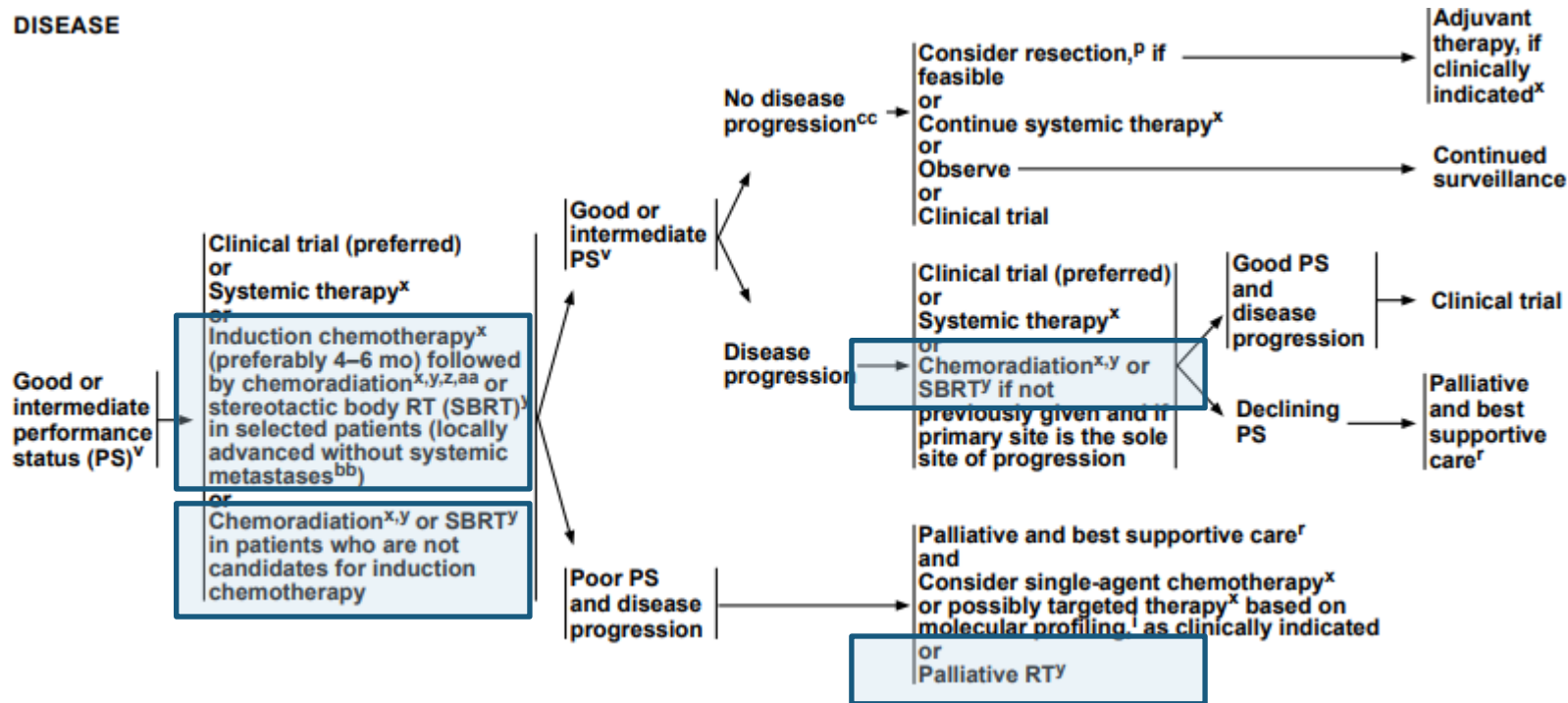
*“RT (Radiation Therapy) in the neoadjuvant setting may lead to an increased likelihood of a margin negative resection and local control”
- NCCN Guidelines*



With borderline resectable patients, the goal of therapy is to downstage the patient with neoadjuvant therapy where possible, in an attempt to enable definitive local therapy, i.e., surgery. Radiation therapy is also used as one of these potential neoadjuvant therapies

Source: https://www.nccn.org/professionals/physician_gls/pdf/pancreatic.pdf

Pancreatic Adenocarcinoma Stage III: Locally Advanced NCCN Guidelines



For locally advanced patients, whose tumor has not yet reached distant metastases, radiation therapy plays an important role in therapy, whether in the form of radiation alone (such as SBRT) or in combination with chemotherapy as a radiosensitizer (i.e., chemoradiation), and at later stages, for palliative purposes.

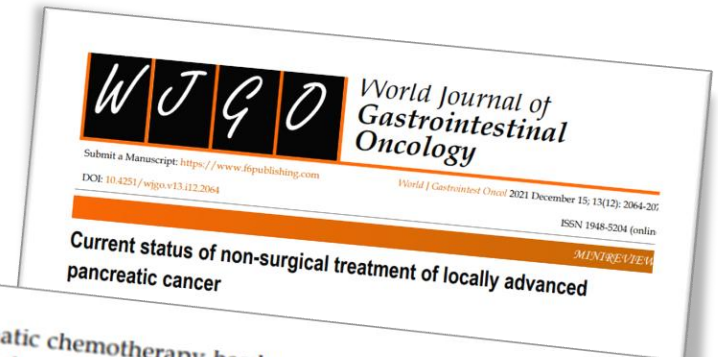
Source: https://www.nccn.org/professionals/physician_gls/pdf/pancreatic.pdf

Perspectives on Treating Non-Metastatic Pancreatic Cancer

Retrospective Study of 13 Years of PDAC Patients at Single Oncology Center in Australia, Focus on Non-Metastatic Patients

Therapy Received	n=134	%	Median OS (months)
Chemotherapy only	18	13.5%	23
Chemotherapy + radiation	43	32%	34
Chemotherapy + surgery	34	25%	45
Cyberknife	2	1.5%	17
Trimodality	37	28%	47

When examining a sample of treatment paradigms for non-metastatic patients, over 85% received one or more local therapies as part of their care. These patients also had better OS outcomes

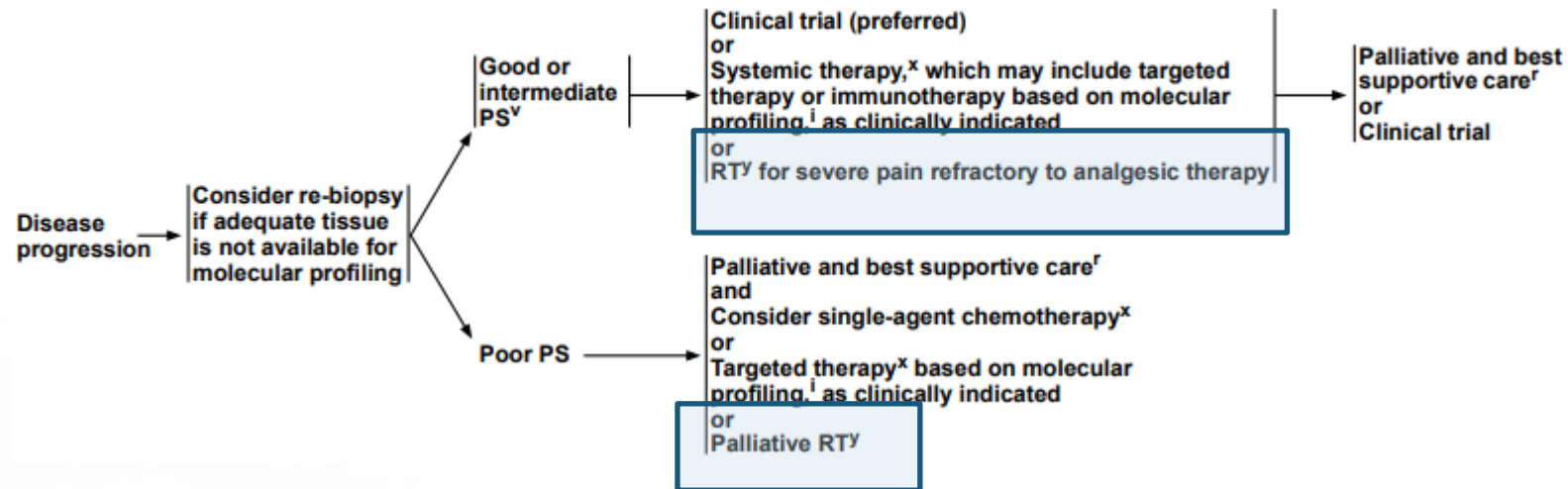


While systematic chemotherapy has become the standard for patients with LAPC, surgery remains the only potentially curative therapy. Therefore, the development of a new neoadjuvant treatment that improves survival rate is of the utmost importance.

About 80%-90% of the patients with PC, present with locally advanced disease at diagnosis and consequently a very poor prognosis of less than 5% OS at 5-years[38, 39]. In this group of patients, RT associated with systemic therapy plays a crucial role in achieving satisfactory local control (LC). As noted above, the LAPC phase III study patients demonstrating good performance status, the aim of combining RT with systemic therapy is to provide satisfactory LC and avoid or delay local disease progression. However, it is crucial that during RT a higher radiation dose should be delivered to the tumor, limiting doses to healthy tissue.

For LAPC, there is a dire need to find better forms of neoadjuvant treatment toward curative outcomes, as well as better forms of local control and delay of disease progression, especially radiation therapy with more potent doses that spare surrounding healthy tissue

Sources:
<https://jgo.amegroups.org/article/view/79949/html>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8713317/>



- Even in the metastatic setting / for progressive disease, where a systemic therapy will be dominant, radiation therapy already plays an important role in palliative care.
- Of course, should a radiation therapy demonstrate a reproducible systemic anti-tumor immunity effect in a metastatic PC setting, then the potential for shifting the paradigm for treatment of late-stage PC is tremendous.