

Novel Radioenhancer NBTXR3 Activated by Radiotherapy in Cisplatin-Ineligible Locally Advanced HNSCC Patients: Final Results of a Phase 1 Trial

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NANOBIOTIX 

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- our ability to successfully develop and commercialize NBTXR3, including through the License Agreement by and between Janssen Pharmaceutica NV and Nanobiotix, dated July 7 2023 (the "Janssen Agreement");
- our ability to complete clinical trial NANORAY-312 within the expected time-frame due to a number of factors, including delays in patient enrollment or in manufacturing sufficient quantities of NBTXR3 necessary to conduct the trial in a timely manner;
- our ability to expand our product pipeline by developing and commercializing NBTXR3 in additional indications, including in combination with chemotherapies or I-O treatment;
- Our ability to complete applicable pre-marketing regulatory requirements and/or our ability to maintain regulatory approvals and certifications for our products and product candidates and the rate and degree of market acceptance of our product candidates, including NBTXR3;
- our ability about the initiation, timing, progress and results of our preclinical studies and clinical trials, including those trials to be conducted under our collaborations with the MD Anderson Cancer Center of the University of Texas ("MD Anderson"), Lian Oncology Limited ("LianBio"), Cancer Center of the University of Texas ("MD Anderson"),
- our ability to obtain raw materials and maintain and operate our facilities to manufacture our product candidates, to market and distribute our products upon successful completion of applicable pre-marketing regulatory requirements, specifically NBTXR3;
- our reliance on Janssen to conduct the NBTXR3 co-development and commercialization activities in accordance with the Janssen Agreement, including the potential for disagreements or disputes; the risk that Janssen may exercise its discretion in a manner that limits the resources contributed toward the development of NBTXR3; and the ability of Janssen to exercise its termination rights under the Janssen Agreement without cause;
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NBTR3: A First-In-Class Radioenhancer

Aqueous suspension of inorganic crystalline **hafnium oxide** (HfO_2) nanoparticles

High atomic number ($Z=72$) and electron density

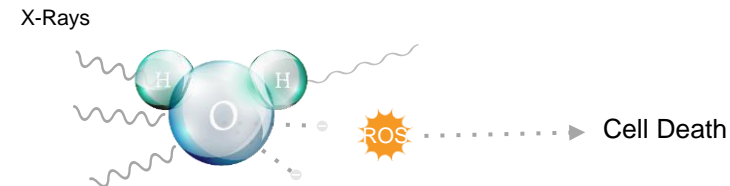
Inert in the absence of ionizing radiation: “Off” status
Activated by **ionizing radiation**: “On” status

One-time intratumoral administration, remains in tumor

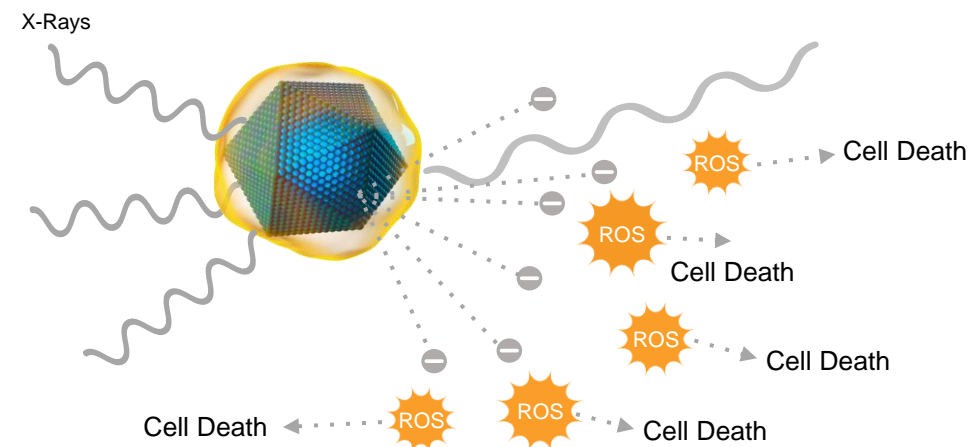
Efficacy and safety demonstrated in a **randomized Phase 2/3 trial** in locally advanced soft tissue **sarcoma**¹

Universal mode of action targeting all solid tumors

Radiotherapy (RT) alone



NBTR3 activated by RT



Increased absorption of ionizing radiation and cell death

Presented at ASTRO 65th annual meeting by Christophe Le Tourneau, MD, PhD: Abstract #: 55260

Evaluating Tumor Agnostic, Combination Agnostic Potential of NBTXR3 in Solid Tumors with an Initial Focus in HNSCC

Pipeline-in-a-product strategy

Indication	Trial Name	Approach	Phase 1	Phase 2	Phase 3
Head and Neck Locally Advanced	NANORAY-312	NBTXR3-RT* ± cetuximab	[Progress bar: Phase 1, 2, 3]		
	Study 102	NBTXR3-RT*	[Progress bar: Phase 1]		
Head and Neck Recurrent and/or Metastatic	TBD - Planning	NBTXR3-RT* + anti-PD-1	[Progress bar: Phase 1, 2, 3]		
	Study 1100	NBTXR3-RT* + anti-PD-1	[Progress bar: Phase 1]		

NANOBIOTIX EXPANDING LIFE

Demonstrated safety, feasibility and clinical activity of NBTXR3-RT* across multiple solid tumors

Completed Studies

Soft Tissue Sarcoma (Ph 2/3) – NBTXR3-RT* Rectal (Ph 1/2)** – NBTXR3-RT* + ChT

Head and Neck (Ph 1/2)** – NBTXR3-RT* + ChT Liver (Ph 1) – NBTXR3-RT*

THE UNIVERSITY OF TEXAS
MDAnderson Cancer Center

Exploring safety, feasibility and efficacy of NBTXR3-RT* in solid tumors

Ongoing Studies

Head and Neck (Ph 2) – NBTXR3-RT* + anti-PD-1 Pancreatic (Ph 1) – NBTXR3-RT*

Esophageal (Ph 1) – NBTXR3-RT* + ChT NSCLC (Ph 1) – NBTXR3-RT*

Advanced cancers (Ph 1/2) – NBTXR3-RT* + anti-PD-1/L-1

New Treatments are Needed for LA-HNSCC

Standard of care for LA-HNSCC

Surgery or definitive cisplatin-based chemoradiotherapy

Cisplatin ineligibility and challenges

Approximately 1/3 of patients are ineligible for cisplatin

Comorbidities in LA-HNSCC*

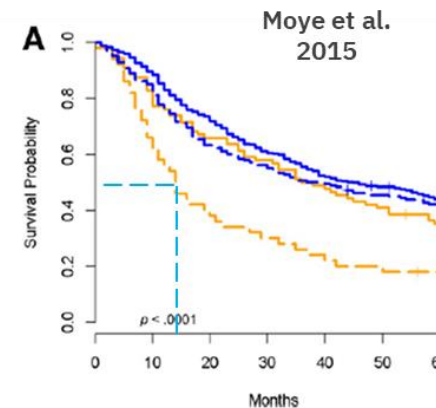
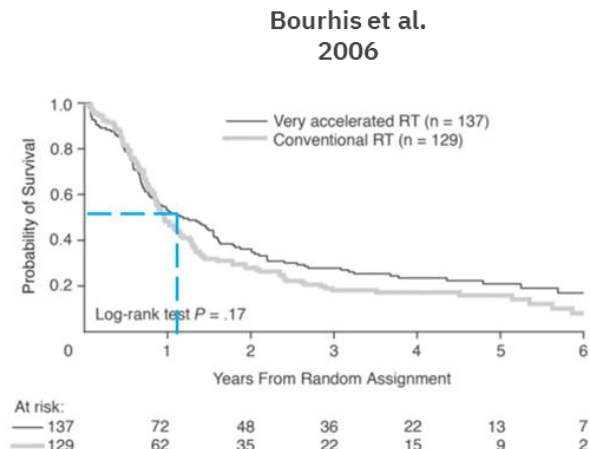
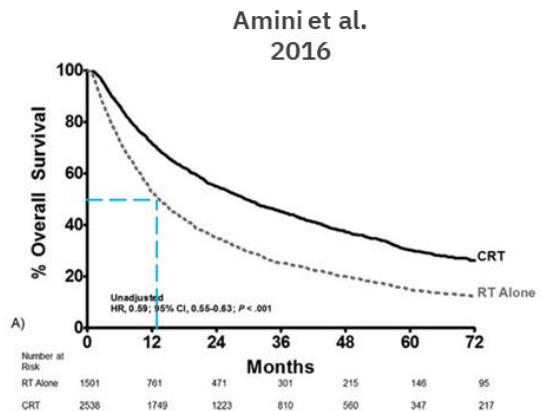
ACCI: age and 19 comorbidities (diabetes, cardiovascular, liver, pulmonary disease, etc.)
ACCI \geq 4: correlated with lower OS in LA-HNSCC¹; ~20-30% of patients with LA-HNSCC²

Elderly patient concerns

~30% of HNSCC patients > 70 years old and have poor outcomes (PFS ~9 months³; OS ~12 months^{3,4,5})

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Literature Suggests ~12 Months mOS in LA-HNSCC Patients with Better Prognosis Treated with Radiotherapy Alone



Median OS in literature in patient populations with better prognosis¹⁻⁴

	N	Median OS (months)	Treatment	Population
Amini et al. (2016)	1504	12-13	RT alone	70% patients with mCCI < 4; ~10% high comorbidity index; 75% T3-T4
Bourhis et al. (2006)	266	~12	RT alone	100% T3-T4
Moye et al. (2015)	96	~12	RT or surgery	100% stage III & IV

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Study Design: Phase 1

Key Inclusion Criteria

- Aged:
 - ≥70 yrs or
 - ≥65 and <70 yrs cisplatin ineligible or
 - < 65 yrs if not deemed to receive cetuximab
- KPS ≥70
- **T3, T4 or Stage III/IVA HNSCC*** of the **oral cavity or oropharynx**
- Tumor amenable to injection

Key Exclusion Criteria

- Tumor ulceration with vascular risk

Dose Escalation Completed ¹

3 + 3 design : 4 dose levels
5%; 10%; 15%; 22%

N=19 patients
no DLT or TRAE grade ≥3

Cohort Expansion

RP2D

NBTXR3 dose = 22%
N=56 patients

Dose Expansion part Endpoints

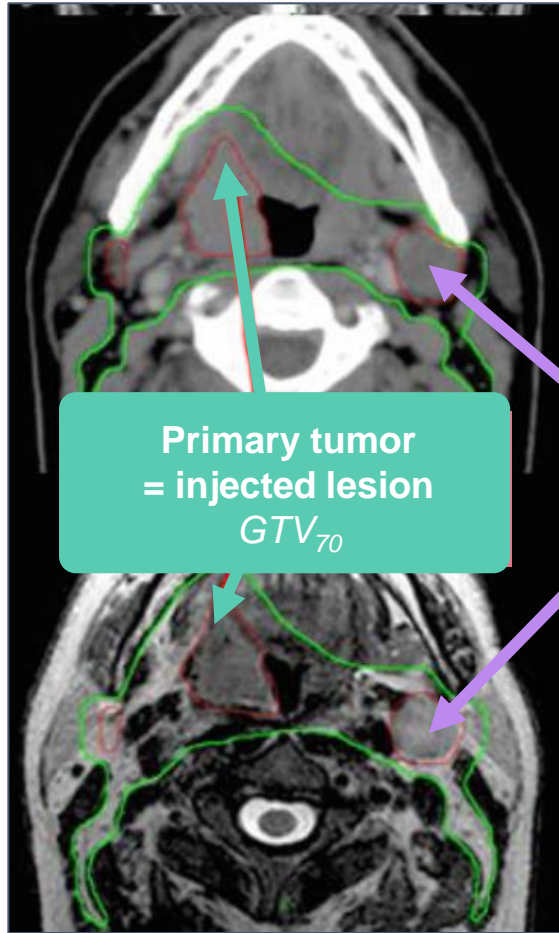
- **Efficacy**
 - ORR of primary tumor (injected lesion)
 - ORR (injected and non-injected lesion)
 - Duration of Objective Response
 - PFS
 - OS
- **Safety**

Study Treatment

- Injection of NBTXR3 in the primary tumor
- CT-Scan/CT-Sim visualization of NBTXR3 (radiopacity of NBTXR3)
- Radiotherapy (IMRT) 70 Gy, 35 x 2 Gy, 7 weeks

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RT of the Primary Tumor and Involved Lymph Nodes



Primary tumor
= injected lesion
 GTV_{70}

Involved Lymph node(s)
= non-injected lesion(s)
 GTV_{70}

Primary tumor was injected with NBTXR3
and activated by IMRT (RT dose = 70 Gy)

Involved lymph nodes were non-injected
and treated with the **same dose of RT**
regimen as the primary tumor (RT dose
= 70 Gy)

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Baseline Characteristics Show Frail High Comorbidities Patients

Baseline Characteristics	All Treated Population N=56
Gender, n(%) Male	40 (71.4)
Age (yrs), Median [min-max]	72 [44 – 89]
Age-adjusted Comorbidity Index (ACCI) ≥ 4	36 (66.7)
Karnofsky Score $\leq 80\%$	28 (50)
Tumor Location, n(%)	
Oral Cavity	25 (44.6)
Oropharynx	31 (55.4)
HPV status for oropharynx, n(%)	
p 16 -	16 (51.6)
p 16 +	14 (45.2)
Not done	1 (3.2)
AJCC Stage, n(%)	
I	2 (3.6)
II	8 (14.3)
III	21 (37.5)
IVa	22 (39.3)
IVb	1 (1.8)
Missing	2 (3.6)

» **56 patients treated across 20 sites in 4 European countries**

- 61% aged ≥ 70
- 67% had ACCI scores of ≥ 4
- 80% had T3–T4; 43 % had N2–N3 disease
- 14/56 (26%) were p16+ OPC

» **Mean duration of follow-up: 18.2 months**

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Summary: R3 Consistently Appears Safety and Feasible

» TEAEs related to NBTXR3 or implantation grade ≥ 3

Represented 1.3% of all AEs

» Feasibility of NBTXR3 Injection

All patients received at **least 90% of the planned injected volume of NBTXR3** in **Oral cavity or Oropharynx**

» Completion of IMRT

Completion of IMRT in 50 (89%) patients

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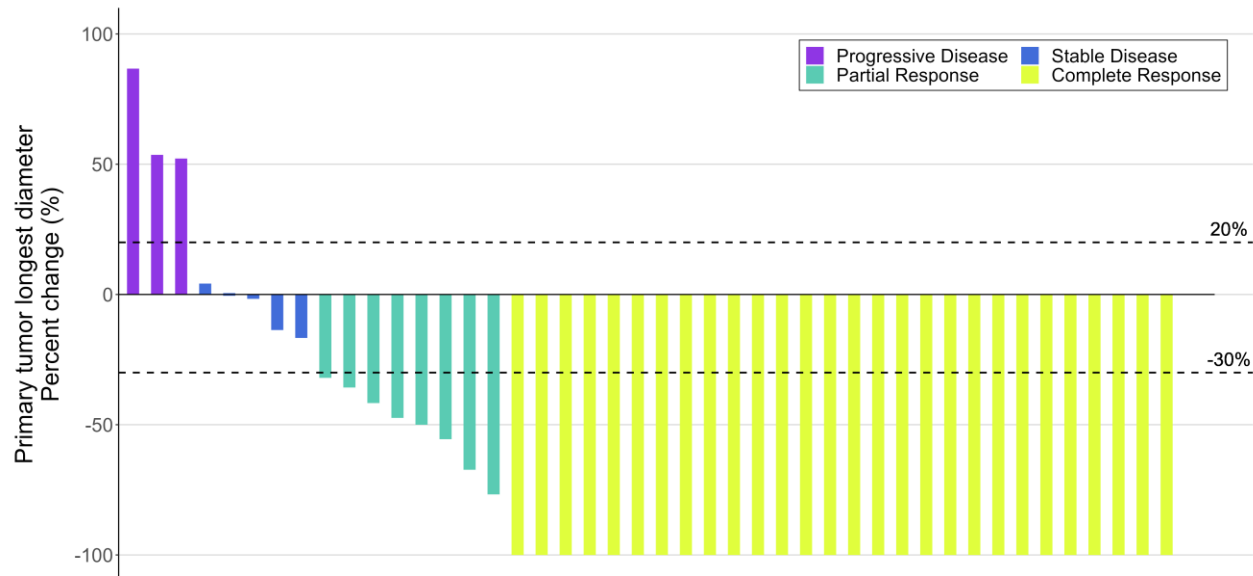
Evaluable Patients and High Comorbidity at Baseline

10 deaths within 180 days after treatment initiation

- 1 treatment related sepsis, 1 related to progression
- 8/10 patients had severe comorbidities (ACCI \geq 4)
- 8 had no post-treatment assessment: not part of “Evaluable Population for Objective Tumor Response”

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RT-Activated NBTXR3 Associated with Locoregional Control



Best Overall Response Based on Investigator Assessment

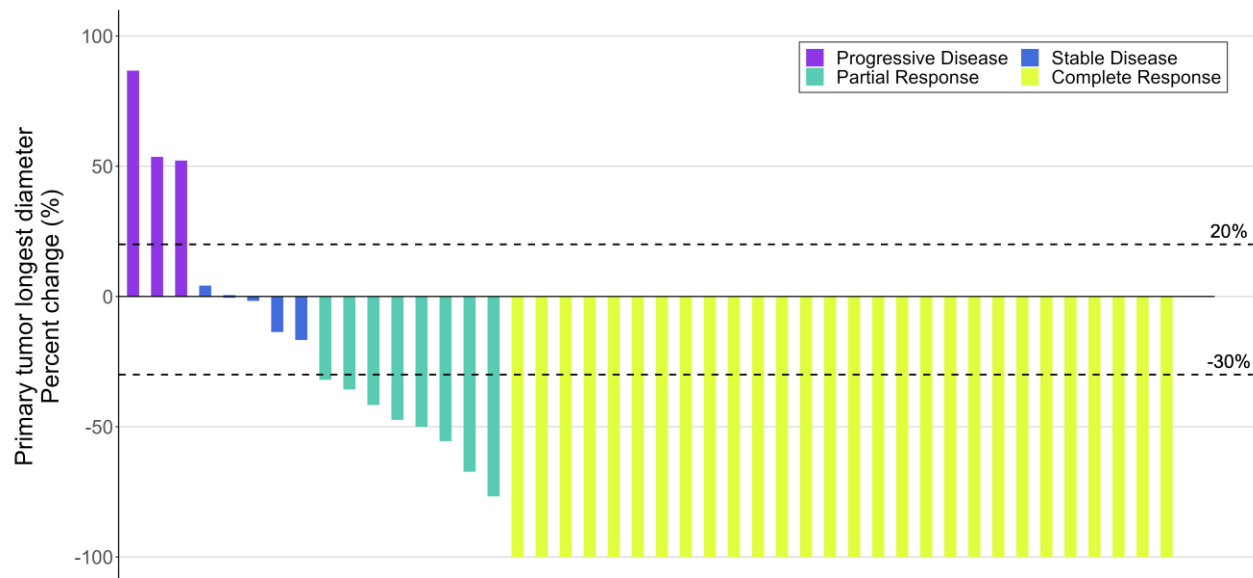
Measurement of tumor change as per RECIST v1.1

NBTXR3 Injected Lesion	Evaluable Patients (n=44)
Best Overall Response, n(%)	
CR	28 (63.6%)
PR	8 (18.2%)
SD	5 (11.4%)
PD	3 (6.8%)
ORR (CR + PR)	36 (81.8%)

- **Evaluable patients for Objective Tumor Response**
Underwent at least one post-treatment assessment, and received at least 80% of the planned dose of NBTXR3 and 60 Gy of IMRT
- **12 patients were non-evaluable:**
 - not received 60 Gy of IMRT: 4 patients (3 TEAE, 1 consent withdraw)
 - No post treatment assessment: 8 early deaths

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Best Overall Response Based on Investigator Assessment

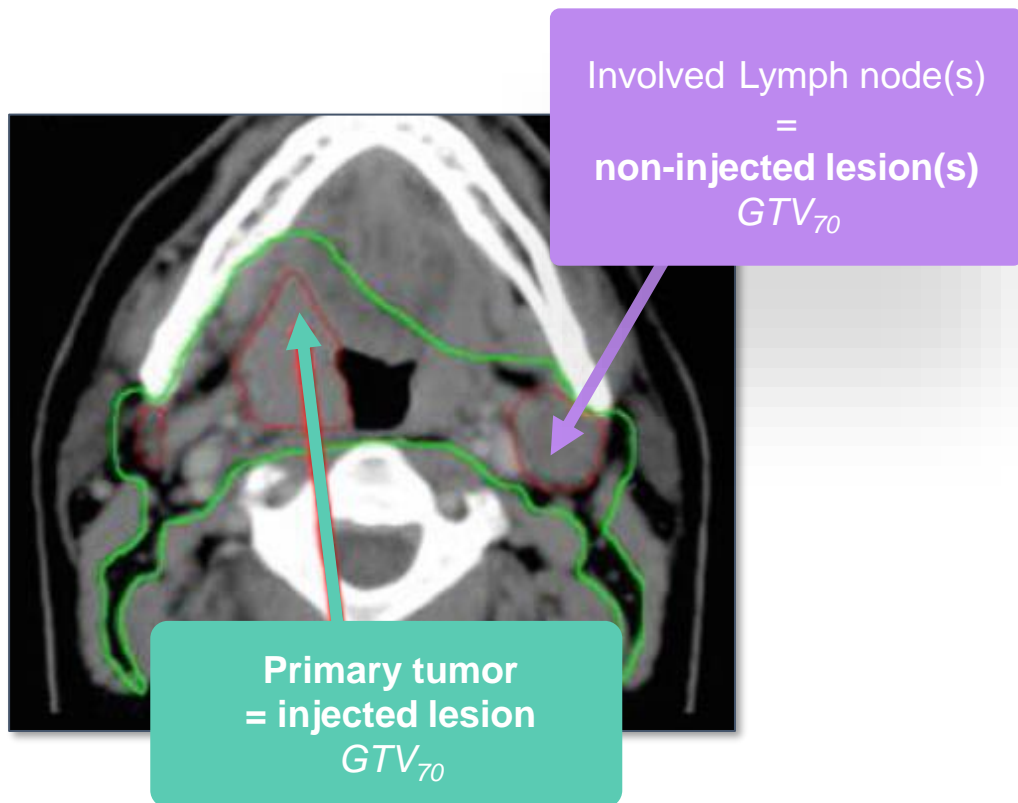
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ORR (CR + PR)	36 (81.8%)

Injected and Non-Injected Lesion	Evaluable Patients (n=44)
Best Overall Response, n(%)	
CR	23 (52.3%)
PR	12 (27.3%)
SD	4 (9.1%)
PD	5 (11.4%)
ORR (CR + PR)	35 (79.5%)

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Locoregional Control and Duration of Response



Duration of Objective Response

NBTXR3-injected lesion (n=36)

Median [95%CI], months Not Reached [7.2, NR*]

Injected and non injected lesion (n=35)

Median [95%CI], months 12.4 [6.6, NR*]

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Treatment Failure Pattern Consistent with Active NBTXR3

The cumulative incidence of **local treatment failure** was*:

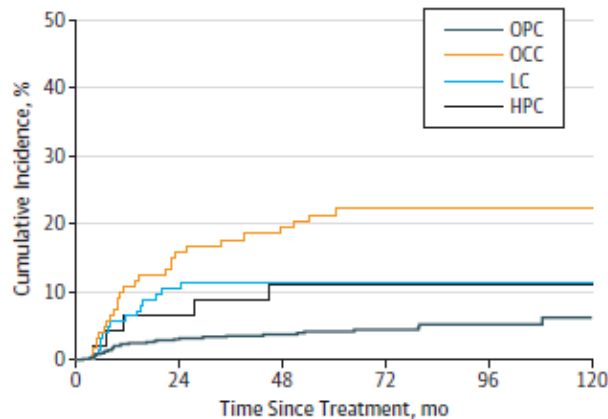
- 4.2% among patients with OPC
- **21.3% among patients with OCC**
- **11.4% among patients with LC**
- 11.1% among patients with HPC

The cumulative incidence of **regional nodal failure** was*:

- 2.9% among patients with OPC
- **8.4% among patients with OCC**
- **5.6% among patients with LC**
- 2.2% among patients with HPC

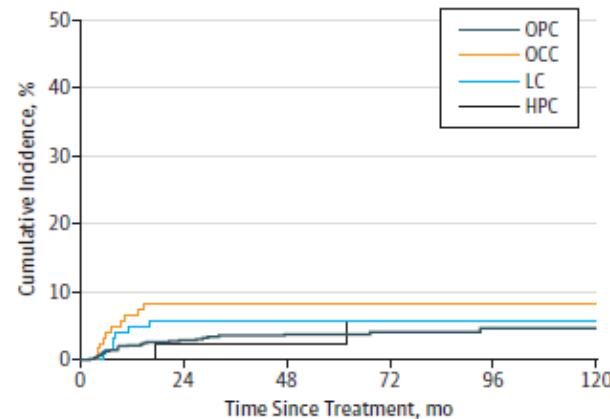
Cumulative incidence of Treatment Failures Across Subsites

Local treatment failure
(primary tumor)



No. at risk	0	24	48	72	96	120
OPC	703	578	427	228	114	39
OCC	125	68	53	29	16	4
LC	126	85	61	38	16	2
HPC	46	32	20	10	4	1

Regional treatment failure
(lymph nodes)



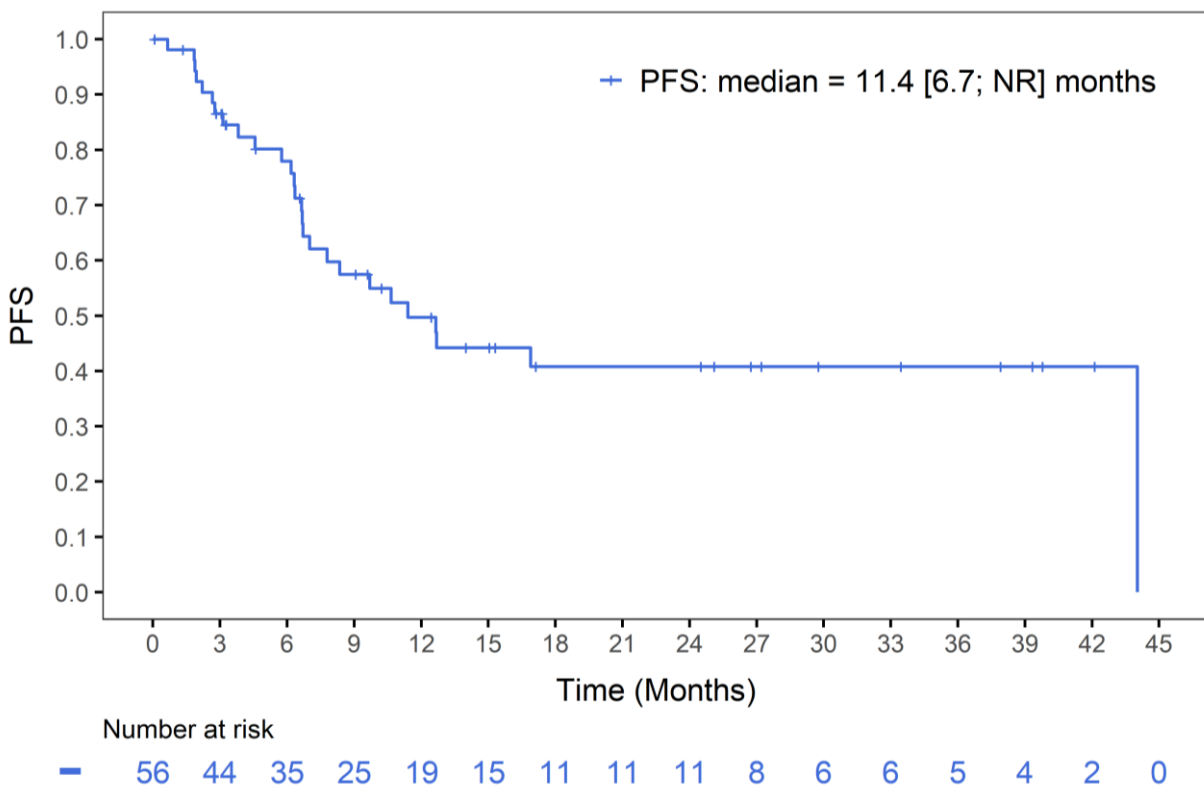
No. at risk	0	24	48	72	96	120
OPC	703	567	413	224	113	39
OCC	125	75	63	38	21	4
LC	126	88	60	37	16	2
HPC	46	32	21	10	4	1

“Our study demonstrated that, in definitive cases, **87.3% of regional recurrences occurred at the sites of gross disease**, with isolated recurrences in elective nodal volumes occurring in less than 1% of cases, similar to prior work.”

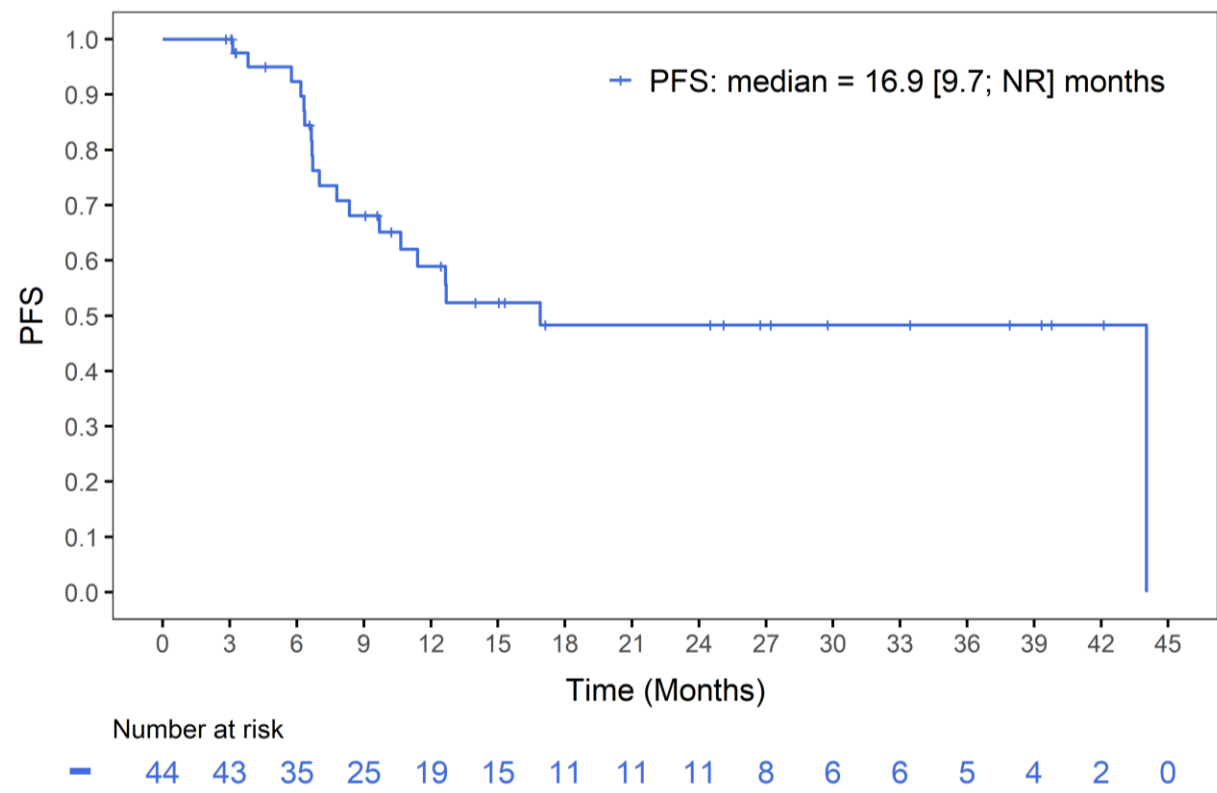
Median PFS of 16.9 Months in Evaluable Patients

By Independent Central Review

All Treated Population N=56



Evaluable Population* N=44



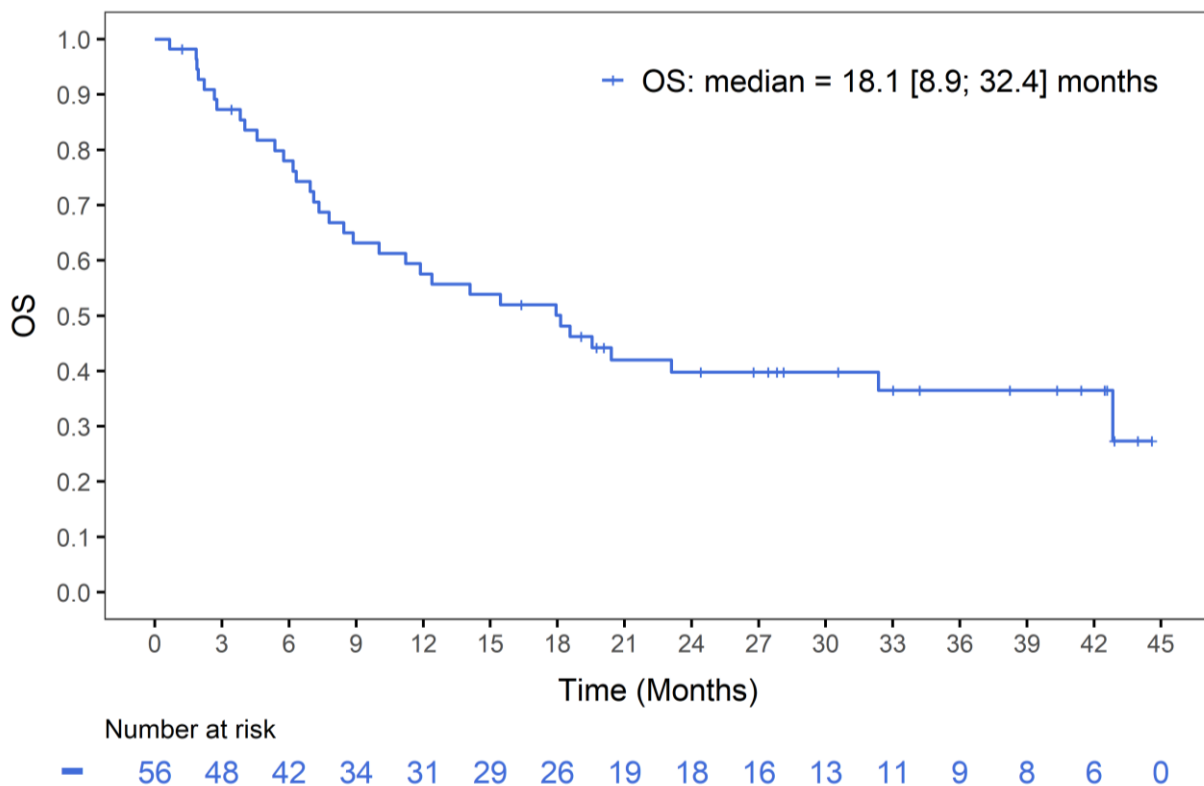
Among the 12 patients who were non-evaluable for objective tumor response, 9 had severe comorbidities (ACCI≥4)

~30% of HNSCC patients > 70 years old and have poor outcomes (PFS ~9 months³; OS ~12 months^{3,4,5})

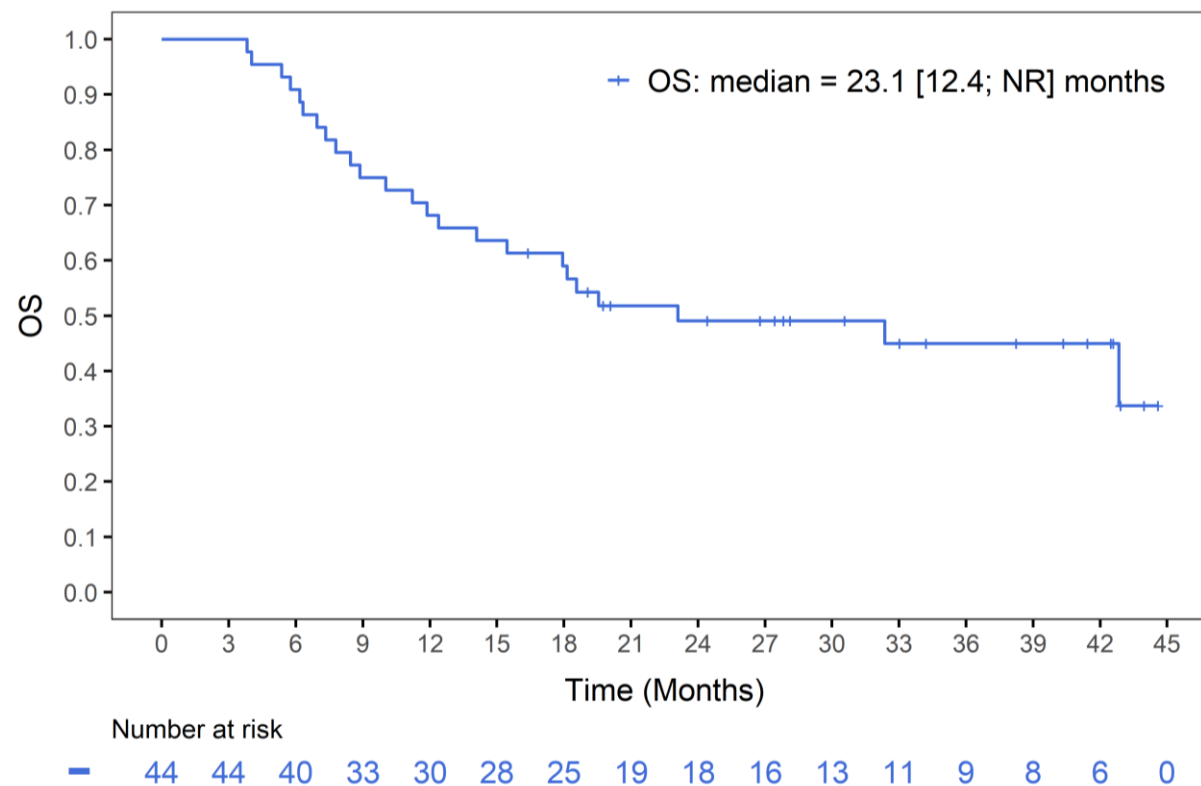
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Median Overall Survival 23.1 Months in Evaluable Patients

All Treated Population N=56



Evaluable Population* N=44



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Study 102 Key Messages

- » NBTXR3 injection is feasible and has a manageable safety profile in an elderly population with high burden of comorbidities.
- » High overall ORR (79.5%) **with highest ORR in the NBTXR3 injected lesion (81.8%).**
- » **Median duration of objective response was higher for NBTXR3 injected lesions (NR)** than for injected and non-injected lesions **(12.4 months).**
- » The change in the pattern of recurrence may be driven by the radioenhancer effect of NBTXR3 as injected and non-injected lesions (involved lymph nodes) are both treated with the same dose of radiotherapy.
- » mPFS =16.9 months and mOS=23.1 months in the evaluable population.
- » **Longer mPFS and mOS** compared with historical data (mPFS=9 months, mOS=12 months).
- » **Ongoing NANORAY-312:**

“A Phase 3 Study of NBTXR3 Activated by Investigator’s Choice of Radiotherapy Alone or Radiotherapy in Combination with Cetuximab for Platinum-based Chemotherapy-ineligible Elderly Patients with Locally Advanced Head & Neck Squamous Cell Carcinoma” [NCT04892173]

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NANORAY-312:

Global Phase 3 registration trial locally advanced HNSCC

Designed to provide robust evidence for survival superiority

Key Inclusion Criteria

Age ≥65 years

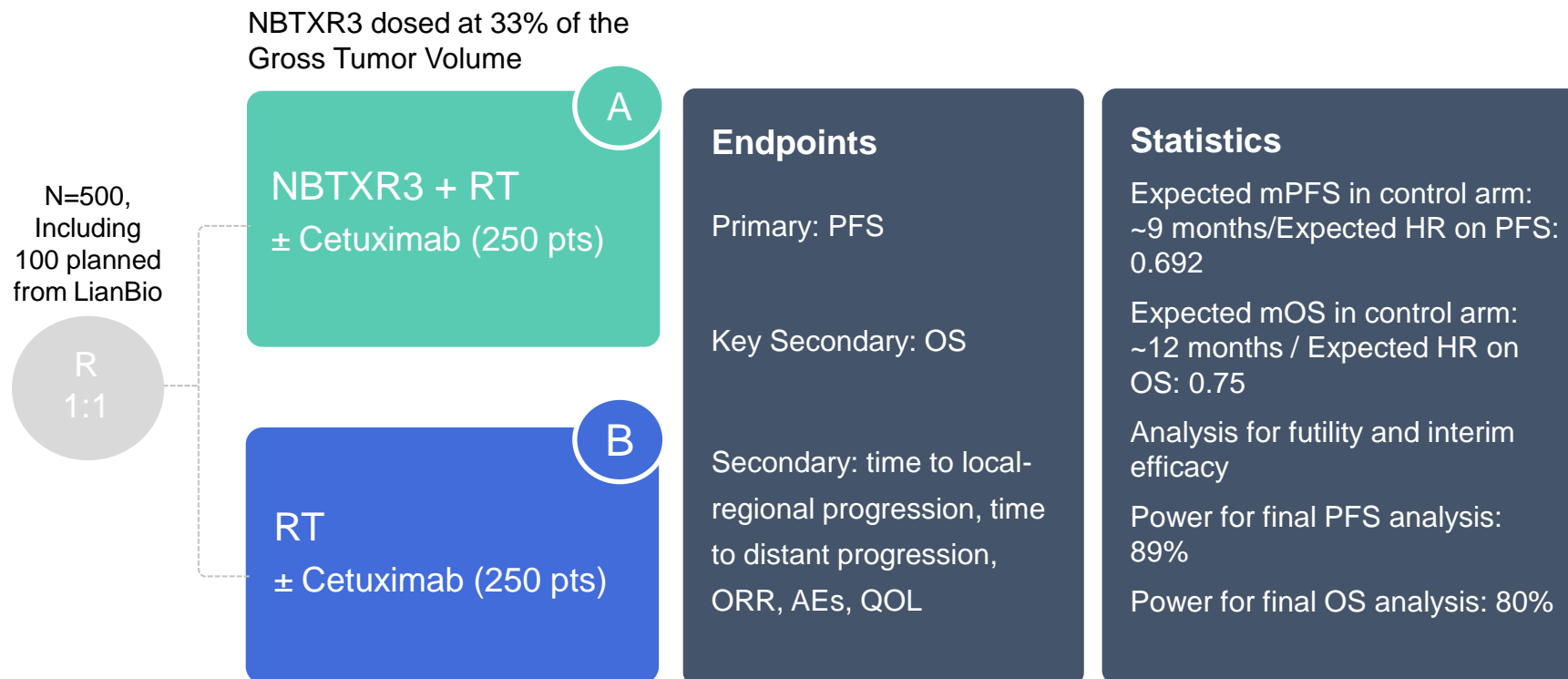
Eligible for definitive RT

At least one measurable and IT injectable tumor

Ineligible for platinum-based chemotherapy

No prior systemic Rx or RT

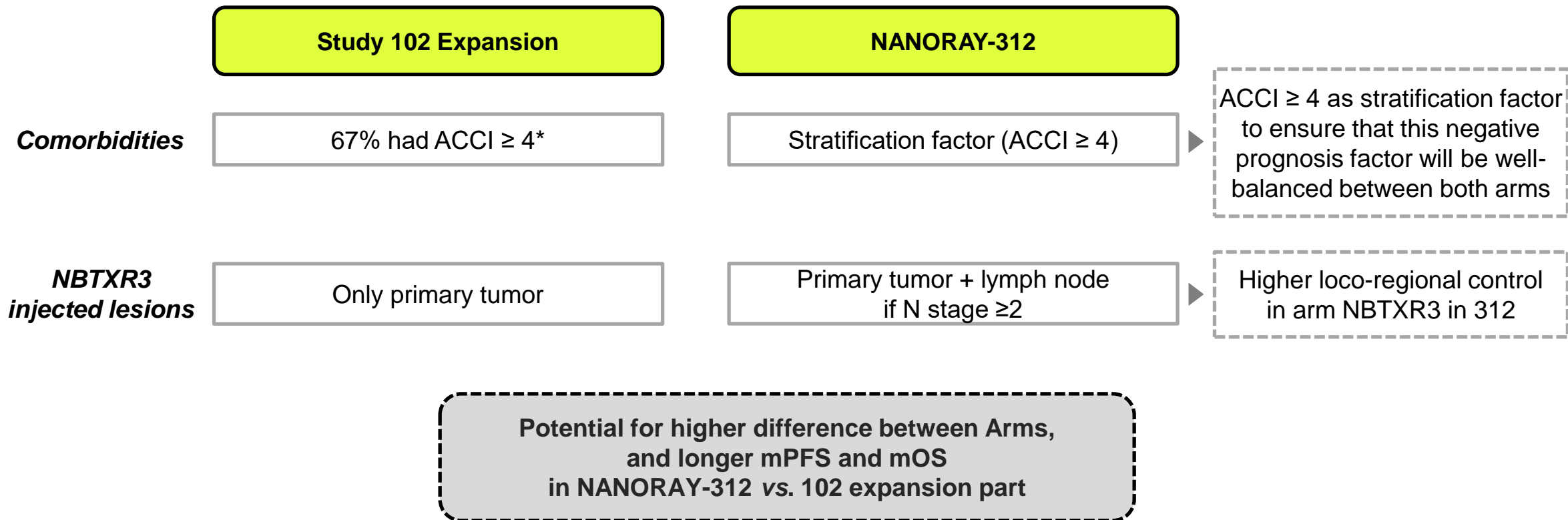
Life expectancy ≥ 6 months



First patients randomized in Europe (Jan 22), Asia (Aug 22) and in the US (Dec 22)

Stratification: mCCI, HPV status, cetuximab usage, geography

Differences Between Study 102 Expansion and NANORAY-312



Concluding Messages

- NBTXR3 injection is **feasible** and showed a **manageable safety profile** in an elderly population with high burden of comorbidities
- Very **strong efficacy signal**, ORR, PFS and OS
- Compared with historical data these results potentially **strengthen the hypothesis** currently being tested in the ongoing global, **registrational Phase 3 study** (NANORAY-312) for elderly patients with locally advanced head and neck cancer
- Potentially the **first indication to be commercialized by J&J and LianBio**

Q&A

The End