

# TPH Autólogo en Folicular POD24: No, existen opciones mejores

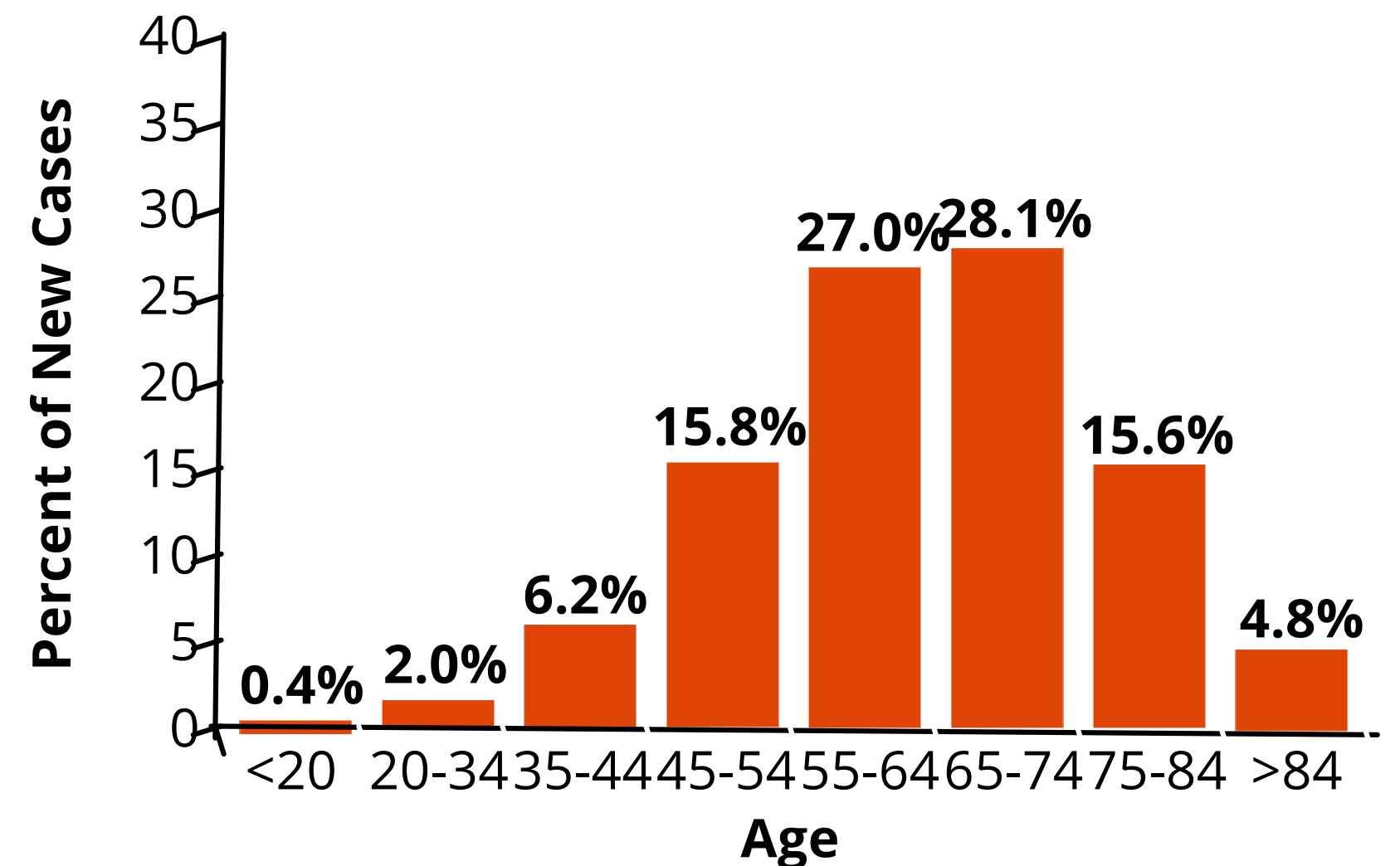
By Adrián Mosquera

# Follicular Lymphoma: Key Principles

- Indolent and incurable
- Long life expectancy for most patients:
- 5-yr relative survival after diagnosis (90%)
- More common in older adults
  - Median age at diagnosis: 64 yr
  - 8.7% of patients are aged  $\leq 44$  yr
- Treatment is primarily based on symptoms rather than stage or biology
- Event-based outcomes can determine prognosis (ie, POD24); however, unable to determine individual prognosis at diagnosis
- Grade, FLIPI and FLIPI-2, molecular assessments imprecise

- **Limited data regarding optimal sequencing**
  - Many new regimens and modalities
  - Lifelong risk for transformation

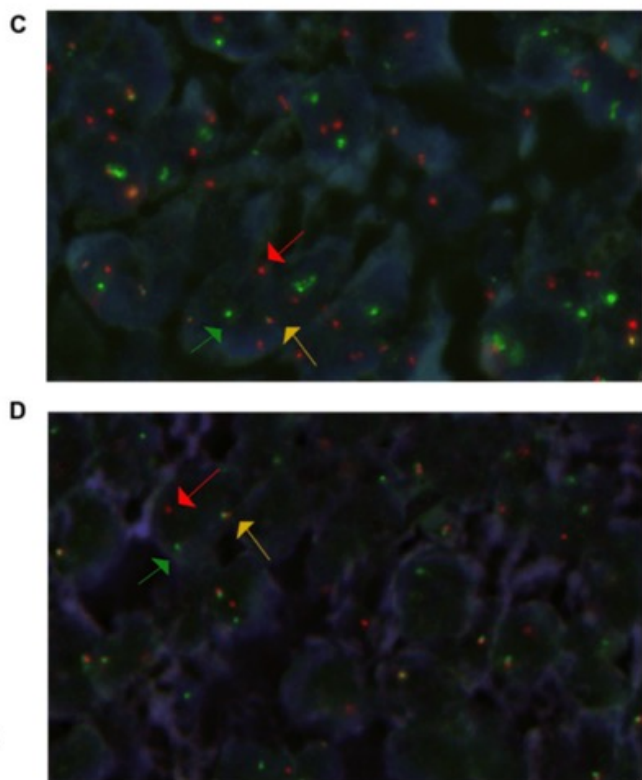
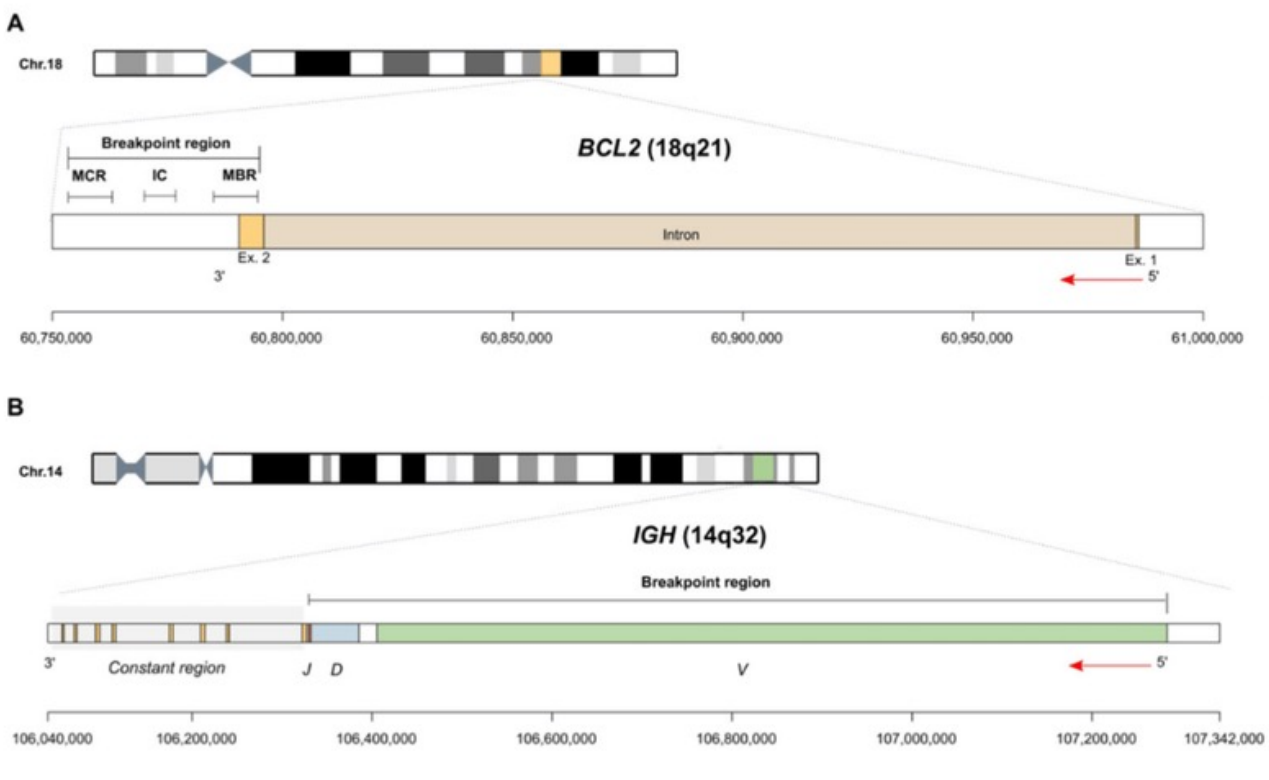
FL Incidence by Age Group (2017-2021)



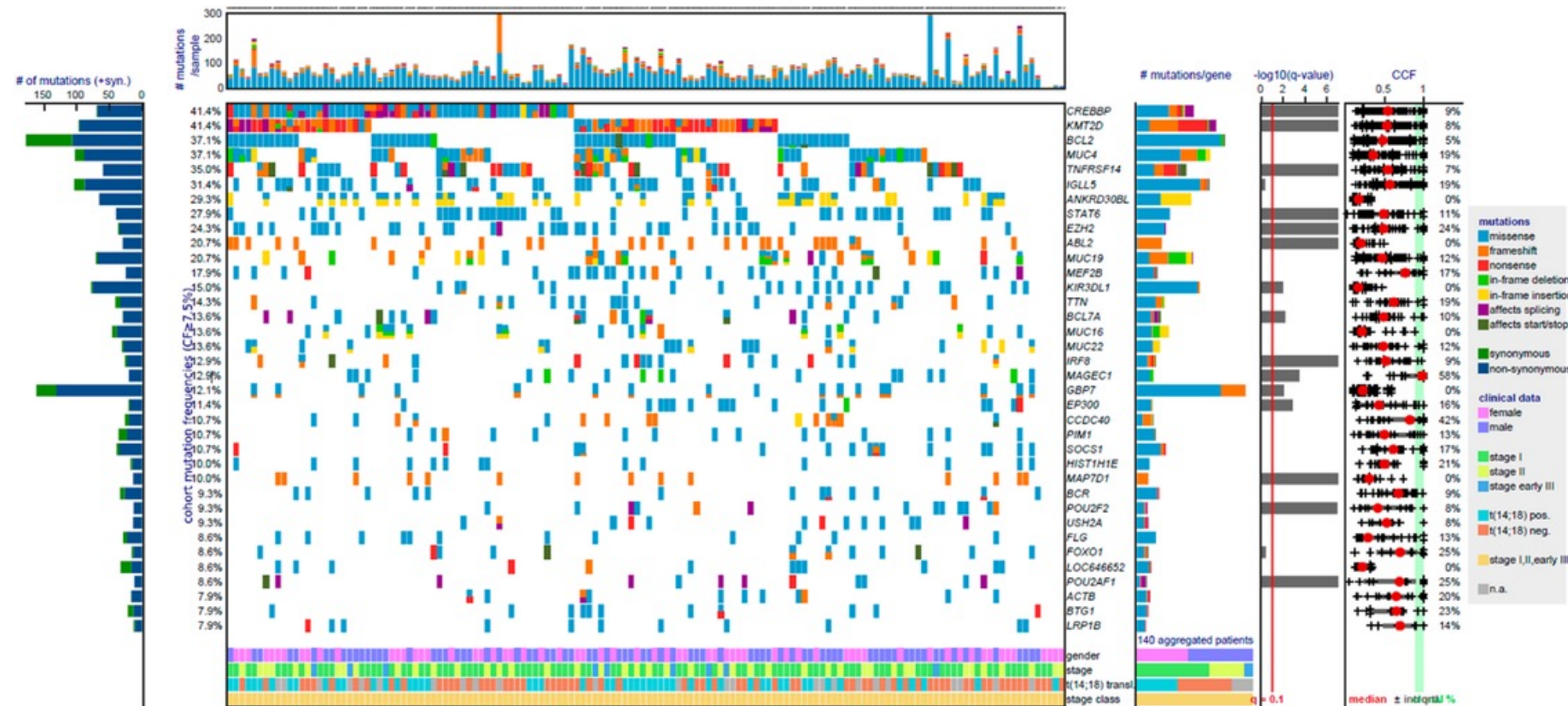
# Follicular Lymphoma Is Biologically Complex

## Translocation of IGH::BCL2 Breakpoints in FL<sup>1</sup>

## Landscape of Mutations in Intestinal Follicular Lymphoma<sup>2</sup>



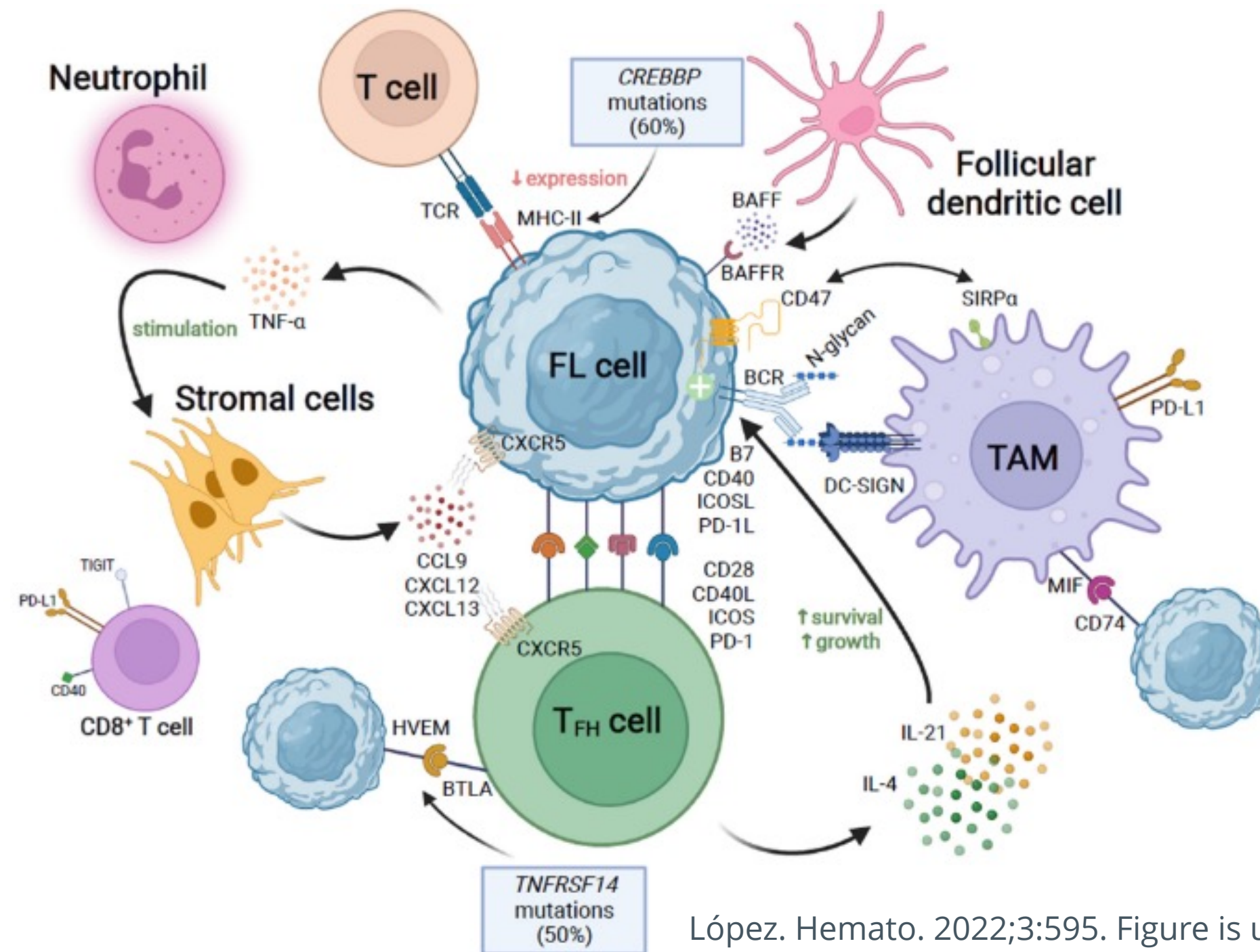
t(14;18)(q32;q21) is present in 80%-85% of cases



BCL2 and PIM1 mutations are most common

1. López. Hemato. 2022;3:595. Figure is used without changes per <https://creativecommons.org/licenses/by/4.0/>.  
 2. Kalmbach. Leukemia. 2023;37:2058. Figure used without changes per <http://creativecommons.org/licenses/by/4.0/r>.

# FL Pathogenesis: Highly Dependent on Tumor Microenvironment



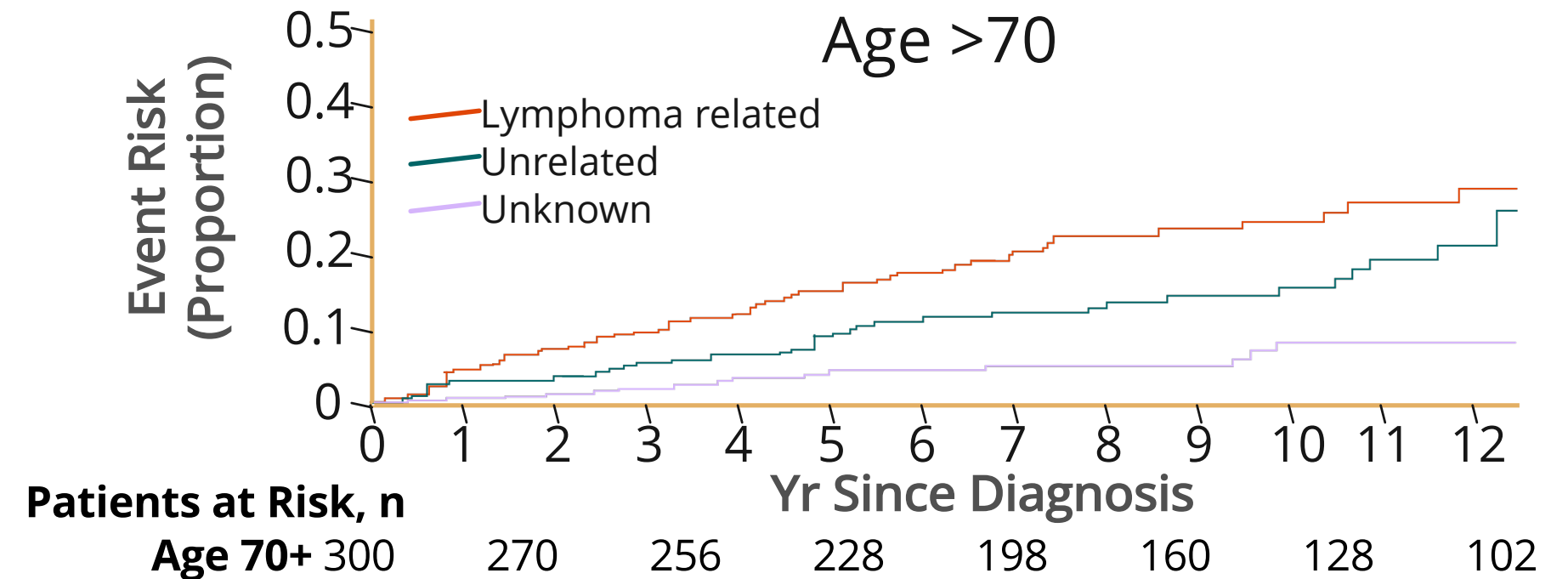
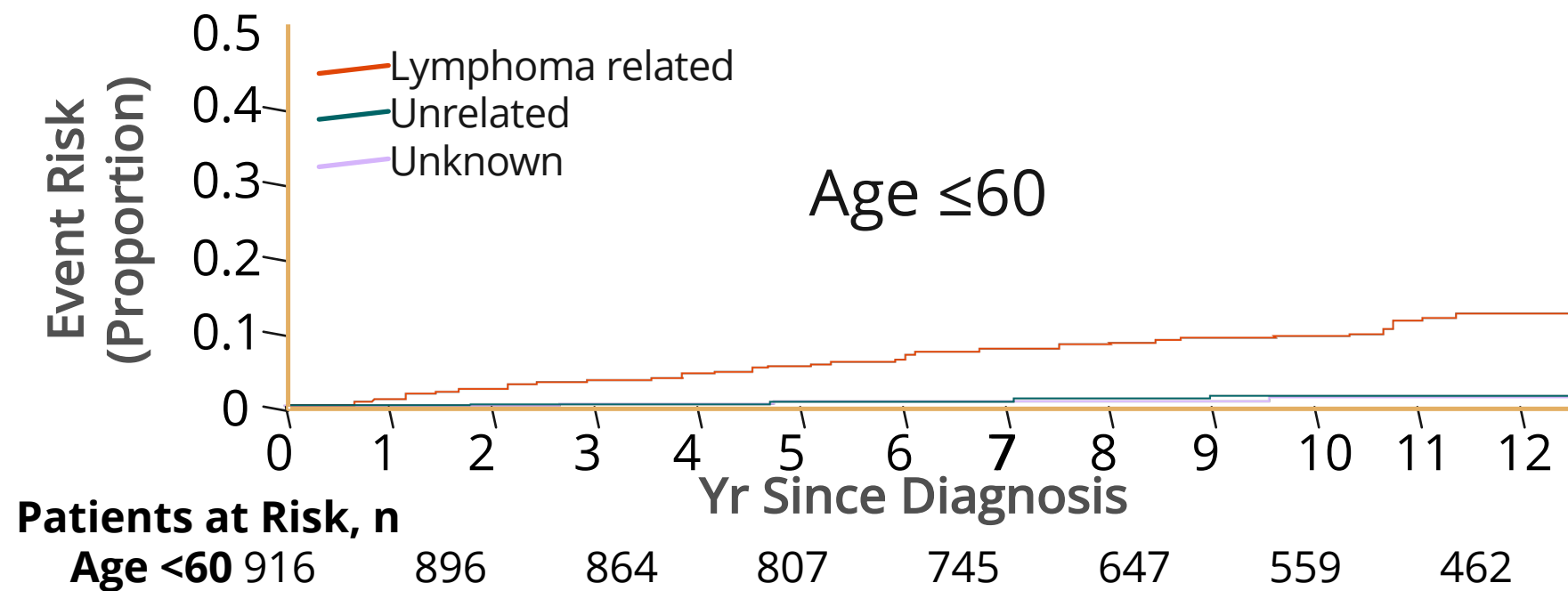
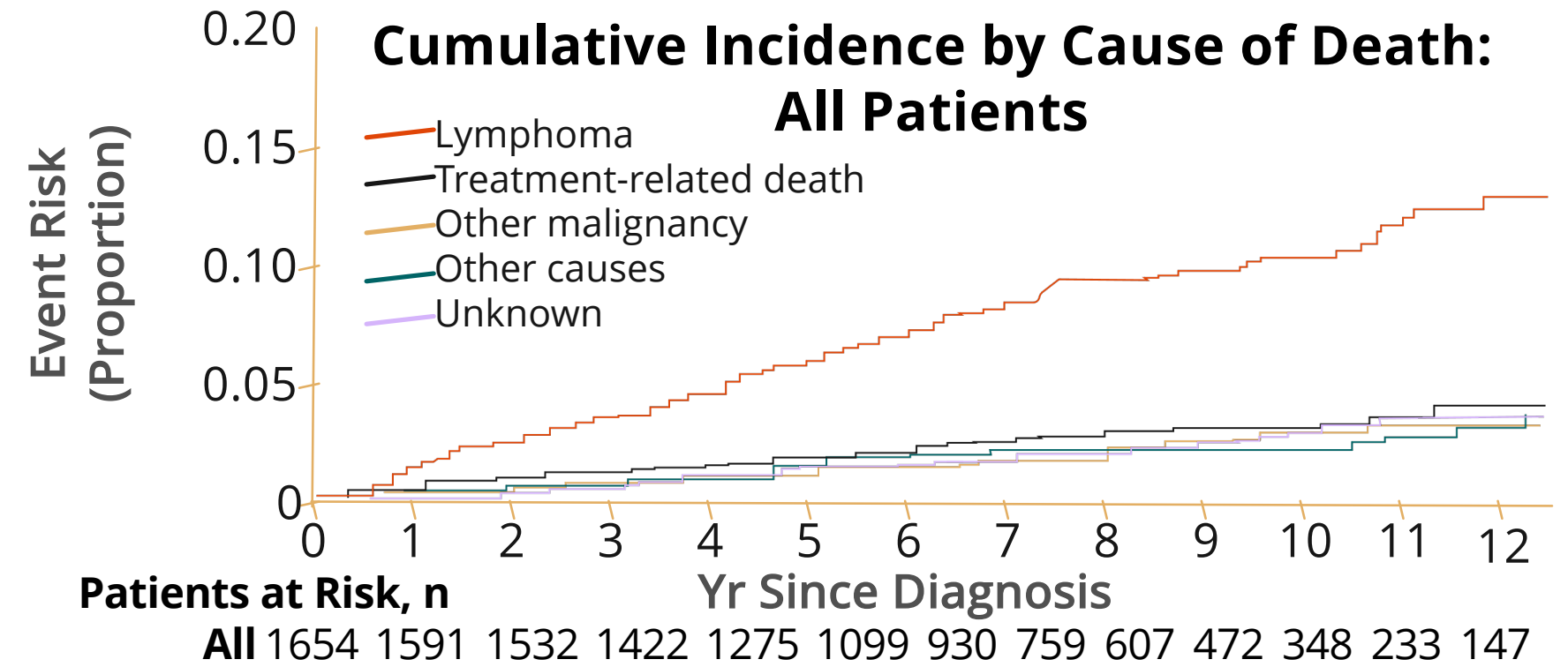
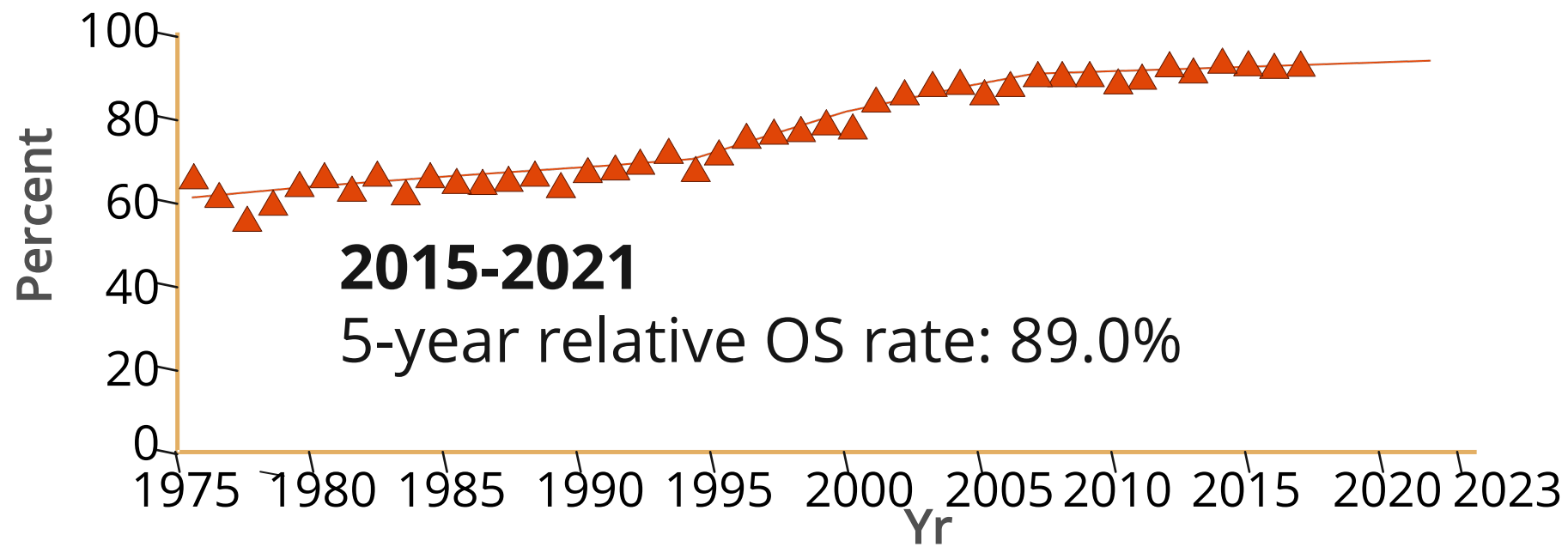
López. Hemato. 2022;3:595. Figure is used without changes per <https://creativecommons.org/licenses/by/4.0/>.

# FL Remains an Important Cause of Death

Pooled analysis of newly diagnosed FL in France (2001-2013) and US (2002-2012)

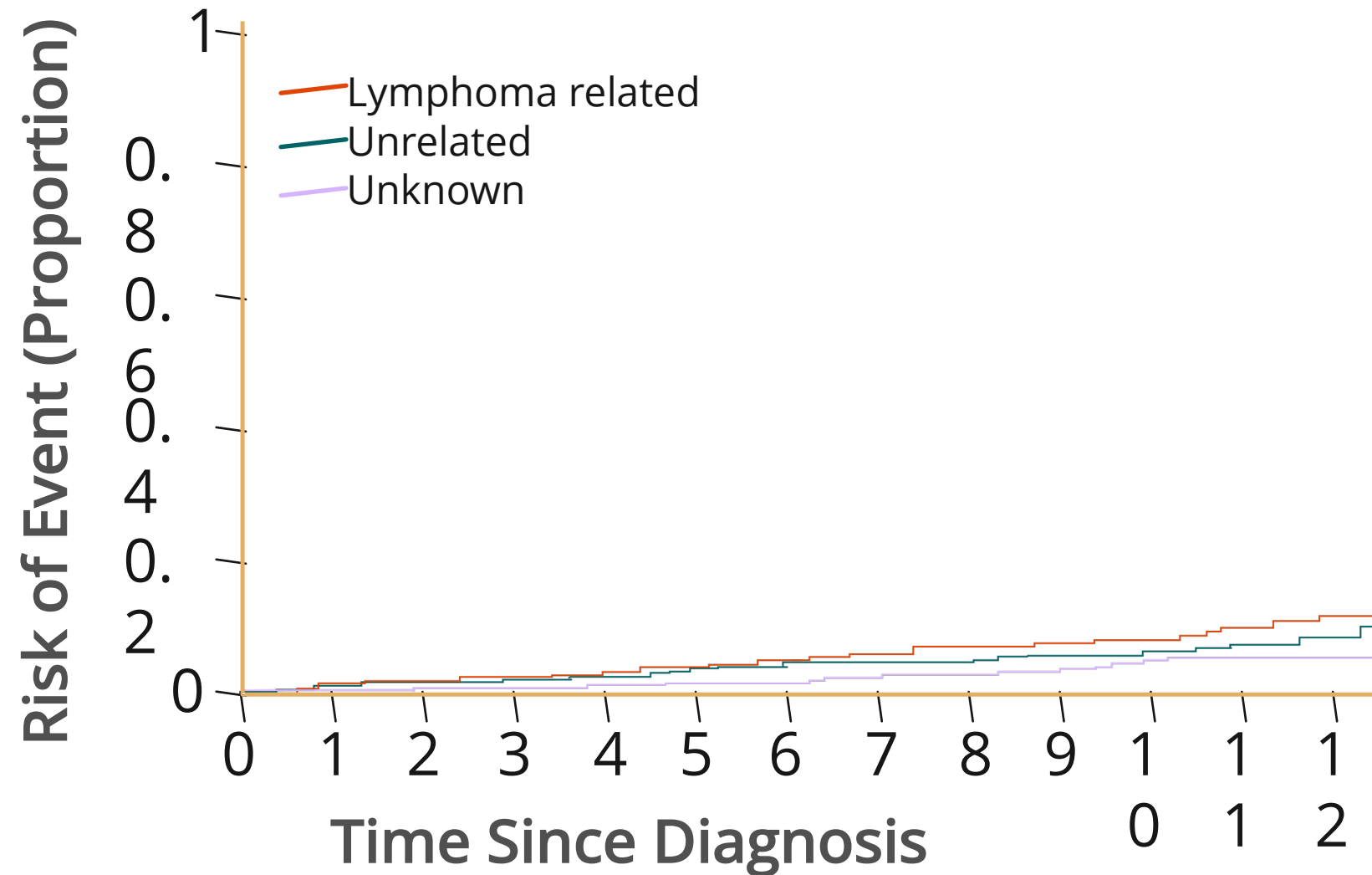
[seer.cancer.gov/statfacts/html/follicular.html](http://seer.cancer.gov/statfacts/html/follicular.html). Sarkozy. JCO. 2019;37:144.

## 5-Year Relative Survival (1975 -2017)



# FL: Histological Transformation

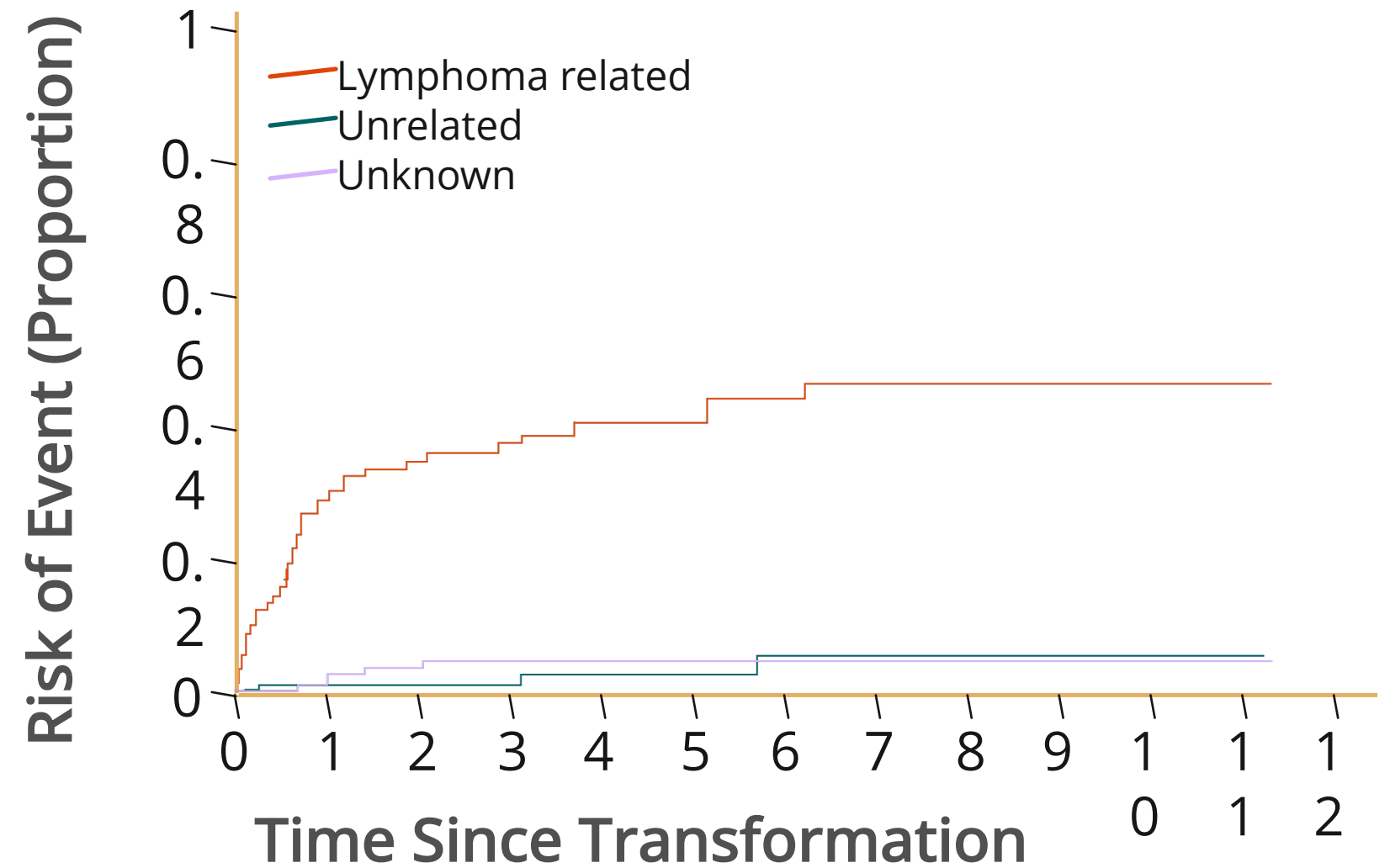
**Cumulative Incidence for the Competing Risks of Cause of Death Without FL Transformation**



**Patients at Risk, (yr)**

No transformation n	0	1	2	3	4	5	6	7	8	9	10	11	12
	920	883	854	800	707	598	499						
		400	305	247	176	118	65						

**Cumulative Incidence for the Competing Risks of Cause of Death With FL Transformation**



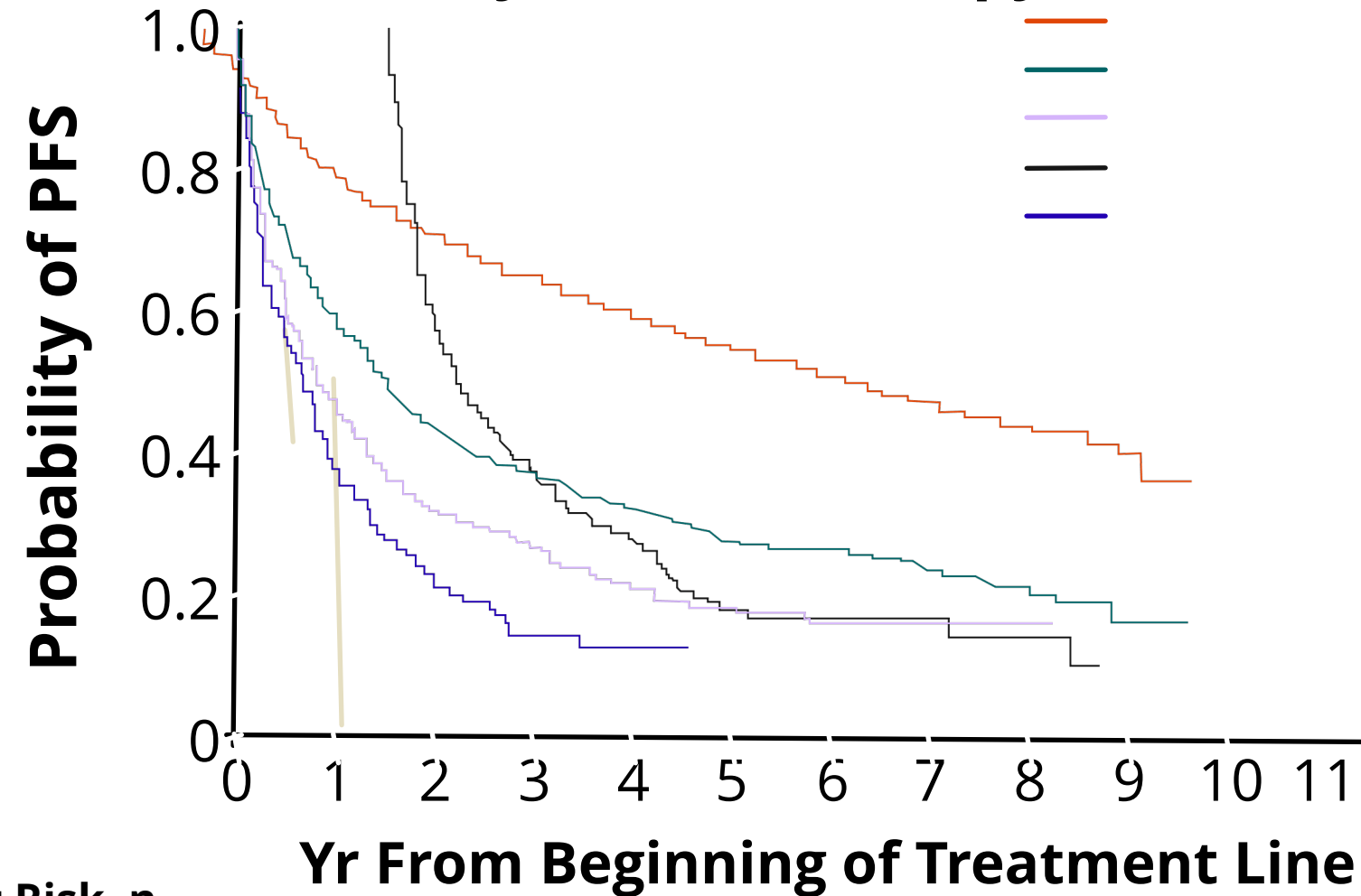
**Patients at Risk, (yr)**

Transformation n	0	1	2	3	4	5	6	7	8	9	10	11	12
	97	87	80	72	63	54	47	36					
		26	22	19	14	9							

Sarkozy. JCO. 2019;37:144.

# Survival Decreases by Line of Therapy in the Era of Chemoimmunotherapy

National LymphoCare Study (2004-2007):  
PFS by Line of Therapy<sup>1</sup>

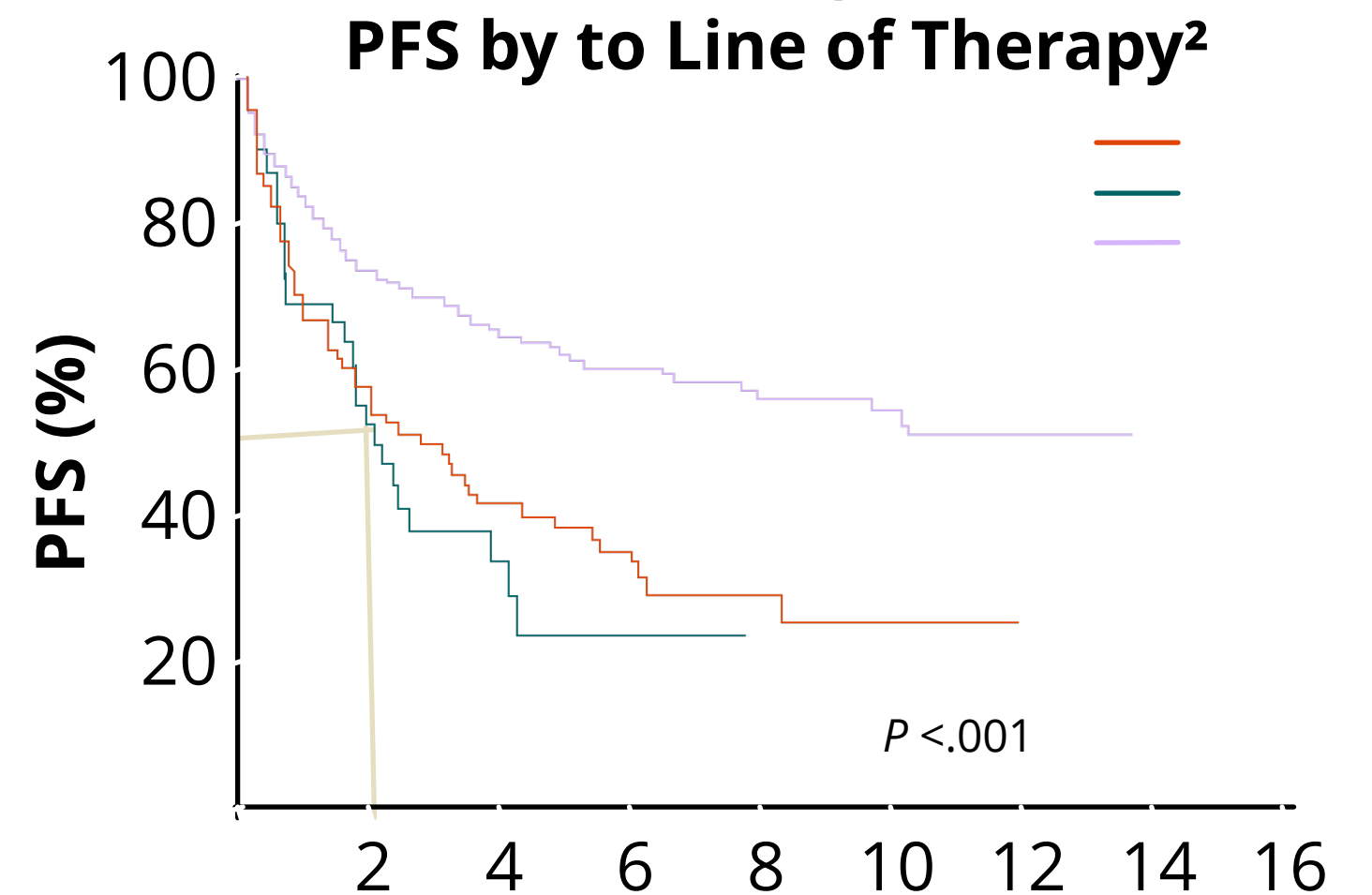


Patients at Risk, n

	0	1	2	3	4	5	6	7	8	9	10	11
First line	2429	1916	1602	1381	1202	1035	869	635	329	96	1	
Second line	889	489	331	256	199	137	104	57	24	5	0	
Third line	438	181	109	78	50	30	18	5	1	0		
Fourth line	229	91	49	24	14	8	3	1	0			
Fifth line	123	42	19	9	5	0						

1. Link. Br J Haematol. 2019;184:660.

Patients Who Received CIT (2001-2014):  
PFS by to Line of Therapy<sup>2</sup>



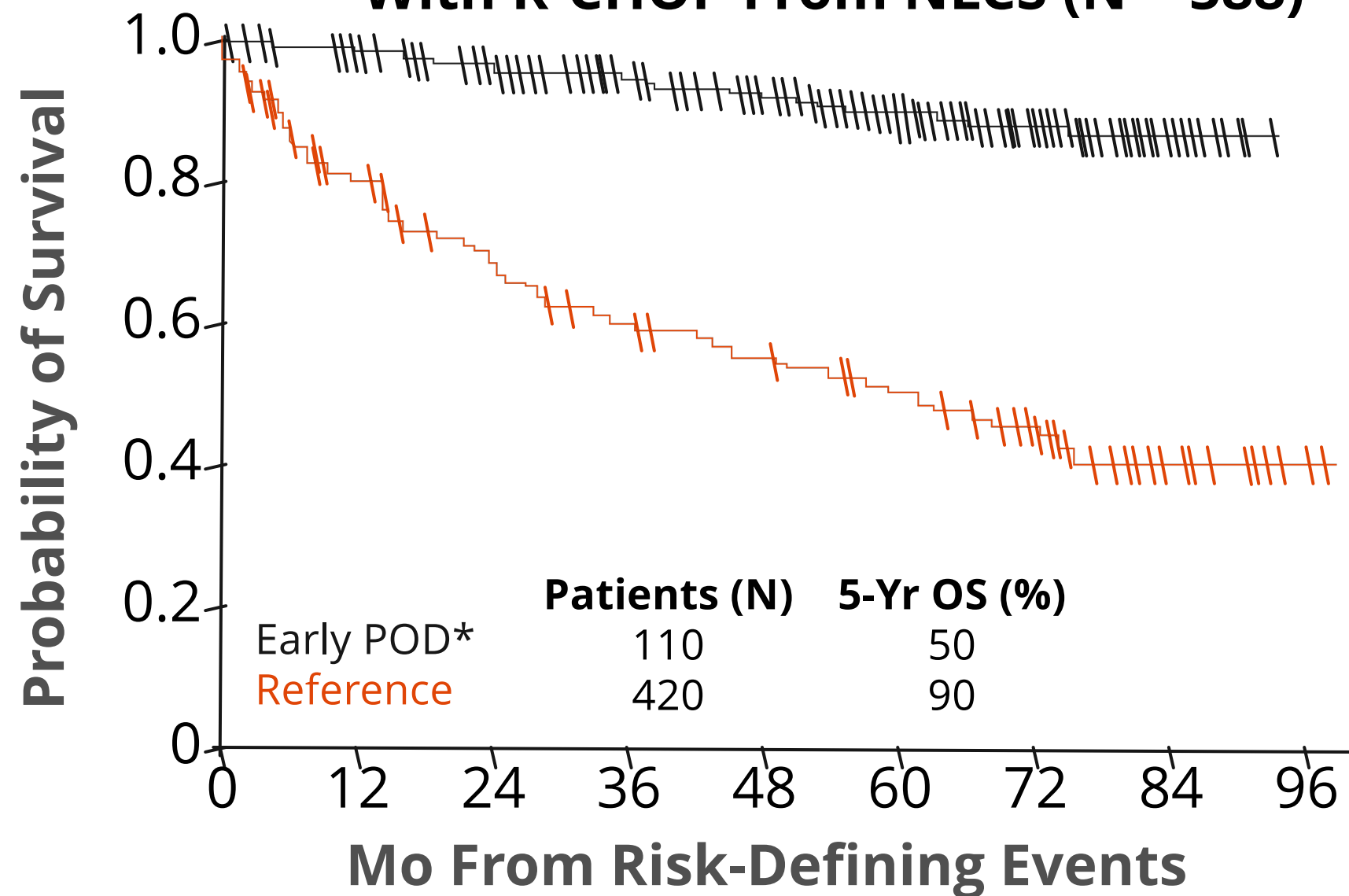
Patients at Risk, n

	0	2	4	6	8	10	12	14	16
First line	348	210	148	100	62	31	7	0	0
Second line	111	47	27	20	8	5	0	0	0
Third line	41	19	7	3	0	0	0	0	0

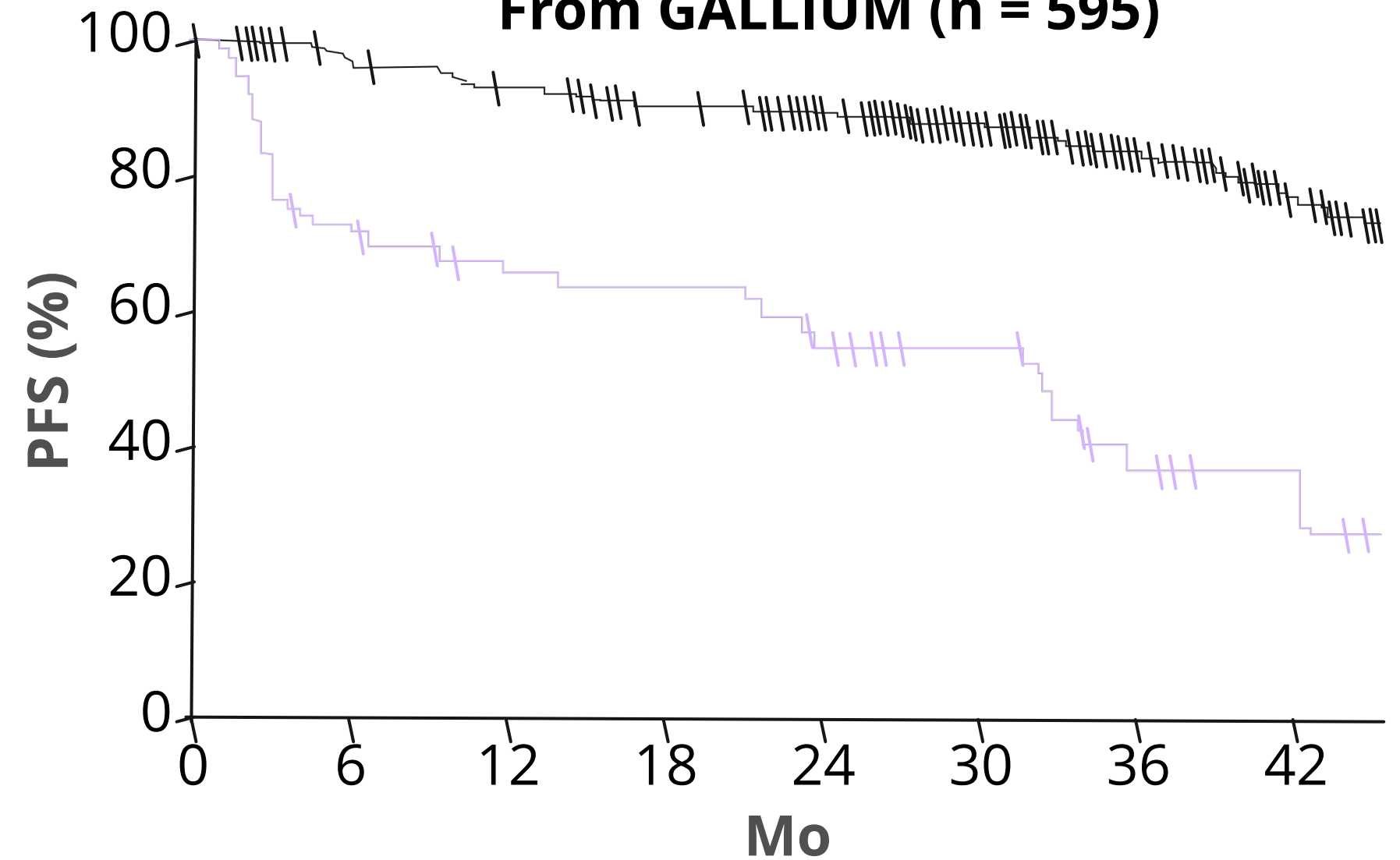
2. Rivas-Delgado. Br J Haematol. 2019;184:753.

# Early POD and PET Positivity at End of CIT Predicts Poor Prognosis in Patients With FL

**OS of Patients With FL Treated With R-CHOP From NLCS (N = 588)**



**PFS by PET Assessment† at End of CIT From GALLIUM (n = 595)**



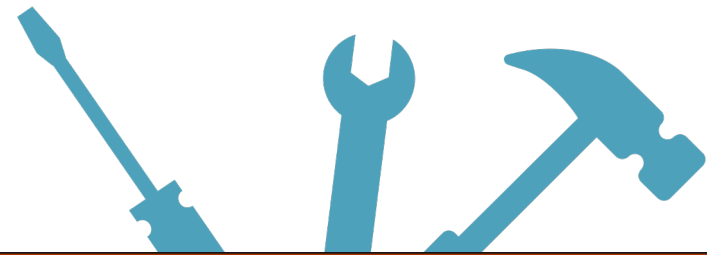
	n	30-Mo PFS, %	72-Mo PFS, %	72-Mo OS, %
CR at 2.5 yr	448	87.4	70.0‡	92.0
No CR at 2.5 yr	60	54.9	29.4§	79.6¶

†According to Lugano 2014 criteria.  
‡n = 449. §n = 56. ||n = 450.  
¶n = 69.

\*Early POD: relapse within 2 yr. Similar results found for an independent validation set and for first-line R-CVP and R-fludarabine in exploratory analyses.

# Treatment Options for R/R FL

Advanced Stage  
FL  
Grade 1-3a



## 2L Options

- Chemo + ritux or obin
- Len + ritux or obin
- Tafasitamab + Len + ritux
- Rituximab monotherapy
- Tazemetostat
- Auto-HSCT

## 3L+ Options

- **Bispecific antibody**
  - Mosunetuzumab
  - Epcoritamab
  - *Odronextamab (not FDA approved)*
- **CAR T-cell therapy**
  - Axi-cel
  - Tisa-cel
  - Liso-cel
- Len + ritux or obin
- Tafasitamab + Len + ritux
- Tazemetostat
- Zanubrutinib + obin
- Allogeneic-HSCT

On November 18, 2025, the FDA approved epcoritamab + R<sup>2</sup> for R/R FL based on the results of the EPCORE FL-1 trial. The trial demonstrated superiority of PFS and ORR in the epcoritamab arm (PFS HR: 0.21;  $P < .0001$ ; ORR: 89% vs 74%)\*

\*Epcoritamab PI. ASH 2025.

\*EMA authorized.

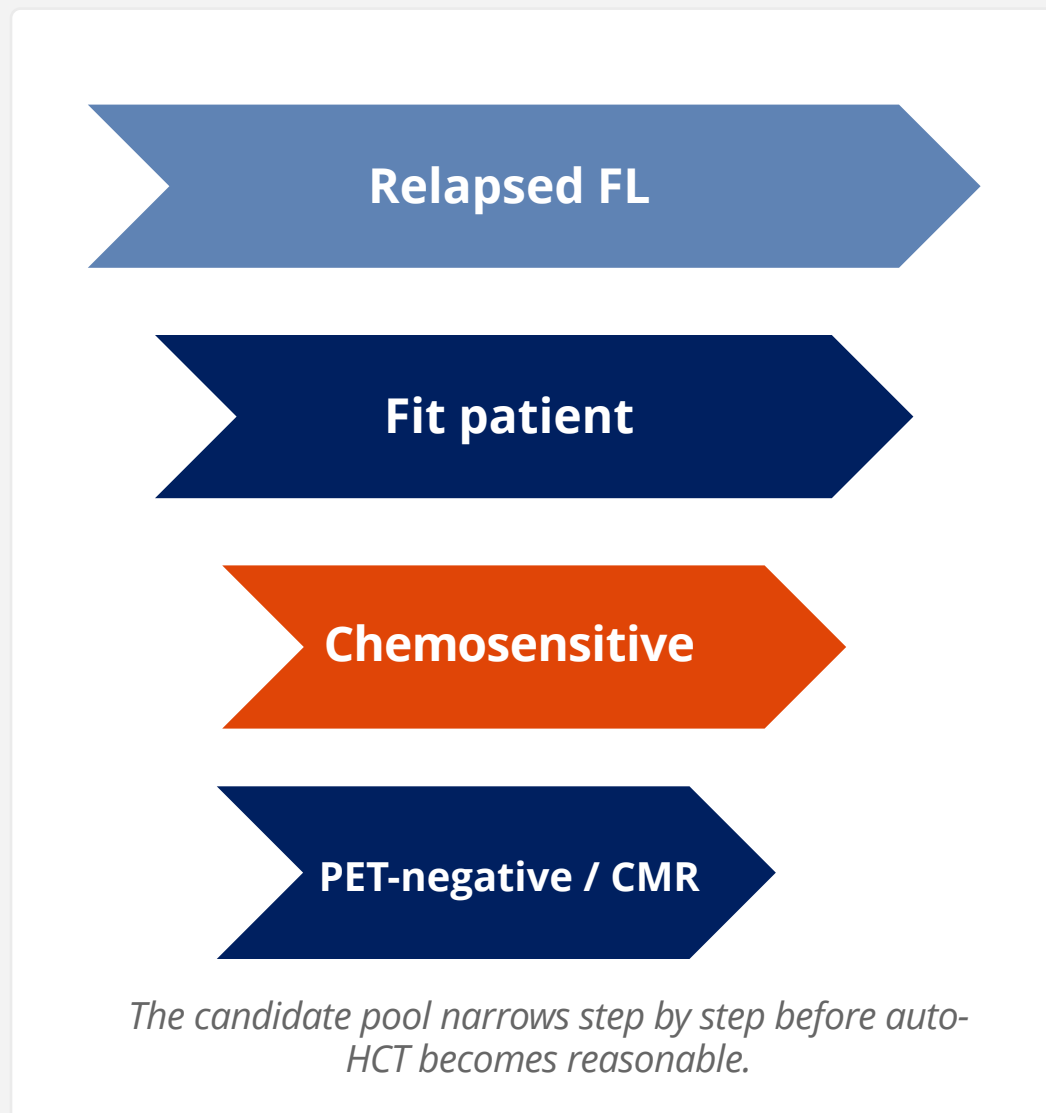
# Key Patient and Disease Factors in Determining Next Therapy

Factor	Comments
Indications	<ul style="list-style-type: none"> <li>• Does the patient meet the current indications for intensive therapies?</li> <li>• Does the patient meet the criteria for a clinical trial?</li> </ul>
Kinetics of disease progression	<ul style="list-style-type: none"> <li>• Would the patient be able to wait for the logistics of a clinical trial?</li> <li>• Does disease bulk and acuity of symptoms affect choice?</li> <li>• Is there a concern for transformation?</li> </ul>
Immediate prior therapy	<ul style="list-style-type: none"> <li>• What has the patient previously received and what was benefit/tolerance?</li> <li>• How do cytopenias and short duration of response affect next line of treatment?</li> </ul>
Transportation	<ul style="list-style-type: none"> <li>• Does the patient rely on caregivers?</li> <li>• Will the treatment schedule be manageable with caregiver's work schedule?</li> <li>• How far does the patient live from the treatment center?</li> </ul>
Non-disease-related comorbidities	<ul style="list-style-type: none"> <li>• eg, HTN, depression</li> </ul>



# Auto-HCT only works in a narrow “sweet spot”

*That sweet spot is selected, fit, chemosensitive disease — usually before true refractory biology dominates.*



## Where refractory FL clashes with the platform

### NOT RESCUE

Auto-HCT consolidates response; it does not create sensitivity where none exists.

### BIOLOGY FIRST

PET positivity, rituximab refractoriness, or chemo-refractory disease predict worse outcomes.

### SELECTIVE USE

Modern reviews reserve it for highly selected patients, usually in later remission but controlled disease.

### Practical framing

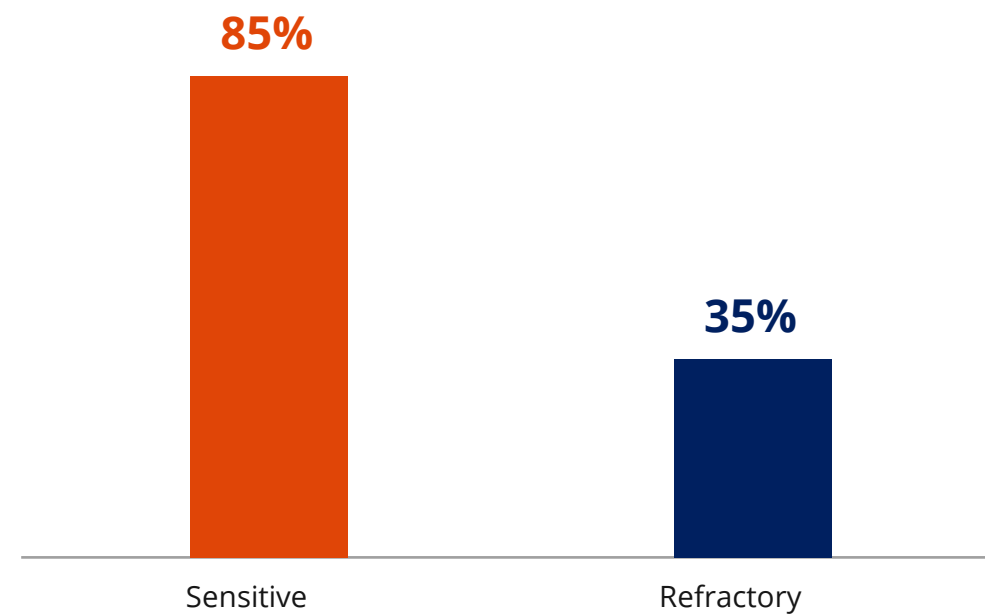
- “True refractory” FL often fails before it reaches the transplant sweet spot.
- The more rescue therapy needed to obtain control, the less compelling auto-HCT becomes.
- So the core limitation is biological selection, not just toxicity.

*In refractory FL, the main criticism is not that auto-HCT never works — it is that its best biology is not the biology of many real refractory cases.*

# When pre-transplant disease control is weak, outcomes collapse

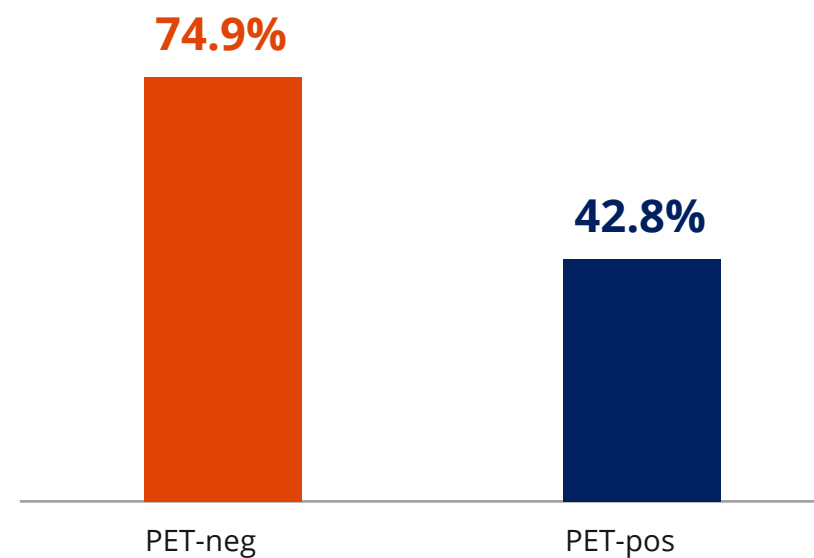
Three different datasets point in the same direction: uncontrolled biology predicts poor post-transplant durability.

3-year PFS after ASCT by rituximab sensitivity



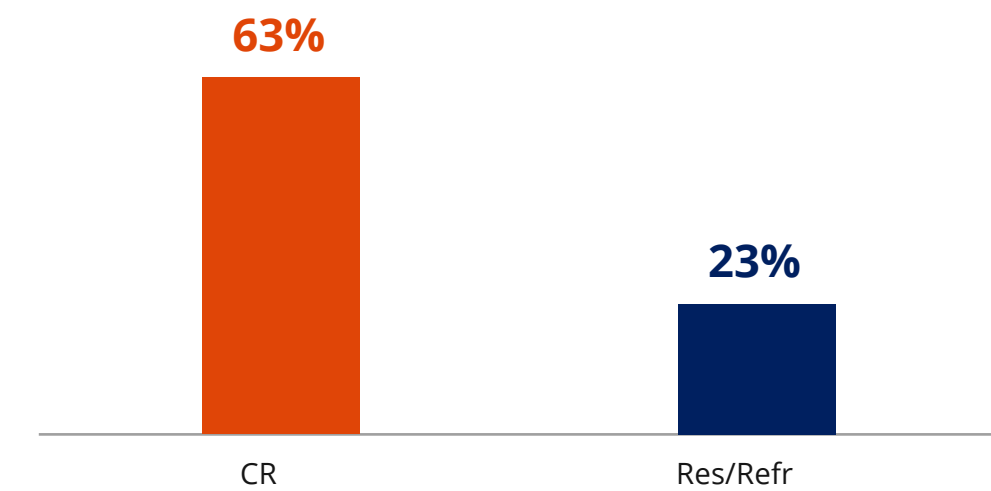
Relapsed FL after ASCT

3-year PFS by PET/CT before ASCT



Deauville threshold  $\geq 3$

12-year PFS by disease status at ASCT



Spanish GELTAMO registry

**85 → 35**

The rituximab-refractory drop is too large to ignore.

**PET negativity matters**

Even among CT-chemosensitive patients, metabolic positivity still worsens prognosis.

**Key message**

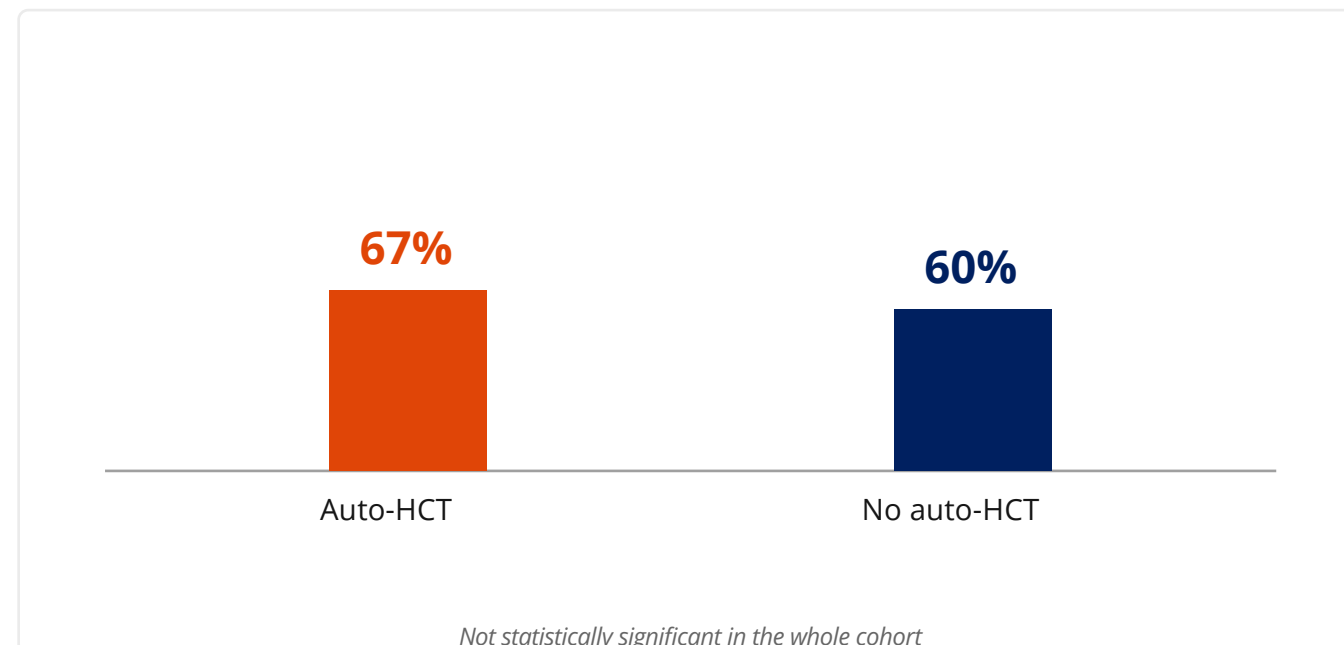
Auto-HCT is a consolidation tool for controlled disease — not a dependable answer for active refractory FL.

# Overall-survival benefit is selection-dependent, not universal

*In POD24 / early therapy failure, the headline benefit appears only in the early, best-selected subgroup.*

## Entire ETF / POD24 cohort

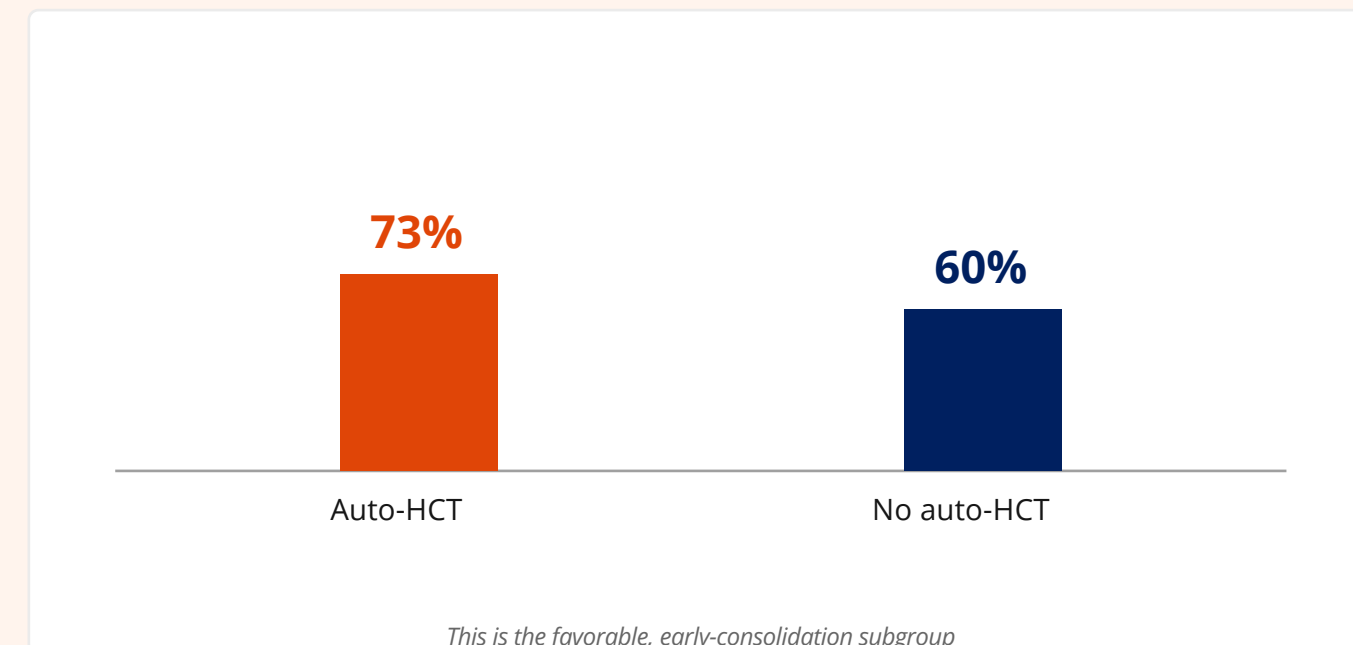
5-year overall survival



**Interpretation: supports selection, not routine use**

## Only when ASCT was used early

≤ 1 year from ETF



**Interpretation: a narrow window, not a blanket rule**

## Tumor-board framing

If the benefit appears only after early, favorable selection, the argument weakens for patients with genuinely refractory disease later in the course.

# The upfront price: severe toxicity is common, and early mortality is real

Acute-toxicity datasets are mostly lymphoma-wide, but they represent the same HDT/ASCT platform used in FL.

## Short-term toxicity pattern

Mucositis

Febrile neutropenia

Infection / sepsis

GI toxicity

Pneumonitis

Cardiovascular events

### Majority developed severe toxicities

Most frequent grade  $\geq 3$  issues in BEAM-AHCT cohorts were febrile neutropenia, GI, infectious, and cardiovascular toxicities.

## Useful numbers for the discussion

**1.79%**

Dahi 2021

100-day NRM  
(age 60–69)

**2.99%**

Dahi 2021

100-day NRM  
(age  $\geq 70$ )

**HR 3.36**

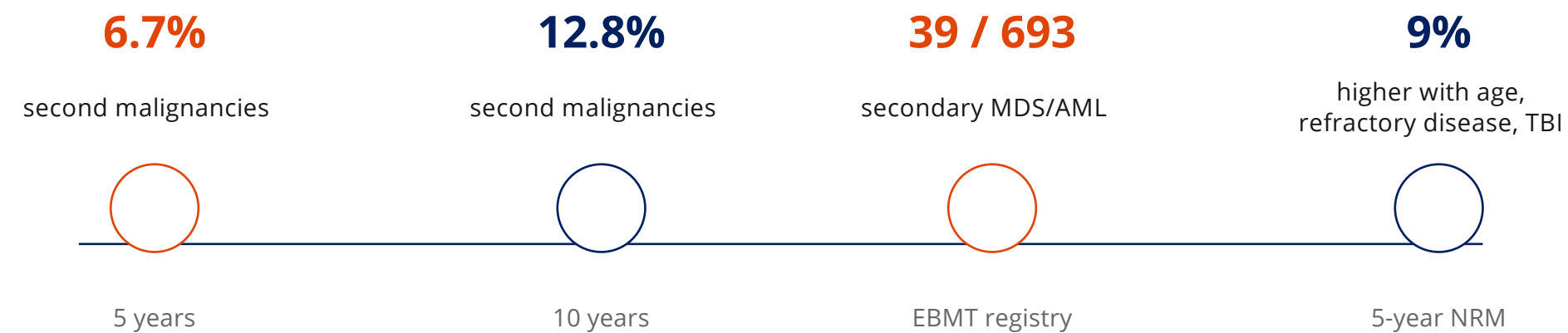
Age  $\geq 70$  carried more grade  $\geq 3$  cardiovascular toxicity.

*For an indolent lymphoma, this burden matters even before considering whether disease control will actually be durable.*

# The long-tail price: second cancers and survivorship burden

Late harm carries extra weight in FL because expected survival can be long even without transplant.

## Late-event timeline after auto-HCT



**This is the strongest "against" argument in indolent FL**

Late toxicities can outlive the early transplant story: therapy-related myeloid neoplasms, second solid cancers, organ sequelae, sexual/fertility issues, and financial toxicity.

## What persists beyond relapse-risk curves

- Secondary cancers, especially t-MDS/AML
- Cardiovascular, pulmonary, renal, endocrine, and sexual-health late effects
- Quality-of-life and work/financial consequences
- Need for long-term survivorship follow-up

**13-fold**

Bhatia 2005  
Excess risk of late death vs the general population in long-term auto-HCT survivors.

# Bottom line for a 2025 discussion

**Auto-HCT is a narrow consolidation tool for controlled disease — not a default rescue strategy for biologically refractory follicular lymphoma.**

**1**

Benefit depends on chemosensitivity and PET-negative / metabolically controlled disease before intensification.

**2**

Acute burden is substantial: mucositis, infection, febrile neutropenia, GI toxicity, cardiovascular toxicity, and measurable early NRM.

**3**

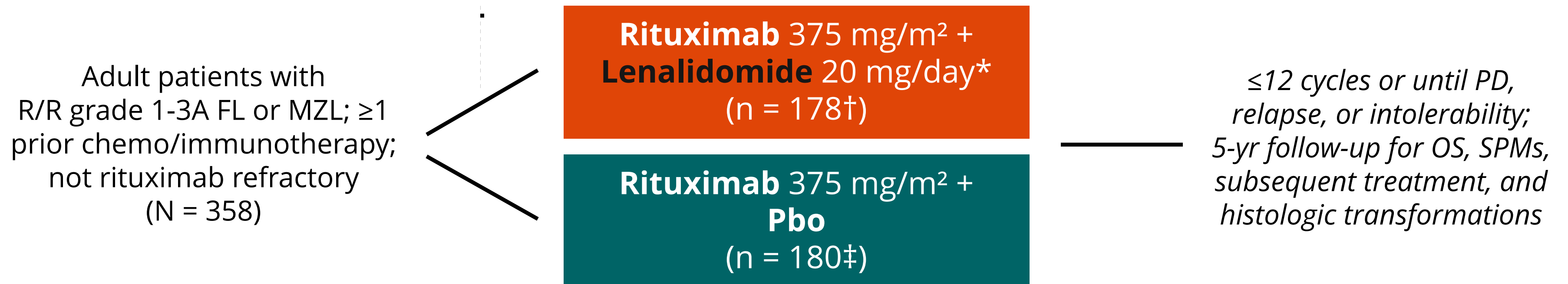
Late costs are unusually important in FL: second malignancies, t-MDS/AML, organ sequelae, and survivorship toxicity.

# AUGMENT: R<sup>2</sup> vs Rituximab Monotherapy in R/R iNHL

Multicenter, placebo-controlled, randomized phase III trial

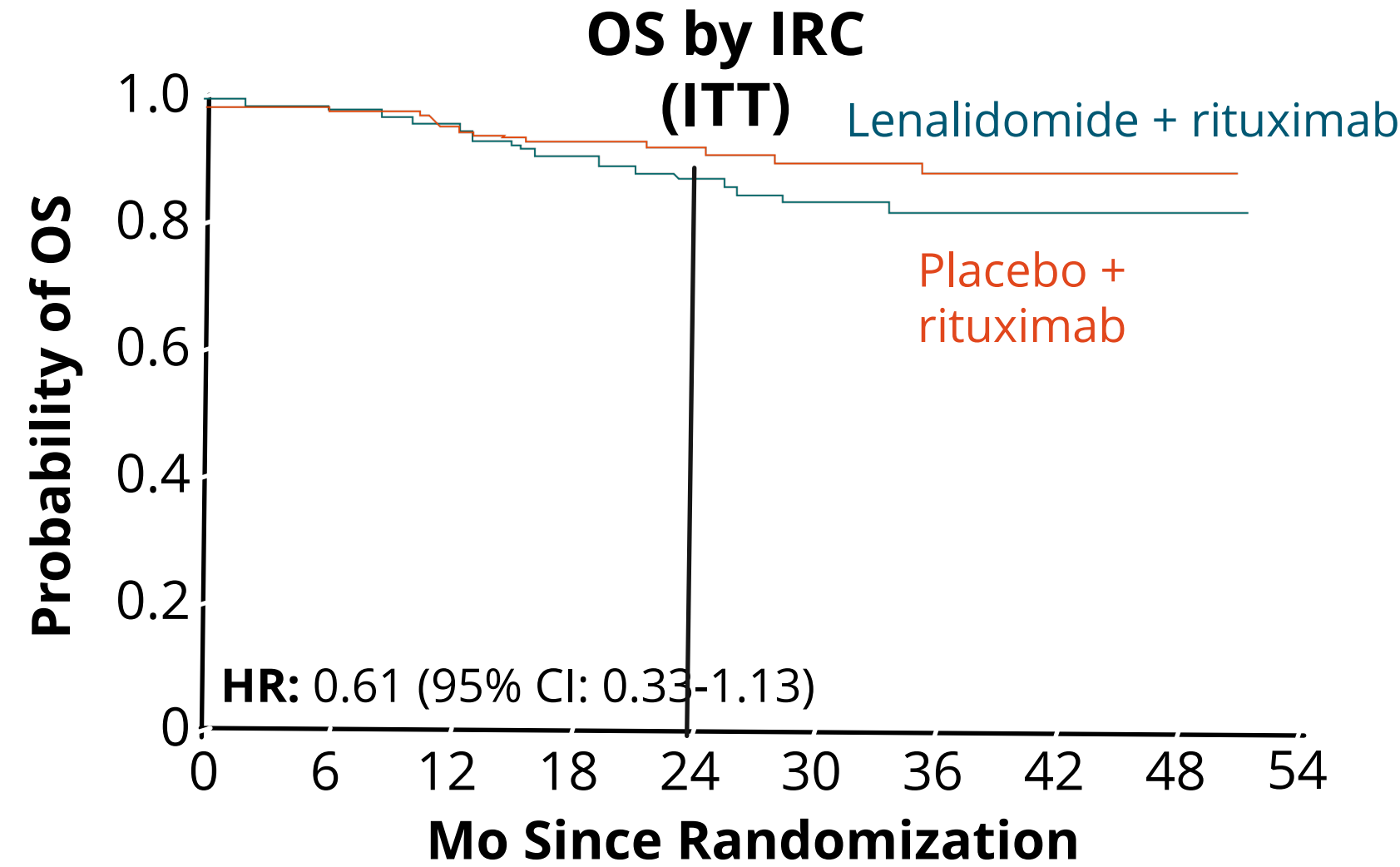
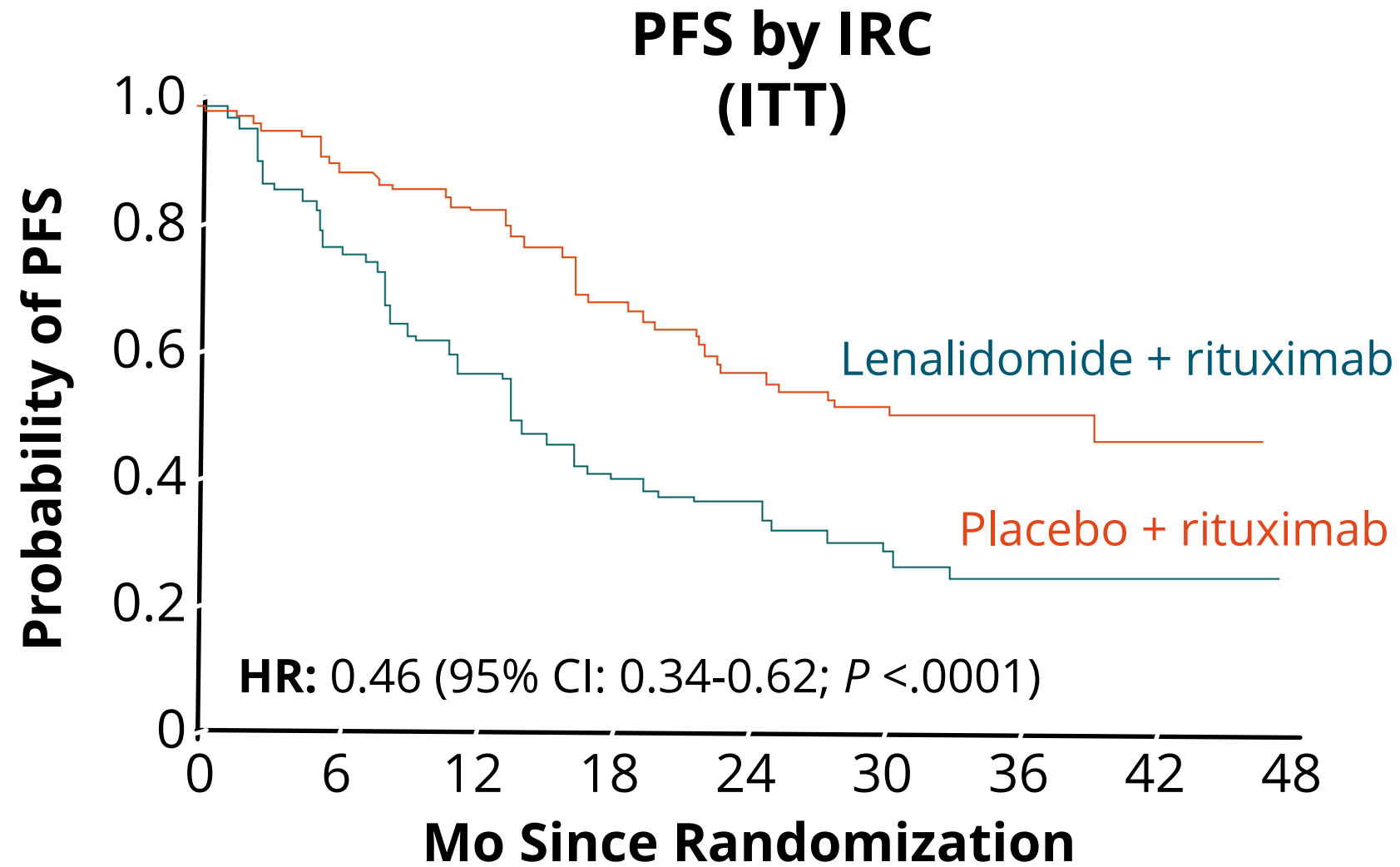
- **Primary endpoint:** PFS by IRC (2007 IWG criteria without PET)

*Stratified by prior rituximab (yes vs no), time since last therapy ( $\leq$  vs  $>2$  yr), histology (FL vs MZL)*



Rituximab: Days 1, 8, 15, 22 of cycle 1; Day 1 of cycles 2-5. Lenalidomide: Days 1-21 of 28. Prophylactic anticoagulation recommended for at-risk patients. Growth factor use allowed per ASCO/ESMO guidelines. \*10 mg/day if CrCl 30-59 mL/min. **†FL, n = 147; MZL, n = 31.**  
**‡FL, n = 148; MZL, n = 32.**

# AUGMENT: Survival



Patients at Risk, n

Len + rituximab	178	148	124	91	59	39	20	7	0
Pbo + rituximab	180	132	92	58	40	26	10	4	0

Patients at Risk, n

Len + rituximab	178	167	155	143	122	80	44	15	1	0
Pbo + rituximab	180	176	167	145	116	79	40	14	3	0

- 33% relapsed within 2 yr of initial diagnosis (POD24)
- 50% progressed within 2 yr of most recent tx
- 16% were refractory to most recent tx

Leonard. JCO. 2019;37:1188.

Median follow-up: 28.3 mo.

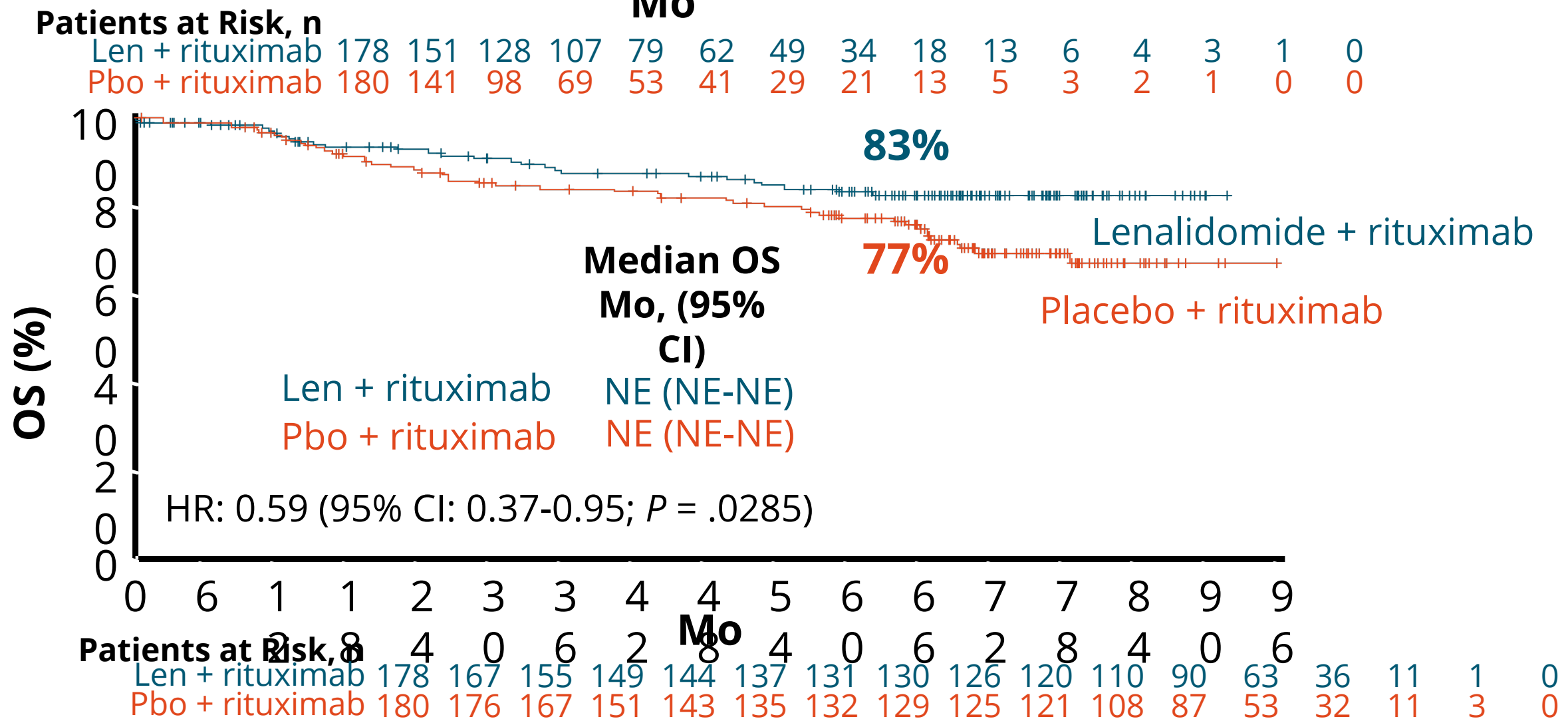
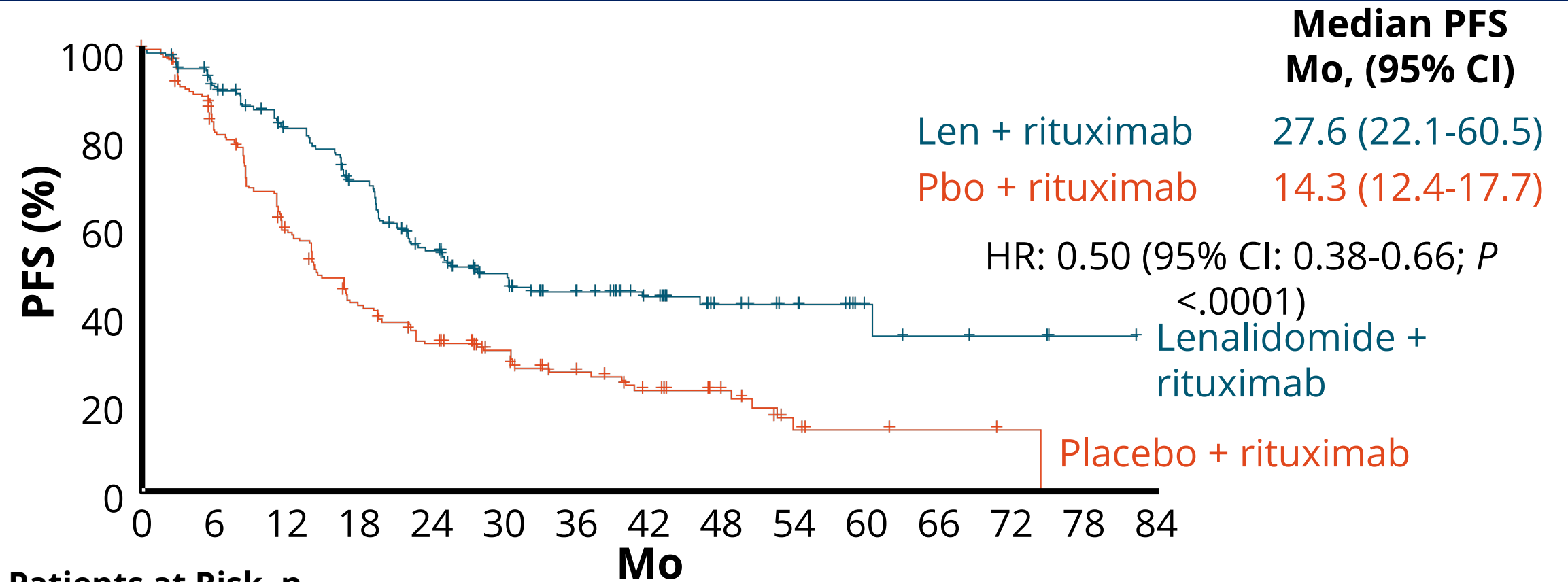
R<sup>2</sup>

ORR: 78%; CR 34%  
 Median DoR: 36.6 mo  
 Median PFS: 39.4 mo; median OS: NR

# AUGMENT: 5-Yr Survival

Median follow-up:  
65.9 mo

Leonard. ASH 2022. Abstr 230.

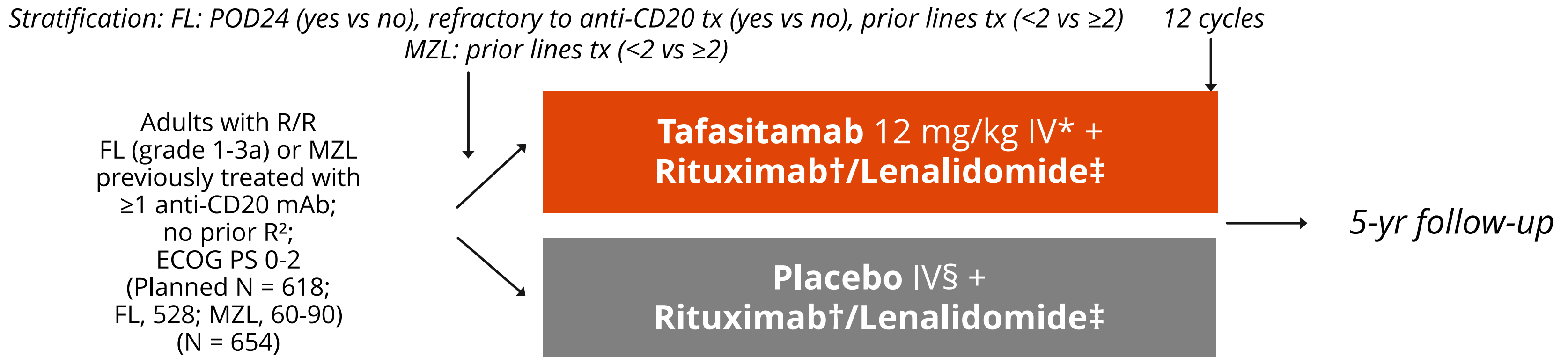


# InMIND: Tafasitamab + R<sup>2</sup> vs R<sup>2</sup> Alone in R/R FL or MZL

Global, double-blind, placebo-controlled, randomized phase III trial

◦Tafasitamab: Fc-engineered humanized anti-CD19 mAb

- **Primary endpoint:** PFS by investigator per Lugano 2014 criteria in FL population
- **Key secondary endpoints:** PFS in overall population, PET/CR at EOT and OS in FL population

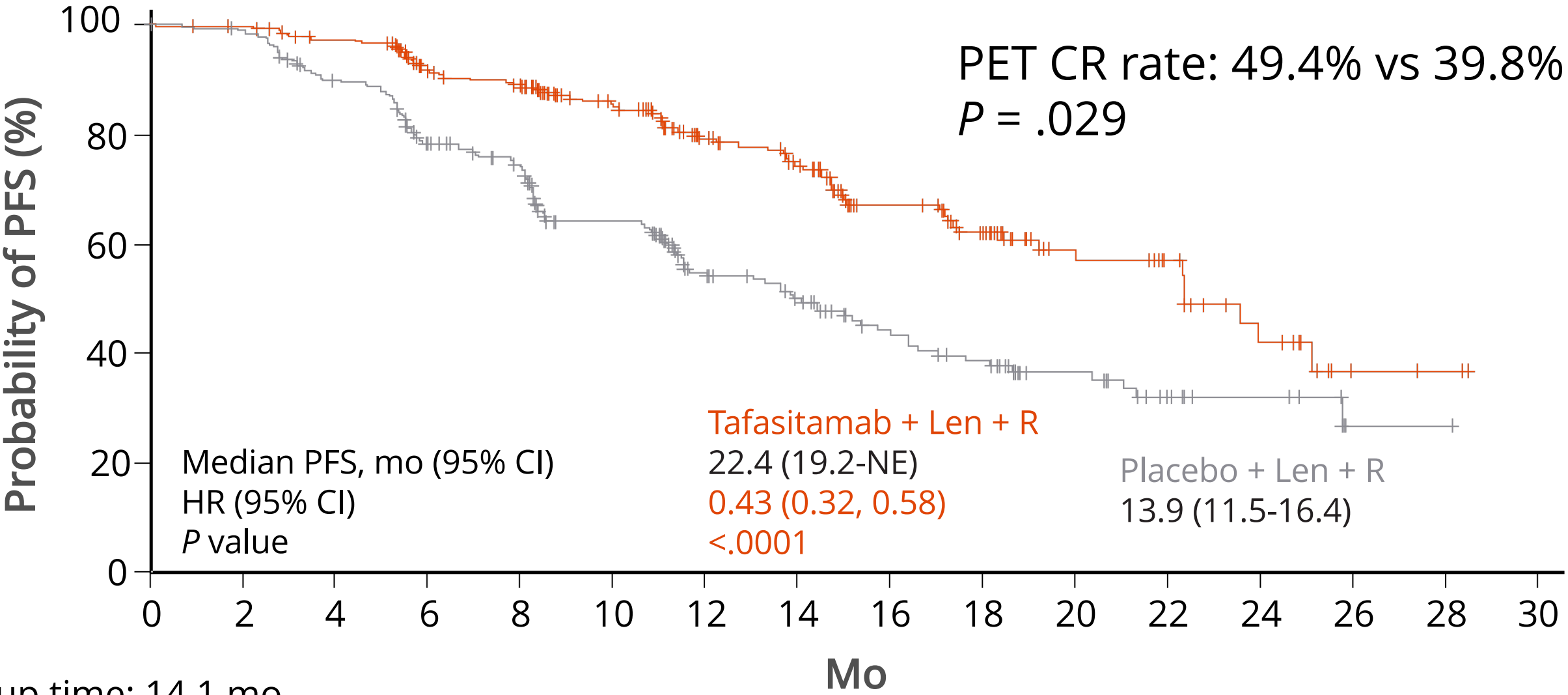


\*Tafasitamab given Days 1, 8, 15, 22 of cycles 1-3 and Days 1, 15 of cycles 4-12 on 28-day cycle.

†Rituximab dosed at 375 mg/m<sup>2</sup> IV; given on Days 1, 8, 15, 22 of cycle 1, then Day 1 of cycles 2-5.

‡Lenalidomide dosed at 20 mg PO QD given on Days 1-21 for 12 cycles. §Placebo given as 0.9% saline solution IV.

# inMIND: PFS by Investigator Assessment (Primary Endpoint)

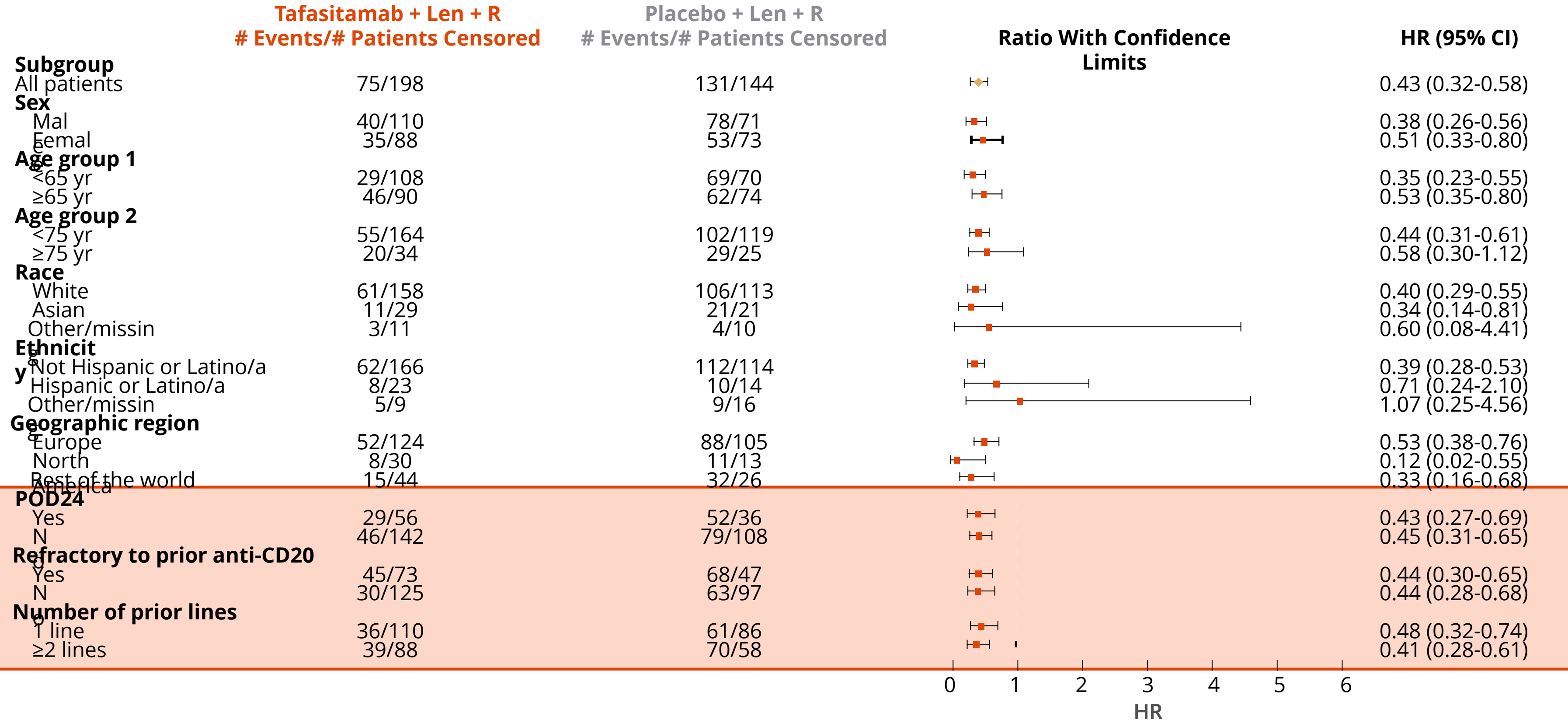


Median follow-up time: 14.1 mo  
**Patients at Risk,**

<b>Tafasitamab + Len + R</b>	273	261	250	212	200	164	119	103	71	57	30	22	12	3	2	0
Placebo + Len + R	275	265	235	192	173	126	82	70	48	40	26	16	10	2	2	0

**Significant improvement in PFS was observed with tafasitamab**

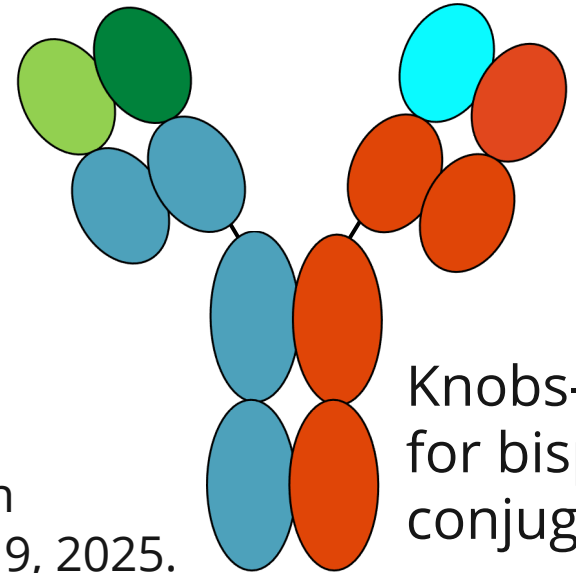
# inMIND: Prespecified Subgroup Analysis of PFS



# Bispecific Antibodies Approved or in Development for FL

**Mosunetuzumab**  
(IV and\*SC)

Anti-CD20      Anti-CD3

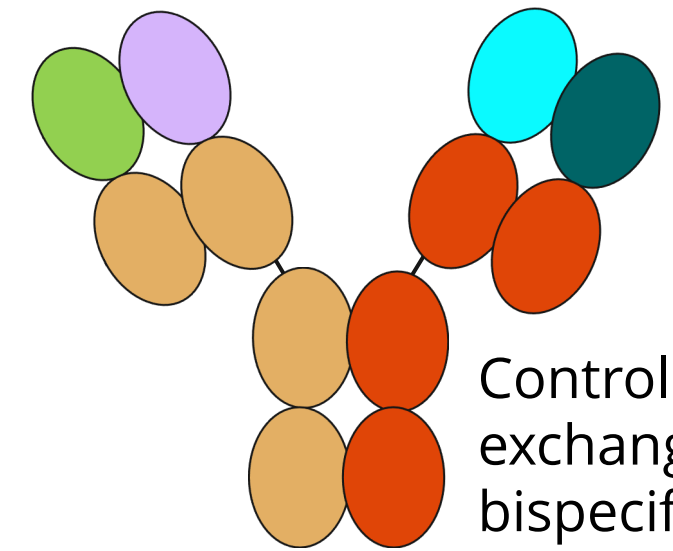


\*Mosun SC formulation approved on December 19, 2025.

Knobs-into-holes for bispecific Ab conjugation

**Epcoritamab**  
(SC)

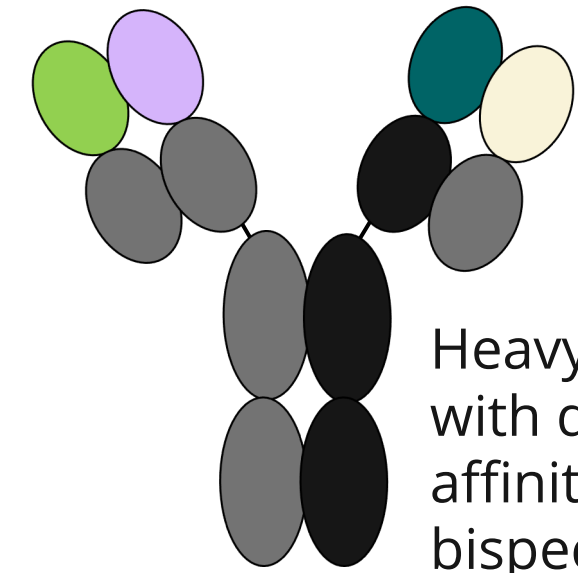
Anti-CD20      Anti-CD3



Controlled Fab arm exchange for bispecific Ab conjugation

**Odronextamab**  
(IV)

Anti-CD20      Anti-CD3



Heavy chains with different affinities for bispecific Ab conjugation

FDA approved: 3L+ R/R FL

EMA approved

IgG1

Fc silencing mutation (Fsm): N297G

FDA approved: 3L+ R/R FL

EMA approved

IgG1

Fsm: L234F, L235E, D265A

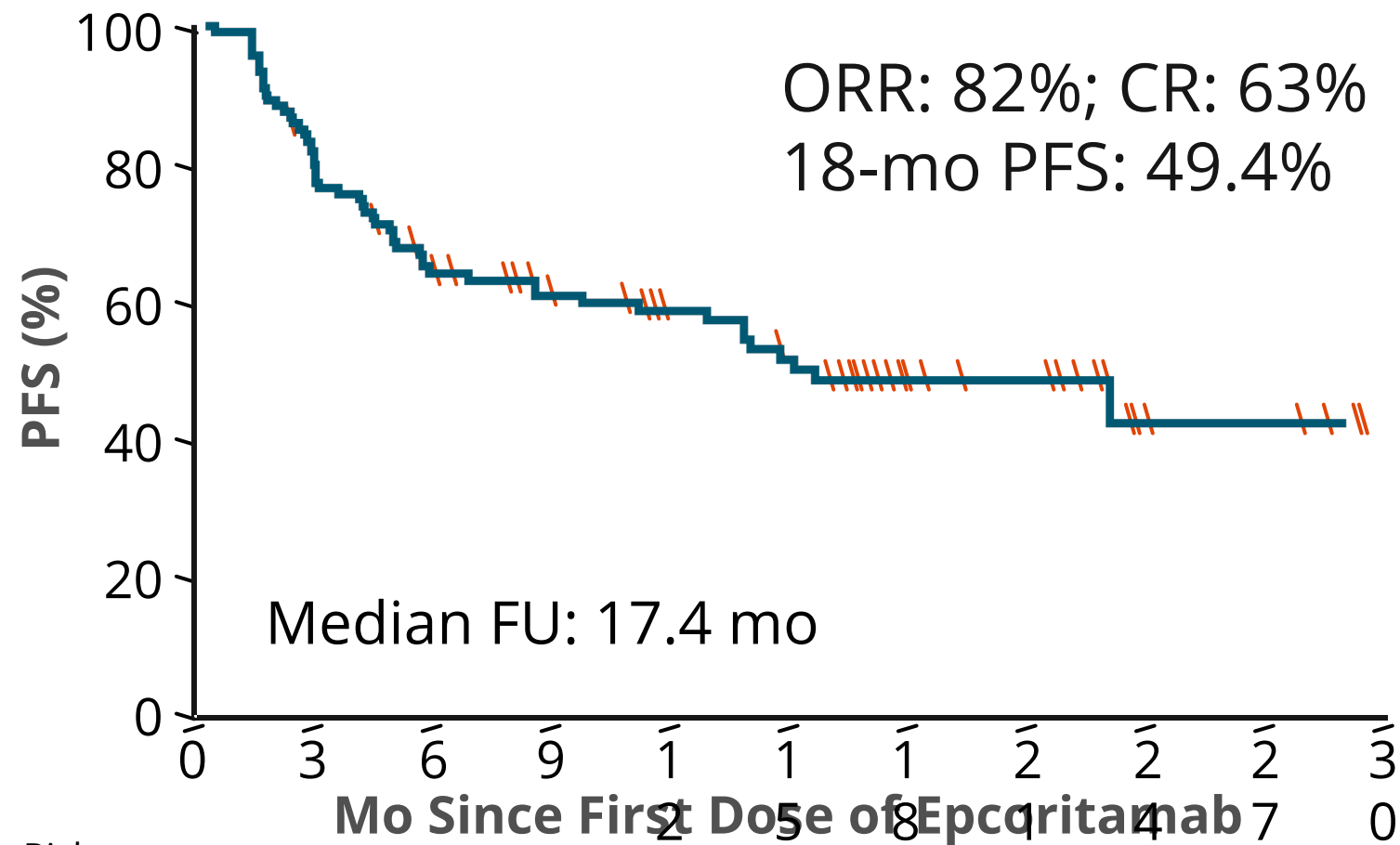
EMA approved

IgG4

Fsm: Modified IgG4 (no FcγRIII binding)

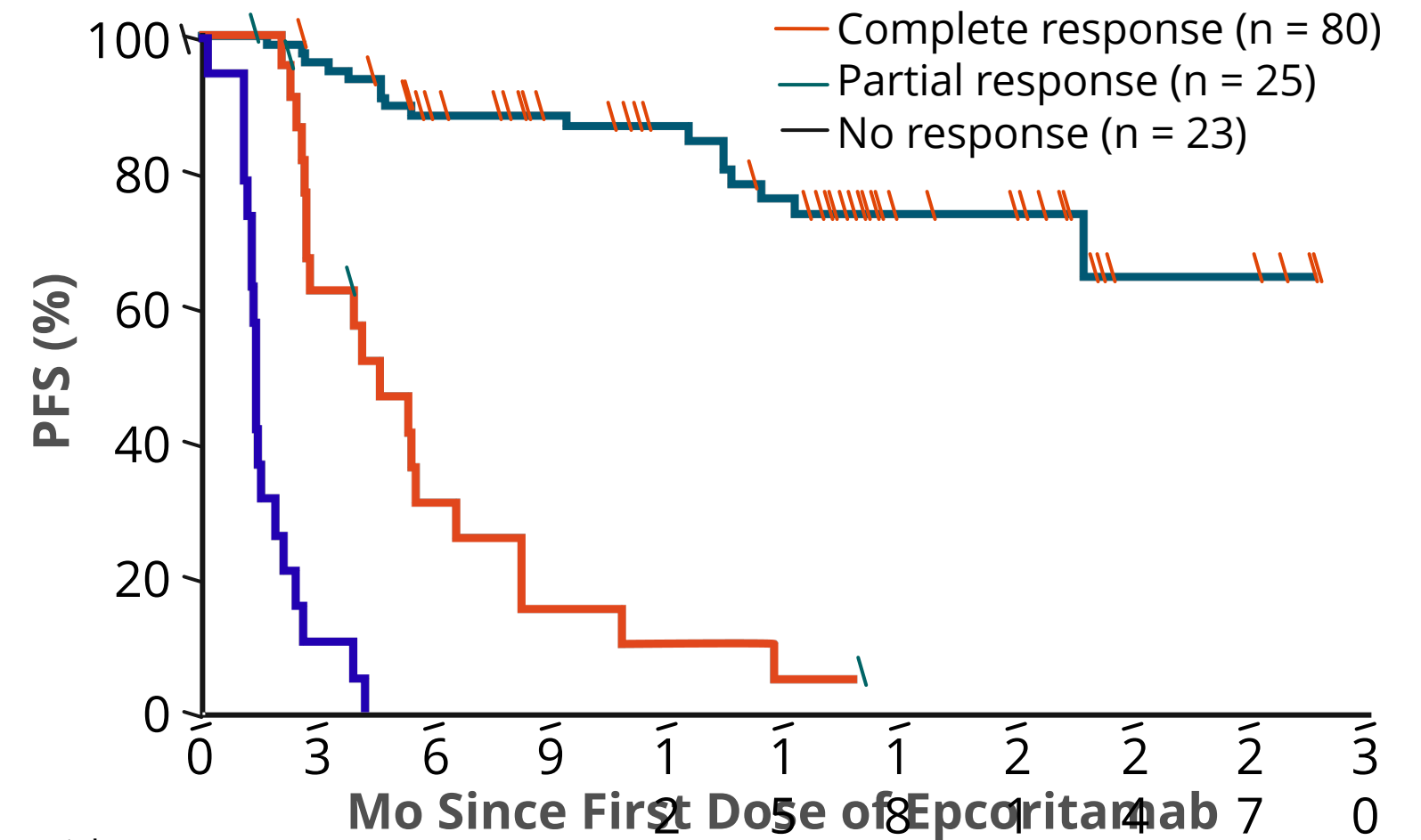
# EPCORE NHL-1: Phase II Trial of Epcoritamab in Patients With R/R FL After ≥2 Prior LoT

### PFS (Overall Population)



Patients at Risk, n (number censored)	0	3	6	9	12	15	18	21	24	27	30
Pivotal cohort	128 (0)	90 (10)	67 (19)	57 (26)	43 (38)	35 (40)	14 (60)	12 (62)	4 (69)	4 (69)	0 (73)

### PFS (by Response)

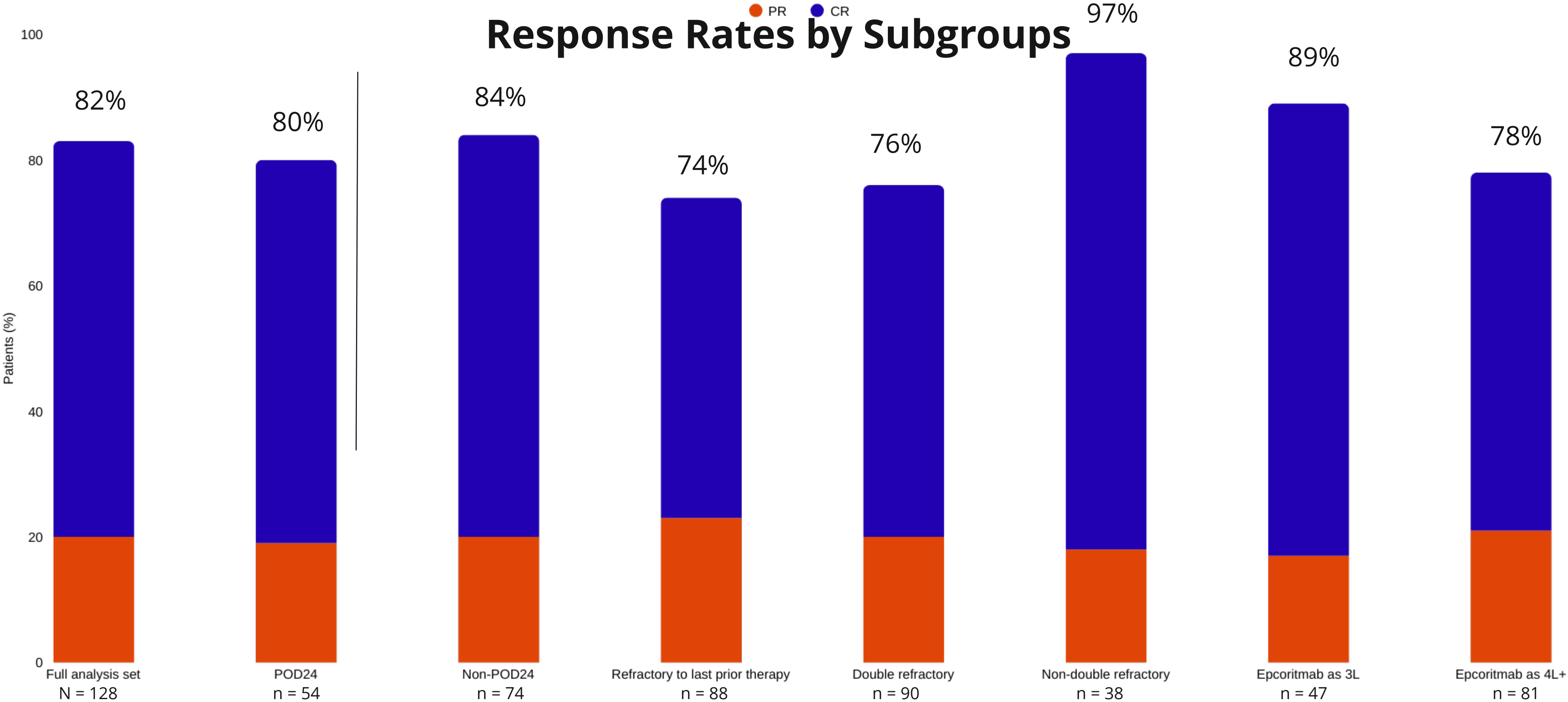


Patients at Risk, n (number censored)	0	3	6	9	12	15	18	21	24	27	30
Complete response	80 (0)	75 (2)	61 (10)	54 (17)	41 (29)	34 (31)	14 (50)	12 (52)	4 (59)	4 (59)	0 (63)
Partial response	25 (0)	13 (4)	6 (5)	3 (5)	2 (5)	1 (5)	0 (6)	0 (6)	0 (6)	0 (6)	0 (6)
No response	23 (0)	2 (4)	0 (4)	0 (4)	0 (4)	0 (4)	0 (4)	0 (4)	0 (4)	0 (4)	0 (4)

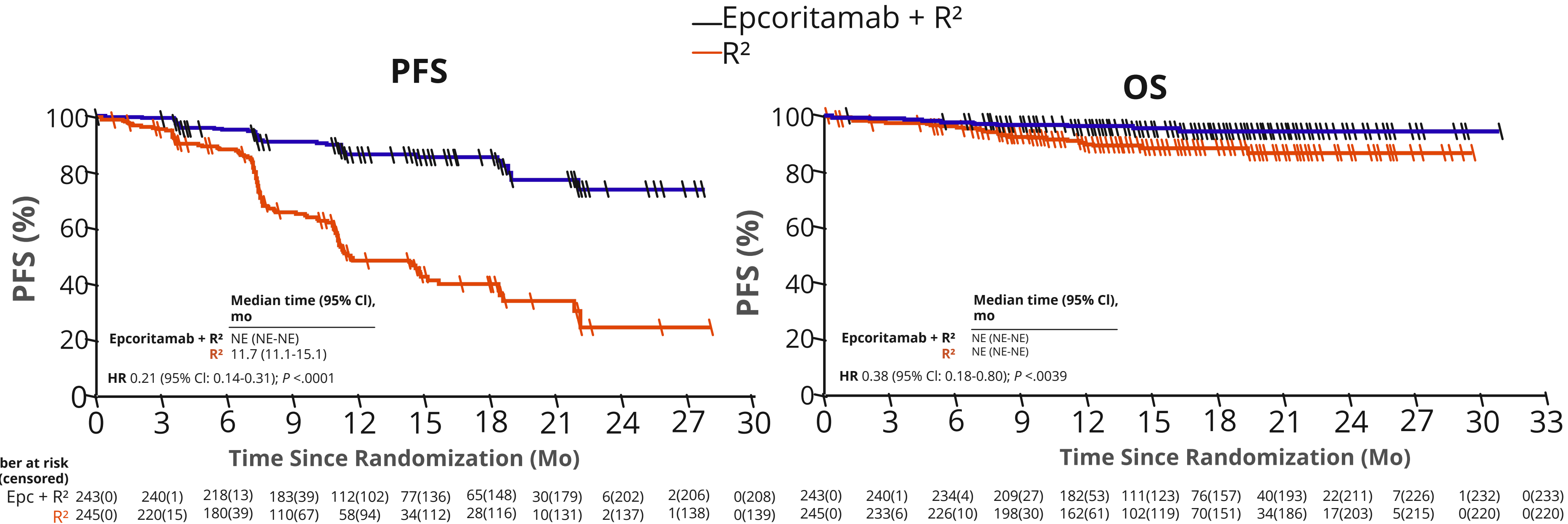
# EPCORE NHL-1: Efficacy of Epcoritamab in R/R FL

## Response Rates by Subgroups

● PR ● CR

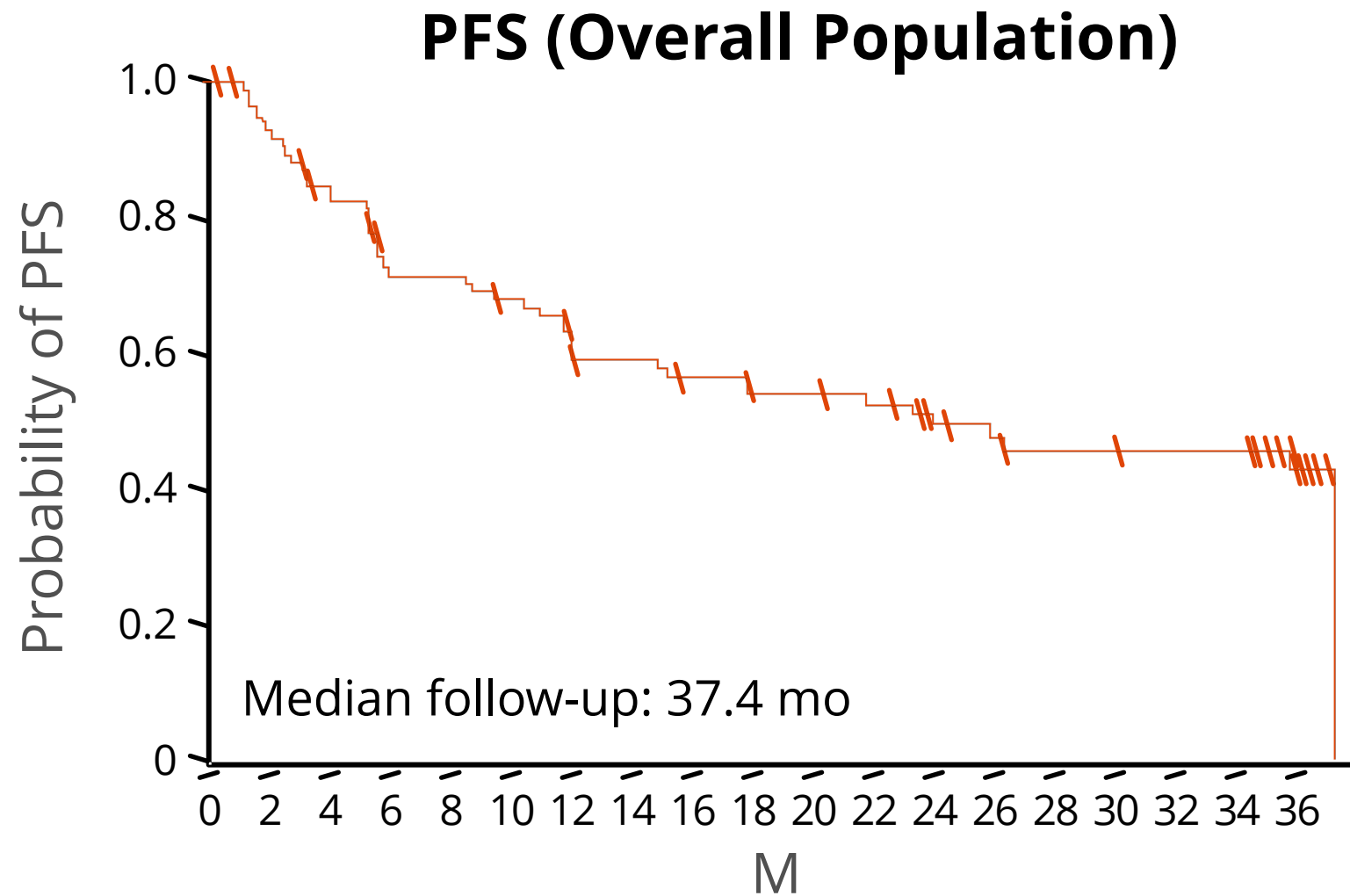


# EPCORE FL-1: PFS and OS With Epcoritamab + R<sup>2</sup> vs R<sup>2</sup> in Patients With R/R FL



# Mosunetuzumab in R/R FL: 3-Yr Update

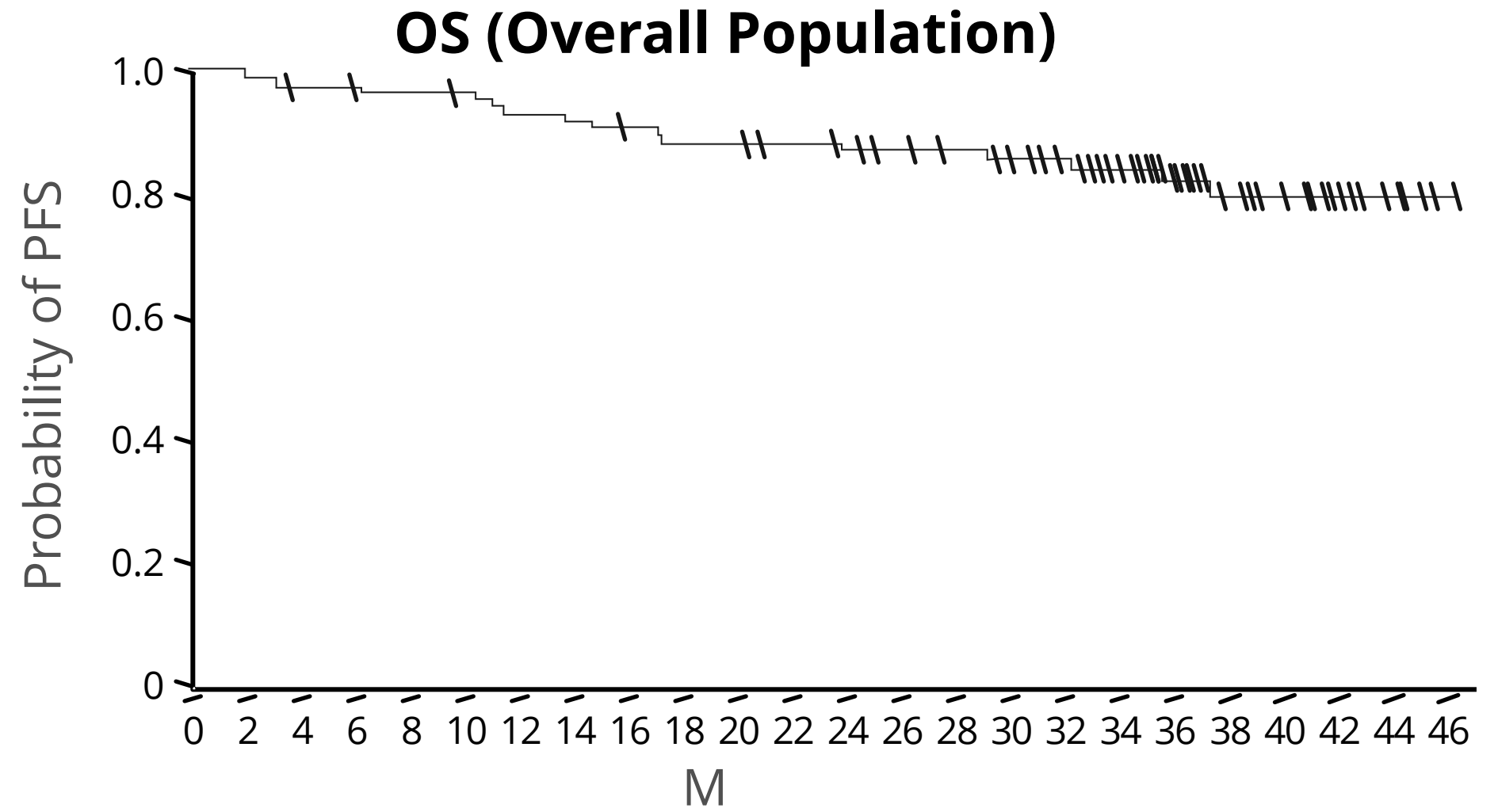
- INV-assessed CR rate: 60.0% (95% CI: 49.1-70.2)



Patients at Risk,

90 81 72 60 59 55 47 46 43 40 40 38 30 27 25 25 24 24 13

Outcome, Mo (95% CI)	Mosunetuzumab (n = 90)
Median PFS	24.0 (12.0-NR)
36-mo PFS	43.2 (31.3-55.2)



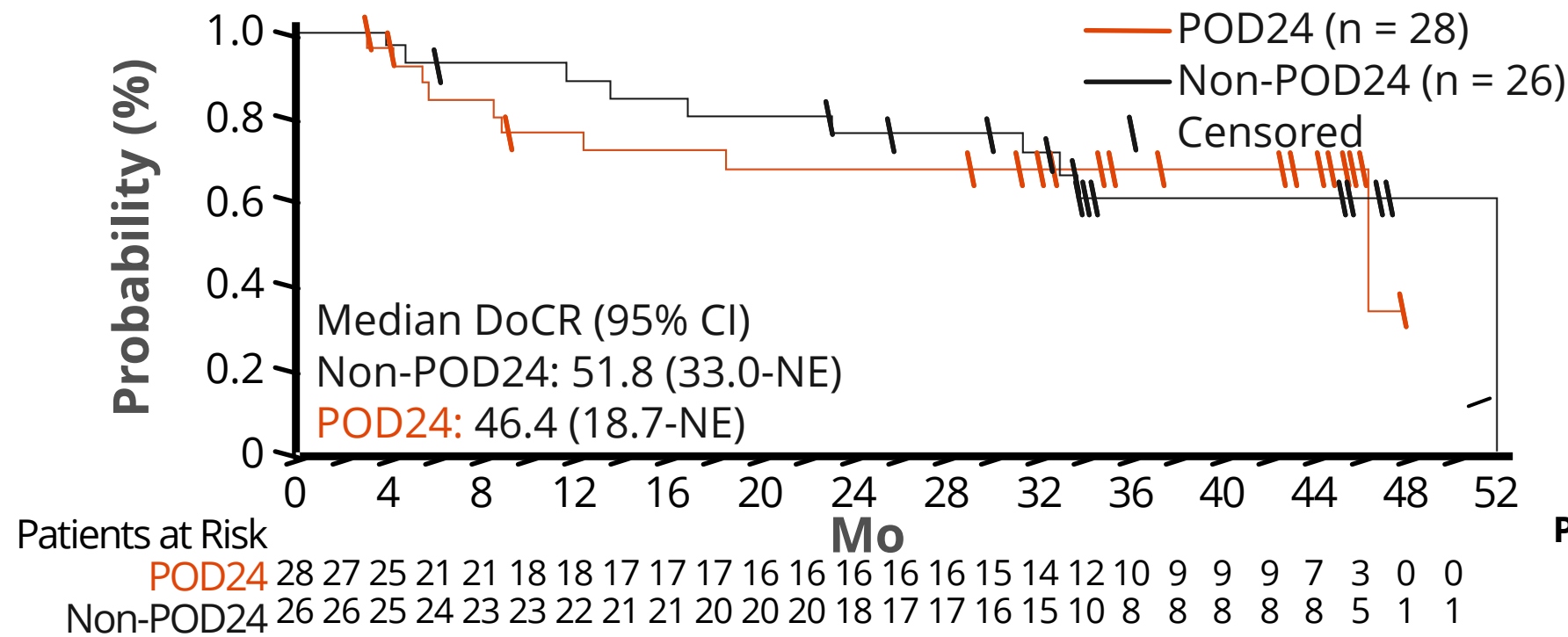
Patients at Risk,

90 81 72 60 59 55 47 46 43 40 40 38 30 27 25 25 24 24 13 26 21 14 8 1

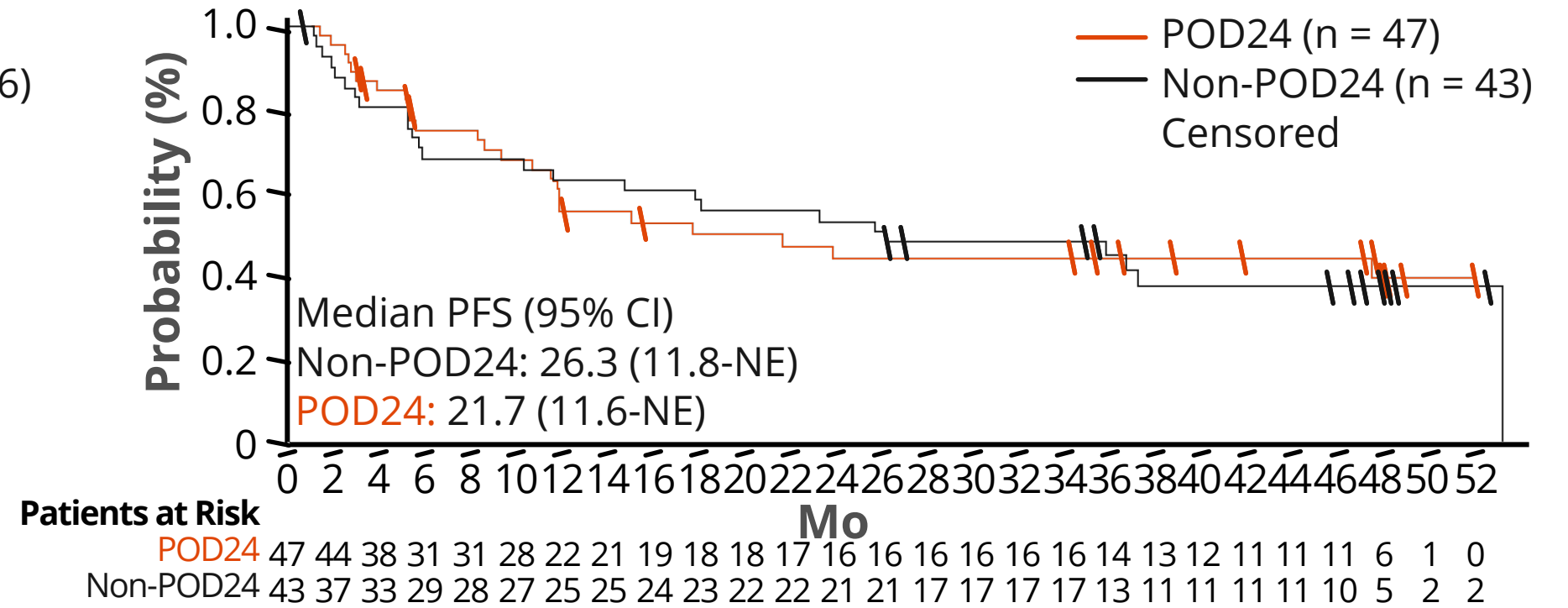
Outcome, Mo (95% CI)	Mosunetuzumab (n = 90)
Median OS	NR (NE-NE)
36-mo OS	82.4 (73.8-91.0)

# Mosunetuzumab in High-risk Subgroups of FL

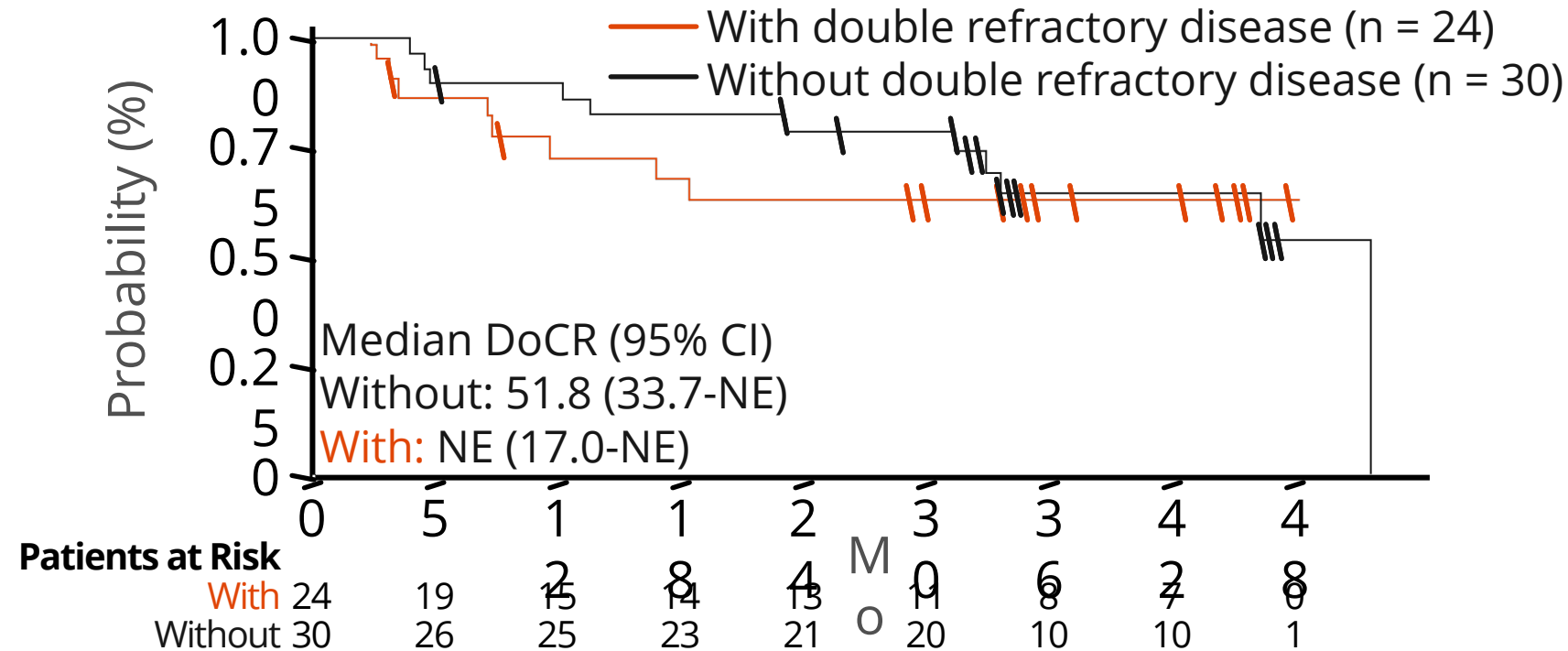
**DoCR By Subgroup**



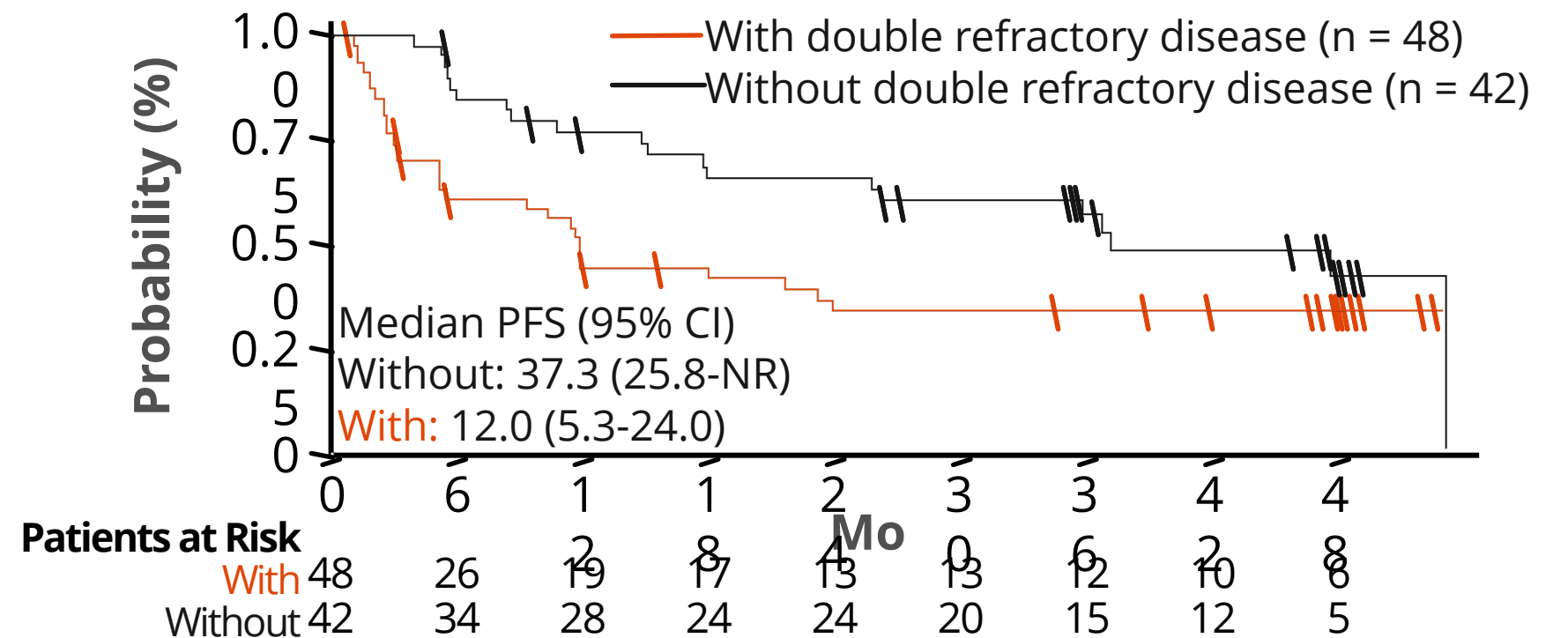
**PFS By Subgroup**



**DoCR**

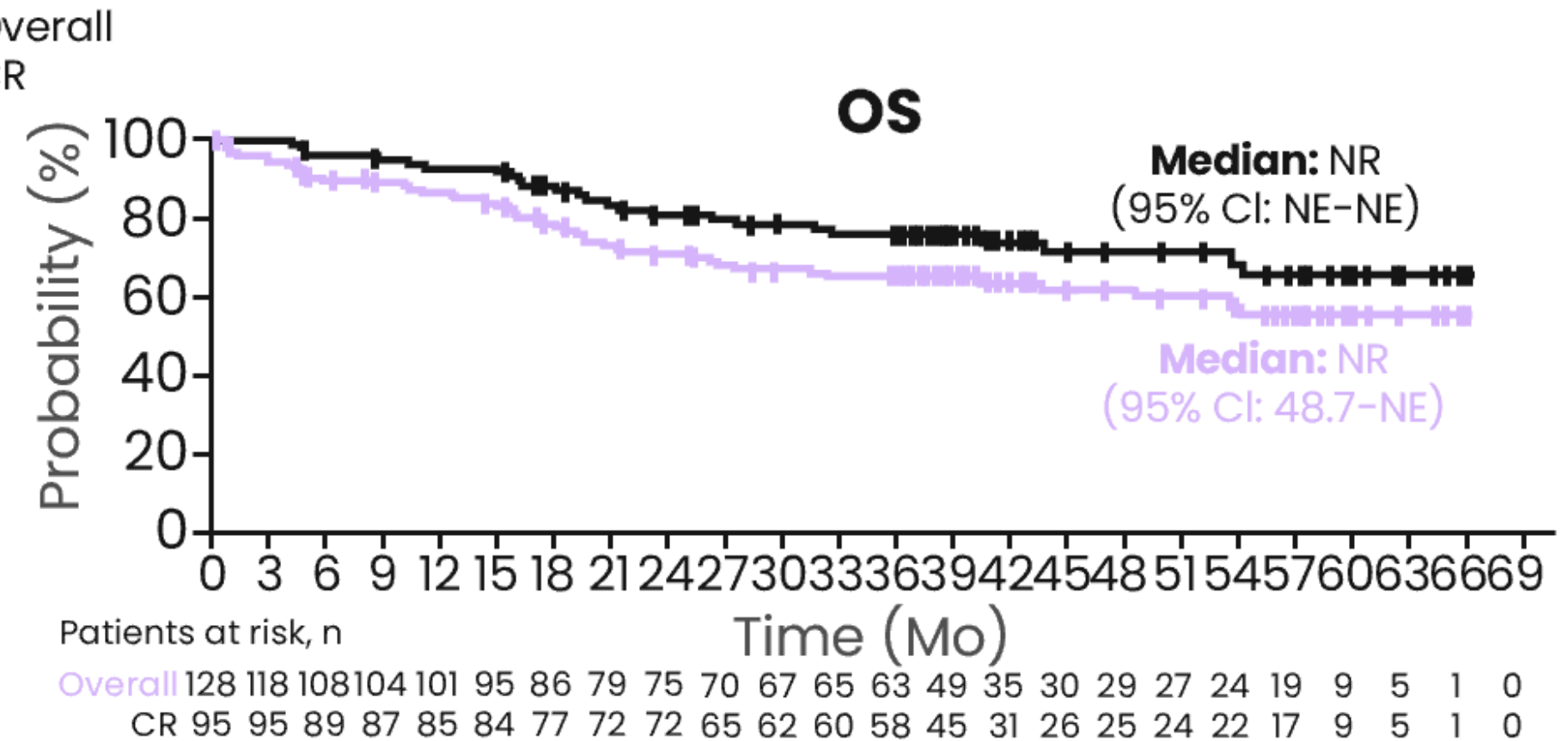
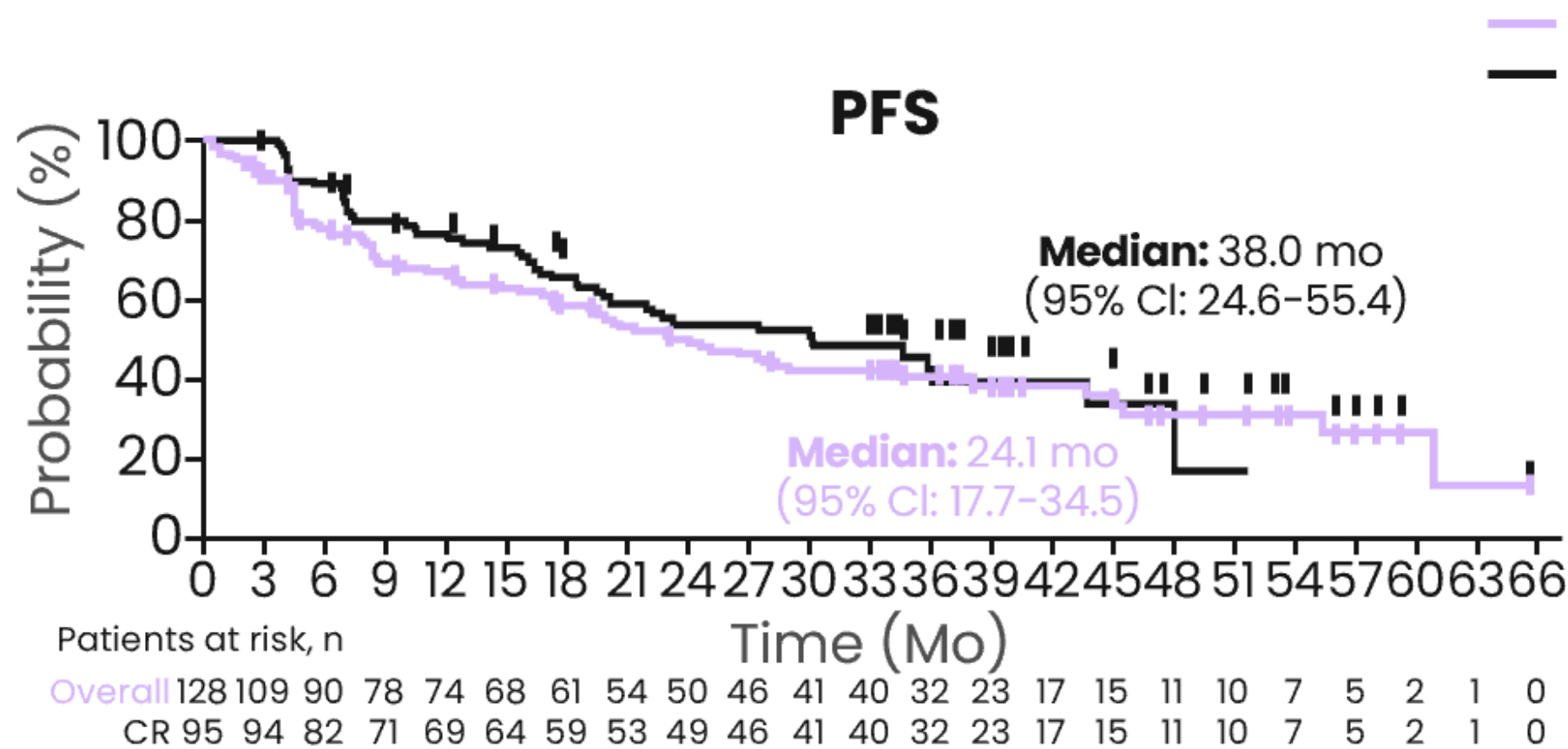


**PFS in Patients With Double Refractory Disease**



# ELM-2: Efficacy of Odronextamab in R/R FL

- **ORR** in the overall population = **80.5%** (95% CI: 72.5-86.9)



PFS Rate, % (95% CI)	N = 128	CR (n = 95)
24 mo	50.0 (40.4-58.9)	63.1 (51.9-72.4)
36 mo	40.8 (31.4-49.9)	52.5 (41.1-62.6)

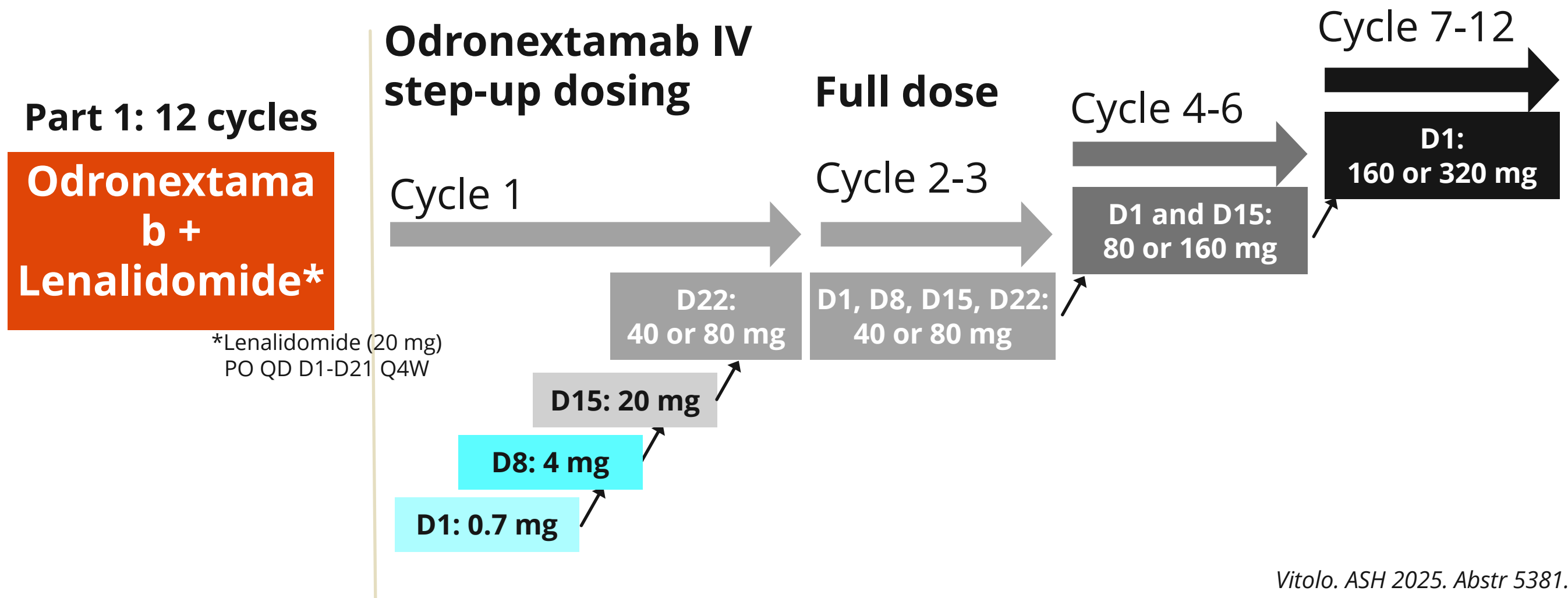
OS Rate, % (95% CI)	N = 128	CR (n = 95)
24 mo	70.1 (60.9-77.6)	80.1 (70.3-87.0)
36 mo	64.3 (54.7-72.4)	75.2 (64.7-82.9)

# OLYMPIA 5: Odro + Len in R/R FL After $\geq 1$ Prior LoT Safety Lead-in Results

Randomized, phase III, open-label, multicenter study

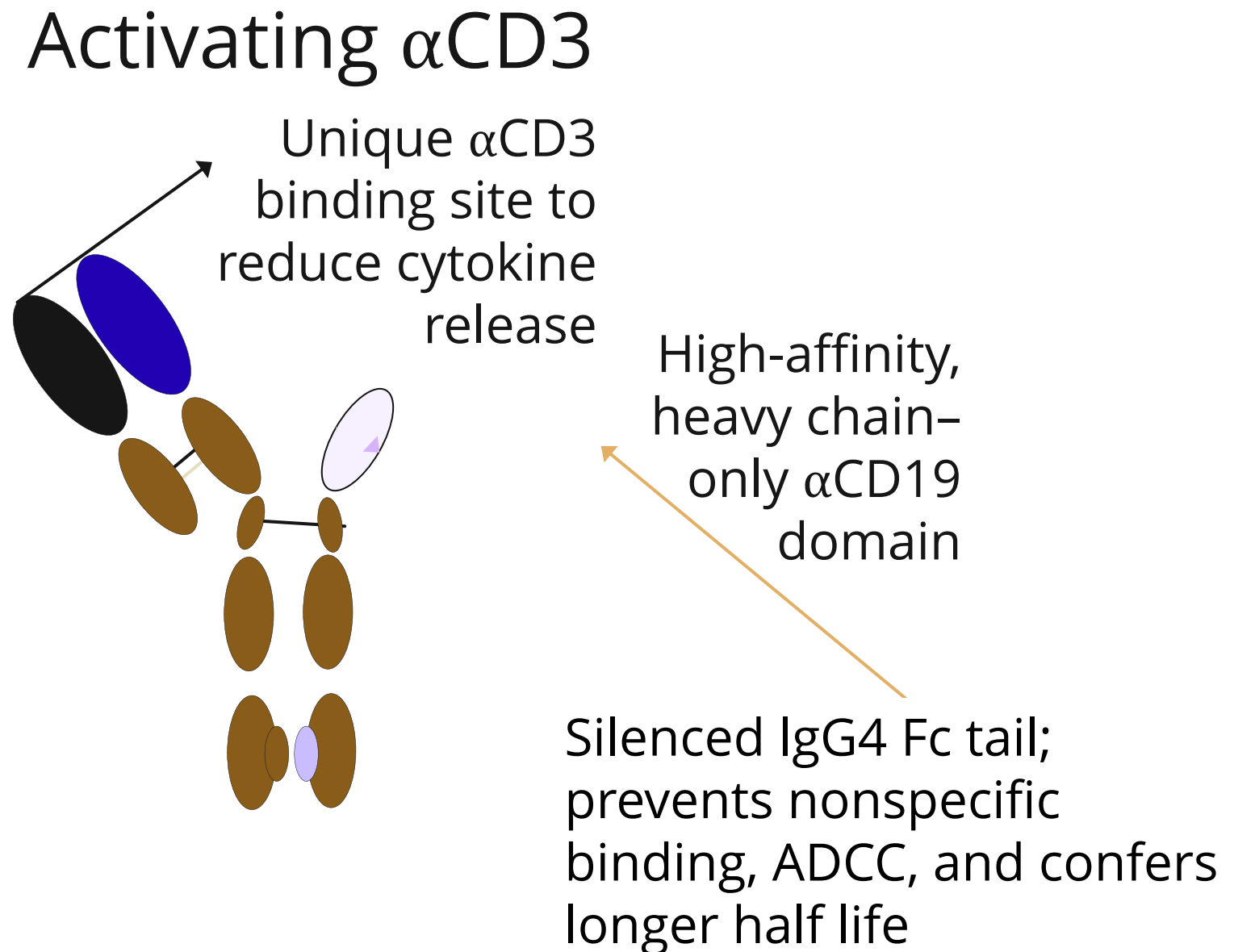
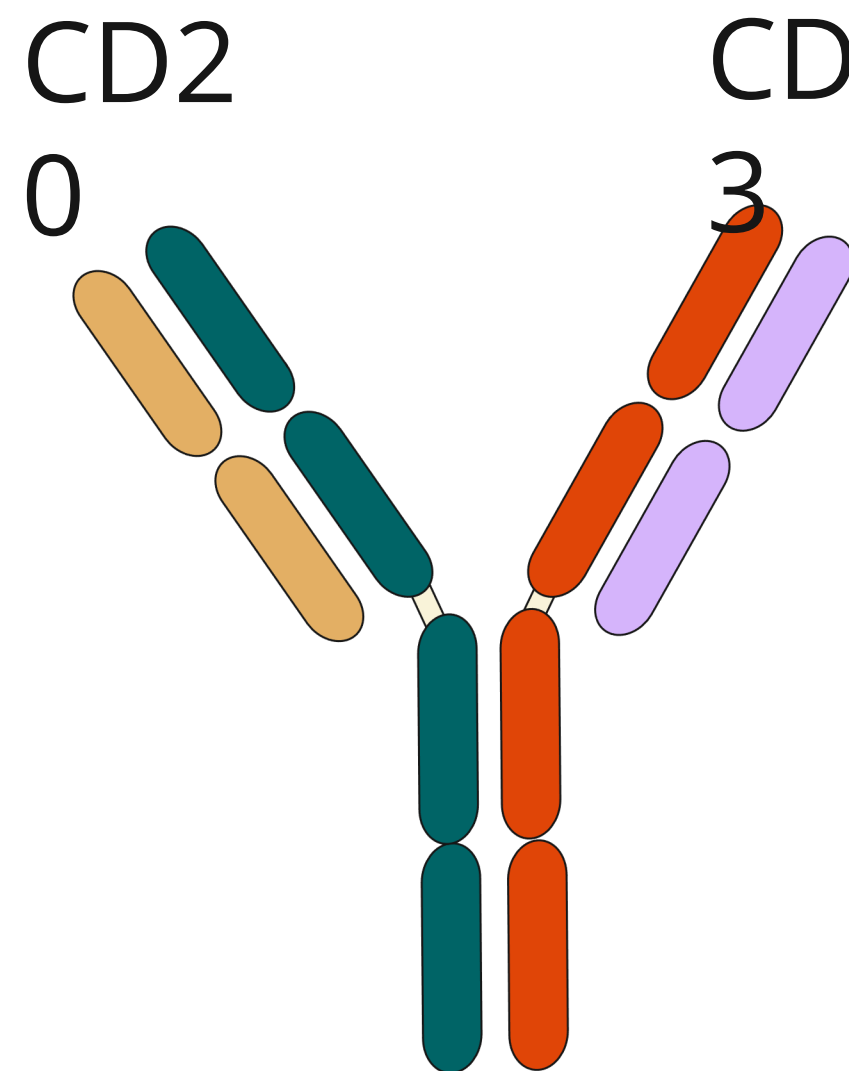
- **Primary endpoints:** DLT incidence, TEAEs
- **Secondary endpoints:** PK, immunogenicity, INV-assessed ORR, CR, and DoR

Adults with FL grade 1-3A; R/R after  $\geq 1$  line of tx; ECOG PS  $\leq 2$ ; adequate organ function; No CNS disease or pathology; No prior lenalidomide or CD20 x CD3 BsAb in past 6 mo (N = 32)



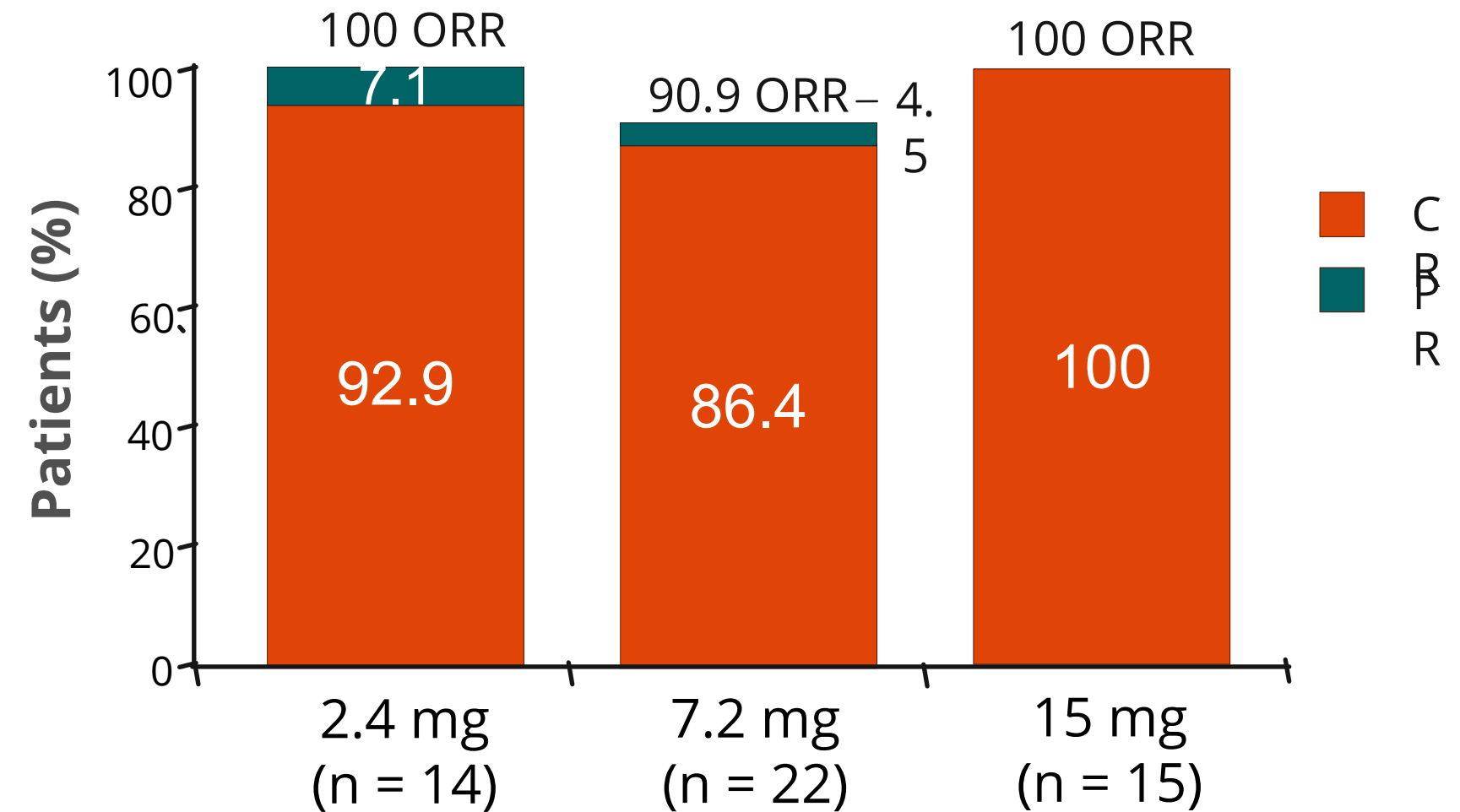
# Key Differences Between Investigational and Approved Bispecific Antibodies

- CD20 vs CD19 targeting bispecific antibodies

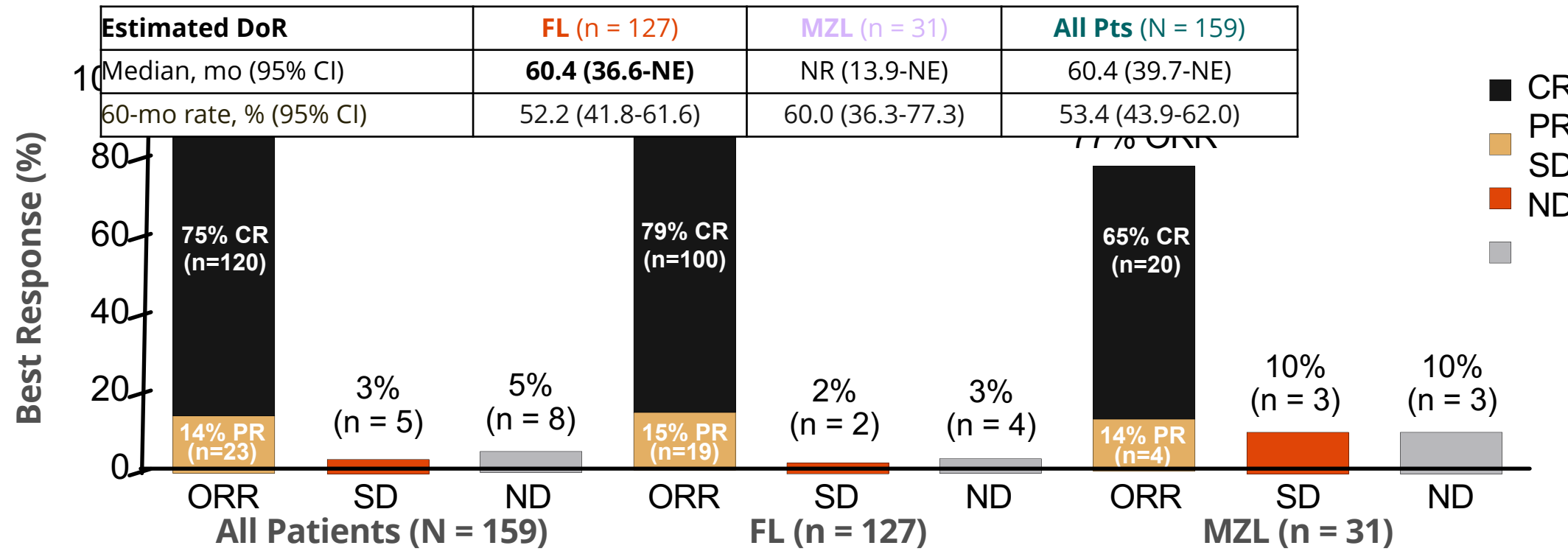


# Phase I Study of Surovatamig: FL Cohort

- Median follow-up for TD  $\geq 2.4$  mg:
  - 16 mo (range: 1-40)
- Durability of response for TD  $\geq 2.4$  mg (n = 50):
  - 12-mo DoR rate: 91.4% (95% CI: 78.6-96.7)
  - 18-mo DoR rate: 81.7% (95% CI: 61.2-92.0)
- High response rates observed at all TDs - 2.4 mg
- ORR/CR rate for patients who received - 2.4 mg was 96/92%



# ZUMA-5: Axicabtagene Ciloleuceel in FL & MZL

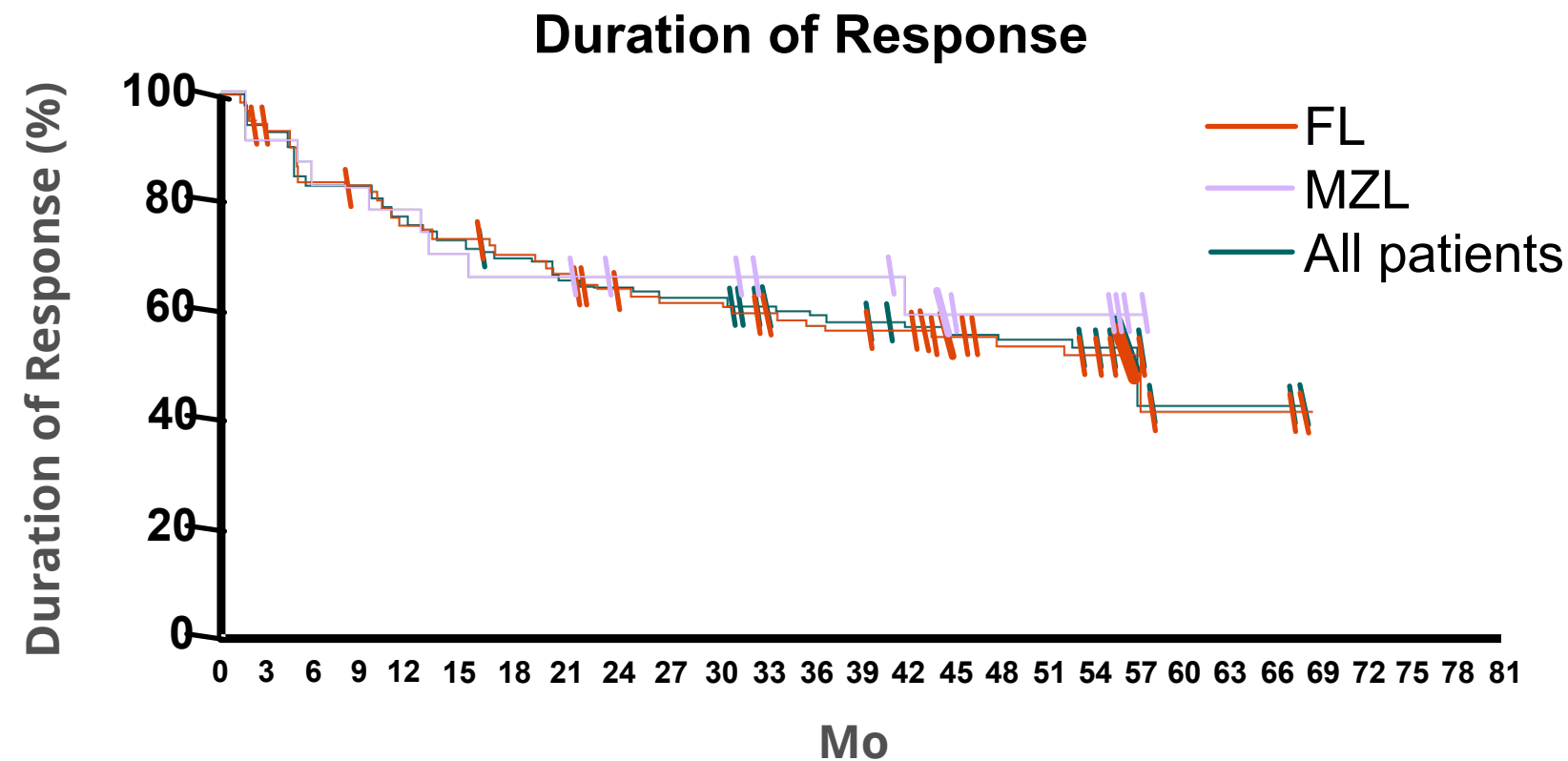


Median follow-up: 64.6 mo (range: 32.3-81.4)

FL (n = 127): 65.7 (56.7-81.4)

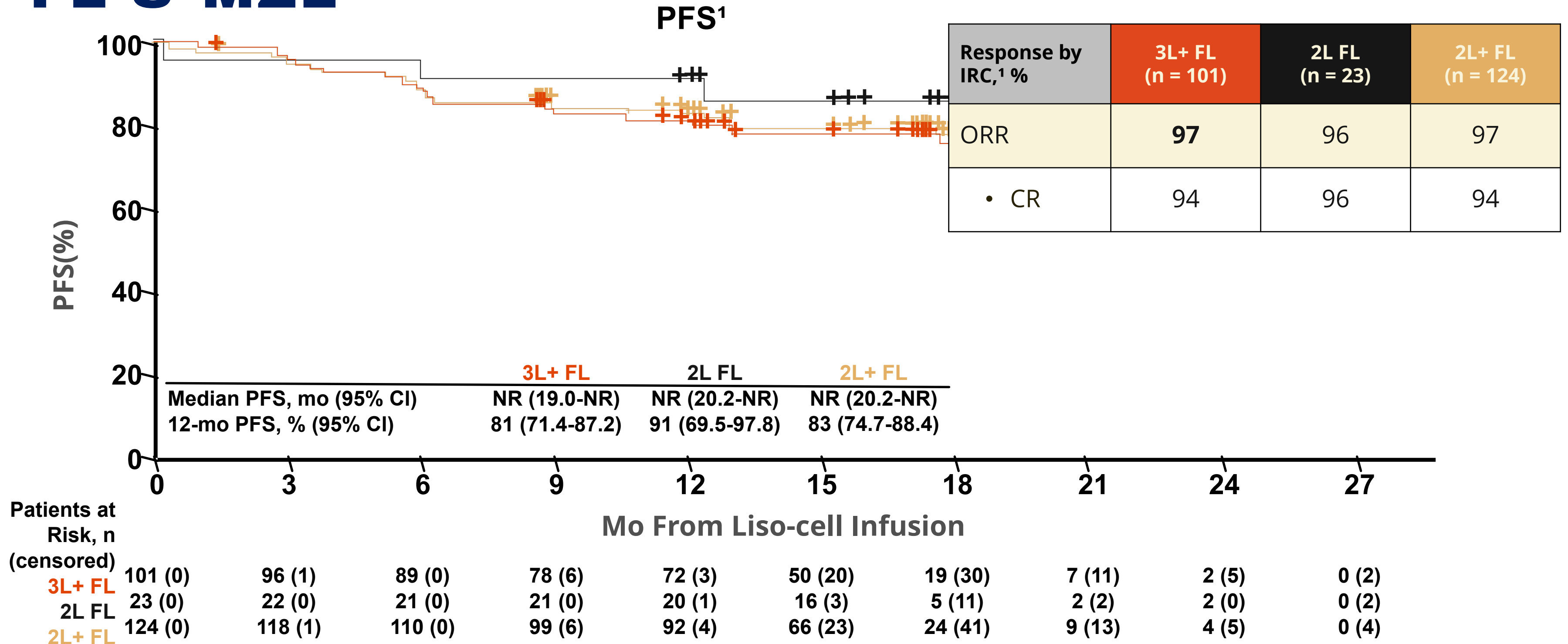
MZL (n = 31): 55.8 (32.3-76.4)

- n = 87 (55%) of patients alive without needing next treatment
- Ongoing response rate:
  - 44% (FL: 43%; MZL: 48%)
  - 58% of patients with CR maintained CR with median DoCR of 60.5 mo (95% CI: 60.4-NE)



Estimated TTNT	FL (n = 127)	MZL (n = 31)	All Patients (N = 159)
Median, mo (95% CI)	<b>NR (37.8-NE)</b>	NR (12.1-NE)	NR (38.6-NE)
60-mo rate, % (95% CI)	54.0 (44.8-62.3)	50.9 (31.5-67.5)	53.3 (45.0-60.9)

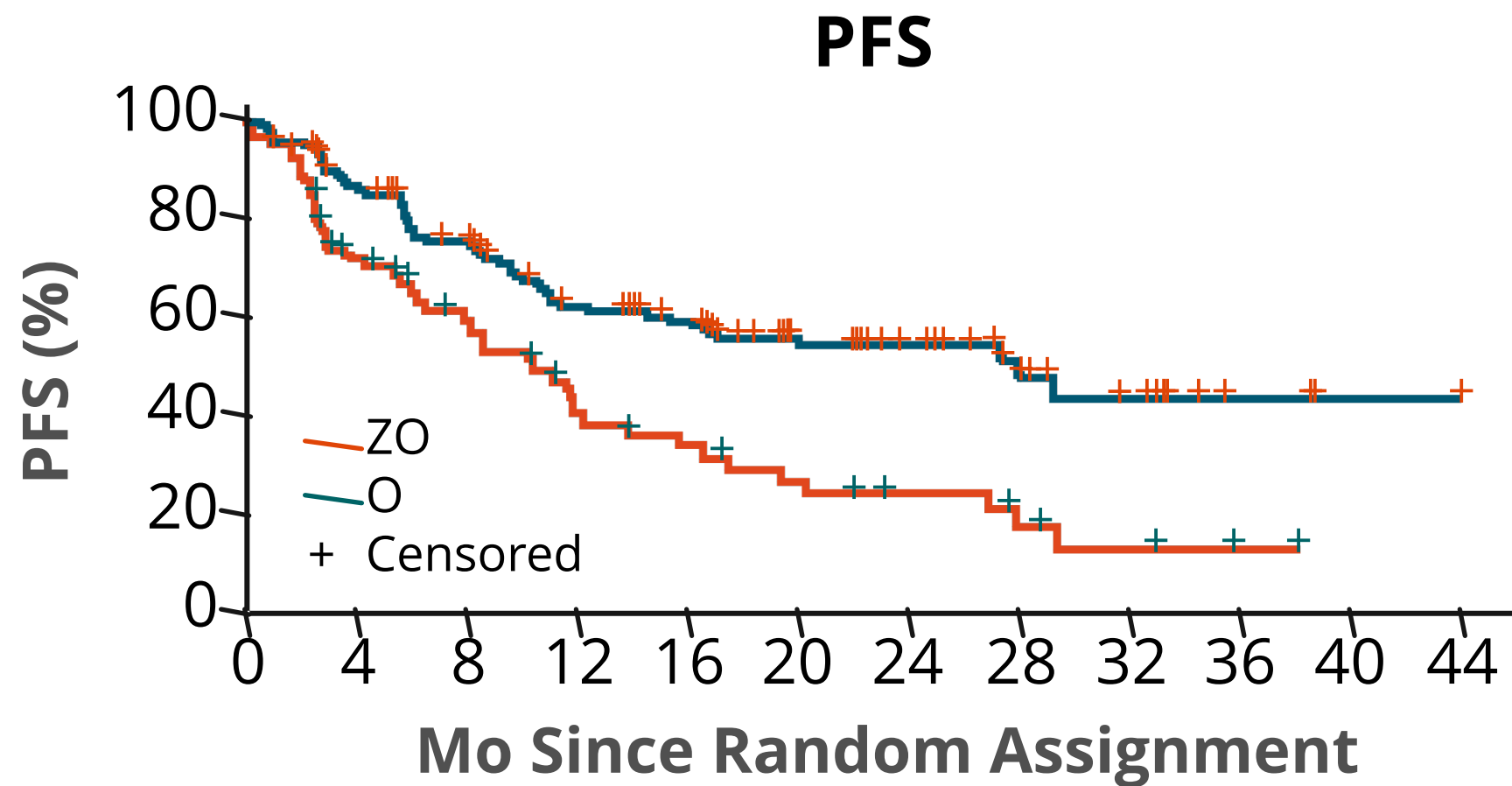
# TRANSCEND FL: Lisocabtagene Maraleucel in FL & MZL



3-yr updated mPFS in 3L+ FL (n = 103): NR (95% CI: 39.4-NR); 36-mo PFS rate: 68% (95% CI: 58-76)<sup>2</sup>

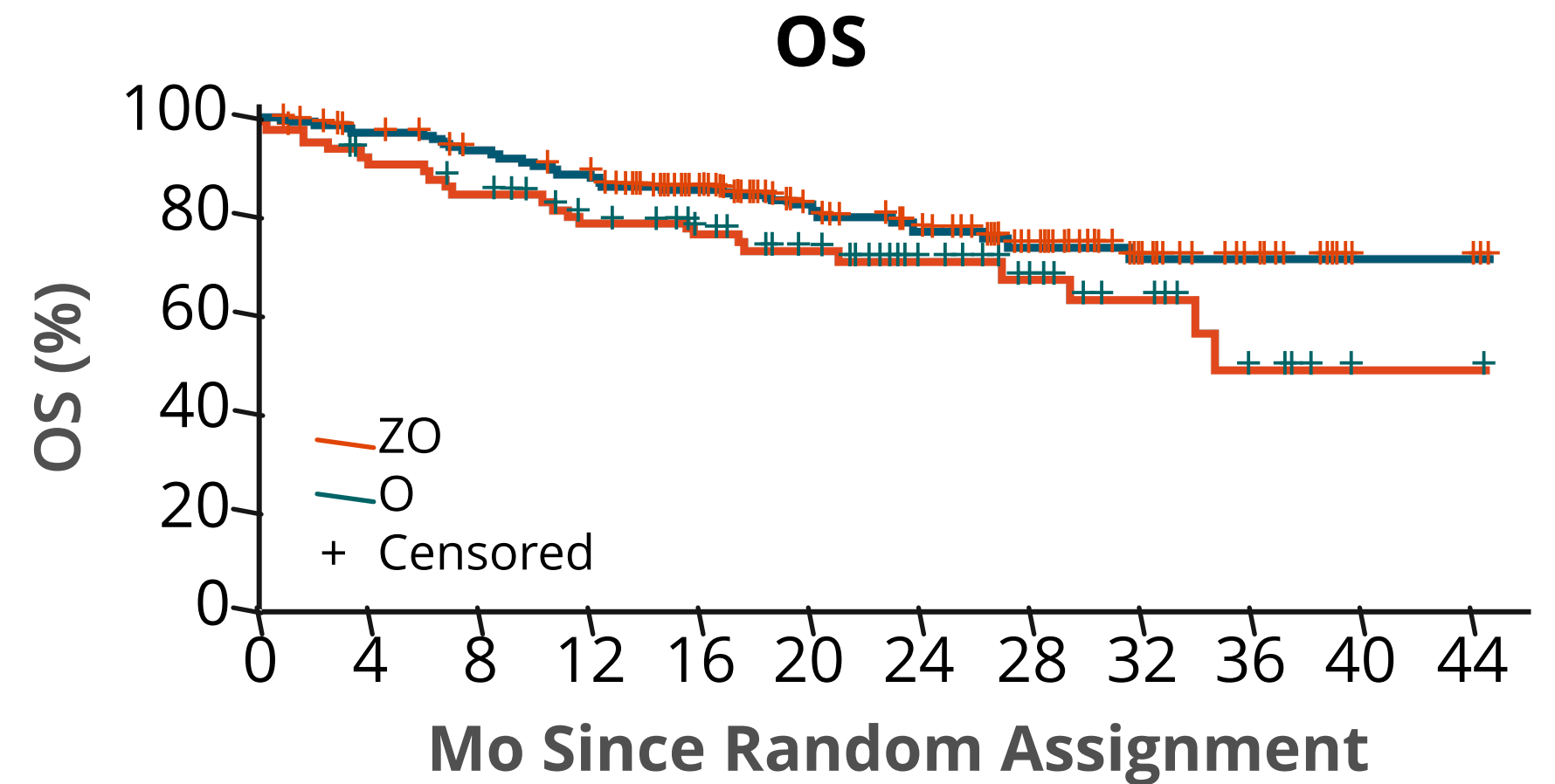
1. Morschhauser. Nat Med. 2024;30:2199. 2. Ahmed. ASH 2025. Abstr 467.

# ROSEWOOD: Next-Generation BTK Inhibitor Zanubrutinib With Obinutuzumab in R/R FL



Patients at Risk, n

ZO	145	135	116	96	92	79	67	62	56	45	38	35	25	22	15	10	9	5	3	3	1	1	0
O	72	63	42	34	30	27	19	16	15	12	11	9	8	8	5	3	3	2	1	1	0		



Patients at Risk, n

ZO	145	139	133	129	123	119	113	102	92	81	70	62	56	51	41	33	26	20	17	11	4	4	3	0
O	72	67	63	62	57	54	49	48	43	39	36	32	25	23	18	14	13	8	5	3	1	1	1	0

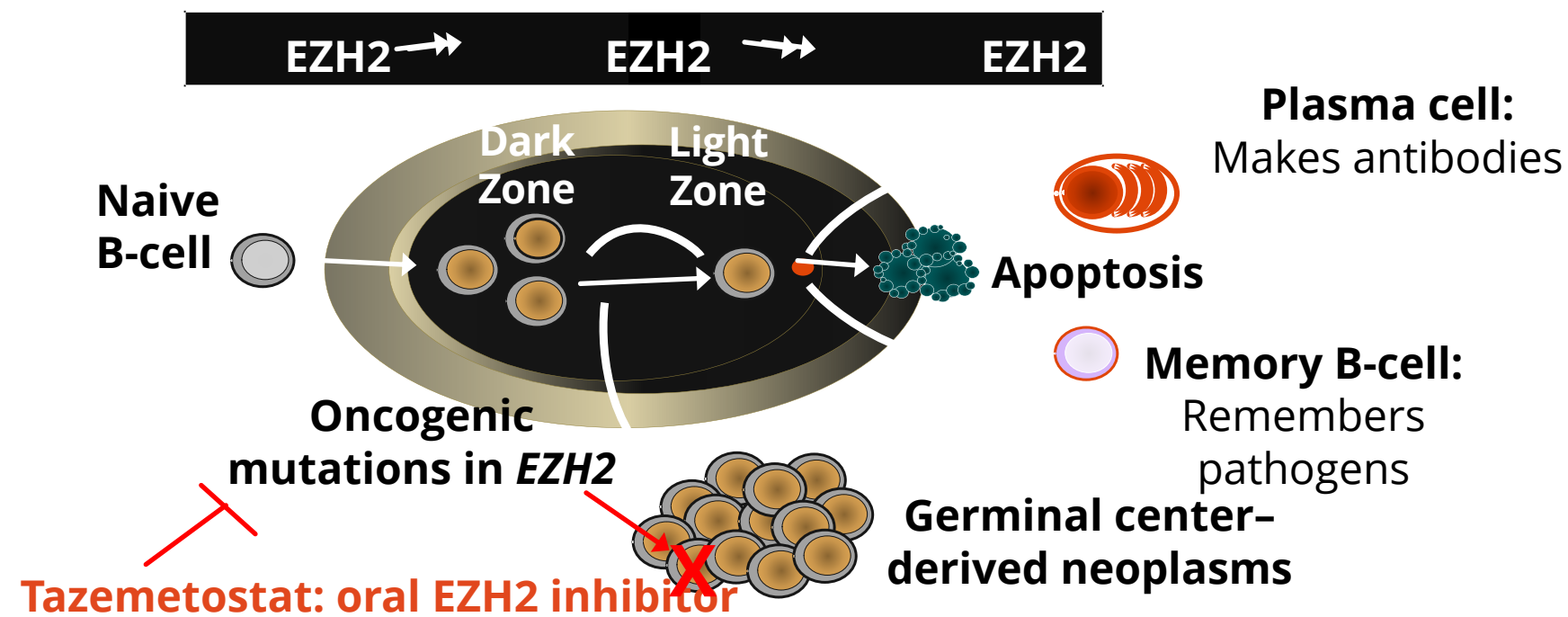
**Ongoing phase III MAHOGANY trial is evaluating zanubrutinib + obinutuzumab vs R<sup>2</sup> in patients with R/R FL after ≥1 line of systemic therapy including an anti-CD20 mAb (NCT05100862)**

# Novel Approaches for R/R NHL

*Gan. Biomark Res.* 2018;6:10. *Falchi. Blood.* 2023;141:467. *Ran. Eur J Med Chem.* 2022;229:114009. *Barankiewicz. Cancers.* 2022;14:4492.

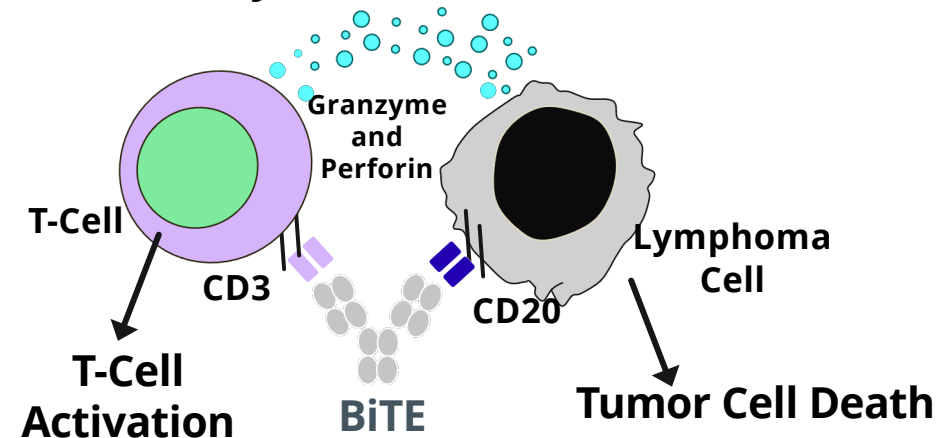
## Tazemetostat MoA

### Germinal Center Reaction



## Bispecific T-Cell Engager (BiTE)

Antibodies: MoA  
Cytokine Secretion



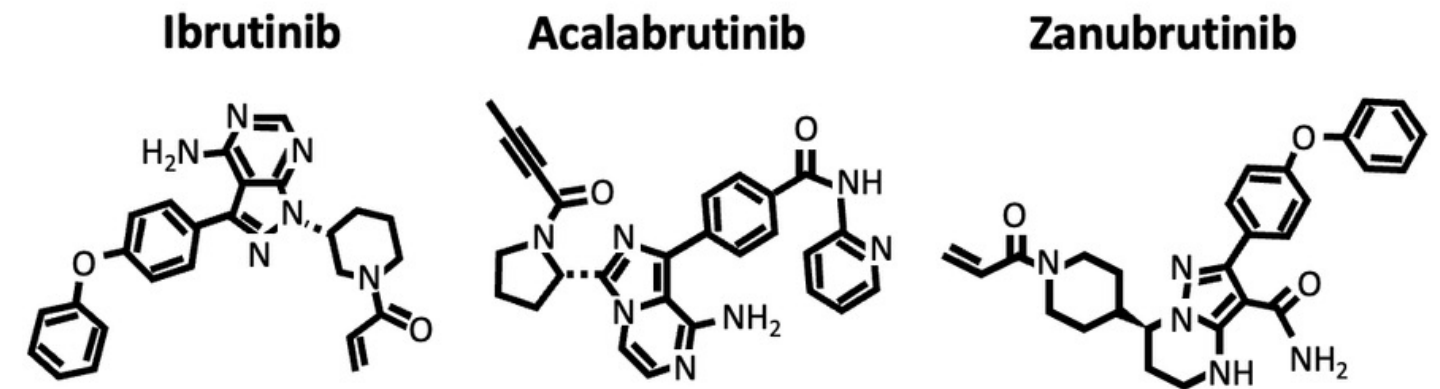
## Tafasitamab MoA

Affinity matured CD19 binding site  
• Direct tumor cell killing

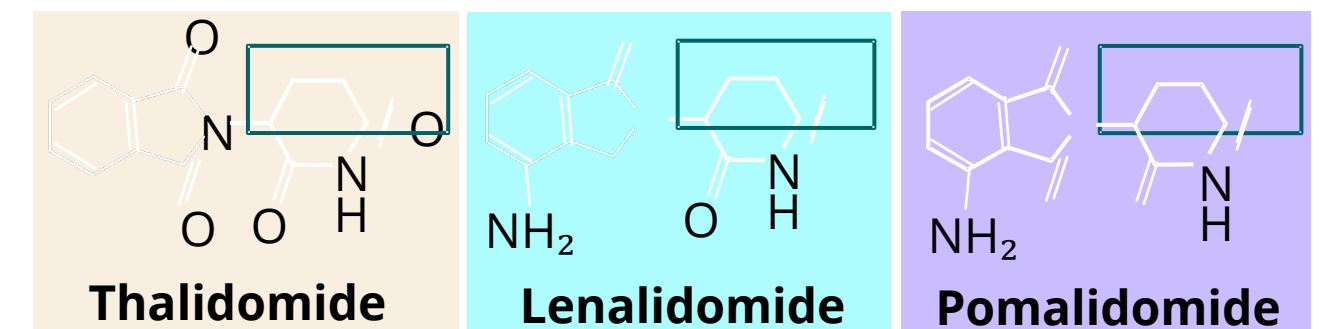
Tafasitamab (MOR208)

Engineered Fc portion  
• Enhanced ADCC  
• Enhanced ADCP

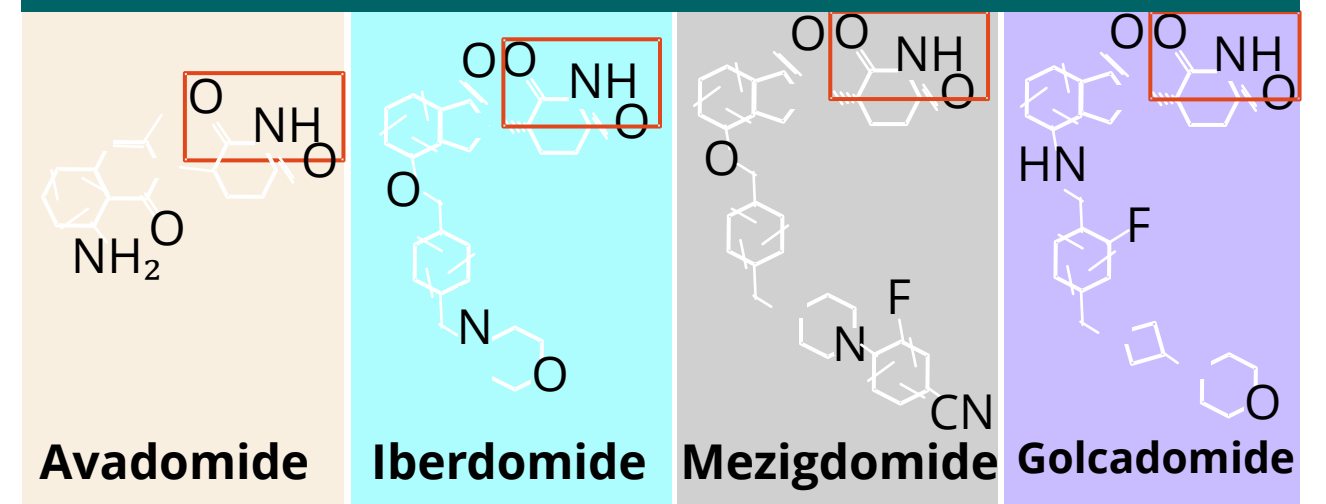
## Covalent BTK Inhibitors



## IMiDs and CELMoDs



## Novel, Orally Bioavailable Agents



# Conclusions

- The number of therapeutic options for patients with R/R FL is increasing
- It is important to consider patient characteristics, disease behavior, prognostic indicators, goals of therapy, and patient preferences before treatment selection
- It is also important to consider response type and duration of response to last therapy
- For optimal treatment sequencing:
  - Weigh benefit vs toxicity
  - Biomarkers to guide treatment selection are greatly needed



# Thanks!

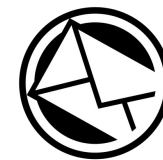
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