



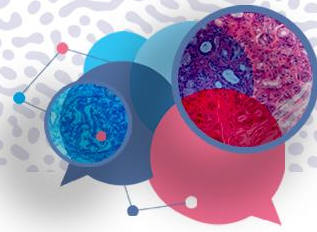
# Où en est-on des traitements spécifiques en cours dans les ATTR

## Comment adapter le traitement de nos patients à la vue d'HELIOS-B ?

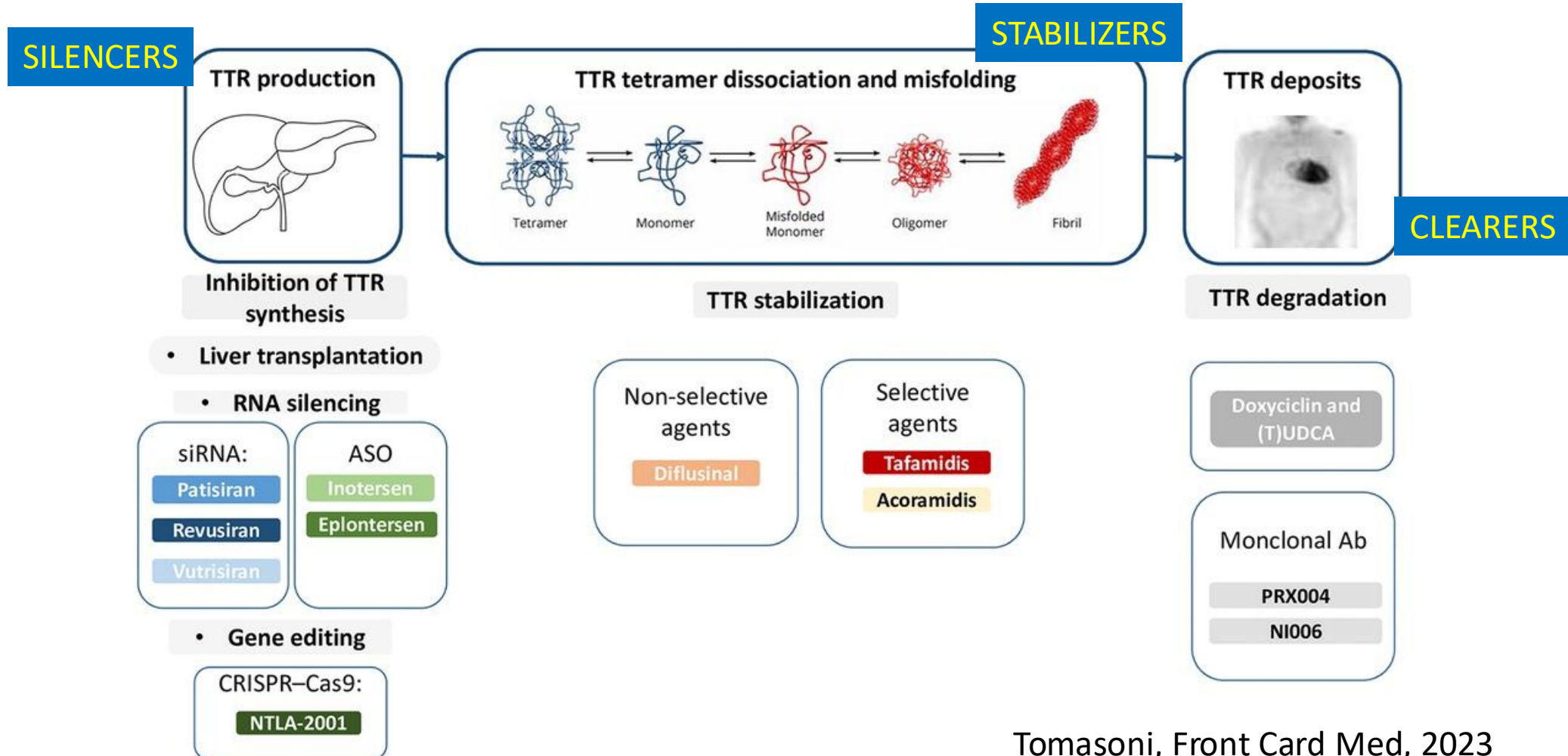
**Dr Fabrice BAUER**

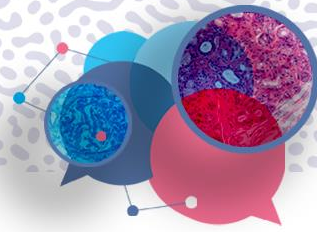
CHU Bicêtre - Paris-Saclay

UMR – 999 – Innovation thérapeutique en hypertension pulmonaire



# Treatment targets in ATTR cardiac amyloidosis



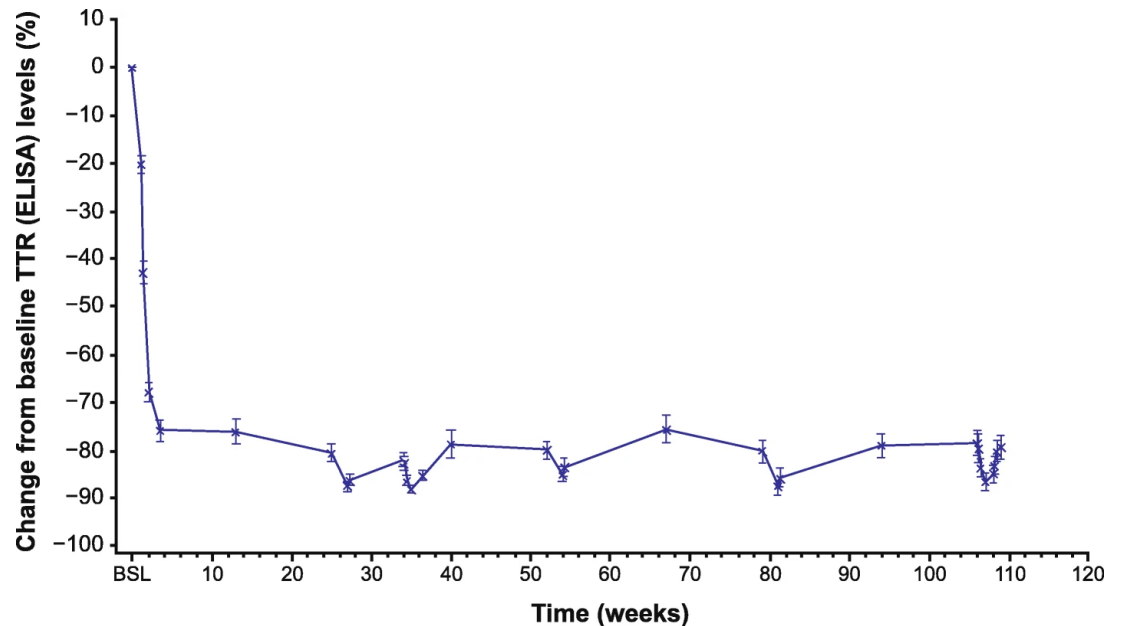


# Silencers are early(est) targets in ATTR metabolism

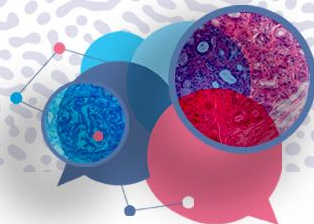
## Targets

- RNA silencing
  - SIRAN
    - PATISIRAN
    - VUTRISIRAN
  - TERSEN
    - INOTERSEN
    - EPLONTERSEN
- Gene editing
  - Crisper-CAS9

## Transthyretin concentration with PATISIRAN







# HELIOS B - trial

## Study population

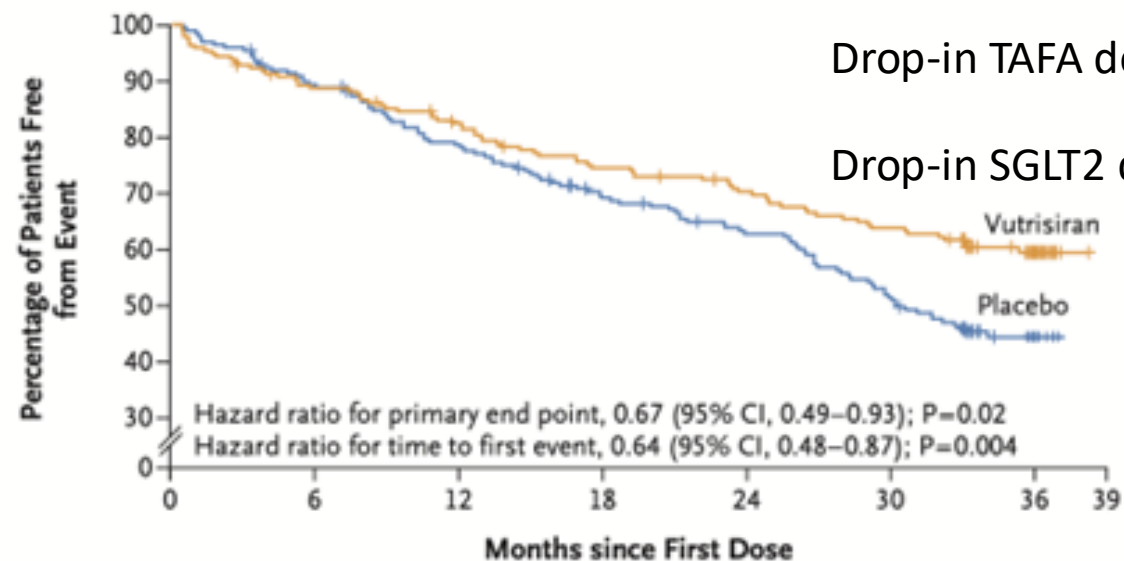
- Wild-type or hereditary ATTR with confirmed cardiomyopathy and symptomatic heart failure (HF)
- Patients on no background therapy (60%) or tafamidis at baseline (40%)

## Who and what?



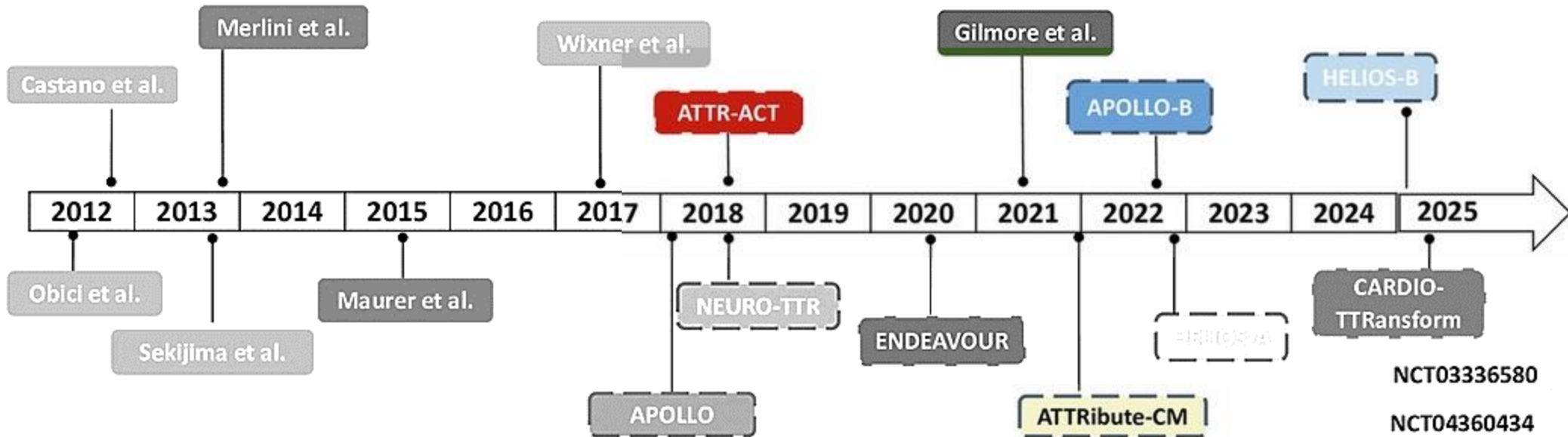
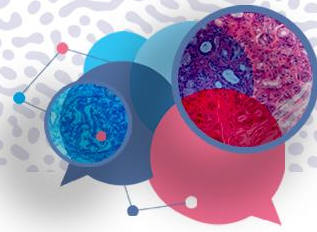
Follow-up  
Up to 36 months

## B Time to First Event in the Monotherapy Population

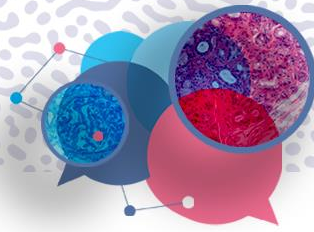


### No. at Risk (cumulative no. of events)

	0	6	12	18	24	30	36	39
Vutrisiran	196 (0)	172 (22)	157 (34)	141 (49)	131 (57)	119 (69)	32 (76)	0 (76)
Placebo	199 (0)	175 (22)	152 (43)	130 (60)	116 (72)	95 (93)	26 (105)	0 (105)



- |             |                        |
|-------------|------------------------|
| Patisiran   | Diflusinal             |
| Revusiran   | Acoramidis             |
| Vutrisiran  | Tafamidis              |
| Inotersen   | Doxycyclin+<br>(T)UDCA |
| Eplontersen | mAb                    |
| NTLA-2001   |                        |



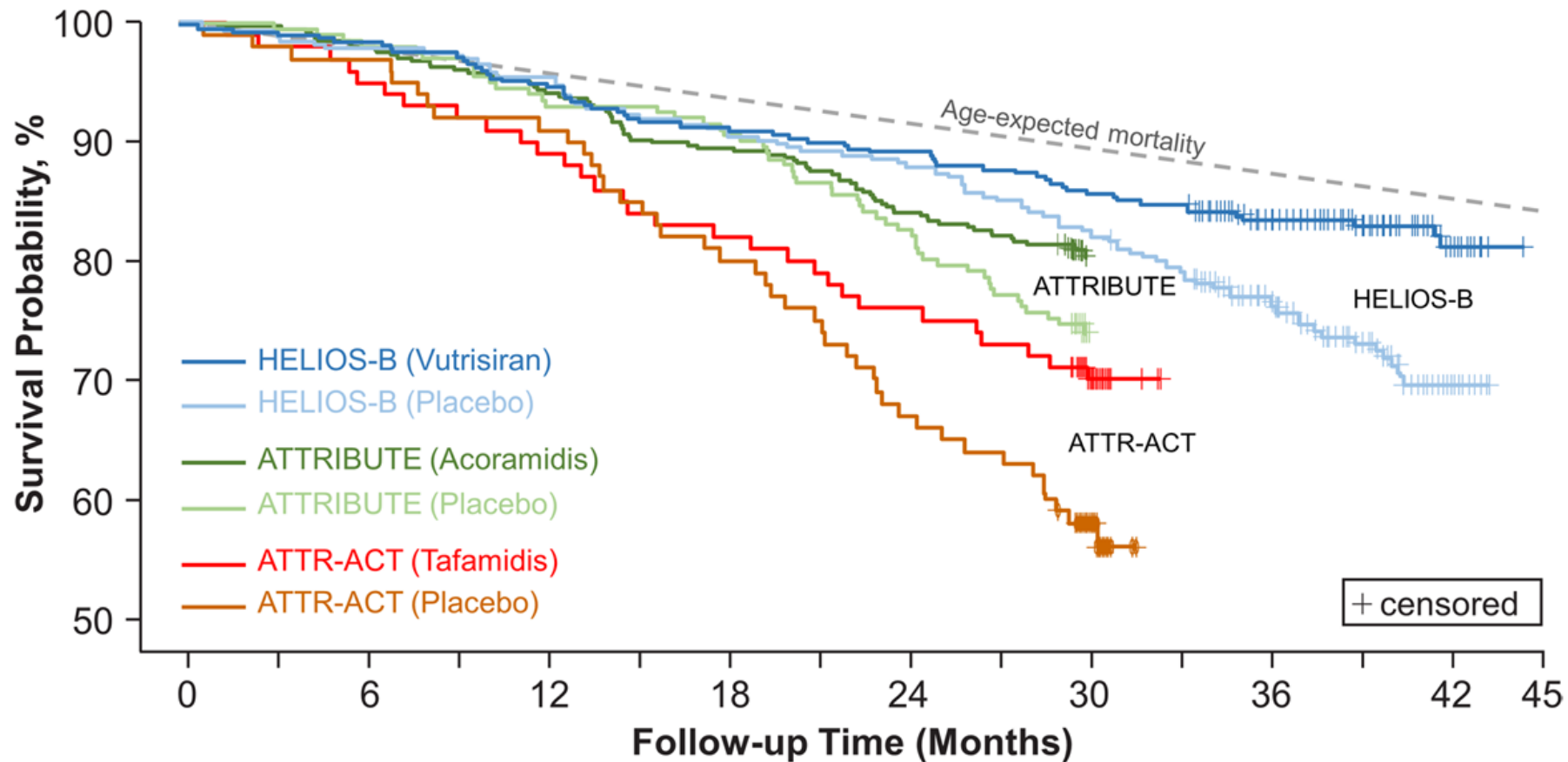
## Comparison to other approved therapy

- ATTR-ACT → TAFAMIDIS
- ATTRIBUTE-CM → ACORAMIDIS
- HELIOS-B → VUTRISIRAN





# Not only the primary end-point to look @





# Question addresses with VUTRISIRAN

*Beijin, Summer olympics 2008*

VUTRISIRAN FIRST



U Bolt

VUTRISIRAN COMBO  
« SIMULTANEOUSLY »



Nickel Ashmead

VUTRISIRAN COMBO  
« SEQUENTIALLY »



Shelly Ann Fraser





# Question addresses with VUTRISIRAN

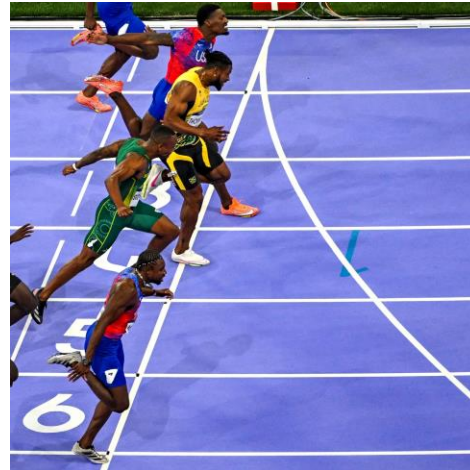
*Beijin, Summer olympics 2008*

VUTRISIRAN FIRST



**We do not know !!**

VUTRISIRAN COMBO  
« SIMULTANEOUSLY »

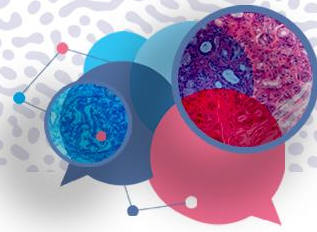


**We do not know !!**

VUTRISIRAN COMBO  
« SEQUENTIALLY »



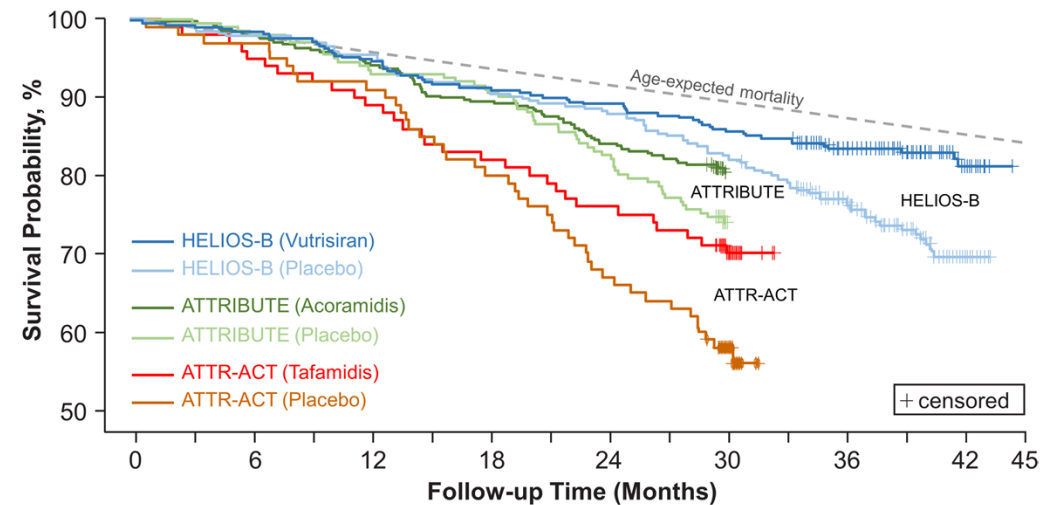
**Possibly**

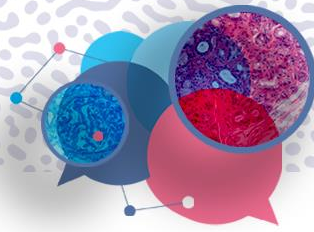


# VUTRISIRAN FIRST ?!

	ATTR-ACT [10, 14, 17] Tafamidis (n=264)	ATTRIBUTE-CM [7] Acoramidis (n=421)	HELIOS-B [15] Vutrisiran (n=326)
Age, years	75 (range 46–88)	77.4 ± 6.5	77.0 (range 45–85)
Sex			
Males	91.3%	91.2%	91.7%
Females	8.7%	8.8%	8.3%
Race			
White	79.9%	87.4%	85.0%
Black	14.0%	4.8%	7.1%
Genotype			
Wild type	76.1%	90.3%	88.7%
Variant	23.9%	9.7%	11.3%
NYHA class			
I	9.1%	12.1%	15.0%
II	61.4%	69.6%	76.7%
III	<b>29.5%</b>	18.3%	8.3%
NT-proBNP, pg/mL	<b>2995.9</b> (752–4862)	2326 (1332–4019)	2021 (1138–3312)
NAC stage			
1	45.1%	57.2%	63.8%
2	36.0%	31.8%	30.7%
3	<b>18.9%</b>	10.9%	5.5%

*"Silencers vs. stabilizers trials would certainly have addressed this question, but they will definitely not be conducted."*





# Another difficulties in comparing these studies

- Timing, inclusion criteria, baseline characteristics different
- Cross-trail comparison impossible
  - Different endpoints
  - Different statistical methodology
    - HELIOS-B: event-driven
    - ATTR-ACT: win ratio
    - ATTRIBUTE-CM: win ratio
  - Duration
    - HELIOS-B: 36 mois
    - ATTR-ACT: 30 mois
    - ATTRIBUTE-CM: 30 mois





## VUTRISIRAN COMBO SIMULTANEOUSLY ?!

*“single vs. dual combination therapy trials would certainly have addressed this question, and could be definitely be conducted.”*



In ATTR-ACT, ATTRIBUTE-CM and HELIOS-B, there is a signal that « less sick » patients had better outcomes.



# VUTRISIRAN COMBO SEQUENTIALLY ?!

## No trial but a signal

	ATTR-ACT [10, 14, 17] Tafamidis (n = 264)	ATTRIBUTE-CM [7] Acoramidis (n = 421)	HELIOS-B [15] Vutrisiran (n = 326)
Tafamidis use			
Baseline	N/A	0%	40%
Drop-in	N/A	14.5%	13.5%



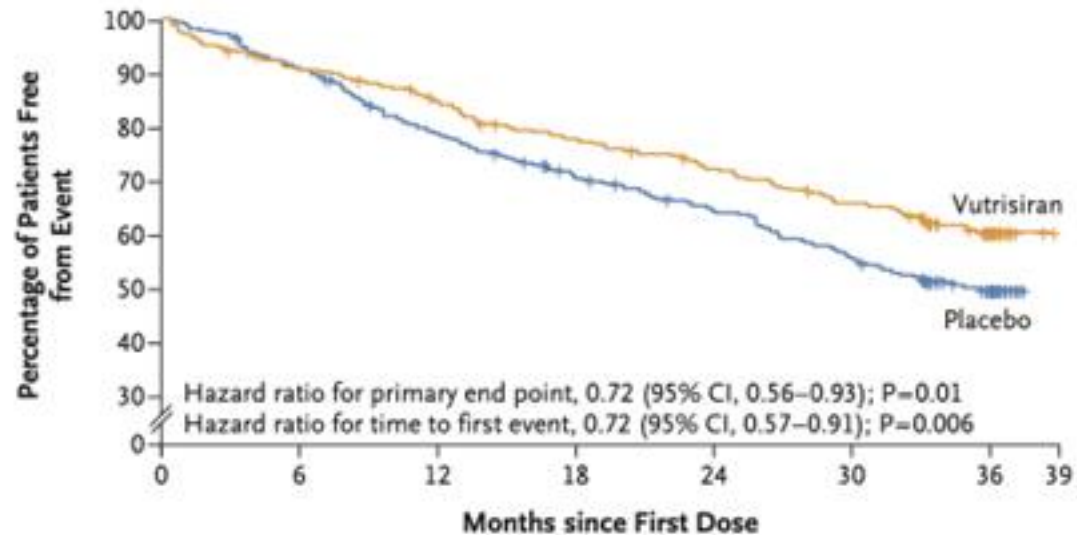




# VUTRISIRAN COMBO SEQUENTIALLY ?!

## Not a trial but a signal

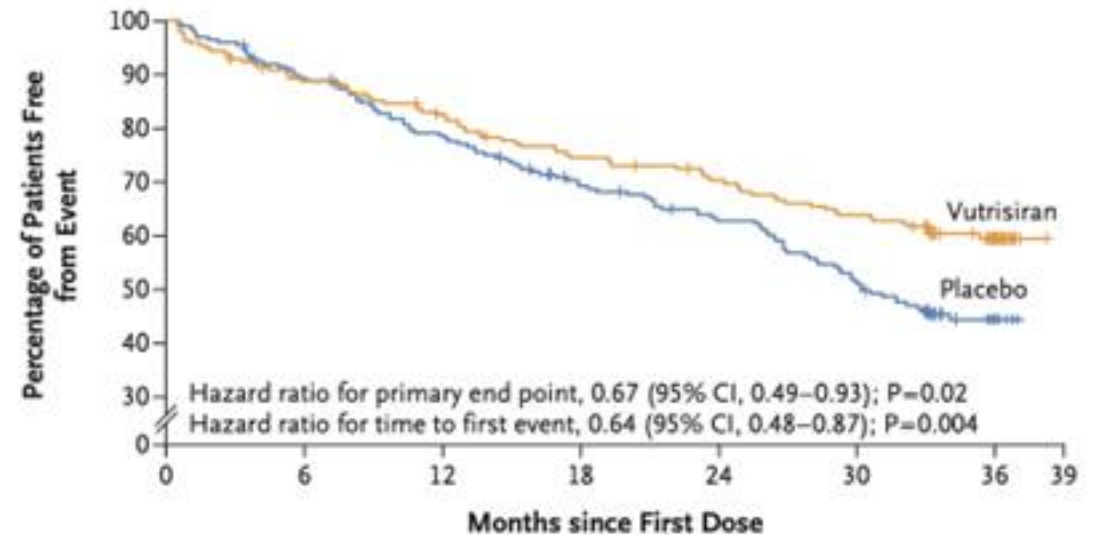
**A Time to First Event in the Overall Population**



No. at Risk (cumulative no. of events)

Vutrisiran	326 (0)	294 (30)	271 (50)	247 (72)	227 (90)	206 (110)	62 (125)	0 (125)
Placebo	328 (0)	295 (31)	253 (70)	221 (96)	199 (115)	172 (142)	52 (159)	0 (159)

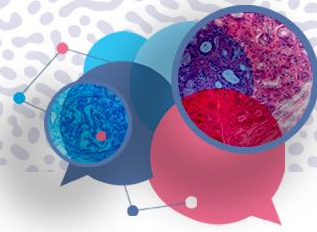
**B Time to First Event in the Monotherapy Population**



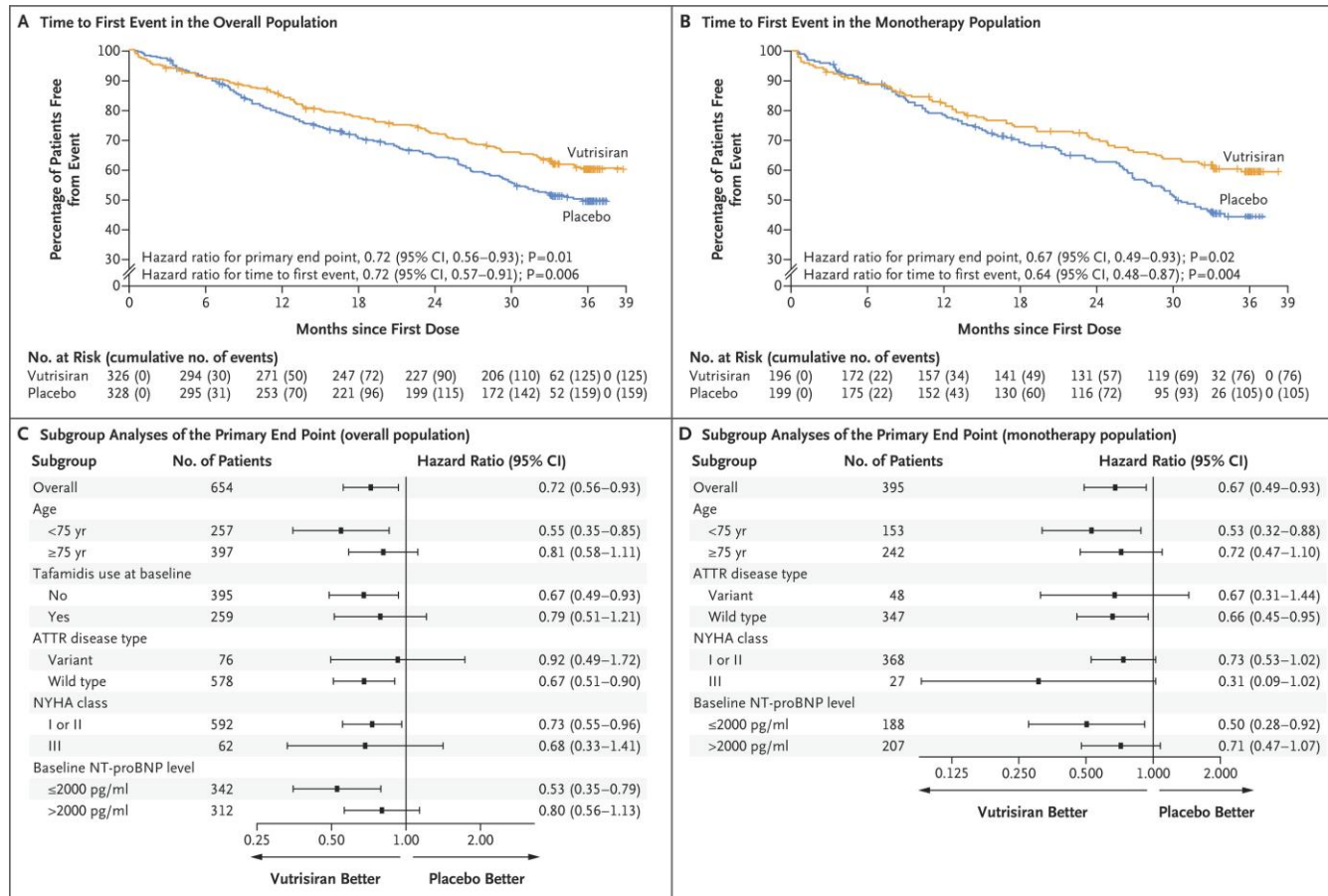
No. at Risk (cumulative no. of events)

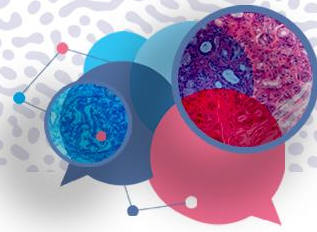
Vutrisiran	196 (0)	172 (22)	157 (34)	141 (49)	131 (57)	119 (69)	32 (76)	0 (76)
Placebo	199 (0)	175 (22)	152 (43)	130 (60)	116 (72)	95 (93)	26 (105)	0 (105)





# Do not expect from data what they did not tell you





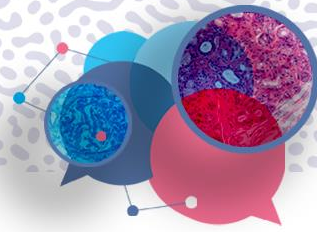
# HELIOS-B: not treatment-naïve patients

## Inclusion Criteria:

- Age between 18 and 85 years.
- Diagnosis of genetic or wild-type transthyretin (TTR) cardiac amyloidosis (confirmed by histology or bone scintigraphy with cardiac uptake and no evidence of gammopathy).
- Septal thickness on echocardiography (TTE) greater than 12 mm.
- **At least one hospitalization for heart failure or clinical signs of heart failure.**
- NT-proBNP > 300 pg/mL and < 8500 pg/mL.
- Six-minute walking distance greater than 150 meters.
- Tafamidis treatment is possible at the time of inclusion.

## Exclusion Criteria:

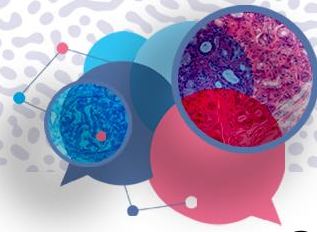
- NYHA class 4 or NYHA class 3 with NAC 3 amyloidosis.
- Severe polyneuropathy.
- Other causes of cardiomyopathy.
- Glomerular filtration rate (GFR) < 30 mL/min/m<sup>2</sup>



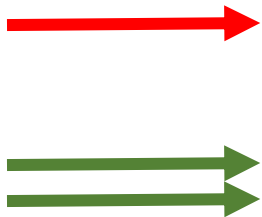
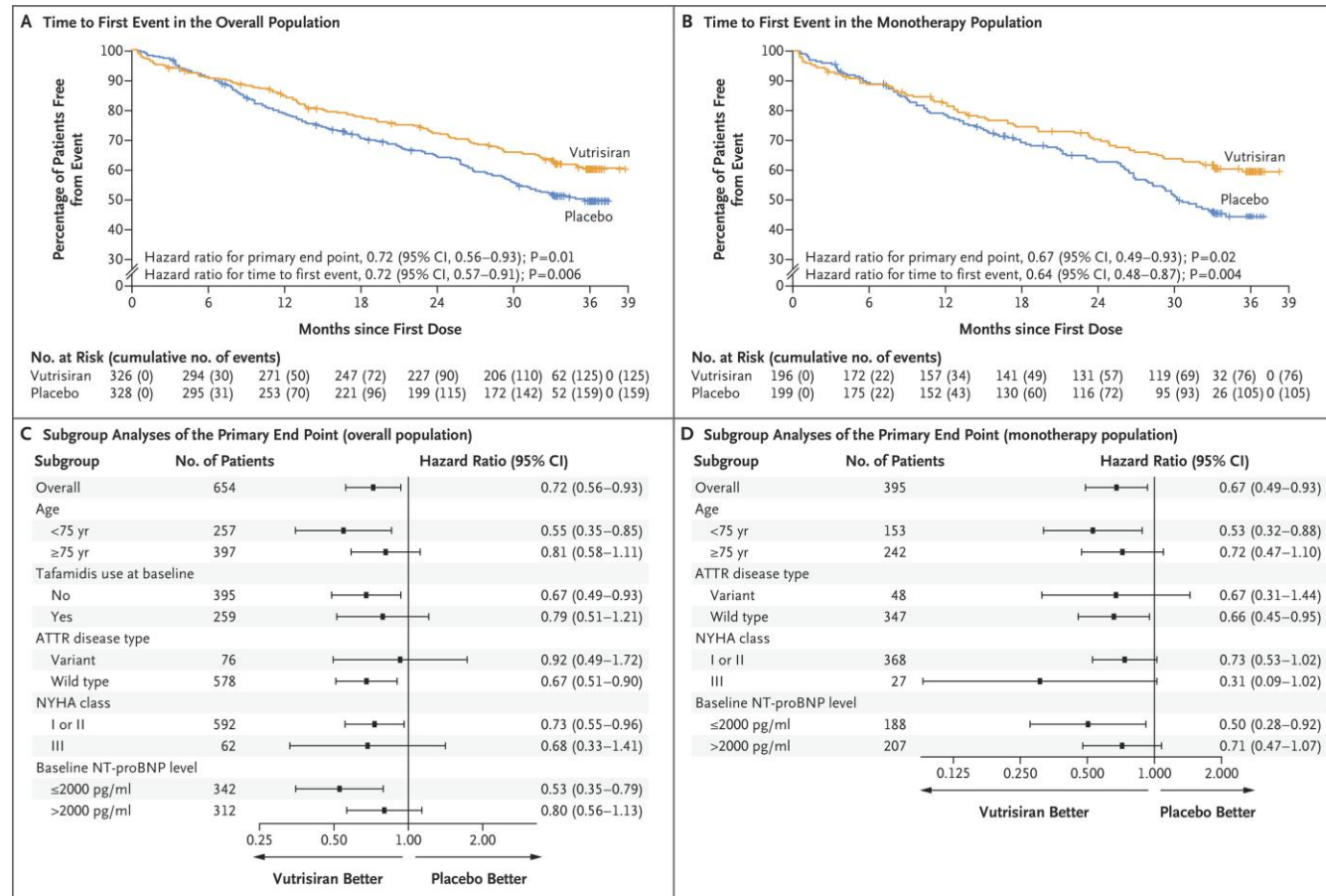
## Eligibility for PATISIRAN nowadays: progression-based

EVALUATION DE LA PROGRESSION SOUS TAFAMIDIS 61mg selon le consensus de l'ESC ATTR-CM de 2021		
<i>1 paramètre minimum par domaine doit être coché</i>		
Clinique	Biologique	Imagerie
<input type="checkbox"/> Nouvelle Hospitalisation pour IC en l'absence de facteurs déclenchants modifiables (inobservance, régime hyposodé, inobservance du traitement diurétique, fibrillation atriale paroxystique, infection)	<input type="checkbox"/> Augmentation de NT-proBNP (30% ou 300pg/mL)	<input type="checkbox"/> Augmentation de l'épaisseur myocardique (2mm)
<input type="checkbox"/> Augmentation de Classe NYHA	<input type="checkbox"/> Augmentation de Troponine (30%)	<input type="checkbox"/> Augmentation du grade de fonction diastolique
<input type="checkbox"/> Dégradation de Qualité de vie (déclin de 5-10 pts KCCQ ou 10% EQ-5D)	<input type="checkbox"/> Augmentation du Score NAC	<input type="checkbox"/> Changement de la fonction systolique (≥5% déclin de la FEVG, ≥5mL de déclin du VES, ≥1% augmentation du SLG)
<input type="checkbox"/> Déclin du TDM6 (30-40m)		<input type="checkbox"/> Apparition ou aggravation de troubles conductifs
<input type="checkbox"/> Majoration de la dose de diurétique de plus de 80 mg au cours des 12 mois précédents		



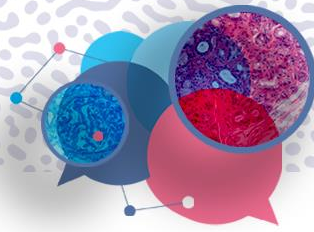


# Do not expect from data what they did not tell you, but sometimes make your mind up





**In reality, In all 3 studies, there is a signal that “less sick” patients (i.e., based upon younger age, lower NTproBNP, lower NYHA class) had better outcomes. A cross-trial comparison highlights the fact that enrolling less sick patients at earlier stage disease in treatment trials from ATTR-ACT to ATTRIBUTE-CM and HELIOS-B has led all-cause mortality to approach the population expected 3-year rate**



## Conclusion:

How to adapt our patients' treatment in light of HELIOS-B?

- **Medical history is shaped by treatment timelines and evidence-based medicine.**
- **In CA, the paradigm should shift from titration based on disease worsening to a treat-to-target approach, aiming to address less severely ill patients.**
- **Therefore, VUTRISIRAN**
  1. *does not currently appear as a first-line therapy*
  2. *Should be initiated as soon as possible if risk stratification is not appropriate after FLT was started*
- ***A lot to do, a lot to learn ... and still a lot to investigate before to conclude***