



**HOT
NEWS**

IN HEMATOLOGY

Sindromi
linfoproliferative
ed oltre...

Leucemia linfatica cronica

Francesca R Mauro

Dipartimento di Medicina Traslazionale e di Precisione

Università Sapienza, Roma

ROMA

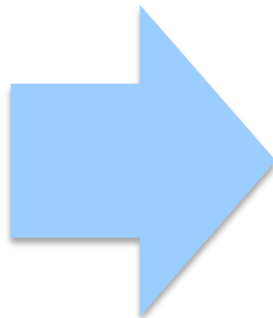
17 Giugno 2022

Starhotels Metropole

Disclosures of FR MAURO

	Research support	Employee	Consultant	Stockholder	Speakers bureau	Advisory board	Other
Janssen					x	x	
AstraZeneca					x	x	
Abbvie	x				x	x	
Beigene						x	
Takeda	x				x	x	

HOT NEWS

Chronic
Lymphocytic
Leukemia

Ibrutinib

Resonate-2
ECOG E1912

Acalabrutinib

ASCEND
ELEVATE TN
ELEVATE R/R

Zanubrutinib

SEQUOIA cohort 1- arm B
SEQUOIA cohort 2- arm C
ALPINE

Pirtobrutinib

BRUIN trial

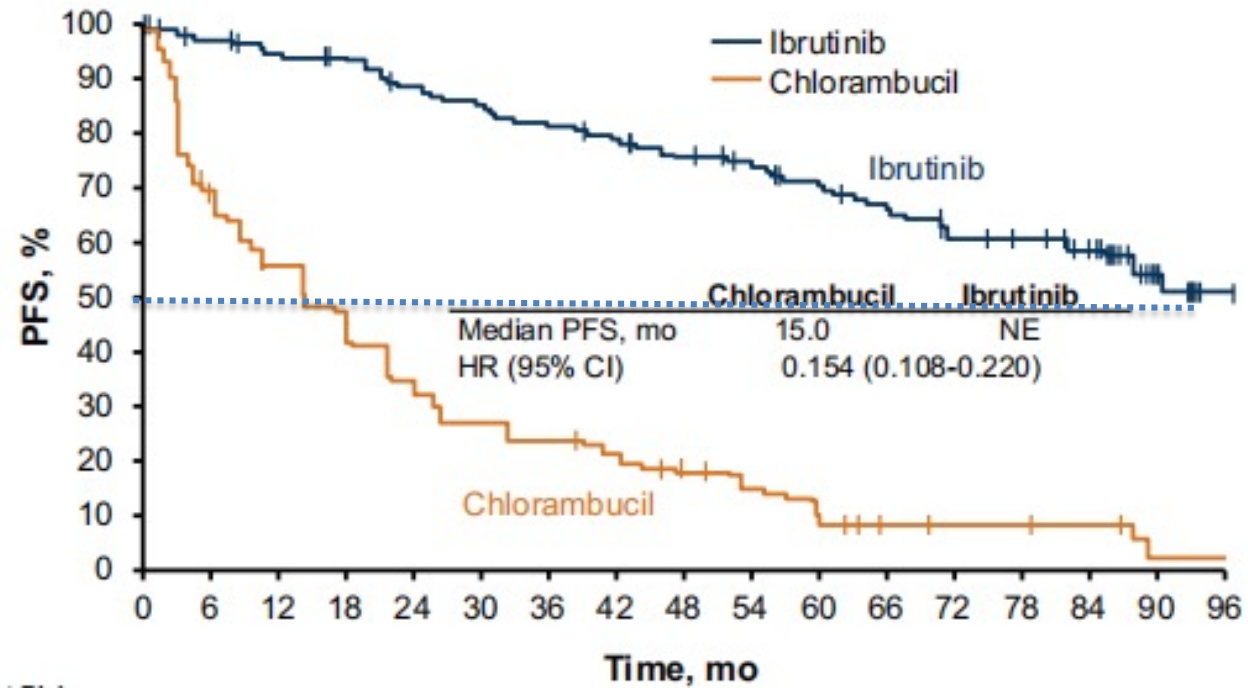
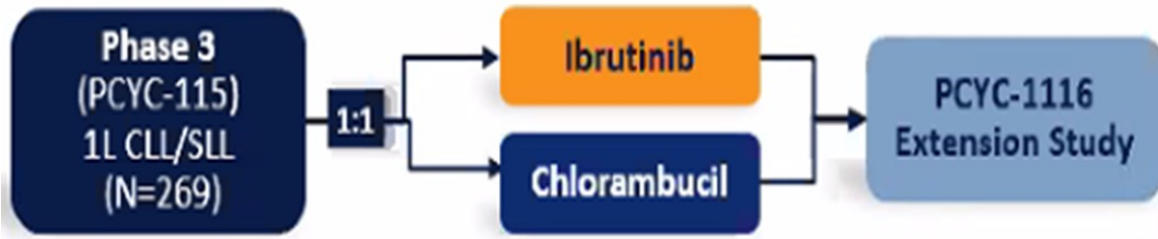
Venetoclax-obinuruzumab

CLL14

Venetoclax-ibrutinib

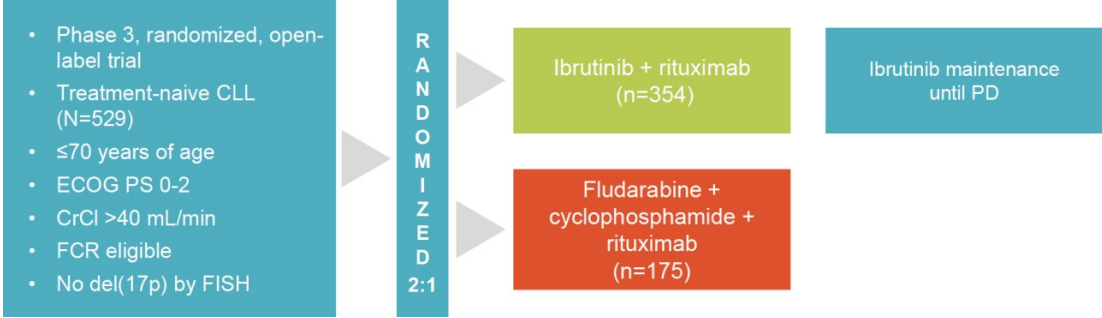
CAPTIVATE
GLOW
CLL13 (Gaia)
FLAIR

RESONATE-2: 1L IBRUTINIB-8-YEAR FU

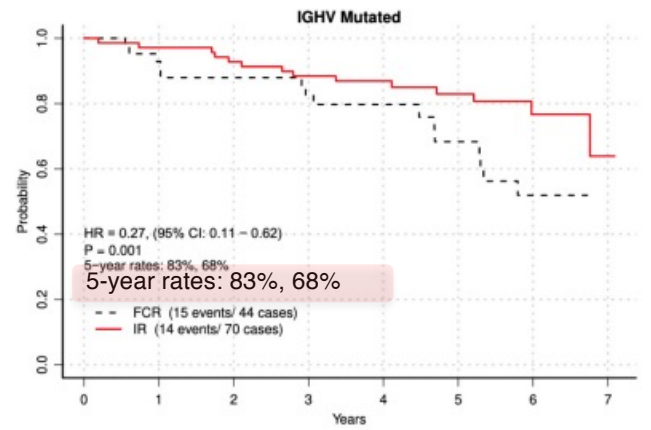
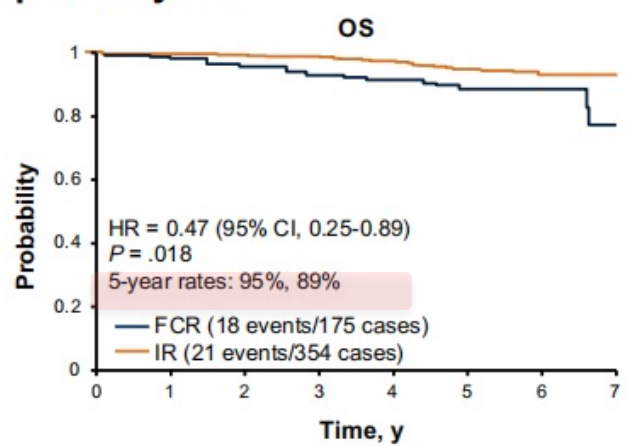
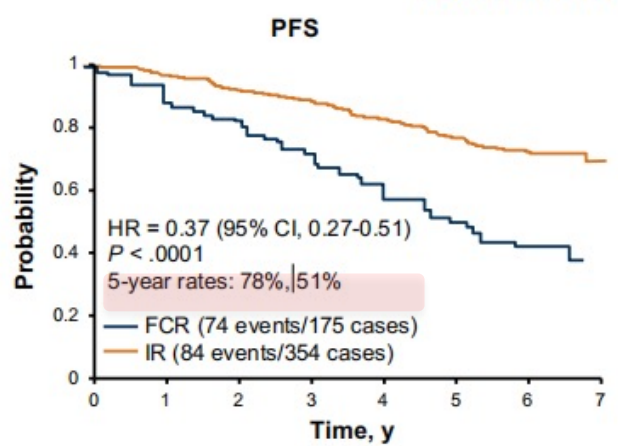


7 year-PFS:
Ibrutinib: 59%
Chlorambucil: 9%

ECOG E1912 TRIAL- IR VS. FCR: >5 YR-FU

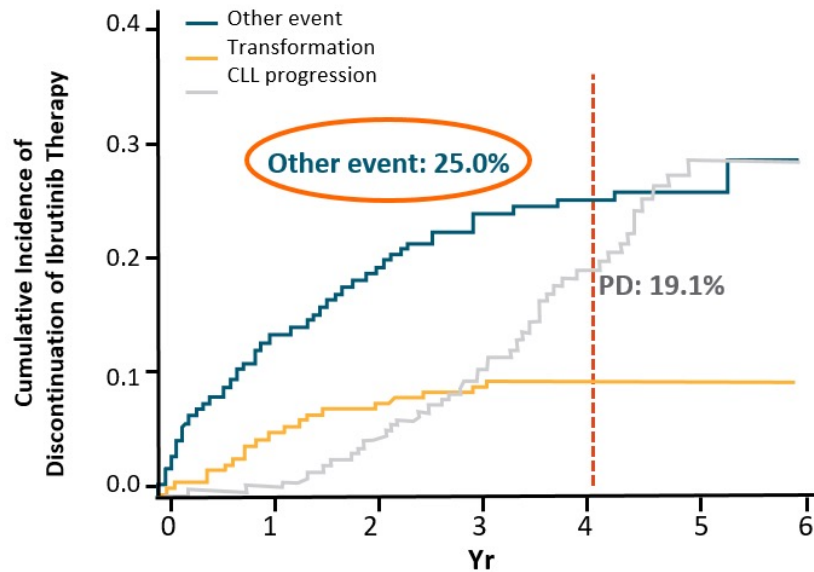


Median Follow-Up of 5.8 years¹



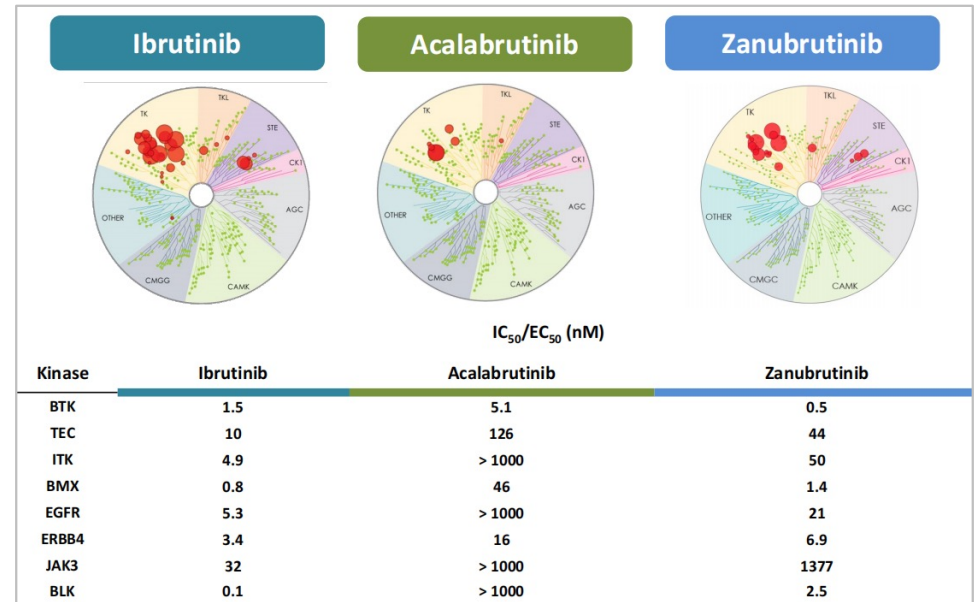
Patients on the IR arm also had superior PFS in both *IGHV* unmutated (HR = 0.27, P < .001) and *IGHV* mutated subgroups

Ibrutinib: treatment discontinuations



Woyach et al. *J Clin Oncol.* 2017

Second generation BTK inhibitors

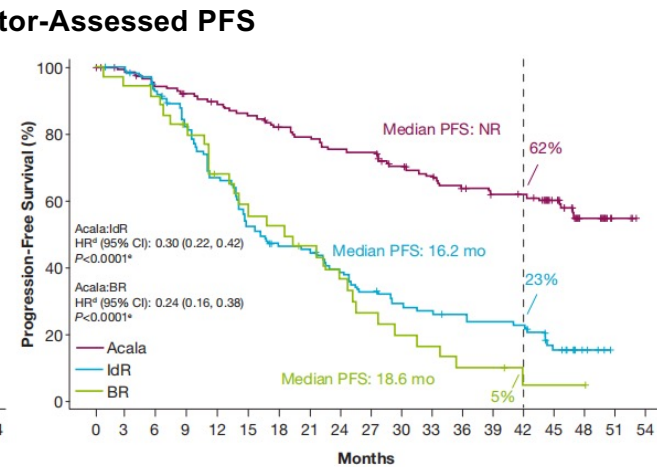
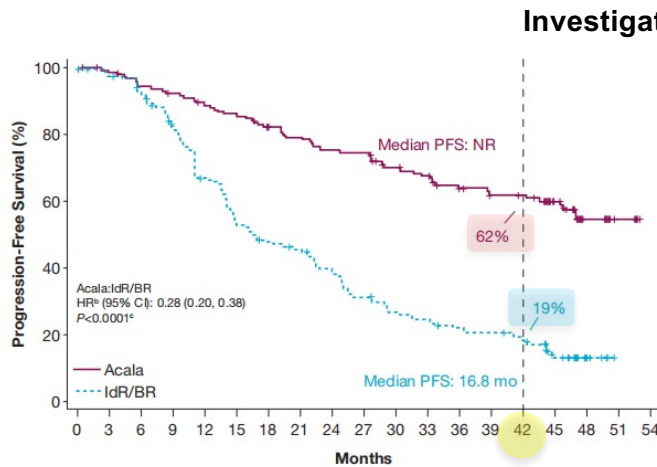
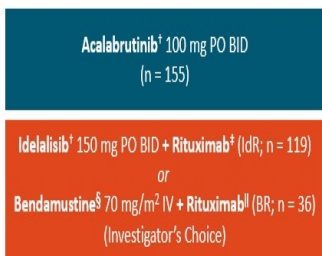


HOT NEWS

IN HEMATOLOGY
Sindromi linfoproliferative ed oltre...

ASCEND TRIAL: ACALABRUTINIB IN R/R PATIENTS WITH CLL: 4 YEAR UPDATED RESULTS

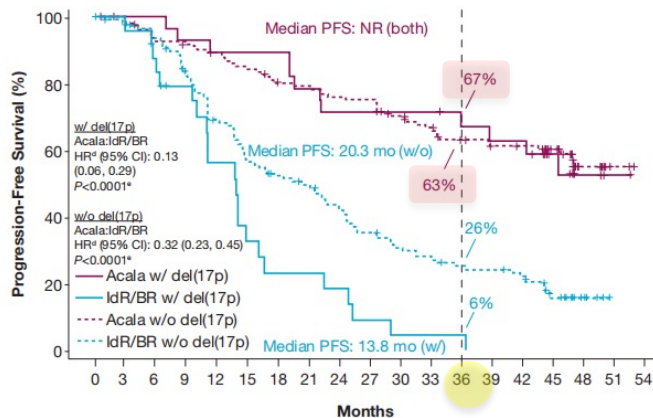
Adults with R/R CLL per IWCLL;
≥1 prior systemic therapy for CLL;
no prior BCL2 inhibitor or B-cell receptor inhibitor therapy*;
no CNS lymphoma or leukemia or significant CV disease;
ECOG PS ≤2
(N = 310)



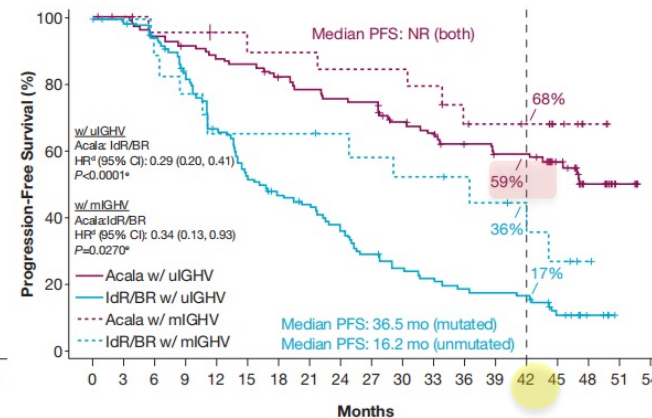
Investigator-Assessed PFS in Patient Subgroups (Acala vs IdR/BR)

Subgroup Analysis	Number of Events/Subjects		Hazard Ratio (95% CI)
	Acala	IdR/BR	
Overall	62/155	119/155	0.28 (0.20, 0.38)
Age group			
<65 years	21/58	46/57	0.23 (0.14, 0.39)
≥65 years	41/97	73/98	0.33 (0.23, 0.49)
Sex			
Male	45/108	80/100	0.30 (0.20, 0.43)
Female	17/47	39/55	0.26 (0.15, 0.47)
ECOG at randomization			
0, 1	57/137	103/135	0.30 (0.22, 0.42)
2	5/18	16/20	0.22 (0.08, 0.61)
Rai Stage at screening			
Stage I-II	37/90	67/90	0.32 (0.22, 0.49)
Stage III-IV	25/65	52/64	0.24 (0.15, 0.39)
Bulky disease			
<5 cm	30/79	56/80	0.34 (0.22, 0.53)
≥5 cm	32/76	63/75	0.22 (0.14, 0.35)
Number of prior therapies			
1-3	53/139	103/138	0.28 (0.20, 0.39)
≥4	9/16	16/17	0.40 (0.17, 0.92)
Presence of del(17p)			
Yes	12/28	22/26	0.13 (0.06, 0.29)
No	50/127	97/129	0.32 (0.23, 0.45)
TP53 mutation			
Yes	18/39	29/34	0.25 (0.14, 0.46)
No	43/113	90/119	0.28 (0.19, 0.41)
IGHV			
Mutated	6/21	11/17	0.34 (0.13, 0.93)
Unmutated	47/109	93/119	0.29 (0.20, 0.41)
Complex Karyotype			
Yes	2/3	3/3	0.18 (0.02, 1.84)
No	60/150	116/150	0.28 (0.21, 0.39)

Investigator-Assessed PFS by del(17p)



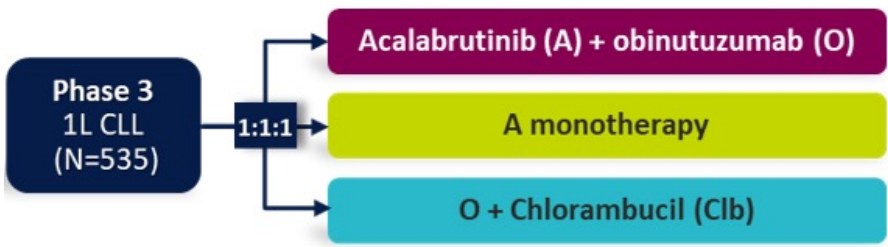
Investigator-Assessed PFS by IGHV



HOT NEWS

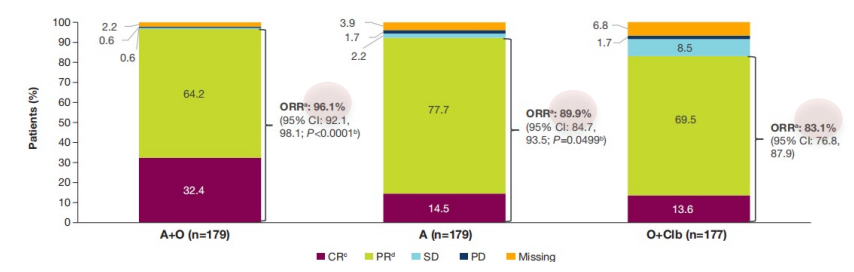
IN HEMATOLOGY
Sindromi linfoproliferativa ed oltre...

ELEVATE TN trial: in TN Patients With CLL: 5-year updated results

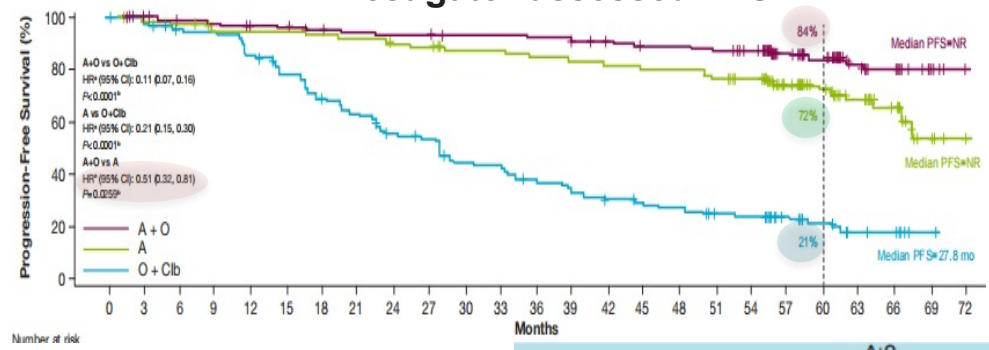


CR increase

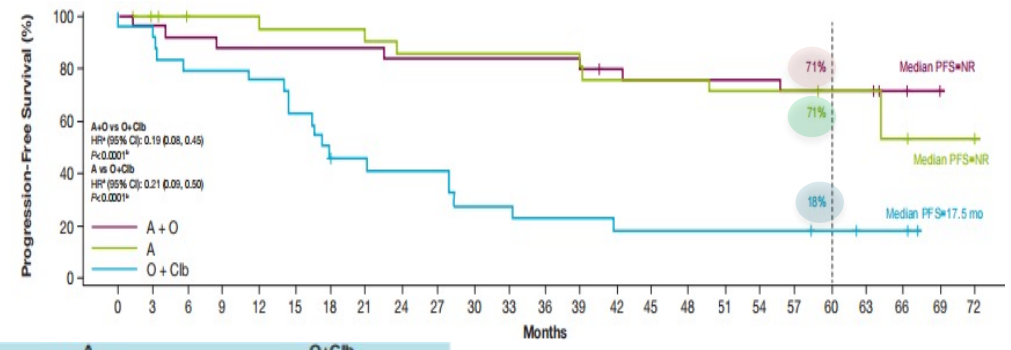
A+O: 24.0%⁷, 30.7%⁸, and 32.4%
A: 7.8%⁷, 11.2%⁸, and 14.5%



Investigator-assessed PFS



Investigator-assessed PFS: del(17p)/ mut TP53



Adverse events of clinical interest

	A+O (n=178)		A (n=179)		O+Clb (n=169)	
	Any Grade	Grade ≥3	Any Grade	Grade ≥3	Any Grade	Grade ≥3
Cardiac events	43 (24.2)	17 (9.6)	39 (21.8)	18 (10.1)	13 (7.7)	3 (1.8)
Atrial fibrillation	11 (6.2)	2 (1.1)	13 (7.3)	2 (1.1)	1 (0.6)	0
Bleeding	88 (49.4)	8 (4.5)	78 (43.6)	6 (3.4)	20 (11.8)	0
Major bleeding*	12 (6.7)	8 (4.5)	8 (4.5)	6 (3.4)	2 (1.2)	0
Hypertension	17 (9.6)	8 (4.5)	16 (8.9)	7 (3.9)	6 (3.6)	5 (3.0)
Infections	140 (78.7)	50 (28.1)	135 (75.4)	35 (19.6)	75 (44.4)	14 (8.3)
SPMs	31 (17.4)	14 (7.9)	27 (15.1)	7 (3.9)	7 (4.1)	3 (1.8)
SPMs excluding non-melanoma skin	17 (9.6)	12 (6.7)	13 (7.3)	5 (2.8)	3 (1.8)	2 (1.2)

Sharman et al., ASCO 2022

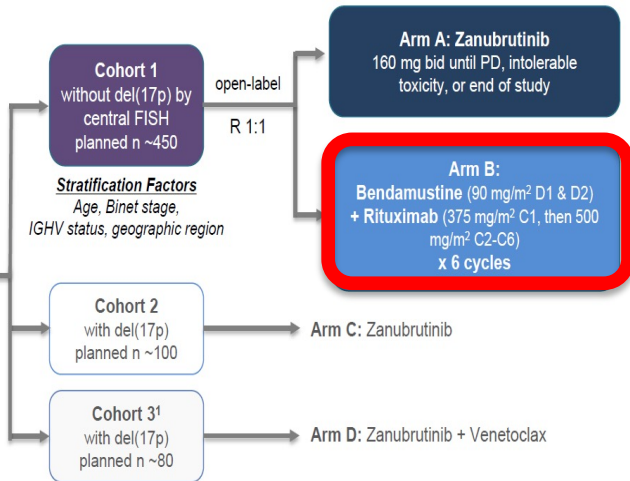
SEQUOIA TRIAL: 1L Zanubrutinib vs BR (Cohort 1-Arm B)

Study Design

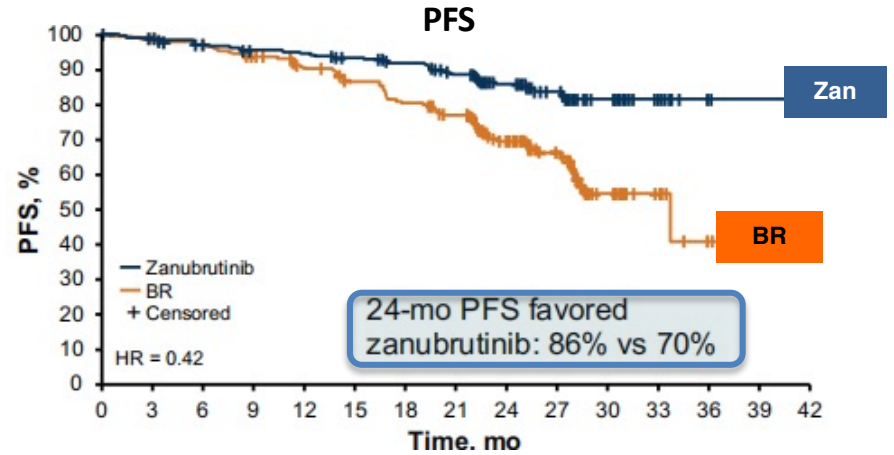
Key Eligibility Criteria

- Untreated CLL/SLL
- Met iwCLL criteria for treatment
- ≥65 y of age OR unsuitable for treatment with FCR^a
- Anticoagulation and CYP3A inhibitors allowed

ClinicalTrials.gov: NCT03336333

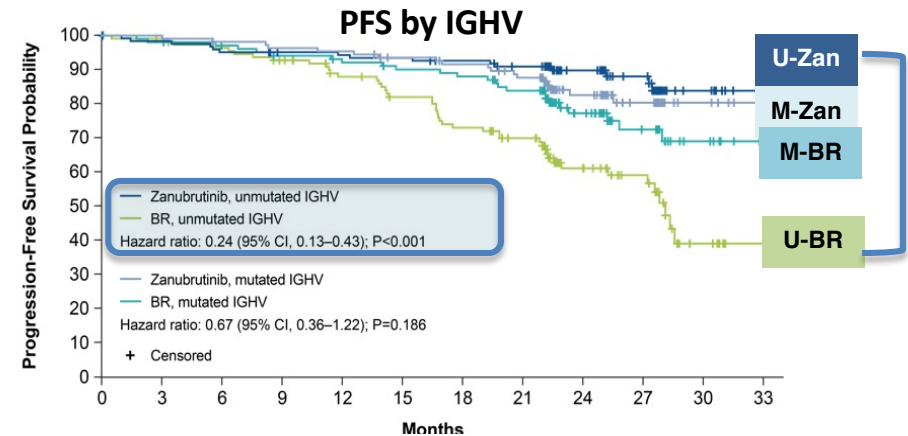


Median follow-up: 26.2 months

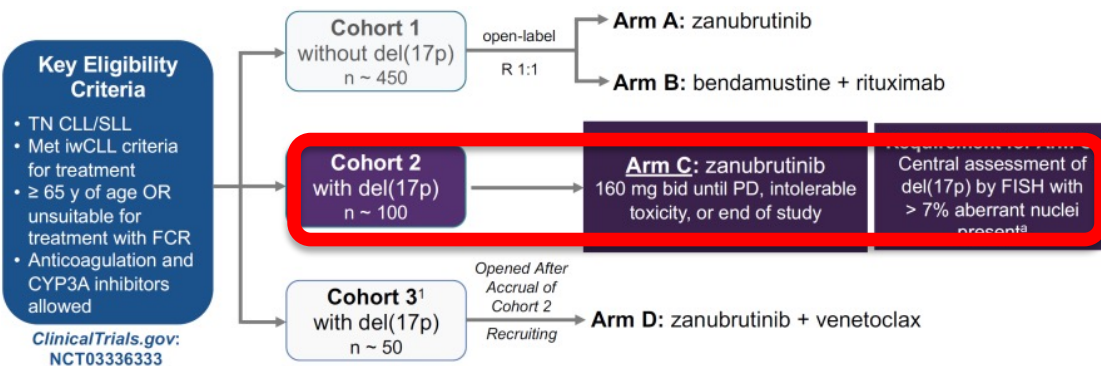


Common Adverse Events (≥12% of Patients in Any Arm)

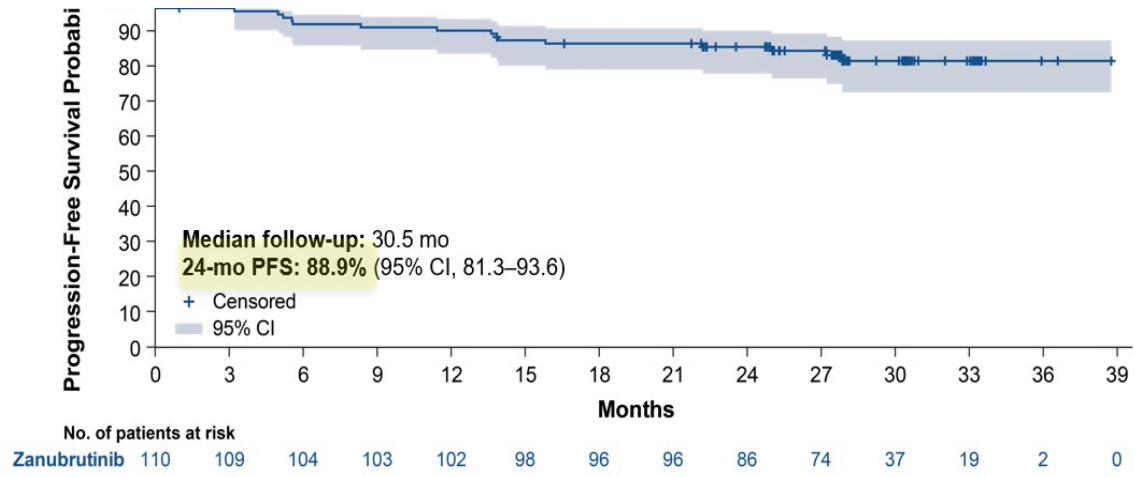
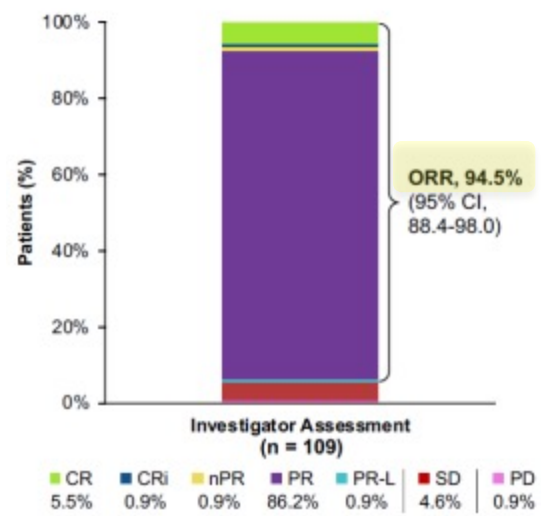
AE, n (%)	Arm A Zanubrutinib (n=240 ^a)		Arm B Bendamustine + Rituximab (n=227 ^a)	
	Any Grade	Grade ≥3	Any Grade	Grade ≥3
Contusion	46 (19.2)	0 (0.0)	8 (3.5)	0 (0.0)
Upper respiratory tract infection	41 (17.1)	2 (0.8)	27 (11.9)	2 (0.9)
Neutropenia ^b	37 (15.4)	27 (11.3)	129 (56.8)	116 (51.1)
Diarrhea	33 (13.8)	0 (0.0)	30 (13.2)	4 (1.8)
Arthralgia	32 (13.3)	2 (0.8)	20 (8.8)	1 (0.4)
Fatigue	28 (11.7)	3 (1.3)	36 (15.9)	2 (0.9)
Rash	26 (10.8)	0 (0.0)	44 (19.4)	6 (2.6)
Constipation	24 (10.0)	1 (0.4)	43 (18.9)	0 (0.0)
Nausea	24 (10.0)	0 (0.0)	74 (32.6)	3 (1.3)
Pyrexia	17 (7.1)	0 (0.0)	60 (26.4)	8 (3.5)
Vomiting	17 (7.1)	0 (0.0)	33 (14.5)	3 (1.3)
Anemia	11 (4.6)	1 (0.4)	43 (18.9)	4 (1.8)
Thrombocytopenia	9 (3.8)	4 (1.7)	31 (13.7)	16 (7.0)
Infusion-related reaction ^c	1 (0.4)	0 (0.0)	43 (18.9)	6 (2.6)



SEQUOIA TRIAL: 1L Zanubrutinib in patients with del (17p)



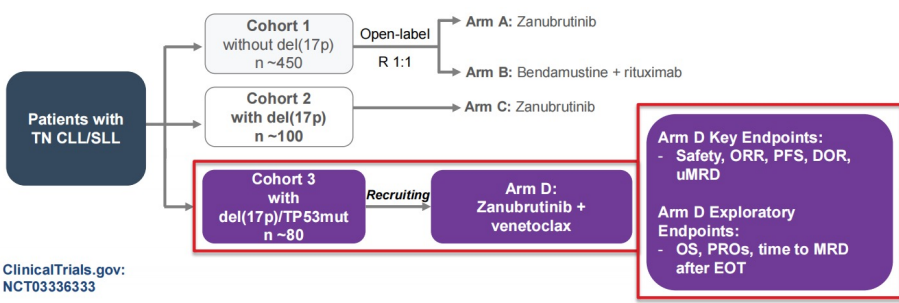
109 TN patients with del(17p) CLL or SLL



HOT NEWS

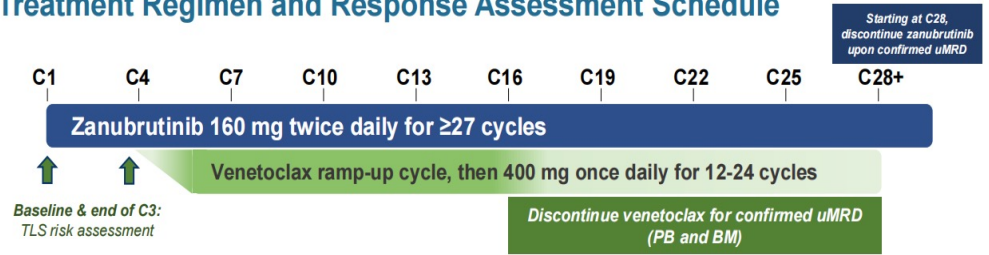
IN HEMATOLOGY
Sindromi lin...
ed oltre...

SEQUOIA TRIAL: 1L Zanubrutinib+ Venetoclax in patients with del (17p)



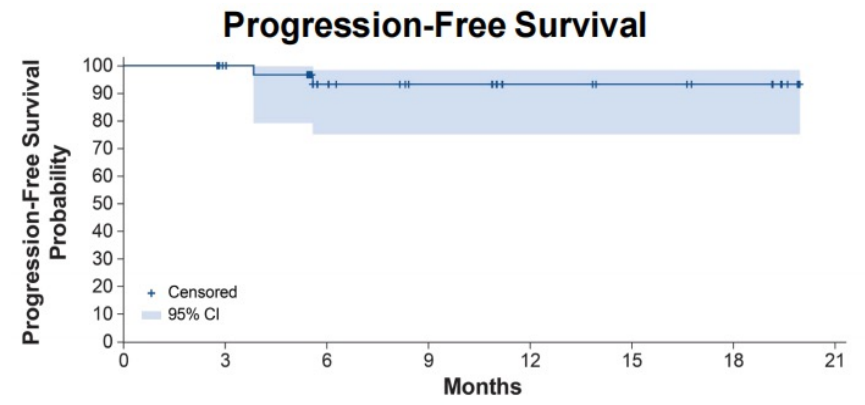
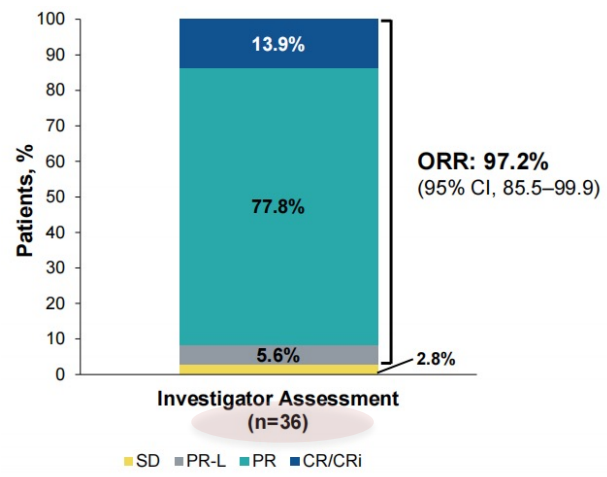
ClinicalTrials.gov: NCT03363333

Arm D Treatment Regimen and Response Assessment Schedule



Median Follow-Up: 12.0 Months

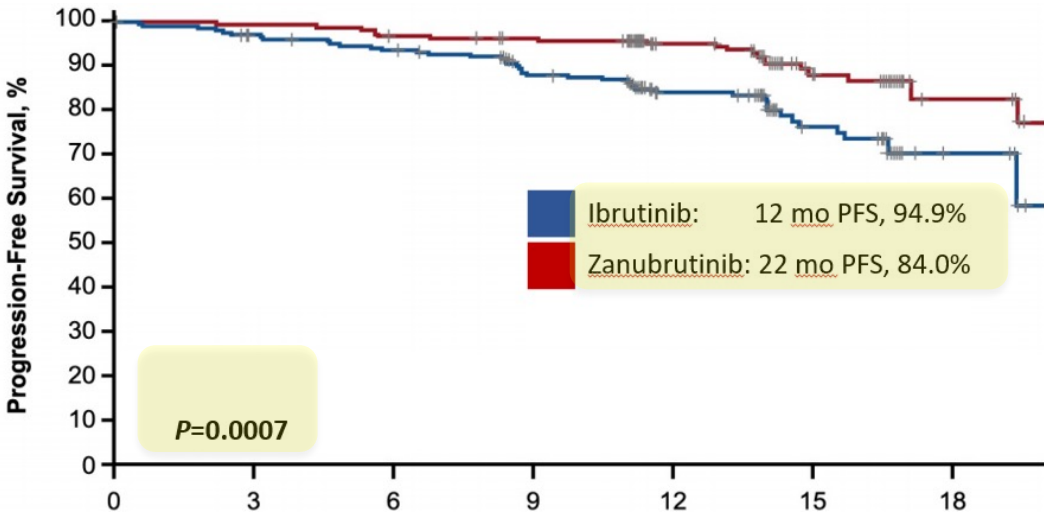
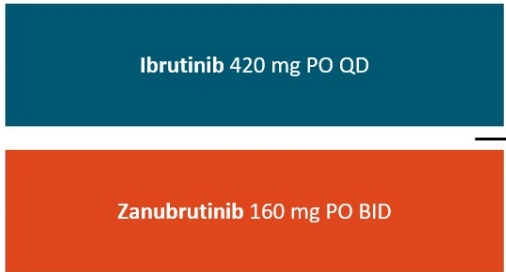
n=49	
Disease characteristics	
del(17p) by central lab FISH, n (%)	
Positive	46 (93.9)
Negative (eligible by local lab TP53 mutation)	3 (6.1)
del(17p) percent of abnormal nuclei, median	77.5
del(13q), n (%)	25 (51.0)
del(11q), n (%)	1 (2.0)
Trisomy 12, n (%)	11 (22.4)
Retrospective TP53 mutation, ^a n/N (%)	34/37 (91.9)
IGHV mutational status, n (%)	
Unmutated	43 (87.8)
Mutated	6 (12.2)
Complex karyotype, ^b n/N (%)	
Non-complex (0–2 abnormalities)	4/24 (16.7)
Complex (3 or more abnormalities)	20/24 (83.3)
Complex (5 or more abnormalities)	17/24 (70.8)



ALPINE TRIAL: Ibrutinib vs Zanubrutinib in Patients With R/R CLL

Ongoing randomized, multicenter phase III trial

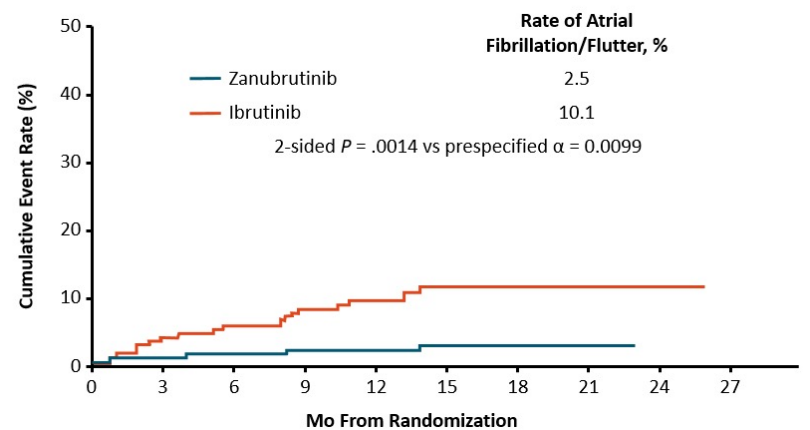
Patients with CLL requiring treatment
R/R to ≥ 1 previous treatment
ECOG PS 0-2
Adequate organ function
No clinically significant cardiac disease
(planned N = 400)



Response

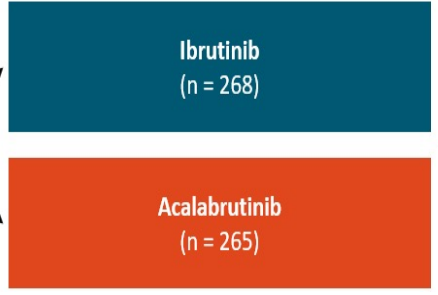
	Zanubrutinib (n=207), n (%)	Ibrutinib (n=208), n (%)
Primary endpoint: ORR (PR+CR)	162 (78.3)	130 (62.5)
	95% CI: 72.0, 83.7	95% CI: 55.5, 69.1
Superiority 2-sided $P=0.0006$ compared with pre-specified alpha of 0.0099		

Safety Analysis Population	Zanubrutinib (n=204), n (%)		Ibrutinib (n=207), n (%)	
	Any Grade	Grade ≥3	Any Grade	Grade ≥3
Cardiac disorders ^a	28 (13.7)	5 (2.5)	52 (25.1)	14 (6.8)
Atrial fibrillation and flutter (key 2^o endpoint)	5 (2.5)	2 (1.0)	21 (10.1)	4 (1.9)
Hemorrhage	73 (35.8)	6 (2.9)	75 (36.2)	6 (2.9)
Major hemorrhage ^b	6 (2.9)	6 (2.9)	8 (3.9)	6 (2.9)
Hypertension	34 (16.7)	22 (10.8)	34 (16.4)	22 (10.6)
Infections	122 (59.8)	26 (12.7)	131 (63.3)	37 (17.9)
Neutropenia ^c	58 (28.4)	38 (18.6)	45 (21.7)	31 (15.0)
Thrombocytopenia ^c	19 (9.3)	7 (3.4)	26 (12.6)	7 (3.4)
Secondary primary malignancies	17 (8.3)	10 (4.9)	13 (6.3)	4 (1.9)
Skin cancers	7 (3.4)	3 (1.5)	10 (4.8)	2 (1.0)

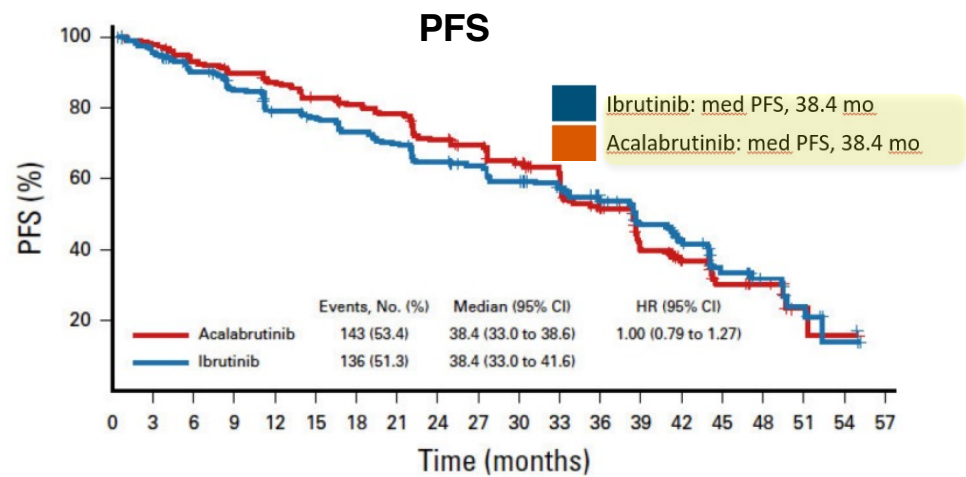


ELEVATE R/R: ACALABRUTINIB VS. IBRUTINIB IN R/R PATIENTS WITH CLL

Adults with previously treated CLL requiring therapy (iwCLL 2008 criteria)
Presence of del(17p) or del(11q)
ECOG PS ≤ 2



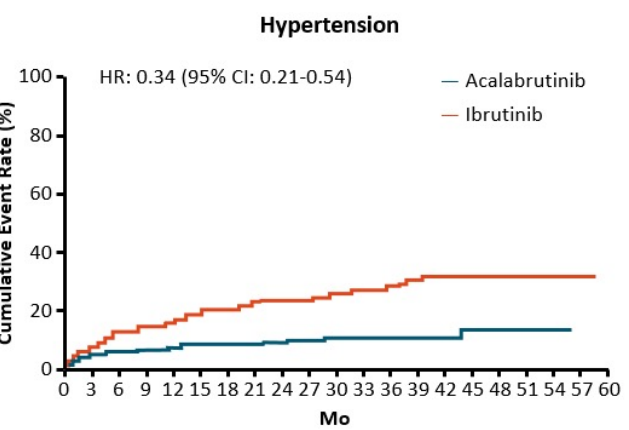
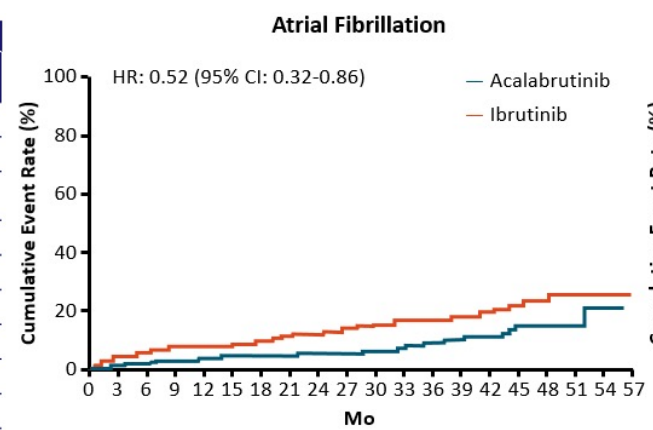
Until PD or unacceptable AE



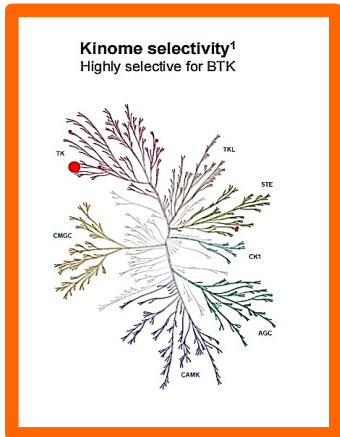
Median follow-up: 41 months

AEs of special interest

Events, n (%)	Any grade		Grade ≥3	
	Acalabrutinib (n=266)	Ibrutinib (n=263)	Acalabrutinib (n=266)	Ibrutinib (n=263)
Cardiac events	64 (24.1)	79 (30.0)	23 (8.6)	25 (9.5)
Atrial fibrillation**	25 (9.4)	42 (16.0)	13 (4.9)	10 (3.8)
Ventricular arrhythmias ^b	0	3 (1.1)	0	1 (0.4)
Bleeding events*	101 (38.0)	135 (51.3)	10 (3.8)	12 (4.6)
Major bleeding events ^c	12 (4.5)	14 (5.3)	10 (3.8)	12 (4.6)
Hypertension**	25 (9.4)	61 (23.2)	11 (4.1)	24 (9.1)
Infections ^e	208 (78.2)	214 (81.4)	82 (30.8)	79 (30.0)
ILD/pneumonitis*	7 (2.6)	17 (6.5)	1 (0.4)	2 (0.8)
SPMs excluding NMSC	24 (9.0)	20 (7.6)	16 (6.0)	14 (5.3)

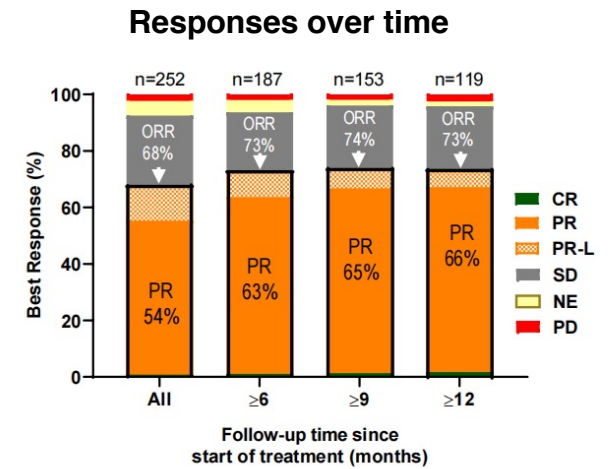


PIRTOBRUTINIB IN R/R PATIENTS WITH CLL PREVIOUSLY TREATED WITH BTKI



Characteristics	N = 261
Median age, years (range)	69 (36-88)
Female, n (%)	84 (32)
Male, n (%)	177 (68)
ECOG PS ^a , n (%)	
0	138 (53)
1	104 (40)
2	19 (7)
Median number of prior lines of systemic therapy (range)	3 (1-11)
Prior therapy, n (%)	
BTK inhibitor	261 (100)
Anti-CD20 antibody	230 (88)
Chemotherapy	207 (79)
BCL2 inhibitor	108 (41)
PI3K inhibitor	51 (20)
CAR-T	15 (6)
Stem cell transplant	6 (2)
Allogeneic stem cell transplant	5 (2)
Autologous stem cell transplant	1 (<1)
Reason discontinued prior BTKI, n (%)	
Progressive disease	196 (75)
Toxicity/Other	65 (25)

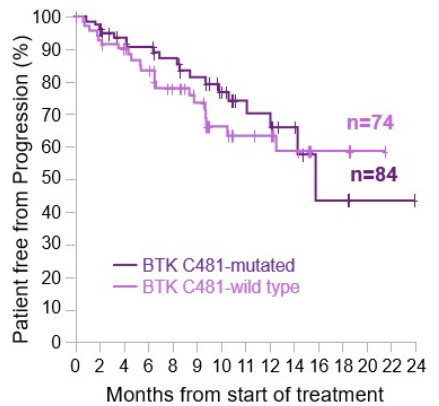
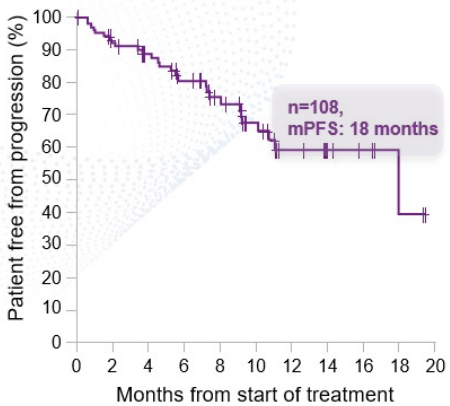
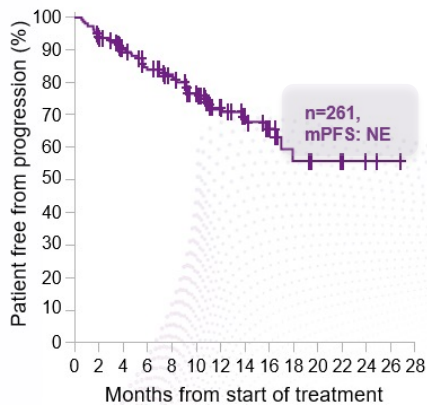
Baseline Molecular Characteristics ^a	
Mutation status, n (%)	
BTK C481-mutant	89 (43)
BTK C481-wildtype	118 (57)
PLCG2-mutant	33 (16)
High Risk Molecular Features, n (%)	
17p deletion	51 (28)
TP53 mutation	64 (37)
17p deletion or TP53 mutation	77 (36)
Both 17p deletion and TP53 mutation	38 (27)
IGHV unmutated	168 (84)
11q deletion	45 (25)



PFS in BTKi pre-treated patients
(median prior lines of therapy: 3)

PFS in BTKi and BCL-2i pre-treated patients
(median prior lines of therapy: 5)

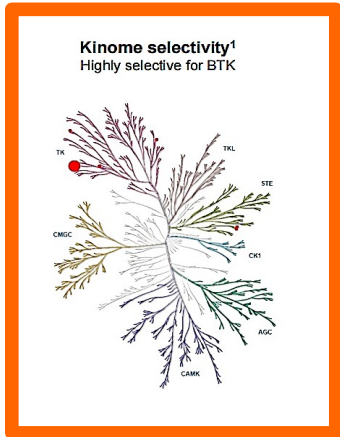
PFS by BTK C481 mutation status* in patients with PD on a prior BTKi



Safety Profile

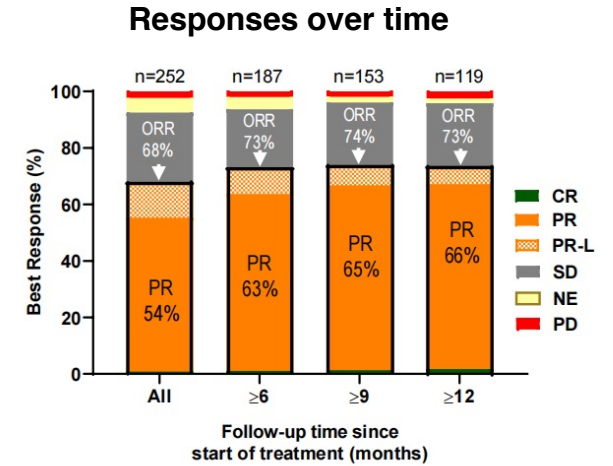
Adverse Event	Treatment-emergent AEs, (≥15%), %				
	Grade 1	Grade 2	Grade 3	Grade 4	Any Grade
Fatigue	13%	8%	1%	-	23%
Diarrhea	15%	4%	<1%	<1%	19%
Neutropenia ^a	1%	2%	8%	6%	18%
Contusion	15%	2%	-	-	17%
AEs of special interest^b					
Bruising ^c	20%	2%	-	-	22%
Rash ^d	9%	2%	<1%	-	11%
Arthralgia	8%	3%	<1%	-	11%
Hemorrhage ^e	5%	2%	1% ^g	-	8%
Hypertension	1%	4%	2%	-	7%
Atrial fibrillation/flutter ^f	-	1%	<1%	<1%	2% ^h

PIRTOBRUTINIB IN R/R PATIENTS WITH CLL PREVIOUSLY TREATED WITH BTKI



Characteristics	N = 261
Median age, years (range)	69 (36-88)
Female, n (%)	84 (32)
Male, n (%)	177 (68)
ECOG PS ^a , n (%)	
0	138 (53)
1	104 (40)
2	19 (7)
Median number of prior lines of systemic therapy (range)	3 (1-11)
Prior therapy, n (%)	
BTK inhibitor	261 (100)
Anti-CD20 antibody	230 (88)
Chemotherapy	207 (79)
BCL2 inhibitor	108 (41)
PI3K inhibitor	51 (20)
CAR-T	15 (6)
Stem cell transplant	6 (2)
Allogeneic stem cell transplant	5 (2)
Autologous stem cell transplant	1 (<1)
Reason discontinued prior BTKi, n (%)	
Progressive disease	196 (75)
Toxicity/Other	65 (25)

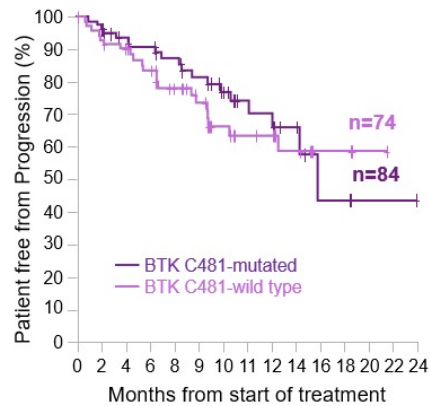
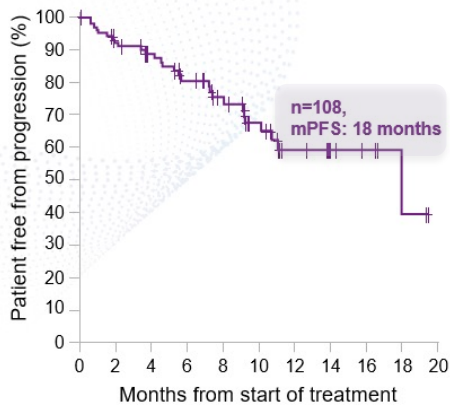
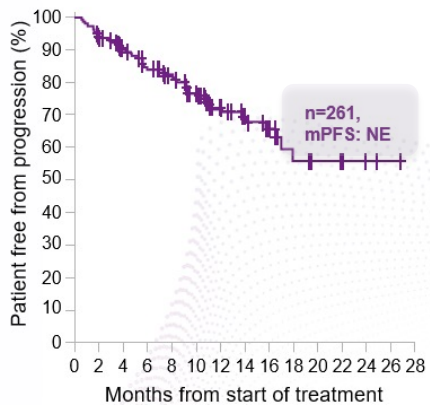
Baseline Molecular Characteristics ^a	
Mutation status, n (%)	
BTK C481-mutant	89 (43)
BTK C481-wildtype	118 (57)
PLCG2-mutant	33 (16)
High Risk Molecular Features, n (%)	
17p deletion	51 (28)
TP53 mutation	64 (37)
17p deletion or TP53 mutation	77 (36)
Both 17p deletion and TP53 mutation	38 (27)
IGHV unmutated	168 (84)
11q deletion	45 (25)



PFS in BTKi pre-treated patients
(median prior lines of therapy: 3)

PFS in BTKi and BCL-2i pre-treated patients
(median prior lines of therapy: 5)

PFS by BTK C481 mutation status* in patients with PD on a prior BTKi



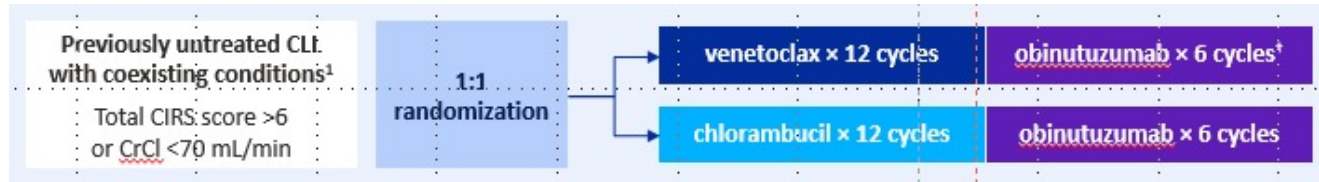
Safety Profile

Adverse Event	Treatment-emergent AEs (≥15%), %				
	Grade 1	Grade 2	Grade 3	Grade 4	Any Grade
Fatigue	13%	8%	1%	-	23%
Diarrhea	15%	4%	<1%	<1%	19%
Neutropenia ^a	1%	2%	8%	6%	18%
Contusion	15%	2%	-	-	17%
AEs of special interest^b					
Bruising ^c	20%	2%	-	-	22%
Rash ^d	9%	2%	<1%	-	11%
Arthralgia	8%	3%	<1%	-	11%
Hemorrhage ^e	5%	2%	1% ^a	-	8%
Hypertension	1%	4%	2%	-	7%
Atrial fibrillation/flutter ^f	-	1%	<1%	<1%	2% ^b

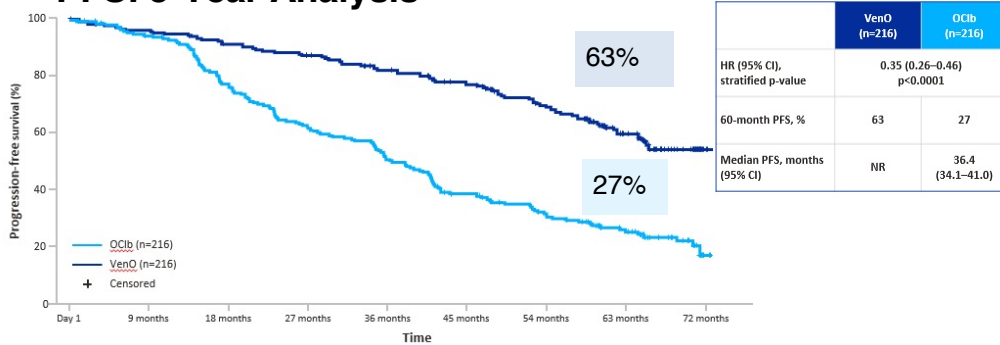


IN HEMATOLOGY
Sindromi linfoproliferative ed oltre...

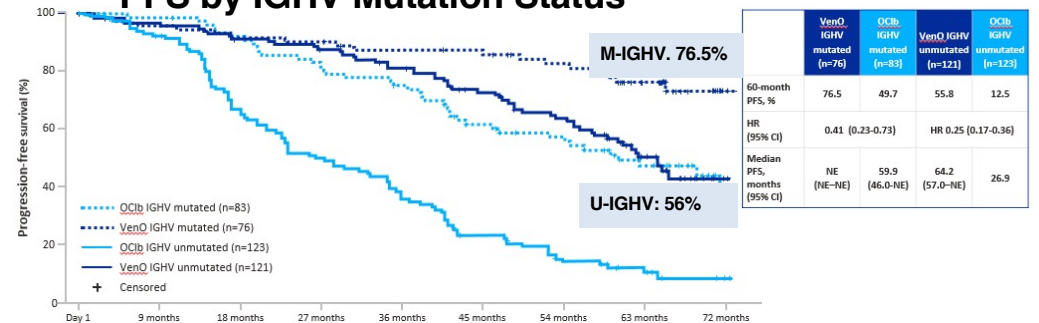
VENETOCLAX+OBINUTUZUMAB IN TN PATIENTS WITH CLL (CLL14 TRIAL): 5-YEAR FU



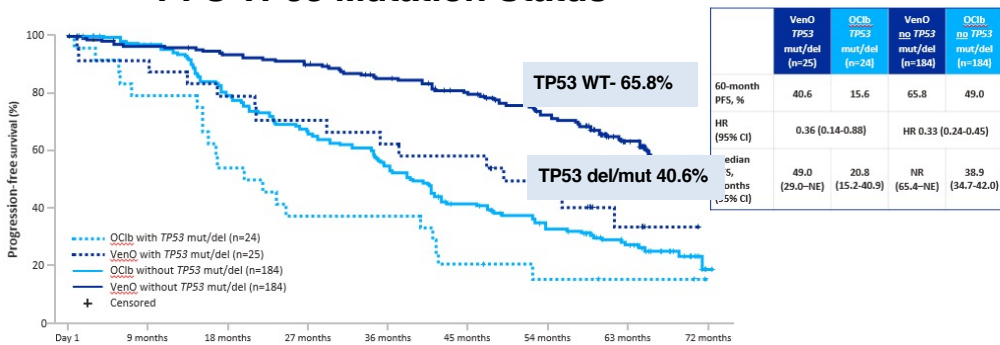
PFS: 5-Year Analysis



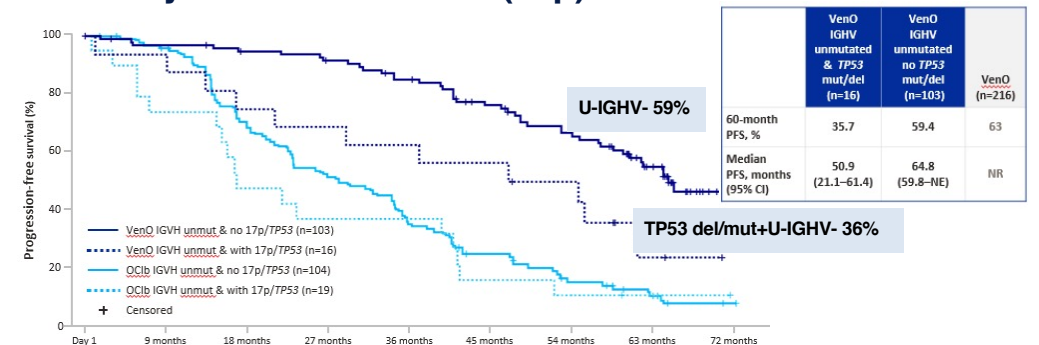
PFS by IGHV Mutation Status



PFS TP53 Mutation Status



PFS by IGHV Unmut ± del(17p)/TP53 mut.





IN HEMATOLOGY
Sindromi linfoproliferative ed oltre...

THE CLL13-GAIA TRIAL IN TN PATIENTS WITH CLL

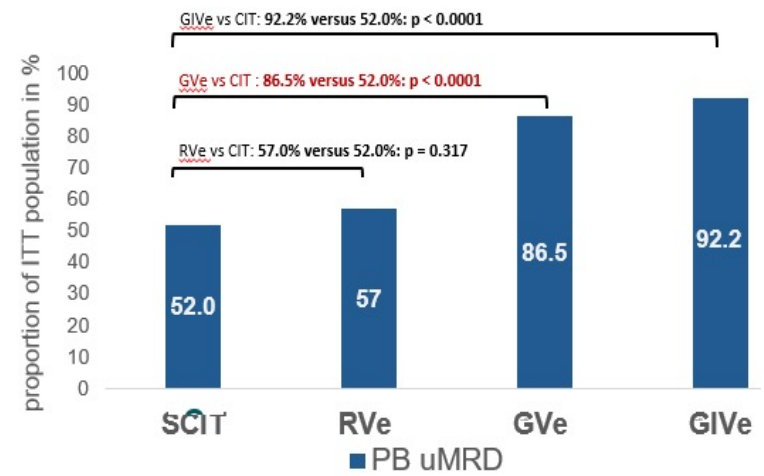
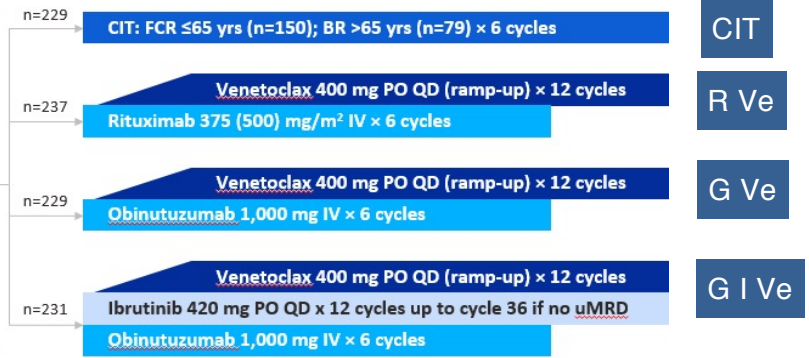
Fit patients with CLL
N=926

Select inclusion criteria:
CIRS ≤6 & normal CrCl*
Excludes:
del(17p)/TP53^{mut}

Stratification factors:

- Age
- Binet stage
- Country

1:1:1:1 randomization



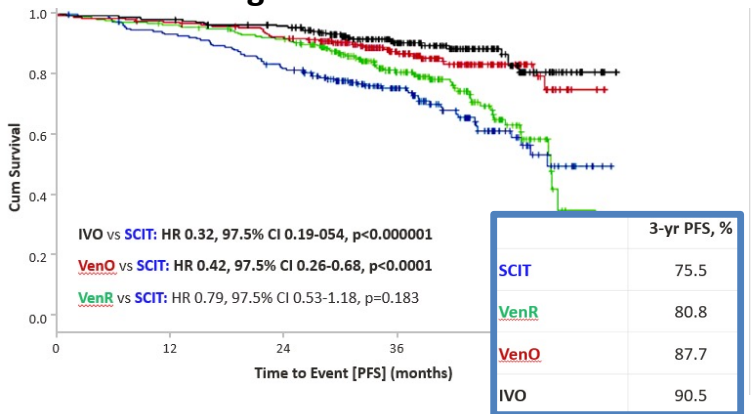
Co-Primary Endpoints

- uMRD (<10⁻⁴) in PB at month 15 (VenO vs CIT)
- PFS (IVO vs CIT)

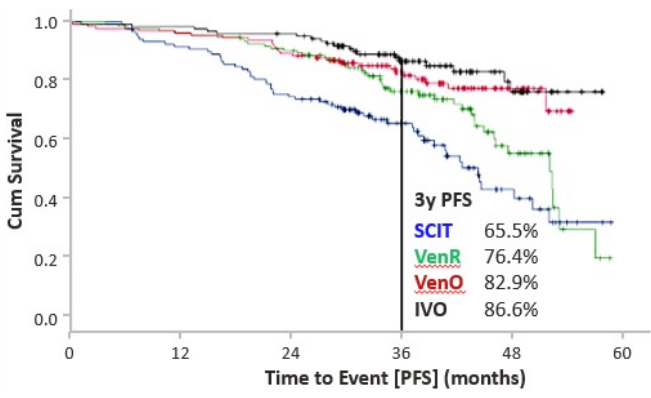
Key Secondary Endpoints

- MRD in PB at month 15 (all other comparisons)
- MRD in BM at final restaging
- PFS (all other comparisons)
- ORR
- CR/CRi rate
- OS

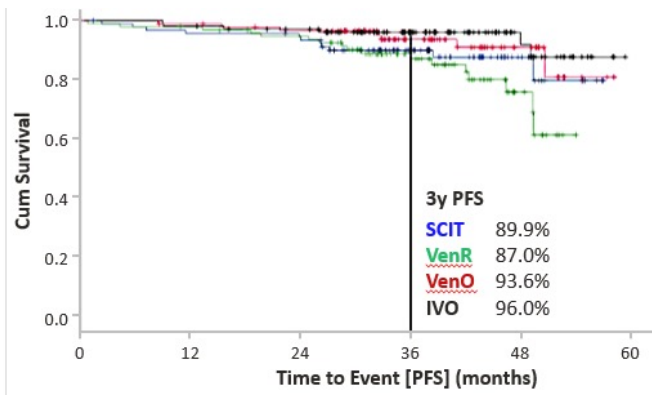
PFS according to treatment arm



Unmutated IGHV

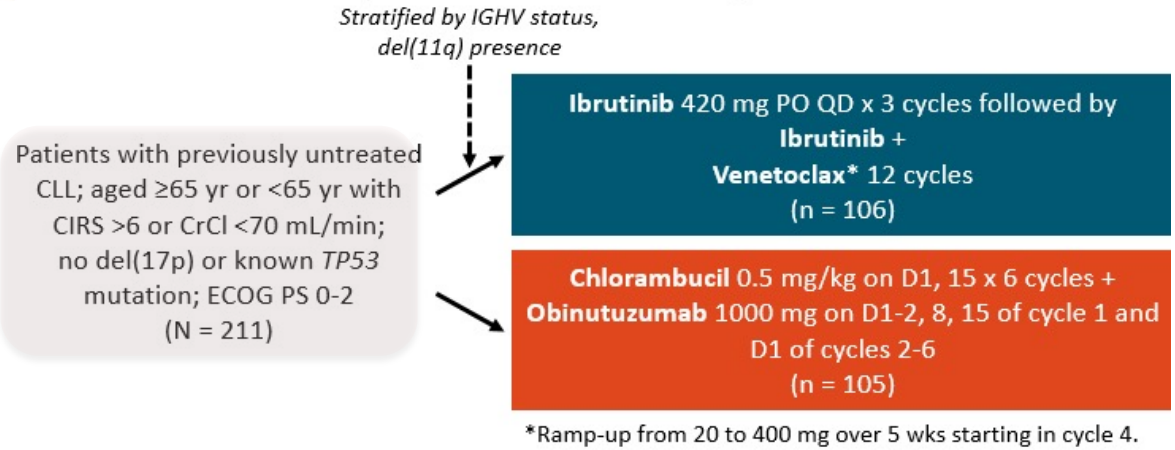


Mutated IGHV



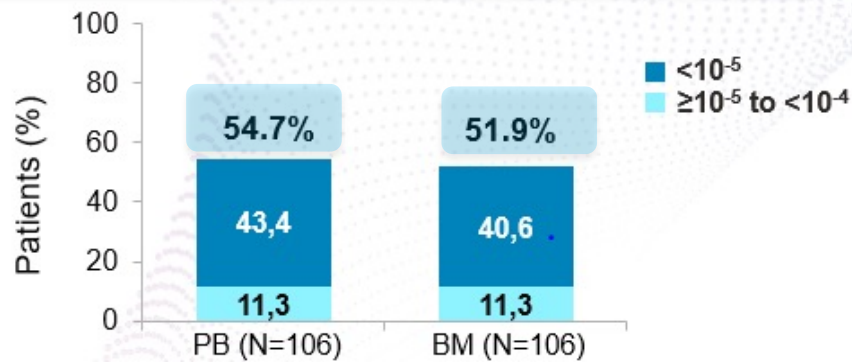
— SCIT — VenR — VenO — IVO

GLOW TRIAL: 1L Ibrutinib+Venetoclax vs Chlorambucil+Obinutuzumab

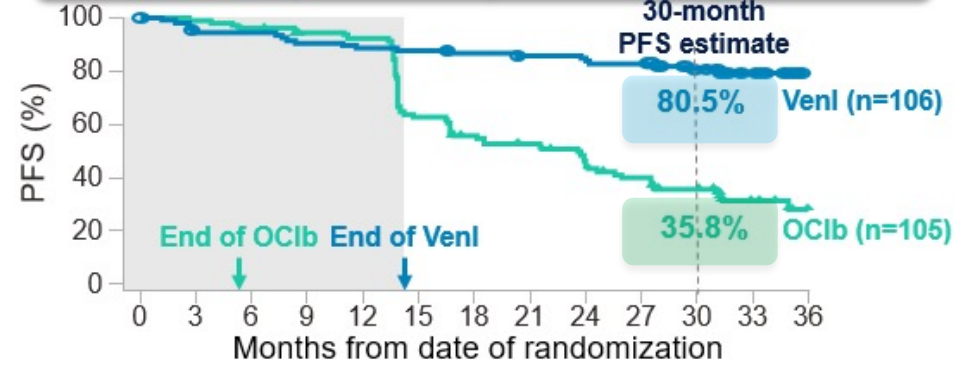


Characteristic, %	Ibr + Ven	Clb + O	RR
Age, ≥65 yr	52.2	17.0	3.07
Rai stage III-IV	50.9	15.1	3.37
IGHV <u>unmutated</u>	58.2	14.8	3.93
del11q	60.0	11.1	5.40

GLOW: uMRD response[†] with Venl²
(median follow-up: 34.1 months)



GLOW: PFS with Venl vs OC1b (N=211)³
(median follow-up: 34.1 months)

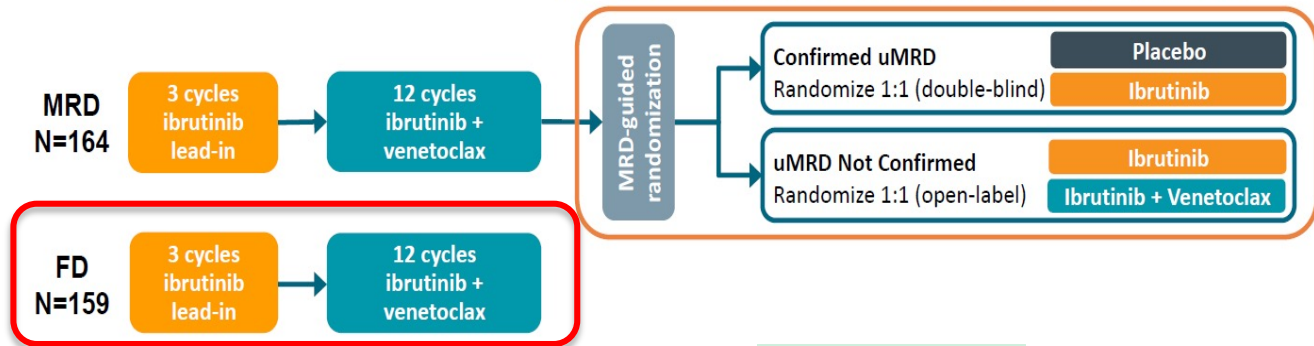


Deep responses observed in both BM and PB in patients with uIGHV

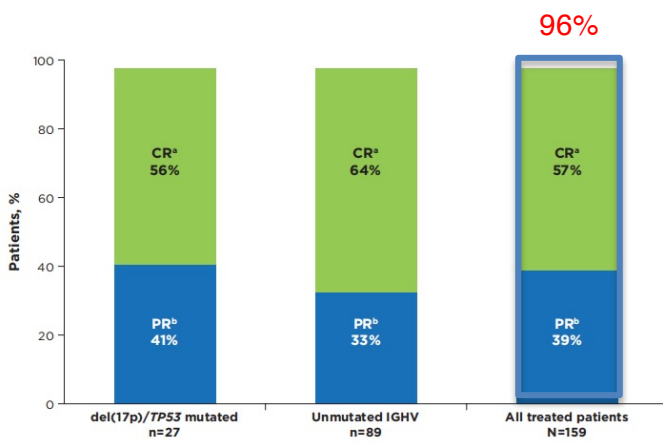
HOT NEWS

IN HEMATOLOGY
Sindromi linfoproliferative ed oltre...

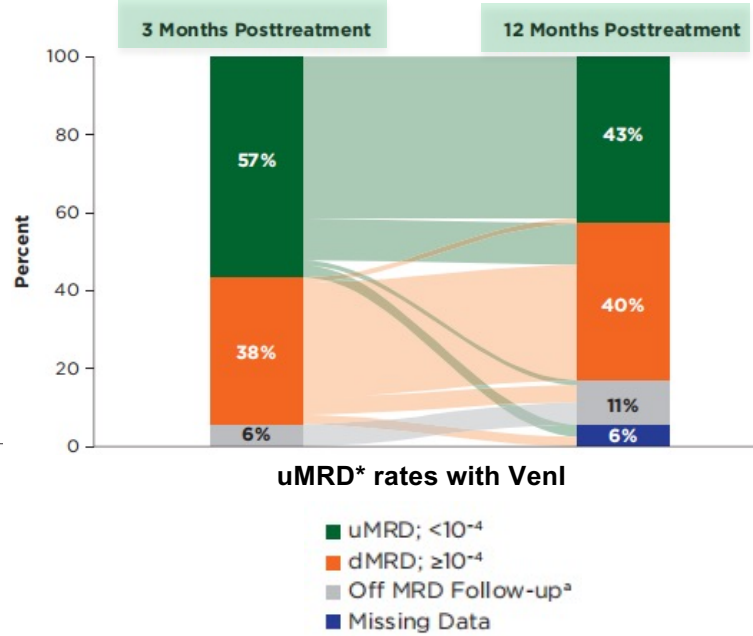
CAPTIVATE TRIAL: 1L ibrutinib plus venetoclax- FD cohort, 3-year FU



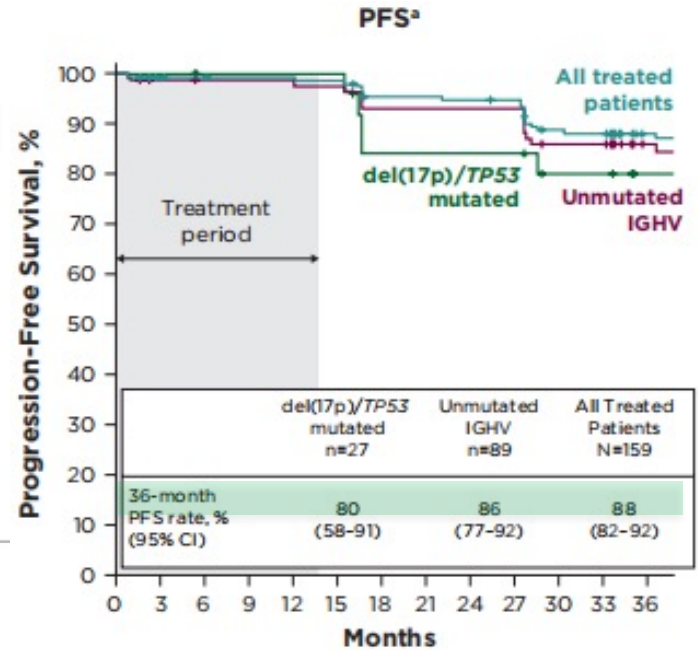
Characteristic	All Treated Patients (n = 159)
Median age, yr (range)	60 (33-71)
High-risk features, n (%)	
▪ Unmutated <i>IGHV</i>	89 (56)
▪ <i>del(17p)/TP53</i> mutation	27 (17)
▪ <i>del(17p)</i>	20 (13)
▪ <i>del(11q)*</i>	28 (18)
▪ Complex karyotype [†]	31 (19)



Response rates with Ven I



uMRD* rates with VenI



Ghia. et al., ASCO 2021; Moreno et al., EHA 2022

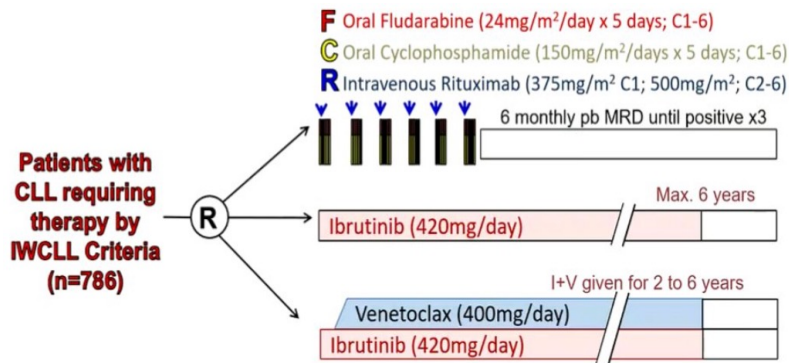
FLAIR randomized trial **ibrutinib vs. ibrutinib+venetoclax**

- Pts <75 yrs or with <20% 17p
- **Duration of therapy defined by MRD** with treatment
- for up to 6 years, the earliest therapy could stop was 2 years

MRD assessed centrally by **FC in PB and BM**

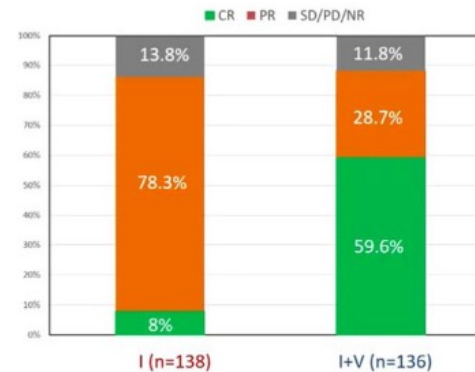
Interim analysis in the first 274 pts

(I [n=138] and I+V [n=136]) reaching **2 yrs post-randomisation**.



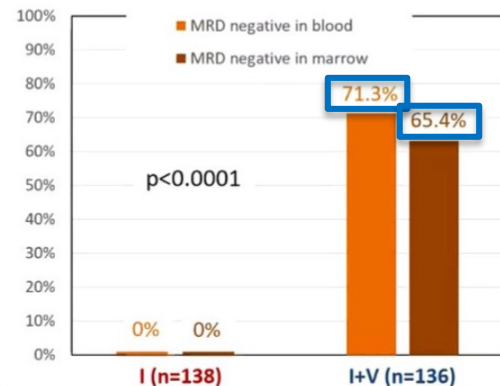
In ibrutinib and ibrutinib+venetoclax arms: PB MRD every 6 months. If PB MRD negative repeat after 3 months and then PB and BM at 6 months – if all MRD negative then first PB MRD negative result is time to MRD negativity.
Duration of therapy – double time to MRD negativity (minimum 2 years; maximum 6 years)

iwCLL Response at 9 months



	I (n=138)	I+V (n=136)
ORR	119 (86.2%)	120 (88.2%)
CR	11 (8.0%)	81 (59.6%)

Primary endpoint: uMRD at 2 years



N (%), Exact 95% CI	I (n=138)	I+V (n=136)
MRD Negative in the marrow	0 [0%, 2.64%]	89 (65.4%) [56.81%, 73.38%]
MRD Negative in the blood	0 [0%, 2.64%]	97 (71.3%) [62.95%, 78.75%]

- MRD assessed by 8-colour flow cytometry
- MRD negative defined by IWCLL criteria of <1 CLL cell in 10,000 leucocytes

CLL: HOT NEWS- SUMMARY



Long term responses with BTKi



Second-generation and investigational BTKis offer higher selectivity with the improved safety profile and outcomes



Pirtobrutinib improved outcomes and efficacy in patients with BTKi-resistant CLL



Venetoclax and BTKi combinations produce deep responses further improves PFS outcomes

HOT
NEWS

IN HEMATOLOGY
Sindromi linfoproliferative
ed oltre...

Roma, 17 Giugno 2022
Starhotels Metropole

Grazie