

# Regimi di trattamento chemotherapy-free

AGGIORNAMENTI  
IN EMATOLOGIA

25-26 NOVEMBRE 2016  
TREVISO  
Sala Convegni  
Ospedale Ca' Foncello

## Nella Leucemia linfatica cronica



università di ferrara  
DA SEICENTO ANNI GUARDIAMO AVANTI.

Prof. Antonio Cuneo, MD, PhD

# Chemo-free regimens

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First line

Relapsed/refractory CLL

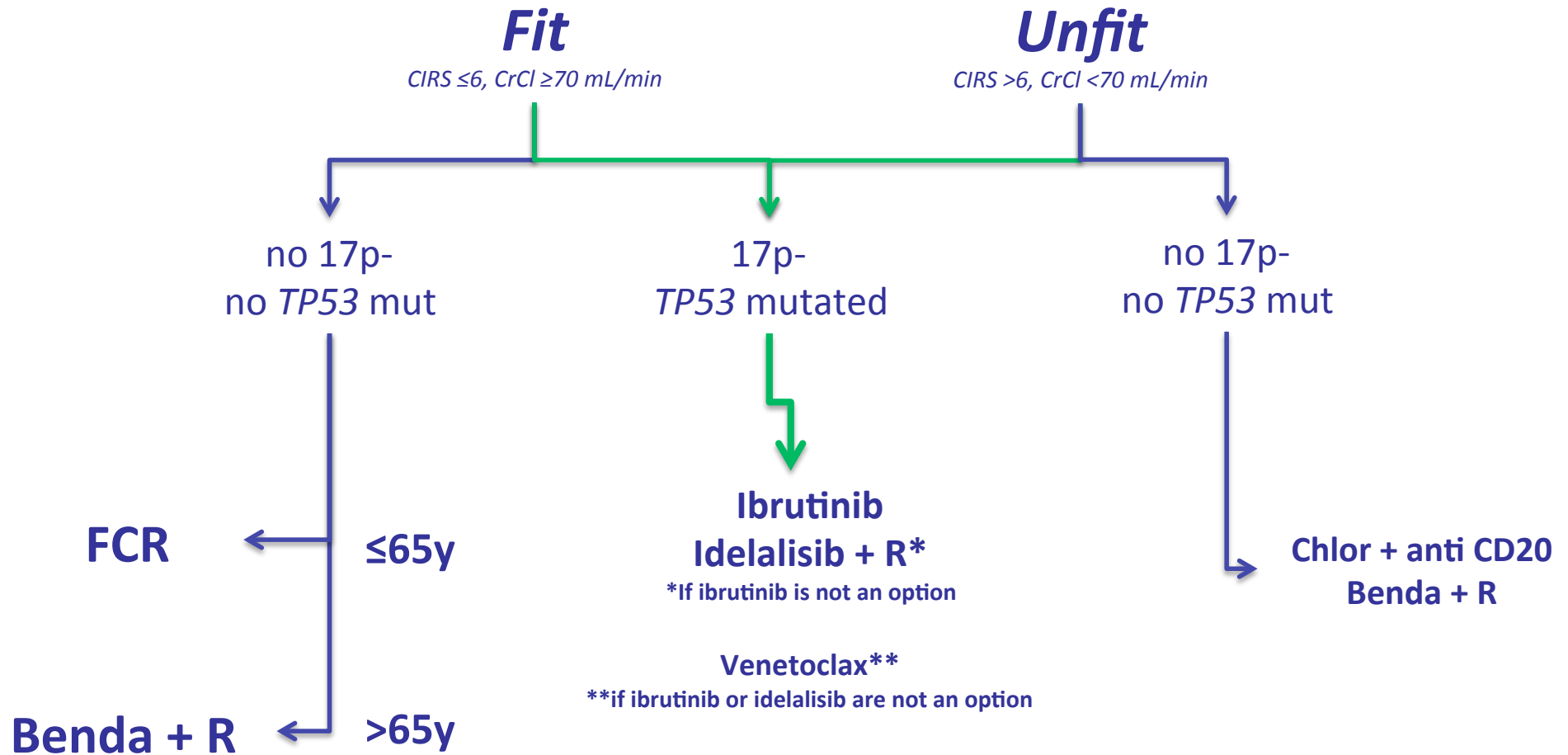
Failure of a kinase targeted agent



Prof. Antonio Cuneo, MD, PhD

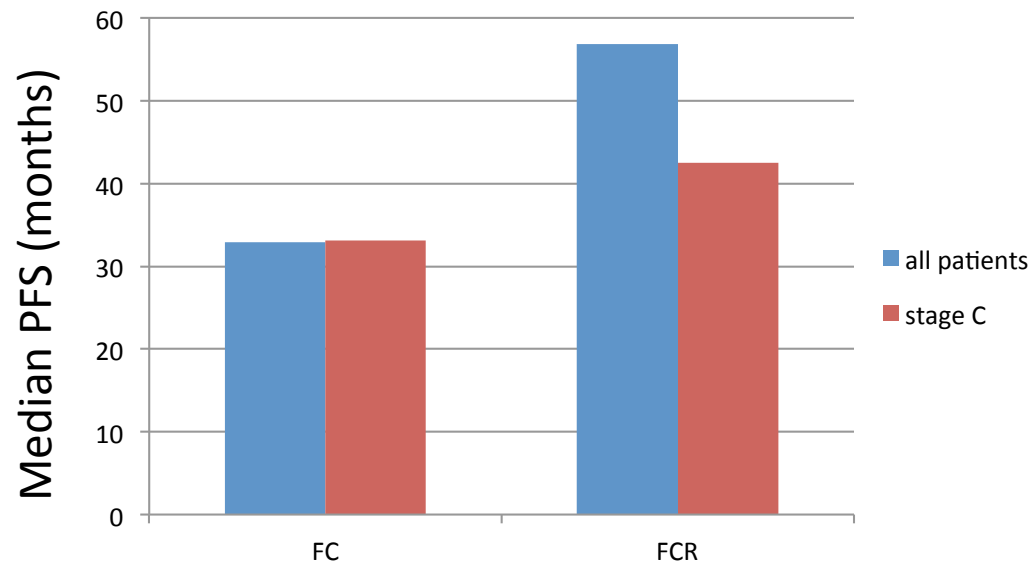


# Options for first line treatment in CLL



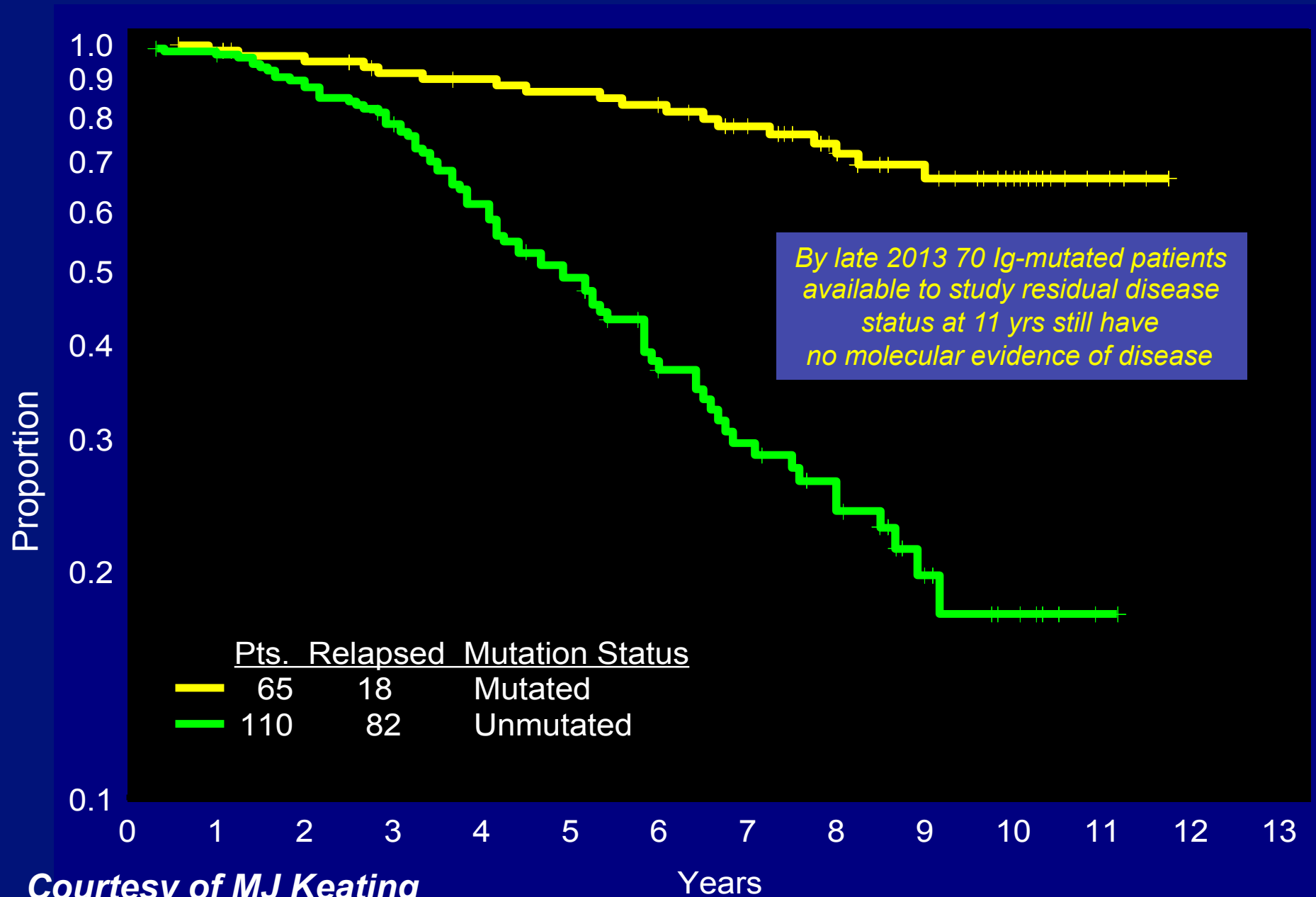
# FCR is the standard treatment in young and fit CLL

Median PFS with FCR 56.8 months vs 32.9 months with FC  
HR, 0.59; 95% CI, 0.50-0.69;(p<0.001)



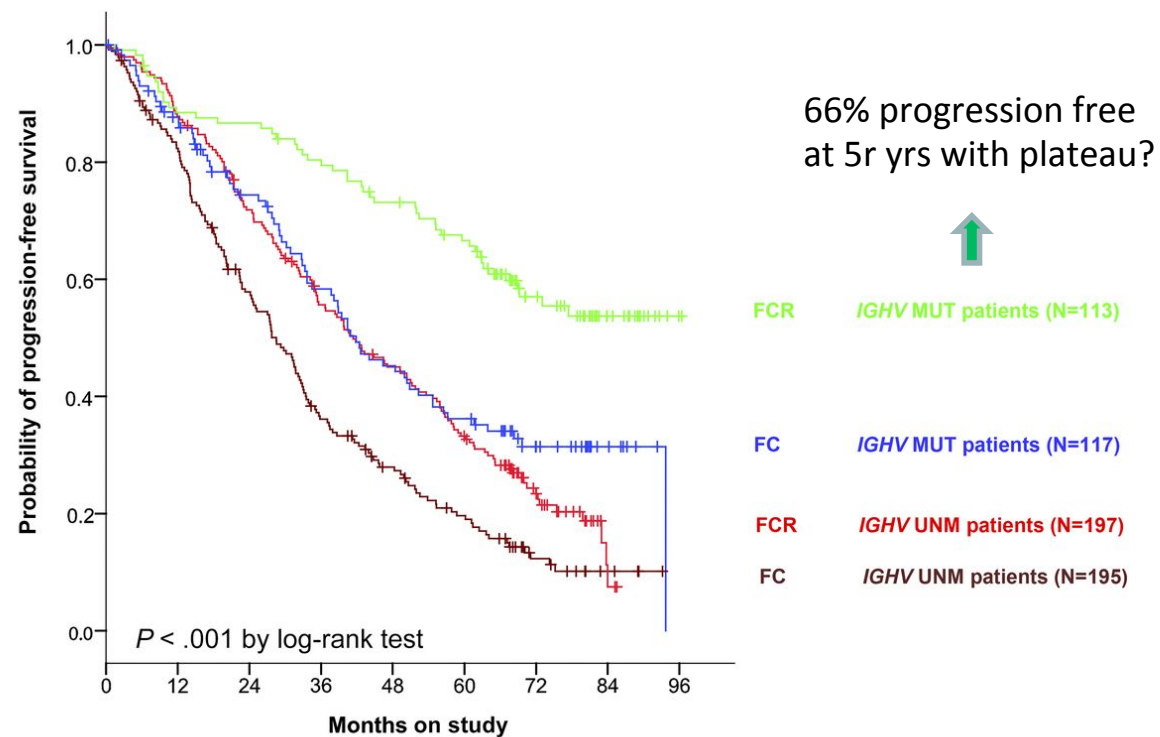
median observation of 5.9 years

# Importance of prognostic factors on the durability of response FCR Time to Progression by Mutation Status FCR300 (logarithmic scale)



Courtesy of MJ Keating

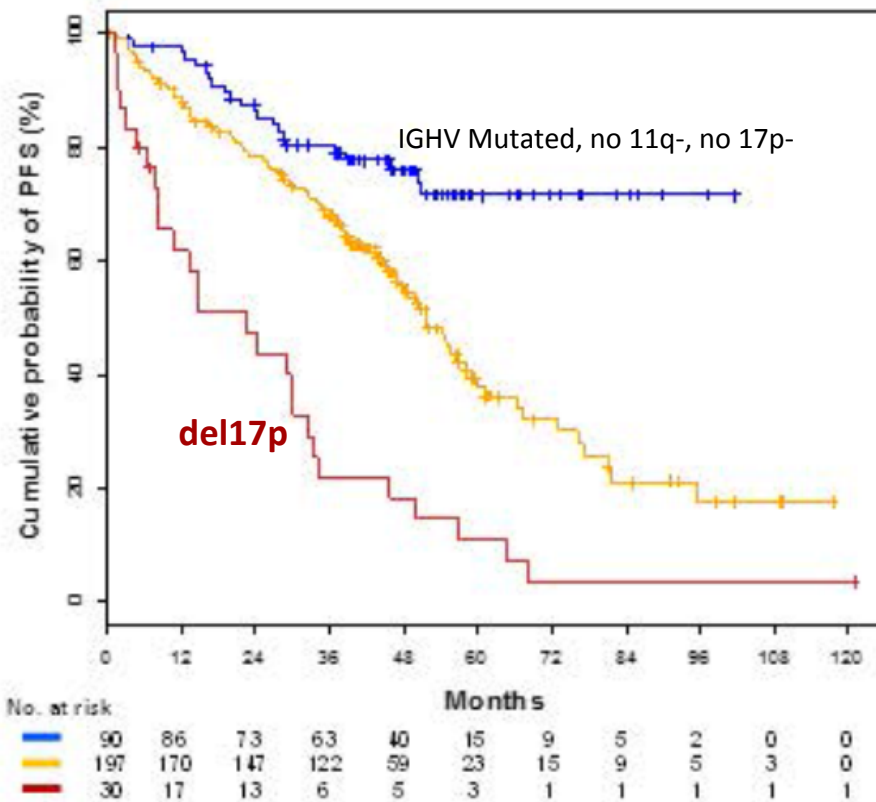
# Long term PFS with FCR (GCLLSG – CLL8)



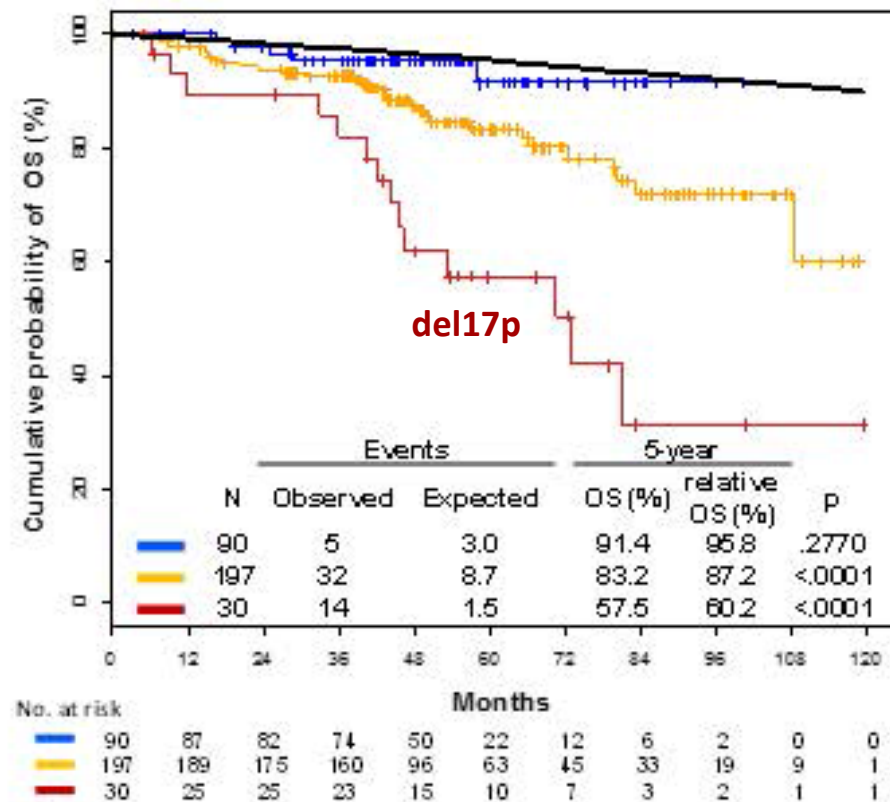
Number at risk	0	12	24	36	48	60	72	84	96
FCR IGHV MUT	113	99	97	89	80	71	37	15	1
FC IGHV MUT	117	96	75	58	45	36	21	7	0
FCR IGHV UNM	197	173	140	106	85	61	25	2	0
FC IGHV UNM	195	153	105	65	45	30	12	4	0

# MOLECULAR PREDICTION OF DURABLE REMISSION AFTER FIRST LINE FCR IN CLL TREATED IN THE EVERYDAY PARACTICE

## PFS



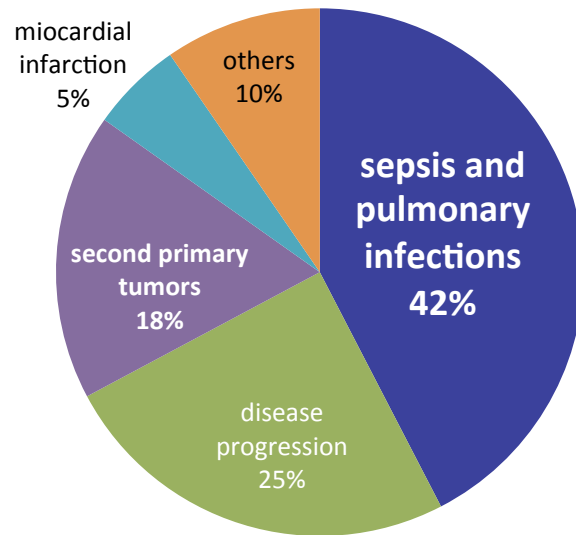
## OS



- Low-risk group (IGHV Mutated)
- Intermediate-risk group (IGHV un-mutated and/or 11q del)
- High-risk group (117p deletion)

# Causes of death after FCR in the CLL8 trial

FCR arm (n.125 events / 408 patients; 5,9 yrs median f.u.)



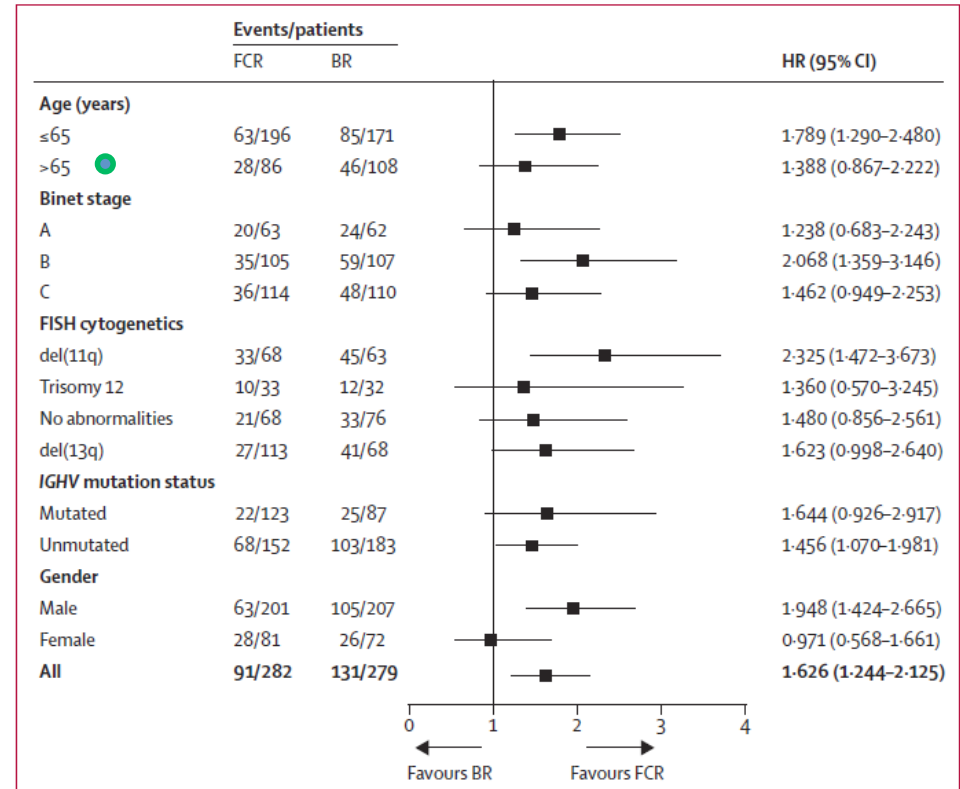
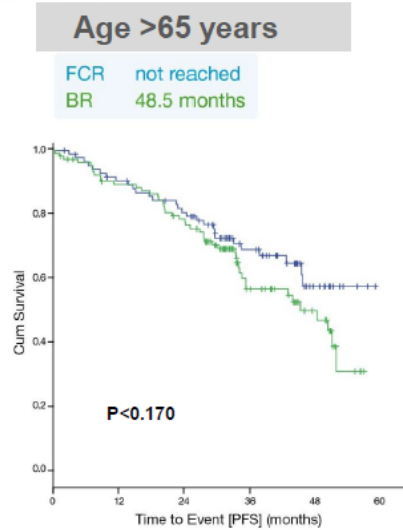
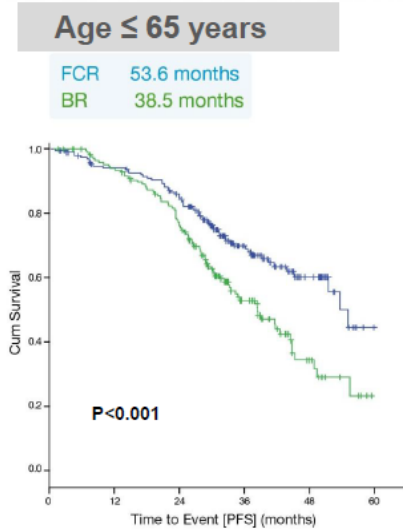
## Median time to onset (months) after last dose of study treatment

sepsis and pulmonary infections	46
second primary tumors	27



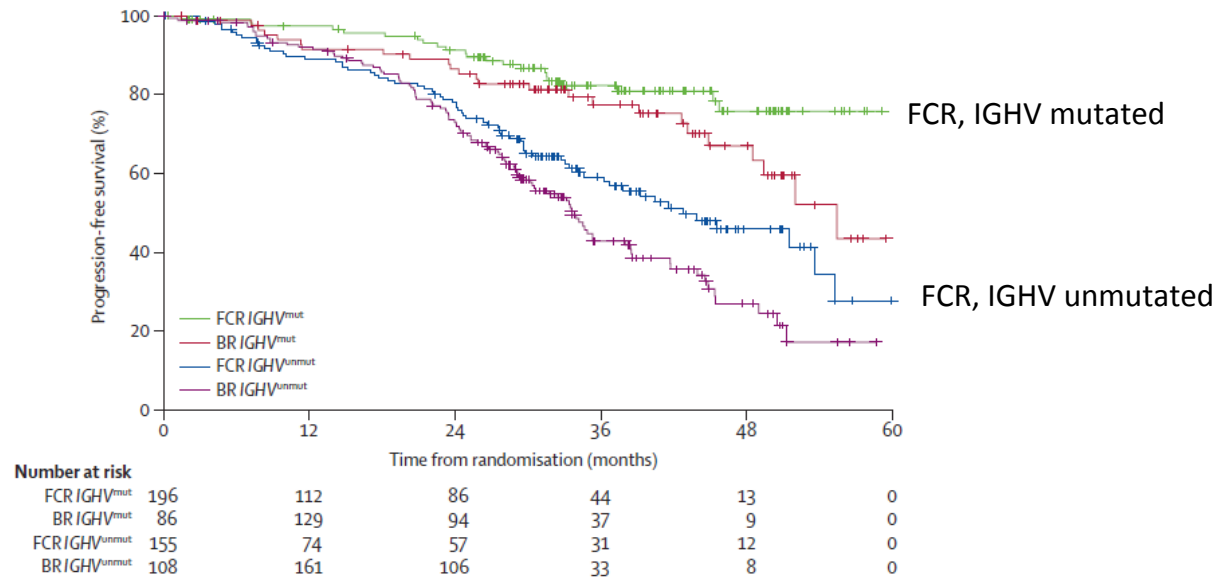
# FCR is more effective than Bendamustine and rituximab (CLL10)

- No PFS advantage in pts >65 y



# FCR is more effective than Bendamustine and rituximab (CLL10): PFS according to risk groups

- Shorter PFS in pts with IGHV unmutated or with 11q-

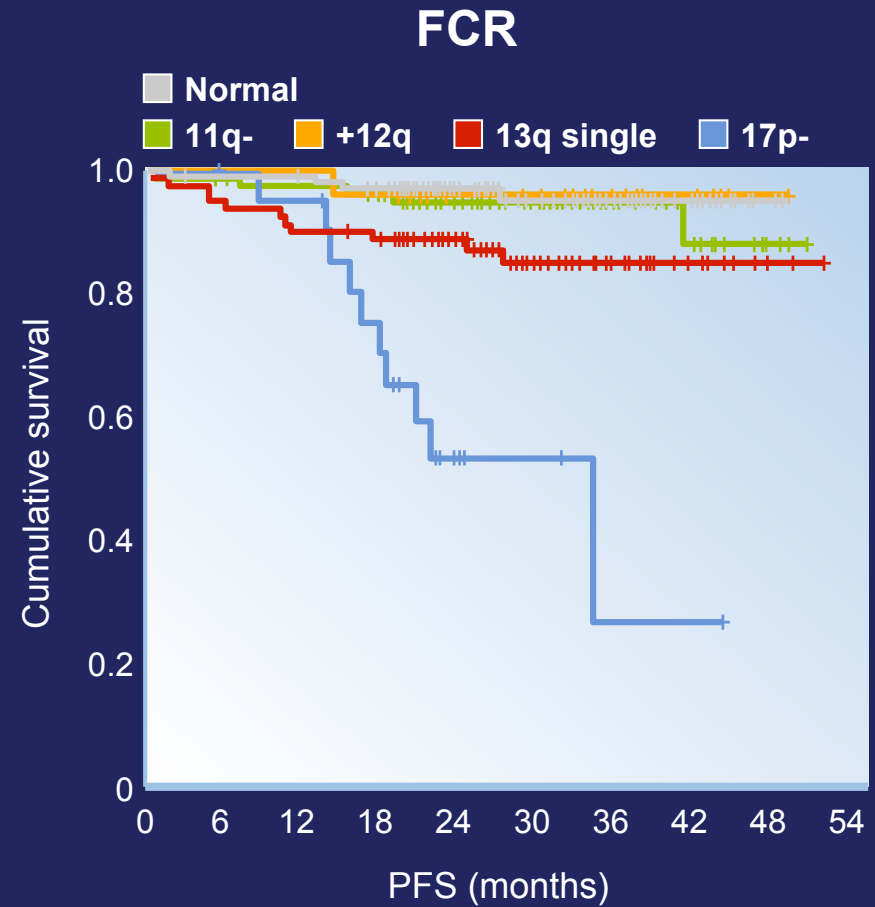
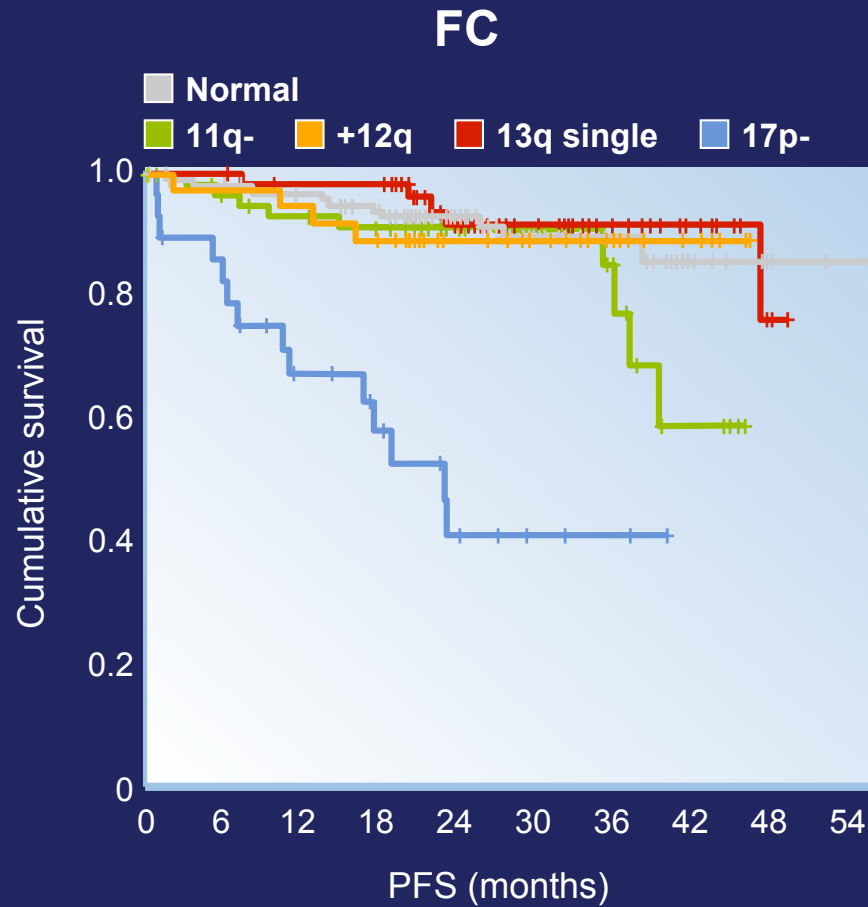


## Estimated Progression-free survival at three years: BR vs FCR and impact of genetics

	FCR n = 282	BR n = 279	Hazard ratio (95% CI)	p value
IGHV mutated (n=210)	● 82.4% (75.1-89.6)	● 77.5% (67.8-87.1)	1.644 (0.926 - 2.917)	0.089
IGHV unmutated (n=335)	● 59.1% (50.6-67.6)	● 42.8% (34.5-51.1)	1.456 (1.070 - 1.981)	0.017
Del (11q) (n=131)	56.8% (43.7-70.0)	➔ 14.2% (3.4-25.0)	2.325 (1.472 - 3.673)	0.000297




Addition of rituximab to fluda and CTX in CLL: a randomised, open-label, phase 3 trial  
M Hallek et al Lancet 2010; 376: 1164–74

## Poor outcome for 17p- patients



# Elderly CLL

## Efficacy of chlorambucil + Rituximab as first line treatment

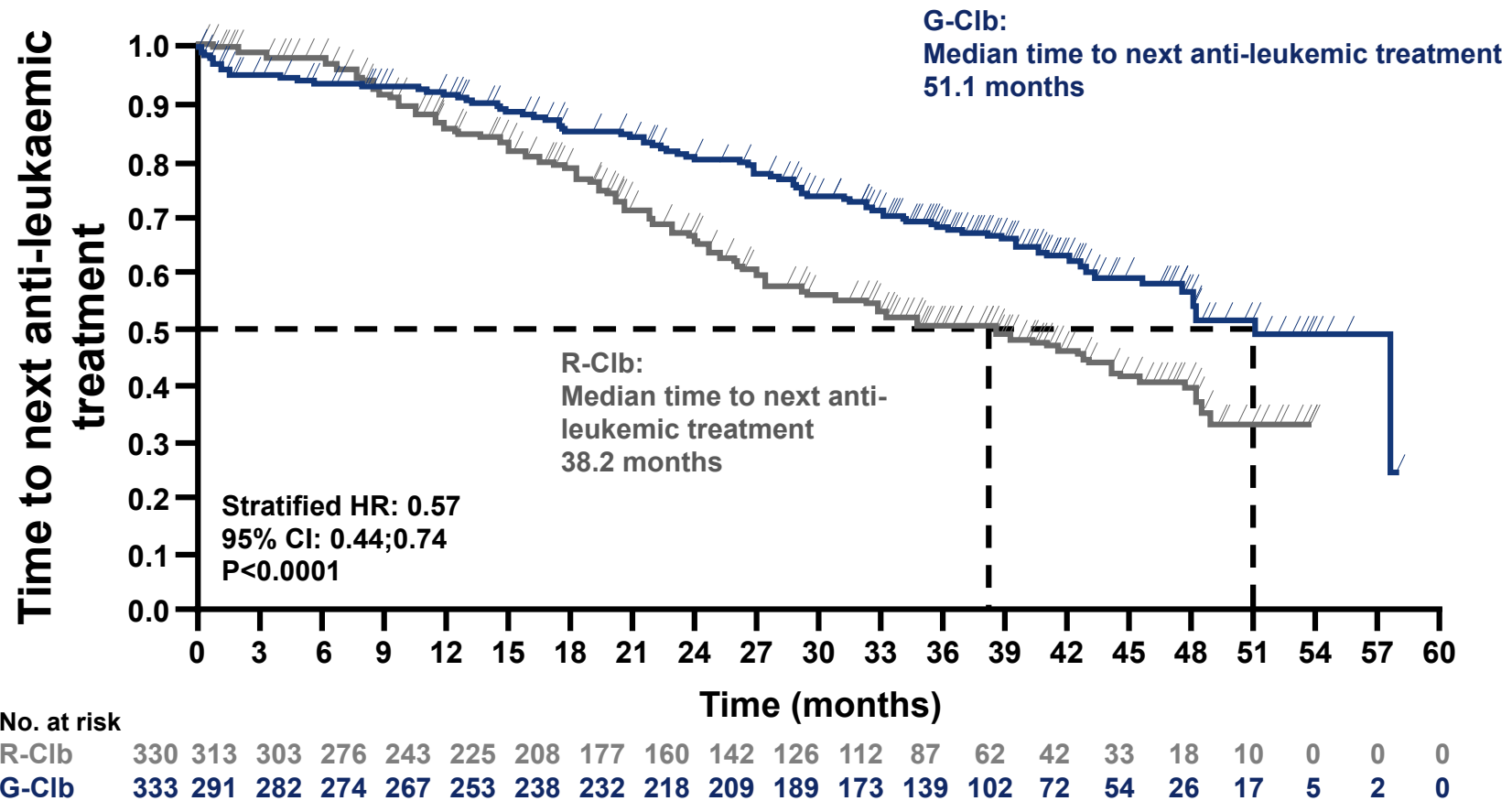
	No. of patients	Inclusion criteria	Median age	Total dose of Chlor	%CR/CRi	Median PFS (months)
	100	age 18 years deemed non eligible to fluda	70	420 mg/sqm	10	23,5
	85	>65 or 60-65 non eligible to fluda	70	448 mg/sqm	19	34,7
	233	CIRS >6 Cr Clear <70	73	6 mg / Kg	8,3	15,7

UK: Hillmen P, JCO, Mar 17. [Epub ahead of print] 2014

Italy: Foà R on behalf of the GIMEMA group: Am J Hematol. 2014;89: 480-6

CLL11: Goede V, on behalf of CCLLSG: N Engl J Med. 2014;370:1101-10

# CLL11 stage II: Time to next anti-leukaemic treatment



CI, confidence interval; Clb, chlorambucil; CLL, chronic lymphocytic leukaemia;  
G-Clb, Obinutuzumab + Clb; HR, hazard ratio; OS, overall survival; R-Clb, MabThera + Clb

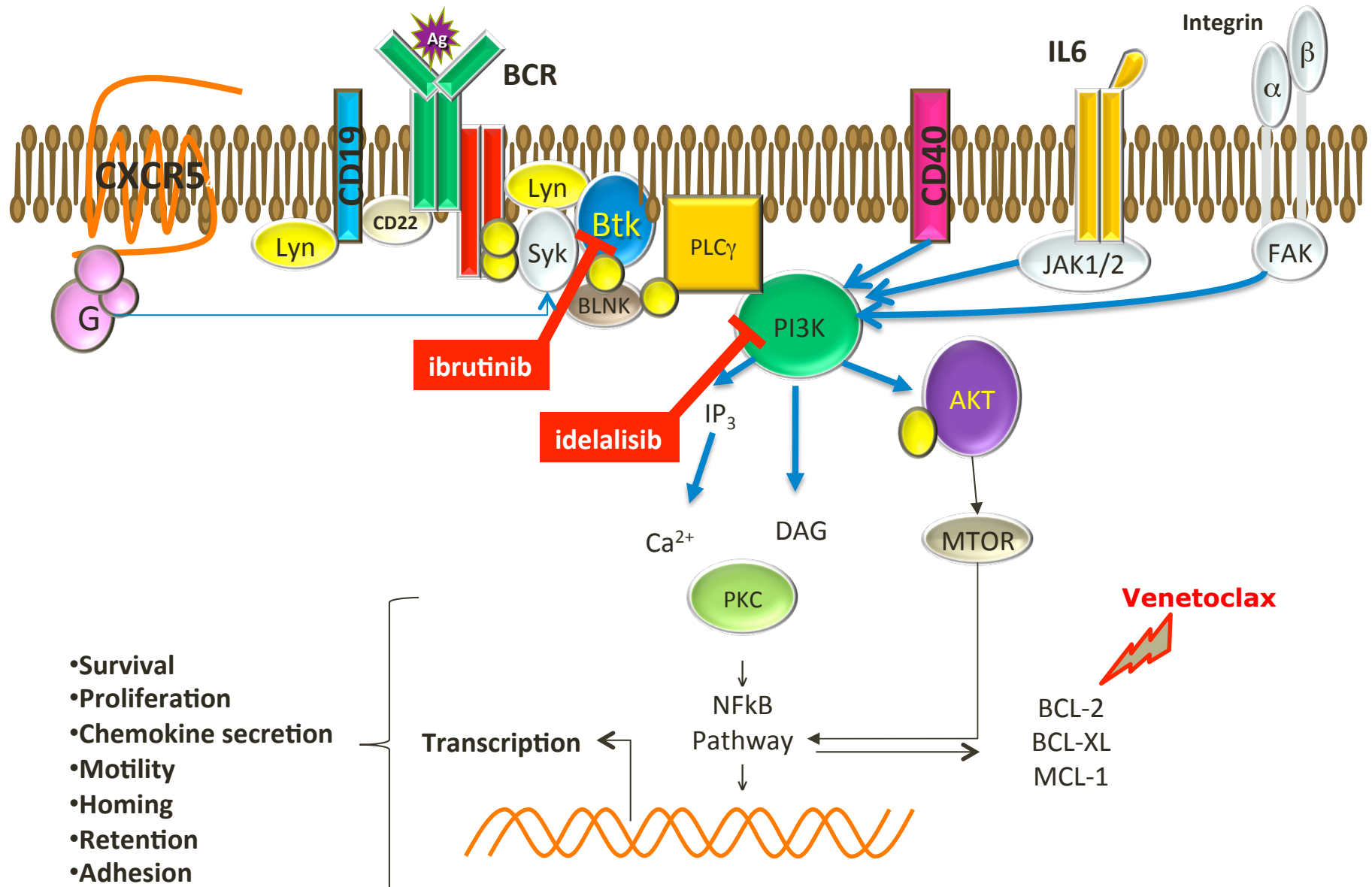
## Median PFS in high risk CLL treated by Chlor + anti CD20 (elderly/unfit)

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	11q-	No 11q-	Unmutated IGHV
Treatment	Chlor + R (UK trial) <sup>1</sup>		Chlor + R (GIMEMA trial) <sup>2</sup>
Median TTP or PFS (months)	12	24	22,8

1. Hillmen P et al, J Clin Oncol. 2014 Apr 20;32(12):1236-41
2. Foà R et al. Am J Hematol. 2014 May;89(5):480-6

# IBRUTINIB and IDELALISIB + R are approved in Europe for first line treatment of CLL with 17p-/TP53 mutations



# Ibrutinib for previously untreated and relapsed or refractory CLL with TP53 aberrations: a phase 2, single-arm trial.

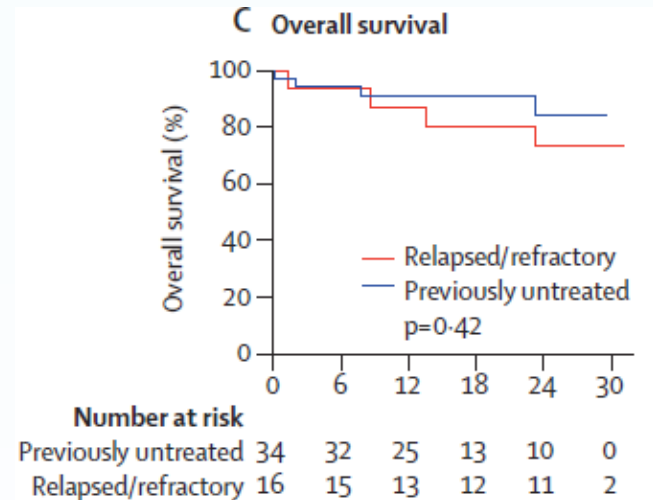
## Response to treatment

	All evaluable patients (n=48)	Previously untreated patients (n=33)	Relapsed or refractory patients (n=15)
<b>Response at 24 weeks</b>			
Complete response	..	..	..
Partial response	24 (50%)	18 (55%)	6 (40%)
Partial response with lymphocytosis	20 (42%)	14 (42%)	6 (40%)
Stable disease	3 (6%)	..	3 (20%)
Progressive disease	1 (2%)	1 (3%)	..
<b>Best response</b>			
Complete response	5 (10%)	4 (12%)	1 (7%)
Partial response	32 (67%)	23 (70%)	9 (60%)
Partial response with lymphocytosis	8 (17%)	5 (15%)	3 (20%)
Stable disease	2 (4%)	..	2 (13%)
Progressive disease	1 (2%)	1 (3%)	..



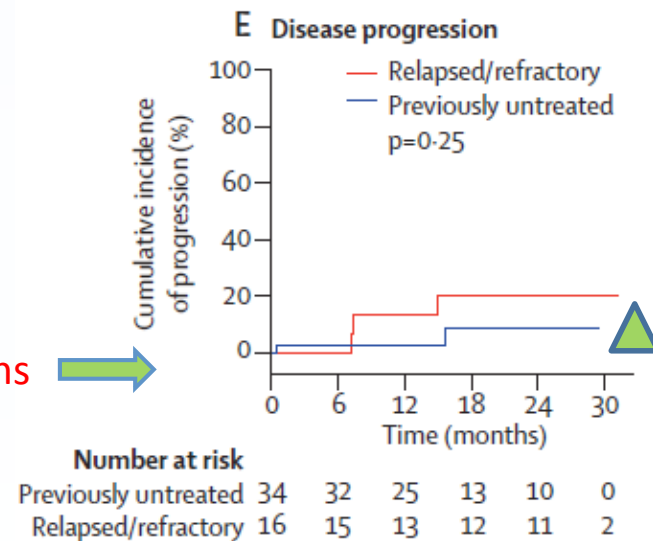
# Ibrutinib monotherapy in First-Line CLL: Impact of del(17p) on treatment response (Phase II)

Overall survival in subgroups by treatment history



Cumulative incidence of disease progression by treatment history

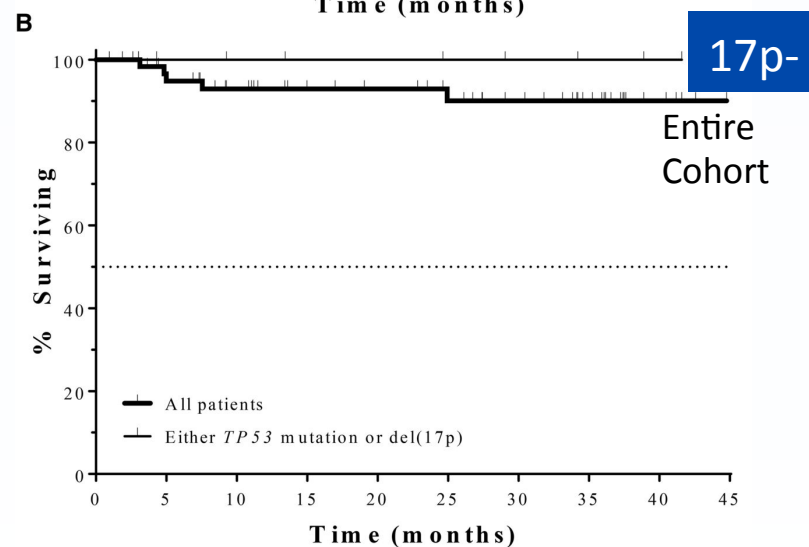
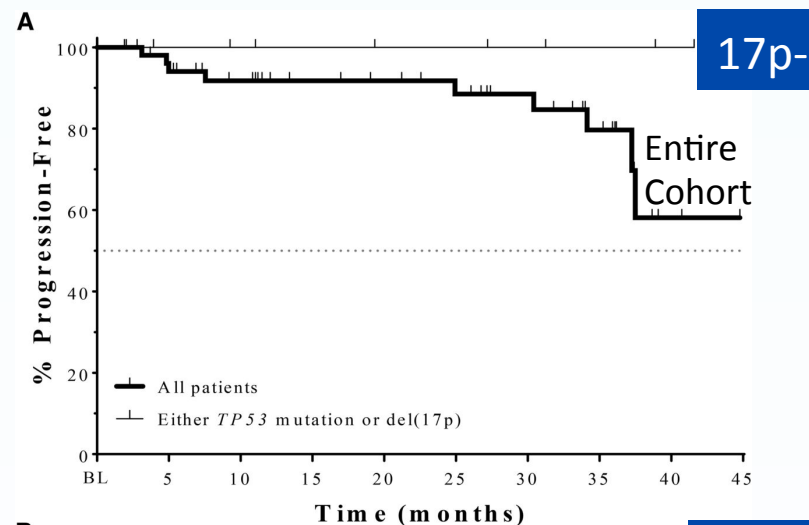
Median follow-up for the previously untreated cohort was 15 months



# Idelalisib + Rituximab first-line therapy in the elderly

Patients (%)	Idelalisib (n = 64) with 17p-: 9 patients
<b>Treatment response<sup>1</sup></b>	
ORR	97*
CR	19
PR	78
<b>Safety<sup>1</sup></b>	
Diarrhea/colitis (Grade 3)	42
Pneumonia (Grade 3)	19
AST/ALT (Grade 3)	23

- Median age: **71 years** (65–90 years)<sup>1</sup>
- Median time to response: 1.9 months<sup>1</sup>
- Median time on idelalisib: **22.9 months<sup>1</sup>**
- Completed 48 weeks of therapy: 67%, most discontinuations due to AEs<sup>1</sup>

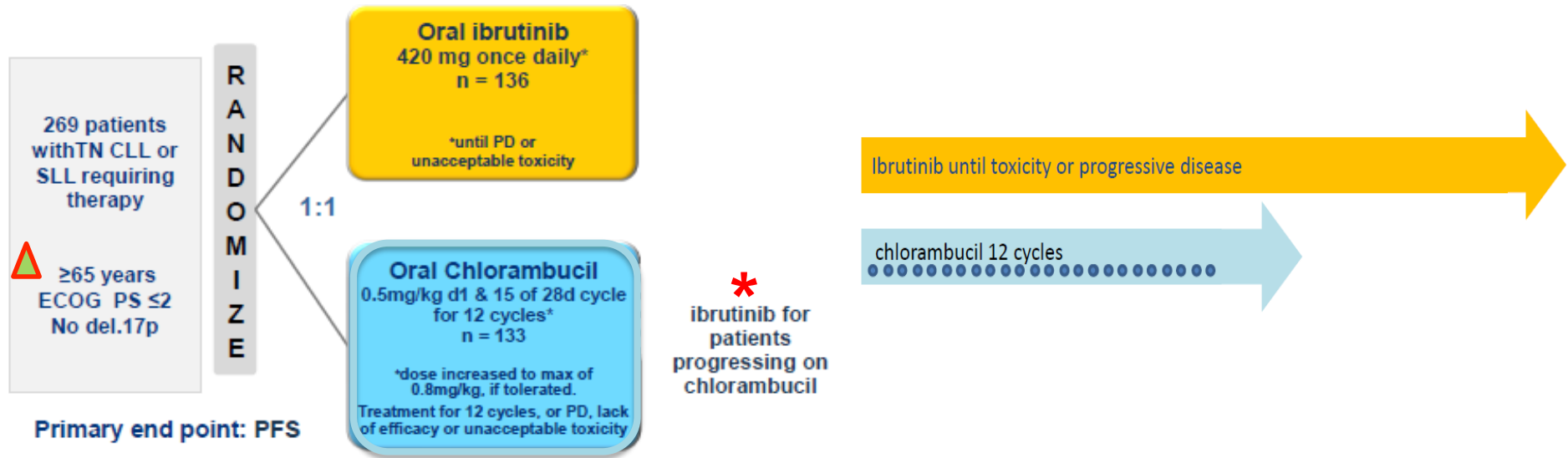


AE = adverse event; ALT = alanine transaminase; AST = aspartate transaminase.

\* 3% of patients unevaluable.<sup>1</sup>

1. O'Brien S, et al. ASH 2014. Abstract 1994; 2. Lamanna N, et al. iwCLL 2013; 3. Zydelig SmPC, October 2014.

# Phase III RESONATE-2: Frontline Ibrutinib vs Chlorambucil in Elderly Patients With CLL



Baseline Characteristics		
	Ibrutinib (N=136)	Chl (N=133)
Median age, years (range) ▲	73 (65-89)	72 (65-90)
≥70 years	96 (71%)	93 (70%)
ECOG PS 2	60 (44%)	54 (41%)
CIRS >6	42 (31%)	44 (33%)
CrCL <60ml/min	60 (44%)	67 (50%)
CLL	123 (90%)	126 (95%)
SLL	13 (10%)	7 (5%)
Rai stage III or IV	60 (44%)	62 (47%)
Bulky disease ≥5cm,	54 (40%)	40 (30%)
Del 11q22.3	29 (21%)	25 (19%)
Unmutated IGHV	58 (43%)	60 (45%)
Baseline cytopenias,	72 (53%)	73 (55%)

Patient Disposition		
	Ibrutinib (N=136)*	Chl (N=133)*
Medi. duration of follow-up, months ▲	18.4	
Med. duration of treatment (range), months	17.4 (0.7-24.7)	7.1 (0.5-11.7)
Patients completing max. 12 CHL cycles	-	53 (40%)
Patients still on treatment at study closure	118	-
Patients on study follow up at study closure	131	114
Patients discontinued treatment	17	79
IRC confirmed disease progression	2	6
New anticancer therapy	0	4
Progressive disease	0	11
Lack of efficacy	0	21
Unacceptable toxicity/AE/death →	14	30
Patient decision	1	6
Investigator decision	0	37
Other	0	1

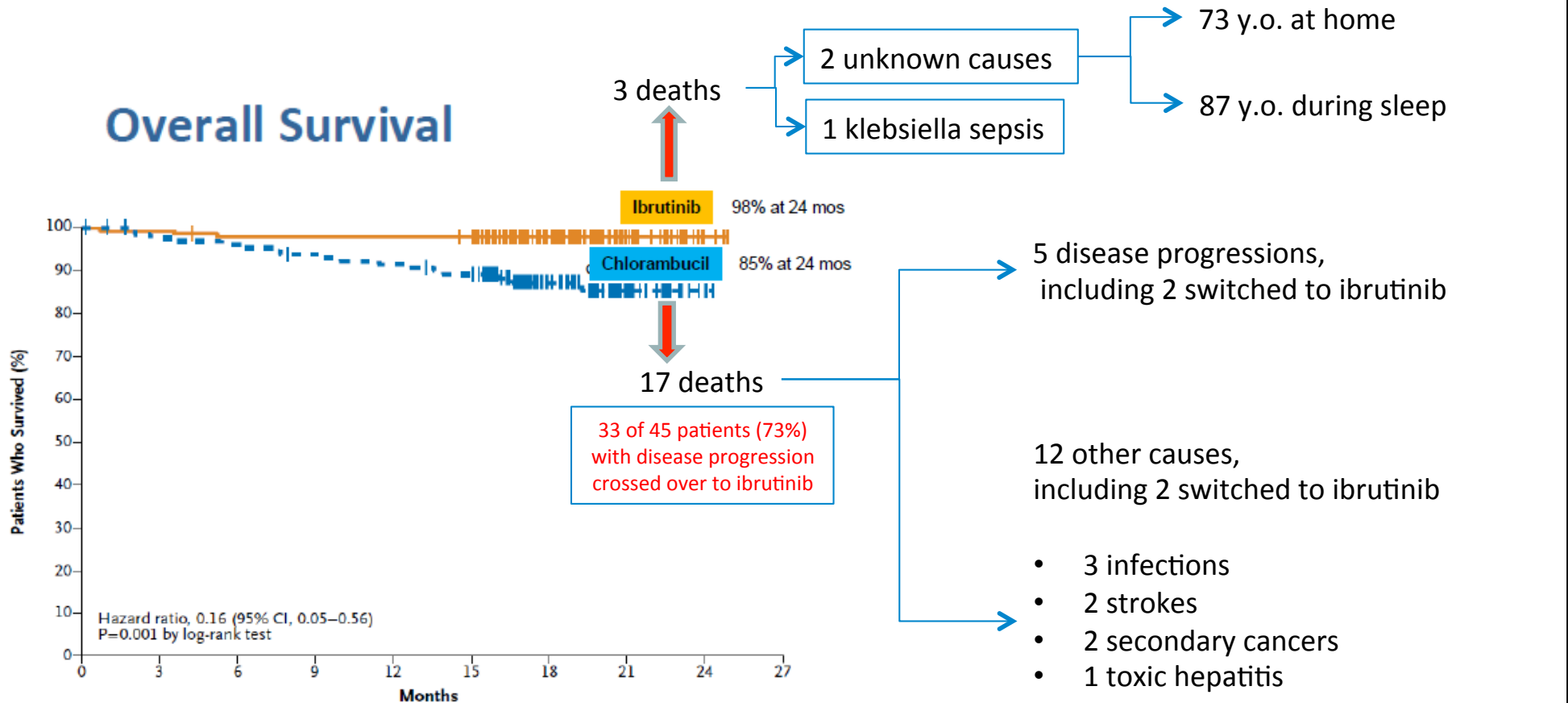
1.5% vs 32%

10% vs 22,5%

# Phase III RESONATE-2: Frontline Ibrutinib vs Chlorambucil in Elderly Patients With CLL

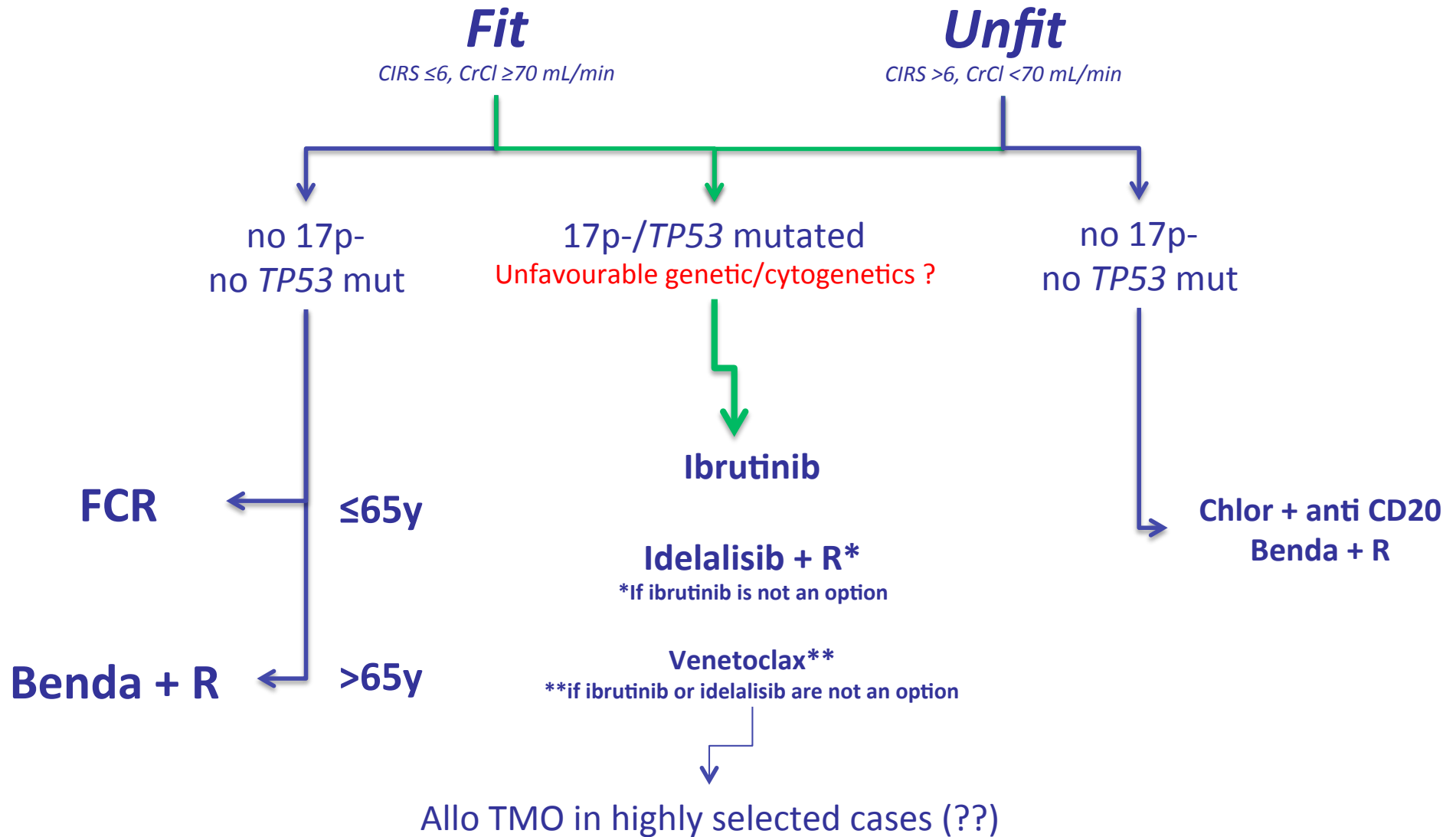
Approved by FDA and EMA for first line treatment of CLL (independent of 17p/TP53 status)

## Overall Survival



■ 84% reduction in the risk of death (HR 0.16; 95%CI, 0.05-0.56; P = 0.001)

# Possible impact of genetic markers on treatment algorithm



# Chemo-free regimens

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First line

Relapsed/refractory CLL

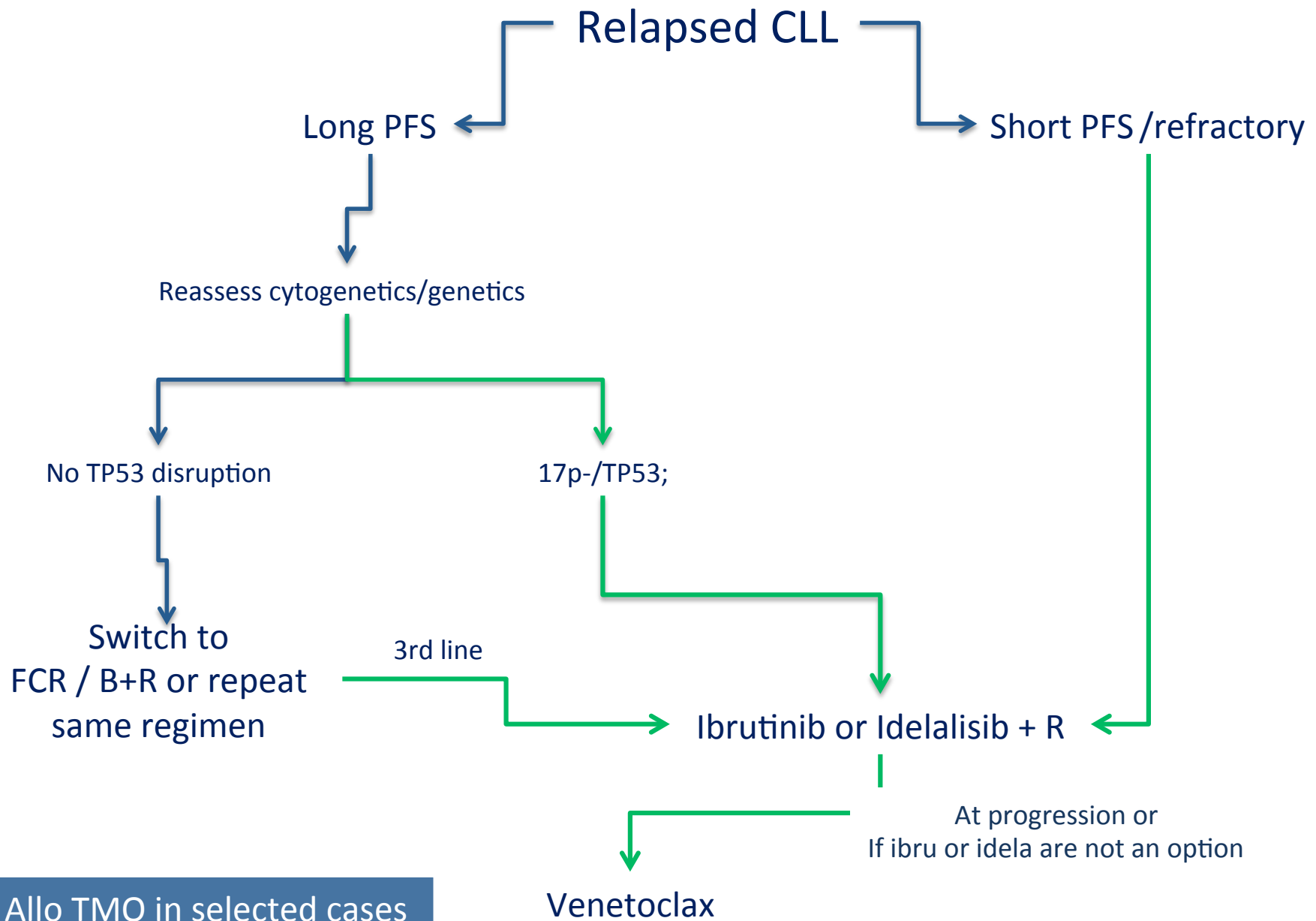
Failure of a kinase targeted agent



Prof. Antonio Cuneo, MD, PhD



# Proposed treatment algorithm for relapsed/refractory CLL today



## Poor outcome with conventional chemo/immunotherapy in fludarabine-refractory CLL and in patients with early relapse

	Various regimens at MDACC in FA refractory and F refractory with bulky adenopathy	Ofatumumab in FA refractory and F refractory with bulky adenopathy	Various regimen in patients treated in GCLLSG protocols (***)
No. of patients	99	138	305
No. previous regimens (median)	NA	4-5	1-2 (early relapse)
Percentage CR PR	0 23	0-1 47-58	NA NA
Months PFS Survival	2-3 9	5,7-5,9 13,7-15,4	11-18 30-61

Modified from: Cuneo A et al, Cancer Med, 2014

\*\*\*Cramer P et al. Haematologica 2015 [Epub ahead of print]



## ORR and PFS

# Ibrutinib (+/- R) in relapsed / refractory CLL

Study	No. pts / median follow-up	% responding	PFS	% on treatment	% discontinued		
					Disease Progression	Adverse Event	Other*
Byrd, NEJM 2013	85 21 months	89% 71% NCI	75% at 26 months	64%	13%	8%	16%
Byrd, NEJM 2014	195 9 months	63% 43% NCI	88% at 6 months	86%	5%	4%	5%
Burger, Lancet Oncol 2014	40 17 months	95% 87% NCI	78% at 18 months	77%	8%	5%	10%
Byrd JC Blood 2015	101 36 months	90%	69% at 30 months	53%	21%	12%	27%

Byrd 2013: ibrutinib in rel/ref CLL

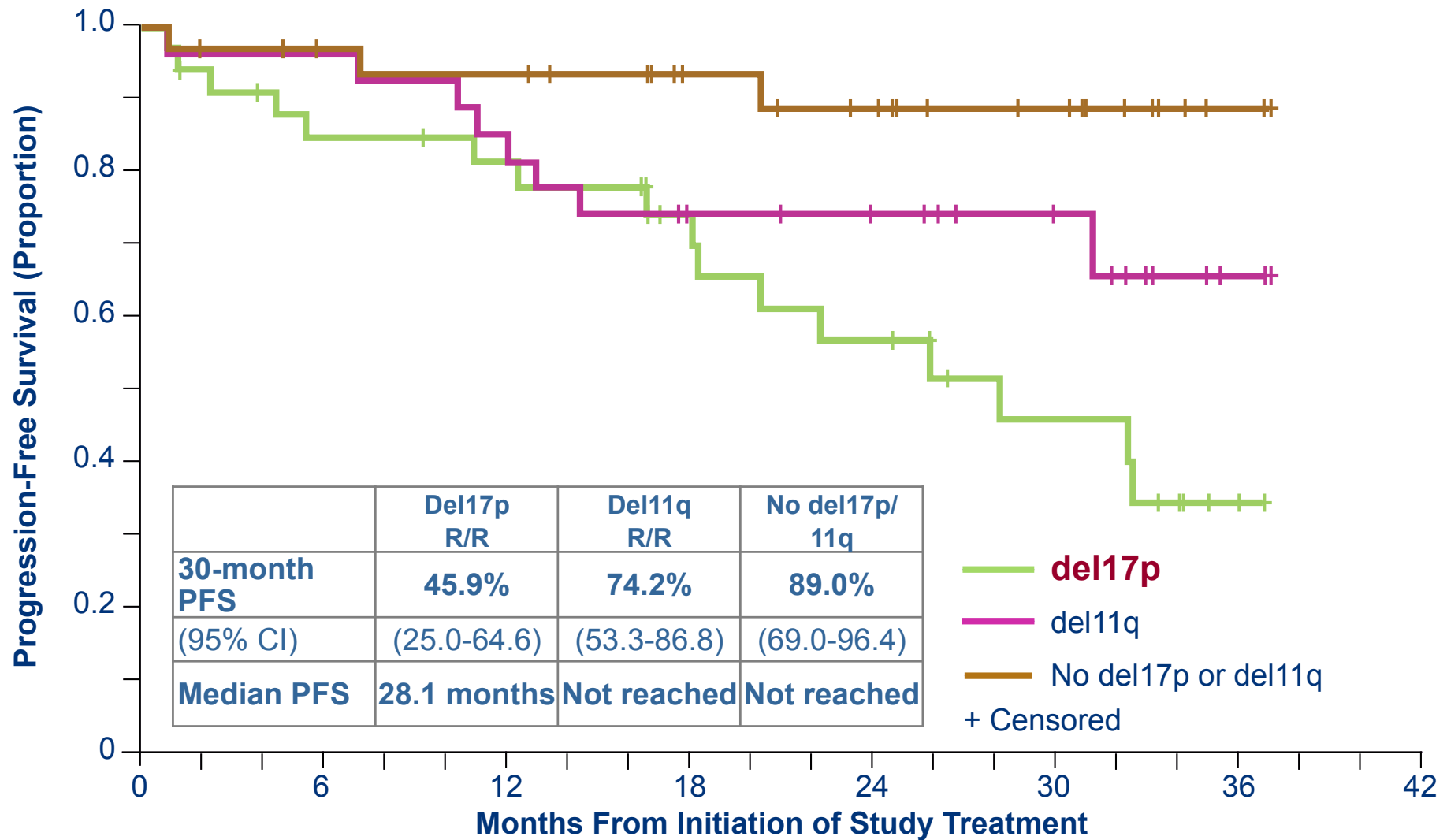
Byrd 2014: random ibrutinib vs ofatumumab in rel/ref CLL

Burger 2014: ibrutinib and rituximab in high risk CLL (4/40 pts were untreated and had 17p-rel)

O'Brien 2014: ASCO meeting 3 year post initiation of ibrutinib

\* Stem cell transplant, Subject decision, investigator decision, 13% death

# PFS by Cytogenetics (FISH) in R/R Population



## Routine Clinical Practice in rel/ref CLL

### Rate of discontinuation, post Ibrutinib Outcome and Ibrutinib Safety Data

	Parikh <i>et al</i> <sup>1</sup>	Sandoval-Sus <i>et al</i> <sup>2</sup>	Finnes <i>et al</i> <sup>3</sup>
	R/R CLL	R/R CLL	TN & R/R CLL
<b>Patients, n</b>	<b>124</b>	<b>54</b>	<b>96</b>
<b>Median Follow up, months</b>	➡ <b>6.4</b>	➡ <b>9.1 (0.5 – 23.3)</b>	➡ <b>7.6</b>
<b>Total Discontinued , n (%)</b>	<b>23 (18%)</b>	<b>15 (28%) excluding BMT</b>	● <b>23 (24%)</b>
<b>Discontinuation due to toxicity , n (%)</b>	● <b>13 (10,5%)</b>	● <b>8 (15%)</b>	-
Median Age	65 (46-93)	60 (35-89)*	66 (46 – 89)
Median prior therapies (range)	3 (1 – 15)	2 (1-5)*	-
<b>Biological Characteristics</b>			
Unmutated IGHV, n (%)	79 (81%)	12 (60%)*	67 (80%)
Del17p, n (%)	15 (15%)	9 (45%)*, #	20 (23%)

#### **Authors comments**

**% discontinuation higher than in trials**

**Poor outcome after discontinuation**

**2/3 pts take potentially interfering drugs in the routine practice**

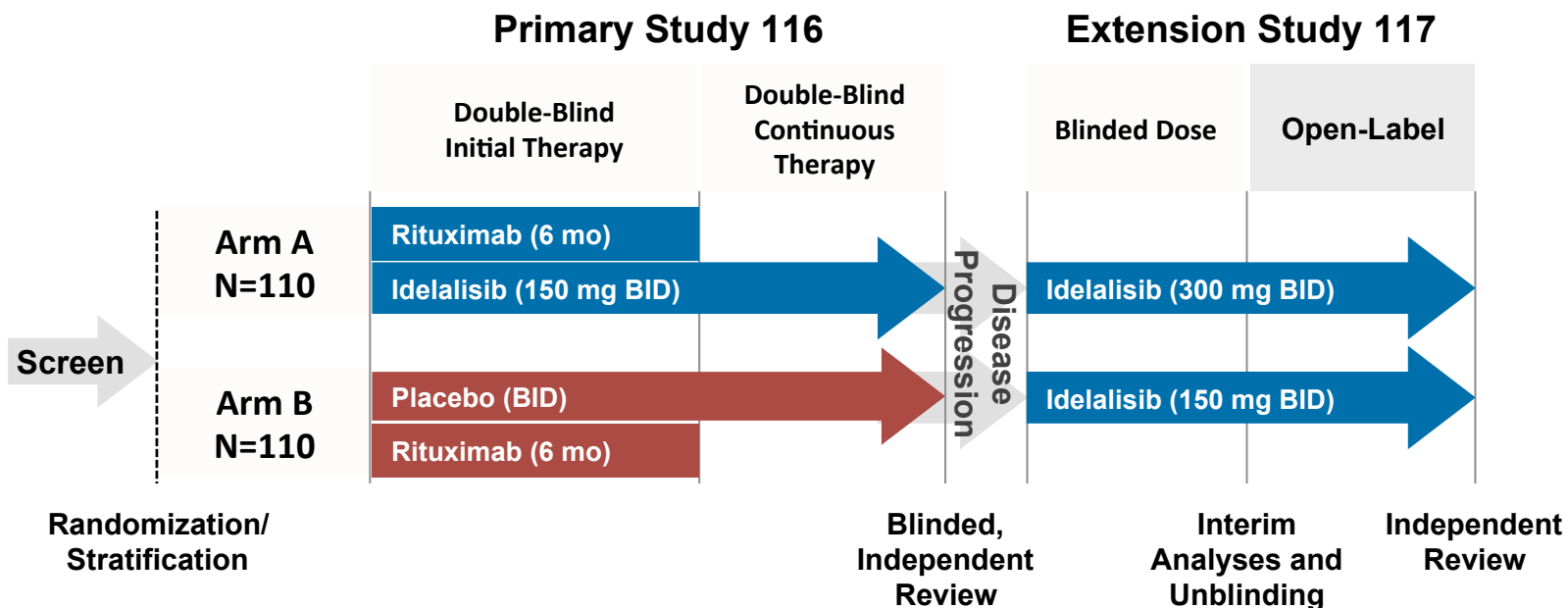
\*Data reported within the group of 20 patients who discontinued treatment  
# Del17p/TP53; TN, Treatment Naïve; R/R, Relapsed/Refractory, f/u, follow up

<sup>1</sup>Parikh ASH 2015 #2935, <sup>2</sup>Sandoval-Sus ASH 2015 #2945<sup>3</sup>Finnes ASH 2015 #717

# Idelalisib and Rituximab in rel/ref

**Population:**

Relapsed CLL warranting treatment (iwCLL); progression < 24 mo since last treatment



	Median Follow-up, months		
	IDELA + R	PBO + R	
<b>1<sup>st</sup> Interim Analysis</b>	4	4	DMC halted trial (Furman NEJM 2014) 50% events
<b>2<sup>nd</sup> Interim Analysis</b>	6	5	Blind ended (Coutre ASCO 2014) 63% events <ul style="list-style-type: none"> <li>• Arm A continues (amendment to be all 150mg)</li> <li>• Arm B crosses over</li> </ul>
<b>Update</b>	13	11	PFS, OS by subgroup analysis

# Patients included in Study 116 were elderly, had a poor performance status and cytopenias

	Typical relapsed CLL patient	Ibrutinib RESONATE population <sup>3</sup>	Zydelig + R Study 116 population <sup>6</sup>	Ofatumumab licensing study <sup>4</sup> (FA-ref/BF-ref)
Trial design	Registry	Open-label randomised	Double-blind placebo controlled	Non-randomised Phase II
Median age (years)	72.5 <sup>1a</sup>	67	● 71	64/62
ECOG PS, 1–3 (%)	N/A	59	87	65
ECOG PS, 2–3 (%)	23.2 <sup>2b</sup>	0	● 28	N/A
del(17p) and/or TP53 mutation (%)	42 <sup>5</sup>	33	43	29/18
Blood count criteria	N/A	Platelets $\geq 30 \times 10^9/L$ Neutrophils $\geq 0.75 \times 10^9/L$	● No restrictions 35% Grade 3 or 4 cytopenias	No blood counts or transfusion restrictions

<sup>a</sup> German Tumour Registry Lymphatic Neoplasms (patients recruited between 2009 and 2013) at start of second-line therapy (n=186)

<sup>b</sup> Ipsos Healthcare Global Oncology Monitor real world evaluation of CLL patient from Germany, France, UK, Spain and Italy (n=5163)

<sup>c</sup> Equivalent to Karnofsky score 0–70  
ECOG: Eastern Cooperative Oncology Group

1. Knauf W, *et al. Hematol Oncol* 2014 [published online ahead of print].

2. Ysebaert L, *et al. EHA* 2014 abstract P1275).

3. Byrd JC, *et al. N Engl J Med* 2014; 371–323 (incl online suppl).

4. Hx-CD20-406 Wierda WG, *et al. J Clin Oncol* 2010; 28:1749–1755.

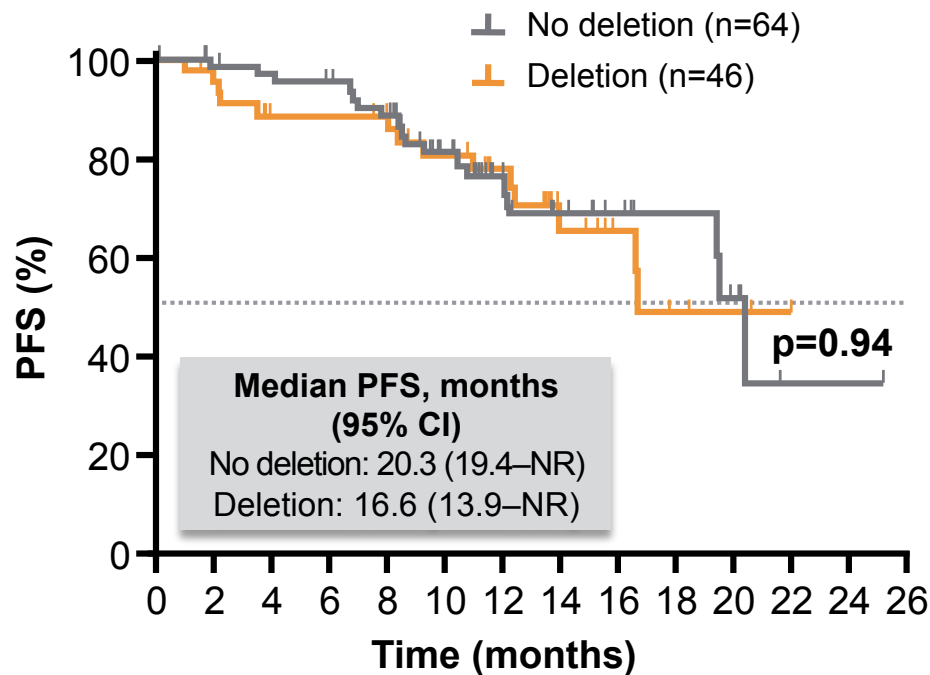
5. Lozanski G, *et al. Blood* 2004; 103:3278–3281.

6. Furman RR, *et al. N Engl J Med* 2014; 370:997–1007.

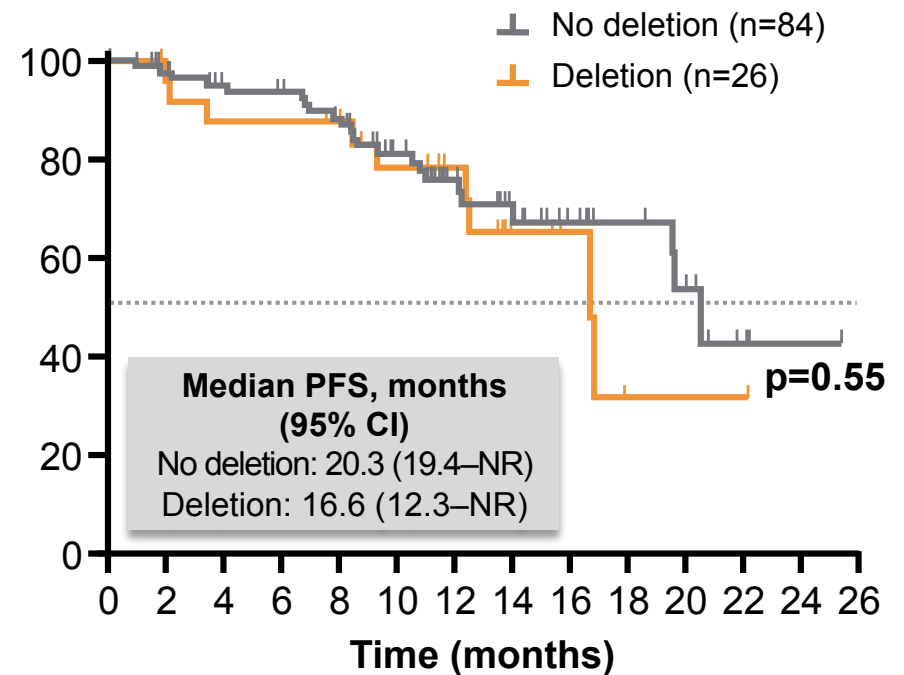
# Del(17p) or *TP53* prognostic factors do not impact on the efficacy of Zydelig + R

## Second interim analysis: PFS

### Del(17p)/*TP53* mutation



### Del(17p)



#### Number at risk

No del	64	61	59	59	52	37	21	14	11	8	4	1	1	1
Del	46	41	36	36	33	30	22	12	8	4	3	0	0	0

	84	78	73	71	65	49	31	20	15	11	6	1	1	1
	26	23	22	22	20	17	12	6	4	1	1	0	0	-

## Pooled Analysis: GS-US-312-0116 and GS-US-312-0119

# Results: Summary of Study Discontinuations

n (%)	Study 116/117 IDL+R/IDL (n=110)	Study 116/117 PBO+R(PD) / IDL <sup>a</sup> (n=42)	Study 116/117 PBO+R/IDL <sup>a</sup> (n=44)	Study 119 IDL +OFA (n=173)	Total (N=369)
Median duration of IDL exposure (range), months	16.2 (0.3-39.9)	5.7 (0.4-26.2)	9.2 (0.2, 22.1)	13.9 (0.2-28.5)	–
IDL treatment ongoing	20 (18.2%)	5 (11.9)	12 (27.3)	46 (26.6)	83 (22.5)
IDL treatment discontinued	90 (81.8)	37 (88.1)	32 (72.7)	127 (73.4)	286 (77.5)
Due to PD	18 (16.4)	5 (11.9)	3 (6.8)	31 (17.9)	57 (15.4)
CLL progression	16 (14.5)	4 (9.5)	2 (4.5)	27 (15.6)	49 (13.3)
Richter's transformation	2 (1.8)	1 (2.4)	1 (2.3)	4 (2.3)	8 (2.2) <sup>b</sup>
Due to adverse events	47 (42.7)	20 (47.6)	21 (47.7)	62 (35.8)	150 (40.7)
Due to other reasons	25 (22.7)	12 (28.6)	8 (18.2)	34 (19.7)	79 (21.4)
Withdrawal by patient	12 (10.9)	6 (14.3)	3 (6.9)	12 (6.9)	33 (8.9)
Physician's decision	7 (6.4)	4 (9.5)	2 (4.5)	14 (8.1)	27 (7.3)
Death	2 (1.8)	2 (4.8)	2 (4.5)	8 (4.6)	14 (3.8)
Other	4 (3.6)	0	1 (2.3)	0	5 (1.4)

IDL: idelalisib; OFA: ofatumumab; PBO: placebo; PD: progressive disease; R: rituximab; RT: Richter's transformation

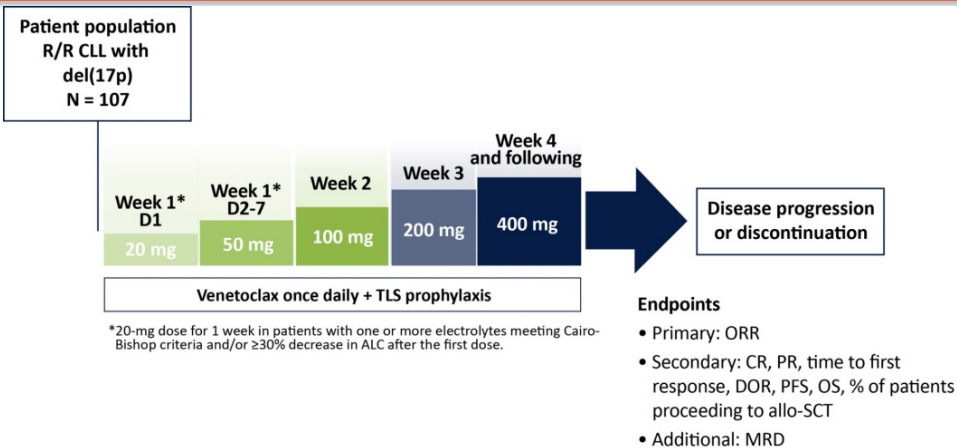
<sup>a</sup>Study 117 included patients from Study 116 who 1) had PD while receiving placebo (PBO+R [PD]/IDL) or 2) were actively participating in Study 116 as a placebo-treated patient at the time the study was stopped (November 8, 2013) (PBO+R/IDL)

<sup>b</sup>4 additional patients were subsequently diagnosed with RT after discontinuing treatment for reasons other than RT: investigator-reported reasons for discontinuation of these patients included "Other" (n=1) and "Physician Decision" (n=3). These patients were not included in the analyses

# Venetoclax for patients with CLL and 17p- who have been treated with at least one prior therapy

## Inclusion criteria

- ECOG PS 0-2
- Neutrophils  $\geq 1000$
- Plts  $\geq 40,000$
- Hb  $\geq 8$
- CrCl  $\geq 50$  ml/min



## Baseline Characteristics

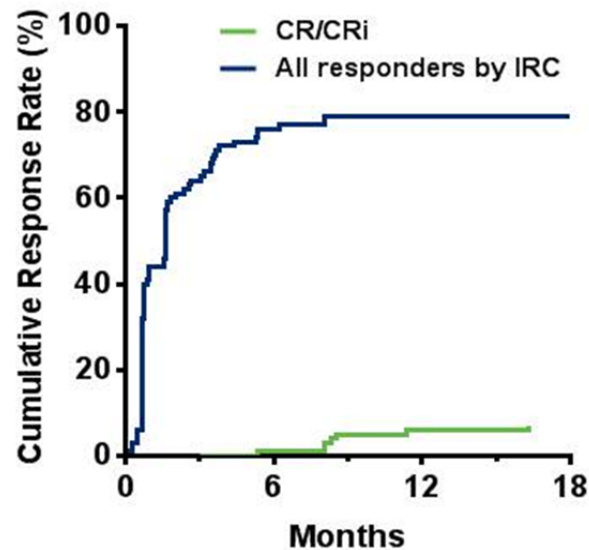
N=107 <sup>a</sup>	n (%)
Median age (years), range	67, 37–85
Male	70 (65)
Prior therapies: median, range	2, 1–10
Prior bendamustine / refractory	54 (50) / 38 (70)
Prior fludarabine / refractory	78 (73) / 34 (44)
Prior CD20 mAb	90 (84)
ECOG grade 1/2	56 (52) / 9 (8)
One or more nodes $\geq 5$ cm	57 (53)
ALC $\geq 25 \times 10^9/L$	54 (51)
TLS risk category	
Low	19 (18)
Medium	43 (40)
High	45 (42)
Rai stage III or IV	51 (48)
IGHV unmutated	30 (81)

<sup>a</sup>Includes 1 patient without 17p-; <sup>b</sup>Low defined as ALC < 25 and nodes < 5 cm, medium defined as ALC > 20 OR nodes  $\geq 5$  and < 10 cm, high defined as (ALC > 25 nodes  $\geq 5$  and < 10 cm OR nodes > 10 cm)



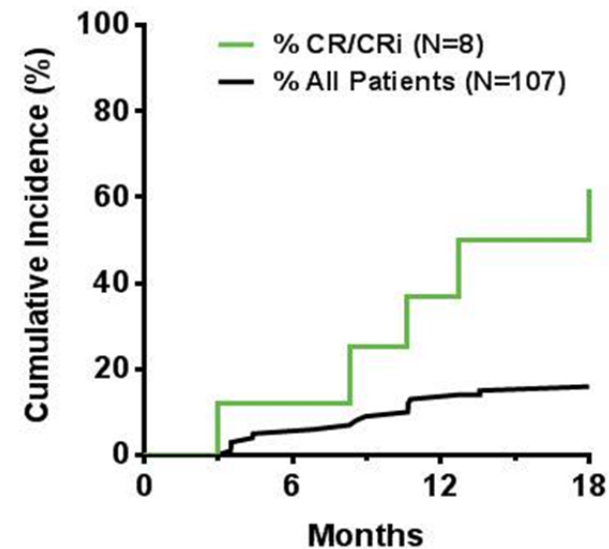
# Cumulative Incidence of Response

## iwCLL Response



- Median time-to-first response: 0.8 months (0.1–8.1)
- Median time to CR/CRi: 8.2 months (3.0–16.3)

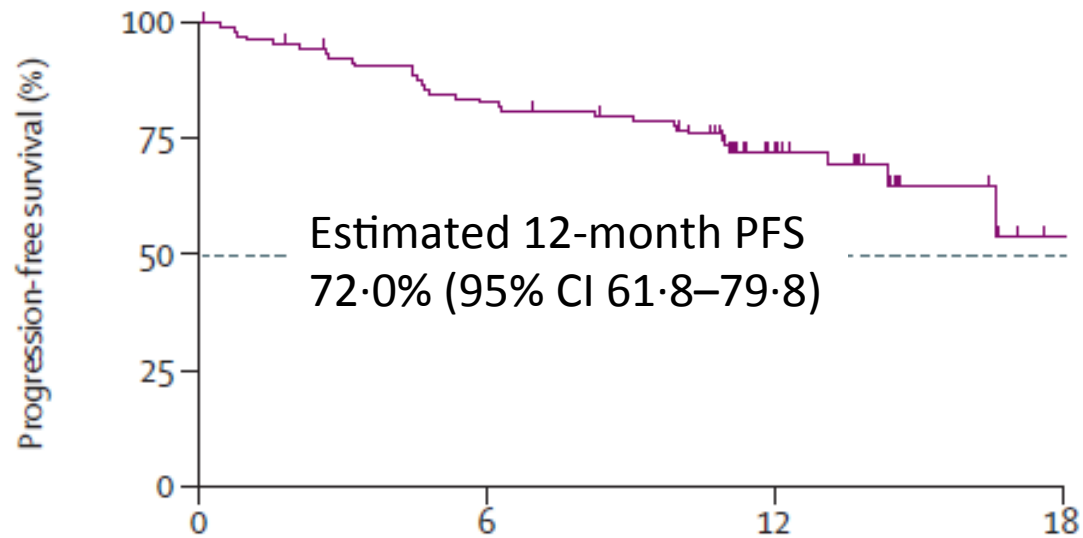
## MRD-Negativity



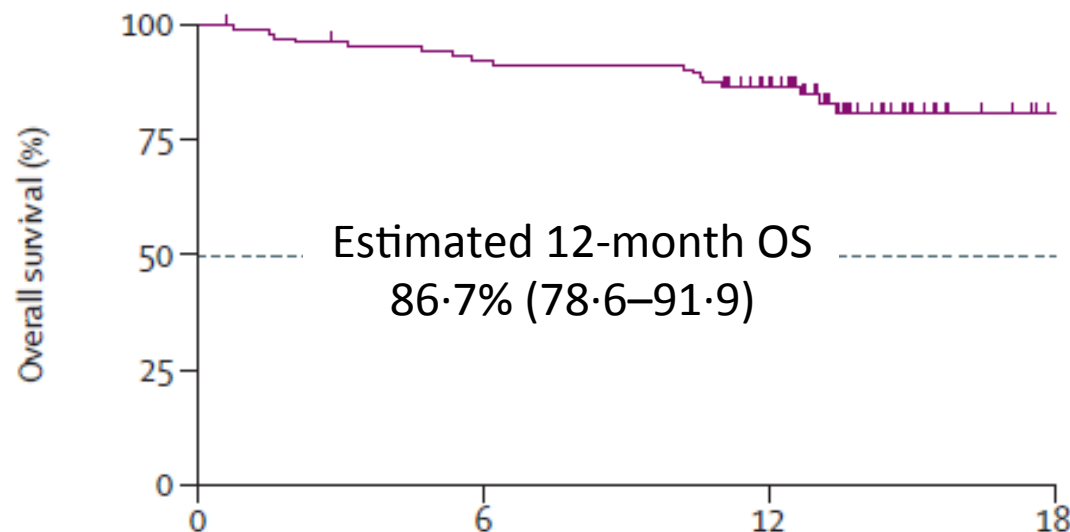
- Of 45 patients tested, 18 achieved MRD-negativity in peripheral blood

# PFS and OS in 107 pts with rel/ref CLL and 17p- Median duration of follow-up 12.1 months

PFS





OS



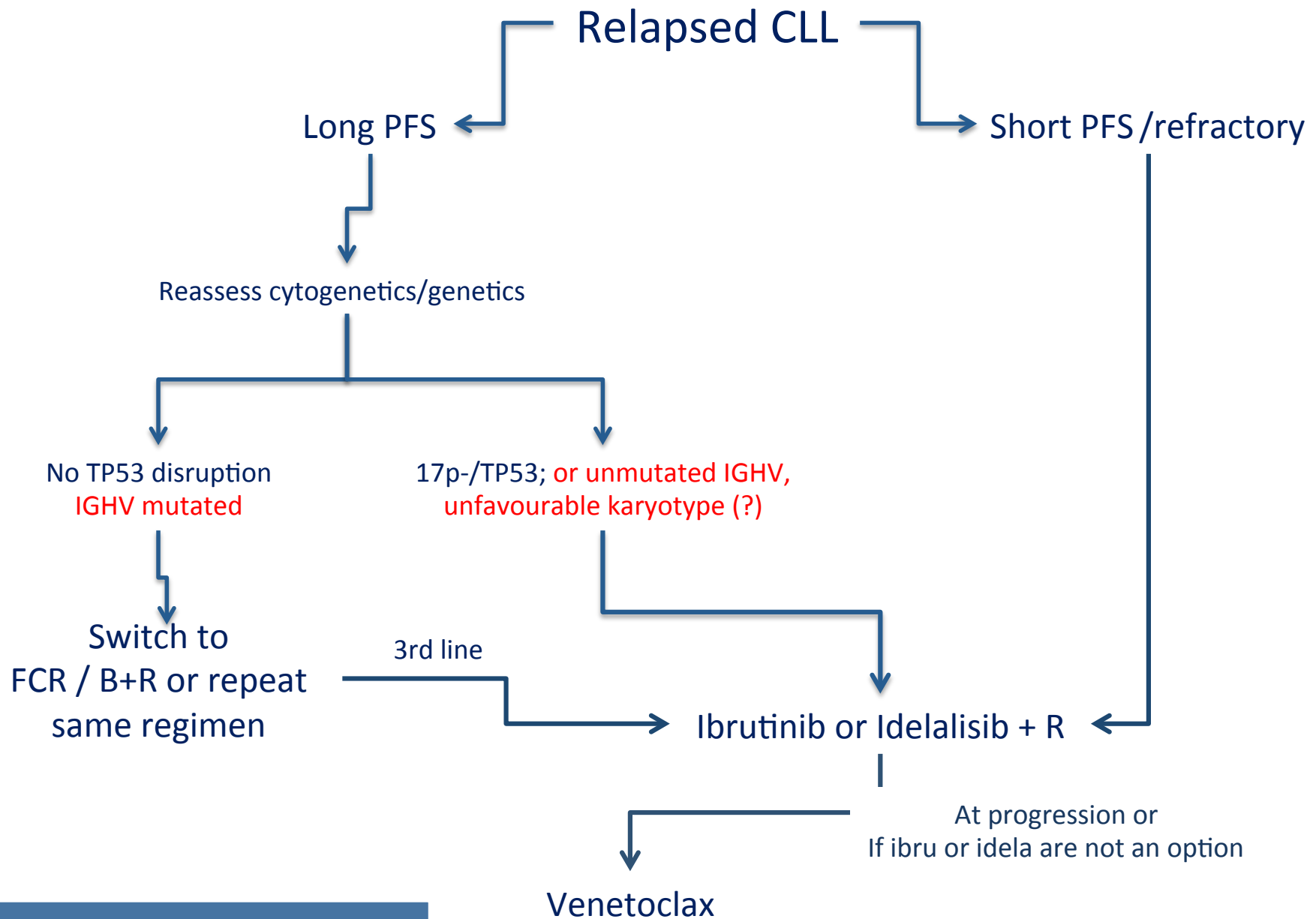
# Impact of adding Rituximab to Venetoclax in RR CLL: a Cross-Study Multivariable Analysis

## Patient Disposition

	VEN + R	VEN
Enrolled, n	49	116
Time on Venetoclax, median (range), months	22 (<1 – 42)	17 (<1 – 44)
Discontinued, n	 15 (31%)	 65 (56%)
Disease progression <sup>a</sup>	9	41
AE/Toxicity	3	13
Withdrew consent	3 <sup>b</sup>	2
Management of co-morbidities	0	2 <sup>c</sup>
Allogeneic transplantation	0	7 <sup>d</sup>
Active patients, n	34 <sup>e</sup> (69%)	51 (44%)
Time on venetoclax, median (range), months	28 (5 – 42)	22 (15 – 44) <sup>f</sup>

<sup>a</sup>Including Richter's transformation for 5 patients in M13-365 and 18 in M12-175. <sup>b</sup>One after achieving MRD-negative CR. <sup>c</sup>One for management of diabetes mellitus and one required long-term coumadin. <sup>d</sup>Six achieved best response of PR and one had SD. <sup>e</sup>25 patients are active on venetoclax treatment. 9 patients are not on active therapy and remain on study. <sup>f</sup>Time on venetoclax for M12-175 (VEN) is from 25Aug2015 and does not represent current time on study.

# Proposed treatment algorithm for relapsed/refractory CLL today



Allo TMO in selected cases

# Practical implications

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- 1) 17p-/TP53 mutation must be assessed before treatment in all patients
- 2) Assessment of other genetic predictors of response duration appears useful
  - *IGHV* mutational status
- 3) Standardization of methods (\*;\*\*)
- 4) Certified laboratories (ERIC)
- 5) Novel markers
  - karyotype using novel mitogens
  - gene mutations
  - validation within prospective trials

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\*Ghia P et al, Leukemia 2007; 21:1-3

\*\*Pospisilova S et al, Leukemia 2012; 26:1458-61

# La target therapy

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First line

Relapsed/refractory CLL

Failure of a kinase targeted agent



Prof. Antonio Cuneo, MD, PhD



# Possibility to cross in case of discontinuation in rel/ref CLL (toxicity or progression)

## **Ibrutinib**

*18-28% discontinuation at 1 yr  
in the clinical practice*

## **Idelalisib**

*77% discontinuation  
in 3 trials*

## **Venetoclax**

*~30% Discontinuation in trials*

Mato A et al, ASH 2015 oral abs #719  
Coutre S et al, EHA 2016 abs #223

Roberts NEJM 2015,  
Stilgenbuer, Lancet Ocol 2016

Idelalisib

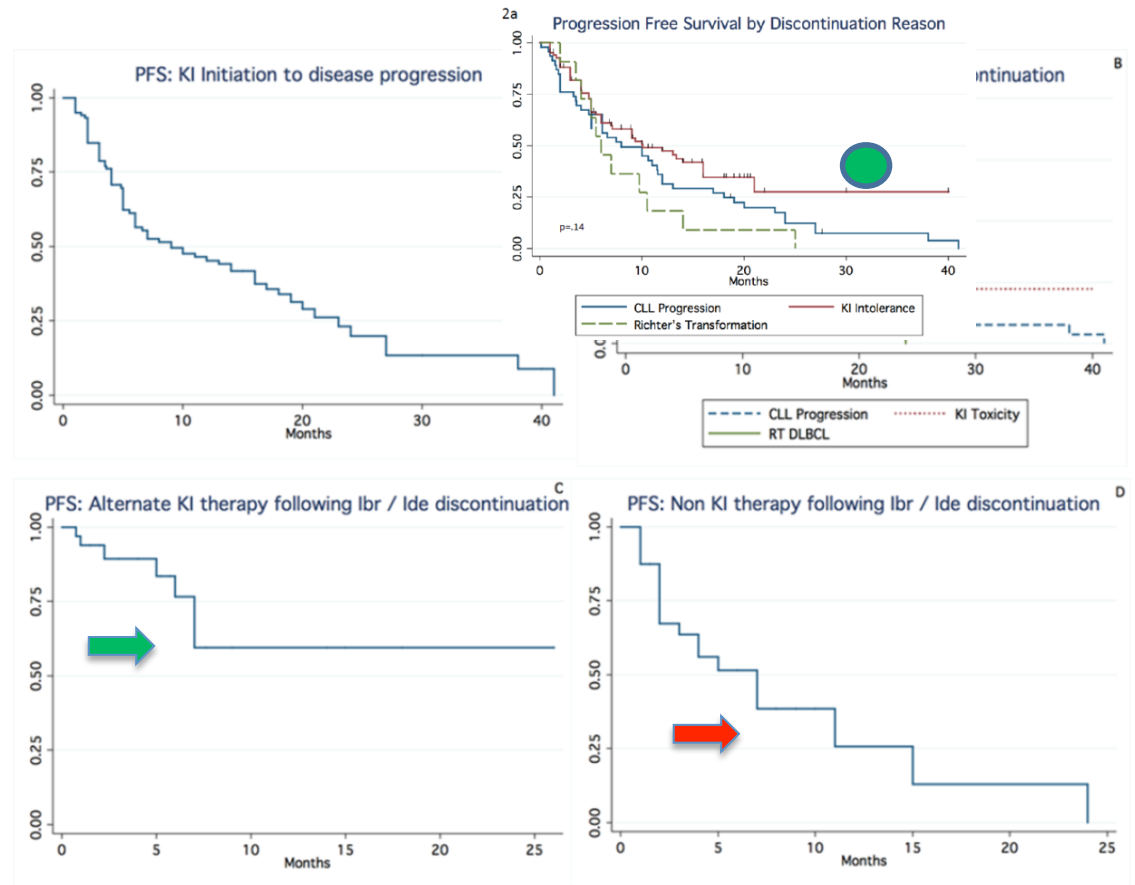
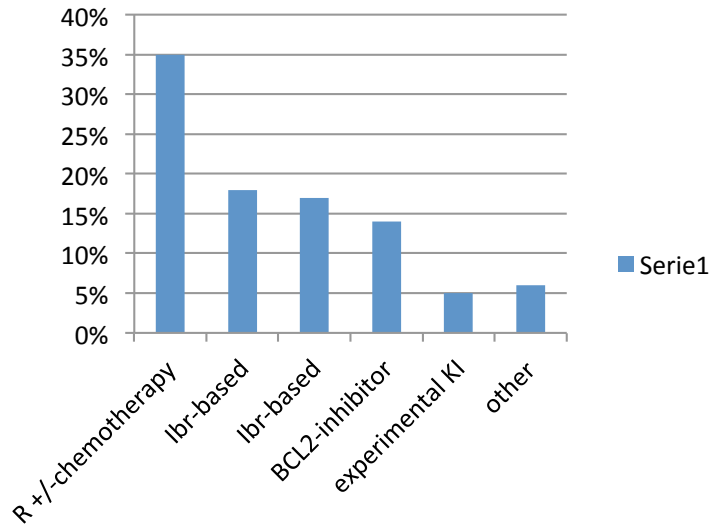
Ibrutinib

venetoclax

Better than chemoimmunotherapy

# Type of treatment and outcome after KI discontinuation

123 patients  
Mato A et al, ASH abs #719; Blood 2016

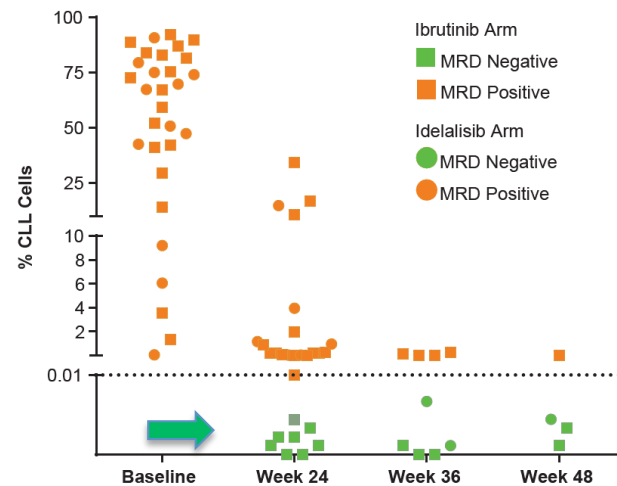




# Venetoclax after KI discontinuation

64 patients treated by venetoclax  
 Coutre et al., EHA 2016, #P559

Best response, n (%)	Ibrutinib Arm n=43		Idelalisib Arm n=21	
	Assessed by		Assessed by	
	Investigator	IRC	Investigator	IRC
ORR	26 (61)	30 (70)	7 (33)	10 (48)
CR / CRi	2 (5) / 0	0 / 1 (2)	1 (5) / 1 (5)	0 / 0
nPR	2 (5)	0	0	0
PR	22 (51)	29 (67)	5 (24)	10 (47)
Stable disease	12 (28)	-	12 (57)	-
Disease progression	1 (2)	-	1 (5)	-
Non-responder	-	13 (30)	-	11 (52)



# Which kinase targeted treatment in clinical practice in Italy today?

There are no solid scientific data allowing for a comparison to be made between drugs  
**Yet a choice has to be made....**

