

## 6. Trial population

Eligible patients must fulfill the following inclusion/exclusion criteria:

### 6.1. Inclusion criteria

1. Documented CLL requiring treatment according to iwCLL criteria<sup>12</sup>.
2. Age at least 18 years.
3. Life expectancy  $\geq$  6 months.
4. Ability and willingness to provide written informed consent and to adhere to the study visit schedule and other protocol requirements.
5. Adequate bone marrow function indicated by a platelet count  $>30 \times 10^9/l$  (unless directly attributable to CLL infiltration of the bone marrow proven by bone marrow biopsy)
6. Creatinine clearance  $\geq 70$  ml/min directly measured with 24hr urine collection or calculated according to the modified formula of Cockcroft and Gault (*for men:  $GFR \approx ((140 - age) \times bodyweight) / (72 \times creatinine)$ , for women  $\times 0,85$* ).  
*For patients with creatinine values within the normal range the calculation of the clearance is not necessary. Dehydrated patients with an estimated creatinine clearance less than 70 ml/min may be eligible if a repeat estimate after adequate hydration is  $> 70$  ml/min.*
7. Adequate liver function as indicated by a total bilirubin  $\leq 2 \times$ , AST/ALT  $\leq 2.5 \times$  the institutional ULN value, unless directly attributable to the patient's CLL or to Gilbert's Syndrome.
8. Negative serological testing for hepatitis B (HBsAg negative and anti-HBc negative; patients positive for anti-HBc may be included if PCR for HBV DNA is negative and HBV-DNA PCR is performed every month until 12 months after the last treatment cycle), negative testing for hepatitis C RNA within 6 weeks prior to registration.
9. Eastern Cooperative Oncology Group Performance Status (ECOG) performance status 0-2.

### 6.2. Exclusion criteria

1. Any prior CLL-specific therapies (except for corticoid treatment administered due to necessary immediate intervention; within the last 10 days before start of study treatment only dose equivalents up to 20 mg prednisolone are permitted).
2. Transformation of CLL (Richter's transformation).
3. Decompensated hemolysis, defined as ongoing hemoglobin drop in spite of prednisolone or intravenous immunoglobulins (IVIG) being administered for hemolysis
4. Detected del(17p) or TP53 mutation.
5. Patients with a history of confirmed PML.
6. Any comorbidity or organ system impairment rated with a single CIRS (cumulative illness rating scale) score of 4, (excluding the eyes/ears/nose/throat/larynx organ system), a total CIRS score of more than 6 or any other life-threatening illness, medical condition or organ system dysfunction that – in the investigator's opinion could compromise the patients safety or interfere with the absorption or metabolism of the study drugs (e.g, inability to swallow tablets or impaired resorption in the gastrointestinal tract).
7. Urinary outflow obstruction.
8. Malignancies other than CLL currently requiring systemic therapies, not being treated in curative intention before (unless the malignant disease is in a stable remission due to the discretion of the treating physician) or showing signs of progression after curative treatment.
9. Uncontrolled or active infection.
10. Patients with known infection with human immunodeficiency virus (HIV).
11. Requirement of therapy with strong CYP3A4 and CYP3A5 inhibitors/inducers.

12. Anticoagulant therapy with warfarin or phenprocoumon,  
*(rotation to alternative anticoagulation is allowed, but note that patients being treated with NOAKs can be included, but must be properly informed about the potential risk of bleeding under treatment with ibrutinib).*
13. History of stroke or intracranial hemorrhage within 6 months prior to randomization.
14. Use of investigational agents which might interfere with the study drug within 28 days prior to registration.
15. Vaccination with live vaccines 28 days prior to registration.
16. Major surgery less than 30 days before start of treatment.
17. History of severe allergic or anaphylactic reactions to humanized or murine monoclonal antibodies, known sensitivity or allergy to murine products.
18. Known hypersensitivity to any active substance or to any of the excipients of one of the drugs used in the trial.
19. Pregnant women and nursing mothers (a negative pregnancy test is required for all women of childbearing potential within 7 days before start of treatment; further pregnancy testing will be performed regularly).
20. Fertile men or women of childbearing potential unless:
  - surgically sterile or  $\geq 2$  years after the onset of menopause
  - willing to use two methods of reliable contraception including one highly effective contraceptive method (Pearl Index  $<1$ ) and one additional effective (barrier) method during study treatment and for 18 months after the end of study treatment.
21. Legal incapacity.
22. Prisoners or subjects who are institutionalized by regulatory or court order.
23. Persons who are in dependence to the sponsor or an investigator.