



Boehringer
Ingelheim

TRIAL STATISTICAL ANALYSIS PLAN

Document No.:	c44494047-01
BI Trial No.:	1305-0051
Title:	Bioequivalence of the BI 1015550 low dose Formulation C2 and the BI 1015550 low dose Formulation C1 (phase 3 formulation) following oral administration in healthy subjects (an open-label, randomised, single-dose, two-way crossover trial). (including Protocol Amendment No. 1 [c43335274-03])
Investigational Product:	BI 1015550 (Nerandomilast)
Responsible trial statistician:	[REDACTED]
	Phone: [REDACTED]
	Fax: [REDACTED]
Date of statistical analysis plan:	12 SEP 2024
Version:	1.0
Page 1 of 27	
<p style="text-align: center;">Proprietary confidential information © 2024 Boehringer Ingelheim International GmbH or one or more of its affiliated companies. All rights reserved. This document may not - in full or in part - be passed on, reproduced, published or otherwise used without prior written permission.</p>	

1. TABLE OF CONTENTS

TITLE PAGE	1
1. TABLE OF CONTENTS	2
LIST OF TABLES	4
2. LIST OF ABBREVIATIONS	5
3. INTRODUCTION	7
4. CHANGES IN THE PLANNED ANALYSIS OF THE STUDY	8
5. ENDPOINTS	9
5.1 PRIMARY ENDPOINTS	9
5.2 SECONDARY ENDPOINT	9
5.2.1 Key secondary endpoint	9
5.2.2 Secondary endpoint	9
6. GENERAL ANALYSIS DEFINITIONS	11
6.1 TREATMENTS	11
6.2 IMPORTANT PROTOCOL DEVIATIONS	12
6.3 INTERCURRENT EVENTS	13
6.4 SUBJECT SETS ANALYSED	13
6.6 HANDLING OF MISSING DATA AND OUTLIERS	14
6.7 BASELINE, TIME WINDOWS AND CALCULATED VISITS	15
7. PLANNED ANALYSIS	16
7.1 DEMOGRAPHIC AND OTHER BASELINE CHARACTERISTICS	17
7.2 CONCOMITANT DISEASES AND MEDICATION	17
7.3 TREATMENT COMPLIANCE	18
7.4 PRIMARY OBJECTIVE ANALYSIS	18
7.4.1 Main analysis	18
7.5 SECONDARY OBJECTIVE ANALYSIS	19
7.5.1 Key secondary objective analysis	19
7.5.2 Secondary objective analysis	19
7.7 EXTENT OF EXPOSURE	20
7.8 SAFETY ANALYSIS	20
7.8.1 Adverse Events	20
7.8.2 Laboratory data	21
7.8.3 Vital signs	22
7.8.4 ECG	22
7.9 OTHER ANALYSIS	22
7.9.1 Biomarker analyses	22

7.9.2	PK / PD analyses.....	23
8.	TIMEPOINT OF RELEASE OF TREATMENT INFORMATION	24
9.	REFERENCES	25
11.	HISTORY TABLE	27

LIST OF TABLES

Table 6.1: 1	Treatments and labels used in the analysis	11
Table 6.4: 1	Subject sets analysed	14
Table 11: 1	History table	27

2. LIST OF ABBREVIATIONS

See Medicine Glossary:

<http://glossary>

Term	Definition / description
ALT	Alanine transaminase
ANOVA	Analysis of variance
AST	Aspartate transaminase
AUC _{0-tz}	Area under the concentration-time curve of the analyte in plasma over the time interval from 0 to the last quantifiable data point
AUC _{0-∞}	Area under the concentration-time curve of the analyte in plasma over the time interval from 0 extrapolated to infinity
BMI	Body mass index
CI	Confidence interval
C _{max}	Maximum measured concentration of the analyte in plasma
CSD	Company Standard Displays
CV	Arithmetic coefficient of variation
F/U	Follow Up
gCV	Geometric coefficient of variation
gMean	Geometric mean
Max	Maximum
Min	Minimum
N	Number non-missing observations
P10	10 th percentile
P90	90 th percentile
PKS	PK parameter analysis set
Q1	1 st quartile
Q3	3 rd quartile
R	Reference treatment
RAGe	Report Appendix Generator system
REP	Residual Effect Period
RPM	Report Planning Meeting
SD	Standard deviation
SOC	System organ class

Boehringer Ingelheim
TRIAL STATISTICAL ANALYSIS PLAN
1305-0051

Page 6 of 27

c44494047-01

Proprietary confidential information © 2024 Boehringer Ingelheim International GmbH or one or more of its affiliated companies.

Term	Definition / description
T	Test treatment
TS	Treated set
ULN	Upper Limit of Normal

3. INTRODUCTION

As per ICH E9 (1), the purpose of this document is to provide a more technical and detailed elaboration of the principal features of the analysis described in the protocol, and to include detailed procedures for executing the statistical analysis of the primary and secondary variables and other data.

This trial statistical analysis plan (TSAP) assumes familiarity with the Clinical Trial Protocol (CTP), including Protocol Amendments. In particular, the TSAP is based on the planned analysis specification as written in CTP Section 7 “Statistical Methods and Determination of Sample Size”. Therefore, TSAP readers may consult the CTP for more background information on the study, e.g., on study objectives, study design and population, treatments, definition of measurements and variables, planning of sample size, randomization.

Study data (including data entered in the RAVE EDC system and external data provided by suppliers) will be stored in a Clinical Data Repository (CDR).

Pharmacokinetic (PK) parameters will be calculated using Phoenix WinNonlinTM software (version 8.1.1 or higher, [REDACTED] or SAS Version 9.4 (or later version).

The statistical analyses will be performed within the validated working environment CARE, including SASTM (current Version 9.4, by [REDACTED]), and a number of SASTM-based tools (e.g., macros for the analyses of AE data or laboratory data; Report Appendix Generator system (RAGe) for compilation/formatting of the CTR appendices).

4. CHANGES IN THE PLANNED ANALYSIS OF THE STUDY

Analyses as planned in the CTP will be performed and are described in more detail in this TSAP.

The baseline definition acc. to CTP section 7.2.5 'For laboratory data and vital signs, baseline is defined as measurement prior to first drug administration.' was changed to 'For laboratory data and vital signs, baseline is defined as measurement prior to first drug administration in each treatment period.'

5. ENDPOINTS

5.1 PRIMARY ENDPOINTS

Section 2.1.2 of the CTP:

The following pharmacokinetic parameters will be determined for R-BI 1015550:

- *AUC_{0-tz} (area under the concentration-time curve of the analyte in plasma over the time interval from 0 to the last quantifiable data point)*
- *C_{max} (maximum measured concentration of the analyte in plasma)*

5.2 SECONDARY ENDPOINT

5.2.1 Key secondary endpoint

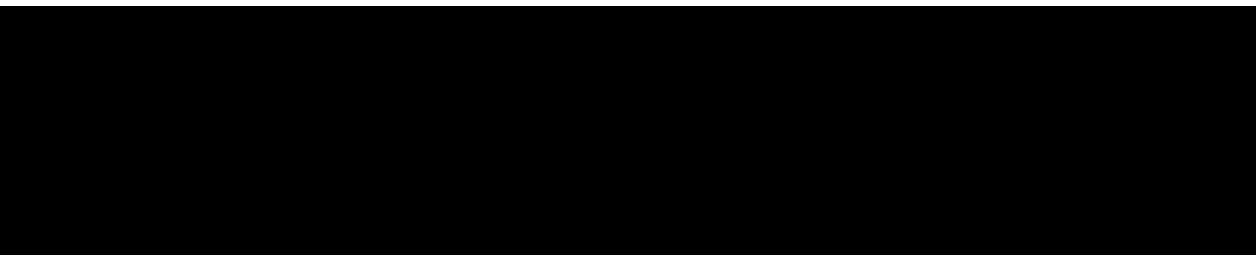
This section is not applicable as no key secondary endpoints have been defined in the CTP.

5.2.2 Secondary endpoint

Section 2.1.3 of the CTP:

The following pharmacokinetic parameter will be determined for R-BI 1015550:

- *AUC_{0-∞} (area under the concentration-time curve of the analyte in plasma over the time interval from 0 extrapolated to infinity)*



Safety and tolerability endpoints

Section 2.2.2.2 of the CTP:

Safety and tolerability of BI 1015550 will be assessed based on:

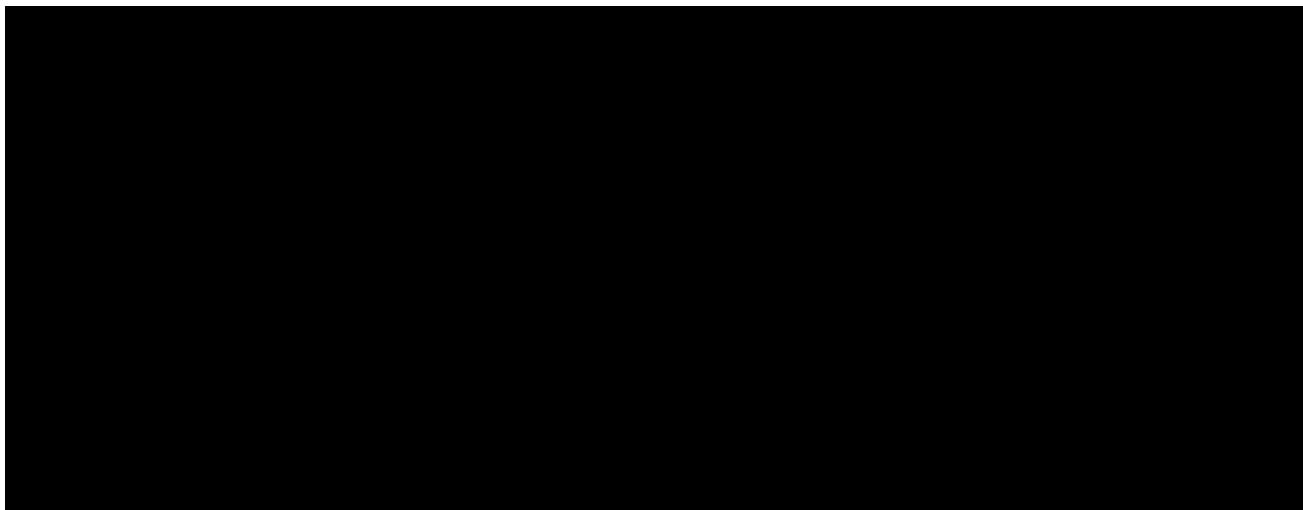
- *Adverse events (including clinically relevant findings from the physical examination)*
- *Safety laboratory tests*
- *12-lead ECG*
- *Vital signs (blood pressure, pulse rate)*
- *Body weight*

Boehringer Ingelheim
TRIAL STATISTICAL ANALYSIS PLAN
1305-0051

Page 10 of 27

c44494047-01

Proprietary confidential information © 2024 Boehringer Ingelheim International GmbH or one or more of its affiliated companies.



6. GENERAL ANALYSIS DEFINITIONS

6.1 TREATMENTS

For basic study information on treatments to be administered, assignment of treatment sequences, selection of doses, refer to CTP Sections 3 and 4.

The trial is designed as a randomised, open-label, single-dose, two-way crossover trial in healthy male and female subjects with a washout period of at least 10 days between the administrations of BI 1015550 (Nerandomilast). The treatments will be one 9 mg tablet of the BI 1015550 (Nerandomilast) Formulation C2 administered to subjects in fasted state (Test, T) and one 9 mg tablet of the BI 1015550 (Nerandomilast) Formulation C1 as the phase 3 formulation administered to subjects in fasted state (Reference, R). The subjects are randomly allocated to the 2 treatment sequences T-R or R-T.

Table 6.1: 1 Treatments and labels used in the analysis

Treatment	Short label
R BI 1015550 (Nerandomilast), 9mg tablet, qd, formulation C1	BI 9mg C1 (R)
T BI 1015550 (Nerandomilast), 9mg tablet, qd, formulation C2	BI 9mg C2 (T)

Section 1.2.3 of the CTP:

[REDACTED]. *This is the period after the last dose during which measurable drug levels and/or pharmacodynamic effects are still likely to be present.*

Based on this, the following study phases will be defined for the analysis of adverse events (AEs):

- **Screening**
 - Ranging from 0:00h on day of informed consent until time of first drug administration.
- **On treatment**
 - Ranging from the time of respective drug administration until [] days (168 h) thereafter OR until next drug administration OR until trial termination (0:00 h on the day after trial termination), whatever occurs first.
(labelled with short label)
- **Follow-up (labelled “F/U”)**
 - Ranging from the end of REP until the next administration OR until trial termination (0:00 h on the day after trial termination), whatever occurs first.

Section 7.2.5 of the CTP:

Note that AEs occurring after the last per protocol contact but entered before database lock will be reported to Pharmacovigilance only and will not be captured in the trial database.

The following AE displays will be provided in the report:

In Section 9.3 and Appendix 10.5.1.8 (for ClinicalTrials.gov and EudraCT only) of the CTR displays, the on treatment phase will be analysed (labelled with the short label of the study treatment). The screening and follow-up phases will not be included in this analysis.

The following totals will be provided in addition for AE outputs in Section 9.3:

- a total over all on treatment phases (“**Total**”)

In Section 9.4 and Appendix 10.6 (Listings) of the CTR displays, the screening period, as well as the follow-up phases will additionally be included and no totals will be provided. The labelling of the actual treatment in listings corresponds to the labelling of study phases defined above. Single exception is the Follow-up phase where the actual treatment will be labelled “F/U <short label>”.

For detailed information on the handling of the treatments refer to Technical TSAP ADS (analysis data set) plan and Analysis Data Reviewers guide.

6.2 IMPORTANT PROTOCOL DEVIATIONS

Data discrepancies and deviations from the CTP will be identified for all treated subjects. Consistency check listings (for identification of deviations of time windows) and a list of protocol deviations (e.g., deviations in drug administration, in blood sampling times, etc.) will be provided to be discussed at the Report Planning Meeting (RPM). At this meeting, all manual deviations identified at the sites by the CRAs and deviations too complex to program will be reviewed by the trial team to decide which are considered important. For definition of important protocol deviations (iPD), and for the process of identification of these, refer to the Boehringer Ingelheim (BI) SOP "Identify and Manage Important Protocol Deviations (iPD)" ([2](#)).

Important protocol deviation (iPD) categories will be suggested in the DV domain sheet, iPDs will be identified no later than in the Report Planning Meeting, and the iPD categories will be updated as needed.

If any iPDs are identified, they are to be summarised into categories and will be captured in the iPD specification file (DV domain) ([3](#)) and in the decision log ([4](#)). Both documents will be stored within the TMF in EDMS.

The iPDs will be summarized and listed in the CTR.

6.3 INTERCURRENT EVENTS

Not applicable.

6.4 SUBJECT SETS ANALYSED

Section 7.2.1.1 of the CTP:

Statistical analyses will be based on the following analysis sets:

- *Treated set (TS): The treated set includes all subjects who were treated with at least one dose of trial drug. The treated set will be used for safety analyses.*
- *Pharmacokinetic parameter analysis set (PKS): This set includes all subjects in the treated set (TS) who provide at least one PK endpoint that was defined as primary or secondary and was not excluded due to a protocol deviation relevant to the evaluation of PK or due to PK non-evaluability (as specified in the following subsection 'Pharmacokinetics'). Thus, a subject will be included in the PKS, even if he/she contributes only one PK parameter value for one period to the statistical assessment. Descriptive and model-based analyses of PK parameters will be based on the PKS.*

[...]

Section 7.2.1.2 of the CTP:

Pharmacokinetics

The pharmacokinetic parameters listed in CTP Section 2.1 and 2.2.2 for R-BI 1015550 will be calculated with Non-Compartmental Analysis (NCA).

Plasma concentration data and parameters of a subject will be included in the statistical pharmacokinetic (PK) analyses if they are not flagged for exclusion due to a protocol deviation relevant to the evaluation of PK (to be decided no later than in the Report Planning Meeting) or due to PK non-evaluability (as revealed during data analysis, based on the criteria specified below). Exclusion of a subject's data will be documented in the CTR.

Important protocol deviations may be

- *Incorrect trial medication taken, i.e., the subject received at least one dose of trial medication the subject was not assigned to*
- *Incorrect dose of trial medication taken*
- *Use of restricted medications*

Plasma concentrations and/or parameters of a subject will be considered as non-evaluatable, if for example

- *The subject experienced emesis that occurred at or before two times median t_{max} of the respective treatment (Median t_{max} is to be determined excluding the subjects experiencing emesis)*
- *A predose concentration is >5% C_{max} value of that subject*
- *Missing samples/concentration data at important phases of PK disposition curve*

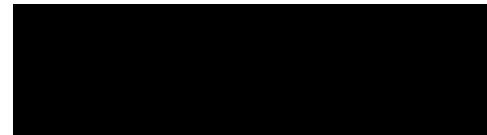
Plasma concentration data and parameters of a subject which are flagged for exclusion will be reported with its individual values but will not be included in the statistical analyses.

[...]

Only concentration values within the validated concentration range and actual sampling times will be used for the calculation of pharmacokinetic parameters. Concentrations used in the pharmacokinetic calculations will be in the same format provided in the bioanalytical report, (that is, to the same number of decimal places provided in the bioanalytical report).

Table 6.4: 1 Subject sets analysed

Class of analysis/endpoint	Subject analysis set	
	TS	PKS
Primary and secondary endpoints		X
Analysis of further PK parameters		X
Safety assessments	X	
Disposition	X	
Demographics / baseline characteristics	X	
Important protocol deviations	X	
Exposure	X	



6.6 HANDLING OF MISSING DATA AND OUTLIERS

Handling of missing data and outliers will be performed as described in the CTP, Section 7.3. Missing or incomplete AE dates are imputed according to BI standards (see BI-KMED-BDS-HTG-0035) (5).

Missing data and outliers of PK data are handled according to BI standards (see “Standards and processes for analyses performed within Clinical Pharmacokinetics/Pharmacodynamics” (6) and “Noncompartmental Pharmacokinetic / Pharmacodynamic Analyses of Clinical Studies” (7)).

PK parameters that cannot be reasonably calculated based on the available drug concentration-time data will not be imputed.

6.7 BASELINE, TIME WINDOWS AND CALCULATED VISITS

Section 7.2.5 of the CTP: *For laboratory data and vital signs, baseline is defined as measurement prior to first drug administration in each treatment period.*

Section 6.1 of the CTP:

If not stated otherwise in the CTP Flow Chart, the acceptable deviation from the scheduled time for vital signs, ECG, and laboratory tests will be ± 30 min.

If scheduled in the CTP Flow Chart at the same time as a meal, blood sampling, vital signs, and 12-lead ECG recordings have to be done first. Furthermore, if several measurements including venipuncture are scheduled for the same time, venipuncture should be the last of the measurements due to its inconvenience to the subject and possible influence on physiological parameters.

For planned blood sampling times, refer to the CTP Flow Chart. While these nominal times should be adhered to as closely as possible, the actual sampling times will be recorded and used for the determination of pharmacokinetic parameters.

The acceptable deviations from the nominal blood sampling times are as follows:

- *The pre-dose samples will be taken ≤ 3 h before dosing.*
- *0 to 2 h post-dose samples will be taken within ± 2 min of the planned post-dose sampling time.*
- *2.5 to 4 h post-dose samples will be taken within ± 5 min of the planned post-dose sampling time*
- *6 to 12 h post-dose samples will be taken within ± 10 min of the planned post-dose sampling time.*
- *24 h or later post-dose samples will be taken within ± 60 min of the planned post-dose sampling time.*

If a subject misses an appointment, it will be rescheduled, if possible.

Adherence to time windows will be checked via the consistency check listings at the RPM.

Unscheduled measurements of laboratory data and vital signs data will be assumed to be repeat measurements of the most recent scheduled measurement (e.g., for follow-up or confirmation of a particular value). Therefore, unscheduled measurements will be assigned to the planned time point of the previous scheduled measurement.

7. PLANNED ANALYSIS

Safety analysis (refer to [Section 7.8](#)) will be performed by [REDACTED] and will be presented in Sections 9.1 to 9.4 of the CTR and in Appendix 10.6 and 10.5.1.

Inferential statistical analyses of PK endpoints (refer to [Section 7.4](#) and [Section 7.5.2](#)) will also be performed by [REDACTED] and will be presented in Section 9.5 of the CTR and in Appendix 10.5.3.

Descriptive data analysis of PK endpoints and concentrations will be performed by the [REDACTED] and will be presented in Section 9.6 of the CTR and in Appendix 10.5.5.

The format of the listings and tables will follow the BI standards (see “Standards for Reporting of Clinical Trials and Project Summaries” ([8](#)) with the exception of those generated for PK-calculations following BI standards for PK/PD analysis ([9](#)).

The individual values of all subjects will be listed, sorted by treatment sequence, subject number, visit and time point. The listings will be included in Appendix 10.6 of the CTR.

For end-of-text tables, the set of summary statistics for non-PK parameters is:

N	number non-missing observations
Mean	arithmetic mean
SD	standard deviation
Min	minimum
Median	median
Max	maximum

For analyte concentrations and PK parameters, the following descriptive statistics will additionally be calculated:

Nobs	number of observations
CV	arithmetic coefficient of variation
gMean	geometric mean
gCV	geometric coefficient of variation
P10	10th percentile
Q1	1st quartile
Q3	3rd quartile
P90	90th percentile

The data format for descriptive statistics of concentrations will be identical to the data format of the respective concentrations. The descriptive statistics of PK parameters will be calculated using the individual values with the number of decimal places as provided by the evaluation program. Then the individual values as well as the descriptive statistics will be reported with three significant digits in the CTR.

The gMeans and gMean ratio based on the inferential statistics will be reported with maximum of 2 decimal places.

Tabulations of frequencies for categorical data will include all possible categories available in the CRF and will display the number of observations in a category, as well as the percentage (%). The precision for percentages should be one decimal point, unless the denominator is smaller than 100 (in all treatment columns), in which case percentages are given in integer numbers. The category ‘missing’ will be displayed only if there are actually missing values.

Units of variables should be given in the titles or column/row descriptors in brackets (e.g., (mg)).

Exclusion of PK parameters

The ADS “ADPP” (PK parameters) contains column variables APEX and APEXCO indicating inclusion/exclusion (APEX) of a PK parameter and an analysis flag comment (APEXCO). All analyses based on the PKS will include parameters only if they are not flagged for exclusion, that is APEX is equal to “Included”.

Exclusion of PK concentrations

The ADS “ADPC” (PK concentrations per time-point or per time-interval) contains column variables ACEX and ACEXCO indicating inclusion/exclusion (ACEX) of a concentration and an analysis flag comment (ACEXCO). Exclusion of a concentration depends on the analysis flag comment ACEXCO. For example, if ACEXCO is set to ‘ALL CALC’, the value will be excluded for all types of analyses based on concentrations. If ACEXCO is set to ‘DESC STATS’ the value will be excluded from descriptive evaluations per planned time point/time interval. If ACEXCO contains the addition ‘TIME VIOLATION’ or ‘TIME DEVIATION’ the value can be used for further analyses based on actual times. If ACEXCO is set to ‘HALF LIFE’, the value will be excluded from half-life calculation (and, as a consequence, any calculation that relies on λz) only; the value is included for all other analyses.

Further details are given in “Noncompartmental Pharmacokinetic / Pharmacodynamic Analyses of Clinical Studies” ([7](#)) and “Description of Analytical Transfer Files and PK/PD Data Files” ([10](#)).

7.1 DEMOGRAPHIC AND OTHER BASELINE CHARACTERISTICS

Only descriptive statistics are planned for this section of the report, based on the TS. The data will be summarised by treatment sequence and in total.

7.2 CONCOMITANT DISEASES AND MEDICATION

Frequency tables are planned for this section of the report, based on the TS. Concomitant diseases will be coded using the coding system of the Medical Dictionary for Drug Regulatory Activities (MedDRA). Medications will be coded using the World Health Organization Drug Dictionary (WHO-DD). The coding version number will be displayed as a footnote in the respective output.

The diagnoses and medications will be listed. Subjects without any concomitant diagnoses or concomitant therapies will be marked with a “No” in the respective column.

Section 7.2.5 of the CTP:

Previous and concomitant therapies will be presented per treatment without consideration of treatment periods.

The relevance of the concomitant therapies to the evaluation of PK will be decided no later than at the RPM.

7.3 TREATMENT COMPLIANCE

Section 4.3 of the CTP:

Compliance will be assured by administration of all trial medication in the trial centre under supervision of the investigating physician or a designee. The measured plasma concentrations of trial medication will provide additional confirmation of compliance.

It is not intended to list the compliance separately. Any deviations from complete intake will be addressed in the RPM and described in the CTR.

7.4 PRIMARY OBJECTIVE ANALYSIS

Independent of the main objectives stated in the CTP, this section describes further details of the primary endpoint analyses outlined in the CTP.

7.4.1 Main analysis

Section 7.2.2 of the CTP:

Primary analyses

The primary endpoints (refer to [Section 5.1](#)) will be calculated with Non-Compartmental Analysis (NCA).

The statistical model used for the analysis of the primary endpoints will be an analysis of variance (ANOVA) model on the logarithmic scale. That is, the PK endpoints will be log-transformed (natural logarithm) prior to fitting the ANOVA model. This model will include effects accounting for the following sources of variation: sequence, subjects within sequences, period and treatment. The effect 'subjects within sequences' will be considered as random, whereas the other effects will be considered as fixed. The model is described by the following equation:

$$y_{ijkm} = \mu + \zeta_i + s_{im} + \pi_j + \tau_k + e_{ijkm}, \text{ where}$$

y_{ijkm} = logarithm of response measured on subject m in sequence i receiving treatment k in period j ,

μ = the overall mean,

ζ_i = the i^{th} sequence effect, $i = 1, 2$,

s_{im} = the effect associated with the m^{th} subject in the i^{th} sequence,

$m = 1, 2, \dots, n_i$

π_j = the j^{th} period effect, $j = 1, 2$

τ_k = the k^{th} treatment effect, $k = 1, 2$

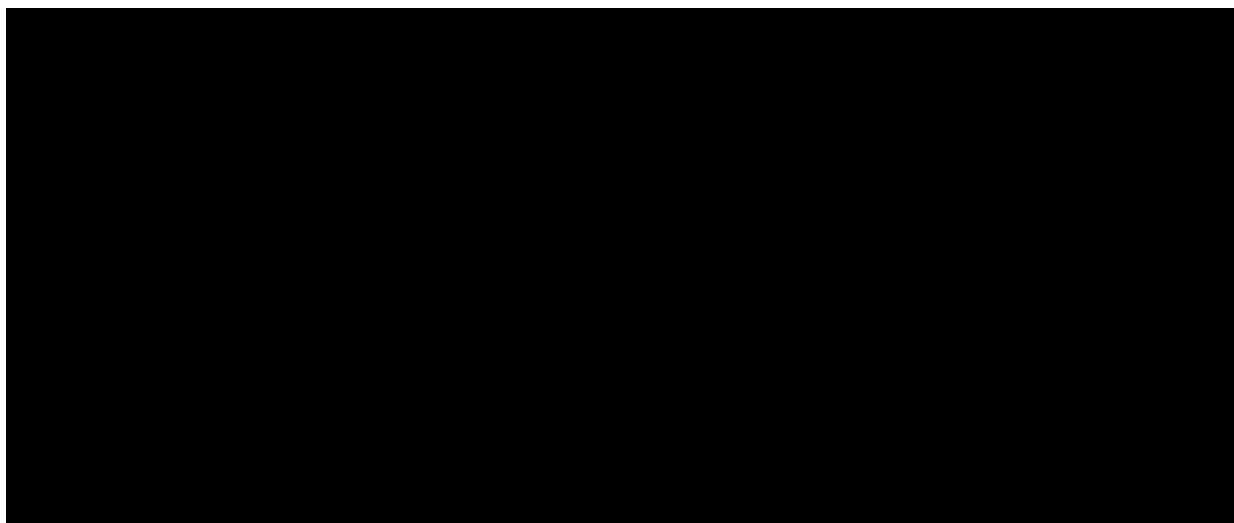
e_{ijkm} = the random error associated with the m^{th} subject in sequence i who received treatment k in period j .

where $s_{im} \sim N(0, \sigma_B^2)$ i.i.d., $e_{ijkm} \sim N(0, \sigma_W^2)$ i.i.d. and s_{im} , e_{ijkm} are independent random variables.

Point estimates for the ratios of the geometric means (test/reference) for the primary endpoints (see CTP Section 2.1) and their two-sided 90% confidence intervals (CIs) will be provided.

For each endpoint, the difference between the expected means for log(T)-log(R) will be estimated by the difference in the corresponding adjusted means (Least Squares Means). Additionally their two-sided 90% confidence intervals will be calculated based on the residual error from the ANOVA and quantiles from the t-distribution. These quantities will then be back-transformed to the original scale to provide the point estimate and 90% CIs for each endpoint.

Bioequivalence is considered established if the 90% confidence intervals of the geometric means for the primary endpoints are contained in the pre-defined acceptance range, see CTP Section 7.1.



7.5 SECONDARY OBJECTIVE ANALYSIS

Independent of the main objectives stated in the CTP, this section describes further details of the secondary endpoint analyses.

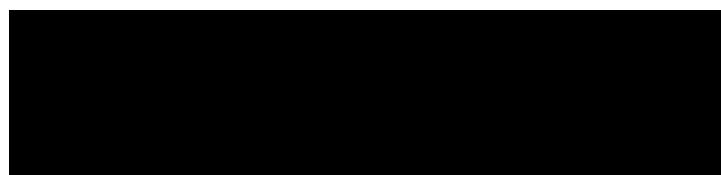
7.5.1 Key secondary objective analysis

This section is not applicable as no key secondary endpoint has been specified in the protocol.

7.5.2 Secondary objective analysis

Section 7.2.3 of the CTP:

The secondary endpoints (refer to [Section 5.2](#)) will be calculated with NCA and will be assessed statistically using the same methods as described for the primary endpoints.



7.7 EXTENT OF EXPOSURE

Descriptive statistics are planned for this section of the report based on the TS. The date and time of drug administration will be listed for each subject.

7.8 SAFETY ANALYSIS

All safety analyses will be performed on the TS.

7.8.1 Adverse Events

AEs will be coded using MedDRA. The coding version number will be displayed as a footnote in the respective output.

Unless otherwise specified, the analyses of AEs will be descriptive in nature. All analyses of AEs will be based on the number of subjects with AEs and NOT on the number of AEs. BI standards as presented in “Analysis and Presentation of Adverse Event Data from Clinical Trials – Display Template” (11) and (12) will be applied.

The analysis of AEs will be based on the concept of treatment emergent AEs. That means that all AEs will be assigned to ‘screening’, ‘on-treatment’ or ‘follow-up’ phases as defined in [Section 6.1](#). AEs will be analysed based on actual treatments, as defined in [Table 6.1: 1](#).

According to the clinical study protocol, adverse events of special interest (AESI) will be analysed:

Section 5.2.6.1.4 of the CTP:

The following are considered as AESIs:

- Potential severe DILI

A potential severe Drug Induced Liver Injury (DILI) that requires follow-up is defined by the following alterations of hepatic laboratory parameters

1. *AST (aspartate aminotransferase) and/ or ALT (alanine aminotransferase) elevation $\geq 3x$ ULN and TB (total bilirubin) $\geq 2x$ ULN measured at the same visit, or in samples drawn within 30 days of each other, OR*
2. *AST and/ or ALT elevation $\geq 3x$ ULN and INR $\geq 1.5x$ ULN measured at the same visit, or in samples drawn within 30 days of each other, OR*
3. *AST and/ or ALT elevation $\geq 3x$ ULN with new onset, or worsening of fatigue, nausea, vomiting, right upper quadrant pain or tenderness, fever, rash, and/ or eosinophilia ($>5\%$), OR*
4. *AST and/ or ALT elevation $\geq 5x$ ULN.*

[...]

- Vasculitis events

In this CTP, vasculitis is defined as any event term included in the MedDRA SMQ Vasculitis (broad). This includes clinical and pathological features related to primary

or secondary vasculitis syndromes and involving any type, size, and location of blood vessels.

[...]

- *Serious infections, opportunistic or mycobacterium tuberculosis infections*

[...]

According to ICH E3 ([13](#)), in addition to Deaths and serious adverse events, ‘other significant’ AEs need to be listed in the clinical trial report. These will be any non-serious adverse event that led to an action taken with study drug (e.g., discontinuation or dose reduced or interrupted).

An overall summary of adverse events will be presented.

The frequency of subjects with AEs will be summarised by treatment, primary system organ class (SOC) and preferred term (PT). Separate tables will be provided for subjects with serious AEs, for subjects with drug-related AEs, for subjects with drug-related serious adverse events and for subjects with AESIs. In addition, the frequency of subjects with AEs will be summarised by worst intensity, treatment, primary system organ class (SOC) and preferred term (PT).

The system organ classes will be sorted alphabetically, PTs will be sorted by frequency (within SOC).

In addition, frequencies of subjects with non-serious AEs that had an incidence of $> 5\%$ for at least one treatment will be summarised by treatment, primary SOC and PT.

For disclosure of adverse events on EudraCT, additional information not included in a standard AE analysis will be performed, for both trial parts together. The following three entries will be created:

- Adverse Events per arm for disclosure on EudraCT
- Non-serious Adverse Events for disclosure on EudraCT
- Serious Adverse Events for disclosure on EudraCT

7.8.2 Laboratory data

The analyses of laboratory data will be descriptive in nature and will be based on BI standards as presented in “Handling, Display and Analysis of Laboratory Data” ([14](#)). Analyses will be based on normalised values, which means transforming to a standard unit and a standard reference range. The original values will be analysed if the transformation into standard unit is not possible for a parameter.

Laboratory data will be analysed qualitatively via comparison of laboratory data to their reference ranges. Values outside the reference range will be flagged in the data listings.

Clinically relevant findings in laboratory data will be reported as baseline conditions (at screening) or as AEs (during the trial) if judged clinically relevant by the investigator, and will be analysed as such.

It is the investigator's responsibility to decide whether a lab value is clinically significantly abnormal or not (at the RPM at the latest).

Descriptive statistics of post-dose laboratory data including change from baseline will be calculated by planned time point based on the first value of the subject at that planned time point (or assigned to that planned time point). The baseline value is defined as the last measurement before drug administration in each treatment period.

7.8.3 Vital signs

Descriptive statistics over time including change from baseline will be performed for vital signs (blood pressure and pulse rate). In the listing the change from baseline will also be displayed.

Body weight (absolute values and changes from baseline) will be listed only.

For post-dose measurements of vital signs, descriptive statistics will be calculated by planned time point based on the first value of the subject at that planned time point (or assigned to that planned time point). For baseline value, the last measurement before first drug administration in each treatment period will be used.

Clinically relevant findings will be reported as baseline conditions (at screening) or as AEs (during the trial) if judged clinically relevant by the investigator, and will be analysed as such.

7.8.4 ECG

Clinically relevant abnormal findings will be reported as adverse events.

No separate listing or analysis of ECG data will be prepared.

7.9 OTHER ANALYSIS

Physical examination

Physical examination findings will be reported as relevant medical history/baseline condition (i.e., a condition already existent before intake of trial drug) or as AE and will be summarised as such.

No separate listing or analysis of physical examination findings will be prepared.

7.9.1 Biomarker analyses

Not applicable.

7.9.2 PK / PD analyses

No analysis of the relationship between pharmacokinetic and pharmacodynamic parameters is planned for this trial.

8. TIMEPOINT OF RELEASE OF TREATMENT INFORMATION

The treatment information will be loaded into the trial database during trial conduct. Persons directly involved in bioanalyses of PK samples will be blinded to trial treatments until data base lock.

9. REFERENCES

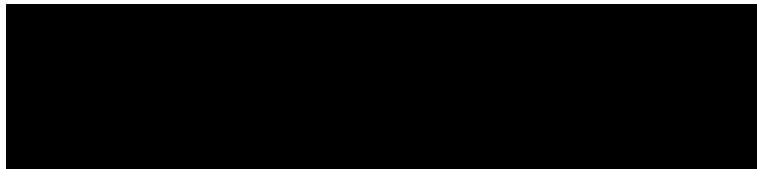
1.	<i>CPMP/ICH/363/96</i> : “Statistical Principles for Clinical Trials”, ICH Guideline Topic E9, Note For Guidance on Statistical Principles for Clinical Trials, current version.
2.	<i>001-MCS-40-413</i> : “Identify and Manage Important Protocol Deviations (iPD)”, current version, Group “Clinical Operations”, IDEA for CON.
3.	<i>BI-KMED-BDS-TMP-0059</i> : “iPD specification document (sdtm-dv-domain-specification)”, template, current version, KMED.
4.	<i>001-MCS-50-415_RD-03</i> : “Clinical Trial Analysis Decision Log (template) Decision Log”, current version, Group “Biostatistics & Data Sciences”, IDEA for CON.
5.	<i>BI-KMED-BDS-HTG-0035</i> : “Handling of Missing and Incomplete AE Dates”, current version; KMED.
6.	<i>BI-KMED-TMCP-HTG-0025</i> : “Standards and processes for analyses performed within Clinical Pharmacokinetics/Pharmacodynamics”, current version; KMED.
7.	<i>BI-KMED-TMCP-MAN-0014</i> : “Noncompartmental Pharmacokinetic / Pharmacodynamic Analyses of Clinical Studies”, current version; KMED.
8.	<i>BI-KMED-BDS-HTG-0045</i> : “Standards for Reporting of Clinical Trials and Project Summaries”, current version; KMED.
9.	<i>BI-KMED-TMCP-OTH-0003</i> : “Graphs and Tables for Clinical Pharmacokinetics and Pharmacodynamic Noncompartmental Analyses”, current version, KMED.
10.	<i>BI-KMED-TMCP-MAN-0010</i> : “Description of Analytical Transfer Files and PK/PD Data Files”, current version; KMED.
11.	<i>BI-KMED-BDS-HTG-0041</i> : “Analysis and Presentation of Adverse Event Data from Clinical Trials – Display Template”, current version; KMED.
12.	<i>BI-KMED-BDS-HTG-0066</i> : “Analysis and Presentation of AE data from clinical trials”, current version, KMED.
13.	<i>CPMP/ICH/137/95</i> : “Structure and Content of Clinical Study Reports”, ICH Guideline Topic E3; Note For Guidance on Structure and Content of Clinical Study Reports, current version, EMA webpage.
14.	<i>BI-KMED-BDS-HTG-0042</i> : “Handling, Display and Analysis of Laboratory Data”, current version; KMED.

Boehringer Ingelheim
TRIAL STATISTICAL ANALYSIS PLAN
1305-0051

Page 26 of 27

c44494047-01

Proprietary confidential information © 2024 Boehringer Ingelheim International GmbH or one or more of its affiliated companies.



11. HISTORY TABLE

Table 11: 1 History table

Version	Date (DD-MMM- YY)	Author	Sections changed	Brief description of change
1.0	12-SEP-24		None	This is the final TSAP.