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|  | | | Study Report | |
|  | | | Drug Substance | <<>> |
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| <<*Study Title – verbatim from Study Protocol*>> | | | | |
| title page | | | | |
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| Product Name: | |  | | |
| Project Team Members: | | Names and contact information for engagement leads and Design and Analytics Core Team Members | | |
| Requesting department | | Names and contact information for Department/team members that requested the study | | |
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| **Drug Substance or Disease State** | | | Insert active ingredient, generic name of drug, or disease state studied | | | | |
| **Edition Number** | | | Insert Edition number of final approved document using an integer, i.e., 1, 2, 3 etc. | | | | |
| **Date** | | | Enter date of final approval by signatories. | | | | |
| **Study code** | | |  | | | | |
| **Date of protocol approval** | | |  | | | | |
| **Content approved by study team** | | Internal and external investigators | | | | |
| **Sponsor’s Accountable Scientist** | |  | | | | |
| **Final Sign-off** | | |  | | | | |

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List of Abbreviations and Definitions of Terms

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| --- |
| For the author:  Provide an alphabetically ordered list of the abbreviations used in the study report, and definitions of any unusual or specialised terms or measurement units. Abbreviated terms that are not generally accepted should also be spelled out when they first appear in the text (including standard text), and the abbreviation should be given in parentheses.  Note, that widely accepted and/or SI units do not need to be defined (e.g., h, min, g, cm, kg, etc). The table below is an example and contains all abbreviations included in the study report template. |

The following abbreviations and special terms are used in this study report.

| **Abbreviation or special term** | **Explanation** | |
| --- | --- | --- |
| AE | Adverse event | |
| RWE | Real World Evidence | |
| GRACE  ISPOR | Good Research for Comparative Effectiveness  International Society for Pharmacoeconomics and Outcomes Research | |
| ISPE | International Society for Pharmacoepidemiology | |
| GPP | Good Pharmacoepidemiology Practice |
| SAE | Serious adverse event (see definition in Section 14). |
| STROBE | Strengthening the Reporting of Observational Studies in Epidemiology |
| ENCEPP | The European Network of Centres for Pharmacoepidemiology and Pharmacovigilance |
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# Executive Summary

# Ethics

|  |
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| For the author:  Indicate whether this study was performed in compliance with the International Society of Pharmacoepidemiology (ISPE) Guidelines for good Pharmacoepidemiology Practices (GPP) (http://www.pharmacoepi.org/resources/ispe\_guidelines\_2008.pdf), the **International Society for Pharmacoeconomics and Outcomes Research (ISPOR) Good Outcomes Research Practices (http://www.ispor.org/workpaper/practices\_index.asp),** the Good Research for Comparative Effectiveness (GRACE) principals (http://www.graceprinciples.org/), and/or the European Network of Centres for Pharmacoepidemiology and Pharmacovigilance (ENCEPP) Code of Conduct (http://www.encepp.eu/code\_of\_conduct/index.html).  Please refer to the STROBE Statement for a summary of reporting recommendations for observational studies (http://www.strobe-statement.org/). |

# Investigators and study administrative structure

|  |
| --- |
| **For the author:**  Briefly describe the administrative structure of the study. Provide the names, titles, degrees, affiliations, and addresses of all internal and external investigators. Describe any steering, co-ordinating, safety, or other committee involved in the study and their responsibilities and functions. Key personnel from Epidemiology, HEOR, Statistics, and Engagement Leads should be listed. |

# introduction

|  |
| --- |
| For the author:  THE INTRODUCTION SHOULD GENERALLY NOT EXCEED 1 PAGE.  The introduction should contain a brief section placing the study in the general scientific context regarding the associations to be studied. The study should also be placed in context of the product’s lifecycle. Start with a statement of the study purpose and if applicable, state the indication/ disease under study, the medical need and shortcomings of relevant current treatments. State the research hypothesis, as applicable. Relate the critical features of the study (e.g., rationale, aims, target population, duration, and primary endpoints) within the context of the product’s lifecycle. Any specific guidelines, or any regulatory requirements or agreements with a regulatory or payer authority that might have an impact on the validity of the study should be acknowledged and discussed (briefly here, and in detail in the limitations section).  The reviewer should be referred back to the final (revised, if applicable) protocol for further information regarding the study rationale, context and design. |

## Background

## Scientific and Business Rationale and Significance

# study objectives

|  |
| --- |
| For the author:  The study objectives should be taken verbatim from the final study protocol and should include both the primary and secondary objectives. |

## Primary Objectives

## Secondary Objectives

## Exploratory and Other Objectives

# study plan Overview

|  |
| --- |
| For the author:  The purpose of this section is to explain the study design, population, exposure and outcomes. After reading this section, the reader should be satisfied that the study was scientifically capable of answering the study hypotheses and meeting the study objectives. |

## Rationale for Study Design

|  |
| --- |
| For the author:  Briefly summarise the, health economic, epidemiological, medical and statistical justification for the key study design decisions as appropriate. For example, a cohort design permits assessment of multiple outcomes and the direct estimation of incidence.  Please also provide a justification of the choice of comparators. |

## Databases used

|  |
| --- |
| **For the author:**  Provide a brief description of the database(s) that were used for this study and the rationale for selecting them. |

## Overall study design and flow chart

|  |
| --- |
| For the author:  Summarise the study selection process; illustrate how patients, exposures and outcomes were identified. If appropriate, include a study plan in table format and/or a study flow chart. |

Figure Flow chart of study design

|  |
| --- |
| **For the author:**  For example, please outline who patients were identified, the index date (if applicable), when follow-up began and ended and any lag-time that was incorporated into the study, how switching from one exposure to another was handled, etc. |

**Table 1. Study Timelines and Milestone Chart**

|  |
| --- |
| **For the author:**  Please provide a summary of completion dates for the main milestones of this study. For example, date of data receipt, date of interim analysis, date of final statistical analysis, etc. |

## 

# Selection of study population

## Population to be studied

|  |
| --- |
| For the author: Please describe the source population. |

## Inclusion criteria

|  |
| --- |
| For the author: This section should be taken from the final study protocol. |

## Exclusion criteria

|  |
| --- |
| For the author: This section should be taken from the final study protocol. |

# Exposures of Interest

## Drug-specific exposure/treatment

|  |
| --- |
| **For the author:** If applicable, please summarize the drug exposures that were assessed in this study, including doses and treatment regimens. Indicate if you used a new-user design and if so, provide an operational definition of a new-user. Provide a detailed, operational definition for each exposure group and indicate how you handled patients who discontinue a study drug, switch to another therapy, add-on additional therapies, etc. |

## 

## Treatment Compliance

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| **For the author:** If applicable, discuss how compliance and persistence were assessed. |

## Other exposures of interest

# Observation period

|  |
| --- |
| **For the author:** Please provide a discussion of the baseline period, the index date, and the observation period. Please provide a summary that outlines when the observation period began and ended, including specific criteria for ending observation (e.g., disenrollment from a health plan, death, experiencing an event of interest). Also indicate how you handled patients who experience multiple events of interest, if applicable. Explain how you address data for patients who discontinue, switch or add-on therapies. |

# Definitions of outcome interest

|  |
| --- |
| **For the author:**  Provide definitions, methods of assessment and how each variable was operationalized. |

## Primary outcome(s)

## Secondary outcome(s) (and other outcome interests, if applicable)

# DEFINITIONS OF OTHER VARIABLES

## Demographics

## Potential confounders and effect modifier variables

# Data management

## Confidentiality of study data

## Data storage and retention

## Data access procedures

## Quality control and management procedures

## Protocol deviations

# Statistical methods and determination of sample size

|  |
| --- |
| For the author:  For confirmatory studies, it is particularly important to justify the sample size, and to confirm that the magnitude of the desired difference between treatment groups is genuinely clinically relevant.  The final Statistical Analysis Plan (SAP), if created, should be included an Appendix at the end of the document. |

## Statistical and analytical methods

|  |
| --- |
| For the author:  Present the statistical and analytical methods used. It is particularly important to include enough detail for an independent statistician to replicate the analysis for key decision rules related to the primary and key secondary objectives.  Justification as to why the planned statistical methods were chosen should be presented here (if the methods are non traditional or if the justification is critical to present for the reviewer to interpret the data), or refer the reader to the RWE study protocol or SAP.  If there were changes to planned statistical methods/analyses, briefly state this here and provide greater detail if needed in an appendix. Justify the deviations from the planned analyses and describe the possible implications of the change(s) for the interpretation of the study described in Section 12.  State the statistical software (vendor and version) used (for example SAS® Version <<>>).  Any statistical issue relating to a planned study variable should be discussed here.  Describe any methods used to examine subgroups and interactions.  Explain how missing data were addressed.  Describe any sensitivity analyses. |

## Determination of sample size

|  |
| --- |
| For the author: The planned sample size and the basis for it should be briefly summarised, based on the study protocol. |

## Confounding

|  |
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| **For the author:** Define and explain methods used to minimize the impact of confounding and channelling bias. |

## Description of analysis sets

|  |
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| For the author: Define and explain the criteria used to select the subjects included in each analysis |

## Exploratory analyses

## Interim analyses

|  |
| --- |
| For the author:  Delete this section if no interim analysis was conducted.  Otherwise, describe and justify the purpose and timing of any formal or informal interim analysis conducted by any investigator or data monitoring group, whether a priori or ad hoc, procedures for the interim analysis, including the outcome variables analysed, need for statistical adjustment because of such analyses, and issues relevant to the disease under study should be discussed. |

# Results – descriptive data

## Subjects analysed

|  |
| --- |
| For the author:  Using a figure (or a table), give the number of subjects in each analysis set, and summarise the reason for subjects not qualifying for the analyses by treatment groups. If the sample is matched on baseline data, either directly or using a balancing score describe the patients that where matched in relation to the patients that could not be matched. Describe patients that were impossible to match due to an imbalance in the balancing score separately: |

## Demographic and other subject characteristics

|  |
| --- |
| For the author:  Present summary data for critical demographic and baseline variables in each treatment group in a table. If applicable, include summary data for other factors that arose during the study and may have influenced the comparability of the treatment groups or the generalizability of the study.  In multi-regional studies where data is pooled from several regional databases, it may be appropriate to compare regions.  The variables to be included depend on the nature of the study. Age, age groupings, sex, geographic region, race, and ethnic group are usually included in the presentation of data describing demographic characteristics.  Other relevant variables that may be presented in subsequent data displays, include:   * Relevant previous disease-related treatment modalities (e.g., chemotherapy, cognitive therapy, type of surgery, etc) * Relevant previous treatment for the disease under study * Relevant previous illness and relevant concomitant diseases (medical history). If applicable, consider duration, stage and severity of disease and other clinical classification or sub-grouping of prognostic factors, including any variables used for stratification * Baseline values for critical outcome measurements (safety, health outcomes, effectiveness, healthcare utilization, etc). * Concomitant medications taken during the course of the study * Other factors that may affect exposure or study outcome (eg, weight, metabolic status, body temperature, smoking and alcohol intake, if available). * Baseline measures for other key risk factors and potential confounders. |

### Treatment adherence/compliance

|  |
| --- |
| For the author:  If treatment compliance was not measured, delete this section.  Summarise measurements of compliance, including drug concentration information if used for this purpose, by treatment group and over time, using a table. Comment on how the observed levels of compliance might affect efficacy, safety or pharmacokinetics. |

## Discussion on study subjects

|  |
| --- |
| For the author:  Comment on whether there are any imbalances between treatment groups that could have a potential influence on the results and their interpretation. Comment on whether or not the patient population recruited to the study was adequately representative of the target population for the investigational product, or the appropriateness of the study population in relation to the study objectives |

# Main Results

## Primary Outcome

|  |
| --- |
| For the author:  If more than 1 primary outcome, change the heading above to “Primary Outcomes” and create a separate 3rd level sub-heading for each primary outcome. Present the results for the primary analysis set in text. If results for any secondary analyses differ from the primary analysis set, present data for these here (if critical to the interpretation of the study), or in Appendix A, and comment on the differences between the analysis sets. If an interim analysis was conducted, report the results here, in the same manner as for subpopulation analyses. Clearly indicate what steps and variables were used to control for confounding.  Interpret the results presented in each section, in particular stating not just statistical significance, and the relationship of the data to any predefined statistical decision rules, but also clinical relevance. Address any inconsistencies in the data. Ensure that all interpretation is written with an awareness of the specific claims that the study is designed to deliver. |

Additional tables and figures pertaining to this section are presented in Appendix A.

## Secondary Outcomes

|  |
| --- |
| For the author:  Address secondary outcomes in a manner consistent with the primary outcomes, if appropriate. An abbreviated treatment of secondary outcomes (with cross-referencing to relevant data in Appendix A) may be warranted for secondary outcomes that do not address key messages or are not critical to the interpretation of the study. |

Additional tables and figures pertaining to this section are presented in Appendix A.

### Insert the name of secondary outcome 1

### Insert the name of secondary outcome 2

# results of other analysis, including exploratory

|  |
| --- |
| For the author:  Report other analyses done – e.g. analyses of subgroups and interactions, and sensitivity analyses. |

## Results of other analysis

## Discussion of other analysis

# DISCUSSION AND OVERALL CONCLUSIONS

|  |
| --- |
| For the author:  The objectives of the study should be completely addressed and the study conclusions fully supportable by the data. |

## Key results

|  |
| --- |
| For the author:  Summarise key results with reference to study objectives in a clear and concise manner. Results should be presented here in a way consistent with the objectives of the study. It is important to present the primary objective along with any secondary variables that are critical to the interpretation of the study. |

## Discussion

|  |
| --- |
| For the author:  Present an integrated discussion of the results of the study. Avoid repetition of the data. Focus on the primary objective of the study, referring to the tables, figures, and sections above as needed.  In the discussion, take care to:   * identify any new or unexpected findings and comment on their significance * discuss any potential problems (e.g., inconsistencies between related measures) * discuss the relevance and the implication (e.g., impact of inclusion/exclusion criteria) of the results in the light of other existing data including previous studies on the same or related topics * discuss the biological plausibility of the associations addressed in the study |

## Interpretation and Implications

|  |
| --- |
| For the author:  Give a cautious overall interpretation of results and their implications, considering objectives, limitations, multiplicity of analyses, results from similar studies, biological plausibility, and other relevant evidence. |

## Study Limitations

|  |
| --- |
| For the author: Discuss possible sources of bias in the study, including confounding, misclassification of exposure, outcome, and covariates as well as selection bias. Discuss both direction and magnitude of any potential bias. Discuss to what extent poor statistical precision may have influenced the findings. |

## Generalizability

|  |
| --- |
| For the author: Discuss the generalizability (external validity) of the study results. |

## Overall conclusions

|  |
| --- |
| For the author:  The overall conclusions should be presented using a bulleted format, for clarity. Ideally, the overall conclusions should succinctly reflect the “take-home” message intended for the reader. These conclusions should be copied directly into the synopsis of the study report. |

# REFERENCE LIST

|  |
| --- |
| For the author:  List all articles referenced in the study report, and all articles in which the results of the study appear, in alphabetical order. It is important to:   * Include the minimum number of references necessary to justify statements made in the study report. * Avoid referring to internal reports unless approval to do so has been obtained. Do not refer to draft internal reports that may change. * Insert citation references in accordance with the current Style Guide, which incorporates the internationally accepted standards of the Vancouver Declaration on “Uniform Requirements for Manuscripts Submitted to Biomedical Journals” (see example below).   Anderson KM et al 1991  Anderson KM, Wilson PWF, Odell PM, Kannel WB. An updated coronary risk profile: A statement for health professionals. Circulation 1991; 83:356-62. |

# Appendix A: Supportive TABLES and FIGURES

|  |
| --- |
| For the author :   * Important data should be presented in summary figures or tables in the body of the report. * All tables and figures in this Section should be self-explanatory without reference to the text (i.e., any unusual abbreviations should be spelled out in footnotes to the table or figure). |

# Appendix B: Protocol and SAP

## Protocol and protocol amendments

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| For the author:  Include:  A copy of the first final version of the protocol prior to any amendments.  All subsequent protocol amendments  Start this section with a table listing the contents of this appendix, e.g.,   |  |  | | --- | --- | | Version of protocol or protocol amendment | Date of issue | | First final version of the protocol prior to any amendments |  | | Protocol amendment 1 |  | | Protocol amendment 2 |  | |

## Documentation of statistical methods and supporting statistical analysis

|  |
| --- |
| For the author:  Include the final Statistical Analysis Plan, if available, and any results of supporting statistical analysis (provided by the statistician, as applicable). |