Basic Data Structure for ADaM PopPK Implementation Guide

Version 1.0

Prepared by the CDISC ADaM Population Pharmacokinetic Standards Development Team

Notes to Readers

- This is the final Version 1.0 of the Basic Data Structure for ADaM PopPK Implementation Guide.
- This implementation guide corresponds to the Analysis Data Model Implementation Guides (ADaMIG) v1.1 and higher.

Revision History

Date	Version
2023-10-06	1.0 Final

See Appendix D for Representations and Warranties, Limitations of Liability, and Disclaimers.

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1 Introduction

Pharmacokinetics (PK) is the study of the effect of the body on a drug: the time course of absorption, distribution, and elimination processes of a drug in the body. Population PK (popPK) is a model-based representation of PK processes with a statistical component, enabling identification of the sources of inter- and intraindividual variability. This analysis approach is well suited for analysis of large heterogeneous PK datasets generated as part of standard multistudy clinical programs and often used as a basis for simulations to inform dose selection and other milestones of drug development. Such analyses are performed regularly throughout the drug development cycle, and represent important components of a regulatory submission dossier.

PopPK data are longitudinal, with a degree of complexity which accounts for data items corresponding to time, drug concentration measurements, dosing schedule of the drug, and anonymized individual identifiers. Specifically, the input analysis data need to associate individual-level subject drug concentrations with study drug dosing and specific timing variables to relate concentrations of drug (PK) to the time from dose, and include individual physiological and demographic characteristics. Such datasets should also support exclusion of specific records to facilitate model-based sensitivity analyses. Nonetheless, such data lend themselves to standardization as population pharmacokinetic data and its models need to be typically constructed and used with software packages requiring defined (PK analysis data as its) input. A popPK data standard which is compliant with Analysis Data Model (ADaM; https://www.cdisc.org/standards/foundational/adam) standards will improve quality of popPK analyses and their interpretation within the context of clinical trial research, facilitating improvements across scientific and regulatory interactions.

Population-based pharmacokinetics applies pharmacokinetic concepts to construct a mathematical model describing how a compound (drug) behaves in the intended target treatment population. The scope of analysis and typically larger heterogeneous data pool with fewer individual PK samples per patient (e.g., sparse sampling) allows for evaluation of patient characteristics or covariates that may influence how the basic drug properties are changed or consistent across the intended target population. This approach also allows for evaluation of patient characteristics where the target patient pool limits the amount of PK sampling that can occur (e.g., pediatrics). While conventional approaches (e.g., NCA) often allow for specific assessment of drug characteristics in an individual, population approaches allow for the extrapolation of drug characteristics into larger more diverse patient pools and the prediction of response in future patients based on significant patient cofactors. Because of the larger heterogenous nature of the population(s) being studied, the datasets constructed for population-based analysis often have multiple stacked analysis variables, multiple time indices, and numerous cofactors all merged into **one analysis dataset**. It is important to note that this analysis data set can be constructed from either single or pooled studies.

The ADaM ADPPK standard is intended to provide a template for model-based population pharmacokinetic analysis. This template will be utilized as an input into a software package specific for population pharmacokinetic analysis. The underlying structure is based on some of the original population-based modeling software created for pharmacokinetic and pharmacodynamic evaluation. This template contains both numeric and textual results within the same dataset and may need to be adapted for any one individual program. This dataset can also be used to create tables and graphs that can be included in the population PK report.

The format of the dataset defined by the ADPPK standard derives some of its structure from the NONMEM analysis software system. Awareness of and compatibility with the NONMEM format has heavily influenced the design and structure of many newer population-based software systems. In general, the pharmacometric dataset will have elements of input mass, time, covariates, and the observations of events which the model is intended to describe and conforms to a structure accepted by most existing software packages. Data must be present in a text (i.e., ASCII) format flat file with appropriate delimiters. The data file has a two-dimensional arrangement of data in rows and columns. All data for analysis should be numerical except for certain formats of DATE and TIME, which may include alphabetic characters. A few NONMEM reserved variable names have been adopted, or are interpreted, by many newer software programs and therefore have been incorporated into this standard (e.g., DV, EVID, MDV). It is accepted, however, that other standard ADaM structure names may need to be modified to make this standard dataset compliant with any one particular software package.

The purpose of this document is to present the ADaM Basic Data Structure (BDS) and required extensions for popPK. The ADaM Implementation Guide (ADaMIG) supports many of the variables needed for popPK analysis and provides general naming conventions that can be leveraged in the definition of other variables. The ADaM

popPK implementation guide provides specific guidance for all common variables and may be viewed as the ADaM BDS model plus additional popPK variables. In this document, the ADaM popPK dataset is referred to as an ADPPK dataset. This does not imply a required naming convention, although using ADPPK as a prefix is recommended. Other relevant information can be used in the dataset name (e.g., ADPPKxyz). The popPK dataset should be named following the ADaM standard naming convention, as described in ADaM Version 2.1.

2 Points to Consider in this Document

In reviewing and applying the ADPPK dataset specifications, the following points should be considered:

- **Analysis-ready:** ADPPK datasets should be created with the objective of being "analysis-ready"—containing the variables needed for the intended use of popPK analysis. The ADPPK dataset may be used to create tables, listings, and figures. These outputs may include observed concentration-time data, summary of subject covariates included in the analysis or reporting and diagnostic purposes consistent with the objectives of an analysis, but it is not its primary purpose. In addition to required variables such as subject identifiers, treatment variables, and PK sample variables, other critical variables included in the analysis dataset may be considered "study-specific" or "analysis-specific"; they may depend on the specific nature of the disease/indication/analysis objective. Some variables may be derived and/or populated by the analysts (pharmacometricians) during the process of popPK analysis to document analysis-specific information such as outlier observations. Variables needed to accomplish this are referenced in the metadata. It is out of scope for the ADPPK to define all possible variables that might be needed to achieve the goals for all specific analyses. The term "analysis-specific" also refers to specific requirements of a software platform for nonlinear mixed effect modeling (e.g., NONMEM, Monolix, Phoenix NLME, R). Those requirements usually involve particular naming of variables, which can easily be achieved by minimal manipulation of ADPPK. It is beyond the scope of this dataset to cover all the specific details of any commercial software. The ADPPK is a popPK data standard, not a software data standard.
- **Identification of source dataset:** When identifying the source dataset for a variable, the immediate predecessor variable is used, as described in ADaM v2.1 (available at https://www.cdisc.org/standards/foundational/adam). The dosing and subject-level datasets, among others, are predecessor datasets for many ADPPK variables. Dosing datasets may include SDTM Exposure (EX or EC, or derived) datasets, utilizing ADaM standards. If ADaM Subject-Level Analysis Dataset (ADSL), other derived ADaM dataset, or applicable SDTM variables are not available, then an ADaM-appropriate variable (see Table 3.2, Population Pharmacokinetics Analysis Variables) will be used. Multiple CDISC source datasets may be used to populate ADPPK based on analysis need. Outside of the SDTM Pharmacokinetics Concentrations (PC) dataset, ADaM sources are expected to be the most common but may not be the only sources used to create the ADPPK dataset. All data sources used are to be indicated and provided as supporting information.
- **Ordering of variables:** Per ADaM v2.1, the ordering of the variables in the analysis dataset should follow a logical ordering (not simply alphabetic). Thus, the ADPPK dataset is ordered in a way that is sensible to the intended use of the dataset (e.g., identification and event variables, time variables, covariates). Within this document, however, no specific ordering of variables within the illustrated datasets is applied, as the tables shown only contain variables relevant to the example. Within this document, the authors of each example table applied their own analysis-specific ordering.
- **Display of metadata and dataset examples for illustration of content only:** Although the metadata elements have been defined in ADaM, their display is a function of the mechanism used to display the content. Examples of datasets, formatting, and presentation styles in this document are for the purpose of illustration only, and are not intended to imply any type of display standard or requirement.
- **Examples of variables are not meant to be all-inclusive:** The examples in this document describe some of the key variables and records that may be included in the ADPPK dataset. They are not intended to illustrate every possible variable that might be included in the analysis dataset, as many variables are study-specific. This is particularly the case for covariates, where only some types (e.g., basic demographics, lab assessments) of variables are included.
- **No endorsement of vendors or products:** In an effort to provide illustrations of the ADaM concepts, examples provided may reference specific programming languages. As with other ADaM documents, references of specific vendor products are examples only, and should not be interpreted as an endorsement of these vendors or products.

3 ADaM Metadata

3.1 Dataset Metadata

Typically, the Analysis Dataset Metadata for an ADPPK dataset is specified as follows:

Table 3.1. Data Structure

Data Structure Name	Data Structure Description	Class of Dataset	SubClass of Dataset	CDISC Notes
ADPPK	Basic Data Structure Population Pharmacokinetic Analysis	BASIC DATA STRUCTURE	POPULATION PHARMACOKINETIC ANALYSIS	Dataset designed to support PPK. Sourced from SDTM (e.g., PC, DM, EX, LB) and ADaM (e.g., ADSL and ADEX datasets).

The Data Structure Name, Data Structure Description, and CDISC Notes are intended to provide information to assist producers in preparing their datasets and are not intended to be metadata submitted in define.xml.

3.1.1 Define.xml Example Dataset Metadata

Table 3.1.1 shows how dataset metadata are specified for popPK. This layout matches Define-XML v2.1 (available at https://www.cdisc.org/standards/data-exchange/define-xml), which includes a methodology for representing SubClass. PPK datasets are of the Class BASIC DATA STRUCTURE, SubClass POPULATION PHARMACOKINETIC ANALYSIS.

Some text, including dataset name and description (label), can be modified. In this example, "parameter" refers to analyte, "analysis visit" refers to dose event, and "analysis timepoint" refers to sample.

Table 3.1.1 Define.xml Example Dataset Metadata

Dataset	Description	Class - SubClass	Structure	Purpose	Keys	Documentation	Location
ADPPK	Population PK Analysis Dataset	BASIC DATA STRUCTURE • POPULATION PHARMACOKINETIC ANALYSIS	One record per subject per parameter (analyte) per analysis timepoint per event (dosing or observation)	Analysis	USUBJID, AFRLT (Actual Rel Time from First Dose), DVID, EVID (event ID)	See program...	adppk.xpt

3.2 Population Pharmacokinetics Analysis Variables

Table 3.2 describes common variables in an ADPPK dataset. The Core and CDISC Notes columns provide information about the variables to assist in preparation of datasets. These columns are not meant to be metadata included in the data definition file (i.e., define file), such as define.pdf or define.xml. The Core column describes whether a variable is required (Req), conditionally required (Cond), or permissible (Perm). The CDISC Notes column provides more information about the variable relevant to the ADPPK dataset. In addition, the Type column defines whether the variable is a character (Char) or numeric (Num) value. Variable units should be specified in the variable label. More specific information related to data type (e.g., variable name, label, type, codes, comments) will be provided in data definition file.

Because PPK data follows the BDS, most of the dataset variables can be found in ADaMIG v1.3, Section 3.3 (available at https://www.cdisc.org/standards/foundational/adam). Standard BDS and subject-level (ADSL) variables that are commonly used in PPK are listed below and are not included in Table 3.2:

- AGE or AAGE, and AGEU
- SEX
- RACE
- TRTP and TRTPN
- TRTA and TRTAN
- DOSEP and DOSEU
- APERIOD and APERIODC

- AVISIT and AVISITN
- ADY, ADT, ATM, and ADTM
- ASTDT, ASTTM, and ASTDTM
- AENDT, AENTM, and AENDTM
- ATPT and ATPTN
- PARAM, PARAMCD, and PARAMN
- DTYPE

To represent dosing (e.g., oral single point, bolus, infusion) or interval sample collection (e.g., urine), the recommendation is to use ADT and related variables for the start date and time and to use AENDT and related variables when referring to the end date and time.

Table 3.2 contains some variables that are character with a related numeric variable. The popPK software requires numeric variables while conformance to the ADaM BDS structure requires some character variables. The naming of the variables will conform to the ADaM naming conventions; for example, if SDTM character variables are converted to numeric variables, then they should be named as they are in the SDTM with an "N" suffix added. If both variables are present in the dataset and there exists a row in that scope on which both variables are populated, then there must be a one-to-one mapping between the 2 variables on all rows within the scope on which both variables are populated.

This table does not imply a specified order of variables in the dataset. They are ordered for ease of defining the code and decode variables. The variable order can be altered as needed.

Table 3.2 Population Pharmacokinetics Analysis Variables

Variable Name	Variable Label	Type	Codelist/Controlled Terms	Core	CDISC Notes
PROJID	Project Identifier	Char		Perm	Text representing protocol or compound name
PROJIDN	Project Identifier (N)	Num		Perm	Unique numerical representation of PROJID. The numeric versions of the primary/character variables can be assigned from its corresponding character pair variable.
STUDYID	Study Identifier	Char		Req	STUDYID. Must be identical to the ADSL variable.
STUDYIDN	Study Identifier (N)	Num		Perm	Unique numerical representation of STUDYID. The numeric versions of the primary/character variables can be assigned from its corresponding character pair variable.
PART	Part of the Study	Num		Cond	As defined per protocol. Required when study has more than 1 part (e.g., part A, dose escalation and part B, dose evaluation). In SDTM it is mapped in STUDYID by some sponsor companies.
SUBJTYP	Subject Type	Num		Perm	Unique numerical representation of subject type.
SUBJTYPC	Subject Type (C)	Char		Perm	Unique character representation of SUBJTYP. For first-in-human studies, the value can be "Healthy volunteers".
USUBJID	Unique Subject Identifier	Char		Req	Must be identical to the ADSL variable.
USUBJIDN	Unique Subject Identifier (N)	Num		Req	Unique numerical representation of USUBJID.
SUBJID	Subject Identifier for the Study	Char		Perm	Must be identical to the ADSL variable.
SUBJIDN	Subject Identifier for the Study (N)	Num		Perm	Unique numerical representation of SUBJID. The numeric versions of the primary/character variables can be assigned from its corresponding character pair variable.
SITEID	Study Site Identifier	Char		Perm	Must be identical to the ADSL variable.
SITEIDN	Study Site Identifier (N)	Num		Perm	Unique numerical representation of SITEID. The numeric versions of the primary/character variables can be assigned from its corresponding character pair variable.
RECSEQ	Record Sequence	Num		Perm	Derived sequence for the whole dataset. Sequential values should start with 1 on the first non-header row of the data file (i.e., skipping the variable names) and incrementing by 1 for each subsequent row. These are basically row numbers. It is often used for convenience purposes and merging of PK and PD datasets. It can also be useful for the tracking of outlier exclusion, since the variable is preserved from the original to the final dataset.
AFRLT	Actual Rel Time from First Dose	Num		Req	Actual elapsed time (for sample point or start of sampling interval) from first exposure to study treatment. Could be negative. Derived from (ADTM of the current event/record of the subject) - (ADTM of the first dosing event/record of the subject).
RLTU	Relative Time Unit	Char		Perm	Units for all reference times AFRLT, APRLT, NFRLT, NPRLT. Add the unit here or in the time variable label.

Variable Name	Variable Label	Type	Codelist/Controlled Terms	Core	CDISC Notes
APRLT	Actual Rel Time from Previous Dose	Num		Perm	Derived from (ADTM of the current event/record of the subject) - (ADTM of the previous dosing event/record of the subject).
NFRLT	Nominal Rel Time from First Dose	Num		Perm	Planned elapsed time (for sample point or start of sampling interval) from first exposure to study treatment. For PK it will be in the PC dataset.
NPRLT	Nominal Rel Time from Previous Dose	Num		Perm	For PK it can be derived from "planned elapsed time (for sample point or start of sampling interval) from reference exposure to study treatment" or equivalent variable that has nominal time in the PC dataset.
OCC	Occasion	Num		Perm	Occasion is a grouping variable. It groups dose and concentration observations for a particular dosing. The implementation is taken directly from the specs/protocol and defined by the modeler. This is a popPK software variable.
EXCLF	Record Exclusion	Num		Cond	It can be captured prior to the modeling or after some analysis, with possible iterations and adjustments. Some possible reasons: BLOQ, biological implausibility, IWER > threshold, incorrect dosing information. There can be several reasons for flagging data during the dataset creation (e.g., day 1 pre-dose samples, missing sample information, deviation of actual time from nominal time > threshold).
EXCLFCOM	Comment for the Record Exclusion	Char		Cond	It can be captured prior to the modeling or after some analysis, with possible iterations and adjustments. Some possible reasons: BLOQ, biological implausibility, outlier based on variability metrics, incorrect dosing information, day 1 pre-dose sample. This can also be coded through numbers that are connected with different reasons. Based on data specification. Could come from multiple sources (e.g., SDTM or ADaM source, CRITyFN variable). Examples of exclusions can be found in Section 3.4, Standard Flags and Record Identifiers in Population PK Dataset.
FLGREAS	Identification of Data Issue Reason	Num		Perm	Captures primary reason for identifying the record for data issues (e.g., dose time imputation flags). A sequential number starting with 1 and increments with each unique reason. Examples of reasons for identification of data issue can be found in Section 3.4, Standard Flags and Record Identifiers in Population PK Dataset.
FLGREASC	Identification of Data Issue Reason (C)	Char		Perm	Character version of FLGREAS.
EVID	Event ID	Num		Req	EVID=1 is Dosing Event, EVID=0 is observation. It can be expanded to other numbers as defined in the dataset specs. This is a popPK software variable.
DVID	Dependent Variable Name	Char		Perm	Analyte/drug name/other measurements (e.g., PC.PCTEST for PK, EX or ADEX for dose, ADLB for labs).
DVIDN	Dependent Variable Name (N)	Num		Perm	Unique numerical representation of DVID. Convention is normally 0=dose, 1=for the first observation of interest, etc. The numeric versions of the primary/character variables can be assigned from its corresponding character pair variable.
CMT	Compartment	Num		Perm	Derived based on the specifications from modeler. This is a popPK software variable.
DV	Dependent Variable Result	Num		Req	Numeric result of dependent variable applicable to observation events. DV is a widely used notation in the field of pharmacometrics since its inception for the value of dependent variable (observation). This is a copy of AVAL.
AVAL	Analysis Value	Num		Cond	Numeric analysis value described by PARAM.
AVALU	Dependent Variable Unit	Char		Perm	Unit for DV and AVAL
USTRESC	Result or Finding in Standard Format	Char		Perm	Character results/findings of dependent variable in a standard format. The purpose of this column is to capture which records are BLQ or ALQ in the DV column; for example, PC.PCSTRESC (SDTM), AVAL (ADaM). U is a replacement for the dataset name from where the value came from (e.g., USTRESC is equal to PCSTRESC for PC records).
MDV	Missing Dependent Variable Result	Num	0, 1	Req	If DV= . then MDV=1. (When DV is missing for observation then MDV=1, when EVID=1 then MDV=1) This is a popPK software variable.
AULOQ	Analysis Upper Limit of Quantitation	Num		Perm	In assay report
ALLOQ	Analysis Lower Limit of Quantitation	Num		Perm	LLOQ of PK, PD and any other sources
BLQFL	Below Lower Limit of Quant Flag	Char	N, Y	Cond	N, Y. Set to Y when the analysis value is below the limit of quantification.
BLQFN	Below Lower Limit of Quant Flag (N)	Num	0, 1	Perm	0=N, 1=Y. The numeric versions of the primary/character variables can be assigned from its corresponding character pair variable.
ALQFL	Above the Upper Limit of Quant Flag	Char	N, Y	Cond	N, Y. Set to Y when the analysis value is above the limit of quantification.

Variable Name	Variable Label	Type	Codelist/Controlled Terms	Core	CDISC Notes
ALQFN	Above the Upper Limit of Quant Flag (N)	Num	0, 1	Perm	0=N, 1=Y. The numeric versions of the primary/character variables can be assigned from its corresponding character pair variable.
AMT	Actual Amount of Dose Received (unit)	Num		Req	Only populated on dosing records
DOSEA	Actual Treatment Dose (unit)	Num		Perm	DOSEA represents the actual treatment dosage associated with the record. Could be amount (mg) or weight based dose (mg/kg). Units of AMT and DOSEA can be same or different. This is the actual numeric amount of the dose used for the population analysis and may differ from the EX.EXDOSE. It can be derived from the EX.EXDOSE or based on related dose. Populated on all individual records as carry-forward.
DOSETDD	Total Daily Amt of Dose Received (unit)	Num		Perm	Used mostly for BID dosing schemes
DOSEDUR	Duration Of Dose Administration (unit)	Num		Perm	Duration associated with infusion (IV, SC); distinct from TRTDURD, TRTDURM, and TRTDURY, which reference the duration of the entire study rather than the duration of a single treatment event. "EX dataset". Derived from EXENDTC - EXSTDTC The label should contain the unit of time. Usually same unit as time variables.
RATE	Infusion Rate (unit)	Num		Perm	Calculated as the amount of dose received divided by the dose duration. Certain modeling methods may require that RATE is set to a specific value. The label should contain the unit (e.g., mg/hr).
II	Dosing Interval (unit)	Num		Perm	Describes the dosing frequency for multiple doses (e.g., 24 for QD, 12 for BID, if time unit is hours).
ADDL	Number Of Additional Doses	Num		Perm	Number of additional doses like the current dosing event until the next captured dose (e.g., if the value is 1 then 1 additional dose; if value is 2 then 2 additional doses). It is commonly used for long-lasting studies with frequent dosing in order to not have the dataset extremely large.
SS	Steady State	Num		Perm	A steady-state dose is a dose that is presumed to be the last of a series of implied doses, each exactly like the dose in question, given at a regular interval specified by the II data item and leading to steady state by the time the steady-state dose is given.
FORM	Drug Formulation	Char	(FRM)	Perm	Type of formulation (e.g., tablet, capsule, aerosol); EX.EXDOSFRM or protocol
FORMN	Drug Formulation (N)	Num		Perm	Unique numerical representation of FORM. The numeric versions of the primary/character variables can be assigned from the corresponding character pair variable.
ROUTE	Route of Administration	Char	(ROUTE)	Perm	Route of treatment delivery. May be derived from EX.EXROUTE.
ROUTEN	Route of Administration (N)	Num		Perm	Derived from ROUTE as one-on-one unique match. The numeric versions of the primary/character variables can be assigned from its corresponding character pair variable.
ACYCLE	Analysis Cycle	Num		Perm	Record-level identifier that reflects cycle and may be of particular importance for studies that examine concentrations in cancer patients from AVISIT or protocol.
ACYCLEC	Analysis Cycle (C)	Char		Perm	Derived from ACYCLE as one-on-one unique match. The character versions of the primary/character variables can be assigned from its corresponding numeric pair variable.
COHORT	Cohort Subject Enrolled Into	Num		Perm	Subject-level variable. Could be some sort of subpopulation.
COHORTC	Cohort Subject Enrolled into (C)	Char		Perm	Character representation of the COHORT variable. There must be a one-to-one mapping to COHORT. The character versions of the primary/character variables can be assigned from its corresponding numeric pair variable.
UDTC	Date and Time of the Event	Char	ISO 8601	Perm	Datetime associated with event ID represented in ISO 8601 character format. U is a replacement for the dataset name from where the value came from (e.g., UDTC is equal to PCDTC for PC records).

3.3 Population Pharmacokinetics Analysis Variables - Covariates

Table 3.3 describes common covariates in an ADPPK dataset. As there is often a need to analyze the effect of baseline versus time-varying covariates, these can be distinguished by suffixes. <COV> is an alias that identifies a covariate (e.g., WT, BMI). This alias when used without a suffix is the time-varying covariate.

- <COV>BL for baseline covariate, (e.g., WTBL, BMIBL)
- <COV>N for numerical version of categorical covariate; there is one-to-one relationship between <COV> and <COV>N (e.g., SEXN, RACEN)

- <COV>I for any covariates with imputed values (e.g., WTI, BMII)
- <COV>GRy for grouping covariates (e.g. AGEGR1)

This table is not exhaustive; it does not include every permutation for each covariate, and many other covariates may be relevant for a specific analysis.

All references to ADSL in variable creation are based on the assumption that ADSL is present and available. PopPK may be created prior to any ADaM dataset creation. When ADSL is not available at the time of popPK dataset creation, other sources would be used.

Refer to Section 5, Handling Missing Values, for how to handle missing data.

Table 3.3 Population Pharmacokinetics Analysis Variables - Covariates

Variable Name	Variable Label	Type	Codelist/Controlled Terms	Core	CDISC Notes
WT	Body Weight (unit)	Num		Perm	Variable may be derived from VS.VSTEST and VS.VSSTRESN but may also be pulled in from other datasets. Weight is associated with sampling time. SDTM.VS or a Vital Signs analysis dataset.
WTBL	Baseline Body Weight (unit)	Num		Perm	Variable may be derived from VS.VSTEST and VS.VSSTRESN but may also be pulled in from other datasets. Weight is associated with the last assessment prior to dosing. Use flags for baseline. SDTM.VS or a Vital Signs analysis dataset. If the definition of this variable in the modeling plan is the same as in the SAP then use the variable in ADSL.
HTBL	Baseline Body Height (unit)	Num		Perm	Variable may be derived from baseline VS.VSTEST and VS.VSSTRESN but may also be pulled in from other datasets. SDTM.VS or a Vital Signs analysis dataset. If the definition of this variable in the modeling plan is the same as in the statistical analysis plan (SAP), then use the variable in ADSL.
BMIBL	Baseline Body Mass Index (unit)	Num		Perm	Variable may be derived from baseline VS.VSTEST and VS.VSSTRESN but may also be pulled in from other datasets (SDTM.VS or a Vital Signs analysis dataset) or derived. ADSL.BMIBL for baseline and VS.BMI for time-varying or derived. If the definition of this variable in the modeling plan is the same as in the SAP then use the variable in ADSL.
BSABL	Body Surface Area at Baseline (unit)	Num		Perm	Variable may be derived from baseline VS.VSTEST and VS.VSSTRESN but may also be pulled in from other datasets (SDTM.VS or a Vital Signs analysis dataset) or derived. ADSL.BSABL for baseline and VS.BSA for time-varying or derived. If the definition of this variable in the modeling plan is the same as in the SAP then use the variable in ADSL.
AGE	Age	Num		Perm	DM.AGE or ADSL.AGE. If analysis needs require a derived age that does not match ADSL.AGE, then AAGE (Analysis Age) must be added.
AGETPT	Age at Analysis Timepoint (unit)	Num		Perm	Number of years between BRTHDT and ADT
SEX	Sex	Char	(SEX)	Req	The sex of the subject is a required variable in ADSL; must be identical to ADSL.SEX.
SEXN	Sex (N)	Num		Perm	Numeric version of SEX. Can be extended to other values beyond 1 and 2. Example values can be as follows: 1=M, 2=F
RACE	Race	Char	(RACE)	Req	The race of the subject is a required variable in ADSL; identical to ADSL.RACE. May categorize differently if analysis demands.
RACEN	Race (N)	Num		Perm	Numeric version of RACE, e.g., codes used as per the specification. 1=American Indian or Alaska Native, 2=Asian, 3=Black/African American, 4=Native Hawaiian or Other Pacific Islander, 5=White If races need to be categorized differently, then use variables ARACE and ARACEN.
ARACE	Analysis Race	Char		Perm	To be able to allow different definitions of race. For example, allowing to code American Indian/Alaska Native and Native Hawaiian/Other Pacific Islander are coded as "Other". This is analysis-specific and could vary based on analysis needs.
ARACEN	Analysis Race (N)	Num		Perm	Numeric version of ARACE; for example: 1=White, 2=Black/African American, 3=Asian, 4=Other, 5=Unknown (e.g., not reported). American Indian/Alaska Native and Native Hawaiian/Other Pacific Islander are coded as 4.
AETHNIC	Analysis Ethnicity	Char		Perm	Ethnicity as needed for analysis. May be derived.
AETHNICN	Analysis Ethnicity (N)	Num		Perm	Numeric version of AETHNIC.
REGIONy	Geographic Region y	Char		Perm	REGIONy is a permissible variable in ADSL.
REGIONyN	Geographic Region y (N)	Num		Perm	Numeric version of REGIONy.
COUNTRY	Country	Char		Perm	DM.COUNTRY or ADSL.COUNTRY
COUNTRYL	Country Full Name	Char		Perm	COUNTRYL is a human-readable name of the DM.COUNTRY value.
COUNTRYN	Country (N)	Num		Perm	Numeric version of COUNTRY.

Variable Name	Variable Label	Type	Codelist/Controlled Terms	Core	CDISC Notes
CREATBL	Baseline Creatinine Serum (unit)	Num		Perm	Use the baseline lab value for creatinine serum per the algorithm defined in the SAP.
CRCLBL	Baseline Creatinine Clearance (unit)	Num		Perm	Use the baseline lab value for creatinine clearance per the algorithm defined in the SAP. A formula may be suggested if the value does not exist in the lab dataset.
EGFRBL	Baseline eGFR (unit)	Num		Perm	Use the baseline lab value for eGFR per the algorithm defined in the SAP. A formula may be suggested if the value does not exist in the lab dataset.
TBILBL	Baseline Total Bilirubin (unit)	Num		Perm	Use the baseline lab value for total bilirubin per the algorithm defined in the SAP.
ASTBL	Baseline Aspartate transaminase (unit)	Num		Perm	Use the baseline lab value for aspartate transaminase per the algorithm defined in the SAP.
ALTBL	Baseline Alanine transaminase (unit)	Num		Perm	Use the baseline lab value for alanine transaminase per the algorithm defined in the SAP.

3.4 Standard Flags and Record Identifiers in Population PK Dataset

The following are possible exclusions or reasons for the variables EXCLFCOM and FLGREAS found in Table 3.2, Population Pharmacokinetics Analysis Variables. There can be additional flags or reasons; this is not an exhaustive list.

- Missing sample information
- Post-first dose LLOQ or BLQ
- Day 1 pre-dose samples
- Duplicate samples with different concentrations
- Concentration value outliers
- Actual time after previous dose deviates from nominal time after previous dose for trough samples or EOI or post-dose samples
- Imputed missing dose amount with nominal/actual dose
- Actual dose deviates from planned/nominal dose
- Imputed dose time
- Imputed infusion duration

4 Standard Derivations of Some Typical Covariates and Their Baseline Values

Derivations for covariates and their baseline values must be clearly documented in the pharmacometric analysis plan (PAP) and/or SAP. By default, covariates and their baseline values should be obtained from the source data (e.g., ADSL). If these values are not available, the derivations and formulas below are examples and may change based on study type (e.g., pediatric studies). It is recommended to include all formulas, derivations, groupings, algorithms and imputation rules in the submission documentation.

Missing values may be specifically coded depending on the tool; for example, -99, which would be described as a nonvalid value in the metadata.

Height (cm)

- Use the value(s) indicated in the source dataset (ADSL; otherwise use the value(s) indicated by the baseline flag in the appropriate SDTM domain).
- If baseline flag is missing, use the last result up to and including day 1, unless otherwise specified in the SAP.
- If more than 1 record at baseline and the values differ, consult statistician.
- If missing, leave as missing (code to a numeric number if tool does not accept missing; e.g., -99).

Weight (kg)

- Use the value(s) indicated in the source dataset (ADSL; otherwise use the value(s) indicated by the baseline flag in the appropriate SDTM domain).
- If baseline flag is missing, use the last result up to and including day 1, unless otherwise specified in SAP.
- If more than 1 record at baseline and the values differ, consult statistician.
- If missing, leave as missing (code to a numeric number if tool does not accept missing; e.g., -99).

Ideal Body Weight (kg)[1]

When a patient's height is over 60 in Male (kg): = 50 + 2.3 * (Height (in) - 60) Female (kg) = 45.5 + 2.3 * (Height (in) - 60) When a patient's height is 60 in or less, the IBW is 50 kg for male and 45.5 for female. If height in cm, use to convert: 1 cm = 0.3937 in	• Use the values from the relevant source data set if available. • If deriving, using the formula provided use baseline height. • If missing, leave as missing (code to a numeric number if tool does not accept missing; e.g., -99).

Body Mass Index (kg/m^2)

$WT[kg]/(HT[m])^2$ If height in cm, use to convert : 1 cm = 0.3937 in	• Use the values from the relevant source data set if available. • If deriving using the formula provided, use baseline height. • If missing, leave as missing (code to a numeric number if tool does not accept missing, e.g., -99)

Body Surface **Area (m^2)[2]**

$0.007184*WT[kg]^{0.425}*HT[cm]^{0.725}$	• Use the values from the relevant source data set if available. • If deriving using the formula provided, use baseline height. • If missing leave as missing (code to a numeric number if tool does not accept missing; e.g., -99).

Age

- Use the value(s) indicated in the source dataset (ADSL; otherwise use the value(s) indicated by the baseline flag in the appropriate SDTM domain).
- If missing, leave as missing (code to a numeric number if tool does not accept missing; e.g., -99).

Baseline Lab Values

- Use the values from the relevant source dataset if available.
- If baseline flag is missing, use last result up to and including day 1.
- If more than 1 record at baseline and the values differ, consult statistician.
- If missing, leave as missing (code to a numeric number if tool does not accept missing; e.g., -99).

CrCL Derivation[3]

Note: This may not be the only way to derive; there are other potential derivations one could use as per analysis requirement.

Male: ((140-age in years)*weight in kg) / (72*creat) Female: above value*0.85	Use the subject's creatinine clearance at baseline in mL/min. Baseline values: Age(yrs) ,weight(kg),creat in mg/dL If the population is obese (i.e., wt>=1.2*ibw), then use: Male:(((140-age)*ibw/(72*creat))) Female:(((140-age)*ibw/(72*creat)))*0.85 • Variable values used in derivation should be prior to the rounding off. • If missing, leave as missing (code to a numeric number if tool does not accept missing; e.g., -99).

GFR[4]

Note: This may not be the only way to derive; there are other potential derivations one could use as per analysis requirement.

The CKD-EPI equation, expressed as a single equation, is: GFR = 141 * min(Scr/κ,1)α * max(Scr/κ, 1)-1.209 * 0.993Age * 1.018 [if female] * 1.159 [if black] Scr is serum creatinine (mg/dL), κ is 0.7 for females and 0.9 for males, α is -0.329 for females and -0.411 for males, min indicates the minimum of Scr/κ or 1, and max indicates the maximum of Scr/κ or 1. • Variable values used in derivation should be prior to the rounding off. • If missing, leave as missing (code to a numeric number if tool does not accept missing; e.g., -99).

Liver Dysfunction Groups[5]

GROUP A: Normal (total bilirubin ≤ULN and AST ≤ULN)

GROUP B: Mild (total bilirubin > 1.0x-1.5xULN or AST > ULN)

GROUP C: Moderate (total bilirubin > 1.5x-3xULN)

GROUP D: Severe (total bilirubin > 3xULN)

The values of the lab covariates should be considered at baseline.

Baseline Performance Status

If deriving from KPS:[6]

KPS	ECOG
100	0
90 80	1
70 60	2
50 40	3
30 20 10	4

- Use the ECOG/KPS value(s) indicated by the baseline flag.
- If baseline flag is missing, use the value(s) on the nearest subsequent visit record.
- If more than 1 record at baseline and the values differ, consult statistician.
- If missing, leave as missing (code to a numeric number if tool does not accept missing; e.g., -99).

5 Handling Missing Values

Handling of missing values must be clearly documented in the dataset specifications, SAP, or PAP. Imputation of missing covariates can be done by the pharmacometrician based on the analysis needs.

Time-variant Covariates

- For deriving time-variant covariates, use the time-varying results for each of the covariates (e.g., weight, age). For time-varying IBW, BMI, BSA, CrCl, and GFR, use the time-varying results of height, weight, and other elements in the equation on the same date/day.
- If missing, impute using the method specified in the PAP (e.g., last observation carried forward, LOCF).

Missing Date and Time Records

Imputations should be avoided as much as possible, although may be required in cases where complete dosing history is not available. It is important to have CRFs that collect the required information.

PK Sample Date and Time Imputation

If date and/or time is missing or partially missing,

- leave as missing and flag the records,
- impute based on nominal time relative to the dose after reviewing the profile of the subject within that occasion, or
- impute based on other lab date and time in the same window of PK.

Imputed date/time records should be flagged.

Dose Clock-time Imputation

CRF designs where every single dose date and time is captured; dose date is available but time is missing

Note: Account for missing doses/dose interruptions based on the number of tablets or some similar variable.

- If a trough sample was taken on the same day, the trough sampling time is used as the dosing time. One can add 5 min to the sample time to impute dose time.
- If dose time is missing at the date when post-dose PK samples are available, use the first post-dose sample to back-impute the dosing time (e.g., the first post-dose sample is 2 hours post-dose; subtract 2 hours from the actual sampling time of the 2-hour post-dose sample to obtain the dosing time).
- If there is no PK sample associated with the missing dose time, impute by using next or previous available dosing time or an arbitrary nominal/expected time. For BID/TID, adjust the imputation based on frequency.
- If day 1 dose has no time and no associated PK samples, use the baseline lab/pharmacodynamic (PD) time.

Imputed clock-time records should be flagged.

Infusions; dose date is available but time is missing

- If infusion stop time is available but infusion start time is missing, the protocol-defined duration (e.g., 1 hour, 30 min) is used to determine the start of infusion; vice versa if stop time is not available.
- If both infusion stop and start times are missing on any day other than day 1, and
    - a trough sample was taken on the same day, use the trough sample time as the dosing time (start of infusion).
    - there is no trough but an EOI sample was taken on the same day, use the EOI sample time minus duration of infusion to impute start time of the dose (start of infusion).
- If both infusion stop and start times are missing on day 1, use pre-dose sample time or EOI sample time on the same day along with nominal infusion duration to determine the start of infusion time.

- If there are no concentrations associated with the missing dose time, then use the dose time on the previous (or next if it is the first dose) occasion's dose as the current dosing time. This rule will be applied recursively if the dose time is missing for multiple dosing occasions.

Imputed clock-time records should be flagged.

Interval Doses

CRF captures interval doses with start and stop dates recorded; only dose times relative to PK sample are recorded

Note: Account for missing doses/dose interruptions based on the number of tablets or some similar variable.

If a dose date is missing,

- impute using visit date,
- impute using lab date or PK sample date within the window, or
- flag as missing.

For missing start or stop dose dates:

- If start dose date is missing, impute using previous stop date plus dosing interval.
- If start date of the first dosing interval is missing, use dose-date missing rules.
- If stop date is missing, impute using start date from next interval minus dosing interval.
- If stop date of the last dosing interval is missing,
- and there is PK/lab on last dose day, then use last PK/lab record date;
- impute using last visit date;
- impute using unscheduled visit date as applicable; or
- impute using SAP.

When dose date is available and time is missing:

- Impute the nonrecorded doses with ADDL (number of additional doses) and II (interdose interval). Account for any dose interruptions.
- If dose date/time is missing on the day of a trough PK sample, impute as trough date/time.
- If dose time is missing on a date when post-dose PK samples are available, use the first post-dose sample to back-impute the dosing time (e.g., the first post-dose sample is 2 hours post-dose: subtract 2 hours from the actual sampling time of the 2-hour post-dose sample to obtain the dosing time).
- If there is no PK sample associated with the missing dose time, impute by using next or previous available dosing time.
- If day 1 dose has no time and no associated PK samples, use baseline lab/PD time.

Imputed date/time records should be flagged.

Infusion Duration

- If infusion duration is >= +/-100% of protocol-defined duration, impute the duration to protocol-defined duration (e.g., 1 hour, 30 min) and flag the dose record and following PK samples.
- If infusion stop time is available but infusion start time is missing, use the protocol-defined duration (e.g., 1 hour, 30 min) to determine the start of infusion and vice versa if stop time is not available.
- If both infusion start and stop times are missing on day 1, use the pre-dose sample time or end-of-infusion sample time along with nominal infusion duration to determine the start of infusion time.

Imputed date/time records should be flagged.

Infusion Rate

Rate of Infusion: AMT/DOSEDUR

Dose Amount

When dose information is missing for one or a few occasions for a subject, but treatment information (x mg/kg) is available:

- If missing for 1 occasion and everything around it is consistent, then impute missing dose by using LOCF approach.
- If flat dosing, then use the information from the treatment variable.

Imputed amount records should be flagged.

6 Example: One Subject, Single Dose

Example 1

This example shows the population PK dataset for a single subject administered a single dose.

adppt.xpt

Row	PROJID	PROJIDN	STUDYID	STUDYIDN	PART	USUBJID	USUBJIDN	SUBJID	SITEID	SITEIDN	RECSEQ	AVISIT	AVISITN	VISIT	VISITNUM	AFRLT	ATPTREF	APRLT	NFRLT	NPRLT	ATPT	ATPTN	ADT	ADY
1	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	1	DAY 1	1	DAY 1	1	0	DAY 1 DOSE	0	0	0	DOSE	0	2020-01-21	1
2	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	2	DAY 1	1	DAY 1	1	-0.1	DAY 1 DOSE	-0.1	0	0	PREDOSE	0	2020-01-21	1
3	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	3	DAY 1	1	DAY 1	1	-0.1	DAY 1 DOSE	-0.1	0	0	PREDOSE	0	2020-01-21	1
4	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	4	DAY 1	1	DAY 1	1	0.25	DAY 1 DOSE	0.25	0.25	0.25	15MIN	0.25	2020-01-21	1
5	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	5	DAY 1	1	DAY 1	1	0.25	DAY 1 DOSE	0.25	0.25	0.25	15MIN	0.25	2020-01-21	1
6	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	6	DAY 1	1	DAY 1	1	0.5	DAY 1 DOSE	0.5	0.5	0.5	30MIN	0.5	2020-01-21	1
7	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	7	DAY 1	1	DAY 1	1	0.5	DAY 1 DOSE	0.5	0.5	0.5	30MIN	0.5	2020-01-21	1
8	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	8	DAY 1	1	DAY 1	1	0.75	DAY 1 DOSE	0.75	0.75	0.75	45MIN	0.75	2020-01-21	1
9	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	9	DAY 1	1	DAY 1	1	0.75	DAY 1 DOSE	0.75	0.75	0.75	45MIN	0.75	2020-01-21	1
10	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	10	DAY 1	1	DAY 1	1	1	DAY 1 DOSE	1	1	1	1H	1	2020-01-21	1
11	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	11	DAY 1	1	DAY 1	1	1	DAY 1 DOSE	1	1	1	1H	1	2020-01-21	1
12	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	12	DAY 1	1	DAY 1	1	1.5	DAY 1 DOSE	1.5	1.5	1.5	1H30MIN	1.5	2020-01-21	1
13	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	13	DAY 1	1	DAY 1	1	1.5	DAY 1 DOSE	1.5	1.5	1.5	1H30MIN	1.5	2020-01-21	1
14	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	14	DAY 1	1	DAY 1	1	2	DAY 1 DOSE	2	2	2	2H	2	2020-01-21	1
15	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	15	DAY 1	1	DAY 1	1	2	DAY 1 DOSE	2	2	2	2H	2	2020-01-21	1

Row	PROJID	PROJIDN	STUDYID	STUDYIDN	PART	USUBJID	USUBJIDN	SUBJID	SITEID	SITEIDN	RECSEQ	AVISIT	AVISITN	VISIT	VISITNUM	AFRLT	ATPTREF	APRLT	NFRLT	NPRLT	ATPT	ATPTN	ADT	ADY
16	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	16	DAY 1	1	DAY 1	1	3	DAY 1 DOSE	3	3	3	3H	3	2020-01-21	1
17	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	17	DAY 1	1	DAY 1	1	3	DAY 1 DOSE	3	3	3	3H	3	2020-01-21	1
18	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	18	DAY 1	1	DAY 1	1	4	DAY 1 DOSE	4	4	4	4H	4	2020-01-21	1
19	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	19	DAY 1	1	DAY 1	1	4	DAY 1 DOSE	4	4	4	4H	4	2020-01-21	1
20	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	20	DAY 1	1	DAY 1	1	6	DAY 1 DOSE	6	6	6	6H	6	2020-01-21	1
21	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	21	DAY 1	1	DAY 1	1	6	DAY 1 DOSE	6	6	6	6H	6	2020-01-21	1
22	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	22	DAY 1	1	DAY 1	1	8	DAY 1 DOSE	8	8	8	8H	8	2020-01-21	1
23	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	23	DAY 1	1	DAY 1	1	8	DAY 1 DOSE	8	8	8	8H	8	2020-01-21	1
24	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	24	DAY 1	1	DAY 1	1	12	DAY 1 DOSE	12	12	12	12H	12	2020-01-21	1
25	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	25	DAY 1	1	DAY 1	1	12	DAY 1 DOSE	12	12	12	12H	12	2020-01-21	1
26	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	26	DAY 1	1	DAY 2	2	24	DAY 1 DOSE	24	24	24	1D	24	2020-01-22	2
27	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	27	DAY 1	1	DAY 2	2	24	DAY 1 DOSE	24	24	24	1D	24	2020-01-22	2
28	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	28	DAY 1	1	DAY 3	3	48	DAY 1 DOSE	48	48	48	2D	48	2020-01-23	3
29	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	29	DAY 1	1	DAY 3	3	48	DAY 1 DOSE	48	48	48	2D	48	2020-01-23	3
30	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	30	DAY 1	1	DAY 4	4	72	DAY 1 DOSE	72	72	72	3D	72	2020-01-24	4
31	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	31	DAY 1	1	DAY 4	4	72	DAY 1 DOSE	72	72	72	3D	72	2020-01-24	4
32	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	32	DAY 1	1	DAY 5	5	96	DAY 1 DOSE	96	96	96	4D	96	2020-01-25	5
33	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	33	DAY 1	1	DAY 5	5	96	DAY 1 DOSE	96	96	96	4D	96	2020-01-25	5

Row	PROJID	PROJIDN	STUDYID	STUDYIDN	PART	USUBJID	USUBJIDN	SUBJID	SITEID	SITEIDN	RECSEQ	AVISIT	AVISITN	VISIT	VISITNUM	AFRLT	ATPTREF	APRLT	NFRLT	NPRLT	ATPT	ATPTN	ADT	ADY
34	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	34	DAY 1	1	DAY 6	6	120	DAY 1 DOSE	120	120	120	5D	120	2020-01-26	6
35	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	35	DAY 1	1	DAY 6	6	120	DAY 1 DOSE	120	120	120	5D	120	2020-01-26	6
36	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	36	DAY 1	1	DAY 7	7	144	DAY 1 DOSE	144	144	144	6D	144	2020-01-27	7
37	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	37	DAY 1	1	DAY 7	7	144	DAY 1 DOSE	144	144	144	6D	144	2020-01-27	7
38	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	38	DAY 1	1	DAY 8	8	168	DAY 1 DOSE	168	168	168	7D	168	2020-01-28	8
39	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	39	DAY 1	1	DAY 8	8	168	DAY 1 DOSE	168	168	168	7D	168	2020-01-28	8
40	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	40	DAY 1	1	DAY 9	9	192	DAY 1 DOSE	192	192	192	8D	192	2020-01-29	9
41	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	41	DAY 1	1	DAY 9	9	192	DAY 1 DOSE	192	192	192	8D	192	2020-01-29	9
42	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	42	DAY 1	1	DAY 10	10	216	DAY 1 DOSE	216	216	216	9D	216	2020-01-30	10
43	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	43	DAY 1	1	DAY 10	10	216	DAY 1 DOSE	216	216	216	9D	216	2020-01-30	10
44	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	44	DAY 1	1	DAY 11	11	240	DAY 1 DOSE	240	240	240	10D	240	2020-01-31	11
45	PROJECT-001	1	PROTOCOL-001	1	1	PROTOCOL-001-001-00137	100100137	00137	001	1	45	DAY 1	1	DAY 11	11	240	DAY 1 DOSE	240	240	240	10D	240	2020-01-31	11

Row	ATM	OCC	DVID	DVIDN	CMT	AVAL	DV	PCSTRESC	EVID	MDV	AULOQ	ALLOQ	BLQFL	BLQFN	ALQFL	ALQFN	DOSEA	DOSEP	AMT	DOSETDD	FORM	FORMN	ROUTE	ROUTEN	TRTP
1	08:00	1	TEST PRODUCT (mg)	0	1	.	.		1	1			N	0	N	0	100	100	100	100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
2	07:54	1	DRUG (ng/mL)	1	2	.	.	BLOQ (<1.0 ng/mL)	0	1	10000	1	Y	1	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
3	07:54	1	BIOMARKER (ng/mL)	2	5	128.3687764	128.3687764	128.3687764	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose

Row	ATM	OCC	DVID	DVIDN	CMT	AVAL	DV	PCSTRESC	EVID	MDV	AULOQ	ALLOQ	BLQFL	BLQFN	ALQFL	ALQFN	DOSEA	DOSEP	AMT	DOSETDD	FORM	FORMN	ROUTE	ROUTEN	TRTP
4	08:15	1	DRUG (ng/mL)	1	2	2.907336063	2.907336063	2.907336063	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
5	08:15	1	BIOMARKER (ng/mL)	2	5	103.2715704	103.2715704	103.2715704	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
6	08:30	1	DRUG (ng/mL)	1	2	4.388220874	4.388220874	4.388220874	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
7	08:30	1	BIOMARKER (ng/mL)	2	5	108.6827121	108.6827121	108.6827121	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
8	08:45	1	DRUG (ng/mL)	1	2	9.491620287	9.491620287	9.491620287	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
9	08:45	1	BIOMARKER (ng/mL)	2	5	113.5398669	113.5398669	113.5398669	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
10	09:00	1	DRUG (ng/mL)	1	2	14.46082	14.46082	14.46082	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
11	09:00	1	BIOMARKER (ng/mL)	2	5	97.31900301	97.31900301	97.31900301	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
12	09:30	1	DRUG (ng/mL)	1	2	18.30207099	18.30207099	18.30207099	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
13	09:30	1	BIOMARKER (ng/mL)	2	5	105.7107989	105.7107989	105.7107989	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
14	10:00	1	DRUG (ng/mL)	1	2	13.57718756	13.57718756	13.57718756	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose

Row	ATM	OCC	DVID	DVIDN	CMT	AVAL	DV	PCSTRESC	EVID	MDV	AULOQ	ALLOQ	BLQFL	BLQFN	ALQFL	ALQFN	DOSEA	DOSEP	AMT	DOSETDD	FORM	FORMN	ROUTE	ROUTEN	TRTP
15	10:00	1	BIOMARKER (ng/mL)	2	5	120.2946946	120.2946946	120.2946946	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
16	11:00	1	DRUG (ng/mL)	1	2	25.65824809	25.65824809	25.65824809	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
17	11:00	1	BIOMARKER (ng/mL)	2	5	105.0127177	105.0127177	105.0127177	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
18	12:00	1	DRUG (ng/mL)	1	2	20.99817635	20.99817635	20.99817635	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
19	12:00	1	BIOMARKER (ng/mL)	2	5	89.13456689	89.13456689	89.13456689	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
20	14:00	1	DRUG (ng/mL)	1	2	25.03913923	25.03913923	25.03913923	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
21	14:00	1	BIOMARKER (ng/mL)	2	5	124.8966151	124.8966151	124.8966151	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
22	16:00	1	DRUG (ng/mL)	1	2	19.16258758	19.16258758	19.16258758	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
23	16:00	1	BIOMARKER (ng/mL)	2	5	127.5539637	127.5539637	127.5539637	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
24	20:00	1	DRUG (ng/mL)	1	2	28.77144997	28.77144997	28.77144997	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
25	20:00	1	BIOMARKER (ng/mL)	2	5	110.8514157	110.8514157	110.8514157	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose

Row	ATM	OCC	DVID	DVIDN	CMT	AVAL	DV	PCSTRESC	EVID	MDV	AULOQ	ALLOQ	BLQFL	BLQFN	ALQFL	ALQFN	DOSEA	DOSEP	AMT	DOSETDD	FORM	FORMN	ROUTE	ROUTEN	TRTP
26	08:00	1	DRUG (ng/mL)	1	2	17.7181703	17.7181703	17.7181703	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
27	08:00	1	BIOMARKER (ng/mL)	2	5	132.2049406	132.2049406	132.2049406	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
28	08:00	1	DRUG (ng/mL)	1	2	15.00918365	15.00918365	15.00918365	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
29	08:00	1	BIOMARKER (ng/mL)	2	5	118.3639997	118.3639997	118.3639997	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
30	08:00	1	DRUG (ng/mL)	1	2	13.1199773	13.1199773	13.1199773	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
31	08:00	1	BIOMARKER (ng/mL)	2	5	115.9355717	115.9355717	115.9355717	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
32	08:00	1	DRUG (ng/mL)	1	2	12.2539353	12.2539353	12.2539353	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
33	08:00	1	BIOMARKER (ng/mL)	2	5	103.8526048	103.8526048	103.8526048	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
34	08:00	1	DRUG (ng/mL)	1	2	10.30162314	10.30162314	10.30162314	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
35	08:00	1	BIOMARKER (ng/mL)	2	5	110.9872874	110.9872874	110.9872874	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
36	08:00	1	DRUG (ng/mL)	1	2	3.318812343	3.318812343	3.318812343	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose

Row	ATM	OCC	DVID	DVIDN	CMT	AVAL	DV	PCSTRESC	EVID	MDV	AULOQ	ALLOQ	BLQFL	BLQFN	ALQFL	ALQFN	DOSEA	DOSEP	AMT	DOSETDD	FORM	FORMN	ROUTE	ROUTEN	TRTP
37	08:00	1	BIOMARKER (ng/mL)	2	5	114.1983916	114.1983916	114.1983916	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
38	08:00	1	DRUG (ng/mL)	1	2	3.692661641	3.692661641	3.692661641	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
39	08:00	1	BIOMARKER (ng/mL)	2	5	126.1959481	126.1959481	126.1959481	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
40	08:00	1	DRUG (ng/mL)	1	2	4.334867518	4.334867518	4.334867518	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
41	08:00	1	BIOMARKER (ng/mL)	2	5	117.4141567	117.4141567	117.4141567	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
42	08:00	1	DRUG (ng/mL)	1	2	4.712088179	4.712088179	4.712088179	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
43	08:00	1	BIOMARKER (ng/mL)	2	5	90.85607857	90.85607857	90.85607857	0	0	2000	10	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
44	08:00	1	DRUG (ng/mL)	1	2	1.540505316	1.540505316	1.540505316	0	0	10000	1	N	0	N	0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose
45	08:00	1	BIOMARKER (ng/mL)	2	5	107.9729206	107.9729206	107.9729206	0	0	2000	10		0		0	100	100		100	TABLET	1	ORAL	1	TEST DRUG 100 mg Single Dose

Row	TRTPN	TRTA	TRTAN	APHASE	APHASEN	APERIOD	APERIODC	ARM	ARMN	ACTARM	ACTARMN	COHORTC	COHORT	WT	WTBL	HTBL	BMIBL	BSABL	AGE	SEX	SEXN	RACE	RACEN	ETHNIC	ETHNICN
1	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1

Row	TRTPN	TRTA	TRTAN	APHASE	APHASEN	APERIOD	APERIODC	ARM	ARMN	ACTARM	ACTARMN	COHORTC	COHORT	WT	WTBL	HTBL	BMIBL	BSABL	AGE	SEX	SEXN	RACE	RACEN	ETHNIC	ETHNICN
2	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
3	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
4	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
5	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
6	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
7	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
8	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
9	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
10	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
11	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
12	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1

Row	TRTPN	TRTA	TRTAN	APHASE	APHASEN	APERIOD	APERIODC	ARM	ARMN	ACTARM	ACTARMN	COHORTC	COHORT	WT	WTBL	HTBL	BMIBL	BSABL	AGE	SEX	SEXN	RACE	RACEN	ETHNIC	ETHNICN
13	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
14	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
15	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
16	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
17	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
18	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
19	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
20	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
21	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
22	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
23	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1

Row	TRTPN	TRTA	TRTAN	APHASE	APHASEN	APERIOD	APERIODC	ARM	ARMN	ACTARM	ACTARMN	COHORTC	COHORT	WT	WTBL	HTBL	BMIBL	BSABL	AGE	SEX	SEXN	RACE	RACEN	ETHNIC	ETHNICN
24	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
25	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
26	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
27	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
28	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
29	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
30	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
31	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
32	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
33	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
34	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1

Row	TRTPN	TRTA	TRTAN	APHASE	APHASEN	APERIOD	APERIODC	ARM	ARMN	ACTARM	ACTARMN	COHORTC	COHORT	WT	WTBL	HTBL	BMIBL	BSABL	AGE	SEX	SEXN	RACE	RACEN	ETHNIC	ETHNICN
35	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
36	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
37	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
38	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
39	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
40	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
41	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
42	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
43	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
44	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1
45	1	TEST DRUG 100 mg Single Dose	1	DOSE ESCALATION	1	1	BEFORE CROSSOVER	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	TEST DRUG 100 mg Single Dose	1	70	70	170	24.2	1.81	30	M	1	WHITE	1	Non-Hispanic	1

Row	REGION	REGIONN	COUNTRYL	COUNTRYN	CREATBL	UCREATBL	CRCLBL	EGFRBL	TBILBL	ASTBL	ALT	ITTFL	ITTFN
1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
2	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
3	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
4	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
5	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
6	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
7	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
8	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
9	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
10	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
11	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
12	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
13	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
14	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
15	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
16	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
17	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
18	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
19	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
20	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
21	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
22	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
23	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
24	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
25	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
26	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1

Row	REGION	REGIONN	COUNTRYL	COUNTRYN	CREATBL	UCREATBL	CRCLBL	EGFRBL	TBILBL	ASTBL	ALT	ITTFL	ITTFN
27	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
28	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
29	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
30	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
31	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
32	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
33	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
34	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
35	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
36	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
37	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
38	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
39	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
40	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
41	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
42	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
43	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
44	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
45	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1

7 Example: One Subject, Multiple Doses

Example 1

This example shows the population PK dataset for a single subject administered multiple doses. The relative times are derived from the reference doses.

adppk.xpt

Row	PROJID	PROJIDN	STUDYID	STUDYIDN	PART	USUBJID	USUBJIDN	SUBJID	SITEID	SITEIDN	RECSEQ	AVISIT	AVISITN	VISIT	VISITNUM	AFRLT	ATPTREF	APRLT	NFRLT	NPRLT	ATPT	ATPTN	ADT	ADY
1	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	1	DAY 1	1	DAY 1	1	-0.1	DAY 1 MORNING DOSE	-0.1	0	0	PREDOSE	0	2020-01-21	1
2	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	2	DAY 1	1	DAY 1	1	-0.1	DAY 1 MORNING DOSE	-0.1	0	0	PREDOSE	0	2020-01-21	1
3	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	3	DAY 1	1	DAY 1	1	0	DAY 1 MORNING DOSE	0	0	0	DOSE	0	2020-01-21	1
4	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	4	DAY 1	1	DAY 1	1	0.25	DAY 1 MORNING DOSE	0.25	0.25	0.25	15MIN	0.25	2020-01-21	1
5	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	5	DAY 1	1	DAY 1	1	0.25	DAY 1 MORNING DOSE	0.25	0.25	0.25	15MIN	0.25	2020-01-21	1
6	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	6	DAY 1	1	DAY 1	1	0.5	DAY 1 MORNING DOSE	0.5	0.5	0.5	30MIN	0.5	2020-01-21	1
7	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	7	DAY 1	1	DAY 1	1	0.5	DAY 1 MORNING DOSE	0.5	0.5	0.5	30MIN	0.5	2020-01-21	1
8	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	8	DAY 1	1	DAY 1	1	0.75	DAY 1 MORNING DOSE	0.75	0.75	0.75	45MIN	0.75	2020-01-21	1
9	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	9	DAY 1	1	DAY 1	1	0.75	DAY 1 MORNING DOSE	0.75	0.75	0.75	45MIN	0.75	2020-01-21	1
10	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	10	DAY 1	1	DAY 1	1	1	DAY 1 MORNING DOSE	1	1	1	1H	1	2020-01-21	1
11	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	11	DAY 1	1	DAY 1	1	1	DAY 1 MORNING DOSE	1	1	1	1H	1	2020-01-21	1
12	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	12	DAY 1	1	DAY 1	1	1.5	DAY 1 MORNING DOSE	1.5	1.5	1.5	1H30MIN	1.5	2020-01-21	1
13	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	13	DAY 1	1	DAY 1	1	1.5	DAY 1 MORNING DOSE	1.5	1.5	1.5	1H30MIN	1.5	2020-01-21	1
14	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	14	DAY 1	1	DAY 1	1	2	DAY 1 MORNING DOSE	2	2	2	2H	2	2020-01-21	1
15	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	15	DAY 1	1	DAY 1	1	2	DAY 1 MORNING DOSE	2	2	2	2H	2	2020-01-21	1

Row	PROJID	PROJIDN	STUDYID	STUDYIDN	PART	USUBJID	USUBJIDN	SUBJID	SITEID	SITEIDN	RECSEQ	AVISIT	AVISITN	VISIT	VISITNUM	AFRLT	ATPTREF	APRLT	NFRLT	NPRLT	ATPT	ATPTN	ADT	ADY
16	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	16	DAY 1	1	DAY 1	1	3	DAY 1 MORNING DOSE	3	3	3	3H	3	2020-01-21	1
17	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	17	DAY 1	1	DAY 1	1	3	DAY 1 MORNING DOSE	3	3	3	3H	3	2020-01-21	1
18	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	18	DAY 1	1	DAY 1	1	4	DAY 1 MORNING DOSE	4	4	4	4H	4	2020-01-21	1
19	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	19	DAY 1	1	DAY 1	1	4	DAY 1 MORNING DOSE	4	4	4	4H	4	2020-01-21	1
20	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	20	DAY 1	1	DAY 1	1	6	DAY 1 MORNING DOSE	6	6	6	6H	6	2020-01-21	1
21	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	21	DAY 1	1	DAY 1	1	6	DAY 1 MORNING DOSE	6	6	6	6H	6	2020-01-21	1
22	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	22	DAY 1	1	DAY 1	1	8	DAY 1 MORNING DOSE	8	8	8	8H	8	2020-01-21	1
23	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	23	DAY 1	1	DAY 1	1	8	DAY 1 MORNING DOSE	8	8	8	8H	8	2020-01-21	1
24	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	24	DAY 1	1	DAY 1	1	12	DAY 1 MORNING DOSE	12	12	12	12H	12	2020-01-21	1
25	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	25	DAY 1	1	DAY 1	1	12	DAY 1 MORNING DOSE	12	12	12	12H	12	2020-01-21	1
26	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	26	DAY 2	2	DAY 2	2	24	DAY 2 MORNING DOSE	12	24	12	PREDOSE	0	2020-01-22	2
27	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	27	DAY 2	2	DAY 2	2	24	DAY 2 MORNING DOSE	12	24	12	PREDOSE	0	2020-01-22	2
28	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	28	DAY 3	3	DAY 3	3	48	DAY 3 MORNING DOSE	12	48	12	PREDOSE	0	2020-01-23	3
29	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	29	DAY 3	3	DAY 3	3	48	DAY 3 MORNING DOSE	12	48	12	PREDOSE	0	2020-01-23	3
30	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	30	DAY 4	4	DAY 4	4	72	DAY 4 MORNING DOSE	12	72	12	PREDOSE	0	2020-01-24	4
31	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	31	DAY 4	4	DAY 4	4	72	DAY 4 MORNING DOSE	12	72	12	PREDOSE	0	2020-01-24	4
32	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	32	DAY 5	5	DAY 5	5	95.9	DAY 5 MORNING DOSE	11.06	84	12	PREDOSE	0	2020-01-25	5
33	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	33	DAY 5	5	DAY 5	5	95.9	DAY 5 MORNING DOSE	11.06	84	12	PREDOSE	0	2020-01-25	5

Row	PROJID	PROJIDN	STUDYID	STUDYIDN	PART	USUBJID	USUBJIDN	SUBJID	SITEID	SITEIDN	RECSEQ	AVISIT	AVISITN	VISIT	VISITNUM	AFRLT	ATPTREF	APRLT	NFRLT	NPRLT	ATPT	ATPTN	ADT	ADY
34	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	34	DAY 5	5	DAY 5	5	96.25	DAY 5 MORNING DOSE	0.25	96.25	0.25	15MIN	0.25	2020-01-25	5
35	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	35	DAY 5	5	DAY 5	5	96.25	DAY 5 MORNING DOSE	0.25	96.25	0.25	15MIN	0.25	2020-01-25	5
36	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	36	DAY 5	5	DAY 5	5	96.5	DAY 5 MORNING DOSE	0.5	96.5	0.5	30MIN	0.5	2020-01-25	5
37	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	37	DAY 5	5	DAY 5	5	96.5	DAY 5 MORNING DOSE	0.5	96.5	0.5	30MIN	0.5	2020-01-25	5
38	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	38	DAY 5	5	DAY 5	5	96.75	DAY 5 MORNING DOSE	0.75	96.75	0.75	45MIN	0.75	2020-01-25	5
39	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	39	DAY 5	5	DAY 5	5	96.75	DAY 5 MORNING DOSE	0.75	96.75	0.75	45MIN	0.75	2020-01-25	5
40	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	40	DAY 5	5	DAY 5	5	97	DAY 5 MORNING DOSE	1	97	1	1H	1	2020-01-25	5
41	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	41	DAY 5	5	DAY 5	5	97	DAY 5 MORNING DOSE	1	97	1	1H	1	2020-01-25	5
42	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	42	DAY 5	5	DAY 5	5	97.5	DAY 5 MORNING DOSE	1.5	97.5	1.5	1H30MIN	1.5	2020-01-25	5
43	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	43	DAY 5	5	DAY 5	5	97.5	DAY 5 MORNING DOSE	1.5	97.5	1.5	1H30MIN	1.5	2020-01-25	5
44	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	44	DAY 5	5	DAY 5	5	98	DAY 5 MORNING DOSE	2	98	2	2H	2	2020-01-25	5
45	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	45	DAY 5	5	DAY 5	5	98	DAY 5 MORNING DOSE	2	98	2	2H	2	2020-01-25	5
46	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	46	DAY 5	5	DAY 5	5	99	DAY 5 MORNING DOSE	3	99	3	3H	3	2020-01-25	5
47	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	47	DAY 5	5	DAY 5	5	99	DAY 5 MORNING DOSE	3	99	3	3H	3	2020-01-25	5
48	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	48	DAY 5	5	DAY 5	5	100	DAY 5 MORNING DOSE	4	100	4	4H	4	2020-01-25	5
49	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	49	DAY 5	5	DAY 5	5	100	DAY 5 MORNING DOSE	4	100	4	4H	4	2020-01-25	5
50	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	50	DAY 5	5	DAY 5	5	102	DAY 5 MORNING DOSE	6	102	6	6H	6	2020-01-25	5
51	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	51	DAY 5	5	DAY 5	5	102	DAY 5 MORNING DOSE	6	102	6	6H	6	2020-01-25	5

Row	PROJID	PROJIDN	STUDYID	STUDYIDN	PART	USUBJID	USUBJIDN	SUBJID	SITEID	SITEIDN	RECSEQ	AVISIT	AVISITN	VISIT	VISITNUM	AFRLT	ATPTREF	APRLT	NFRLT	NPRLT	ATPT	ATPTN	ADT	ADY
52	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	52	DAY 5	5	DAY 5	5	104	DAY 5 MORNING DOSE	8	104	8	8H	8	2020-01-25	5
53	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	53	DAY 5	5	DAY 5	5	104	DAY 5 MORNING DOSE	8	104	8	8H	8	2020-01-25	5
54	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	54	DAY 5	5	DAY 5	5	108	DAY 5 MORNING DOSE	12	108	12	12H	12	2020-01-25	5
55	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	55	DAY 5	5	DAY 5	5	108	DAY 5 MORNING DOSE	12	108	12	12H	12	2020-01-25	5
56	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	56	DAY 6	6	DAY 6	6	120	DAY 5 MORNING DOSE	12	120	12	24H	24	2020-01-26	6
57	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	57	DAY 6	6	DAY 6	6	120	DAY 5 MORNING DOSE	12	120	12	24H	24	2020-01-26	6
58	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	58	DAY 7	7	DAY 7	7	144	DAY 5 MORNING DOSE	12	144	12	2D	48	2020-01-27	7
59	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	59	DAY 7	7	DAY 7	7	144	DAY 5 MORNING DOSE	12	144	12	2D	48	2020-01-27	7
60	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	60	DAY 8	8	DAY 8	8	168	DAY 5 MORNING DOSE	12	168	12	3D	72	2020-01-28	8
61	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	61	DAY 8	8	DAY 8	8	168	DAY 5 MORNING DOSE	12	168	12	3D	72	2020-01-28	8
62	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	62	DAY 9	9	DAY 9	9	192	DAY 5 MORNING DOSE	12	192	12	4D	96	2020-01-29	9
63	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	63	DAY 9	9	DAY 9	9	192	DAY 5 MORNING DOSE	12	192	12	4D	96	2020-01-29	9
64	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	64	DAY 10	10	DAY 10	10	216	DAY 5 MORNING DOSE	12	216	12	5D	120	2020-01-30	10
65	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	65	DAY 10	10	DAY 10	10	216	DAY 5 MORNING DOSE	12	216	12	5D	120	2020-01-30	10
66	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	66	DAY 11	11	DAY 11	11	240	DAY 5 MORNING DOSE	12	240	12	6D	144	2020-01-31	11
67	PROJECT-001	1	PROTOCOL-002	2	1	PROTOCOL-002-001-00237	200100237	00237	001	1	67	DAY 11	11	DAY 11	11	240	DAY 5 MORNING DOSE	12	240	12	6D	144	2020-01-31	11

Row	ATM	OCC	DVID	DVIDN	CMT	AVAL	DV	PCSTRESC	EVID	MDV	AULOQ	ALLOQ	BLQFL	BLQFN	ALQFL	ALQFN	DOSEA	DOSEP	AMT	II	ADDL	SS	FORM	FORMN	ROUTE	ROUTEN	TRTP	TRTPN
1	07:54	1	DRUG (ng/mL)	1	2	.	.	BLOQ (< 1.0 ng/mL)	0	1	10000	1	Y	1	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
2	07:54	1	BIOMARKER (ng/mL)	2	5	128.3687764	128.3687764	128.3687764	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
3	08:00	1	TEST PRODUCT (mg)	0	1	.	.	.	1	1			N	0	N	0	100	100	100	12	8	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
4	08:15	1	DRUG (ng/mL)	1	2	2.907336063	2.907336063	2.907336063	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
5	08:15	1	BIOMARKER (ng/mL)	2	5	103.2715704	103.2715704	103.2715704	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
6	08:30	1	DRUG (ng/mL)	1	2	4.388220874	4.388220874	4.388220874	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
7	08:30	1	BIOMARKER (ng/mL)	2	5	108.6827121	108.6827121	108.6827121	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
8	08:45	1	DRUG (ng/mL)	1	2	9.491620287	9.491620287	9.491620287	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
9	08:45	1	BIOMARKER (ng/mL)	2	5	113.5398669	113.5398669	113.5398669	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
10	09:00	1	DRUG (ng/mL)	1	2	14.46082	14.46082	14.46082	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
11	09:00	1	BIOMARKER (ng/mL)	2	5	97.31900301	97.31900301	97.31900301	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1

Row	ATM	OCC	DVID	DVIDN	CMT	AVAL	DV	PCSTRESC	EVID	MDV	AULOQ	ALLOQ	BLQFL	BLQFN	ALQFL	ALQFN	DOSEA	DOSEP	AMT	II	ADDL	SS	FORM	FORMN	ROUTE	ROUTEN	TRTP	TRTPN
12	09:30	1	DRUG (ng/mL)	1	2	18.30207099	18.30207099	18.30207099	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
13	09:30	1	BIOMARKER (ng/mL)	2	5	105.7107989	105.7107989	105.7107989	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
14	10:00	1	DRUG (ng/mL)	1	2	13.57718756	13.57718756	13.57718756	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
15	10:00	1	BIOMARKER (ng/mL)	2	5	120.2946946	120.2946946	120.2946946	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
16	11:00	1	DRUG (ng/mL)	1	2	25.65824809	25.65824809	25.65824809	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
17	11:00	1	BIOMARKER (ng/mL)	2	5	105.0127177	105.0127177	105.0127177	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
18	12:00	1	DRUG (ng/mL)	1	2	20.99817635	20.99817635	20.99817635	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
19	12:00	1	BIOMARKER (ng/mL)	2	5	89.13456689	89.13456689	89.13456689	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
20	14:00	1	DRUG (ng/mL)	1	2	25.03913923	25.03913923	25.03913923	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
21	14:00	1	BIOMARKER (ng/mL)	2	5	124.8966151	124.8966151	124.8966151	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
22	16:00	1	DRUG (ng/mL)	1	2	19.16258758	19.16258758	19.16258758	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1

Row	ATM	OCC	DVID	DVIDN	CMT	AVAL	DV	PCSTRESC	EVID	MDV	AULOQ	ALLOQ	BLQFL	BLQFN	ALQFL	ALQFN	DOSEA	DOSEP	AMT	II	ADDL	SS	FORM	FORMN	ROUTE	ROUTEN	TRTP	TRTPN
23	16:00	1	BIOMARKER (ng/mL)	2	5	127.5539637	127.5539637	127.5539637	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
24	20:00	1	DRUG (ng/mL)	1	2	28.77144997	28.77144997	28.77144997	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
25	20:00	1	BIOMARKER (ng/mL)	2	5	110.8514157	110.8514157	110.8514157	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
26	08:00	1	DRUG (ng/mL)	1	2	17.7181703	17.7181703	17.7181703	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
27	08:00	1	BIOMARKER (ng/mL)	2	5	132.2049406	132.2049406	132.2049406	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
28	08:00	1	DRUG (ng/mL)	1	2	17.00918365	17.00918365	17.00918365	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
29	08:00	1	BIOMARKER (ng/mL)	2	5	118.3639997	118.3639997	118.3639997	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
30	08:00	1	DRUG (ng/mL)	1	2	17.3199773	17.3199773	17.3199773	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
31	08:00	1	BIOMARKER (ng/mL)	2	5	115.9355717	115.9355717	115.9355717	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
32	07:54	2	DRUG (ng/mL)	1	2	17.3199773	17.3199773	17.3199773	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
33	07:54	2	BIOMARKER (ng/mL)	2	5	128.3687764	128.3687764	128.3687764	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1

Row	ATM	OCC	DVID	DVIDN	CMT	AVAL	DV	PCSTRESC	EVID	MDV	AULOQ	ALLOQ	BLQFL	BLQFN	ALQFL	ALQFN	DOSEA	DOSEP	AMT	II	ADDL	SS	FORM	FORMN	ROUTE	ROUTEN	TRTP	TRTPN
34	08:15	2	DRUG (ng/mL)	1	2	19.90733606	19.90733606	19.90733606	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
35	08:15	2	BIOMARKER (ng/mL)	2	5	103.2715704	103.2715704	103.2715704	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
36	08:30	2	DRUG (ng/mL)	1	2	21.38822087	21.38822087	21.38822087	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
37	08:30	2	BIOMARKER (ng/mL)	2	5	108.6827121	108.6827121	108.6827121	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
38	08:45	2	DRUG (ng/mL)	1	2	26.49162029	26.49162029	26.49162029	0	1	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
39	08:45	2	BIOMARKER (ng/mL)	2	5	113.5398669	113.5398669	113.5398669	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
40	09:00	2	DRUG (ng/mL)	1	2	31.46082	31.46082	31.46082	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
41	09:00	2	BIOMARKER (ng/mL)	2	5	97.31900301	97.31900301	97.31900301	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
42	09:30	2	DRUG (ng/mL)	1	2	35.30207099	35.30207099	35.30207099	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
43	09:30	2	BIOMARKER (ng/mL)	2	5	105.7107989	105.7107989	105.7107989	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
44	10:00	2	DRUG (ng/mL)	1	2	30.57718756	30.57718756	30.57718756	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1

Row	ATM	OCC	DVID	DVIDN	CMT	AVAL	DV	PCSTRESC	EVID	MDV	AULOQ	ALLOQ	BLQFL	BLQFN	ALQFL	ALQFN	DOSEA	DOSEP	AMT	II	ADDL	SS	FORM	FORMN	ROUTE	ROUTEN	TRTP	TRTPN
45	10:00	2	BIOMARKER (ng/mL)	2	5	120.2946946	120.2946946	120.2946946	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
46	11:00	2	DRUG (ng/mL)	1	2	42.65824809	42.65824809	42.65824809	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
47	11:00	2	BIOMARKER (ng/mL)	2	5	105.0127177	105.0127177	105.0127177	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
48	12:00	2	DRUG (ng/mL)	1	2	37.99817635	37.99817635	37.99817635	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
49	12:00	2	BIOMARKER (ng/mL)	2	5	89.13456689	89.13456689	89.13456689	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
50	14:00	2	DRUG (ng/mL)	1	2	42.03913923	42.03913923	42.03913923	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
51	14:00	2	BIOMARKER (ng/mL)	2	5	124.8966151	124.8966151	124.8966151	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
52	16:00	2	DRUG (ng/mL)	1	2	36.16258758	36.16258758	36.16258758	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
53	16:00	2	BIOMARKER (ng/mL)	2	5	127.5539637	127.5539637	127.5539637	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
54	20:00	2	DRUG (ng/mL)	1	2	45.77144997	45.77144997	45.77144997	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
55	20:00	2	BIOMARKER (ng/mL)	2	5	110.8514157	110.8514157	110.8514157	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1

Row	ATM	OCC	DVID	DVIDN	CMT	AVAL	DV	PCSTRESC	EVID	MDV	AULOQ	ALLOQ	BLQFL	BLQFN	ALQFL	ALQFN	DOSEA	DOSEP	AMT	II	ADDL	SS	FORM	FORMN	ROUTE	ROUTEN	TRTP	TRTPN
56	08:00	2	DRUG (ng/mL)	1	2	17.30162314	17.30162314	17.30162314	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
57	08:00	2	BIOMARKER (ng/mL)	2	5	110.9872874	110.9872874	110.9872874	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
58	08:00	2	DRUG (ng/mL)	1	2	3.318812343	3.318812343	3.318812343	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
59	08:00	2	BIOMARKER (ng/mL)	2	5	114.1983916	114.1983916	114.1983916	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
60	08:00	2	DRUG (ng/mL)	1	2	3.692661641	3.692661641	3.692661641	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
61	08:00	2	BIOMARKER (ng/mL)	2	5	126.1959481	126.1959481	126.1959481	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
62	08:00	2	DRUG (ng/mL)	1	2	4.334867518	4.334867518	4.334867518	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
63	08:00	2	BIOMARKER (ng/mL)	2	5	117.4141567	117.4141567	117.4141567	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
64	08:00	2	DRUG (ng/mL)	1	2	4.712088179	4.712088179	4.712088179	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
65	08:00	2	BIOMARKER (ng/mL)	2	5	90.85607857	90.85607857	90.85607857	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1
66	08:00	2	DRUG (ng/mL)	1	2	1.540505316	1.540505316	1.540505316	0	0	10000	1	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1

Row	ATM	OCC	DVID	DVIDN	CMT	AVAL	DV	PCSTRESC	EVID	MDV	AULOQ	ALLOQ	BLQFL	BLQFN	ALQFL	ALQFN	DOSEA	DOSEP	AMT	II	ADDL	SS	FORM	FORMN	ROUTE	ROUTEN	TRTP	TRTPN
67	08:00	2	BIOMARKER (ng/mL)	2	5	107.9729206	107.9729206	107.9729206	0	0	2000	10	N	0	N	0	100	100	0	0	0	0	TABLET	1	ORAL	1	TEST DRUG 100 mg BID	1

Row	ETHNICN	REGION	REGIONN	COUNTRYL	COUNTRYN	CREATBL	UCREATBL	CRCLBL	EGFRBL	TBILBL	ASTBL	ALTBL	ITTFL	ITTFN
1	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
2	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
3	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
4	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
5	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
6	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
7	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
8	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
9	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
10	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
11	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
12	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
13	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
14	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
15	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
16	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
17	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
18	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
19	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
20	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
21	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
22	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
23	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1

Row	ETHNICN	REGION	REGIONN	COUNTRYL	COUNTRYN	CREATBL	UCREATBL	CRCLBL	EGFRBL	TBILBL	ASTBL	ALTBL	ITTFL	ITTFN
24	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
25	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
26	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
27	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
28	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
29	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
30	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
31	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
32	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
33	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
34	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
35	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
36	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
37	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
38	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
39	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
40	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
41	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
42	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
43	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
44	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
45	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
46	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
47	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
48	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
49	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
50	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1

Row	ETHNICN	REGION	REGIONN	COUNTRYL	COUNTRYN	CREATBL	UCREATBL	CRCLBL	EGFRBL	TBILBL	ASTBL	ALTBL	ITTFL	ITTFN
51	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
52	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
53	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
54	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
55	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
56	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
57	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
58	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
59	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
60	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
61	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
62	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
63	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
64	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
65	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
66	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1
67	1	North America	1	UNITED STATES	1	1.2	1500	100	90	1	20	30	Y	1

8 Multiple Subjects, Multiple Studies

An example showing the combined dataset from multiple studies was developed and will be added to the CDISC Examples Collection (https://www.cdisc.org/kb/examples). The examples from Section 6, Example: One Subject, Single Dose, and Section 7, Example: One Subject, Multiple Doses, were combined and an IV dose was added. The combined example includes both a tablet and an IV.

Appendices

Appendix A: ADaM Population Pharmacokinetic Standards Development Team

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Appendix B: Glossary and Abbreviations

The following abbreviations and terms are used in this document. Additional definitions can be found in the CDISC Glossary (available at https://www.cdisc.org/standards/glossary).

ADaM	Analysis Data Model
ADaMIG	ADaM Implementation Guide
ADPPK	ADaM popPK (dataset)
ADSL	(ADaM) Subject-Level Analysis Dataset
BDS	(ADaM) Basic Data Structure
BID	Bis in die, twice a day (TID; dosing scheme)
BLOQ	Below limit of quantification
BMI	Body mass index
BSA	Body surface area
CDISC	Clinical Data Interchange Standards Consortium
Consumer	The user/reviewer/recipient of the data
CKD-EPI	Chronic Kidney Disease Epidemiology Collaboration
CRF	Case report form (sometime *case record form*); a printed, optical, or electronic document designed to record all required information to be reported to the sponsor for each trial subject. May be electronic (eCRF).
CrCl	Creatinine clearance
Dataset	A collection of structured data in a single file
ECOG	Eastern Cooperative Oncology Group
eGFR	Estimated glomerular filtration rate
EOI	End of infusion
IBW	Ideal body weight
IV	Intravenous (infusion)
IWER	Interval-wise error rate
KPS	Karnofsky Performance Scale
LLOQ	Lower limit of quantification
LOCF	Last observation carried forward
NONMEM	Nonlinear Mixed Effects Modelling (software)
PAP	Pharmacometric analysis plan
PD	Pharmacodynamic
PK	Pharmacokinetics
PopPK	Population pharmacokinetics
QD	Quaque die, once a day (dosing scheme)
SAP	Statistical analysis plan
SC	Subcutaneous (infusion)
SDTM	Study Data Tabulation Model
SDTMIG	Study Data Tabulation Model Implementation Guide

Appendix C: References

Cited Sources

1. Devine BJ. Gentamicin therapy. *Drug Intell Clin Pharm.* 1974;8(11):650–655. https://doi.org/10.1177/106002807400801104
2. Du Bois D, Du Bois EF. A formula to estimate the approximate surface area if height and weight be known. *Arch Intern Med*. 1916;17(6): 863–871. https://doi.org/10.1001/archinte.1916.00080130010002
3. Cockcroft DW, Gault MH. Prediction of creatinine clearance from serum creatinine. *Nephron.* 1976;16(1):31-41. https://doi.org/10.1159/000180580
4. National Kidney Foundation. CKD-EPI creatinine equation. 2023. Accessed May 16, 2023. https://www.kidney.org/content/ckd-epi-creatinine-equation-2021
5. Ramalingam SS, Kummar S, Sarantopoulos J, et al. Phase I study of vorinostat in patients with advanced solid tumors and hepatic dysfunction: A National Cancer Institute Organ Dysfunction Working Group study. *J Clin Oncol.* 2010;28(29):4507-4512. https://doi.org/10.1200/JCO.2010.30.2307
6. Ma C, Bandukwala S, Burman D, et al. Interconversion of three measures of performance status: an empirical analysis. *Eur J Cancer*. 2010;46(18):3175-3183. https://doi.org/10.1016/j.ejca.2010.06.126

Additional Resources

Bonate PL, Strougo A, Desai A, et al. Guidelines for the quality control of population pharmacokinetic-pharmacodynamic analyses: an industry perspective. *AAPS J.* 2012;14:749-58. https://doi.org/10.1208/s12248-012-9387-9

Byon W, Sweeney K, Frost C, et al. Population pharmacokinetics, pharmacodynamics, and exploratory exposure-response analyses of apixaban in subjects treated for venous thromboembolism. *CPT Pharmacometrics Syst Pharmacol.* 2017;6(5):340-349. https://doi.org/10.1002/psp4.12184

Dykstra K, Mehrotra N, Tornoe CW. Reporting guidelines for population pharmacokinetic analyses. *J Clin Pharmacol*, 2015;55(8):875-87. https://doi.org/10.1002/jcph.532

Gieschke R, Steimer JL. Pharmacometrics: modelling and simulation tools to improve decision making in clinical drug development. *Eur J Drug Metab Pharmacokinet.* 2000;25:49-58. https://doi.org/10.1007/BF03190058

Mould DR, Upton RN. Basic concepts in population modeling, simulation, and model-based drug development. *CPT Pharmacometrics Syst Pharmacol.* 2012;1(9):e6. https://doi.org/10.1038/psp.2012.4

Radivojevic A, Corrigan B, Downie N, et al. Data standards for model-informed drug development: an ISoP initiative. *J Pharmacokinet Pharmacodyn.* 2018;45:659-661. https://doi.org/10.1007/s10928-018-9595-8

Sun H, Fadiran EO, Jones CD, et al. Population pharmacokinetics. A regulatory perspective. *Clin Pharmacokinet.* 1999;37:41-58. https://doi.org/10.2165/00003088-199937010-00003

Thanneer N, Roy A, Sukumar P, et al. Best practices for preparation of pharmacometric analysis data sets. 2014. Accessed October 18, 2022. https://tinyurl.com/m6ndwmaa

US Food & Drug Administration. *Population Pharmacokinetics. Guidance for Industry*. US Department of Health and Human Services; 2022. https://www.fda.gov/media/128793/download

Wade JR, Edholm M, Salmonson T. A guide for reporting the results of population pharmacokinetic analyses: a Swedish perspective. *AAPS J.* 2005;7:E456–E460. https://doi.org/10.1208/aapsj070245

Williams PJ, Ette EI. The role of population pharmacokinetics in drug development in light of the Food and Drug Administration's "Guidance for Industry: population pharmacokinetics." *Clin Pharmacokinet.* 2000;39:385-395. https://doi.org/10.2165/00003088-200039060-00001

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