

## Requirements for pharamcometric plotting package **pmpplots**

Section	RID	Requirement
<b>Default column names</b>	1	Column <b>RES</b> refers to residual; rendered <b>res</b> in function names
	2	Column <b>WRES</b> weighted residual; rendered <b>wres</b> in function names
	3	Column <b>CWRES</b> refers to conditional weighted residual; rendered <b>cwres</b> in function names
	4	Column <b>TIME</b> refers to model time; rendered <b>time</b> in function names
	5	Column <b>TAFD</b> refers to time after first dose; rendered <b>tafd</b> in function names
	6	Column <b>TAD</b> refers to time after dose; rendered <b>tad</b> in function names
	7	Column <b>DV</b> refers to observed data; rendered <b>dv</b> in function names
	8	Column <b>PRED</b> refers to population level predictions; rendered <b>pred</b> in function names
	9	Column <b>IPRED</b> refers to individual level predictions; rendered <b>ipred</b> in function names
<b>Plots generated</b>	10	Functions <b>dv_time</b> , <b>dv_tafd</b> , and <b>dv_tad</b> plot DV versus the appropriate time measure; both lines and points are plotted
	11	Functions <b>dv_pred</b> and <b>dv_ipred</b> plot DV versus the appropriate predicted value; a line of identity is added as well as a loess smothing line; both the x- and y-axis maybe be transoformed to log scale with the <b>loglog</b> argument; if <b>loglog</b> is used, only positive values are retained for the plot
	12	Functions <b>res_time</b> , <b>res_tafd</b> , and <b>res_tad</b> plots residual versus the appropriate time measure; a reference line is added at <b>res=0</b> as well as a loess smoothing line
	13	Functions <b>wres_time</b> , <b>wres_tafd</b> , and <b>wres_tad</b> plots weighted residual versus the appropriate time measure; a reference line is added at <b>wres=0</b> as well as a loess smoothing line
	14	Functions <b>cwres_time</b> , <b>cwres_tafd</b> , and <b>cwres_tad</b> plots conditional weighted residual versus the appropriate time measure; a reference line is added at <b>cwres=0</b> as well as a loess smoothing line
	15	Functions <b>res_pred</b> , <b>wres_pred</b> and <b>cwres_pred</b> plot the appropriate residual versus population model predictions ( <b>PRED</b> ); a horizontal reference line is added at <b>c/w/res=0</b> as well as a loess smoothing line
	16	Functions <b>res_cont</b> , <b>wres_cont</b> , and <b>cwres_cont</b> plot the appropriate residual versus a continuous covariate in the data set; a horizontal reference line is added at <b>c/w/res=0</b> as well as a loess smoothing line
	17	Functions <b>res_cat</b> , <b>wres_cat</b> , and <b>cwres_cat</b> makes a boxplot of the appropriate residual versus a categorical data set column
	18	Function <b>wres_q</b> and <b>cwres_q</b> generates quantile-quantile plots of the appropriate residual value; a refereince identity line is added

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<b>Continuous scatter</b>	19	Function <code>eta_hist</code> generates histograms of model ETAs and returns a list <code>gg/ggplot</code> objects
	20	Function <code>eta_cont</code> generates a scatterplot of model ETAs versus a continuous variable in the data set; a horizontal reference line at <code>ETAn=0</code> and loess smoothing line are also added to the plot
	21	Function <code>eta_cat</code> generates boxplot summaries of model ETAs by a categorical variable in the data set
	22	Function <code>eta_pairs</code> generates pairs plots using the <code>ggpairs</code> function from the <code>GGally</code> package
	23	Function <code>splitplot</code> splits the input data set according to a discrete data item and generates a plot according to a user-named function, returning a list of <code>gg/ggplot</code> objects
	24	x-axis options available in <code>x_scale_continuous</code> can be modified by the <code>xs</code> argument
	25	y-axis options available in <code>y_scale_continuous</code> can be modified by the <code>ys</code> argument
	26	When loess smoothing lines are generated, <code>geom_smooth</code> with <code>ggplot2</code> default behavior is used; the smooth may be modified through the <code>smooth</code> argument
	27	A title may be added through the <code>title</code> argument
<b>Boxplot summaries</b>	28	x-axis options available in <code>x_scale_discrete</code> can be modified by the <code>xs</code> argument
	29	y-axis options available in <code>y_scale_continuous</code> can be modified by the <code>ys</code> argument
	30	Boxplot summaries are generated using <code>geom_boxplot</code> with <code>ggplot2</code> default configuration
<b>Input data</b>	31	A title may be added through the <code>title</code> argument
	32	Data are input as <code>data.frame</code> or <code>tibble</code>
	33	For continuous scatter plots, numeric data are required or an error is generated; data are considered discrete if they are <code>numeric</code> or <code>integer</code>
	34	For boxplot summaries, discrete data are required for x-axis for boxplot summaries; data are considered discrete if they are <code>character</code> , <code>factor</code> , or <code>logical</code>
<b>R packages</b>	35	Imports: <code>dplyr</code> ( <code>&gt;= 0.7.2</code> ), <code>rlang</code> ( <code>&gt;= 0.1.2</code> )
	36	Depends: <code>ggplot2</code> ( <code>&gt;= 2.2.1</code> )
	37	Suggests: <code>testthat</code>