

```
/*=====
=====*
```

```
| Covance Study Number   : 000000106343          |
```

```
| Program Name           : f_biomark.sas          |
```

```
| Purpose                 : To create Figure 15.1.1.2
|
```

```
| Input Data              : tflds.t_15_02_04_01_01_f    tflds.t_15_02_04_02_01_f    |
```

```
|                                tflds.t_15_02_04_03_01_f tflds.t_15_02_04_04_01_f
tflds.t_15_02_04_05_01_f|
```

```
|                                tflds.t_15_02_04_06_01_f tflds.t_15_02_04_07_01_f
tflds.t_15_02_04_08_01_f|
```

```
|                                tflds.t_15_02_04_09_01_f tflds.t_15_02_04_10_01_f
tflds.t_15_02_04_11_01_f|
```

```
|                                tflds.t_15_02_04_12_01_f tflds.t_15_02_04_13_01_f
tflds.t_15_02_04_14_01_f|
```

```
|                                tflds.t_15_02_04_15_01_f tflds.t_15_02_04_16_01_f
tflds.t_15_02_04_17_01_f|
```

```
|                                tflds.t_15_02_04_18_01_f
|
```

```
| Output Data             : F_15_01_01_02          |
```

```
| Macros Called           :                        |
```

```
| Originally Performed by :Jyothsna Reddy         |
```

```
| Date                    : 28APR2015             |
```

```
|                                |
```

```
|=====
=====|
```

```
| Modification History    |
```

```
|-----|
```

```
| Modified by            :                        |
```

| Modification Date :  
|

| Modification Description :  
|

+=====

```
=====*/
```

```
options notes source source2 nofullstimer validvarname=upcase missing=' ';
```

```
ods _all_ close;
```

```
ods listing;
```

```
*=====;
```

```
* START OF PROGRAM CODE ;
```

```
*=====;
```

```
%m_printto;
```

```
%let tflno=F_15_01_01_02;
```

```
/* Standard - leave this */
```

```
%let TFL_Part=%scan(&_SASPROGRAMFILE,-3,%str(/));
```

```
/* Standard - leave this */
```

```
data _null_;
```

```
tmp("&TFL_Part";
```

```
if tmp not in ("dev" "qc") then call symput("TFL_Part", "prod");
```

```
call symput('TFLpath', compress("&_SASPROGRAMFILE", ""));
```

```
run;
```

```
%put &tflpath;
```

```
/* Example of basic GTL syntax */
```

```
ods _all_ close;
```

```
/* Ensure ODS listing, html etc is turned off to prevent */
```

```
options notes source source2 nofullstimer validvarname=upcase nonumber nodate orientation=portrait  
missing=' ';
```

```
ods graphics on; /* As we are effectively using ODS graphics we need to ensure that it is turned on */
```

```
ods graphics / height=12cm width=16cm noborder; /* Removes border around the image */
```

```
ods path reset;
```

```
/* please include styles template */
```

```
%include "/cvn/projects/prj/development/000000106343/dev/figures/figtmplt.sas";
```

```
ods rtf toc_data file="/cvn/projects/prj/data/000000106343/TFL/dev/Tables/&tflno..rtf"  
style=t106343_g startpage=yes headery=1440 footery=1440 ;
```

```
ods exclude all;
```

```
data adbx;
```

```
set tflds.t_15_02_04_01_01_f
```

```
tflds.t_15_02_04_02_01_f
```

```
tflds.t_15_02_04_03_01_f
```

```
tfllds.t_15_02_04_04_01_f  
tfllds.t_15_02_04_05_01_f  
tfllds.t_15_02_04_06_01_f  
tfllds.t_15_02_04_07_01_f  
tfllds.t_15_02_04_08_01_f  
tfllds.t_15_02_04_09_01_f  
tfllds.t_15_02_04_10_01_f  
tfllds.t_15_02_04_11_01_f  
tfllds.t_15_02_04_12_01_f  
tfllds.t_15_02_04_13_01_f  
tfllds.t_15_02_04_14_01_f  
tfllds.t_15_02_04_15_01_f  
tfllds.t_15_02_04_16_01_f  
tfllds.t_15_02_04_17_01_f  
tfllds.t_15_02_04_18_01_f;
```

```
run;
```

```
data gmean2;
```

```
set adbx;
```

```
attrib tpt format = best.;
```

```
IF avisitn=10 THEN avisit1=0;
```

```
IF avisitn=100 THEN avisit1=0;
```

```
IF avisitn=101 THEN avisit1=1;

    IF avisitn=102 THEN avisit1=2;

    IF avisitn=103 THEN avisit1=3;

    IF avisitn=104 THEN avisit1=4;

    IF avisitn=105 THEN avisit1=5;

    IF avisitn=130 THEN avisit1=6;

    IF avisitn=160 THEN avisit1=7;

    IF avisitn=190 THEN avisit1=8;
```

```
if PARAMCD eq "CARBXHGB" then par=4;

if PARAMCD eq "U1NACRE" then par=10;

if PARAMCD eq "U1OHPCRE" then par=7;

if PARAMCD eq "U2NACRE" then par=11;

if PARAMCD eq "U3HPMCRE" then par=2;

if PARAMCD eq "U4ABPCRE" then par=9;

if PARAMCD eq "UCEMACRE" then par=13;

if PARAMCD eq "UHEMACRE" then par=14;

if PARAMCD eq "UHMPMCRE" then par=16;

if PARAMCD eq "UMHBMCRE" then par=1;

if PARAMCD eq "UNEQCRE" then par=18;

if PARAMCD eq "UNNALCRE" then par=5;

if PARAMCD eq "UNNNCRE" then par=8;

if PARAMCD eq "CO" then par=6;

if PARAMCD eq "UOTOLCRE" then par=12;

if PARAMCD eq "USBMACRE" then par=17;
```

```
if PARAMCD eq "USPMACRE" then par=3;
```

```
if PARAMCD eq "UBAPCRE" then par=15;
```

```
gmean=mean;
```

```
tpt=avisit1;
```

```
if paramcd="CO" and atpt not in ("Baseline, 20:00 - 21:30" "Day 2, 20:00 - 21:30" "Day 3, 20:00 - 21:30"
```

```
"Day 4, 20:00 - 21:30" "Day 5, 20:00 - 21:30" "Day 1, 20:00 - 21:30")
```

```
and avisitn in (100 101 102 103 104 105) then delete;
```

```
if paramcd="CARBXHGB" and atpt not in ("DAY 0 - 20:00 - 21:30" "DAY 1 - 20:00 - 21:30" "DAY 2 - 20:00 - 21:30"
```

```
"DAY 3 - 20:00 - 21:30" "DAY 4 - 20:00 - 21:30" "DAY 5 - 20:00 - 21:30")
```

```
and avisitn in (100 101 102 103 104 105) then delete;
```

```
if APUPER in (2 3 4) and avisitn in (100 10) then delete;
```

```
keep param paramn paramcd par avalu trtpn trtp atpt avisitn APUPER APUPERC avisit gmean  
lclm uclm tpt;
```

```
run;
```

```
PROC SQL;
```

```
CREATE TABLE ADBX3_X AS
```

```
SELECT PARAM,paramn,par,valu, trtp, AVISIT,avisitn, GMEAN, LCLM, UCLM
```

```
FROM gmean2;
```

```
QUIT;
```

```
data &tflno.;
```

```
set ADBX3_X;

run;

PROC EXPORT

DATA=ADBX3_X

DBMS=XLSX

OUTFILE="/cvn/projects/prj/data/000000106343/TFL/dev/Tables/&tflno..xlsx"

REPLACE;

SHEET=Sheet1;

PROC FORMAT;

    VALUE XAXIS

        4.5='1'

        9='2'

        13.5='3'

        18='4'

        22.5='5'

        45='30'

        67.5='60'

        90='90'

        0='Baseline'

;

RUN;
```

```
title;

footnote;

proc sort data=gmean2; by param par; run;

data paging;

    set gmean2 end=last;

    page = 1;

    par1=put(par,8.);

    if last then call symput("maxpage", par1);


    if par=4 then do;    maxval=9; incr=1;    end;

    else if par=1 then do; maxval=2000; incr=200;end;

    else if par=2 then do; maxval=1000; incr= 100; end;

    else if par=3 then do; maxval=2400; incr=200;    end;

    else if par=5 then do; maxval=300; incr=50;    end;

    else if par=7 then do; maxval=250; incr=50; end;

    else if par=8 then do; maxval=10; incr=1; end;

    else if par=6 then do; maxval=30; incr=1; end;

    else if par=9 then do; maxval=20; incr=5; end;

    else if par=10 then do; maxval=100; incr=10; end;

    else if par=11 then do; maxval=26; incr=2; end;

    else if par=12 then do; maxval=180; incr=30; end;

    else if par=13 then do; maxval=130; incr=10; end;

    else if par=14 then do; maxval=6000; incr=500; end;

    else if par=15 then do; maxval=180; incr=30; end;
```



```
else if par=16 then do; maxval=400; incr=50; end;  
else if par=17 then do; maxval=8000; incr=1000; end;  
else if par=18 then do; maxval=11; incr=1; end;
```

```
incr1=put(incr,8.);
```

```
maxval1=put(maxval,8.);
```

```
if trtpn=3 then trtord=3;
```

```
else if trtpn=4 then trtord=1;
```

```
else if trtpn=5 then trtord=2;
```

```
if tpt=1 then newvis=4.5;
```

```
else if tpt=2 then newvis=9;
```

```
else if tpt=3 then newvis=13.5;
```

```
else if tpt=4 then newvis=18;
```

```
else if tpt=5 then newvis=22.5;
```

```
else if tpt=6 then newvis=45;
```

```
else if tpt=7 then newvis=67.5;
```

```
else if tpt=8 then newvis=90;
```

```
else newvis=tpt;
```

```
run;
```

```
proc sort out=check nodupkey; by par;run;
```

```
%put &maxpage;
```

```

%macro graph();

%do i=1 %to 1; /* paging can either be done through a do loop or multiple macro calls */

    %do j=1 %to 18 %by 1;

%if &j %then %do;

    data plot1;

        set paging;

            where par=&j;

            parm=strip(param);

            drop param;

            rename parm=param;

        run;
proc sql noprint;

select param into:param trimmed

    from plot1;

quit;

data plot;

    set plot1;

    where page = &i;

    call symput("max1",compress(maxval1));

    call symput("incr",compress(incr1));


run;

%let maxpage=&maxpage;

```

```

proc template;

  define statgraph splot;

    begingraph ;

      layout overlay / border=false

        xaxisopts=( linearopts=(tickvaluelist=(0 4.5 9 13.5 18 22.5 45 67.5 90)
TICKVALUEFITPOLICY=ROTATE )

          label="Study Day")

        yaxisopts=(linearopts=(tickvaluesequence=(start=0 end=&max1 increment=&incr) viewmin=0
viewmax=&max1)

          label="&param" ) cycleattrs=false;

        seriesplot x=newvis y=gmean / index=trtpn primary=true group=trtp display=(markers)

          legendlabel="mean" name="series" ;

        scatterplot x=newvis y=gmean / index=trtpn group=trtp yerrorlower=lclm yerrorupper=uclm

          legendlabel="mean" name="scatter" ;

        discretelegend "series";

      endlayout;

    endgraph;

  end;

run;

ods select all;

```

```

ODS ESCAPECHAR='^';

```

```

ODS RTF PREPAGE="^S={outputwidth=100% just=l font_size=12pt font_weight=bold background=white
foreground=black font_face=arial}^R/RTF'\QL' Figure 15.1.1.2 Biomarkers of Exposure Geometric Mean
and 95% CI - PP Set";

```

```
ods rtf style=t106343_g;
```

```
proc sort data=plot; by trtord;run;
```

```
proc sgrender data=plot template=splot; /* applies the above template to the specified data */
```

```
FORMAT newvis XAXIS.;
```

```
run;
```

```
%if &j=4 %then %do;
```

```
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white foreground=black  
font_face=arial}^R/RTF'\QL' Note: COHb on Day 5 represents the evening sample collected.";
```

```
%end;
```

```
%if &j=6 %then %do;
```

```
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white foreground=black  
font_face=arial}^R/RTF'\QL' Note: CO on Baseline and Days 1- 5 represent the evening sample  
collected.";
```

```
/*ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white foreground=black  
font_face=arial}^R/RTF'\QL' Note: Evening measurements during Confinement are displayed."*/
```

```
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white foreground=black  
font_face=arial}^R/RTF'\QL' Note: Arithmetic mean and 95% CI are plotted for Exhaled CO (ppm).";
```

```
%end;
```

```
%let tflprg=f_biomark;
```

```
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white foreground=black  
font_face=arial}^R/RTF'\QL' Note: Baseline is summarized using the baseline data from the PP Set for  
Period 1.";
```

```
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white foreground=black  
font_face=arial}^R/RTF'\QL' Note: mCC = Menthol conventional cigarettes; SA = Smoking abstinence;  
THSm2.2 = Tobacco Heating System 2.2 Menthol.";
```

```
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white foreground=black
font_face=arial}^R/RTF\QL' Note: Baseline is the last assessment prior to first product use in mCC/THS
2.2 arms on Day 1 or last assessment prior to 10:00 AM in SA arm on Day 1.";
```

```
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white foreground=black
font_face=arial}^R/RTF\QL";
```

```
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white foreground=black
font_face=arial}^R/RTF\QL' Appendix 15.2.4.1.1, 15.2.4.2.1, 15.2.4.3.1, 15.2.4.4.1, 15.2.4.5.1, 15.2.4.6.1,
15.2.4.7.1, 15.2.4.8.1, 15.2.4.9.1,";
```

```
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white foreground=black
font_face=arial}^R/RTF\QL' 15.2.4.10.1, 15.2.4.11.1, 15.2.4.12.1, 15.2.4.13.1, 15.2.4.14.1, 15.2.4.15.1,
15.2.4.16.1, 15.2.4.17.1, 15.2.4.18.1.";
```

```
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white foreground=black
font_face=arial}^R/RTF\QL' Study ID:ZRHM-REXA-08-US Program: &tfprg..sas &sysdate Status:
&status. (Page &j of 18)";
```

```
%end;
```

```
%end;
```

```
%end;
```

```
%mend graph;
```

```
%graph;
```

```
ods _all_ close;
```

```
ods graphics / reset;
```

```
%m_logchk;
```