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%_mprintto;
options notes nosource;
proc datasets lib=work nolist memtype=data kill; quit;
%put NOTE:
=====;
%put NOTE: Covance Study Number : 000000106324;
%put NOTE: Client Protocol ID   : ZRHR-REXC-03-EU;
%put NOTE: Program Name        : t_ames.sas;
%put NOTE: Purpose              : table decriptive stats of Ames
Mutagenicity Test ;
%put NOTE: ;
%put NOTE: Input Data           : ADAM.ADBX ADAM.ADSL;
%put NOTE: Output               : t_15_2_4_42(ames);
%put NOTE: Macros Called        : _MPRINTTO;
%put NOTE: ;
%put NOTE: Programmed by        : cvn_jhardman;
%put NOTE: Creation Date        : 2014-07-30;
%put NOTE: SAS Version          : 9.3;
%put NOTE: ;
%put NOTE: == Latest Run
=====;
%put NOTE: Run by                : &sysuserid;
%put NOTE: Date/Time             :
%sysfunc(putn(%sysfunc(date()),e8601da.))T%sysfunc(putn(%sysfunc(time()),
e86011z.));
%put NOTE: ;
%put NOTE: == Modification History
=====;
%put NOTE: Date      Initials   No. Reason;
%put NOTE: 04Aug2014  JMH       1) Amended stats;
%put NOTE: 18Sep2014  JR        2) Updated baseline footnote;
%put NOTE: 18Sep2014  KB        3) Amended NC footnote;
%put NOTE: 25Sep2014  JMH       4) Amended PARAMCD used;
%put NOTE: 21Oct2015  KB        5) Amended paging due to new data;
%put NOTE: 21Oct2015  KB        6) Amended decimal places;
%put NOTE: ;
%put NOTE:
=====;
options notes source source2 nofullstimer validvarname=upcase missing='
';
ods _all_ close;
ods listing;

*=====;
* START OF PROGRAM CODE
*=====;

%let tflno=T_15_02_04_42(ames);

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

data _null_;
  tmp="&TFL_Part";
  if tmp not in ("dev" "qc") then call symput("TFL_Part", "prod");

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

*****;
* read in data ;
*****;

/*Use ADSL to get N values for column headers*/
data adsl;
    set adam.adsl(where=(fasfl='Y'));
run;

proc sort data=adsl nodupkey out=adsl1;
    by trt01an trt01a subjid;
run;

proc freq data=adsl1(where=(not missing(trt01an))) noprint;
    table trt01an*trt01a/ out =tot(drop=percent rename=(count=total));
run;

data tot2;
    set tot;
    call symput('trt' || compress(put(trt01an,best.)),
compress(total));
run;

/*Bring in appropriate data from ADBX*/
data adbx1;
    set adam.adbx(where=(anl02fl='Y' and fasfl='Y' and paramcd in
(/*'UAMES'*/'UAMES24U')));    /* 4) JMH 25Sep2014 */
run;

data adbx;
    set adbx1;
    if ablfl='Y' then do; avisit='Baseline'; avisitn=100; end;
    if avisit ne 'Baseline' and avisitn lt 101 then delete;
    call symput("avalu",left(strip(avalu)));
run;

data adbx_orig;
    set adbx;
    statval=aval;
    type='abs';
    output;
    statval=pchg;
    type='pchg';
    output;
run;

proc sort data=adbx_orig;
    by type trtan trta avisitn avisit;
run;

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proc means data=adbx_orig noprint;
    var statval;
    by type trtan trta avisitn avisit;
    output out=results02 n=n1 mean=mean1 std=std1 median=median1 min=min1
max=max1 q1=q1 q3=q3 lclm=lci1 uclm=uci1;
run;

data results03;
    set results02;
    attrib meansd length=/*$20.*/$50. /* 6) KB 21Oct2015 */
        minmax length=/*$20.*/$50. /* 6) KB 21Oct2015 */
        n length=/*$20.*/$50. /* 6) KB 21Oct2015 */
        median length=/*$20.*/$50. /* 6) KB 21Oct2015 */
        quart aci length=/*$20.*/$50.; /* 6) KB 21Oct2015 */

    n = left(compress(put(n1,8.)));
    if not missing(median1) then median =
left(compress(put(round(median1,0.01),/*8.2*/10.2))); /* 6) KB
21Oct2015 */
    if not missing(mean1) and not missing(std1) then meansd =
left(compress(put(round(mean1,0.01),/*8.2*/10.2))) || ' (' ||
left(compress(put(0.001*ceil(std1/0.001),/*8.3*/12.3))) || ')'; /* 6)
KB 21Oct2015 */
    if not missing(min1) and not missing(max1) then minmax =
left(compress(put(round(min1,0.1),/*8.1*/9.1))) || ', ' ||
left(compress(put(round(max1,0.1),/*8.1*/9.1))); /* 6) KB 21Oct2015 */
    if not missing(lci1) and not missing(uci1) then aci =
strip(put(0.01*floor(lci1/0.01),/*8.2*/10.2)) || ', ' ||
strip(put(0.01*ceil(uci1/0.01),/*8.2*/10.2)); /* 6) KB 21Oct2015 */
    if not missing(q1) and not missing(q3) then quart =
strip(strip(put(0.01*floor(q1/0.01),/*8.2*/10.2)) || ', ' ||
strip(put(0.01*ceil(q3/0.01),/*8.2*/10.2))); /* 6) KB 21Oct2015 */

    drop n1 mean1 std1 median1 min1 max1 q1 q3 uci1 lci1 ;
run;

%macro outrtf(blankn=, halfblnk=);

%if &halfblnk=N %then %let halfblnk=;
%else %if &halfblnk=Y %then %let halfblnk=\~;

/*Obtain the geometric mean*/

data gmean;
    set adbx_orig(where=(type='abs'));
    statvall=statval;
    if statvall=0 then GFLAG=1/*delete*/; /* 1) JMH 04Aug2014 */
    ELSE ln_statvall=log(statvall); /* 1) JMH 04Aug2014 */
run;

proc means data=gmean noprint;

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    output out=gmean1A mean=mean std=std1 lclm=lci1 uclm=uci1; /* 1) JMH
04Aug2014 */
    var ln_statval1;
    by trtan trta type avisitn avisit;
run;

/* 1) START JMH 04Aug2014 */
PROC MEANS DATA=GMEAN(WHERE=(GFLAG=1)) NOPRINT;
    OUTPUT OUT=GMEAN1B MEAN=MEAN ;
    VAR LN_STATVAL1;
    BY TRTAN TRTA TYPE AVISITN AVISIT GFLAG;
RUN;

DATA GMEAN1;
    MERGE GMEAN1A GMEAN1B;
    BY TRTAN TRTA TYPE AVISITN AVISIT;
RUN;
/* 1) END JMH 04Aug2014 */

data gmean2;
    set gmean1;
IF GFLAG NE 1 THEN DO; /* 1) JMH 04Aug2014 */
    gmean1=exp(mean);
    gmean=left(compress(put(round(gmean1,0.01),8.2)));
    gcv=compress(put(0.01*ceil((sqrt(exp(std1*std1)-1)*100)/0.01), 8.2));
    glci=exp(lci1);
    guci=exp(uci1);
END; /* 1) JMH 04Aug2014 */
    keep type trtan trta avisitn avisit gmean gcv glci guci std1 GFLAG; /*
1) JMH 04Aug2014 */
run;

/*Combine the Gmean and BLQ with other stats*/
proc sort data=results03;
    by trtan trta type avisitn avisit;
run;

data results04;
    merge results03 gmean2;
    attrib gmeancv length=$20.;
    by trtan trta type avisitn avisit ;
IF GFLAG NE 1 THEN DO; /* 1) JMH 04Aug2014 */
    if not missing(gcv) then gmeancv=left(trim(gmean)) || ' (' ||
left(trim(gcv))||'%)';
    else gmeancv=left(trim(gmean));
    if not missing(glci) and not missing(guci) then ci =
strip(strip(put(0.01*floor(glci/0.01),8.2)) || ', ' ||
strip(put(0.01*ceil(guci/0.01),8.2)));
END; /* 1) JMH 04Aug2014 */
ELSE IF GFLAG=1 THEN DO; /* 1) JMH 04Aug2014 */
    GMEANCV='NC'; /* 1) JMH 04Aug2014 */
    CI='NC'; /* 1) JMH 04Aug2014 */
END;

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run;

proc sort data=results04;
    by trtan trta type avisitn avisit;
run;

data results05;
    set results04 ;
    by trtan trta type avisitn avisit;
run;

proc sort data=results05;
    by type avisitn avisit;
run;

proc transpose data=results05(where=(type='abs')) out=results06 prefix=r
name=varname;
    by avisitn avisit;
    var n meansd median minmax aci quart gmeancv ci;
    id trtan;
    idlabel trta;
run;

proc transpose data=results05(where=(type='pch' and avisitn>100))
out=results06c prefix=c name=varname;
    by avisitn avisit;
    var n meansd median minmax aci quart;
    id trtan;
    idlabel trta;
run;

proc sort data=results06;
    by avisitn avisit varname;
run;

proc sort data=results06c;
    by avisitn avisit varname;
run;

data results07;
    merge results06 results06c;
    by avisitn avisit varname;
    attrib stat variable length = $100.;
    varname=upcase(varname);

    variable=compbl(avisit);

    if varname='N' then do;
        statord=1;
        stat='n';
    end;

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        else if varname='GMEANCV' then do;
            statord=3;
            stat='Geometric Mean (CV%)';
        end;
    else if varname='CI' then do;
        statord=4;
        stat='Geometric 95% CI';
    end;
    else if varname='MEDIAN' then do;
        statord=5;
        stat='Median';
    end;
    else if varname='QUART' then do;
        statord=6;
        stat='Q25, Q75';
    end;
    else if varname='MINMAX' then do;
        statord=7;
        stat='Min, Max';
    end;
    else if varname='MEANSD' then do;
        statord=8;
        stat='Mean (SD)';
    end;
    else if varname='ACI' then do;
        statord=9;
        stat='95% CI';
    end;
    drop varname;
run;

data results08;
    set results07;

    if missing(r1) and missing(r2) and missing(r3) and missing(c1) and
missing(c2) and missing(c3) and missing(stat) then delete;

/*      IF STAT IN ('Geometric Mean (CV%)' 'Geometric 95% CI') THEN DO;*/
/* 1) JMH 04Aug2014 */
/*      R1='NC'; */
/*      R2='NC'; */
/*      R3='NC'; */
/*      END;*/

    if stat='N' then do;
        * havent set changes to missing as not expected ;
        if missing(r1) then r1='0';
        if missing(r2) then r2='0';
        if missing(r3) then r3='0';
    end;
run;

data labels;
    set results08;

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        attrib r1 r2 r3 label = "Raw value"
              c1 c2 c3 label = '% Change (*)';

        flag=1;
run;

proc sql noprint;
    create table table.T_15_02_04_42 as
    select avisitn, variable, statord, stat, r1, c1, r2, c2, r3, c3
    from labels
    order by avisitn, statord;
quit;

proc sort data=labels;
    by avisitn statord;
run;

data paging;
    set labels;
    by avisitn statord;
    if first.avisitn or ln > 16 then ln=1; /*Amend to look presentable,
and avoid page overflows*/
    else ln+1;
    if ln=1 then page+1;
    call symput("page",compress(put(page,best.)));
run;

options number nodate orientation=landscape papersize=&p_pgsz missing='
';
ods escapechar='$';
%let linetop = \brdrt\brdrs\brdrw30; * needs to be 1.5pt so calculated
in twips (1/20 pt) ;
%let linebot = \brdrb\brdrs\brdrw30;

ods path stdlib.tl06324 (read) ;
ods results off;
ods rtf toc_data
file="/cvn/projects/prj/data/000000106324/TFL/&TFL_Part./&tflno..rtf"
style=tl06324 startpage=yes headery=1440 footery=1440 ;
ods noproctitle;

%DO J=1 %TO 2; /* 5) KB 21Oct2015 */
%do i=1 %to &page;

title ;
footnote;

data comp;
    set paging end=eof;
    where page=&i;

    /* Amend title as needed */

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```

    _firtitl="Table 15.2.4.42 Descriptive Statistics of Ames
Mutagenicity Test (YG1024+S9) (&avalu) - FAS";
    _upcas=(length("Path: &TFLpath.")-
length(compress("Path:&TFLpath.",'ABCDEFGHIJKLMNOPQRSTUVWXYZ')))/2;
/*    len=&blankn.-length("(page &i of &page)"); */ /* 5) KB 21Oct2015 */
    LEN=&BLANKN.-LENGTH("(page %EVAL(&j*2+&i-2) of %EVAL(&page*2))"); /*
5) KB 21Oct2015 */
    if eof then do;
        call symput('_FSRTITL', trim(left(_firtitl)));
        call symput('_blankn', compress(put(len,best.)));
    end;

    drop _firtitl _upcas len;
run;

ods proclabel = ' ';
ods listing close;

* most set up in template others below;
* title arial 12pt bold with 12pt paragraph space below;
* all headers to be arial 11pt bold;
* data arial 10pt;
* headers to be central, text values left aligned and numeric centered
around decimal point;
proc report data = comp missing headline headskip missing nowd split =
'$' %if &i=1 %then %do; contents=' ' %end; %else %do; contents='' %end;;
    column flag page avisitn variable statord stat
    %IF &J=1 %THEN %DO; /* 5) KB 21Oct2015 */
        ("THS 2.2$(N=&trt1)&linebot." r1 c1) ("CC$(N=&trt2)&linebot." r2 c2)
    %END; /* 5) KB 21Oct2015 */
    %ELSE %DO; ("SA$(N=&trt3)&linebot." r3 c3) %END;; /* 5) KB 21Oct2015
*/

    define flag          / order order = internal noprint;
    define page          / order order = internal noprint;
    define avisitn       / order order=internal noprint;
    define statord       / order order = internal noprint;
    define variable      / group style={just=l cellwidth=1.1cm}
style(header)={just=center} "Timepoint";
    define stat          / display style={just=l cellwidth=2.2cm}
style(header)={just=center} "Statistic"; /* 4) JMH 16Jul2014 */
    %IF &J=1 %THEN %DO; /* 5) KB 21Oct2015 */
        define r1        / display style={just=c cellwidth=1.6cm}
style(header)={just=center};
        define c1        / display style={just=c cellwidth=1.6cm}
style(header)={just=center};
        define r2        / display style={just=c cellwidth=1.6cm}
style(header)={just=center};
        define c2        / display style={just=c cellwidth=1.6cm}
style(header)={just=center};
    %END; /* 5) KB 21Oct2015 */
    %ELSE %DO; /* 5) KB 21Oct2015 */
        define r3        / display style={just=c cellwidth=1.6cm}
style(header)={just=center};

```



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define c3 / display style={just=c cellwidth=1.6cm}
style(header)={just=center};
%END; /* 5) KB 21Oct2015 */

break before flag / page %if &i=1 %then %do;
contents="_fsrtitl" %end; %else %do; contents='' %end;;

break after page / page;

compute after variable;
line " ";
endcomp;

compute before page / style={protectspecialchars=off};
line "&linetop";
endcomp;

compute before _page_ / style={just=left protectspecialchars=off};
line "\b\fs24\sa24&_FSRTITL." ; * \b = bold, \fs24 is font
size 12pt, \sa24 is space after 12pt;
line "&linebot";
endcomp;

compute after _page_ / style={just=left protectspecialchars=off
pretext="&linetop."};
LINE 'Note: CC = Conventional cigarettes; SA = Smoking
abstinence; THS = Tobacco Heating System.';
line 'Note: Geometric: mean, CV% and 95% confidence interval
(CI) are reported.';
line "Note: * % change from baseline, where baseline is the
last assessment prior to first product use in CC/THS 2.2 arms on Day 1 or
last assessment prior to 06:29 AM in SA arm on Day 1."; /* 2) JR
18Sep2014 */
/* line "Note: * % change from baseline, where baseline is
defined as the last assessment prior to 06:29 AM on Day 1.";*/
/* LINE "NC = Not calculated."; */
LINE "Note: NC = Not calculated."; /* 3) KB 18Sep2014 */
line ' ';
line 'Appendix 15.3.5.1';
/* line "Path: &TFLpath." &_blankn.*"\~\~" "(Page &i of
&page)";*/ /* 5) KB 21Oct2015 */
LINE "Path: &TFLpath." &_blankn.*"\~\~" "(Page %EVAL(&j*2+&i-
2) of %EVAL(&page*2))"; /* 5) KB 21Oct2015 */
line "Program Run: &sysdate &sysuserid Program Status:
&status";
endcomp;
run;

%end;
%END; /* 5) KB 21Oct2015 */
ods rtf close;
ods results on;
ods path sashelp.tmplmst (read);

```

```
%mend ;

%outrtf(blankn=72, halfblnk=N);
ods listing;
proc printto print = "&table./T_15_02_04_42.lst" new;
run;

proc contents data = table.T_15_02_04_42 varnum;
run;
ods listing close;
proc printto ; run;
*=====;
* END OF PROGRAM CODE ;
*=====;
```