



# MUSC3104

7 cbhYa d`Uhjb[ `>Unn. `< ]ghc fmž`G hmY ž`F YW d h]c b

HYfa `C bY `#`&\$&\$



GWcc`cZH Y`5ftg`UbX`A YXJU`#`I BGK `5ftg`UbX`GcWJU`GWYbWg

7 ci fgY`Cj Yfj JYk

`GHUZZ`7 cbhUW`i8YHUJ`g`

`7 cbj Ybcfg`

B Ua Y	9a Uj`	5j Uj`UVj`]m	@cWUjcb	D\cbY
>c\b`BUd]Yf	^bUd]Yf4 i bgk "YXi "Ui	H67 `gYY`A ccX`Y	K YVghYf`%%	- ' , ) * - )'

`Hi hcfg`

B Ua Y	9a Uj`	5j Uj`UVj`]m	@cWUjcb	D\cbY
8f`5`]ghYf`GdYbW	5`]ghYf`gdYbW`4 i bgk "YXi "Ui	D`YUgY Ya Uj` X]fYWim		

GW`cc``7 cbhUW`i`bZcfa Uhjcb

F cca `` %&Z`Yj Y`` `F cVYfhK YVghYf`6i ]X]b[

D\cbY. f\$&L`- ' , ) `( , ) \*

9a Uj]: [gUa 4 i bgk "YXi "Ui](#)

K YVg]hY: [\hdg.#gUa "Ufng"i bgk "YXi "Ui](#)

H\Y`GW`cc``cZ`hY`5fng`UbX`A`YX]U`k`ci`X``\_Y`hc`F`YgdYW`Z`m5W`bck`YX[`Y`hY`HfUX]h]cbU``7`i`ghcX]Ubgz`hY`6YXY[`U`fP`Ybg]b[`hcb`WJa`di`gŁz`;`UX][`U`fP`]mUbX`5fhi`8Yg][`b`7`Ua`di`gYgE`UbX`hY`B`[`i`bbUk`U`dYcd`Y`fBi`ghfU]Ub`8YZYbW`;`cfW`5WUXYa`mi`b`7`UbVYffU`E`cZ`hY`UbXg`k`YfY`YUW`WJa`di`g`cZi`BGK`]g`cWUjYX`





5XX]h]cbU`XYHJ]`g.

: i ``XYHJ]`g`cZh\]g`hUg\_`k ]``VY`[ ]j Yb`]b`h\Y`hi`hcf]U``]b`k`YY\_`%

Hi`fb]h]b`gYH]b[ .`H\]g`]g`bchU`Hi`fb]h]b`Ugg][`ba`Ybh



F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

F YWca a YbXYX`F Ygci fWg

GY`g]ghcZfYgci fWg`UbX`fYUX]b[ `gVXYXi `Y`cb`A ccX`Y"

7ci fgY`9j U`i Uh]cb`UbX`8Yj Y`cda Ybh

H\]g`Wci fgY`k ]`VY`Yj U`i UhX`hfc [ \ `hY`a m9I dYf]YbW`ei Ygh]cbU]fY`DfYj ]ci g`ei Ygh]cbU]fYg`\Uj Y  
fYgi `hX`]b`U`fYj ]g]cb`cZhY`dfYdUfUhcfmfYgYUfW`hUg\_`UbX`hY`]ghYb]b[ `hYghz`UbX`cb`[ fYUhf`XYhU]`cZhY  
XcW`a YbUfmdfcdcgU`VY]b[ [ ]j`Yb`]b`WUgg"

Gi Va ]gg]cb`cZ5ggYgga YbhHUg\_g

Gi Va ]gg]cb`cZ5ggYgga YbhHUg\_g

Hi fb]hb`Gi Va ]gg]cb

Ʒmci`YbWci`bhYf`U`dfcV`Ya`k`Yb`U`H`Ya`dh]b[`hc`gi`Va`]hmc`i`f`Ugg][`ba`Ybh`h`fci`[`\`Hi`fb]hb`z`d`YUgY`  
H`Y`d`l`cb`Y`9I`H`fb`U`Gi`ddcfh`cb`-`,`)``%`cf`Ya`U`H`Ya`cb`YI`H`fb`U`H`hgi`ddcfh`i`bgk`"YXi`"Ui`"Gi`ddcfh`  
`l`ci`fg`UfY`,`.\$\$Ua`-`%\$.\$\$da`cb`k`YY`XUmg`UbX`-`.\$\$Ua`-`).\$\$da`cb`k`YY`YbXg`f`l`\*)`XUmg`U`m`Y`Uf`l`"Ʒmci`  
UfY`i`bUV`Y`hc`gi`Va`]hmc`i`f`Ugg][`ba`Ybh`Xi`Y`hc`U`Z`U`h`k`]h`Hi`fb]hb`mci`a`Um`Udd`m`Z`f`Ub`YI`H`bg]cb`z`Vi`hmc`i`  
a`i`gh`f`Y`h]b`mci`f`h]W`Y`hbi`a`VY`f`Z`ca`9I`H`fb`U`Gi`ddcfh`f`U`cb[`k`]h`Ub`m`c`h`Y`f`f`Y`j`Ub`h`X`c`W`a`Y`b`h`g`l`hc`  
]b`Wi`X`Y`U`g`Y`j`]X`Y`b`W`hc`gi`ddcfh`mci`f`YI`H`bg]cb`Udd`]W`h]cb"Ʒmci`Ya`U`9I`H`fb`U`Gi`ddcfh`mci`k`]`  
Ui`h`ca`U`h]W`m`f`Y`W`]j`Y`U`h]W`Y`hbi`a`VY`f`z`Vi`h]Z`mci`H`Y`d`l`cb`Y`mci`k`]`b`Y`Y`X`hc`gd`Y`W`Z`W`m`U`g`\_`Z`f`cb`Y`  
Hi`fb]hb`U`gc`d`fcj`]X`Y`g`i`d`X`U`H`g`i`cb`h`Y`f`g`m`g`h`Ya`g`h`U`h`g`i`cb`H`k`]h`Y`f`"

;`Yb`Y`f`U`m`z`Ugg`Y`gga`Y`bh`h`U`g`\_`g`a`i`gh`V`Y`gi`Va`]h`Y`X`Y`Y`W`f`cb]W`m`j`]U`Y`]h`Y`f`Hi`fb]hb`cf`U`A`cc`X`Y`  
Ugg][`ba`Y`b`h`h`b`]b`g`h`U`b`W`g`k`Y`f`Y`h`l`g`]g`b`c`h`i`d`c`g`g]V`Y`z`]h`k`]`V`Y`g`h`U`H`X`i`cb`mci`f`W`ci`fg`Y`g`A`cc`X`Y`g`]h`k`]h`  
U`h`f`b`U`h]j`Y`gi`Va`]gg]cb`X`Y`h]g`"

:`cf`]b`Z`c`fa`U`h]cb`cb`l`ck`hc`gi`Va`]h`Ugg][`ba`Y`b`h`g`i`cb`]b`Y`j`]U`A`cc`X`Y`.\`h`td`g`#`gh`X`Y`b`h`i`bgk`"YXi`"Ui`#`ack`!  
gi`Va`]h`Ugg][`ba`Y`b`h`a`cc`X`Y`"

## 5 WUXYa ]W<c bYghmUbX`D`U[ ]Uf]ga

D`U[ ]Uf]ga ]g`i g]b[ `hY`k cfXg`cf]XYUg`cZchYfg`UbX`dfYgYbh]b[ `hYa`Ug`mci`f`ck`b" `hWUb`hU`Y`a`Ubm`Z`fa`g`z`Z`ca`XY`]VYfUHY`WX`YU]b[ `hc`UW]XYbhU`mW`dm]b[ `Z`ca`U`gci`fW`k`]h`ci`hUW`bck`YX[ `Ya`Ybh`

I`BGK`[ `fci`dg`d`U[ ]Uf]ga`]b`hc`hY`Z`ck`]b[ `W]HY`[ `cf]Yg.

7`cdm]b[ `i`g]b[ `hY`gUa`Y`cf`j`Yfmg]a`]Uf`k`cfXg`hc`hY`cf][ ]bU`hY`hcf`]XYU`k`]h`ci`hUW`bck`YX[ ]b[ `hY`gci`fW`cf`i`g]b[ `ei`chU]cb`a`Uf`g" `H`g`U`gc`Udd`Yg`hc`]a`U[ `Yg`z`Uf`h`UbX`XYg][ `b`dfc`YW`g`z`Ug`k`Y`U`g`dfYgYbhU]cbg`k`Y`fY`gca`YcbY`dfYgYbh]b[ `Ubc`h`Y`f`g`]XYUg`cf`k`cfXg`k`]h`ci`hW`YX]h`

hUddfcdf]UHY`dUfUd`fUg]b[ `7`U`b[ ]b[ `U`Z`k`k`cfXg`UbX`d`fUgYg`k`Y`a`cghmifYU]b]b[ `hY`cf][ ]bU`g]fi`W`fY`UbX`#`f`dfc[ `fYgg]cb`c`Z]XYUg`c`Z`h`Y`cf][ ]bU`z`UbX`]b`Z`fa`U]cb`k`]h`ci`hUW`bck`YX[ `Ya`Ybh`H`g`U`gc`Udd`Yg`]b`dfYgYbhU]cbg`k`Y`fY`gca`YcbY`dUfUd`fUgYg`Ubc`h`Y`f`g`]XYUg`cf`k`cfXg`k`]h`ci`hW`YX]h`UbX`hc`d]Y]b[ `hc[ `Y`h`Y`f`ei`chYg`UbX`dUfUd`fUgYg`]b`hc`U`b`Y`k`k`Y`c`Y`z`k`]h`ci`hUddfcdf]UHY`fY`Z`fY`b]b[ "

7`c`i`g]cb.`k`cf\_]b[ `k`]h`c`h`Y`fg`Vi`hdUgg]b[ `c`Z`h`Y`k`cf\_]Ug`U`d`Y`fg`cb`g`]bX]j`]Xi`U`k`cf\_"`7`c`i`g]cb`U`gc`]bW`i`XYg`dfcj`X]b[ `mci`f`k`cf\_]hc`Ubc`h`Y`f`gh`XYbhVY`Z`fY`h`Y`Xi`Y`XU`h`z`cf`Z`f`h`Y`di`fdcgY`c`Z`h`Ya`d`U[ ]Uf]g]b[ `Uh`Ubm]h]a`Y`z`dUm]b[ `Ubc`h`Y`f`d`Y`fg`cb`hc`d`Y`Z`fa`Ub`UW`X`Ya`]W`h`Ug`z`gh`U`]b[ `cf`UW`ei`]f]b[ `Ubc`h`Y`f`d`Y`fg`cb`g`UW`X`Ya`]W`k`cf\_]UbX`W`dm]b[ `]h`z`c`Z`f]b[ `hc`W`ta`d`Y`h`Ubc`h`Y`f`d`Y`fg`cb`g`k`cf\_]cf`g`Y`Y\_]b[ `dU`ma`Y`bh`Z`f`W`ta`d`Y`h]b[ `UW`X`Ya`]W`k`cf\_"

hUddfcdf]UHY`W]h]cb.`7`h]b[ `gci`fW`g`k`]W`U`j`Y`bchVYYb`fYUX`z`k`]h`ci`hUW`bck`YX[ ]b[ `hY`gY`W`b`X`U`fm`gci`fW`Z`ca`k`]W`\_bck`YX[ `Y`c`Z`h`Ya`U`g`V`Y`Y`b`c`V`h]b]YX"

8`i`d`]W]h]cb`f`f`gY`Z`d`U[ ]Uf]ga`"L`gi`Va`]h]b[ `mci`f`ck`b`k`cf`z`]b`k`Y`cf`]b`d`U`f`z`k`Y`fY`]h`U`g`d`fYj`]ci`g`m`V`Y`Y`b`d`fY`d`U`f`Y`X`c`f`gi`Va`]h]X`Z`f`Ubc`h`Y`f`UggY`gga`Y`bhcf`W`ei`fgY`U`h`I`BGK`cf`Ubc`h`Y`f`i`b]j`Y`fg]m`

7`cf`f`Y`W`h`f`Y`Z`f`Y`b]b[ `d`f`U`W`]W`g.

- DUFUd`fUg]b[ `z`gi`a`a`Uf]g]b[ `z`Y`gg`U`mk`f]h]b[ `UbX`h]a`Y`a`UbU[ `Ya`Ybh`

- i bXYfgHUbX'mci f'f][ \hg'UbX'fYgdcbg]V] ]hYg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[ ]Uf]ga ž'Wcdmf][ \hž' BGK 'Gh XYbh7cXY'cZ7cbXi WñUbX'5WwdfUV'Y'I gY'cZ  
I BGK '⇒H'F Ygci fW'g'Dc`]Wñ

## 5 WUXYa ]WbZcfa Uhcb`

: cfYggYbh]U`ghi XYbh]bZcfa Uhcb`fY`Uh]b[ `hc.

- fYei Yghg`ZcfYI hYbg]cb/
- `UhY`gi Va ]gg]cbg`[ i ]XY`]bYg/
- fYj ]Yk`cZa Uf\_g/
- I B GK `<YU`h`UbX`GUZY`midc`]WYg/
- YI Ua ]bUh]cb`dfcVWXi fYg/
- gdYW]U`Wc]bg]XYfUh]cb`]b`hY`Yj YbhcZ]`bYgg`cf`a ]gUXj Ybhi fY/
- ghi XYbhYei ]hmUbX`X]gUV`]`]m/
- UbX`chYfYggYbh]U`UWUXYa ]W]bZcfa Uh]cbz`gYY

[\hdg.#k k k "Ufng"i bgk "YXi "Ui #W ffYbh\]ghi XYbh\]bZcfa Uh\]cb`dfc\]Wc`g! \[ i \]XY`\]bYg#](#)

⇒ U[ Y`7 fYX]h

⇒ U[ Y`Zca `K ]\_]a YX]U`Wca a cbg`"GUhW]a c`Vm5X]`<c`nYf`"\hdg.#Wca a cbg" k ]\_]a YX]U"cf[ # ]\_]#7 UhY[ cfm

.>UnnS]bSUfh #a YX]U# ]Y.5X]S<c`nYfSK Yf\_gj YfnY]W]b]gS, -- SGUH]a cSf@c]i ]gS5fa g]fcb[ ƒ`d[

7F ⇒ CG

7F ⇒ CG`Dfcj ]XYf`7cXY. \$\$\$- , ;