

!" #&/  
4;O <548G=>3> 70AB>AC20==O ;V:0@AL:>3> 70A>1C

**&3500**  
**(ZIBOR 3500)**

!;:04:  
4VNG0 @5G>28=0: 1 <; @>7G8=C 4;O V=T:FV9 @0-%0 (0:B82=VABL =02>48BLAO C4=8E >48=8FOE  
0:B82=>ABV 0=B8D0:B>@0-%0 2V4?>2V4=> 4> 4=>3> AB0=40@BC =87L:><>;5:C;O@=>3> 35?0@8=C);  
1 ?>?5@54=L> 70?>2=5=89 H?@8F ?> 0,2 @0-%0;  
4>?>28=8: 2>40 4;O V=T:FV9.

V:0@AL:0 D>@<0. >7G8= 4;O V=T:FV9.  
A=>2=V DV78:>-EVABV: ?@>7>@89 V ?@0:B8G=> 2V;L=89 2V4 G0AB>: @>7G8= 2V4 15710@2=>3>  
4> A2VB;>-6>2B>3> :>;L>@C.

\$0@<0:>B5@0?52B8G=0 3@C?0. =B8B@><1>B8G=V 70A>18. @C?0 35?0@8=C. >4 "% 0112.

**\$0@<0:>;>3VG=V 2;0AB82>ABV.**

\$0@<0:>48=0  
5<>;5:C;O@=89 35?0@8= (), >B@8<0=89 C @57C;LB0BV 45?>;V<5@870FVW 35?0@8=C =0B@VN, I>  
1C2 284V;5=89 7V A;87>2>W >1>;>=:8 :8H5G=8:C A28=59. !5@54=O<>;5:C;O@=0 2030 () 1528BL  
?@81;87=> 3600 40;LB>=. @>F5=B <>;5:C;O@=8E ;0=FN3V2 7 <5=H5 2000 40;LB>= AB0=>28BL <5=H5  
35 %. @>F5=B <>;5:C;O@=8E ;0=FN3V2 7 2V4 2000 4> 6000 40;LB>= :>;820TBLAO F5=B <>;5:C;O@=8E  
;0=FN3V2 7 2815 6000 40;LB>= AB0=>28BL <5=H5 15 %. :B82=VABL 0=B8D0:B>@0-%0 1528BL 2V4 80  
4> 120 0=B8D0:B>@0-%0 =0 1 <3 ACE>W @5G>28=8, 0 0:B82=VABL 0=B8D0:B>@0-0 AB0=>28BL 2V4 5  
4> 20 0=B8D0:B>@0-0 =0 1 <3 ACE>W @5G>28=8. !?V22V4=>H5==O 0:B82=>ABV 0=B8D0:B>@0-%0  
/0=B8D0:B>@0-0 ?@81;87=> 8. 5:A?5@8<5=B0E =0 B20@8=0E 4>2545=0 ?@>B873>@B0;L=0  
0:B82=VABL V ?>AC20==O 153> ?@>B873>@B0;L=C 0:B82=VABL V, ?@8 4>B@80==V @5:>  
<5=4>20=>3> 4>7C20==O, =5 7=0G=> ?>4>26CT G0A B5ABC =0 73>@B0==O :@>2V.

\$0@<0:>:V=5B8:0.

\$0@<0:>:V=5B8G=V 2;0AB82>ABV 15< 28ABV 0=B8D0:B>@0-%0 C ?;07 :@>2V 70 4>?><>3>N 0  
;VB8G=>3> <5B>4C 7 28:>@8AB0==O<  
4=>3> AB0=40@BC 4;O =87L:><>;5:C;O@=>3> 35?0@8=C (0FV>=0;L=89 V=AB8BCB 1V>;>3VG=8E  
AB0=40@BV2 B0 :>=B@>;N, NIBSC).

@>F5A8 2A<>:BC20==O B0 282545==O 2V4?>2V40NBL ;V=V9=V9 :V=5B8FV 1-3> ?>@O4:C.  
A<>:BC20==O. 5 2A<>:BCTBLAO ?VA;O ?V4H:V@=>W V=T:FVW 7 1V>4>ABC?=VABN, O:0  
>FV=NTBLAO C 96 %. 0:A8<0;L=0 4VO 0=B8D0:B>@0-%0 C ?;072V ?@8 ?@>DV;0:B8G=8E 4>70E  
?@5?0@0BC, @V2=8E 2500 V 3500 , 4>AO30TBLAO G5@57 2-3 3>48=8 ?VA;O ?V4H:V@=>W  
V=□T:FVW 15 7 =091V;LH8< ?V:< 0:B82=>ABV ?>@O4:C 0,34 □ 0,08 B0 0,45 □ 0,07 0=B8D0:B>@0-  
%0/<; 2V4?>2V4=>. :B82=VABL 0=B8D0:B>@0-0 ?@8 ?@87=0G5==V 2815707=0G5=8E 4>7 =5  
28O2;OTBLAO. 0:A8<0;L=0 0:B82=VABL 0=B8D0:B>@0-%0 C ?;072V ?@8 22545==V 4>7 5000 , 7500 ,  
10000 V 12500 4>AO30TBLAO G5@57 3-4 3>48=8 ?VA;O ?V4H:V@=>W V=T:FVW 15 7 ?V:<  
0:B82=>ABV ?>@O4:C 0,54 □ 0,06, 1,22 □ 0,27, 1,42 □ 0,19 B0 2,03 □ 0,25 0=B8D0:B>@0-%0/<;  
2V4?>2V4=>. :B82=VABL 0=B8D0:B>@0-0 ?>@O4:C 0,01 <; 1C;0 28O2;5=0 ?@8 22545==V 4>7 7500 ,  
10000 V 12500 .

82545==O. 5@V>4 =0?V2282545==O 15 I> 22>48BLAO C 4>70E 2V4 2500 4>  
12500 , ?5@51C20T C <560E 5-6 3>48= V, 2V4?>2V4=>, 151C. 0 AL>3>4=V =5<0T 40=8E AB>A>2=>  
740B=>ABV 15

**;V=VG=V E0@0:B5@8AB8:8.**

**>:070==O.**

@>DV;0:B8:0 25=>7=>W B@><1>5<1>;VW 7 28A>:8< ABC?5=5< @878:C ?@8 >?5@0B82=8E  
2B@CG0==OE.

@>DV;0:B8:0 73>@B0==O :@>2V 2 A8AB5@?>@0;L=>3> :@>2>>1V3C ?@8 ?@>2545==V 35  
<>4V0;V7C.

@>DV;0:B8:0 25=>7=>W B@<1>5<1>;VW C =5EV@C@3VG=8E ?0FVT=BV2 7 28A>:8< @878:<<  
@>728B:C 25=>7=>W B@<1>5<1>;VW.

B>@8==0 ?@>DV;0:B8:0 @5F8482V2 25=>7=>W B@<1>5<1>;VW C ?0FVT=BV2 7 B@<1>7<<  
3;81>:8E 25= V ?5@5EV4=8<8 D0:B>@0<8 @878:C.

@>B8?>:070==O.

- V428I5=0 GCB;82VABL 4> 154> @5G>28= A28=OG>3> ?>E>465==O;
- =0O2=VABL 2 0=0<=57V ?V4B25@465=>W V;>3VG=> 7C<>2;5=>W 35?0@8=<< B@>  
<1>F8B>?5=WO (" ) G8 ?V4>7@0 =0 =5W;
- 0:B82=V :@>2>B5GV 01> ?V428I5=89 @878: :@>2>B5G 7C<>2;5=89 ?>@CH5==O< 73>@B0==O  
:@>2V;
- BO6:V ?>@CH5==O DC=:FVW ?5GV=:8 V ?V4H;C=:>2>W 70;>78;
- CH:>465==O 01> >?5@0B82=V 2B@CG0==O C 4V;O=FV F5=B@0;L=>W =5@2>2>W A8AB5<8,  
>@30=V2 7>@C 01> >@30=V2 A;CEC ?@>BO3<< >AB0==VE 2-E
- A8=4@<< 48A520=>3> 2=CB@VH=L>AC48==>3> 73>@B0==O :@>2V (!), I> AC?@>2>46CT  
B@<1>F8B>?5=VN, V=4C:>20=C 35?0@8=<<;
- 3>AB@89 10:B5@V0;L=89 5=4>:0@48B B0 ?V43>AB@89 10:B5@V0;L=89 5=4>:0@48B;
- 1C4L-O:V >@30=VG=V ?>@CH5==O 7 28A>:8< @878:<< :@>2>B5G (=0?@8:;04 0:B82=0  
?5?B8G=0 28@07:0, 35<>@03VG=89 V=AC;LB, F5@51@0;L=0 0=52@87<0 01> F5@51@0;L=0  
=5>?:07VO).

70T<>4VO 7 V=H8<8 ;V:0@AL:8<8 70A>10<8 B0 V=HV 2848 270T<>4V9.

V:0@AL:V 270T<>4VW 15@<0FVO I>4> @>74V;C >?8@0TBLAO =0 40=V, O:V 1C;8 >B@8<0=V  
AB>A>2=> V=H8E ;V:0@AL:8E 70A>1V2 3@C?8 =87L:<<>;5:C;O@=8E 35?0@8=V2.

5 @5:<<5=4CTBLAO >4=>G0A=5 70AB>AC20==O 1503C;OFVN B0/01> DC=:FVN B@<<1>F8BV2, I>  
71V;LHCT @878: 28=8:=5==O :@>2>B5G. /:I> >4=>G0A=>3> 70AB>AC20==O ?@5?0@0BV2 C=8:=CB8  
=5<>6;82>, 15 ?V428ICNBL :>=F5=B@0FVN :0;VN 2 :@>2V, A;V4 74V9A=N20B8 ?V4 >A>1;82>  
@5B5;L=8< :>=B@>;5

A>1;82>ABV 70AB>AC20==O.

#?0:>2:0 4=>@07>2C 4>7C ?@5?0@0BC. VA;O 70AB>AC20==O =528:>@8AB0=89 22:8 B@510 2840;8B8.  
5 28:>@8AB>2C20B8 ?@5?0@0B, O:I> 70E8A=0 ?;V2:0 @>7:@8B0 01> CH:>465=0. 8:>@8AB>2C20B8  
BV;L:8 ?@>7>@89 15710@2=89 01> 6>2BC20B89 @>7G8=, I> =5 :.

5 22>48B8 H;OE<< 2=CB@VH=L<<07>2>W V=T:FVW. # 72O7:C 7 @878:<< @>728B:C 35<0B><< A;V4  
C=8:0B8 2=CB@VH=L<<07>28E V=T:FV9 V=H8E ?@5?0@0BV2 C ?5@V>4 ;V:C20==O 15

!;V4 1CB8 >15@56=8<8, ?@87=0G0NG8 ?@5?0@0B ?0FVT=B0< 7 ?5GV=:>2>N 01> =8@:>2>N  
=54>AB0B=VABN, =5:>=B@>;L>20=>N 0@B5@V0;L=>N 3V?5@B5=7VTN, 28@07:>2>N E2>@>1>N

H;C=:0 B0 420=04FOB8?0;>W :8H:8 2 0=0<=57V, B@<1>F8B>?5=VTN, :0

5A>1;82> C ?0FVT=BV2 =0 FC:@>289 4V015B, E@>=VG=C =8@:>2C =54>AB0B=VABL, <5B01>;VG=89  
0F84>7, ?V428I5=89 @V25=L :0;VN C ?;072V 01> C ?0FVT=BV2, O:V 70AB>A>2CNBL

:0;V9715@V30NGV ?@5?0@0B8. 878: @>728B:C 3V?5@:0;VT?>@FV9=> 4> B@820;>ABV B5@0?VW,  
0;5 B0:0 3V?5@:0;VT, <8=C10. # ?0FVT=BV2 3@C?8 @878:C =5>1EV4=> 287=0G8B8 @V25=L

5;5:B@>;VBV2 ?;07<8 ?5@54 ?@87=0G5==O< 15 9>3> :>=B@>;N20B8 ?@>BO3<< ;V:C20==O, >A>1;82>  
O:I> B@820;VABL B5@0?VW ?5@528ICT 7 4V1.

=>4V =0 ?>G0B:C ;V:C20==O 35?0@8=<< A?>AB5@V30TBLAO ;53:0 <8=C10 B@<1>F8B>?5=VO B8?C  
(:V;L:VABL B@<1>F8BV2 ?>3 B0 150000/<<3), I> ?>2O70=0 7 B82>N 0:B820FVTN B@<<1>F8BV2. /:

?@028;>, F59 AB0= =5 A?@8G8=OT CA:;04=5=L, >B65, B5@0?VO <>65 1CB8 ?@>4>265=0.

# @V4:8E 28?04:0E A?>AB5@V30TBLAO @>728B>: BO6:>W VW B@<1>F8B>?5=VW B8?C 7

:V;L:VABN B@<1>F8BV2 =86G5 100000/<<3. "0:0 @50:FVO 70728G09 28=8:0T ?<< C ?5@H89 45=L

B5@0?VW, 40;V @53C;O@=> 7 V=B5@20;<< C 3-4 4>18 V ?VA;O 70:V=G5==O ;V:C20==O ?@5?0@0B>  
@8 7=0G=>ABV B@<<1>F8BV2 (2V4 30 % 4>

50 %), I> ?>T4=CTBLAO 7 ?>78B82=8<8 01> =52V4><8<8 @57C;LB0B0<8 28?@>1C20=L in vitro =0  
=0O2=VABL 0=B8B@>1>F8B0@=8E 0=B8BV; C ?@8ACB=>ABV 15 V=H8E ?@5?0@0BV2 =87L:>  
<>;5:C;O@=>3> 35?0@8=C B0/01> 35?0@8=C, B5@0?VN 15< 70728G09 ?@8?8=ONBL V ?@87=0G0NBL  
0;LB5@=0B82=5 ;V:C20==O.

/: ?@8 ?@87=0G5==V V=H8E 35?0@8=V2, B0: V C 28?04:C ?@87=0G5==O 15AB5@V30;8AO 28?04:8  
=5:@>7C H:V@8, V=>4V 7 ?>?5@54=V< ?>G5@2>=V==O< 01> 1>;NG8<8 5@8B5<0B>7=8<8 ?;O<0<8. #  
B0:8E 28?04:0E B5@0?VN B@510 =5309=> 2V4

@>DV;0:B8G=5 70AB>AC20==O 35?0@8=C C ?>T4=0==V 7 ?@>2545==O< 5?V4C@0;L=>W 01> A?8==>  
<>7:>2>W 0=5AB57VW G8 ;N<10;L=>W ?C=:FVW C @V4:8E 28?04:0E <>65 ?@872>48B8 4> @>728B:C  
5?V4C@0;L=>W 01> A?8==><>7:>2>W 35<0B><8, G5@57 I> <>65 @>728=CB8AO B@820;89 01>  
?>ABV9=89 ?0@0;VG. 878: @>728B:C 35<0B><8 ?V428ICTBLAO ?@8 28:>@8AB0==V 5?V4C@0;L=>3>  
01> A?8==><>7:>2>3> :0B5B5@0 4;O ?@>2545==O 0=5AB57VW, ?@8 AC?CB=L>AC20==V  
?@5?0@0BV2, I> 2?;820NBL =0 73>@B0==O :@>2V, =0?@8:;04, =5AB5@>W4=8E ?@>B870?0;L=8E  
70A>1V2, V=3V1VB>@V2 03@530FVW B@><1>F8BV2 01> 0=B8:>03C;O=BV2, 0 B0:>6 ?@8 B@02  
<0B8G=V9 G8 1030B>@07>2V9 ?C=:FVW.

@8 ?@89=OBBV @VH5==O ?@> G0A>289 V=B5@20; AB0==V< 22545==O< 35?0@8=C C  
?@>DV;0:B8G=V9 4>7V V 22545==O< 01> 2840;5==O< 5?V4C@0;L=>3> 01> A?8==><>7:>2>3>  
:0B5B5@0 =5>1EV4=> 2@0E>2C20B8 E0@0:B5@8AB8:C ?@5?0@0BC V AB0= ?0FVT=B0. VA;O  
2840;5==O :0B5B5@0 =0ABC?>C 4>7C 156 <0T 1CB8 2V440;5=> 4> 7025@H5==O EV@C@3VG=>W  
?@>F54C@8. @8 ?@89=OBBV @VH5==O ?@> ?@87=0G5==O B5@0?VW 0=B8:>03C;O=B0<8 2  
:=>B5:ABV ?@>2545==O 5?V4C@0;L=>W 01> A?8==><>7:>2>W 0=5AB57VW =5>1EV4=> 1CB8  
28=OB:>2> >15@56=8< V ?@>2>48B8 G0AB89 :=>B@>;L AB0=C ?0FVT=B0 7 <5B>N 28O2;5==O >7=0:  
V A8;>3VG=8E ?>@CH5=L, 7:>:@5<0 1>;N C A?8=V, ?>@CH5==O GCB;82>ABV V<>B>@8:8 (>=V:), 0  
B0:>6 48ADC=:FVW :8H5G=8:C V A5G>2>3>=0; <0T 1CB8 =02G5=8< 28O2;5==N B0:8E >7=0: B0 A8  
7@V =0 =0O2=VABL 5?V4C@0;L=>W 01> A?8==><>7:>2>W 35<0B><8 =5>1EV4=5 =5309=5  
2AB0=>2;5==O 4V03=>7C B0 268BBO B5@0?52B8G=8E 70E>4V2 06 4> A?8==><>7:>2>W 45:>

**0AB>AC20==O C ?5@V>4 203VB=>ABV 01> 3>4C20==O 3@C44N.**

>A;V465==O =0 B20@8=0E =5 28O28;8 C 157=0: B5@0B>35==>ABV. ;V=VG=V 40=V I>4>  
70AB>AC20==O 15=8:0B8 G5@57 ?;0F5=B0@=89 10@T@ =5<0T, B0:>6 =0 40=89 G0A =5<0T  
4>AB0B=L>W V=D>@<0FVW ?@> B5, G8 ?@>=8:0T 151EV4=>ABV ?@87=0G5==O &81>@C <0B5@O<  
?V4 G0A 70AB>AC20==O ?@5?0@0BC B@510 C=8:0B8 3>4C20==O 3@C44N.

**40B=VABL 2?;820B8 =0 H284:VABL @50:FVW ?@8 :5@C20==V 02B>B@0=A?>@B< 01> V=H8<8  
<5E0=V7<0<8.**

&81>@ =5 <0T 2?;82C =0 740B=VABL :5@C20B8 02B>B@0=A?>@B< 01> @>1>BC 7 V=H8<8 <570=V7  
<0<8.

**!>AV1 70AB>AC20==O B0 4>78.**

>?5@5465==O: @V7=V ;V:0@AL:V 70A>18 3@C?8 =87L:><>5:C;O@=8E 35?0@8=V2 =5  
>1>2O7:>2> <0NBL 5:2V20;5=B=C 5D5:B82=VABL, B>6=>3> B0:>3> ;V:0@AL:>3> 70A>1C  
B@510 4>B@83> @5687C20==O B0 A?>A>1C ?@87=0G5==O.

>@>A:8  
%V@C@3VG=V 2B@CG0==O 7 28A>:8< @878:>< 28=8:=5==O 25=>7=>W B@><1>5<1>;VW  
(=0?@8:;04, 2B@CG0==O >@B>?548G=>3> ?@>DV;N 01> ?@8 25;8:8E EV@C@3VG=8E  
2B@CG0==OE 7 ?@82>4C @0:C).  
# 45=L ?@>2545==O EV@C@3VG=>3> 2B@CG0==O ?V4H:V@=> 22>48BLAO 3500  
0=B8D0:B>@0-Xa 70 2 3>48=8 4> ?>G0B:C 01> G5@57 6 3>48= ?VA;O >?5@0FVW, 0 2 =0ABC?>V 4=V  
?> 3500 0=B8D0:B>@0-Xa :>6=V 24 3>48=8. @>DV;0:B8G=5 ;V:C20==O ?@>2>48BLAO 70  
@VH5==O< ;V:0@O C ?5@V>4 VA=C20==O C ?0FVT=B0 @878:C 01> =0 ?V4 G0A 9>3> V<  
<>1V;V70FVW. 0728G09 22060TBLAO, I> ?@>DV;0:B8G=5 ;V:C20==O ?@>2>48BLAO =5<5=H5 7-10  
4V1 ?VA;O EV@C@3VG=>3> 2B@CG0==O 4> 7=865==O @878:C @>728B:C B@>1>5<1>;VW.

# ?0FVT=BV2, O:8< 28:>=CNBLAO 25;8:V >@B>?548G=V >?5@0FVW, ?@>DV;0:B8:C A;V4 ?@>4>26C20B8 4> 35 4=V2. # ?0FVT=BV2, O:V >?5@CNBLAO 7 ?@82>4C @0:C =0 >@30=0E G5@52=>W ?>@>6=8=8 01> >@30=0E B07C ?@>DV;0:B8:C A;V4 ?@>4>26C20B8 4> 28 4=V2, O:I> C ?0FVT=BV2 A?>AB5@V30TBLAO ?V428I5=89 @878: @>728B:C B@<1>5<1>;VW B0 =87L:89 @878: @>728B:C :@>2>B5GV.

@>DV;0:B8:0 73>@B0==O :@>2V 2 A8AB5@?>@0;L=>3> :@>2>>1V3C ?@8 ?@>2545==V 35 <>4V0;V7C. # ?0FVT=BV2, O:8< ?@>2>4OBLAO 1030B>@07>2V A50=A8 35<>4V0;V7C B@820;VABN =5 1V;LH5 4 3>48= B0 C O:8E 2V4ACB=V9 @878: @>728B:C :@>2>B5G, ?>?5@5465==O :>03C;OFVW :@>2V 2 5:AB@0:>@?>@0;L=>=BC@V ?V4 G0A ?@>F54C@8 4>AO30TBLAO H;OE< >4=>@07>2>3> 1>;NA=>3> 22545==O ?@5?0@0BC 2 0@B5@V0;L=5 @CA;> =0 ?>G0B:C A50=AC. ;O ?0FVT=BV2 7 <0A>N BV;0 <5=H5

60 :3 4>70 AB0=>28BL 2500 , 0 4;O ?0FVT=BV2 7<0A>N BV;0 1V;LH5 60 :3 3500 .

@>DV;0:B8:0 B@<<1>5<1>;VW C =5EV@C@3VG=8E ?0FVT=BV2 7 28A>:8< @878:>< @>728B:C 25=>7=>W B@<<1>5<1>;VW (=0?@8:;04, C ?0FVT=BV2 V7 3>AB@8<8 70E2>@N20==O<8). 5:> <5=4>20=0 4>1>20 4>70 15. @>DV;0:B8G=5 ;V:C20==O ?@>2>48BLAO 70 @VH5==O< ;V:0@O C ?5@V>4 VA=C20==O C ?0FVT=B0 @878:C 01> =0 ?V4 G0A 9>3> V<<1V;V70FVW.

B>@8==0 ?@>DV;0:B8:0 @5F8482V2 25=>7=>W B@<<1>5<1>;VW C ?0FVT=BV2 7 B@<<1>7>< 3;8I>:8E 25= B0 ?5@5EV4=8<8 D0:B>@0<8 @878:C.

503C;O=B0<8 7 ?@82>4C B@<<1>7C 3;8I>:8E 25= 7 ;535=52>N 5<1>;VTN 01> 157 =5W, 2 O>ABV B5@0?52B8G=>W 0;LB5@=0B828 ;V:C20==N ?5@>@0;L=8<8 0=B8:>03C;O=B0<8 01> C B8E 28?04:0E, :>;8 2>=8 ?@>B8?>:070=V.

0FVT=B0< ;VB=L>3> 2V:C. >@5:FVO 4>7C20==O =5 ?>B@V1=0.

A>10< 7 ?>@CH5==O< DC=:FVW ?5GV=:8 V =8@>.: 54>AB0B=O :V;L:VABL 40=8E =5 4>72>;OT =040B8 @5:><5=40FVW I>4> :>@5:FVW 4>7C20==O 15W :0B53>@VW ?0FVT=BV2.

!>AV1 70AB>AC20==O. "5E=V:0 ?V4H:V@=>W V=T:FVW>?5@54=L> 70?>2=5=V H?@8F8 3>B>2V 4;O 157?>A5@54=L>3> 70AB>AC20==O V =5 28<030NBL AB5@8;V70FVW ?5@54 V=T:FVTN. >;8 &81>@ 22>4OBL ?V4H:V@=>, V=T:FVN =5>1EV4=> 22>48B8 C ?V4H:V@=>-68@>289 H0@ ?5@54=L>1>:>2>W 4V;O=:8 682>B0 01> 704=L>1>:>2>W 4V;O=:8 ?>?5@5:C ?>?5@57 ?@02>W V ;V2>W AB>@>=8. >;:0 22>48BLAO =0 2AN 3;818=C ?5@?5=48:C;O@=>, 0 =5 ?V4 :CB<, C A:;04:C H:V@8, I> D>@ 70:V=G5==O V=T:FVW. VAF5 V=T:FVW @>7B8@0B8 =5<>6=0.

**VB8.**

57?5:0 B0 5D5:B82=VABL 70AB>AC20==O &81>@C 4VBO< =5 282G5=V, B>3> 4VBO< =5 @5:> <5=4CTBLAO.

**5@54>7C20==O.**

>;>2=8< ?@>O2<< ?5@54>7C20==O T :@>2>B5G0. # 28?04:C 28=8:=5==O :@>2>B5GV @VH5==O ?@> 2V4< A;V4 ?@89<0B8 70;56=> 2V4 B06:>ABV 35<>@03VW V @878:C B@<<1>7C. 57=0G=V 35 <>@03VW @V4:> 28<030NBL A?5FV0;L=>3> ;V:C20==O. =0G=V :@>2>B5GV<>6CBL 28<030B8 70AB>AC20==O ?@>B0B0< 282G0;0AO 2 A8AB5<0E in vitro B0 in vivo 7 <5B>N A?>AB5@565==O 70 7=865==O< 0=B8-%0-0:B82=>ABV B0 2?;82<< =0 0:B82>20=89 G0AB:>289 B@<<1>?;0AB8=>289 G0A (0"). @>B048BL 4> G0AB:>2>3> 7=865==O 0:B82=>ABV 0=B8D0:B>@0-%0 15B03<< 2-E 3>48= ?VA;O 2=CB@VH=L>25==>3> 70AB>AC20==O C 4>7V 1,4 <3 ?@>B0@0-%0.

**>1VG=V @50:FVW.**

09G0ABVH5 1C;8 ?>2V4<<5==O ?@> B0:V ?>1VG=V @50:FVW O: 35<0B><0 B0/01> 5:EV<>7 C >@30=V2 B0 G0AB>BV: 4C65 G0AB> (≥ 1/10); G0AB> (≥ 1/100 - < 1/10); V=>4V (≥ 1/1000 < 1/100); @V4:>: (≥ 1/10000 - < 1/1000); 4C65 @V4:> (< 1/10000) B0 =52V4<> (=5 <>6=0 >FV=8B8 =0 >A=>2V =0O2=8E 40=8E).

'0AB>B0 ?>1VG=8E @50:FV9 ?@8 70AB>AC20==V 152V40T G0AB>BV ?>1VG=8E @50:FV9, I> A?>AB5@V30NBLAO ?@8 70AB>AC20==V V=H8E ?@5?0@0BV2 3@C?8 =87L:<>;5:C;O@=>3> 35?0@8=C, V =02>48BLAO =86G5:

|                 |                          |
|-----------------|--------------------------|
| !8AB5<0 >@30=V2 | '0AB>B0 ?>1VG=8E @50:FV9 |
|-----------------|--------------------------|

|  |   |
|--|---|
| <p>&gt;@CH5==O 7 1&gt;:C A8AB5&lt;8<br/>:@&gt;2V B0 ;VW A8AB5&lt;8</p> <p>&gt;@CH5==O 7 1&gt;:C VW A8AB5<br/>&lt;8</p> | <p>'0AB&gt;: CA:;04=5=V :@&gt;2&gt;B5GV (C 4V;O=FV H:V@8,<br/>A;87&gt;28E &gt;1&gt;;&gt;=&gt;:, @0=, B@02=&gt;3&gt; B@0:BC,<br/>A5G&gt;AB0B52&gt;3&gt; B@0:BC).<br/>=&gt;4V: ;53:0 &gt;1&gt;@&gt;B=0 V B@&gt;&lt;1&gt;F8B&gt;?5=VO (B8? ).<br/>V4:&gt;: BO6:0 B@&gt;&lt;1&gt;F8B&gt;?5=VO (B8? ).<br/>=&gt;4V: H:V@=V 0;5@3VG=V @50:FVW (:@&gt;?82O=:0,<br/>A25@1V6).<br/>V4:&gt;: 0=0DV;0:B8G=V @50:FVW (=C4&gt;B0, 1;N20==O,<br/>?@&gt;?0A=8FO, 7048H:0, 1@&gt;=E&gt;A?07&lt;, =01@O:<br/>3&gt;;&gt;A&gt;2&gt;W IV;8=8, 3V?&gt;B5=7VO, :@&gt;?82O=:0, A25@1V6).</p> |
| <p>&gt;7;048 &gt;128= B0 ?&gt;@CH5==O<br/>E0@GC20==O</p>   | <p>52V4&gt;&lt;&gt;: 3V?5@:0;VT</p>   |
| <p>&gt;@CH5==O 7 1&gt;:C ?5GV=:8 B0<br/>6&gt;2G&gt;282V4=8E H;OEV2</p>   | <p>'0AB&gt;: ;53:5 =57=0G=5 ?V428I5==O @V2=O B@0=A0</p>   |
| <p>&gt;@CH5==O 7 1&gt;:C H:V@8 B0<br/>?V4H:V@=&gt;-68@&gt;2&gt;W<br/>::VB:&gt;28=8</p>                                 | <p>V4:&gt;: =5:@&gt;7 H:V@8 C</p>   |
| <p>&gt;@CH5==O 7030;L=&gt;3&gt;<br/>E0@0:B5@C B0 C</p>   | <p>C65 G0AB&gt;: 5:EV&lt;&gt;7 C<br/>V4:&gt;: 5?V4C@0;L=0 B0 A?8==&gt;&lt;7:&gt;20 35&lt;0B&gt;&lt;0 ?VA;O<br/>5?V4C@0;L=&gt;W 01&gt; A?8==&gt;&lt;7:&gt;2&gt;W 0=5AB57VW 01&gt; ;N<br/>&lt;10;L=&gt;W ?C=:FVW. &amp;V 35&lt;0B&gt;&lt;8 ?@872&gt;4OBL 4&gt;<br/>=52@&gt;;&gt;3VG=8E ?&gt;@CH5=L @V7=&gt;3&gt; ABC?5=O, C B&gt;<br/>B@820;&gt;3&gt; 01&gt; ?&gt;ABV9=&gt;3&gt; ?0@0;VGC.</p>  |

**"5@ABV.**

2 @>:8. VA;O ?5@H>3> 2V4:@8BBO ?@5?0@0B &81>@ A;V4 =5309=> 28:>@8AB0B8. 5  
70AB>A>2C9B5 ?@5?0@0B ?VA;O 70:V=G5==O B5@ABV, 2:070=>3> =0 C?0:>2FV.

**#<>28 715@V30==O.**

15@V30B8 ?@8 B5! 5 70<>@>6C20B8! V:0@AL:89 70AV1 715@V30B8 C =54>ABC?=>

**5AC**

>A;V465==O =0 AC

**#?0:>2:0.**

> 0,2 <; @>7G8=C 4;O V=T:FV9 C ?>?5@54=L> 70?>2=5=>) 7V HB>:< ?>@H=O (?>;V?@>?V;5=),  
CIV;L=N20G5< ?>@H=O (E;>@1CB8;:0CGC:), V=T:FV9=>N 3>;>N (=5@602VNG0 AB0;L) B0 6>@AB:8<  
:>2?0G:< 3>;:8 (?@8@>4=89 :0CGC: B0 6>@AB:89 ?>;V?@>?V;5=>289 H0@).  
;VAB5@, 2:@8B89 70E8A=>N ?;V2:>N, I> ?>?5@54=L> 70?>2=5=8E H?@8F0; ?> 1 01> ?> 5, 01> ?> 50  
1;VAB5@V2 B0 V=AB@C:FVO 4;O <548G=>3> 70AB>AC20==O 2 :0@B>==V9 :=@>1FV.

**0B53>@VO 2V4?CA:C.**

0 @5F5?B>

**8@>1=8:.**

8@>1=8FB2> ;V:0@AL:>3> 70A>1C «in bulk», ?0:C20==O, :=B@>;L B0 28?CA: A5@V9:  
" " .\$', !..  
>=B@>;L B0 28?CA: A5@V9:  
"! \$!#!", C.A.

**VAF57=0E>465==O 28@>1=8:0 B0 9>3> 04@5A020465==O 4VO;L=>ABV.**

!/%C;V0= 0<0@V9>, 35, 04@84 28037 (04@84), A?0=VO.

**002=8:.**

5=0@V=V =B5@=5H>=0; ?5@59H>=A N:A5<1C@3 !..

**VAF57=0E>465==O 7002=8:0 B0/01> ?@54AB02=8:0 7002=8:0.**

1, 25=N 45 ;0 0@, -1611 N:A5<1C@3, N:A5<1C@3.