

!" #&/

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

" □

(CONTROLOC□)

!;:04:

4VNG0 @5G>28=0: ?0=B>?@07>;;

1 B01;5B:0 <3 ?0=B>?@07>;C);

4>?>28=8: <0=VB (421); =0B@VN :0@1>=0B 1572>4=89; :@>A?>2V4>=; ?>2V4>= 90;

:0;LFFVN AB50@0B;

>I>;>=:0: 3V?@<5;>70 2910; ?>2V4>= 25; B8B0=C 4V>:A84 (171); 70;V70 >:A84

6>2B89 (172); ?@>?V;5=3;V:>;L;<5B0:@8;0B=89 A>?>;V<5@ (B8?); =0B@VN

;0C@8;AC;LD0B; ?>;VA>@10B 80; B@85B8;F8B@0B; G>@=8;0 :>@8G=52V (S-1-

16350).

V:0@AL:0 D>@<0. "01;5B:8 30AB@>@578AB5=B=V.

A=>2=V DV78:>-EVABV: 6>2BV, >20;L=V, 42>>?C:;V B01;5B:8, 2:@8BV ?;V2:>2>N

>1>;>=:>N, 7 O4@0<8 1V;>3> 01> <0965 1V;>3> :>;L>@C, 7 <0@:C20==O< :>@8G=528

<8 G>@=8;0<8 7 >4=>3> 1>:C « 40».

\$0@<0:>B5@0?52B8G=0 3@C?0. @5?0@0B 4;O ;V:C20==O :8A;>B>70;56=8E

70E2>@N20=L. =3V1VB>@8 ?@>B>==>W ?> >4 "% 02!02.

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

\$0@<0:>48=0. 5E0=V7< 4VW. 0=B>?@07>; 70;, O:89 V=3V1CT A5:@5FVN A>;O=>W

:8A;>B8 C H;C=:C H;OE<< A?5F8DVG=>W 1;>;:048 ?@>B>==8E ?>

0=B>?@07>; B@0=AD>@@B=>28IV 2 ?0@VTB0;L=8E ;;VB8=0E, 45 V=3V1CT D5@

<5=B H+-K+-\$07C, B>1B> 1;>;CT :V=F5289 5B0? 28@>1;5==O A>;O=>W :8A;>B8 C

H;C=:C. =3V1C20==O T 4>7>70;56=8< B0 AB>ACTBLAO O: 1070;L=>W, B0: V AB8

20=>W A5:@5FVW :8A;>B8. V;LHVABL ?0FVT=BV2 72V;L=ONBLAO 2V4 ABO3<< 2

B86=V2. 0AB>AC20==O ?0=B>?@07>;C, O: V C 28?04:C 7 V=H8<8 V=3V1VB>@0<8

?@>B>==>W ?>@0<8 H2-@5F5?B>@V2, 7=86CT :8A;>B=VABL C H;C=:C V B0:8<

G8=>< 71V;LHCT A5:@5FVN 30AB@8=C ?@>?>@FV9=> 4> 7<5=H5==O

:8A;>B=>ABV. 1V;LH5==O A5:@5FVW 30AB@8=C T >1>@>B=8@07>; 72O7CT D5@

<5=B 48AB0;L=> ?> 2V4=>H5==N 4> ;;VB8==>3> @5F5?B>@0, 2V= <>65

V=3V1C20B8 A5:@5FVN A>;O=>W :8A;>B8 =570;56=> 2V4 AB825==>AC20==V

?@5?0@0BC >4=0:>289.

@8 70AB>AC20==V ?0=B>?@07>;C 71V;LHCNBLAO @V2=V 30AB@8=C

=0BI5A5@F5.@8 :>@>B:>AB@>:>2>AC20==V 2>=8 C 1V;LH>ABV 28?04:V2 =5

?5@528ICNBL 25@E=L>W 3@0=8FV =>@<8.@8 4>23>B@820;>ABV 28?04:V2

7@>AB0NBL 242VGV. E =04>48=>:8E 28?04:0E./: =0A;V4>:, C =525;8:V9 :V;L:>ABV

28?04:V2 ?@8 4>23>B@820;>AB5@V30TBLAO A;01:5 01> ?>:@8==8E (ECL) ;;VB8= C

H;C=:C (?>4V1=> 4> 045=><0B>W4=>W 3V?5@?;07VW)."8< =5 <5=H, 73V4=> 7

?@>2545=8<8 =0 40=89 <<<5=B 4>A;V465==O<8, CB2>@5==O ;;VB8=-?>5@54=8:V2

=59@>5=4>:@8==8E ?CE;8= (0B8?>20 3V?5@?;07VO) 01> =59@>5=4>:@8==8E

?CE;8= H;C=:0, O:V 1C;> 28O2;5=> 2 4>A;V465==OE =0 B20@8=0E, C ;N459 =5

A?>AB5@V30;>AO.

8E>4OG8 7 @57C;LB0BV2 4>A;V465=L =0 B20@8=0E, =5 <>6=0 28;;NG0B8 2?;82

4>23>B@820;>3> (1V;LH5 >4=>3> @>:C) ;V:C20==O ?0=B>?@07>;< =0 5=4>:@8==V

?0@0<5B@8 I8B>284=>W 70;>78.

\$0@<0:>:V=5B8:0. □A<:BC20==O. 0=B>?@07>; 2A<:BCTBLAO H284:>, 0 <0:A8

<0;L=V :>=F5=B@0FVW 2 ?;07AO30NBLAO 265 ?VA;O >4=>:@0B=>3>

?5@>@0;L=>3> ?@89>78 40 <3. A5@54=L>48=8 ?VA;O ?@89>AO30TBLAO <0:A8

<0;L=0 :=F5=B@0FVO 2 A8@>20BFV =0 @V2=V 1;87L:> 2-3 @07>2>3> ?@89> \$0@<0:>:V=5B8G=V 2,0AB82>ABV =5 74=>@07>2>3> G8 ?>2B>@=>3> ?@89>4V0?07>=V 4>7 2V4 10 4> 80 <3 D0@<0:>:V=5B8:0 ?0=B>?@07>;C 2 ?;07N O: ?@8 ?5@>@0;L=> 25=> AB0=>2;5=>, I> 01A>;NB=0 1V>4>ABC?=VABL B01;5B>: A:;040T 1;87L:> 77%. 4=>G0A=89 ?@89>< W6V =5 2?;820T =0 AUC (?;>I0 ?V4 :@82>N <:=F5=B@0FVO-G0A») G8 <0:A8<0;L=C :=F5=B@0FVN 2 A8@>20BFV, 0 2V4?>2V4=>, V =0 1V>4>ABC?=VABL. @8 >4=>G0A=>3> ?5@V>4C.

>7?>4V;.. 2O7C20==O ?0=B>?@07>;C 7 1V;:0<8 A8@>20B:8 A:;040T 1;87L:> 98%. 1K @>7?>4V;C A:;040T 1;87L:> 0,15;/:3.

V>B@0=AD>@<0FVO. 5G>28=0 <5B01>;V7CTBLAO <0965 28;:NG=> C ?5GV=V. A=>2=8< <5B01>;VG=8< H;OE>< T 45<5B8;C20==O 70 4>?><3>N CYP2C19 7 ?>40;LH>N AC;LD0B=>N :=N30FVTN; 4> V=H8E <5B01>;VG=8E H;OEV2 =0;568BL >:8A=5==O 70 4>?><3>N CYP3A4.

82545==O. V=F5289 ?5@V>4 =0?V2282545==O A:;040T 1;87L:> 1 3>48=8, 0 ;:V@5=A 0,1 /;3>4/:3. C;> 2V4 45:V;L:0 28?04:V2 70B@8: A?5F8DVG=>3> 72O7C20==O ?0=B>?@07>;C 7 ?@>B>==8<8 ?>4 =0?V2282545==O =5 :=@5;NT 7 =01030B> 4>2H>N B@820;VABN 4VW (V=3V1C20==O A5:@5FVW :8A;>B8).

A=>2=0 G0AB8=0 <5B01>;VBV2 ?0=B>?@07>;C 282>48BLAO V7 A5G5N (1;87L:> 80%), @5HB0 282>48BLAO 7 :0;>2=8< <5B01>;VB>< O: 2 A8@>20BFV, B0: V 2 A5GV T 45A<5B8;?0=B>?@07>;, :=N3>20=89 7 AC;LD0B>4 =0?V2282545==O >A=>2=>3> <5B01>;VBC (1;87L:> 1,5 3>48=8) =5=01030B> ?5@528ICT ?5@V>4 =0?V2282545==O ?0=B>?@07>;C.

A>1;82V 3@C?8 ?0FVT=BV2.

>2V;L=V <5B01>;V70B>@8. ;87L:> 3% T2@>?59FV2 <0NBL DC=:FV>=0;L=C =5AB0GC 0:B82=>ABV D5@<5=BC CYP2C19; WE =07820NBL ?>2V;L=8<8 <5B01>;V70B>@0<8. >@30=V7<0E B0:8E >AV1 <5B01>;V7< ?0=B>?@07>;C, 9 <>2V@=>, 3>;>2=8< G8=>< :0B0;V7CTBLAO D5@<5=B>< CYP3A4. VA;O ?@89> 4=VTW 4>78 40 <3 ?0=B>?@07>;C A5@54=O ?;>I0, >1<565=0 D0@<0:>:V=5B8G=>N :@82>N <:=F5=B@0FVO 2 ?;07 2 6 @07V2 1V;LH>N C ?>2V;L=8E <5B01>;V70B>@V2, =V6 C >AV1, O:V <0NBL DC=:FV>=0;L=> 0:B82=89 D5@<5=B CYP2C19 (H284:V <5B01>;V70B>@8). !5@54=O ?V:>20 :=F5=B@0FVO 2 ?;07AB0;0 ?@81;87=> =0 60%. &V @57C;LB0B8 =5 2?;820NBL =0 4>7C20==O ?0=B>?@07>;C.

>@CH5==O DC=:FVW =8@>.: 5:><5=40FV9 I>4> 7=865==O 4>78 ?@8 ?@87=0G5==V ?0=B>?@07>;C ?0FVT=B0< 7V 7=865=>N DC=:FVTN =8@>: (C B>/: V 2 74>@>28E ;N459, ?5@V>4 =0?V2282545==O ?0=B>?@07>;C 2 =8E T :=@>B:8 V0;V7CNBLAO ;8H5 4C65 =525;8:V :V;L:>ABV ?0=B>?@07>;C>?@8 B5, I> 2 >A=>2=>3> <5B01>;VBC ?> B@820;89 ?5@V>4 =0?V2282545==O (2-3 3>48=8), 282545==O 2A5 >4=> T H284:8<, B>

>@CH5==O DC=:FVW ?5GV=:8. %>G0 C ?0FVT=BV2 V7 F8@>7>< ?5GV=:8 (:;0A8 B0 70 H:0;>N '09;40-□N) ?5@V>4 =0?V2282545==O 7@>AB0T 4> 7-9 3>48=, 0 AUC 71V;LHCTBLAO 2 5-7 @07V2, <0:A8<0;L=0 :=F5=B@0FVO 2 A8@>20BFV 71V;LHCTBLAO ;8H5 =57=0G=8< G8=>< C 1,5 @070 ?>@V2=O=> 7 B0:>N C 74>@>28E 4>1@>2>;LFV2.

0FVT=B8 ;VB=L>3> 2V:C. 525;8:5 71V;LH5==O AUC B0 C_{max} C 4>1@>2>;LFV2 ?>E8;>3> 2V:C C ?>@V2=O==V 7 1V;LH<>;>48<8 2>;>=B5@0<8 B0:>6 =5 <0T ;:V=VG=>3> 7=0G5==O.

VB8. VA;O >4=>:@0B=>3> ?@89>78 20 01> 40 <3 ?0=B>?@07>;C ?5@>@0;L=>, AUC B0 C_{max} C 4VB59 C 2VfV 2V4 5 4> 16 @>:V2 7=0E>48;8AO 2 <560E 2V4?>2V4=8E 7=0G5=L C 4>@>A;8E. VA;O >4=>:@0B=>3> 2=CB@VH=L>25==>3> 22545==O ?0=B>?@07>;C 2 4>70E 0,8 01> 1,6 <3/:3 4VBO< 2V4 2 4> 16 @>:V2 =5 1C;> 2V4 7=0G8 <>3> 72O7:C < ?0=B>?@07>;C 9 2V:>< 01> <0A>N BV;0. AUC B0 >1T< @>7?>4V;C 2V4?>2V40;8 40=8<, >45@60=8< ?@8 4>A;V465==OE =0 4>@>A;8E.

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

>:070==O.

>@>A;V B0 4VB8 2V:>< 2V4 12 @>:V2.

- 5D;N:A-57>D03VB.

>@>A;V.

- @048:0FVO Helicobacter pylori (H. @ylori) C ?0FVT=BV2 7 H. @ylori - 0A>FV9>20=8

<8 28@07:0<8 H;C=:0 B0 420=04FOB8?0;>W :8H:8 C :><1V=0FVW 7 2V4?>2V4=8<8

0=B81V>B8:0<8.

- 8@07:0 420=04FOB8?0;>W :8H:8.

- 8@07:0 H;C=:0.

- !8=4@><>;;V=35@0-;;VA>=0 B0 V=HV 3V?5@A5:@5B>@=V ?0B>;>3VG=V AB0=8.

@>B8?>:070==O. V428I5=0 GCB;82VABL 4> 0:B82=>W @5G>28=8, ?>EV4=8E 15=78C
B0 1C4L-O:>3> :>=5=B0 ?@5?0@0BC.

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

VO ?0=B>?@07>;C =0 01A>@1FVN V=H8E ;V:0@AL:8E ?@5?0@0BV2. 0=B>?@07>;

<>65 7<5=HC20B8 2A<>:BC20==O ?@5?0@0BV2, 1V>4>ABC?=VABL O:8E 70;568BL

2V4 @H;C=:>2>3> A>:C (=0?@8::04, 45O:8E ?@>B83@81:>28E ?@5?0@0BV2, B0:8E

O: :5B>:>=07>;, VB@0:>=07>;, ?>70:>=07>;, 01> V=H8E ?@5?0@0BV2, B0:8E O:

5@;>B8=V1).

@5?0@0B8 ?@>B8 (0B070=02V@). !CAC20==O V=3V1VB>@V2 ?@>B>==>W ?>< B0
V=H8<8 ?@5?0@0B0<8 ?@>B8, 01A>@1FVO O:8E 70;568BL 2V4 @H;C=:>2>3> A>:C,

<>65 ?@872>48B8 4> ACBBT2>3> 7=865==O 1V>4>ABC?=>ABV >AB0==VE B0

2?;820B8 =0 WE 5D5:B82=VABL. ">AC20==O V=3V1VB>@V2 ?@>B>==>W ?>< =5

@5:><5=4CTBLAO.

C<0@8=>2V 0=B8:>03C;O=B8 (D5=?@>:C<>= V 20@D0@8=). 572060NG8 =0

2V4ACB=VABL 270T<>4VW ?@8 >4=>G0A=> ?V4 G0A ?@>2545==O ;V=VG=8E

4>A;V465=L, 1C;8 70@5TAB@>20=V ?>>48=>:V 28?04:8 74=89 =>@<0;V70FV9=89

V=45:A) C ?>AB<0@:5B8=3>2>4V. "0:8< G8=><, ?0FVT=B0<, O:V 70AB>A>2CNBL :C

<0@8=>2V 0=B8:>03C;O=B8 (=0?@8::04, D5=?@>:C<>= V 20@D0@8=), @5:>

<5=4CTBLAO 74V9A=N20B8 <=>VB>@8=3 ?@>B@<1V=>2>3> G0AC/?VA;O

?>G0B:C, ?@8?8=5==O 01> ?@8 =5@53C;O@=>?@07>;C.

5B>B@5:A0B. >2V4><>O;>AO, I> >4=>G0A=5 70AB>AC20==O 28A>:8E 4>7

<5B>B@5:A0BC (=0?@8::04, 300 <3) B0 V=3V1VB>@V2 ?@>B>==>W ?>B@5:A0BC 2

:@>2V C 45O:8E ?0FVT=BV2. 0FVT=B0<, O:V 70AB>A>2CNBL 28A>:V 4>78

<5B>B@5:A0BC, =0?@8::04, E2>@8< =0 @0: 01> ?A>@V07, @5:><5=4CTBLAO B82>

?@8?8=8B8 ;V:C20==O ?0=B>?@07>;>

=HV 270T<>4VW. 0=B>?@07>; 7=0G=>N N <5B01>;V7CTBLAO 2 ?5GV=FV G5@57

A8AB52=89 H;OE <5B01>;V7 70 4>?><>3>N CYP2!19 B0 V=H8E <5B01>;VG=8E

H;OE V2, C B>:8A=5==O D5@<5=B>< CYP34. >A;V465==O 7 ;V:0@AL:8<8 70A>10<8,

O:V B0:>6 <5B01>;V7CNBLAO 70 4>?><>3>N F8E H;OE V2, B0:8<8 O: :0@10<075?V=,

4V075?0<, 3;V15=:;0@0;L=8<8 :>=B@0F5?B820<8, O:V =>@35AB@5; V

5B8=V;5AB@04V>;, =5 28O28;8 ;V=VG=> 7=0GC18E 270T<>4V9.

57C;LB0B8 FV;>3> @O4C 4>A;V465=L I>4> <>6;828E 270T<>4V9 2:07CNBL, I>

?0=B>?@07>; =5 2?;820T =0 <5B01>;V7< 0:B82=8E @5G>28=, I> <5B01>;V7CNBLAO

70 4>?><>3>N CYP1A2 (=0?@8::04, :>D5W=, B5>DV;V=), CYP2!9 (=0?@8::04,

?V@>:A8:0<, 48::>D5=0:., =0?@>:A5=), CYP2D6 (=0?@8::04, <5B>?@>;>), CYP21

(=0?@8::04, 5B0=>), =5 2?;820T =0 @-3;V:>?@>B5W=, I> 0A>FVNTBLAO 7V 2A

<>:BC20==O< 483>:A8=C.

5 28O2;5=> 270T<>4VW 7 >4=>G0A=> ?@87=0G5=8<8 0=B0F840<8.

C;8 ?@>2545=V 4>A;V465==O 7 282G5==O 270T<>4VW ?0=B>?@07>;C 7 >4=>G0A=>

?@87=0G5=8<8 ?52=8<8 0=B81V>B8:0<8 (:;0@8B@>

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

>@CH5==O DC=:FVW ?5GV=:8. 0FVT=B0< V7 BO6:8<8 ?>@CH5==O<8 DC=:FVW
?5GV=:8 =5>1EV4=> @53C;O@=> :=B@>;N20B8 @V25=L ?5GV=:>28E D5@<5=BV2,
>A>1;82> ?V4 G0A 4>23>B@820;>3> ;V:C20==O. # @07V ?V428I5==O @V2=O
?5GV=:>28E D5@<5=BV2 ;V:C20==O ?@5?0@0B< =5>1EV4=> ?@8?8=8B8.
><IV=>20=0 B5@0?VO. V4 G0A :<1V=>20=>W B5@0?VW =5>1EV4=> 4>B@8
002=V B@82>6=V A8<8. @8 =002=>ABV B@82>6=8E A8W 2B@0B8 <0A8 BV;0,
?5@V>48G=>3> 1;N20==O, 48AD03VW, 1;N20==O V7 :@>2N, 0=5
/:I> A8<8 715@V30NBLAO ?@8 045:20B=>1EV4=> ?@>25AB8 4>40B:>25
>1AB565==O.

!CAC20==O 7 0B070=02V@><. !CAC20==O 0B070=02V@C 7 V=3V1VB>@0<8
?@>B>=>W ?><5=4CTBLAO (482. @>74V; <□70T<>4VO 7 V=H8<8 ;V:0@AL:8<8
70A>10<8 B0 V=HV 2848 270T<>4V9)). /:I> :<1V=0FVO 7 0B070=02V@>< T
=5>1EV4=>N, A;V4 ?@>2>48B8 @5B5;L=89 ;V=VG=89 <=>VB>@8=3 (=0?@8:;04, 28
3> =020=B065==O) C ?>T4=0==V 7V 71V;LH5==O< 4>78 0B070=02V@C 4> 400 <3 V7
70AB>AC20==O< 100 <3 @8B>=02V@C. >7C ?0=B>?@07>;C 20 <3 =0 4>1C =5 A;V4
?5@528IC20B8.

IA>@1FVO 2VB0₁₂. # ?0FVT=BV2 V7 A8=4@><< >;V=35@0-;;VA>=0 B0 V=H8<8
3V?5@A5:@5B>@=8<8 ?0B>;>3VG=8<8 AB0=0<8, I> ?>B@51CNBL B@820;>3>
;V:C20==O, ?0=B>?@07>;, O: V 2AV ?@5?0@0B8, I> 1;>:CNBL ?@>4C:FVN A>;O=>W
:8A;>B8, <>65 7<5=HC20B8 2A<:BC20==O 2VB0₁₂ (FV0=>:>10;0₁₂ ?@8
4>23>B@820;> =002=>ABV 2V4?>2V4=8E ;V=VG=8E A8

>23>B@820;5 ;V:C20==O. @8 4>23>B@820;>A>1;82> 1V;LH5 1 @>:C, ?0FVT=B8
?>28==V 7=0E>48B8AL ?V4 @53C;O@=8< =03;O4<< ;V:0@O.

=D5:FVW H;C=:>2>-.8H:>2>3> B@0:BC, A?@8G8=5=V 10:B5@VO<8. 0=B>?@07>;,
O: V V=HV V=3V1VB>@8 ?@>B>=>W ?>65 71V;LHC20B8 :V;L:VABL 10:B5@V9,
O:V 70728G09 ?@8ACB=V C 25@E=VE 2V44V;0E H;C=:>2>-.8H:>2>3> B@0:BC.

V:C20==O ?@5?0@0B< >=B@>;>:® <>65 =57=0G=>N N ?V428I8B8 @878:
28=8:=5==O H;C=:>2>-.8H:>28E V=D5:FV9, A?@8G8=5=8E B0:8<8 10:B5@VO<8, O:
Salmonella V *Campylobacter* 01> C. *Difficile*

V?><03=VTC?>AB5@V30;8AL 28?04:8 BO6:>W 3V?><03=VTB@8?@07>;, ?@>BO3<<
=5 <5=H5 B@L>E ABV 28?04:V2 ?@>BO3<< @>:C. >6CBL 28=8:=CB8 B0 A?>G0B:C
=5?> @>72820B8AO =0ABC?>V A5@9>7=V ;V=VG=V ?@>O28 3V?><03=VT<0,
B5B0=VO, 45;V@V9, AC4<<8, 70?0<>@>G5==O B0 H;C=>G:>20 0@8B<03=VTABV
28?04:V2 AB0= ?0FVT=BV2 ?>:@0IC202AO ?VA;O 70W :>@83CNG>W B5@0?VW
?@5?0@0B0<8 <03=VN B0 ?@8?8=5==O ?@89>

0FVT=B0<, O:V ?>B@51CNBL 4>23>B@820;>W B5@0?VW, 01> ?0FVT=B0<, O:V
?@89<0NBL >4=>G0A=> 7 483>:A8=>< 01> ?@5?0@0B0<8, I> <>6CBL A?@8G8=8B8
3V?><03=VTB@V1=> 287=0G0B8 @V25=L <03=VN ?5@54 ?>G0B:>< ;V:C20==O B0
?5@V>48G=> ?V4 G0A ;V:C20==O.

5@5;><8 :VAB>.: >23>B@820;5 ;V:C20==O (1V;LH5 1 @>:C) 28A>:8<8 4>70<8
V=3V1VB>@V2 ?@>B>=>W ?>65 =57=0G=>N N 71V;LH8B8 @878: ?5@5;> C ;N459
;VB=L>3> 2V:C 01> ?@8 =002=>ABV V=H8E D0:B>@V2 @878:C. !?>AB5@56=V
4>A;V465==O 2:07CNBL =0 B5, I> 70AB>AC20==O V=3V1VB>@V2 ?@>B>=>W ?>
65 71V;LH8B8 7030;L=89 @878: ?5@5;>2V4=> 4> 4VNG8E ;V=VG=8E @5:><5=40FV9
B0 A?>6820B8 4>AB0B=N ;V;L:VABL 2VB0

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

03VB=VABL. >A2V4 70AB>AC20==O ?@5?0@0BC 203VB=8<8 6V=:0<8 >1<565=89. #
E>4V 4>A;V465=L @5?@>4C:B82=>W DC=:FVW =0 B20@8=0E A?>AB5@V30;0AO
@5?@>4C:B82=0 B>:A8G=VABL. >B5=FV9=89 @878: 4;O ;N48=8 =52V4<<89.

>=B@>;>:® =5 A;V4 70AB>A>2C20B8 ?@8 203VB=>ABV, >:@V< 28?04:V2 =030;L=>W
=5>1EV4=>ABV.

>4C20==O 3@C44N. >A;V465==O =0 B20@8=0E ?>:070;8 5:A:@5FVN ?0=B>?@07>;C
7 3@C4=8< <>;>:4> 5:A:@5FVW ?0=B>?@07>;C 7 3@C4=8< <>;>:;< ;N48=8.

VH5==O ?@> ?@8?8=5==O 3>4C20==O 3@C44N 01> ?@8?8=5==O/CB@8<0==O 2V4

;V:C20==O ?@5?0@0B<>=>B@>;>:® ?>28==> ?@89<0B8AO 7 C@0EC20==O<
:>@8ABV 2V4 3>4C20==O 3@C44N 4;O 48B8=8 V :>@8ABV 2V4 ;V:C20==O
?@5?0@0B<>=>B@>;>:® 4;O 6V=:8.

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. 5>1EV4=> 1@0B8 4> C2038 <>6;8289 @>728B>:
?>1VG=8E @50:FV9, B0:8E O: 70?0<>@>G5==O B0 @>7;048 7>@C. # B0:8E 28?04:0E
=5 A;V4 :5@C20B8 02B>B@0=A?>@B< 01> ?@0FN20B8 7 V=H8<8 <5E0=V7<0<8.

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

>=B@>;>:®, 30AB@>@578AB5=B=V B01;5B:8, A;V4 ?@89<0B8 70 1 3>48=C 4> W48
FV;8<8, =5 @>76>2C20B8 B0 =5 ?>4@V1=N20B8, 70?820B8 2>4>N.
5:><5=4>20=5 4>7C20==O.

>@>A;V B0 4VB8 2V:>< 2V4 12 @>:V2.

V:C20==O @5D;N:A-57>D03VBC.

5:><5=4>20=0 4>70 AB0=>28BL 1 B01;5B:C ?@5?0@0BC >=B@>;>:® 40 <3 =0 4>1C.
>:@5<8E 28?04:0E 4>7C <>6=0 ?>42>WB8 (2 B01;5B:8 ?@5?0@0BC □>=B@>;>:® 40
<3 =0 4>1C), >A>1;82> 70 2V4ACB=>ABV 5D5:BC 2V4 70AB>AC20==O V=H8E
?@5?0@0BV2 4;O ;V:C20==O @5D;N:A-57>D03VBC. ;O ;V:C20==O @5D;N:A-
57>D03VBC, O: ?@028;>, ?>B@V1=> 4 B86=V. /:I> FL>3> =54>AB0B=L>,
28;V:>2C20==O <>6=0 >GV:C20B8 ?@>BO3<< =0ABC?=8E 4 B86=V2.
>@>A;V.

@048:0FVO H. @ylori C :><1V=0FVW 7 42><0 0=B81V>B8:0<8.

4>@>A;8E ?0FVT=BV2 7 28@07:>N H;C=:0 B0 420=04FOB8?0;>W :8H:8 B0 7
?>78B82=8< @57C;LB0B<< =0 H. pylori =5>1EV4=> 4>AO3B8 5@048:0FVW >@30=V7
?><>3>N :><1V=>20=>W B5@0?VW. !;V4 72060B8 =0 ;>:0;L=V 40=V I>4>
10:B5@V0;L=>W @578AB5=B=>ABV B0 =0FV>=0;L=V @5:><5=40FVW I>4>
28:>@8AB0==O V ?@87=0G5==O 2V4?>2V4=8E 0=B810:B5@V0;L=8E 70A>1V2.
0;56=> 2V4 GCB;82>ABV, 4;O 5@048:0FVW H. pylori C 4>@>A;8E <>6CBL 1CB8
?@87=0G5=V B0:V B5@0?52B8G=V :><1V=0FVW:

0) 1 B01;5B:0 ?@5?0@0BC □>=B@>;>:® 40 <3 2 @078 =0 45=L
+ 1000 <3 0<>:A8F8;V=C 2 @078 =0 45=L
+ 500 <3 ;:0@8B@>

1) 1 B01;5B:0 ?@5?0@0BC □>=B@>;>:® 40 <3 2 @078 =0 45=L
+ 400-500 <3 <5B@>=V407>;C (01> 500 <3 B8=V407>;C) 2 @078 =0 45=L
+ 250-500 <3 ;:0@8B@>

2) 1 B01;5B:0 ?@5?0@0BC □>=B@>;>:® 40 <3 2 @078 =0 45=L
+ 1000 <3 0<>:A8F8;V=C 2 @078 =0 45=L
+ 400-500 <3 <5B@>=V407>;C (01> 500 <3 B8=V407>;C) 2 @078 =0 45=L.

@8 70AB>AC20==V :><1V=>20=>W B5@0?VW 4;O 5@048:0FVW H. pylori 4@C3C
B01;5B:C ?@5?0@0BC >=B@>;>:® 40 <3 A;V4 ?@89<0B8 225G5@V 70 1 3>48=C 4>
W48. "5@28BL 7 4=V2 V <>65 1CB8 ?@>4>265=89 I5 =0 7 4=V2 V7 7030;L=>N
B@820;VABN ;V:C20==O =5 1V;LH5 42>E B86=V2. /:I> 4;O 70157?5G5==O 703>T==O
28@07:8 ?>:070=5 ?>40;LH5 ;V:C20==O ?0=B?>@07>;>:®, A;V4 @>73;O=CB8 @5:>
<5=40FVW I>4> 4>7C20==O ?@8 28@07:0E H;C=:0 B0 420=04FOB8?0;>W :8H:8. /:I> :>
<1V=>20=0 B5@0?VO =5 ?>:070=0, =0?@8::04, C ?0FVT=BV2 7 =530B82=8<
@57C;LB0B<< =0 H. @ylori, 4;O <>=>B5@0?VW ?@5?0@0B >=B@>;>:® 40 <3
70AB>A>2CNBL C =86G5707=0G5=>7C20==V.

V:C20==O 28@07:8 H;C=:0.

1 B01;5B:0 ?@5?0@0BC >=B@>;>:® 40 <3 =0 4>1C. >:@5<8E 28?04:0E 4>7C <>6=0
?>42>WB8 (2 B01;5B:8 ?@5?0@0BC >=B@>;>:® 40 <3 =0 4>1C), >A>1;82> 70
2V4ACB=>ABV 5D5:BC 2V4 70AB>AC20==O V=H8E ?@5?0@0BV2.
;O ;V:C20==O 28@07:8 H;C=:0, O: ?@028;>, ?>B@V1=> 4 B86=V. /:I> FL>3>
=54>AB0B=L>, 703>T==O 28@07:8 <>6=0 >GV:C20B8 ?@>BO3<< =0ABC?=8E 4
B86=V2.

V:C20==O 28@07:8 420=04FOB8?0;>W :8H:8.

1 B01;5B:0 ?@5?0@0BC >=B@>;>:® 40 <3 =0 4>1C. >:@5<8E 28?04:0E 4>7C <>6=0
?>42>WB8 (2 B01;5B:8 ?@5?0@0BC >=B@>;>:® 40 <3 =0 4>1C), >A>1;82> 70
2V4ACB=>ABV 5D5:BC 2V4 70AB>AC20==O V=H8E ?@5?0@0BV2.
;O ;V:C20==O 28@07:8 420=04FOB8?0;>W :8H:8, O: ?@028;>, ?>B@V1=> 2 B86=V. /:I>
FL>3> =54>AB0B=L>, 703>T==O 28@07:8 <>6=0 >GV:C20B8 ?@>BO3< =0ABC?=8E
2 B86=V2.

V:C20==O A8=4@>;V=35@0-;;VA>=0 B0 V=H8E 3V?5@A5:@5B>@=8E
?0B>;>3VG=8E AB0=V2. ;O B@820;>3> ;V:C20==O A8=4@>;V=35@0-;;VA>=0 B0
V=H8E ?0B>;>3VG=8E 3V?5@A5:@5B>@=8E AB0=V2 ?>G0B:>20 4>1>20 4>70
AB0=>28BL 80 <3 (2 B01;5B:8 ?@5?0@0BC □>=B@>;>:® 40 <3). @8 =5>1EV4=>ABV
?VA;O FL>3> 4>7C <>6=0 B8B@C20B8, 71V;LHCNG8 01> 7<5=HCNG8, 70;56=> 2V4
?>:07=8:V2 :8A;>B=>ABV H;C=:>2>3> A>:C. >7C, I> ?5@528ICT 80 <3 =0 4>1C,
=5>1EV4=> @>7?>4V;8B8 =0 420 ?@89<<8. >6;825 B825 71V;LH5==O 4>78 ?>=04 160
<3 ?0=B>?@07>;C, 0;5 B@820;VABL 70AB>AC20==O ?>28==0 >1<56C20B8AO BV;L:8
?5@V>4<<, ?>B@V1=8< 4;O 045:20B=>3> :=B@>;N :8A;>B=>ABV.
"@820;VABL ;V:C20==O A8=4@>;V=35@0-;;VA>=0 B0 V=H8E ?0B>;>3VG=8E
AB0=V2 =5 >1<565=0 V 70;568BL 2V4 ;;V=VG=>W =5>1EV4=>ABV.

0FVT=B8 7 ?>@CH5==O< DC=:FVW ?5GV=:8. 0FVT=B0< V7 BO6:8<8 ?>@CH5==O
<8 DC=:FVW ?5GV=:8 =5 A;V4 ?5@528IC20B8 4>1>2C 4>7C 20 <3 (1 B01;5B:0
?@5?0@0BC >=B@>;>:® 20 <3). 5 A;V4 70AB>A>2C20B8 ?@5?0@0B >=B@>;>:® 4;O
5@048:0FVW H. @ylori C :<<1V=>20=V9 B5@0?VW ?0FVT=B0< V7 ?>@CH5=>N
DC=:FVTN ?5GV=:8 A5@54=L>3> B0 BO6:>3> ABC?5=O, >A:V;L:8 =0 40=89 G0A =5
<0T 40=8E ?@> 5D5:B82=VABL V 157?5:C B0:>3> 70AB>AC20==O 4;O FVTW
:0B53>@VW ?0FVT=BV2.

0FVT=B8 7 ?>@CH5==O< DC=:FVW =8@>.: ;O ?0FVT=BV2 V7 ?>@CH5=>N
DC=:FVTN =8@>.: :>@83C20==O 4>78 =5 ?>B@V1=>. 5 A;V4 70AB>A>2C20B8
?@5?0@0B >=B@>;>:® 4;O 5@048:0FVW H. @ylori C :<<1V=>20=V9 B5@0?VW
?0FVT=B0< V7 ?>@CH5=>N DC=:FVTN =8@>.: >A:V;L:8 =0 40=89 G0A =5<0T 40=8E
?@> 5D5:B82=VABL V 157?5:C B0:>3> 70AB>AC20==O 4;O FVTW :0B53>@VW
?0FVT=BV2.

0FVT=B8 ;VB=L>3> 2V:C=5 ?>B@51CNBL :>@83C20==O 4>78.

VB8. □>=B@>;>:® 40 <3 ?>:070=89 4VBO< 2V:<< 2V4 12 @>:V2 4;O ;V:C20==O
@5D;N:A-57>D03VBC. @5?0@0B =5 @5:><5=4CTBLAO 70AB>A>2C20B8 4VBO<
2V:<< 4> 12 @>:V2, >A:V;L:8 40=V I>4> 157?5:8 V 5D5:B82=>ABV ?@5?0@0BC 4;O
FVTW 2V:>2>W :0B53>@VW >1<565=V.

5@54>7C20==O.

!8<8 ?5@54>7C20==O =52V4>
>78 4> 240 <3 ?@8 2=CB@VH=L>25==>BO3<< 2 E28;8= 4>1@5 ?5@5=>A8;8AO.
A:V;L:8 ?0=B>?@07>; 5:AB5=A82=> 72O7CTBLAO 7 1V;:0<8, 2V= =5 2V4=>A8BLAO
4> ?@5?0@0BV2, I> <>6CBL 1CB8 ;53:> 282545=8<8 70 4>?><>3>N 4V0;V7C.
@07V ?5@54>7C20==O 7 ?>O2>N ;;V=VG=8E >7=0: V=B>:A8:0FVW
70AB>A>2CNBL A8<0B8G=C B0 ?V4B@8<5=40FV9 I>4> A?5F8DVG=>W B5@0?VW
=5<0T.

>1VG=V @50:FVW.

8=8:=5==O ?>1VG=8E @50:FV9 A?>AB5@V30;>AL C 1;87L:> 5 % ?0FVT=BV2.
09G0ABVHV ?>1VG=V @50:FVW 4V0@5O V 3>;>2=89 1V;L (1;87L:> 1 %).
51060=V 5D5:B8 70 G0AB>B>N 28=8:=5==O ;:0A8DV:CNBL 70 B0:8<8 :0B53>@VO<8:
4C65 G0AB> (≥ 1/10), G0AB> (≥ 1/100 V < 1/10), =5G0AB> (≥ 1/1000 V < 1/100), @V4:>
(≥ 1/10000 V < 1/1000), 4C65 @V4:> (< 1/10000), =52V4<< (G0AB>B0 =5 287=0G5=0
70 =002=8<8 40=8<8).
I>:C :@>2V B0 ;V>W A8AB5<8.

V4:>: 03@0=C;>F8B>7.
C65 @V4:>: ;59:>?5=VO, B@><1>F8B>?5=VO, ?0=F8B>?5=VO.
I>:C VW A8AB5<8.
V4:>: @50:FVW 3V?5@GCB;82>ABV (2::NG0NG8 0=0DV;0:B8G=V @50:FVW,
0=0DV;0:B8G=89 H>:).
5B0I>;V7< B0 @>7;048 >128=
V4:>: 3V?5@;V?V45;5AB8@>;), 7
52V4><>: 3V?>=0B@VT<03=VT74V; «A>1;82>ABV 70AB>AC20==O»), 3V?>:0;LFVT1,
3V?>:0;VT
A8EVG=V @>7;048.
5G0AB>: @>7;048 A=C.
V4:>: 45?@5AVO (2 B>AB@5==O).
C65 @V4:>: 457>@VT=B0FVO (2 B>AB@5==O).
52V4><>: 30;NF8=0FVO, A?;CB0=VABL A2V4><>ABV (>A>1;82> C ?0FVT=BV2 7V
AE8;L=VABN 4> 40=8E @>7;04V2, 0 B0:>6 703>AB@5==O F8E A8
I>:C =5@2>2>W A8AB5<8.
5G0AB>: 3>;>2=89 1V;L, 70?0<>@>G5==O.
V4:>: @>7;048 A<0:C.
52V4><>: ?0@5AB57VO.
I>:C >@30=C 7>@C.
V4:>: ?>@CH5==O 7>@C/70BC<0=5==O 7>@C.
I>:C B@02=>3> B@0:BC.
5G0AB>: 4V0@5O, =C4>B0, 1;N20==O, 74CBBO 682>B0, 70?>@, ACEVABL C @>BV,
014>@B.
I>:C 35?0B>1V;V0@=>W A8AB5<8.
5G0AB>: ?V428I5==O @V2=O ?5GV=>28E D5@<5=BV2 (B@0=A0□□").
V4:>: ?V428I5==O @V2=O 1V;V@C1V=C.
52V4><>: C@065==O 35?0B>F8BV2, 6>2BO=8FO, 35?0B>F5;N;O@=0
=54>AB0B=VABL.
I>:C H:V@8 B0 ?V4H:V@=8E B:0=8=
5G0AB>: H:V@=V 28A8?0==O, 5:70=B5<0, A25@1V6.
V4:>: :@>?82O=:0, 0=3V>=52@>B8G=89 =01@O:.
52V4><>: A8=4@>× !BV25=A0-6>=A>=0, A8=4@>× 09T;;0,@<=0 5@8B5<0,
D>B>GCB;82VABL.
I>:C :VAB:>2>-<□O7>2>W A8AB5<8 B0 A?>;CG=>W B:0=8=8.
5G0AB>: ?5@5;><8 AB53=0, 70?OABO, E@51B0 (482. @>74V; «A>1;82>ABV
70AB>AC20==O»).
V4:>: 0@B@0;3VO,
52V4><>: A?07< <'O7V22.
I>:C =8@>: B0 A5G>284V;L=>W A8AB5<8.
52V4><>: V=B5@AB8FV0;L=89 =5D@8B (7 <>6;828< @>728B:>< =8@:>2>W
=54>AB0B=>ABV).
I>:C @5?@>4C:B82=>W A8AB5<8 B0 <>;>G=8E 70;>7.
V4:>: 3V=5:><0ABVO.
030;L=V @>7;048.
5G0AB>: 0AB5=VO, 2B><0, =574C60==O.
V4:>: ?V428I5==O B5
1. V?>:0;LFVT4=>G0A=> 7 3V?><03=VT
2. !?07< <'O7V2 O: =0A;V4>: ?>@CH5==O 10;0=AC 5;5:B@>;VBV2.

"5@ABV.3 @>:8.

#<>28 715@V30==O. 5 ?>B@51CT A?5FV0;L=8E C<>2 715@V30==O. 15@V30B8 C
=54>ABC?=>

#?0:>2:0.> 14 B01;5B>: C 1;VAB5@V;?> 1 01> ?> 2 1;VAB5@82 :0@B>==V9
:>@>1FV.

0B53>@VO 2V4?CA:C. 0 @5F5?B>

8@>1=8:. "0:540 <1%, 1=8FB20 @0=VT=1C@3, V<5GG8=0 / Takeda GmbH Betriebsstätte
Oranienburg, Germany.

VAF57=0E>465==O 28@>1=8:0 B0 9>3> 04@5A020465==O 4VO;L=>ABV.
5=VFHB@0AA5 70-98, 16515 @0=VT=1C@3, V<5GG8=0 / Lehnitzstrasse 70-98, 16515
Oranienburg, Germany.