

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

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(PHLOGENZYM®)

!::04:
4VNGV @5G>28=8: 1 B01;5B:0<5;0W=C 90 <3, B@8?A8=C 48 <3, @CB8=C 100 <3;
4>?>28=8: ;0B=78 <=>3V4@0B, :@>E<0;L :C:C@C47O=89, <03=VN AB50@0B, :8A; >B0 AB50@8=>20, :@>5<=VN 4V>:A84 :>;W4=89 1572>4=89, B0;L:, ?>;V5B8;5=3;V>;L 6000; 5C4@03VB L 12,5; B@85B8;F8B@0B; 20=V;=.

V:0@AL:0 D>@<0. "01;5B:8, 2:@8BV >1>;>=:>N.
A=>2=V DV178:>-EVABV: :@C3;V, 42>>>C:;V B01;5B:8:7 >4=>@V4=8< ?>:@8BBO<, 157 1>@V74>;, 75;5=C20B>-6>2B>3> :>;L>@C 7 E0@0:B5@=8< 70?0E>

S0@<0>B5@0?52B8G=0 3@C?0. 0A>18, I> 70AB>A>2CNBLAO ?@8 ?0B>;>3VW >?>@=>-@CE>2>3> 0?0@0BC. \$5@<5=B8. "@8?A8=, :<<1V=0FVW. >4 "% M09A B52.

S0@<0>;>3VG=V 2;0AB82>ABV.
\$0@<0>:>48=0
\$5@<5=B8 4:0 ?5@>@0;L=>3> 70AB>AC20==O, B0:V O: 1@<<5;0W= V B@8?A8= B0 @CB>784, 2?;820NBL =0 =01@O:8 70?0;L=>3> B0 =570?0;L=>3> ?>E>465==O (B@02<0B8G=V, A?>@B82=V). >A;V465==O =0 B20@8=0E 4>25;8 ?@>B870?0;L=V 2;0AB82>ABV 1@<<5;0W=C V :<1V=>20=8E D5@<5=B=8E ?@>5?0@0BV2 ?@8 ?5@>@0;L=>AC20==V. # G8A;5==8E 4>A;V465==OE =0 B20@8=0E, 0 B0:>6 C B5AB0E in vitro 1@><5;0W= B0 B@8?A8= ?@83=VGC20;8 03@530FVN B@<<1>F8BV2 V 7<5=HC20;8 WE 3>B>2=VABL 4> 03@530FVW, A?@8G8=5=>W \$.
"0>6 1C;8 >?8A0=V 2?;828 =0 :>03C;OFVN C 283;04V 71V;LH5==O ?@>B@><1V=>2>3> G0AC 01> ?@>;>=30FVW G0AC :@>2>B5GV.
B5AB0E in vitro B0 in vivo 7 1@<<5;0W=>< V B@8?A8=<< 1C2 ?@>45<=>AB@>20=89 2?;82 =0 ?0B>35==V V=>=C:;50@=8E ;;VB8= V 7=865==O 282V;L=5=O <>;5:C; 04357VW (!D 44, CD 54).
@>B870?0;L=V 2;0AB82>ABV >?8A0=V B0:>6 4;O @CB8=C. C:> ?V4B25@465=> ?@83=VG5==O ;V?>- V F8:;>;:A835=078. =3V1C20=O 03@530FVW B@<<1>F8BV2 1C;> B0:>6 ?>:070=> 2 5:A?5@8<5=B0E =0 IC@0E.
"0:8< G8=><, <5E0=V7< 4VW @CB>784C =0 :@>2>=>A=V AC48=8 28<030T ?>40;LH>3> 7?OAC20=O.
\$0@<0>;:V=5B8:0.
5;8:V <>;5:C;8 @5G>28=8, B0:V O: D5@<5=B8, I> 2E>4OBL 4> A:;04C \$;>35=78@1CNBLAO 7V H;C=>2>:-8H>2>3> B@0:BC G5@57 ;;VB8=>=>?>A5@54>20=V <5E0=V7<8 B0 720?7CNBLAO 7 B@0=A?>@B=8<8 ?@>B5W=0<8 (a1<0=B8B@8?A8=, a2<0:>@>3>;1C;V=). VA;O ?5@>@0;L=>3> 70AB>AC20==O D5@<5=BV2 1V;LH5 4>4=V2 A?>AB5@V30TBLAO ?>:@010=O A?V22V4=>H5==O=F5=B@0FVO<8 B@8?A8=C V 1@><5;0W=C V 22545=8<8 4>70<8.
CB8= 01> 3V4@>;070, O:V =5 01A>@1CNBLAO, 282>4OBLAO 7 D5:0;VO<8.
57>@1>20=V D5@<5=B8 282>4OBLAO G5@57 ;;VB8=8 <=>=C:;50@=>-D03>F8B0@=>W A8AB5<8.

;V=VG=V E0@0:B5@8AB8:8.
>:070==O.
>AB@V 70?0;L=V ?@>F5A8 V 703>AB@5==O E@>=VG=8E 70?0;L=8E B0 4535=5@0B82=8E 70E2>@N20=L, =0?@8:;04, B@02<8, ?VA;O>?5@0FV9=V AB0=8, A?>@B82=V B@02<8, >?V:8, 70?0;5==O 25=, 0@B5@V9 V :V
>AB@V 70?0;5==O C 4V;O=FV @>B>2>V ?>@>6=8=8, 48E0;L=8E H;OEV2, A5G>28E V AB0B528E >@30=V2 (C :<1V=0FVW 7 0=B81V>B8:0<8 B0 V=H8<8 <5B>40<8 ;V:C20==O).
52<0B>;>3VG=V 70E2>@N20==O: @52<0B87< < O:8E B:0=8= (<O7>289 @52<0B87<), «B5=VA=89 ;V>BL», B5=48=VB, 70?0;5==O C 4V;O=FV ?;5G0 V ?5@54?;VGG0, >AB5>0@B@>78.

@>B8?>:070==O.
=482V4C0;L=0 3V?5@GCB;82VABL 4> :>=5BV2 ?@>5?0@0BC, B06:V C@>465=V G8 =01CBV ?>@CH5==O 73>@B0==O :@>2V (=0?@8:;04, 35<>DV;VO); B06:V C@065==O ?5GV=;8;
7 >15@56=VABN - ?0FVT=B0<, O:V 7=0E>4OBLAO =0 4V0;V7V.

70T<>4VO 7 V=H8<8 ;V:0@AL:8<8 70A>10<8 B0 V=HV 2848 270T<>4V9.
@8 >4=>G0A=>35=78ABV =5 A?>AB5@V30;8AO. @8 >4=>G0A=>AC20==V 7 0=B8B@<<1>B8G=8<8 ?@>5?0@0B0<8 \$;>35=78< ?>B5=FNVT WE 4VN.
@07V >4=>G0A=>3> ?@89>B8:0<8 ?@>5?0@0B \$;>35=78< ?V428ICT WE :>=F5=B@0FVN C ?;072V B0 C 2>3=8IV 70?0;5==O.

A>1;82>ABV 70AB>AC20==O.
0FVT=B0<, O:V ?5@51C20NBL =0 4V0;V7V, 0 B0:>6 C ?5@54>?5@0FV9=>4V, ?@89< ?@>5?0@0BC \$;>35=78< A;V4 74V9A=N20B8 ?V4 :>=B@>;< ;V:0@O.
\$;>35=78< 70240:8 A2>T "0:8< G8=><, C 450:8E ?0FVT=BV2 70AB>AC20==O ?@>5?0@0BC =5 ?@872>48BL 4> <8BBT2>3> 7<5=H5==O 1>;N.
>15@56=VABN =5>1EV4=> 70AB>A>2C20B8 ?0FVT=B0< 7 =5?5@5=>A878. @5?0@0B7C, B>
28?04:C ?@89>
@5?0@0B \$;>35=78< =5>1EV4=> ?@89<0B8 7 >15@56=VABN ?0FVT=B0<, O:V AB@0640NBL =0 FC:@>289 4V015B.
1 B01;5B:04V2, I> 2V4?>2V40T 0,015 E;V1=>W >48=8FV.

0AB>AC20==O C ?5@V>4 203VB=>ABV 01> 3>4C20==O 3@C44N.
? ?5@V>48 203VB=>ABV 01> 3>4C20==O 3@C44N 4> 70AB>AC20==O \$;>35=78N 4;O FL>3> AB0=C >15@56=VABN. 0AB>AC20==O<<6;825 ?VA;O >FV=;8 ;V:0@5< A?V22V4=>H5==O :>@8ABL 4;O<0B5@V/@878: 4;O ?>;40/48B8=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.
530B82=V =0A;V4:8 70AB>AC20==O ?@>5?0@0BC 2V4ACB=V.

!?>AV1 70AB>AC20==O B0 4>78.
/: ?@028>;, @5:<<5=4CTBLAO ?@89<0B8 6-12 B01;5B>; I>45==> 2V4 2 4> 4 B01;5B>; B@8 @078 =0 4>1C. >A>1;828E 28?04:0E (?@8 B06:>@>18 01> ?@8 V=B5=A82=>@N20=L) <>6=0 I>45==> ?@89<0B8 4> 12 B01;5B>; 70
3-4 ?@89><8.
C@A B5@0?VW ?@8 3>AB@8E 70E2>@N20==OE 2V4 2 B86=V2 4> >4C60==O, 0 ?@8 703>AB@5==OE E@>=VG=8E 70E2>@N20=L ;V:C20==O B@820T 4> GVB:8E >7=0: @5
"01;5B:8 @5>:>5=4CTBLAO ?@89<0B8 =5<5=H=V6 70 30 E28;8= 4> W48, =5 @>76>2CNG8, 70?820NG8 25;8>N :V;L:VABN 2>48 (200<).

VB8.
@5?0@0B =5 ?@87=0G0B8 4VB0

5@54>7C20==O.
02VBL ?@8 B@820;>AC20==V 28A>;:8E 4>7 ?@>5?0@0BC (=0?@8:;04, 1V;LH5 12 B01;5B>; =0 4>1C ?>=04 3 B86=V) B>;:A8G=8E 4V9 =5 28O2;5=>; <>6;825 28=8=5==O 4V0@5W, I><8=0T ?VA;O 2V440B:>2>3> ;V:C20==O.

>1VG=V @50:FVW.
I>:C H;C=>2>:-8H>2>3> B@0:BC; 2 >:@>5<8E 28?04:0E A?>AB5@V30;8AO =57=0G=V 7=A8AB5=FVW V 70?0EC :0;C, =C4>B0, 1;N20==O, 4V0@5O.
I>:C H:V@8 B0 ?V4H:V@=>W ;;VB>28=8; 5@8B5<0, A25@1V6, 3V?5@3V4@>7.
I>:C=5@2>2>W A8AB5<8; A:01:VABL, 70?0>>@>G5==O;
@V4:0 <65 28=8<0B8 0;5@3VG=0 @50:FVO (=0?@8:;04, H:V@=V 28A8?0==O), O:0 7=8:0T ?VA;O ?@8?8=5==O ;V:C20==O \$;>35=78>78 ?@>5?0@0BC<<6CBL A?@8G8=0B8 B825 2V4GCBBO ?5@5?>2=5=>ABV H;C=;0, <5B5>>@87< V 4C65 @V4>; 1;N20==O. &L>

"5@ABV:2 @>;8.

#<>28 715@V30==O.
15@V30B8 ?@8 B5
15@V30B8 2 >@83V=0;L=V9 C?0>2FV 4;O 70E8ABC 2V4 A2VB;0. 5 70<>@>6C20B8.

#?0:>2:0.
> 20 B01;5B>; C 1;VAB5@V, ?> 2, ?> 5 01> ?> 10 1;VAB5@V2 C :0@B==V9 :>@>1FV; ?> 800 B01;5B>; C 10=0E.

0B53>@VO 2V4?CA:C. 57 @5F5?B0.

8@>1=8:
#! E=A3575;;LH0DB <1%/
MUCOS Emulsionsgesellschaft mbH, Germany.

VAF57=0E>465==O 28@>1=8:0 B0 9>3> 04@5A0 20465==O 4VO;L=>ABV.
V@0CHB@0AA5 17, 13509 5@;V=, V<5GG8=0/
Mirastrasse 17, 13509 Berlin, Germany.