Escherichia coli

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-/)\$\\"+&-'1234'>8:9\#\"790:\"\#\\")'-&\\$/>7\&-'/*\!?/0.:\&'=\(\bar{0}\)\\$\&\&-'.\\$\'78\&\\\#\/\\\"\\\+\\\\)\\\\ #&789-'(")'#9-/?/&-'")')89(*'/*'7"<\&'C'79')89:7&*'78&':&7&*7/9*'7/#&'79'CD'#/*.7&)@'E/0.:&'C' :&\$:&)&*7)'78&'1234'>8:9#"790:"#'9<7"/*&-'(/78'78&'#9-/?/&-'#&789-@''

! "#\$%\d'(\d') *#+\$%\d, - ".\d\d'\0"1+\23.\d4.\H\d\\$*0\d3-\d6\789:);\d,<.3\\=\d>*2.+.3+2\d**5\d?\d\d) +\\$\frac{1}{4} \tag{21}\d BC'D & 5*0 = +> &''> + 1 &'' 21 & E & U'> % 3*2 + 30 + \$ % U'' 21 & BC'D & 5*0 = +> &''> + 1 & U'FB & = - & > \$4 = 2 & G'' & 4. % 1 & 4.

;-&)<&-2+0)5=#	>(1?<&(@&-2=#	3 A#	B A #
F*/7/''%'	G@H'	=GG'	G'
HG'	G@H'	HG'	IG'
HG@G='	G@H'	J'	KJ'
HD@G='	G@H'	J'	KJ'
HD@GC'	G@H'	=GG'	G'
LC@G='	G@H'	=GG'	G'

! "#\$%&H(&) *#+\$%&, - ".%&/0"1+%23.&4.%1&5*0&3-%&6789:); &.<.3%=&>*2.+.3+2/&*5&?&\) +\$\$+:A&"21& BC'D&5*0=+>&">+1&"21&E&*">%3*2+30+\$%\"21&BC'D&5*0=+>&">+1&"+1&*B&==&\$*\$4=2&G".&4.%10&

;-&)<&-2+0)5=#	>(1?<&(@&-2=#	3 A#	B A #
F*/7/''%'	G@D'	KJ'	J'
G@MG'	G@D'	KJ'	J'
C@GG'	G@D'	IG'	HG'
D@ J G'	G@D'	CJ'	IJ'
I@GG'	G@D'	J'	KJ'
M 0J G'	G@D'	KJ'	J'

 $I + /40\% \ell' (\&6789 \& > -0* = "3*/0" = \&*\#3" + 2\%I \& G + 3 - \& 23 - *I \& = \%23 + *2\%I \& 4 - \& \ell' "\#\$\% \ell' \& \ell' FB \& = \& > *\$4 = 2\& G" . \&4.\%I \& "21 \& 3*3" \& 042 \& 3 + = \% G" . \&JH(B' \& = +243\% G + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% * 5 \& B(K = \& 6, \%0 \& = +243\% \& 6 + 3 - \& 5 * G \& 0"3\% \& 6 + 3 - \& 5 * G \& 0"3\% \& 6 + 3 - \& 5 * G \& 0"3\% \& 6 + 3 - \& 5 * G \& 0"3\% \& 6 + 3 - \& 5 * G \& 0"3\% \& 6 + 3 - \& 5 * G \& 0"3\% \& 6 + 3 - \& 5 * G \& 0"3\% \& 6 + 3 - \& 5 * G \& 0"3\% \& 6 + 3 - \& 5 * G \& 0"3\% \& 6 + 3 - \& 5 * G \& 0"3\% \& 6 + 3 - \& 5 * G \& 0"3\% \& 6 + 3 - \& 5 * G \& 0"3\% \& 6 + 3 - \& 5 * G \& 0"3\% \& 6 + 3 - \& 5 * G \& 0"3\% \& 0"$

 $I + /40\% H (\&6789\&, \%'' L\&G + 3 - \&3 - \%\& = \%3 - *1\& = *1 + 5 + \%1\&3 *\&0\%14 > \%3 - \%40\%3\%23 + *2\&3 + = \%3 *\&MCF\& = +2C\&FB\& = & \\ > *\$4 = 2\&G'' . \&4 . \%1\&'' 21\&3 *3'' \$\&042\&3 + = \%6G'' . \&MCF\& = +243\%G + 3 - \&5\$*G\&0'' 3\%\&*5\&BCN = \$\&, \%0\& = +243\%C\&1.$

32%(45-5#1.#06)#5%&'()#-2#*,)'9C*!8#

A8&')89:7'#&789-'(")'7:"*)?&::&-'79'2:&\$5N234'79'8";&'78&':&7&*7/9*'7/#&'9?'CD'#/*.7&'")' -/)\$\"+&-'/*'7"<\&'H0'48:9#"790:"#'0?/0.:&'HP')89(&-'78"7'>&:7"/*'>9#\$9*&*7)'9?'78&')"#\$\\&')"7.:"7/*0'78&'-&7&>79:0'A9'0&7'78&'099-'-&7&>79:0':&)\$9*)&0'?%9('>&\%'(")'>8"*0&-'79'9*&'(/78' G@J##'\$"78'%&*078@'A8&'>8:9#"790:"#'9<7"/*&-'(/78'*&('?%9('>&%%B'?/0.:&'LB')89(&-'*9')"7.:"7/9*'9?'-&7&>79:'<.7'78&'\$&"Q'-.&'79'\"7&:'&\.7/*0'>9#\$9*&*7)'0(8/>8'":&'9.:')"#\$\\&)'9?' /*7&:&)7'>9*?/:#&-'<+':.**/*0'/*'6!P'":&')9')#"\\\'78"7'78&+'":&'<":&\+';/)/<\\&'/*'78&' >8:9#"790:"#@'R*&'9?'78&'</00&)7'>8"\\&*0&)'9?'-&7&>7/*0'9.:')"#\$\\&)'9?'/*7&:&)7)'/)'78"7'78&+' -9*\$7'8";&'#"*+'>8:9#9\$89:&)B'(8/>8'/*'7.:*'#"0&)'78&/:':&)\$9*)&'79'1T'-&7&>79:'#/*/#"%' >9#\$":/)9*'79'78&'978&:'>9*7"#/*"*7)'\$:&)&*7'/*'78&')"#\$%&@'A8&:&?9:&B'/7'(")'*&&-&-'79'9\$7'79' 78&')"#&'?%9('>&%'(/78'78&'\$"78'\&*078'9?'C'##'79'8";&'<&77&:':&)\$9*)&'9?'9.:')"#\$\&)'<.7' #&"*7/#&'(&'-9*\$7'("*7'9.:'-&7&>79:'0&7)')"7.:"7&-'(/78'978&:'>9*7"#/*"*7)@'E9:'(8/>8B')"#\$\&' 78"7' (&:&')"7 .:"7/*0'78&' - &7&>79:@''

! "#\$%K(&) *#+\$%k, - ".%k/0"1+%23. &4.%I&5*0&3-%k70%, :O789&>*2.+.3+2/&*5&?@\) +\$\$+:A&"2I&BC'&! I?& "21&E&\">%3*2+30+\$%&"21&BC'D&!I?(&HFB&==&>*\$4=2&G".&4.%1(&

;-&)<&-2+0)5=#	>(1?<&(@&-2=#	3 A#	B A #
F*/7/''%'	L'	KJ'	J'
C'	L'	KJ'	J'
=C'	L'	LC'	JM'
CC'	L'	CJ'	IJ'
CC@G='	L'	G'	KJ'
CJ'	L'	G'	KJ'
CJ@G='	L'	KJ'	J'
CD'	L'	KJ'	J'

I + /40% K (&9 - 0* = "3*/0" = &50* = &70%, :O789 &P4% 3*& - +/-&" = *423. &*5& > *23" = 11.0 &23&, 0%. %23& +2&0&" = &50* = &

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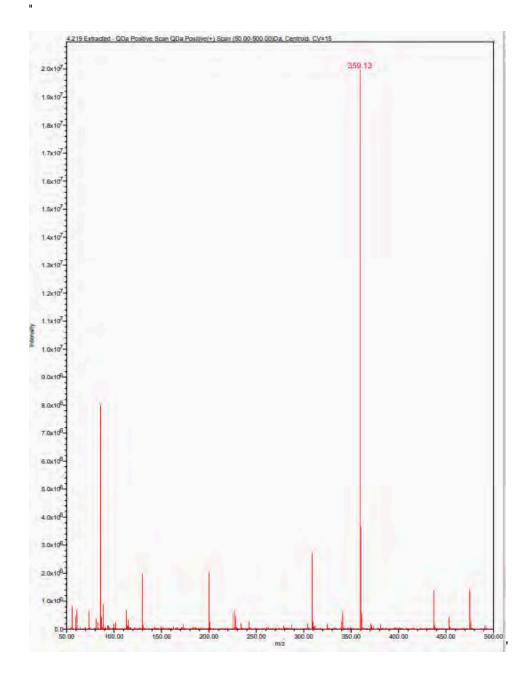
A8&'>9#\$\&U/7+'9?'78&')"#\$\\&'(")'?/:)7')/#\$\\/?\&-'.)/*O'\&U7:">7/9*'#\&789-\@'DGV';\\;'">\&79*/7:/\\&'
/*'("7\&:'(")'"--\&-'79'78\&')"#\\$\\&'\"*-')9*/>"7\&-'?9:'HG'#/*.7\&)\@'A8\&')"#\\$\\\&'(")'78\&*'>\&*7:/?.0\&-'
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+,-.-/%0-12#1.#7''),#\$+'),2%0%20#!%4),#+5-2D#,)'9C*!8#

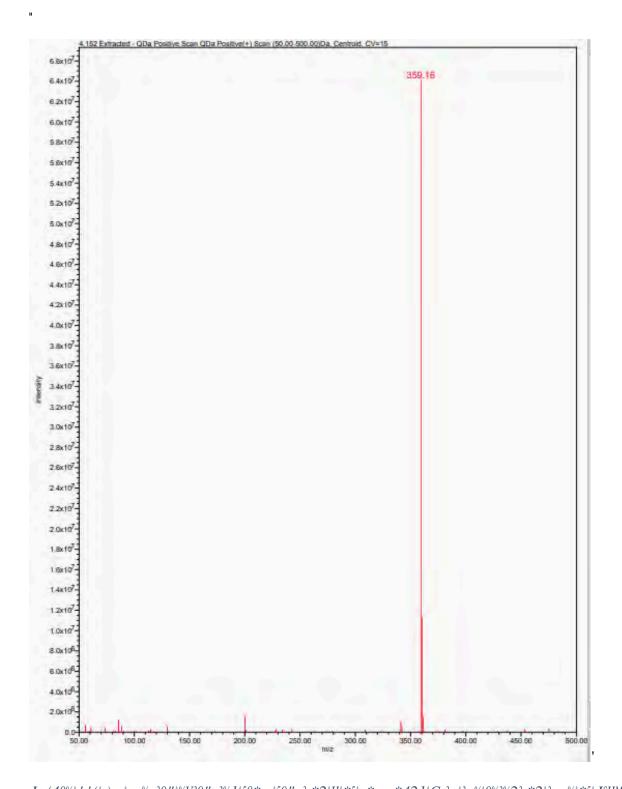
Y?7&:'>9*?/:#/*0' (/78'123456!'78"7'9.:')"#\$%&)'9?'/*7&:&)7'8";&'<&&*'>9#\$%&7&%+':&>9;&:&-'/*'
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I + /40% &M(&6789& > -0* = "3*/0" = &*5&50" > 3+*2&"&. -*G+2/&, %"L&*5& = TWZ&KF[C'KC&&C'] + /40% &M(&6789& > -0* = "3*/0" = &*5&50" > 3+*2&"&. -*G+2/&, %"L&*5& = TWZ&KF[C'KC&&C'] + /40% &M(&6789& > -0* = "3*/0" = &*5&50" > 3+*2&"&. -*G+2/&, %"L&*5& = TWZ&KF[C'KC&&C'] + /40% &M(&6789& > -0* = "3*/0" = &*5&50" > 3+*2&"&. -*G+2/&, %"L&*5& = TWZ&KF[C'KC&&C'] + /40% &M(&6789& > -0* = "3*/0" = &*5&50" > 3+*2&"&. -*G+2/&, %"L&*5& = TWZ&KF[C'KC&&C'] + /40% &M(&6789& > -0* = "3*/0" = &*5&50" > 3+*2&"&. -*G+2/&, %"L&*5& = TWZ&KF[C'KC&&C'] + /40% &M(&6789& > -0* = -1)





 $I + /40\% \{ (\&) ; \&., \%>30'' \& \% \ 30'' \& \%$



I + /40% '' (l.); l. , %>30 ''l%V30''>3%Il50* = l50''>3+*2lHl*5l>*= , *42IlG+3-l3-%l0%3%23+*2l3+=%l*5lJCHM'l*100%3%23+*2l3+=l30%l*100%3%23+*2l3+=l30%l*100%3%23+*2l3+=l30%l*100%3%23+*2l3+=l30%l*100%3%23+*2l3+=l30%l*100%3%23+*2l3+=l30%l*100%3%23+*2l3+=l30%l*100%3%23+*2l30%l*100%23+*2l30%23+*2l30%l*100%23+*2l30%l*100%23+*2l30%l*100%23+*2l30%l*100%23+*2l30%l*100%23+*2l30%l*100%23+*2l30%l*100%23+*2l30%l*100%23+*2l30%l*100%23+*2l30%l*100%l*100%l*100%l*100%l*100%l*100%l*100%l*100%l*100%l*100%l*100%l*100%l

 $I + /40\% \ 'H(\&\)\ ; \&.\ , \%>30 \ ''\&\%V30 \ ''>3\%1\&50 \ *=\&50 \ ''>3+*2\&H\&*5\&>*=\ , *421\&G+3-\&3-\%\&0\%3\%23+*2\&3+=\%\&*5\&JCJFX\&=+243\%C\&$

 $I + /40\% \ell' K (\ell 6789 \ell > -0* = "3*/0" = \ell *5 \ell 50" > 3 + *2 \ell K \ell . -*G + 2/\ell , \%"L. \ell *5 \ell = TWZ \ell KF [CHBC \ell'' 21 \ell = TWZ KMFC' [LL] + (LL) \ell + (LL) \ell$

 $I + /40\% \ell' J(\ell \ell) ; \ell. , \%>30'' \ell\% V30''>3\% I \ell50* = \ell50''>3+*2\ell K \ell *5\ell>* = , *42I \ell G+3-\ell3-\%\ell0\%3\%23+*2\ell3+=\%\ell*5\ell J' F[\ell \ell] = +243\%\ell$

 $I + /40\% \ 'F(\&) \ ; \&.\ , \%>30 \ ''\&\%V30 \ ''>3\%1\&50 \ *=\&50 \ ''>3+*2\&K\&*5\&>*= \ , *421\&G+3-\&3-\%\&0\%3\%23+*2\&3+=\%\&*5\&JCJ \ 'J\&=+243\%\&$

 $I + /40\% \ 'N(\&6789\& > -0* = "3*/0" = \&*5\&50" > 3+*2\&J\&. -*G+2/\&, \%"L.\&*5\& = TWZKMFCH' \&= TWZ&KMXCHJ\&" 21\& = TWZJ' KCHF\&$

I + /40% 'M() ; &. , %>30 ''&W30 ''>3%1&50 *= &50 ''>3 + *2&J&*5&> *= , *421&G+3-&3-%&0%3%23 + *2&3 + = %&*5&JCMNK& = +243%&6

 $I + /40\% \ell' [(\ell \ell); \ell \ell, 8 + 30\% \ell' 8 + 20\% \ell' 8 + 20$

I + /40% H'(&); &., %>30'' & %V30''>3% I & 50* = & 50''>3+*2 & F & *5 & > *=, *421 & G+3-& 3-% & 0%3%23+*2 & 3+=% & *5 & F & BJF & =+243% & 60'' &

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A (9')7&\$'\$.:/?/&-'?:">7/9*)' (/\\'?/*"\\+'<&'"*"\+,&-'9*'123456!'.)/*0'\\9*0'#&789-'79' 8";&'<&77&:')&\$":"7/9*'9?'78&'\$&"Q)'"*-'\$.:/7+'>9*?/:#"7/9*0'

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