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February 19, 2019

Luminex Corporation
12212 Technology Blvd
Austin, TX 78727

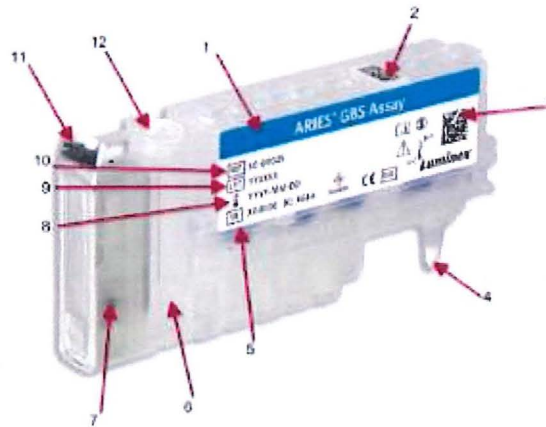
cc: Chairman Medical Board and/or relevant Head of Department

URGENT: MEDICAL DEVICE RECALL / FIELD SAFETY NOTICE

- ARIES® HSV 1&2 Assay (PN 50-10017 and PN 50-10031)**
- ARIES® Bordetella Assay (PN 50-10037)**
- ARIES® Flu A/B & RSV Assay (PN 50-10020)**
- ARIES® GBS Assay (PN 50-10021)**
- ARIES® Group A Strep Assay (PN 50-10041)**
- ARIES® C. difficile Assay (PN 50-10018)**
- ARIES® Extraction Kit (PN 50-10026)**

Dear Valued Luminex Customer,

Luminex recently identified a manufacturing defect in the back seal (see Figure 1, Item 11) of our ARIES® cassettes. Specifically, the seal integrity may not meet requirements for some cassettes manufactured between 9/18/2018 and 1/15/2019, and shipped between 9/28/2018 through 1/17/2019, in the lots listed in Table 1 below. The back seal plays a role in maintaining performance until the labeled expiration date. As a result, there is a remote possibility that an invalid or false negative result could occur when using the affected ARIES® Assay Lots.



1. Assay type	7. Side cassette
2. Cassette barcode (top)	8. Cassette expiration date
3. Cassette barcode (side)	9. Cassette lot number
4. PCR tube	10. Cassette part number
5. Cassette serial number	11. Back seal
6. Sample chamber	12. Cassette cap

Figure 1: ARIES® Cassette Example

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Product/lot numbers affected by the back seal defect can be found in Table 1 below.

Table 1

Product ¹	Product Number	Lot Number
ARIES [®] HSV 1&2 Assay	50-10017	AA7308 AA7485 AA7545 AA7625 AA7630 AA7636 AA7945 AA7985
ARIES [®] HSV 1&2 Assay (CE-IVD)	50-10031	AA7465
ARIES [®] <i>Bordetella</i> Assay	50-10037	AA7125 AA7310 AA7548 AA7633
ARIES [®] Flu A/B & RSV Assay	50-10020	AA7127 AA7206 AA7312 AA7549 AA7635
ARIES [®] GBS Assay	50-10021	AA7546 AA7629
ARIES [®] Group A Strep Assay	50-10041	AA7313 AA7526 AA7605 AA7631 AA7645
ARIES [®] <i>C. difficile</i> Assay	50-10018	AA7306 AA7311 AA7627 AA7634
ARIES [®] Extraction Kit*	50-10026	AA7126 AA7307 AA7385 AA7525 AA7547 AA7628 AA7666

*The intended use for Extraction Cassettes (PN 50-10026) is to extract nucleic acid from human biological specimens and universal transport media (UTM). The ARIES[®] Extraction Cassette contains a Sample Processing Control (SPC), and has not been validated for use with any specific analytical test method. Given this intended use, false negative and invalid results are not a potential outcome. However, extraction efficiency may be reduced due to potential loss of volume of the reagents.

As an immediate action, Luminex is requesting that customers discontinue use of, and discard, the products listed above immediately. Please contact Luminex Global Support Services to obtain replacement material or if you have questions regarding previously tested results.

PLEASE NOTE: NO OTHER LUMINEX PRODUCTS ARE INVOLVED IN THIS RECALL.

¹ See CAN-0233 Attachment (Table 4) for product specific Intended Uses.



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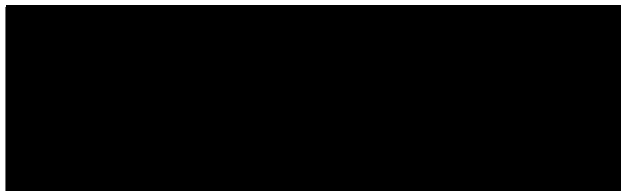
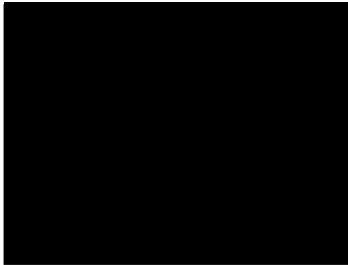
Enclosed is an Acknowledgment and Receipt form. You must complete and return this form even if you do not have any remaining product. Luminex Global Support Services can assist you in completing this form. This information is essential in order to maintain recall effectiveness information required by US FDA and the national competent authority.

This recall is being made with the knowledge of the US Food and Drug Administration, Regulatory Agencies within affected regions, and your competent authority, as applicable. This notice should be passed on to all who need to be aware within your organization. Distributors must notify end user customers.

Although no adverse events have been reported, adverse reactions or quality problems experienced with the use of this product may be reported to Luminex, the distributor or local representative, the national Competent Authority, or FDA's MedWatch Adverse Event Reporting program either online, by regular mail or by fax, as applicable.

We appreciate your assistance with this matter. Please call the Luminex Global Support Services Team if you have any questions or concerns.

Luminex Global Support Services
1-877-785-2323 (U.S. and Canada)
+1-512-381-4397 (Outside U.S. and Canada)
support@luminexcorp.com
CAN-0233, Rev. A



Luminex Corporation

VOLUNTARY RECALL STEPS

The Acknowledgment and Receipt Form attached to this letter must be completed and returned even if you do not have any of the following product on hand:

ARIES® HSV 1&2 Assay (PN 50-10017 and PN 50-10031)
ARIES® *Bordetella* Assay (PN 50-10037)
ARIES® Flu A/B & RSV Assay (PN 50-10020)
ARIES® GBS Assay (PN 50-10021)
ARIES® Group A Strep Assay (PN 50-10041)
ARIES® *C. difficile* Assay (PN 50-10018)
ARIES® Extraction Kit (PN 50-10026)

1. **Segregate Recalled Product.** Please immediately remove all affected lots of the above listed products from your inventory and segregate this product in a secure location for destruction.
2. **Complete Acknowledgment and Receipt Form.** Complete and return the enclosed Acknowledgment and Receipt Form (Pages 5 and 6) by email (support@luminexcorp.com) or mail (even if you do not have any product on hand), following the directions on this page and the Acknowledgment and Receipt Form. Luminex Global Support Services can assist you in completing the form.
3. **Please destroy the segregated product and provide confirmation in the Acknowledgment and Receipt Form (Table 3).** Luminex will replace any unused products and handle any customer concerns on a case-by-case basis. Please inform Luminex Global Support Services if you destroyed product and need a replacement(s).



PRODUCT RECALL
ACKNOWLEDGMENT AND RECEIPT FORM
PLEASE FILL OUT THIS FORM AND RETURN BY FEBRUARY 28, 2019

DATE: _____
 COMPANY NAME: _____
 CONTACT NAME: _____
 CORPORATE TITLE: _____
 ADDRESS: _____
 CITY: _____ STATE/PROVINCE: _____
 COUNTRY: _____ ZIP CODE/POSTAL CODE: _____
 TEL NO: _____ FAX NO: _____

RECALL:

Table 2

Product Name	Product Number	Lot Number	UDI
ARIES [®] HSV 1&2 Assay	50-10017	AA7308, AA7485 AA7545, AA7625 AA7630, AA7636 AA7945, AA7985	00840487100295
ARIES [®] HSV 1&2 Assay (CE-IVD)	50-10031	AA7465	N/A
ARIES [®] <i>Bordetella</i> Assay	50-10037	AA7125, AA7310, AA7548, AA7633	00840487101452
ARIES [®] Flu A/B & RSV Assay	50-10020	AA7127, AA7206 AA7312, AA7549 AA7635	00840487100158
ARIES [®] GBS Assay	50-10021	AA7546, AA7629	00840487100165
ARIES [®] Group A Strep Assay	50-10041	AA7313, AA7526 AA7605, AA7631 AA7645	00840487101469
ARIES [®] <i>C. difficile</i> Assay	50-10018	AA7306, AA7311 AA7627, AA7634	00840487100059
ARIES [®] Extraction Kit*	50-10026	AA7126, AA7307 AA7385, AA7525 AA7547, AA7628 AA7666	00840487100073

I have read and understand the recall letter [CAN 0233]: **URGENT MEDICAL DEVICE RECALL / FIELD SAFETY NOTICE** letter date **February 19, 2019** and agree to discontinue use of the product(s) listed immediately: Yes No

Have you observed any adverse events associated with recalled product? Yes No

If yes, please explain (provide associated product number and lot number):



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If you have product remaining, please use the Table 3 below to check the appropriate box(es) for the Product/Lot Number of remaining material. In addition, please use the space provided to record quantities for all material destroyed. If you do not have any remaining product, please check the below statement and check the "N/A" box just above Table 3.

We do not have any stock of the above products on hand. All stock has been consumed.

N/A

Table 3

Product Name	Product Number	Lot Number / Quantity of Kit(s) Destroyed
ARIES HSV 1&2 Assay	<input type="checkbox"/> 50-10017	<input type="checkbox"/> AA7308 _____ <input type="checkbox"/> AA7485 _____ <input type="checkbox"/> AA7545 _____ <input type="checkbox"/> AA7625 _____ <input type="checkbox"/> AA7630 _____ <input type="checkbox"/> AA7636 _____ <input type="checkbox"/> AA7945 _____ <input type="checkbox"/> AA7985 _____
ARIES HSV 1&2 Assay (CE-IVD)	<input type="checkbox"/> 50-10031	<input type="checkbox"/> AA7465 _____
ARIES <i>Bordetella</i> Assay	<input type="checkbox"/> 50-10037	<input type="checkbox"/> AA7125 _____ <input type="checkbox"/> AA7310 _____ <input type="checkbox"/> AA7548 _____ <input type="checkbox"/> AA7633 _____
ARIS Flu A/B & RSV Assay	<input type="checkbox"/> 50-10020	<input type="checkbox"/> AA7127 _____ <input type="checkbox"/> AA7206 _____ <input type="checkbox"/> AA7312 _____ <input type="checkbox"/> AA7549 _____ <input type="checkbox"/> AA7635 _____
ARIES GBS Assay	<input type="checkbox"/> 50-10021	<input type="checkbox"/> AA7546 _____ <input type="checkbox"/> AA7629 _____
ARIES Group A Strep Assay	<input type="checkbox"/> 50-10041	<input type="checkbox"/> AA7313 _____ <input type="checkbox"/> AA7526 _____ <input type="checkbox"/> AA7605 _____ <input type="checkbox"/> AA7631 _____ <input type="checkbox"/> AA7645 _____
ARIES <i>C. difficile</i> Assay	<input type="checkbox"/> 50-10018	<input type="checkbox"/> AA7306 _____ <input type="checkbox"/> AA7311 _____ <input type="checkbox"/> AA7627 _____ <input type="checkbox"/> AA7634 _____
ARIES Extraction Kit*	<input type="checkbox"/> 50-10026	<input type="checkbox"/> AA7126 _____ <input type="checkbox"/> AA7307 _____ <input type="checkbox"/> AA7385 _____ <input type="checkbox"/> AA7525 _____ <input type="checkbox"/> AA7547 _____ <input type="checkbox"/> AA7628 _____ <input type="checkbox"/> AA7666 _____

PLEASE RETURN COMPLETED FORM BY FEBRUARY 28, 2019



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CAN-0233 Attachment – Product Specific Intended Use Statements

Table 4

Product Name	Product Number	Intended Use
ARIES® HSV 1&2 Assay	50-10017	<p>The ARIES® HSV 1&2 Assay is a real-time polymerase chain reaction (PCR) based qualitative <i>in vitro</i> diagnostic test for the direct detection and differentiation of Herpes Simplex Virus 1 and 2 (HSV 1 and HSV 2) DNA in cutaneous or mucocutaneous lesion specimens from symptomatic patients. The test is indicated for use as an aid in diagnosis of HSV infection in symptomatic patients. The ARIES® HSV 1&2 Assay is indicated for use on the ARIES® Systems.</p> <div style="border: 1px solid black; padding: 5px;"> <p>WARNING: The ARIES® HSV 1&2 Assay is not FDA cleared for use with cerebrospinal fluid (CSF). The assay is not intended to be used for prenatal screening.</p> </div>
ARIES® HSV 1&2 Assay (CE-IVD)	50-10031	<p>The ARIES® HSV 1&2 Assay (EU) is a real-time polymerase chain reaction (PCR) based qualitative <i>in vitro</i> diagnostic test for the direct detection and typing of herpes simplex virus (HSV 1&2) DNA in cutaneous or mucocutaneous lesion specimens from symptomatic patients or in CSF from patients suspected of HSV infections of the central nervous system (CNS). The test is indicated for use with symptomatic individuals to aid in the diagnosis of HSV infections.</p> <p>Negative CSF results do not preclude HSV 1 and HSV 2 infection and should not be used as the sole basis for diagnosis, treatment, or other patient management decisions.</p> <p>The assay is not intended to be used for prenatal screening.</p> <p>The ARIES® HSV 1&2 Assay (EU) is indicated for use with ARIES® Systems.</p>
ARIES® <i>Bordetella</i> Assay	50-10037	<p>The ARIES® <i>Bordetella</i> Assay is a real-time polymerase chain reaction (PCR) based qualitative <i>in vitro</i> diagnostic test for the direct detection and identification of <i>Bordetella pertussis</i> (<i>B. pertussis</i>) and <i>Bordetella parapertussis</i> (<i>B. parapertussis</i>) nucleic acid in nasopharyngeal swab (NPS) specimens obtained from individuals suspected of having a respiratory tract infection attributable to <i>B. pertussis</i> or <i>B. parapertussis</i>.</p> <p>The ARIES® <i>Bordetella</i> Assay targets the <i>B. pertussis</i> toxin promoter and the <i>B. parapertussis</i> IS1001 insertion element in the genomes. When clinical factors suggest that <i>B. pertussis</i> or <i>B. parapertussis</i> may not be the cause of respiratory infection, other clinically appropriate investigation(s) should be carried out in accordance with published guidelines.</p> <p>Negative results for the ARIES® <i>Bordetella</i> Assay do not preclude <i>B. pertussis</i> or <i>B. parapertussis</i> infection and positive results do not rule out co-infections with other respiratory pathogens. The direct detection and identification of <i>B. pertussis</i> and <i>B. parapertussis</i> nucleic acids from symptomatic patients aids in the diagnosis of <i>B. pertussis</i> and <i>B. parapertussis</i> respiratory infection in conjunction with other clinical findings and epidemiological information.</p> <p>The ARIES® <i>Bordetella</i> Assay is indicated for use with the ARIES® Systems.</p>

Table 4 (cont'd)

Product Name	Product Number	Intended Use
<p>ARIES® Flu A/B & RSV Assay</p>	<p>50-10020</p>	<p>The ARIES® Flu A/B & RSV Assay is a polymerase chain reaction (PCR) based qualitative <i>in vitro</i> diagnostic test for the direct detection and differentiation of influenza A virus, influenza B virus, and respiratory syncytial virus (RSV) nucleic acid in nasopharyngeal swab (NPS) specimens from patients with signs and symptoms of respiratory tract infection in conjunction with clinical and laboratory findings. The test is intended for use as an aid in the differential diagnosis of Influenza A, Influenza B, and RSV in humans and is not intended to detect Influenza C.</p> <p>Negative results do not preclude influenza virus or RSV infection and should not be used as the sole basis for diagnosis, treatment, or other management decisions. Conversely, positive results do not rule-out bacterial infection or co-infection with other viruses.</p> <p>The agent detected may not be the definite cause of disease. The use of additional laboratory testing (e.g. bacterial culture, immunofluorescence, X-ray findings) and clinical presentation must be taken into consideration in order to obtain the final diagnosis of respiratory viral infection.</p> <p>Performance characteristics for Influenza A were established during the 2014-2015 and the 2015-2016 influenza seasons when influenza A/H3N2 and A/H1N1 pandemic were the predominant influenza A viruses in circulation. When other Influenza A viruses are emerging, performance characteristics may vary.</p> <p>If infection with a novel Influenza A virus is suspected based on current clinical and epidemiological screening criteria recommended by public health authorities, specimens should be collected with appropriate infection control precautions for novel virulent influenza viruses and sent to state or local health departments for testing. Viral culture should not be attempted in these cases unless a BSL 3+ facility is available to receive and culture specimens.</p> <p>The ARIES® Flu A/B & RSV Assay is indicated for use with the ARIES® Systems.</p>
<p>ARIES® GBS Assay</p>	<p>50-10021</p>	<p>The ARIES® GBS Assay, performed on ARIES® Systems, is a real-time polymerase chain reaction (RT-PCR) based qualitative <i>in vitro</i> diagnostic test. The ARIES® GBS Assay is designed to detect Group B <i>Streptococcus</i> (GBS) nucleic acid from 18-24 hour Lim broth enrichments of vaginal-rectal swab specimens obtained from pregnant women. The ARIES® GBS Assay is intended for use as a method for detection of GBS colonization in antepartum women. It is not intended to diagnose or monitor treatment of a GBS infection.</p> <p>The ARIES® GBS Assay does not provide susceptibility results. Culture isolates are needed for performing susceptibility testing as recommended for penicillin-allergic women.</p>

Table 4 (Cont'd)

Product Name	Product Number	Intended Use
ARIES® Group A Strep Assay	50-10041	<p>The ARIES® Group A Strep Assay is a real-time polymerase chain reaction (PCR) based qualitative <i>in vitro</i> diagnostic test for the direct detection of <i>Streptococcus pyogenes</i> (Group A β-hemolytic <i>Streptococcus</i>) in throat swab specimens from patients with signs and symptoms of pharyngitis.</p> <p>The ARIES® Group A Strep Assay can be used as an aid in the diagnosis of Group A Streptococcal pharyngitis. The assay is not intended to monitor treatment for Group A <i>Streptococcus</i> infections.</p> <p>The ARIES® Group A Strep Assay is indicated for use with ARIES® Systems.</p>
ARIES® <i>C. difficile</i> Assay	50-10018	<p>The ARIES® <i>C. difficile</i> Assay is a real-time polymerase chain reaction (PCR) based qualitative <i>in vitro</i> diagnostic test for the direct detection of toxigenic <i>Clostridium difficile</i> (<i>C. difficile</i>) nucleic acid in unpreserved, unformed (liquid or soft) stool specimens obtained from patients suspected of having <i>Clostridium difficile</i> infection (CDI).</p> <p>The test targets the <i>C. difficile</i> toxin A gene (<i>tcdA</i>) and toxin B gene (<i>tcdB</i>) and is indicated for use as an aid in the diagnosis of <i>C. difficile</i> infection (CDI).</p> <p>The ARIES® <i>C. difficile</i> Assay is indicated for use with ARIES® Systems.</p>
ARIES® Extraction Kit	50-10026	<p>The ARIES® Extraction Kit is intended to extract nucleic acid from human biological specimens and universal transport media (UTM). The ARIES Extraction Cassette contains a Sample Processing Control (SPC). The ARIES Extraction Kit has not been validated for use with any specific analytical test method.</p> <p>The ARIES Extraction Kit is indicated for use on the ARIES System.</p>