Attachment D
510(k) SUMMARY

JUN 27 2011

CONTACT

Karen Harrington
Gen-Probe Prodesse, Inc.
W229 N1870 Westwood Dr.
Waukesha, WI 53186

NAME OF DEVICE

Trade Name:	ProFlu+™ Assay
Regulation Number:	21 CFR 866.3980
Classification Name:	Respiratory viral panel multiplex nucleic acid assay

PREDICATE DEVICE

- K063765, K081483, K091677 – ID Tag Respiratory Virus Panel, Luminex Molecular Diagnostics
- K073029, K081030, K092500 – ProFlu+ Assay, Gen-Probe Prodesse, Inc.

INTENDED USE

The ProFlu™+ Assay is a multiplex Real-Time PCR (RT-PCR) *in vitro* diagnostic test for the rapid and qualitative detection and discrimination of Influenza A Virus, Influenza B Virus, and Respiratory Syncytial Virus (RSV) nucleic acids isolated and purified from nasopharyngeal (NP) swab specimens obtained from symptomatic patients. This test is intended for use to aid in the differential diagnosis of Influenza A, Influenza B and RSV viral infections in humans and is not intended to detect Influenza C.

Negative results do not preclude influenza or RSV virus infection and should not be used as the sole basis for treatment or other management decisions. Conversely, positive results do not rule-out bacterial infection or co-infection with other viruses. The agent detected may not be the definite cause of disease. The use of additional laboratory testing and clinical presentation must be considered in order to obtain the final diagnosis of respiratory viral infection.

Performance characteristics for Influenza A Virus were established when Influenza A/H3 and A/H1 were the predominant Influenza A viruses in circulation (2006 – 2007 respiratory season). Performance characteristics for Influenza A were confirmed when Influenza A/H1, Influenza A/H3, and Influenza A/2009 H1N1 were the predominant Influenza A viruses in circulation (2008 and 2009). When other Influenza A viruses are emerging, performance characteristics may vary.

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 department for testing. Viral culture should not be attempted in these cases unless a BSL 3+ facility is available to receive and culture specimens.

PRODUCT DESCRIPTION

The ProFlu+ Assay enables detection and differentiation of Influenza A Virus, Influenza B Virus, Respiratory Syncytial Virus (Types A and B), and Internal Control.

An overview of the procedure is as follows:

1. Collect nasopharyngeal swab specimens from symptomatic patients using a polyester, rayon or nylon tipped swab and place into viral transport medium.
2. Add an Internal Control (IC) to every sample to monitor for inhibitors present in the specimens.
3. Perform isolation and purification of nucleic acids using a MagNA Pure LC System (Roche) and the MagNA Pure Total Nucleic Acid Isolation Kit (Roche) or a NucliSENS easyMAG System (bioMérieux) and the Automated Magnetic Extraction Reagents (bioMérieux).
4. Add purified nucleic acids to Influenza A/Influenza B/RSV Mix along with enzymes included in the ProFlu+ Detection Kit. The Influenza A/Influenza B/RSV Mix contains oligonucleotide primers and target-specific oligonucleotide probes. The primers are complementary to highly conserved regions of genetic sequences for these respiratory viruses. The probes are dual-labeled with a reporter dye and a quencher (see table below).
5. Perform reverse transcription of RNA into complementary DNA (cDNA) and subsequent amplification of DNA in a Cepheid SmartCycler II instrument. In this process, the probe anneals specifically to the template followed by primer extension and amplification. The ProFlu+ Assay is based on Taqman reagent chemistry, which utilizes the 5' – 3' exonuclease activity of the Taq polymerase to cleave the probe thus separating the reporter dye from the quencher. This generates an increase in fluorescent signal upon excitation from a light source. With each cycle, additional reporter dye molecules are cleaved from their respective probes, further increasing fluorescent signal. The amount of fluorescence at any given cycle is dependent on the amount of amplification products present at that time. Fluorescent intensity is monitored during each PCR cycle by the real-time instrument.

Analyte	Gene Targeted	Probe Fluorophore	Absorbance Peak	Emission Peak	Instrument Channel
Influenza A Virus	Matrix	FAM	495 nm	520 nm	FAM
Respiratory Syncytial Virus A	Polymerase	CAL Fluor Orange 560	540 nm	561 nm	TET
Respiratory Syncytial Virus B	Polymerase	CAL Fluor Orange 560	540 nm	561 nm	TET
Influenza B Virus	Non-structural NS1 and NS2	CAL Fluor Red 610	595 nm	615 nm	Texas Red
Internal Control	NA	Quasar 670	647 nm	667 nm	Cy5

SUBSTANTIAL EQUIVALENCE

Clinical Comparison Study

The ProFlu+ Assay's supermix was reformulated and performance characteristics were established by comparing the reformulated assay to the original ProFlu+ Assay. All samples positive for IA, IB or RSV using either the current ProFlu+ Assay and/or the reformulated "New" ProFlu+ Assay were confirmed using bidirectional sequencing. The sequencing assays targeted either a different gene than the ProFlu+ Assay or targeted a different region of the same gene as the ProFlu+ Assay. Prospectively collected archived samples from respiratory season years 2008 and 2009 that were collected at two clinical study sites (Columbus, OH and Albuquerque, NM) were used for this study.

"True" influenza A, influenza B or RSV positives were considered as any sample that tested positive for the respective analyte by the original ProFlu+ Assay. "True" Influenza A, Influenza B or RSV negatives were considered as any sample that tested negative by the original ProFlu+ Assay.

Influenza A Comparison Results

		Current ProFlu+ Assay			
		Positive	**Negative**	**Total**	**Comments**
New ProFlu+ Assay	**Positive**	60	1*	**61**	Percent Positive Agreement 100% (93.98%-100%) 95% CI
	Negative	0	172	**172**	Percent Negative Agreement 99.4% (96.80%-99.90%) 95% CI
	Total	**60**	**173**	**233**	

* Sample was positive for Influenza A using bi-directional sequencing.

Influenza B Comparison Results

		Current ProFlu+ Assay			
		Positive	**Negative**	**Total**	**Comments**
New ProFlu+ Assay	**Positive**	14	0	**14**	Percent Positive Agreement 100% (78.47% - 100%) 95% CI
	Negative	0	219	**219**	Percent Negative Agreement 100% (98.28% - 100%) 95% CI
	Total	**14**	**219**	**233**	

RSV Comparison Results

		Current ProFlu+ Assay			
		Positive	**Negative**	**Total**	**Comments**
New ProFlu+ Assay	**Positive**	35	2*	**37**	Percent Positive Agreement 100% (90.11% - 100%) 95% CI
	Negative	0	196	**196**	Percent Negative Agreement 99.0% (96.39%-99.72%) 95% CI
	Total	**35**	**198**	**233**	

* Two samples positive for RSV using bi-directional sequencing.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
10903 New Hampshire Avenue
Silver Spring, MD 20993

Gen-Probe Prodesse, Inc.
c/o Karen Harrington, Ph.D.
Manager, Clinical Affairs
W229 N1870 Westwood Drive
Waukesha, Wisconsin 53186

JUN 27 2011

Re: K110968
Trade/Device Name: ProFlu+™ assay
Regulation Number: 21 CFR§ 866.3980
Regulation Name: Respiratory viral panel multiplex nucleic acid assay
Regulatory Class: Class II
Product Code: OCC, OOI
Dated: April 4, 2011
Received: April 6, 2011

Dear Dr. Harrington:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration.

If your device is classified (see above) into class II (Special Controls), it may be subject to such additional controls. Existing major regulations affecting your device can be found in Title 21, Code of Federal Regulations (CFR), Parts 800 to 895. In addition, FDA may publish further announcements concerning your device in the Federal Register.

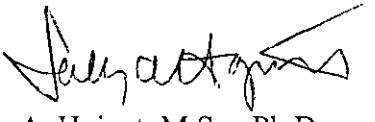
Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Parts 801 and 809); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803); and good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820). This letter will allow you to begin marketing your device as described in your Section 510(k) premarket

notification. The FDA finding of substantial equivalence of your device to a legally marketed predicate device results in a classification for your device and thus, permits your device to proceed to the market.

If you desire specific advice for your device on our labeling regulation (21 CFR Parts 801 and 809), please contact the Office of *In Vitro* Diagnostic Device Evaluation and Safety at (301) 796-5450. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to http://www.fda.gov/MedicalDevices/Safety/ReportaProblem/default.htm for the CDRH's Office of Surveillance and Biometrics/Division of Postmarket Surveillance.

You may obtain other general information on your responsibilities under the Act from the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address http://www.fda.gov/cdrh/industry/support/index.html.

Sincerely yours,



Sally A. Hojvat, M.Sc., Ph.D.
Director
Division of Microbiology Devices
Office of *In Vitro* Diagnostic Device
Evaluation and Safety
Center for Devices and Radiological Health

Enclosure

Indication for Use

510(k) Number (if known): K110968

Device Name: ProFlu+™ Assay

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Prescription Use ___X___ And/Or Over the Counter Use ____.
(21 CFR Part 801 Subpart D) (21 CFR Part 801 Subpart C)

(PLEASE DO NOT WRITE BELOW THIS LINE; CONTINUE ON ANOTHER PAGE IF NEEDED)

Concurrence of CDRH, Office of In Vitro Diagnostic Device Evaluation and Safety (OIVD)

Uwe Schf

Division Sign-Off
Office of In Vitro Diagnostic Device
Evaluation and Safety

510(k) k110968