



4164-01-P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Food and Drug Administration

21 CFR Part 866

[Docket No. FDA-2017-N-5714]

Medical Devices; Immunology and Microbiology Devices; Classification of the Automated Image Assessment System for Microbial Colonies on Solid Culture Media

AGENCY: Food and Drug Administration, HHS.

ACTION: Final order.

SUMMARY: The Food and Drug Administration (FDA or we) is classifying the automated image assessment system for microbial colonies on solid culture media into class II (special controls). The special controls that apply to the device type are identified in this order and will be part of the codified language for the automated image assessment system for microbial colonies on solid culture media's classification. We are taking this action because we have determined that classifying the device into class II (special controls) will provide a reasonable assurance of safety and effectiveness of the device. We believe this action will also enhance patients' access to beneficial innovative devices, in part by reducing regulatory burdens.

DATES: This order is effective [INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]. The classification was applicable on October 6, 2016.

FOR FURTHER INFORMATION CONTACT: Steven Tjoe, Center for Devices and Radiological Health, Food and Drug Administration, 10903 New Hampshire Ave., Bldg. 66, Rm. 4550, Silver Spring, MD 20993-0002, 301-796-5866 [Steven.Tjoe@fda.hhs.gov](mailto:Steven.Tjoe@fda.hhs.gov).

## SUPPLEMENTARY INFORMATION:

### I. Background

Upon request, FDA has classified the automated image assessment system for microbial colonies on solid culture media as class II (special controls), which we have determined will provide a reasonable assurance of safety and effectiveness. In addition, we believe this action will enhance patients' access to beneficial innovation, in part by reducing regulatory burdens by placing the device into a lower device class than the automatic class III assignment.

The automatic assignment of class III occurs by operation of law and without any action by FDA, regardless of the level of risk posed by the new device. Any device that was not in commercial distribution before May 28, 1976, is automatically classified as, and remains within, class III and requires premarket approval unless and until FDA takes an action to classify or reclassify the device (see 21 U.S.C. 360c(f)(1)). We refer to these devices as "postamendments devices" because they were not in commercial distribution prior to the date of enactment of the Medical Device Amendments of 1976, which amended the Federal Food, Drug, and Cosmetic Act (the FD&C Act).

FDA may take a variety of actions in appropriate circumstances to classify or reclassify a device into class I or II. We may issue an order finding a new device to be substantially equivalent under section 513(i) of the FD&C Act to a predicate device that does not require premarket approval (see 21 U.S.C. 360c(i)). We determine whether a new device is substantially equivalent to a predicate by means of the procedures for premarket notification under section 510(k) of the FD&C Act and part 807 (21 U.S.C. 360(k) and 21 CFR part 807, respectively).

FDA may also classify a device through "De Novo" classification, a common name for the process authorized under section 513(f)(2) of the FD&C Act. Section 207 of the Food and

Drug Administration Modernization Act of 1997 established the first procedure for De Novo classification (Pub. L. 105-115). Section 607 of the Food and Drug Administration Safety and Innovation Act modified the De Novo application process by adding a second procedure (Pub. L. 112-144). A device sponsor may utilize either procedure for De Novo classification.

Under the first procedure, the person submits a 510(k) for a device that has not previously been classified. After receiving an order from FDA classifying the device into class III under section 513(f)(1) of the FD&C Act, the person then requests a classification under section 513(f)(2).

Under the second procedure, rather than first submitting a 510(k) and then a request for classification, if the person determines that there is no legally marketed device upon which to base a determination of substantial equivalence, that person requests a classification under section 513(f)(2) of the FD&C Act.

Under either procedure for De Novo classification, FDA shall classify the device by written order within 120 days. The classification will be according to the criteria under section 513(a)(1) of the FD&C Act. Although the device was automatically placed within class III, the De Novo classification is considered to be the initial classification of the device.

We believe this De Novo classification will enhance patients' access to beneficial innovation, in part by reducing regulatory burdens. When FDA classifies a device into class I or II via the De Novo process, the device can serve as a predicate for future devices of that type, including for 510(k)s (see 21 U.S.C. 360c(f)(2)(B)(i)). As a result, other device sponsors do not have to submit a De Novo request or premarket approval application in order to market a substantially equivalent device (see 21 U.S.C. 360c(i), defining "substantial equivalence").

Instead, sponsors can use the less-burdensome 510(k) process, when necessary, to market their device.

## II. De Novo Classification

On December 24, 2015, Clever Culture Systems AG submitted a request for De Novo classification of the APAS Compact. FDA reviewed the request in order to classify the device under the criteria for classification set forth in section 513(a)(1) of the FD&C Act. We classify devices into class II if general controls by themselves are insufficient to provide reasonable assurance of safety and effectiveness, but there is sufficient information to establish special controls that, in combination with the general controls, provide reasonable assurance of the safety and effectiveness of the device for its intended use (see 21 U.S.C. 360c(a)(1)(B)). After review of the information submitted in the request, we determined that the device can be classified into class II with the establishment of special controls. FDA has determined that these special controls, in addition to general controls, will provide reasonable assurance of the safety and effectiveness of the device.

Therefore, on October 6, 2016, FDA issued an order to the requestor classifying the device into class II. FDA is codifying the classification of the device by adding 21 CFR 866.2190. We have named the generic type of device automated image assessment system for microbial colonies on solid culture media, and it is identified as a system that is intended to assess the presence or absence of microbial colonies on solid microbiological culture medium, and to interpret their number, and phenotypic and morphologic characteristics through analysis of two dimensional digital images as an aid in diagnosis of infectious disease.

FDA has identified the following risks to health associated specifically with this type of device and the measures required to mitigate these risks in table 1.

Table 1.--Automated Image Assessment System for Microbial Colonies on Solid Culture Media Risks and Mitigation Measures

Identified Risks	Mitigation Measures/21 CFR Section
False positive results (i.e., incorrect designation of plates for “Review” or as “Positive”)	General controls and special controls: (1), (2), (3), (4), (5), (6), (7) (21 CFR 866.2190(b)(1); 21 CFR 866.2190(b)(2); 21 CFR 866.2190(b)(3); 21 CFR 866.2190(b)(4); 21 CFR 866.2190(b)(5); 21 CFR 866.2190(b)(6); and 21 CFR 866.2190(b)(7))
False negative results (i.e., failure to detect growth and incorrect designation of plates as “Negative”)	General controls and special controls: (1), (2), (3), (4), (5), (6), (7) (21 CFR 866.2190(b)(1); 21 CFR 866.2190(b)(2); 21 CFR 866.2190(b)(3); 21 CFR 866.2190(b)(4); 21 CFR 866.2190(b)(5); 21 CFR 866.2190(b)(6); and 21 CFR 866.2190(b)(7))

FDA has determined that special controls, in combination with the general controls, address these risks to health and provide reasonable assurance of safety and effectiveness. In order for a device to fall within this classification, and thus avoid automatic classification in class III, it would have to comply with the special controls named in this final order. The necessary special controls appear in the regulation codified by this order. This device is subject to premarket notification requirements under section 510(k) of the FD&C Act.

### III. Analysis of Environmental Impact

The Agency has determined under 21 CFR 25.34(b) that this action is of a type that does not individually or cumulatively have a significant effect on the human environment. Therefore, neither an environmental assessment nor an environmental impact statement is required.

### IV. Paperwork Reduction Act of 1995

This final order establishes special controls that refer to previously approved collections of information found in other FDA regulations. These collections of information are subject to review by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501-3520). The collections of information in part 807, subpart E, regarding premarket notification submissions have been approved under OMB control number 0910-0120,

the collections of information in part 820 have been approved under OMB control number 0910-0073, and the collections of information in 21 CFR parts 801 and 809, regarding labeling have been approved under OMB control number 0910-0485.

#### List of Subjects in 21 CFR Part 866

Biologics, Laboratories, Medical devices.

Therefore, under the Federal Food, Drug, and Cosmetic Act and under authority delegated to the Commissioner of Food and Drugs, 21 CFR part 866 is amended as follows:

#### PART 866--IMMUNOLOGY AND MICROBIOLOGY DEVICES

1. The authority citation for part 866 continues to read as follows:

Authority: 21 U.S.C. 351, 360, 360c, 360e, 360j, 360l, 371.

2. Add § 866.2190 to subpart C to read as follows:

§ 866.2190 Automated image assessment system for microbial colonies on solid culture media.

(a) *Identification.* An automated image assessment system for microbial colonies on solid culture media is a system that is intended to assess the presence or absence of microbial colonies on solid microbiological culture medium, and to interpret their number, and phenotypic and morphologic characteristics through analysis of two dimensional digital images as an aid in diagnosis of infectious disease.

(b) *Classification.* Class II (special controls). The special controls for this device are:

(1) Premarket notification submissions must include a detailed description of the device, including the technology employed, components and software modules, as well as a detailed explanation of the result algorithms and any expert rules that are used to assess colony characteristics and enumerate colonies from image capture through end result.

(2) Premarket notification submissions must include detailed documentation of the analytical studies performed to characterize device performance to support the intended use, as appropriate.

(3) Premarket notification submissions must include detailed documentation from clinical studies performed on a population that is consistent with the intended use population.

(i) The clinical studies must establish the device performance based on comparison to results obtained by an acceptable reference method, as appropriate.

(ii) The clinical study documentation must include the study protocol with a predefined statistical analysis plan and the final report documenting support for the Indications for Use and the results of the statistical analysis, as appropriate.

(4) Premarket notification submissions must include detailed documentation for device software, including but not limited to software applications and hardware based components that incorporate software, and any decision-making thresholds used to generate results for the device. If a part of a Total Laboratory Automation System, the premarket notification submission must include detailed documentation addressing the instrument and software system integration.

(5) Premarket notification submissions must include detailed documentation of appropriate instructions for use regarding the intended user's device quality control procedures for the instrument system and components, as appropriate.

(6) The 21 CFR 809.10 compliant device labeling must include:

(i) Detailed user instructions to mitigate the risk of failure to operate the instrument correctly.

(ii) A detailed explanation of the interpretation of results and limitations regarding the need for review of culture plates by a qualified microbiologist, as appropriate.

(iii) A summary of performance data obtained from the analytical studies used to support device performance, as appropriate.

(iv) A summary of performance data obtained from clinical studies performed on a population that is consistent with the intended use population, as appropriate.

(7) Under 21 CFR 820.30 compliant design control, device manufacturers must, as appropriate:

(i) Conduct human factors/usability validation testing with the final version of the labeling and related materials to adequately mitigate the risk of failure to operate the instrument correctly.

(ii) Document a device training program that will be offered to the end user to adequately mitigate the risk of failure to operate the instrument correctly.

Dated: October 11, 2017.

Leslie Kux,

Associate Commissioner for Policy.

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