July 12, 2022

Cytrellis Biosystems, Inc.
Karen H. Cronholm
President and CEO
299C Washington St
Woburn, Massachusetts 01801

Re: K202517
Trade/Device Name: Cytrellis Dermal Micro-Coring System
Regulation Number: 21 CFR 878.4430
Regulation Name: Microneedling Device for Aesthetic Use
Regulatory Class: Class II
Product Code: QAI

Dear Karen Cronholm:

The Food and Drug Administration (FDA) is sending this letter to notify you of an administrative change related to your previous substantial equivalence (SE) determination letter dated July 9, 2021. Specifically, FDA is updating this SE Letter for an omission of "22 years or older" in the Indications for Use Statement as an administrative correction.

Please note that the 510(k) submission was not re-reviewed. For questions regarding this letter please contact Long Chen, Ph.D., OHT4: Office of Surgical and Infection Control Devices, 301-796-6389, long.chen@fda.hhs.gov.

Sincerely,

Colin K. Chen -S

for

Long Chen, Ph.D.
Assistant Director
DHT4A: Division of General Surgery Devices
OHT4: Office of Surgical
and Infection Control Devices
Office of Product Evaluation and Quality
Center for Devices and Radiological Health

U.S. Food & Drug Administration
10903 New Hampshire Avenue
Silver Spring, MD 20993
www.fda.gov

July 9, 2021

Cytrellis Biosystems, Inc.
Karen H. Cronholm
President and CEO
299C Washington St
Woburn, Massachusetts 01801

Re: K202517
Trade/Device Name: Cytrellis Dermal Micro-Coring System
Regulation Number: 21 CFR 878.4430
Regulation Name: Microneedling Device For Aesthetic Use
Regulatory Class: Class II
Product Code: QAI
Dated: June 9, 2021
Received: June 10, 2021

Dear Karen H. Cronholm:

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. Although this letter refers to your product as a device, please be aware that some cleared products may instead be combination products. The 510(k) Premarket Notification Database located at https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm identifies combination product submissions. 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. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. 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 Part 801); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803) for devices or postmarketing safety reporting (21 CFR 4, Subpart B) for combination products (see https://www.fda.gov/combination-products/guidance-regulatory-information/postmarketing-safety-reporting-combination-products); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820) for devices or current good manufacturing practices (21 CFR 4, Subpart A) for combination products; and, if applicable, the electronic product radiation control provisions (Sections 531 - 542 of the Act); 21 CFR 1000-1050.

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 https://www.fda.gov/medical-devices/medical-device-safety/medical-device-reporting-mdr-how-report-medical-device-problems.

For comprehensive regulatory information about medical devices and radiation-emitting products, including information about labeling regulations, please see Device Advice (https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance) and CDRH Learn (https://www.fda.gov/training-and-continuing-education/cdrh-learn). Additionally, you may contact the Division of Industry and Consumer Education (DICE) to ask a question about a specific regulatory topic. See the DICE website (https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/contact-us-division-industry-and-consumer-education-dice) for more information or contact DICE by email (DICE@fda.hhs.gov) or phone (1-800-638-2041 or 301-796-7100).

Sincerely,

Long H. Chen -S

Digitally signed by Long H. Chen -S
Date: 2021.07.09 16:45:02 -04'00'

Long Chen, Ph.D.
Assistant Director
DHT4A: Division of General Surgery Devices
OHT4: Office of Surgical
and Infection Control Devices
Office of Product Evaluation and Quality
Center for Devices and Radiological Health

Enclosure

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Food and Drug Administration

Indications for Use

Form Approved: OMB No. 0910-0120
Expiration Date: 06/30/2020
See PRA Statement below.

510(k) Number *(if known)*
K202517

Device Name

Cytrellis Dermal Micro-Coring System

Indications for Use *(Describe)*

The Cytrellis Dermal Micro-Coring System is indicated for use by medical professionals for the treatment of moderate and severe wrinkles in the mid and lower face in adults aged 22 years or older with Fitzpatrick skin types I-IV.

Type of Use *(Select one or both, as applicable)*

☒ Prescription Use (Part 21 CFR 801 Subpart D) ☐ Over-The-Counter Use (21 CFR 801 Subpart C)

CONTINUE ON A SEPARATE PAGE IF NEEDED.

This section applies only to requirements of the Paperwork Reduction Act of 1995.

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Department of Health and Human Services
Food and Drug Administration
Office of Chief Information Officer
Paperwork Reduction Act (PRA) Staff
PRAStaff@fda.hhs.gov

"An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB number."

Submitter:	Cytrellis Biosystems, Inc. 299C Washington Street Woburn, MA 01801
Contact Person:	Karen Cronholm President and CEO Telephone: 857-317-5191 E-mail: kcronholm@cytrellis.com
Date Prepared:	July 9, 2021
Device Trade Name:	Cytrellis® Dermal Micro-Coring™ System
Common Name:	Powered Microneedle Device
Classification Name:	Microneedling device for aesthetic use
Regulation Number:	21 CFR 878.4430 (Product Code: QAI)
Predicate Device:	Exceed Microneedling Device K180778
Regulatory Class:	Class II

Device Description:

The Cytrellis Dermal Micro-Coring System removes unwanted skin by rapidly excising full thickness micro-columns of the dermal and epidermal tissue via specially designed hollow coring needles. The needles are controlled to precise coring depths and positions by the device console and handpiece. The system provides a range of skin removal percentages (treatment densities) and needle depths settings to customize the user needs that is controlled by the LCD touch display on the console. The treatment is applied in 1cm^2 areas of the skin at a time by the handpiece, which has a vacuum assisted disposable in order to help with alignment between treatment areas. The Cytrellis Dermal Micro-Coring System mechanically removes full thickness sections of skin without evidence of scarring or need for surgical procedure. As much as 7.9% of the surface area of the skin is removed in columns that are the size of the inner diameter of the needle which is too small to cause visible scarring. The holes quickly close because of the natural elastin of the skin as they start to heal. This wound response, combined with the mechanical removal of the skin's surface area, leads to a reduction in the appearance of wrinkles.

Statement of Intended Use:

The Cytrellis® Dermal Micro-Coring™ System is intended for the treatment of moderate and severe wrinkles in the mid and lower face.

Statement of Indication for Use:

The Cytrellis® Dermal Micro-Coring™ System is indicated for use by medical professionals for the treatment of moderate and severe wrinkles in the mid and lower face in adults aged 22 years or older with Fitzpatrick skin types I-IV

Summary of Non-Clinical Performance Testing:

The following performance and safety testing has confirmed the proposed device to be substantially equivalent to the predicate device:

- **Software:** documentation was prepared and submitted for a moderate level of concern device in accordance with FDA's Guidance for the *Content of Premarket Submissions for Software Contained in Medical Devices;*
- **Electrical Safety:** the proposed Cytrellis Dermal Micro-Coring System has been tested and successfully passed all the relevant sections of IEC 60601-1 Medical electrical equipment, General requirements for Safety;
- **Electromagnetic Interference:** the proposed Cytrellis Dermal Micro-Coring System has been tested and successfully met all of the relevant sections (Radiated emissions, Conducted emissions, Harmonic emissions, Flicker emissions, Electrostatic discharge immunity test, radiated radio frequency immunity, Electrical fast transient/burst, lightning surge immunity, conducted RF immunity, electromagnetic field immunity, voltage dips and short interruptions, RFID compatibility, and power frequency magnetic field immunity test) to satisfy compliance.

To demonstrate safety and effectiveness and support substantial equivalence, the Cytrellis Dermal Micro-Coring System has undergone non-clinical performance testing in line with recognized standards.

(1) The technical specifications and needle characteristics have been identified, including needle length, geometry, maximum penetration depth, and puncture rate.		
(2) Non-clinical performance data demonstrates that the device performs as intended under anticipated conditions of use. The following performance characteristics have been tested:		
(i)	Accuracy of needle penetration depth and puncture rate	Accuracy of needle penetration depth and puncture rate was tested in a suitable skin substrate model and measured using the Keyence Laser System
(ii)	Safety features built into the device to protect against cross-contamination & fluid ingress protection	The device design prevents cross contamination including fluid ingress protection due to the needle cartridge design. Design elements include RFID to prevent needle cartridge re-use and tortuous path for fluid ingress. Testing was performed under worst case scenarios.
(iii)	Identification of the max safe needle penetration depth for the device & for the labeled indications for use	Maximum safe needle penetration depth was identified in a suitable skin substrate model and measured using the Keyence Laser System.
(3) Performance data must demonstrate the sterility of the patient-contacting components of the device.		Performance data demonstrates the sterility of the patient-contacting components of the device according to ISO 11137-1:2006, ISO 11137-2:2013 and ISO/TS 13004:2013
(4) Performance data must support the shelf life of the device by demonstrating continued sterility, package integrity, and device functionality over the intended shelf life.		Performance data supports the shelf life of the device by demonstrating continued sterility, package integrity, and device functionality over the intended shelf life according to ASTM F1980 -16, ISO 11607-1, ASTM F88-15, ASTM F1140 / F1140M-13, ASTM F2096-11, ASTM F1886 / F1886M-16
(5) Performance data must demonstrate the electrical safety and electromagnetic compatibility (EMC) of all electrical components of the device.		Performance data demonstrates the electrical safety and electromagnetic compatibility (EMC) of all electrical components of the device according to IEC 60601-1:2012 3.1 edition and IEC 60601-1-2:2014

(6) Software verification, validation, and hazard analysis must be performed for all software components of the device.	Software verification, validation, and hazard analysis were performed for all software components of the device according to in accordance with FDA's Guidance for the *Content of Premarket Submissions for Software Contained in Medical Devices*
(7) The patient-contacting components of the device must be demonstrated to be biocompatible.	The patient-contacting components of the device were demonstrated to be biocompatible including evaluation of cytotoxicity, irritation, and sensitization, acute systemic toxicity and material-mediated pyrogenicity and hemocompatibility per ISO 10993-1
(8) Performance data must validate the cleaning and disinfection instructions for reusable components of the device.	A cleaning and disinfection validation was performed for reusable components of the device per AAMI TIR30:2011/(R)2016 and AAMI TIR12:2010

(9) Labeling includes the following:	
(i)	Information on how to operate the device and its components and the typical course of treatment;
(ii)	A summary of the device technical parameters, including needle length, needle geometry, maximum penetration depth, and puncture rate;
(iii)	Validated methods and instructions for reprocessing of any reusable components;
(iv)	Disposal instructions; and
(v)	A shelf life
(10) Patient labeling includes:	
(i)	Information on how the device operates and the typical course of treatment;
(ii)	The probable risks and benefits associated with use of the device;
(iii)	Postoperative care instructions.

Results of Clinical Study:

A clinical study was conducted to support the safety and effectiveness of the Cytrellis Dermal Micro-Coring System for the treatment of moderate to severe cheek wrinkles in adults aged 22 years or older with Fitzpatrick skin types I-IV.

The objective of the study was to assess the effectiveness of the proposed device in reducing the signs of skin aging as measured by the improvement in wrinkles after at least two (2), but no more than three (3) standardized treatment sessions and to assess the safety of the proposed device as measured by the number of adverse events.

The multicenter study was conducted at four (4) sites in the United States. Subjects were treated at least two (2) times, but no more than (3) times, approximately 30 days apart, with the final assessment 90 days after the last treatment.

Professional clinical portrait photographs were taken of the subject at Day 0, Day 30, Day 60 and Day 90. Day 30, Day 60 and Day 90 photos were taken for each treatment.*

Treatments were performed by licensed medical professionals.

Prior to treatment the subject was injected with local anesthetic, per the site's standard of care. The operator was instructed to use a skin removal (percent of skin removed per 1 cm^2) of 6.7 or 7.9% for the face and submental areas and a skin removal percentage (needle density) of 6.7% for the perioral area. The operator started the treatment at a core-depth setting of 3mm but could increase or decrease the core-depth setting in increments of 0.5mm up to 5mm or down to 2.5mm, for a range of 2.5mm to 5mm to achieve maximum coring and ensure subject safety. Following the treatment, Aquaphor was applied to the treated areas.

Demographics:
Fifty-one (51) subjects completed the study. The average age of the subjects was 62.9 years. The subject population was predominantly female (98%). The study included subjects with Fitzpatrick skin types I to IV.

Effectiveness – Physician Reported Outcomes:
A blinded assessment by three (3) independent evaluators was performed. The evaluators assessed before and 90-day post treatment* photographs of the subject's cheek area for improvement using the Lemperle Wrinkle Severity Scale (LWSS). When assessed at depth settings of up to 5mm, the mean change from baseline for the LWSS was 1.3 [95% CI: 1.22, 1.42]. The lower limit of the 95% confidence interval for the mean change is greater than 1.0, indicating that these data support the primary endpoint conclusion of 1 point or greater mean improvement. When the treatment was performed at up to 4mm, the LWSS change was 1.1.

Safety – Physician Reported Outcomes:
No Serious Adverse Events were reported. Nine (9) adverse events were reported in five (5) subjects. Of the nine, four (4) were considered Adverse Device Effects (ADEs). The ADEs were Black eye (bruising (1), cheek numbness (1), redness (1), and track marks on cheek (1). The ADEs were mild to moderate in severity and did not require intervention. All ADEs were anticipated risks of the device/treatment as listed in the device labeling.

*NOTE: Due to the COVID-19 pandemic subject photographs were taken at Day 150 or Day 180 per protocol amendment.

Technical Specifications Comparison:

Characteristic	Subject of this 510(K) 510(K) Pending Cytrellis Dermal Micro-Coring System	Predicate Device K180778 Exceed Microneedling Device	Similarities and significant differences to the predicate device
Device Manufacturer	Cytrellis Biosystems, Inc.	MT.DERM GmbH Gustav-Krone-Str. 3, 14167 Berlin, Germany	Not Applicable
Device Trade Name	Cytrellis Dermal Micro-Coring System	Exceed Microneedling device	Not Applicable
Product Code	QAI	QAI	Identical
Classification Name	Microneedling device for aesthetic use	Microneedling device for aesthetic use	Identical
Device Classification	Class II	Class II	Identical
Regulation Number	21 CFR 878.4430	21 CFR 878.4430	Identical
Use	Prescriptive	Prescriptive	Identical
Intended Location of Use	Mid and Lower Face	Face	Similar - Both devices are for the treatment of wrinkles.

Characteristic	Subject of this 510(K) 510(K) Pending Cytrellis Dermal Micro-Coring System	Predicate Device K180778 Exceed Microneedling Device	Similarities and significant differences to the predicate device
Intended Use and Indications for Use	The Cytrellis® Dermal Micro-Coring™ System is intended for the treatment of moderate and severe wrinkles in the mid and lower face. The Cytrellis Dermal Micro-Coring System is indicated for use by medical professionals for the treatment of moderate and severe wrinkles in the mid and lower face in adults aged 22 years or older with Fitzpatrick skin types I-IV	The Exceed is a microneedling device and accessories is intended for the treatment of wrinkles in Fitzpatrick skin types I, II and/or III in the following facial areas: glabellar frown lines, periorbital lines and cheek folds in adults aged 22 years or older.	Similar – Both devices are used in aesthetic procedures in dermatology. Both devices are for the treatment of wrinkles. The proposed indication being sought in this 510(K) is for moderate and severe cheek wrinkles with Fitzpatrick skin types I – IV. Clinical performance data provided demonstrates that the Cytrellis Dermal Micro- Coring System is safe and effective for the indication and intended use described.
Geometry	Single (1) needle or three (3) needles arranged in a straight line. Needles are ground to 10-degree tip angle resulting in two (2) cutting services and two (2) tips	6 needles, squared arrangement	Dissimilar - Clinical and non-clinical performance testing demonstrates that the Cytrellis Dermal Micro-Coring System does not pose any undue or additional risks and is effective.

Characteristic	Subject of this 510(K) 510(K) Pending Cytrellis Dermal Micro-Coring System	Predicate Device K180778 Exceed Microneedling Device	Similarities and significant differences to the predicate device
Max Needle length used in clinical study	Up to 5.0mm core depth setting or 6mm needle tip depth	1.5mm	Dissimilar - Clinical and non-clinical performance testing demonstrates that the Cytrellis Dermal Micro-Coring System does not pose any undue or additional risks and is effective.

Characteristic	Subject of this 510(K) 510(K) Pending Cytrellis Dermal Micro-Coring System	Predicate Device K180778 Exceed Microneedling Device	Similarities and significant differences to the predicate device
Maximum needle penetration (maximum needle length)	Up to 4.0mm core depth setting or 5mm needle tip depth	1.5mm	Dissimilar - Clinical and non-clinical performance testing demonstrates that the Cytrellis Dermal Micro-Coring System does not pose any undue or additional risks and is effective.
Needle protrusion setting	0-4.0mm core depth setting or 1-5mm needle tip depth	0 - 1.9 mm	Dissimilar - Clinical and non-clinical performance testing demonstrates that the Cytrellis Dermal Micro-Coring System does not pose any undue or additional risks and is effective.
Frequency	8-12 Hz	100-150 Hz (±10%)	Dissimilar - Clinical and non-clinical performance testing demonstrates that the Cytrellis Dermal Micro-Coring System does not pose any undue or additional risks and is effective.
Treatment Protocol	At least 2 but no more than 3 treatments spaced 4 weeks apart	4 treatments spaced 4 weeks apart	Dissimilar - Clinical and non-clinical performance testing demonstrates that the Cytrellis Dermal Micro-Coring System does not pose any undue or additional risks and is effective.

Conclusion from Data:	Cytrellis Biosystems, Inc. has demonstrated that the proposed Cytrellis® Dermal Micro-Coring™ System is substantially equivalent to the predicate device based upon indications for use, design, test results and the fundamental scientific technology.