February 18, 2021

BioWink GmbH
℅ Yarmela Pavlovic
Partner
Manatt, Phelps & Phillips, LLP
One Embarcadero Center
30th Floor
San Francisco, CA 94111

Re: K193330
Trade/Device Name: Clue Birth Control
Regulation Number: 21 CFR§ 884.5370
Regulation Name: Software Application for Contraception
Regulatory Class: II
Product Code: PYT
Dated: January 4, 2021
Received: January 4, 2021

Dear Yarmela Pavlovic:

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,

For
Monica D. Garcia, Ph.D.
Assistant Director
DHT3B: Division of Reproductive,
Gynecology and Urology Devices
OHT3: Office of GastroRenal, ObGyn,
General Hospital and Urology 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: 06/30/2023
See PRA Statement below.

510(k) Number *(if known)*
K193330

Device Name
Clue Birth Control

Indications for Use *(Describe)*
Clue Birth Control is a software application for contraception for women ages 18 - 45 years old, to monitor their fertility and prevent pregnancy. Clue Birth Control is suitable for women with predictable 20 - 40 day cycles, who have not recently used hormonal birth control.

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.

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510(k) Summary

BioWink GmbH - Clue Birth Control

K193330

Submitter

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Contact person: Carrie Walter
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Date prepared: February 16, 2021

Name of Device

Trade name: Clue Birth Control
Common name: Software application for contraception
Regulation number: 21 CFR 884.5370
Regulation name: Software application for contraception
Regulatory Class: II
Product Code: PYT (Device, fertility diagnostic, contraceptive, software application)

Predicate Device

Natural Cycles Nordic AB, Natural Cycles (DEN170052)

The predicate device has not been subject to a design-related recall.

Device Description

Clue Birth Control is a feature of the Clue period tracker mobile application. Clue Birth Control's proprietary algorithm uses period start date information entered by the user to provide predictions of "high risk days" and "low risk days" for becoming pregnant based on a Fertility Awareness Based Method (FABM) of contraception. Identification of high risk days allows the user to determine the days on which her risk of conception is highest, and then make choices about either abstaining from sex or using a barrier method of contraception to prevent pregnancy.

To use Clue Birth Control, users go through an onboarding process from within the Clue app, during which they are asked to provide information that will determine whether they meet the Clue Birth Control use criteria. Clue Birth Control can only be used by women who are between

18 and 45 years old and their last 12 cycles were between 20 and 40 days and the difference between the lengths of the shortest and longest cycles is less than or equal to 9 days. In addition, users must have had at least three cycles (four periods) after stopping hormonal birth control (HBC) or since the end of a pregnancy.

Indications for Use

Clue Birth Control is a software application for contraception for women ages 18 - 45 years old, to monitor their fertility and prevent pregnancy. Clue Birth Control is suitable for women with predictable 20 - 40 day cycles, who have not recently used hormonal birth control.

Comparison of Intended Use and Technological Characteristics of the Subject and Predicate Devices

Table 1. Subject and predicate device comparison

Description	Subject Device (Clue Birth Control: K193330)	Predicate Device (Natural Cycles: DEN170052)
Indications for Use	Clue Birth Control is a software application for contraception for women ages 18 - 45 years old, to monitor their fertility and prevent pregnancy. Clue Birth Control is suitable for women with predictable 20 - 40 day cycles, who have not recently used hormonal birth control.	Natural Cycles is a stand-alone software application, intended for women 18 years and older, to monitor their fertility. Natural Cycles can be used for preventing a pregnancy (contraception) or planning a pregnancy (conception).
Prescription / Over-the-counter use	Over-the-counter	Over-the-counter
Application Type	Mobile-based software supplication	Web and mobile-based software application
User inputs	Period start date	• Menstrual cycle information (period start date and number of days) • Daily basal body temperature measurements • Optional: ovulation or pregnancy test results
Device output	High risk days – Instructs user to abstain from sex or use a back-up barrier contraceptive Low risk days – States that the risk of pregnancy is low	Use protection – Instructs user to abstain from sex or use a back-up barrier contraceptive Not fertile – States that the user can have sex without protection

Description	Subject Device (Clue Birth Control: K193330)	Predicate Device (Natural Cycles: DEN170052)
User Requirements	• Women aged 18-45 years • Women with cycles between 20 and 40 days and vary by ≤9 days • Women who have recently been on hormonal birth control should have at least 3 cycles (4 periods) after the end of their protection period before using the device • Women who have been recently pregnant should have at least 3 cycles (4 periods) before using the device	• Women 18 years and older

The subject and predicate device indications for use are not identical. In addition, the subject and predicate device have different use populations, as Clue Birth Control has a narrower population of users based on their cycle length, cycle variability, and prior HBC use as compared to the predicate device. However, the subject and predicate device have the same intended use of predicting fertile and non-fertile days for use in providing patient-specific recommendations related to contraception.

The subject and predicate devices have different technological characteristics, as Clue Birth Control has different device inputs as compared to the predicate device. Also, Clue Birth Control is only for use on mobile platforms, while the predicate can also be used on web-based platforms. The differences in technological characteristics between the subject and predicate devices do not raise different questions of safety and effectiveness.

Performance Data

Non-Clinical Testing

- Software documentation provided in accordance with the 2005 FDA guidance document *Guidance for the Content of Premarket Submissions for Software Contained in Medical Devices* to support device software with a major level of concern.

- Cybersecurity information provided in accordance with the 2014 FDA guidance document *Content of Premarket Submissions for Management of Cybersecurity in Medical Devices*.

- Human factors testing evaluated the potential for user errors when using the device. Testing focused on onboarding (eligibility criteria and understanding of risk), data input, and understanding of messaging (high risk, low risk, ineligible, etc.). Testing demonstrated that device users could safely use the device.

Clinical Testing

Clinical testing in support of Clue Birth Control came from the Dynamic Optical Timing (DOT) clinical efficacy trial, which assessed the same algorithm used in the subject device.

The clinical trial was performed at the Institute for Reproductive Health at Georgetown University. The study was a prospective clinical trial that followed 718 women aged 18 to 39, who were living in the United States. Each woman participated in the study for a period of up to 13 cycles, providing 6616 cycles in total.

Perfect- vs typical-use

Clue Birth Control has a perfect use Pearl Index of 0.8, which means that 0.8 out of 100 women who use the app perfectly for one year will get pregnant either because:

- They had unprotected sex on a "high risk" day that was incorrectly designated by the app as a "low risk" day (i.e., method failure); or

- They had protected sex on a "high risk" day but became pregnant because the barrier method of protection failed.

Clue Birth Control has a typical use Pearl Index of 5.2, which means that 5.2 women out of 100 get pregnant during one year of use due to all possible reasons (e.g., falsely attributed low risk days, having unprotected intercourse on high risk days, and failure of the contraceptive method used on high risk days).

Table 2. Summary of clinical data from the efficacy trial

Study Date Range	**# Women**	**Exposure [Woman-Years]**	**# Pregnancies [Worst-Case]**	**Typical-Use PI (95% CI) [Worst-Case]**
Feb 2017-Oct 2018	718	509	25 [58]	5.2 (3.4-7.7) [12]

The table above includes worst-case values for the number of pregnancies in addition to the typical use rate. Typical Use PI includes all pregnancies in the study over all cycles of exposure, including those due to improper use of the app. The worst-case PI is calculated by assuming pregnancies for all 'possibly pregnant' users lost to follow-up.

Conclusions

A comparison of intended use and technological characteristics combined with performance data demonstrates that Clue Birth Control, for its intended use population, is as safe and effective as the predicate device and supports a determination of substantial equivalence. Clue Birth Control meets the special controls outlined in 21 CFR 884.5370, Software application for contraception.