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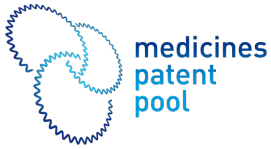
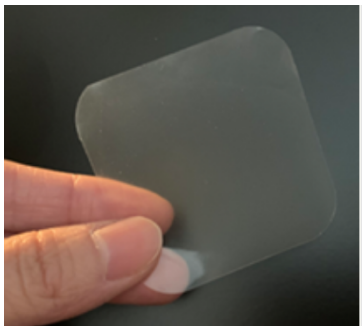




Vaginal Film (MATRIX)

Based on public information

Developer(s)

University of Pittsburgh

Originator

https://www.pitt.edu

United States

The University of Pittsburgh, founded in 1787, is one of the oldest universities in the United States. It has a notable research profile, particularly in biomedical research, engineering advancements, and public health initiatives. As a member of the prestigious Association of American Universities (AAU), it reflects a high level of research activity.

Magee-Womens Research Institute & Foundation

Originator

https://mageewomens.org/

United States

The Magee-Womens Research Institute (MWRI) is a renowned institution dedicated to advancing women's health through research and education. It specializes in areas such as reproductive biology, obstetrics, gynaecology, and women's cancers. MWRI has initiated numerous research studies aimed at improving healthcare outcomes for women globally, with a strong focus on personalized medicine.

Sponsor(s)

USAID

https://www.usaid.gov/

Partnerships

FHI360

https://www.fhi360.org

IAVI

https://www.iavi.org

OAK-CREST

https://www.oak-crest.org/

Population Council

https://popcouncil.org

Program for Appropriate Technology in Health (PATH)

https://www.path.org/

Public Health Institute

https://www.phi.org/

RTI International

https://www.rti.org/

University of Alabama at Birmingham

https://www.uab.edu

Technology information

Type of technology

Vaginal film

Administration route

Topical (Vaginal)

Development state and regulatory approval

Active Pharmaceutical Ingredient (API)

Dapivirine (DPV)

Development Stage

Phase I

Regulatory Approval

Not provided

Description

Matrix vaginal film technology represents a novel, once-monthly, self-administered biodegradable polymer designed for the prevention of HIV and unplanned pregnancies. This polymer is typically cellulosic, such as carboxycellulose. Upon insertion into the vagina, contact with vaginal fluids initiates the slow dissolution of the film, facilitating the gradual release of API drug molecules. This delivery system ensures the sustained release of the API over the course of a month until complete dissolution of the film occurs and the entire drug is delivered locally.

Technology highlight

i. Made up of biodegradable polymer materials ii. Self-administration iii. Minimal impact on the innate microbiome iv. Low systemic toxicity

Technology main components

(i) HEC: HMC: CMC [or] HEC: HPMC: NaCMC (at varying concentrations) (ii) Plasticizer (eg: glycerin, polyethylene gylcol monomethyl ether, propylene glycol, sorbitol sorbitan solution, castor oil) (iii) Dispersant (iv) Humectant (v) Disintegrant (eg: PEG 400, PEG 6000; PEG 8000) (v) Solubilizing/ alkalizing agent (eg: sodium hydroxide)

Information on the raw materials sourcing, availability and anticipated price

Not provided

Delivery device(s)

Not provided

APIs compatibility profile

API desired features

Water-soluble molecules

Water-insoluble molecules

Small molecules

Antiretroviral drugs, including dapivirine, tenofovir disoproxil, and hormone replacement drugs such as levonorgestrel, are the focus of targeted drug of choice. Other targeted therapeutic classes include antibacterial, antiprotozoal, and antifungal drugs.

Additional solubility data

Not provided

Additional stability data

Not provided

API loading: Maximum drug quantity to be loaded

Not provided

API co-administration

2 different APIs : A combination of antiretroviral API and a hormonal API is been used.

LogP

Not provided

Scale-up and manufacturing prospects

Scale-up prospects

Not provided

Tentative equipment list for manufacturing

1) Elcometer 4340 Motorised/Automatic Film Applicator, Mixing vessels (with vacuum applicator) 2) Metrohm, 758 KFD Titrino 3) Coating and drying vessels 4) Packaging instrumentations (not specified)

Manufacturing

The manufacturing of vaginal films using a Hot Melt Extrusion Process requires a cleanroom environment and involves several key steps: Feeding: Selected materials are introduced into an extruder. Melting: In the extruder, materials are heated to a temperature where polymers melt—above their melting point but below their decomposition temperature. Mixing: The molten material is mixed thoroughly to ensure even distribution of the API and excipients. Extrusion: The uniform mixture is extruded through a die to form a continuous sheet or film. Cooling: Extruded film is cooled rapidly to solidifies.

Specific analytical instrument required for characterization of formulation

1) X-ray diffraction (To examine solid state solubility) 2) TX-XT Plus texture analyser 3) UPLC

Clinical trials

STUDY23040051

Identifier

NCT06046053

Link

https://clinicaltrials.gov/study/NCT06046053

Phase

Phase I

Status

Recruiting

Sponsor

Rohan, Lisa, PhD

More details

This study will enroll approximately 100 HIV-negative persons, aged18-45 years, and assigned female sex at birth from sites in the United States, Kenya, South Africa, and Zimbabwe. The study will assess the acceptability and safety of two placebo vaginal films. The placebo films do not contain any active medication, are the same size, but differ by shape (square versus rounded corners). Participants will be randomly assigned to one of the two films and asked to use (self-insert) the assigned film two times (approximately one month apart). Participants will be asked to refrain from sexual activity during the first month of use and may resume usual sexual activity during the second month of use. The study involves answering questions, undergoing

pelvic examinations, and collecting blood and

Purpose

MATRIX-002: Trial to Assess Acceptability and Safety of Two Placebo Vaginal Films

Interventions

Intervention 1

Placebo Vaginal Film with Square Corners

Intervention 2

Placebo Vaginal Film with Rounded Corners

Countries

United States of America
Kenya
South Africa
Zimbabwe

Sites / Institutions

Not provided

Trials dates

Anticipated Start Date

Not provided

Actual Start Date

2023-10-18

Anticipated Date of Last Follow-up

2024-06-04

Estimated Primary Completion Date

2024-10-01

Estimated Completion Date

2025-04-01

Actual Primary Completion Date

Not provided

Actual Completion Date

Not provided

Studied populations

Age Cohort

- Adults

Genders

- Female

Accepts pregnant individuals

Unspecified

Accepts lactating individuals

Unspecified

Accepts healthy individuals

Yes

Comments about the studied populations

Inclusion Criteria: * Assigned female sex at birth. * Able and willing to provide written informed consent to be screened for and enrolled in MATRIX-002 in one of the study languages. * Able and willing to provide adequate contact/locator information. * Able and willing to comply with all protocol requirements, including: * Abstaining from all receptive sexual intercourse (vaginal, anal, digital, oral) for the first month of product use. * Abstaining from using other intravaginal products for the first month of product use. * Abstaining from engaging in intravaginal practices for the first month of product use. * Refraining from participation in other research studies for the duration of the

study unless approved by the Protocol Safety Review Team.

Health status

Not provided

Study type

Interventional (clinical trial)

Enrollment

100

Allocation

Randomized

Intervention model

Parallel Assignment

Intervention model description

Not provided

Masking

Open label

Masking description

Not provided

Frequency of administration

Monthly

Studied LA-formulation(s)

Non-Implantable Device

Studied route(s) of administration

Topical (Vaginal)

Use case

PrEP

Key resources

Not provided

FACE

Identifier

NCT01231763

Link

https://clinicaltrials.gov/study/NCT01231763

Phase

Not provided

Status

Completed

Sponsor

University of Pittsburgh

More details

This study is being done to find out what women would want in a film vaginal product for human immunodeficiency virus (HIV) prevention, especially what it should look like and how to apply it. The investigators hypothesize that women will prefer a smooth, clear, and rectangular quick-dissolve vaginal film for HIV prevention over a textured, opaque, square quick-dissolve vaginal film.

Purpose

Acceptability Study of Vaginal Films for HIV Prevention

Interventions

Intervention 1

No intervention (not applicable)

Countries

United States of America

Sites / Institutions

Not provided

Trials dates

Anticipated Start Date

Not provided

Actual Start Date

2010-11-01

Anticipated Date of Last Follow-up

2011-02-08

Estimated Primary Completion Date

Not provided

Estimated Completion Date

Not provided

Actual Primary Completion Date

2011-02-01

Actual Completion Date

2011-02-01

Studied populations

Age Cohort

- Adults
- Older Adults

Genders

- Female
- Cisgender female

Accepts pregnant individuals

No

Accepts lactating individuals

No

Accepts healthy individuals

Unspecified

Comments about the studied populations

Not provided

Health status

Not provided

Study type

Not provided

Enrollment

84

Allocation

Not provided

Intervention model

Not provided

Intervention model description

Not provided

Masking

Not provided

Masking description

Not provided

Frequency of administration

Not provided

Studied LA-formulation(s)

Not provided

Studied route(s) of administration

Not provided

Use case

Not provided

Key resources

Not provided

FAME101

Identifier

NCT03537092

Link

https://clinicaltrials.gov/study/NCT03537092

Phase

Phase I

Status

Completed

Sponsor

Katherine Bunge

More details

This is a phase I randomized trial assessing the safety of a single vaginal placebo film application. In order to develop a vaginal film which can provide extended release of an Antiretroviral (ARV), the film polymers and formulation have been altered from the cellulose and polyvinyl alcohol films used to deliver dapivirine and tenofovir in previous trials. Therefore, the proposed study will evaluate the safety and persistence of these film polymers when applied vaginally.

Purpose

A Study of the Safety and Acceptability of a Placebo Vaginal Film: FAME101

Interventions

Intervention 1

Vaginal Film

Countries

United States of America

Sites / Institutions

Not provided

Trials dates

Anticipated Start Date

Not provided

Actual Start Date

2018-05-22

Anticipated Date of Last Follow-up

2020-01-08

Estimated Primary Completion Date

Not provided

Estimated Completion Date

Not provided

Actual Primary Completion Date

2018-12-04

Actual Completion Date

2018-12-04

Studied populations

Age Cohort

- Adults

Genders

- Female

Accepts pregnant individuals

Unspecified

Accepts lactating individuals

Unspecified

Accepts healthy individuals

Yes

Comments about the studied populations

Inclusion Criteria: Women must meet all the following criteria to be eligible for inclusion in the study: 1. Age 18 through 45 years (inclusive) at screening 2. Able and willing to provide written informed consent to be screened for and to take part in the study. 3. Able and willing to provide adequate locator information 4. HIV-uninfected based on testing performed by study staff at screening (per algorithm in Appendix II) 5. In general good health as determined by the site clinician 6. Agree to be sexually abstinent for 48 hours prior to each visit and from Visit 2 to Visit 3 7. At screening, agrees to abstain from any other intravaginal product or penetration (including sex toys, excluding tampons) for 48 hours prior to each visit and between Visit 2 and 3.

Health status

Not provided

Study type

Interventional (clinical trial)

Enrollment

64

Allocation

Not provided

Intervention model

Single group assignment

Intervention model description

Not provided

Masking

Open label

Masking description

Not provided

Frequency of administration

Monthly

Studied LA-formulation(s)

Non-Implantable Device

Studied route(s) of administration

Topical (Vaginal)

Use case

PrEP

Key resources

Not provided

FLAG

Identifier

NCT02908503

Link

https://clinicaltrials.gov/study/NCT02908503

Phase

Not provided

Status

Completed

Sponsor

University of Pittsburgh

More details

The purpose of this study is to evaluate use of four different vaginal films - two sizes and two textures. The vaginal films have no active ingredients or medications. Information will be gathered about each film (i.e. ease of insertion, proper placement, opinions about each). The results of this study will help investigators determine which type of vaginal film to use (and how to write product instructions) for future studies.

Purpose

Vaginal Film Administration and Placement Study: FLAG

Interventions

Intervention 1

Placebo Film

Countries

United States of America

Sites / Institutions

Not provided

Trials dates

Anticipated Start Date

Not provided

Actual Start Date

2016-07-01

Anticipated Date of Last Follow-up

2018-07-03

Estimated Primary Completion Date

Not provided

Estimated Completion Date

Not provided

Actual Primary Completion Date

2017-02-14

Actual Completion Date

2017-02-14

Studied populations

Age Cohort

- Adults

Genders

- Female

Accepts pregnant individuals

Unspecified

Accepts lactating individuals

Unspecified

Accepts healthy individuals

Yes

Comments about the studied populations

Inclusion Criteria: 1. Female, Age 18-40 2. Able and willing to provide written informed consent to be screened for and enrolled in the study. 3. Able and willing to provide adequate locator information at screening. 4. HIV-uninfected based on documented testing performed in the previous 6 months or by study staff at screening. 5. In general good health as determined by the site clinician 6. Agree to abstain from any intravaginal or rectal product or device or penetration (including vaginal, anal, or oral sex, masturbation, or sex toys) between each film insertion and the collection of the CVL approximately 24 hours later. Agree to be sexually abstinent for 48 hours prior to the study visits (from enrollment to visit 10). Sexual activity in the 48 hours prior to screening is acceptable.

Health status

Not provided

Study type

Interventional (clinical trial)

Enrollment

32

Allocation

Randomized

Intervention model

Cross-over assignment

Intervention model description

Not provided

Masking

Open label

Masking description

Not provided

Frequency of administration

Monthly

Studied LA-formulation(s)

Non-Implantable Device

Studied route(s) of administration

Topical (Vaginal)

Use case

PrEP

Key resources

Not provided

FAME103B

Identifier

NCT04391036

Link

https://clinicaltrials.gov/study/NCT04391036

Phase

Not provided

Status

Completed

Sponsor

Katherine Bunge

More details

This is a double-blinded crossover study to evaluate whether Eudragit® content impacts the ability to self-insert placebo vaginal films. Thirty women will self-insert one high and and one low Eudragit® content film. The insertion order will be randomized in a 1:1 ratio. After inserting each film, participants will complete a survey reporting their perceptions and experience. The primary endpoint is successful insertion defined as all of the film inside the vagina upon visual assessment by a study clinician. Secondary outcomes include preference for the low level or high level Eudragit® formulation film with respect to insertion and participants' description of identified challenges.

Purpose

Randomized Cross-Over Study of Self-Insertion of Two Placebo Vaginal Film Formulations

Interventions

Intervention 1

High Eudragit® Content Vaginal Film

Intervention 2

Low Eudragit® Content Vaginal Film

Countries

Not provided

Sites / Institutions

Not provided

Trials dates

Anticipated Start Date

Not provided

Actual Start Date

2020-07-14

Anticipated Date of Last Follow-up

2022-02-02

Estimated Primary Completion Date

Not provided

Estimated Completion Date

Not provided

Actual Primary Completion Date

2020-10-26

Actual Completion Date

2020-10-26

Studied populations

Age Cohort

- Adults

Genders

- Female

Accepts pregnant individuals

Unspecified

Accepts lactating individuals

Unspecified

Accepts healthy individuals

Yes

Comments about the studied populations

Inclusion Criteria: * Ages 18-45 * Intact uterus by participant report * Agrees to abstain from inserting anything into the vagina for 24 hours prior to the study visit Exclusion Criteria: * Menopausal (as defined as amenorrhea for one year or more without an alternative etiology) * Hysterectomy (including total and supracervical) * Currently pregnant or pregnancy within 90 days of enrollment * Lactating * Symptoms of a urogenital infection including vaginal discharge, pain, odor, or itching * Menses at the time of enrollment * Known allergy or hypersensitivity to any of the components of the placebo film * Any condition that, in the opinion of the Investigator, would preclude provision of consent, make participation in the study unsafe, complicate interpretation of study outcome data,

Health status

Not provided

Study type

Interventional (clinical trial)

Enrollment

30

Allocation

Randomized

Intervention model

Cross-over assignment

Intervention model description

Not provided

Masking

Triple-blind masking

Masking description

Not provided

Frequency of administration

Monthly

Studied LA-formulation(s)

Non-Implantable Device

Studied route(s) of administration

Topical (Vaginal)

Use case

PrEP

Key resources

Not provided

FAME103

Identifier

NCT04319718

Link

https://clinicaltrials.gov/study/NCT04319718

Phase

Phase I

Status

Completed

Sponsor

Hillier, Sharon, PhD

More details

This is a proof of concept study to determine whether an extended release vaginal film can deliver drug for seven days. Two film formulations containing MK-2048 which differ by dissolution and spreadability attributes will be compared for safety and pharmacokinetic outcomes.

Purpose

Safety and Pharmacokinetics of Two Vaginal Film Formulations Containing the Integrase Inhibitor MK-2048

Interventions

Intervention 1

MK-2048 High Eudragit Vaginal Film

Intervention 2

MK-2048 Low Eudragit Vaginal Film

Countries

Not provided

Sites / Institutions

Not provided

Trials dates

Anticipated Start Date

Not provided

Actual Start Date

2020-08-19

Anticipated Date of Last Follow-up

2023-03-01

Estimated Primary Completion Date

Not provided

Estimated Completion Date

Not provided

Actual Primary Completion Date

2022-02-25

Actual Completion Date

2022-10-10

Studied populations

Age Cohort

Adults

Genders

- Female

Accepts pregnant individuals

Unspecified

Accepts lactating individuals

Unspecified

Accepts healthy individuals

Yes

Comments about the studied populations

Inclusion Criteria: * Able and willing to provide written informed consent. * Willing to use an effective method of birth control throughout the duration of the study. Examples of effective methods include: hormonal methods (other than NuvaRing®), intrauterine device, bilateral tubal ligation, same sex partner, partner with a vasectomy, abstinence (defined as no vaginal sex for one month prior to screening). * Able and willing to provide adequate locator information * HIV-uninfected based on testing performed by study staff at screening * In general good health as determined by the site clinician * Agree to be sexually abstinent, including use of sex toys, from visit 2 (Enrollment) until visit 7 (7 days after the biopsy visit) and 48 hours prior to all study visits.

Health status

Not provided

Study type

Interventional (clinical trial)

Enrollment

37

Allocation

Randomized

Intervention model

Parallel Assignment

Intervention model description

Not provided

Masking

Quadruple-blind masking

Masking description

Not provided

Frequency of administration

Monthly

Studied LA-formulation(s)

Non-Implantable Device

Studied route(s) of administration

Topical (Vaginal)

Use case

PrEP

Key resources

Not provided

FAME 02

Identifier

NCT01548560

Link

https://clinicaltrials.gov/study/NCT01548560

Phase

Phase I

Status

Completed

Sponsor

International Partnership for Microbicides, Inc.

More details

This is a study to determine the safety of dapivirine gel and dapvirine film for healthy, HIV-uninfected women aged 18-45 years using the product for 7 daily doses.

Purpose

Assessing the Safety of Dapivirine Gel and Film Formulations

Interventions

Intervention 1
Dapivirine Vaginal Film

Intervention 2
Dapivirine Vaginal Gel

Countries

Not provided

Sites / Institutions

Not provided

Trials dates

Anticipated Start Date

Not provided

Actual Start Date

2012-08-01

Anticipated Date of Last Follow-up

2017-09-05

Estimated Primary Completion Date

Not provided

Estimated Completion Date

Not provided

Actual Primary Completion Date

2014-02-01

Actual Completion Date

2014-02-01

Studied populations

Age Cohort

- Adults

Genders

- Female

Accepts pregnant individuals

Unspecified

Accepts lactating individuals

Unspecified

Accepts healthy individuals

Yes

Comments about the studied populations

Inclusion Criteria: * Age 18 through 45 years (inclusive) at screening * Able and willing to provide written informed consent to be screened for and to take part in the study. * Able and willing to provide adequate locator information * HIV-uninfected based on testing performed by study staff at screening (per algorithm in Appendices I) * Per participant report, using an effective method of contraception at enrollment; hormonal method (except vaginal ring) used continuously for the past 30 days; intrauterine device (IUD inserted at least 30 days prior to enrollment); female sterilization; abstinent from sexual activity with male partner for the past 30 days; or sexual activity with vasectomized partner; and willingness to use effective method of contraception until the completion of final.

Health status

Not provided

Study type

Interventional (clinical trial)

Enrollment

60

Allocation

Randomized

Intervention model

Parallel Assignment

Intervention model description

Not provided

Masking

Double-blind masking

Masking description

Not provided

Frequency of administration

Monthly

Studied LA-formulation(s)

Non-Implantable Device

Studied route(s) of administration

Topical (Vaginal)

Use case

PrEP

Key resources

Not provided

FAME-02B

Identifier

NCT01924091

Link

https://clinicaltrials.gov/study/NCT01924091

Phase

Phase I

Status

Completed

Sponsor

International Partnership for Microbicides, Inc.

More details

To compare drug concentrations in vaginal fluid, genital tissue, and blood

Purpose

PK/PD of Single Dose Dapivirine Vaginal Film

Interventions

Intervention 1

Dapivirine gel

Intervention 2

Dapivirine film

Countries

Not provided

Sites / Institutions

Not provided

Trials dates

Anticipated Start Date

Not provided

Actual Start Date

2013-09-01

Anticipated Date of Last Follow-up

2017-09-05

Estimated Primary Completion Date

Not provided

Estimated Completion Date

Not provided

Actual Primary Completion Date

2014-09-01

Actual Completion Date

2014-09-01

Studied populations

Age Cohort

- Adults
- Older Adults

Genders

Female

Accepts pregnant individuals

Unspecified

Accepts lactating individuals

Unspecified

Accepts healthy individuals

Yes

Comments about the studied populations

Inclusion Criteria: 1. 18 years of age or older with a history of receptive vaginal intercourse. 2. HIV negative by EIA within 28 days of enrollment. 3. Understand and agree to local STI reporting requirements. 4. Able and willing to provide written informed consent to take part in the study. 5. Able and willing to provide adequate information for locator purposes. 6. Availability to return for all study visits, barring unforeseen circumstances. 7. Availability to return for the second formulation dosing at the same time in the subject's menstrual cycle as when the first formulation was administered, at least 10 days before menses. 8. Willing to abstain from vaginal intercourse and insertion of anything (e.g., drug, vaginal douche, or sex toy) in vagina for 72 hours before each study prod

Health status

Not provided

Study type

Interventional (clinical trial)

Enrollment

60

Allocation

Randomized

Intervention model

Cross-over assignment

Intervention model description

Not provided

Masking

Double-blind masking

Masking description

Not provided

Frequency of administration

Monthly

Studied LA-formulation(s)

Non-Implantable Device

Studied route(s) of administration

Topical (Vaginal)

Use case

PrEP

Key resources

Not provided

DAIDS-ES #12015

Identifier

NCT02280109

Link

https://clinicaltrials.gov/study/NCT02280109

Phase

Phase I

Status

Completed

Sponsor

CONRAD

More details

Not provided

Purpose

Basic Science

Interventions

Intervention 1

Tenofovir Gel

Intervention 2

Tenofovir Film

Countries

United States of America

Sites / Institutions

Not provided

Trials dates

Anticipated Start Date

Not provided

Actual Start Date

2014-11-01

Anticipated Date of Last Follow-up

Not provided

Estimated Primary Completion Date

Not provided

Estimated Completion Date

Not provided

Actual Primary Completion Date

2015-12-01

Actual Completion Date

Not provided

Studied populations

Age Cohort

- Adults
- Older Adults

Genders

Female

- Cisgender female

Accepts pregnant individuals

Unspecified

Accepts lactating individuals

Unspecified

Accepts healthy individuals

Unspecified

Comments about the studied populations

Not provided

Health status

Not provided

Study type

Interventional (clinical trial)

Enrollment

10

Allocation

Randomized

Intervention model

Cross-over assignment

Intervention model description

Not provided

Masking

Open label

Masking description

Not provided

Frequency of administration

Monthly

Studied LA-formulation(s)

Non-Implantable Device

Studied route(s) of administration

Topical (Vaginal)

Use case

Not provided

Key resources

Not provided

FAME 04

Identifier

NCT01989663

Link

https://clinicaltrials.gov/study/NCT01989663

Phase

Phase I

Status

Completed

Sponsor

CONRAD

More details

This is a Phase I, five arm, single site, randomized, double blind placebo-controlled trial assessing the safety of tenofovir vaginal gel and film formulations. HIV negative women will be randomized to gel or film, tenofovir or placebo. This study will provide additional information in the evaluation of vaginal films containing microbial agents in humans. In addition to safety, the efficacy of these formulations against HIV in an ex vivo biopsy challenge model will be compared. This study is the first study assessing the safety of tenofovir film in humans. Tenofovir film is formulated in a cellulose based vaginal film containing hydroxypropyl methyl cellulose (HPMC) E5 (5 cp), hydroxyethyl cellulose (HEC), Sodium Carboxymethylcellulose (NaCMC), and glycerin. The excipients of the film hav

Purpose

A Phase I Trial to Assess the Safety of Tenofovir Gel and Film Formulations: FAME 04

Interventions

Intervention 1

1% vaginally applied tenofovir gel

Intervention 2

Tenofovir film- 10mg

Intervention 3

Tenofovir Film-40 mg

Intervention 4

HEC Placebo Gel

Intervention 5

Placebo Vaginal Film

Countries

United States of America

Sites / Institutions

Not provided

Trials dates

Anticipated Start Date

Not provided

Actual Start Date

2013-11-01

Anticipated Date of Last Follow-up

2016-07-26

Estimated Primary Completion Date

Not provided

Estimated Completion Date

Not provided

Actual Primary Completion Date

2015-01-01

Actual Completion Date

2015-01-01

Studied populations

Age Cohort

- Adults

Genders

- Female

Accepts pregnant individuals

Unspecified

Accepts lactating individuals

Unspecified

Accepts healthy individuals

Yes

Comments about the studied populations

Inclusion Criteria: Women must meet all of the following criteria to be eligible for inclusion in the study: 1. Age 18 through 45 years (inclusive) at screening 2. Able and willing to provide written informed consent to be screened for and enrolled in the study. 3. Able and willing to provide adequate locator information at screening. 4. HIV-uninfected based on testing performed by study staff at screening (per algorithm in Appendices I) 5. In general good health as determined by the site clinician 6. Agree to

abstain from any intravaginal or rectal product or device or penetration (including vaginal, anal, or oral sex, masturbation, or sex toys) from 7 days prior to Visit 2 (Enrollment Visit) until 7 days after the completion of Visit 3.

Health status

Not provided

Study type

Interventional (clinical trial)

Enrollment

78

Allocation

Randomized

Intervention model

Parallel Assignment

Intervention model description

Not provided

Masking

Quadruple-blind masking

Masking description

Not provided

Frequency of administration

Monthly

Studied LA-formulation(s)

Non-Implantable Device

Studied route(s) of administration

Topical (Vaginal)

Use case

PrEP

Key resources

Not provided

Quatro

Identifier

NCT02602366

Link

https://clinicaltrials.gov/study/NCT02602366

Phase

Not provided

Status

Completed

Sponsor

CONRAD

More details

The purpose of The Quatro Study is to assess the acceptability, preferences, user experience and effect on sexual behavior of four different vaginal microbicide or multi-purpose technology (MPT) delivery forms, using placebo products in 18-30 year old African women: rapidly disintegrating vaginal insert, intravaginal ring (IVR), film and gel. The study also examines adherence to the dosage forms through objective markers, developed for each dosage form prior to the commencement of the study.

Purpose

The Quatro Study: Acceptability Study of (Placebo) Vaginal Delivery Forms for Preventing HIV and Unintended Pregnancy

Interventions

Intervention 1

HEC Placebo Gel

Intervention 2

Placebo Vaginal Insert

Intervention 3

Placebo Vaginal Film

Intervention 4

Placebo Intravaginal ring (IVR)

Countries

South Africa

Zimbabwe

Sites / Institutions

Not provided

Trials dates

Anticipated Start Date

Not provided

Actual Start Date

2016-06-06

Anticipated Date of Last Follow-up

2018-05-15

Estimated Primary Completion Date

Not provided

Estimated Completion Date

Not provided

Actual Primary Completion Date

2017-06-30

Actual Completion Date

2017-09-30

Studied populations

Age Cohort

- Adults

Genders

- Female

Accepts pregnant individuals

Unspecified

Accepts lactating individuals

Unspecified

Accepts healthy individuals

Yes

Comments about the studied populations

Inclusion Criteria: * Age 18-30 * In good health, as determined by the site Investigator or designee based on clinical history * Willing and able to comply with study procedures and attend monthly follow-up visits * Willing and able to provide informed consent * Fluent in one of the languages being used in the study (English, Shona or Zulu) * Not intending to travel or move out of the research catchment area for the next 6 months * Sexually active defined by vaginal intercourse with a male at least 4 times per month in the past 3 months and plan to be sexually active during the study duration Exclusion Criteria: * HIV positive * Pregnant, or intention to become pregnant during the clinical study * Prior participation in any HIV-prevention or MPT product demonstration study.

Health status

Not provided

Study type

Interventional (clinical trial)

Enrollment

422

Allocation

Randomized

Intervention model

Cross-over assignment

Intervention model description

Not provided

Masking

Open label

Masking description

Not provided

Frequency of administration

Monthly

Studied LA-formulation(s)

Non-Implantable Device

Studied route(s) of administration

Topical (Vaginal)

Use case

PrEP

Key resources

Not provided

D15-135

Identifier

NCT02569697

Link

https://clinicaltrials.gov/study/NCT02569697

Phase

Phase I

Status

Completed

Sponsor

CONRAD

More details

The purpose of this study is to develop markers for use of placebo vaginal products and measure markers of mucosal semen exposure among healthy women. The study will also monitor safety of placebo product use.

Purpose

Development of Adherence Biomarkers for Multiple Microbicide and Multipurpose Prevention Technology (MPT) Dosage Forms

Interventions

Intervention 1

HEC Placebo gel

Intervention 2

Placebo Intravaginal Ring

Intervention 3

Placebo Vaginal Film

Intervention 4

Placebo Vaginal Insert

Countries

United States of America

Sites / Institutions

Not provided

Trials dates

Anticipated Start Date

Not provided

Actual Start Date

2015-10-01

Anticipated Date of Last Follow-up

2016-09-01

Estimated Primary Completion Date

Not provided

Estimated Completion Date

Not provided

Actual Primary Completion Date

2016-05-01

Actual Completion Date

2016-05-01

Studied populations

Age Cohort

- Adults

Genders

- Female

Accepts pregnant individuals

Unspecified

Accepts lactating individuals

Unspecified

Accepts healthy individuals

Yes

Comments about the studied populations

Volunteers must meet all of the following criteria prior to genital sampling at Visit 2: * Age 18 to 50 years, inclusive * General good health (by volunteer history and per investigator judgment) without any clinically significant systemic disease (including, but not limited to significant liver disease/hepatitis, gastrointestinal disease, kidney disease, thyroid disease, osteoporosis or bone disease, and diabetes) * History of Pap smears and follow-up consistent with standard medical practice as outlined in the Study Manual or willing to undergo a Pap smear at V1 * Willing to give voluntary consent and sign an informed consent form * Willing and able to comply with protocol requirements * Protected from pregnancy by: * hysterectomy * reliable methods of contraception other than male.

Health status

Not provided

Study type

Interventional (clinical trial)

Enrollment

50

Allocation

Not provided

Intervention model

Cross-over assignment

Intervention model description

Not provided

Masking

Open label

Masking description

Not provided

Frequency of administration

Monthly

Studied LA-formulation(s)

Non-Implantable Device

Studied route(s) of administration

Topical (Vaginal)

Use case

PrEP

Key resources

Not provided

A15-140

Identifier

NCT02722343

Link

https://clinicaltrials.gov/study/NCT02722343

Phase

Phase I

Status

Completed

Sponsor

CONRAD

More details

This single site study is designed to describe and measure the efficacy of oral versus vaginal dosing of TFV-based products, specifically emtricitabine/tenofovir disoproxil fumarate oral tablets (Truvada) vs tenofovir intravaginal rings (IVR).

Purpose

Exploratory Pharmacodynamic Study of Tenofovir-Based Products

Interventions

Intervention 1

Tenofovir intravaginal ring

Intervention 2

Truvada

Countries

Not provided

Sites / Institutions

Not provided

Trials dates

Anticipated Start Date

Not provided

Actual Start Date

2016-04-01

Anticipated Date of Last Follow-up

2016-09-01

Estimated Primary Completion Date

Not provided

Estimated Completion Date

Not provided

Actual Primary Completion Date

2016-08-01

Actual Completion Date

2016-08-01

Studied populations

Age Cohort

- Adults

Genders

Female

Accepts pregnant individuals

Unspecified

Accepts lactating individuals

Unspecified

Accepts healthy individuals

Yes

Comments about the studied populations

Inclusion Criteria: * General good health (by volunteer history and per investigator judgment) without any clinically significant systemic disease (including, but not limited to significant liver disease/hepatitis, gastrointestinal disease, kidney disease, thyroid disease, osteoporosis or bone disease, and diabetes) and with an intact gastrointestinal tract, uterus and cervix * Currently have regular menstrual cycles of 21-35 days by participant record * Willing to abstain from vaginal intercourse and any other vaginal activity including use of vaginal products (tampons, spermicides, lubricants, and douches) other than study products: * 48 hours before Visit 2 until six days after Visit 2 * 48 hours before Visit 3 until six days after Visit 4

Health status

Not provided

Study type

Interventional (clinical trial)

Enrollment

25

Allocation

Randomized

Intervention model

Parallel Assignment

Intervention model description

Not provided

Masking

Open label

Masking description

Not provided

Frequency of administration

Monthly

Studied LA-formulation(s)

Non-Implantable Device

Studied route(s) of administration

Topical (Vaginal)

Use case

PrEP

Key resources

Not provided

Excipients

Proprietary excipients used

No proprietary excipient used

Novel excipients or existing excipients at a concentration above Inactive Ingredients Database (IID) for the specified route of administration

No novel excipient or existing excipient used

Residual solvents used

No residual solvent used

Additional features

Other features of the technology

- Biodegradable
- Drug-eluting
- Non-removable
- Reservoir-type
- Room temperature storage

Release properties

Preclinical data indicate sufficient dissolution and drug release properties for a range of antiretroviral agents within the film matrix. Notably, a single-dose study of a 40 mg tenofovir (TFV) film demonstrated superior TFV delivery compared to the TFV vaginal gel formulation. Plasma and cervicovaginal fluid TFV concentrations were elevated on day 1 following TFV film administration compared to the gel, though levels converged by days 3 and 7 days later.

Injectability

Not applicable

Safety

A Phase 1 clinical trial involving 78 healthy volunteers demonstrated that 91% of participants experienced solely Grade 1 adverse events (AEs). These AEs were evenly distributed across both the film tenofovir treatment and film placebo control groups, indicating a favourable safety and tolerability profile for the film formulation. Nevertheless, adherence challenges were reported by 50% of the study population.

Stability

A six-month accelerated stability test was conducted at 40°C to evaluate the integrity of vaginal films produced via hot melt extrusion. The results demonstrated that the weight of the films remained stable over the testing period. Variability in water content and puncture strength was found to be insignificant, indicating robust physical properties. The films with tenofovir showed good compatibility with various strains of lactobacilli as well.

Storage conditions and cold-chain related features

Preclinical stability studies demonstrated no loss of API from vaginal films stored at 30, 40, and 50°C for 14 days. However, further investigation of storage conditions is warranted to establish long-term stability at cold storage conditions.

Potential application(s)

Therapeutic area(s)

Contraception

HIV

Use case(s)

Pre-Exposure Prophylaxis (PrEP)

Use of technology

Ease of administration

- Self-administered

Frequency of administration

Monthly

User acceptance

Not provided

Targeted user groups

Age Cohort

- Adults
- Older Adults

Genders

- Female
- Cisgender female
- Transgender female

Pregnant individuals

No

Lactating individuals

Unspecified

Healthy individuals

Unspecified

Comment

Not provided

Potential associated API(s)

Dapivirine (DPV)

Class(es)

Antiretroviral agent

Development stage

Phase I

Clinical trial number(s)

NCT06046053

Foreseen/approved indication(s)

HIV

Foreseen user group

Not provided

Foreseen duration between application(s)

Once monthly

Applications to Stringent Regulatory Authorities (SRA) / regulatory approvals

Not provided

Levonorgestrel (LNG)

Class(es)

Synthetic progestin

Development stage

Phase I

Clinical trial number(s)

Not provided

Foreseen/approved indication(s)

Contraception and HIV prevention

Foreseen user group

18-50 years women

Foreseen duration between application(s)

Once monthly

Applications to Stringent Regulatory Authorities (SRA) / regulatory approvals

Not provided

Patent info

Description

Vaginal Films

Brief description

Provided herein are stable, dissolvable films containing active ingredients, such as antimicrobial composition, antiviral compositions, or anti-retroviral compositions for intravaginal or intrarectal placement to provide prophylaxis against viral infections.

Representative patent

US20240099986A1

Category

Device

Patent holder

University of Pittsburgh

Exclusivity

Not provided

Expiration date

September 13, 2043

Status

Granted

Description

Hot melt extrusion for pharmaceutical vaginal film products

Brief description

Hot melt extrusion is disclosed as a process for forming vaginal drug delivery films. The methods involve extruding a composition comprising one or more active pharmaceutical ingredients and one or more polymer carriers at an elevated temperature through a die to thereby provide the film. Films prepared by hot melt extrusion are also described.

Representative patent

US20230346693A1

Category

Manufacturing Process

Patent holder

University of Pittsburgh

Exclusivity

Not provided

Expiration date

May 3, 2043

Status

Granted

Supporting material

Publications

** Bunge, K. E., Dezzutti, C. S., Hendrix, C. W., Marzinke, M. A., Spiegel, H. M. L., Moncla, B. J., Schwartz, J. L., Meyn, L. A., Richardson-Harman, N., Rohan, L. C., & Hillier, S. L. (2018). FAME-04: A Phase 1 trial to assess the safety, acceptability, pharmacokinetics and pharmacodynamics of film and gel formulations of tenofovir. Journal of the International AIDS Society, 21(8), e25156. https://doi.org/10.1002/jia2.25156 **

Introduction: Fast-dissolving vaginal film formulations release antiretroviral drugs directly into vaginal fluid and may be as efficient at drug delivery yet more acceptable to women than gels. In this Phase 1 vaginal film study, the safety, acceptability, pharmacokinetics and pharmacodynamics of two doses of tenofovir (TFV) film and TFV 1% gel were compared to corresponding placebo formulations.

Methods: Seventy-eight healthy HIV negative women were randomized to self-insert daily vaginal film (10 mg TFV, 40 mg TFV or placebo) or 4 mL of vaginal gel (TFV 1% [40 mg] or placebo) for seven days. Grade 2 and higher adverse events (AEs) related to study product were compared across study arms using Fisher's exact test. Plasma TFV concentrations were measured before and 2 hours after last product use. Paired cervical and vaginal tissue biopsies obtained 2 hours after the last dose were measured to determine tenofovir diphosphate (TFV-DP) concentrations and exposed to HIV in an ex vivo challenge assay. Acceptability was assessed through questionnaire.

Results: There was only one grade 2 or higher related AE, the primary endpoint; it occurred in the placebo gel arm. AEs occurred in 90% of participants; the majority (91%) were grade 1. AEs were similar across study arms. TFV concentrations in plasma and TFV-DP concentrations in cervical and vaginal tissues were comparable between

40 mg TFV film and the TFV gel groups. There was a significant relationship between reduced viral replication and TFV-DP concentrations in cervical tissues. Film users were less likely to report product leakage than gel users (66% vs. 100%, $p < 0.001$).

Conclusions: Films were safe and well tolerated. Furthermore, films delivered TFV to mucosal tissues at concentrations similar to gel and were sufficient to block HIV infection of genital tissue ex vivo.

** Fan, M. D., Kramzer, L. F., Hillier, S. L., Chang, J. C., Meyn, L. A., & Rohan, L. C. (2017). Preferred Physical Characteristics of Vaginal Film Microbicides for HIV Prevention in Pittsburgh Women. Archives of sexual behavior, 46(4), 1111–1119. https://doi.org/10.1007/s10508-016-0816-1 **

Unprotected heterosexual intercourse is the leading cause of HIV acquisition in women. Due to the complex nature of correct and consistent condom use by both men and women, developing alternative female-controlled HIV prevention options is a global health priority. Vaginal films containing antiretroviral drugs are a potential delivery system for the prevention of HIV acquisition through sexual contact. In this study, we explored women's preferences regarding physical characteristics of microbicide vaginal films through questionnaires and focus groups. Eighty-four sexually active, ethnically diverse women 18-30 years of age from Pittsburgh, Pennsylvania, participated in the study. Women visually and manually examined a variety of vaginal films, as well as three other vaginal products undergoing evaluation for HIV prevention: tablet, ring, and gel. Means and standard deviations or frequencies and 95 % confidence intervals were calculated for questionnaire data. Focus groups were audio-recorded, transcribed verbatim, and coded for content analysis. Women most frequently preferred vaginal films to be smooth and thin (63 %), translucent (48 %), and 2″ × 2″ square size (36 %). Driving these preferences were five major themes: ease and accuracy of use, desire for efficacy, discretion, intravaginal comfort and

minimal impact, and minimizing disruption of sexual mood/activities. Women's preferences for various microbicide vaginal film physical attributes represented a balance of multiple values. In general, women desired a comfortable, efficacious, easy to use, and minimally intrusive product.

** Robinson JA, Marzinke MA, Fuchs EJ, Bakshi RP, Spiegel HML, Coleman JS, Rohan LC, Hendrix CW. Comparison of the Pharmacokinetics and Pharmacodynamics of Single-Dose Tenofovir Vaginal Film and Gel Formulation (FAME 05). J Acquir Immune Defic Syndr. 2018 Feb 1;77(2):175-182. doi: 10.1097/QAI.0000000000001587. PMID: 29135651; PMCID: PMC5821271. **

While pre-exposure prophylaxis with oral tenofovir (TFV) disoproxil fumarate/emtricitabine reduces HIV acquisition rates, poor adherence to and acceptability of daily vaginal gels has led to development of vaginal film formulations to improve adherence and, potentially, enable episodic use

In this two-arm, cross-over study of a fast-dissolving tenofovir film (40 mg) compared to a previously studied semisolid tenofovir 1% gel (40 mg), 10 healthy women received a single vaginal dose of each study product. Clinical, pharmacokinetic, and antiviral assessments were performed over one week post-dose. Nine of 10 participants experienced mild to moderate adverse effects, similar between products, with no severe adverse events or events attributed to study products. TFV concentrations after film dosing exceeded concentrations after gel dosing in plasma between 8 and 24 hours ($p \leq 0.02$). TFV concentrations in cervicovaginal fluid and both TFV and TFV diphosphate concentrations in cervical tissue homogenates were higher following film dosing (all p values < 0.04). The differences ranged from median (interquartile range) 2.9-fold (1.1, 9.0; midvaginal cervicovaginal fluid) to 4.4-fold (2.9, 7.7; plasma). Neither film nor gel demonstrated reduced cervical tissue biopsy infectivity after ex vivo HIV challenge. Single dose tenofovir film demonstrated consistently higher concentrations in plasma and cervicovaginal samples when compared to gel during the

first day following dosing. Single dose cervical tissue TFV-DP concentrations at 5 hours exceeded steady-state concentrations previously reported with daily oral Truvada® dosing. Tenofovir film may provide an alternative to tenofovir oral and gel formulations. Clinical efficacy remains to be tested.

Additional documents

No documents were uploaded

Useful links

There are no additional links

Access principles

Collaborate for development

Consider on a case by case basis, collaborating on developing long acting products with potential significant public health impact, especially for low- and middle-income countries (LMICs), utilising the referred to long-acting technology

Not provided

Share technical information for match-making assessment

Provide necessary technical information to a potential partner, under confidentiality agreement, to enable preliminary assessment of whether specific medicines of public health importance in LMICs might be compatible with the referred to long-acting technology to achieve a public health benefit

Not provided

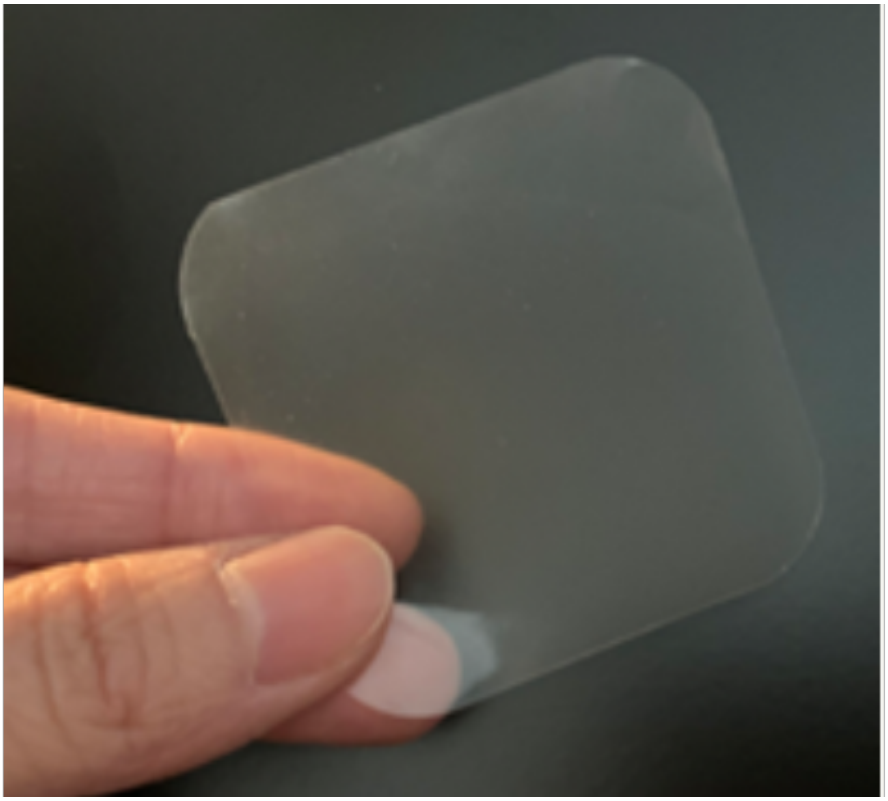
Work with MPP to expand access in LMICs

In the event that a product using the referred to long-acting technology is successfully developed, the technology IP holder(s) will work with the Medicines Patent Pool towards putting in place the most appropriate strategy for timely and affordable access in low and middle-income countries, including through licensing

Not provided

Comment & Information

Illustrations



Matrix Monthly Dapivirine and Levonorgestrel Dual-Purpose Vaginal Film

Matrix4prevention. (n.d.). Monthly dapivirine and levonorgestrel dual-purpose vaginal film. Matrix4prevention. https://www.matrix4prevention.org/products/monthly-dapivirine-and-levonorgestrel-dual-pur