# Investigating anti-inflammatory effects of topical antibiotics in an LPS skin challenge model

Published: 27-09-2018
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To assess the immunomodulatory effects of erythromycin and clindamycin in healthy volunteers.

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|---|---|
| **Ethical review** | Approved WMO |
| **Status** | Recruitment stopped |
| **Health condition type** | Epidermal and dermal conditions |
| **Study type** | Observational invasive |

## Summary

### ID

NL-OMON46315

**Source**
ToetsingOnline

**Brief title**
Intradermal LPS and antibiotics

### Condition

- Epidermal and dermal conditions

**Synonym**
Skin inlammation

**Research involving**
Human

### Sponsors and support

**Primary sponsor:** Centre for Human Drug Research
**Source(s) of monetary or material Support:** Clinical Research Organization,Cutanea Life Sciences

## Intervention

**Keyword:** Antibiotics, LPS, Skin inflammation

## Outcome measures

### Primary outcome

Tolerability / safety endpoints

*Monitoring Adverse events (AEs)

* Monitoring BP, HR and T

*Local tolerance (Numeric Rating Scale (NRS) pruritus and pain)

*Circulating cytokines (TNF*, IL-6, IL-8, IL-1*), and leukocytes

Pharmacodynamic endpoints

Non-invasive measures:

*Perfusion by Laser speckle contrast imaging (LSCI)

*Erythema by Antera 3D camera / 2D camera

*Erythema by clinical evaluation (erythema grading scale)

*Temperature by thermography

*Skin microbiome

Invasive measures:

Suction blister exudates:

o Cytokines and chemokines (protein, TBD)

o Flow cytometry:

*Neutrophils

*Monocytes/macrophages

*CD4+ lymphocytes

*CD8+ lymphocytes

*CD56+ lymphocytes

*CD1c dendritic cells

### Secondary outcome

NA

## Study description

### Background summary

Convincing mechanistic reports on the immunomodulatory action of erythromyxin and clindamycin are scarce, rarely based on experiments in freshly isolated human immune cells, and potentially contradicting. Moreover, direct immunomodulatory effects of both antibiotics have never been demonstrated in vivo. The CHDR Biomarker lab has studied in depth the immunomodulatory actions of erythromycin and clindamycin in vitro. These in vitro experiments on primary human immune cells demonstrated that both erythromycin and clindamycin are able to modulate the immune response of PBMCs upon stimulation with different immune triggers such as lipopolysaccharide (LPS) and polyI:C. In this current study we will translate the in vitro work to an in vivo study where we make use an intradermal LPS skin challenge model in healthy volunteers.

### Study objective

To assess the immunomodulatory effects of erythromycin and clindamycin in healthy volunteers.

### Study design

An interventional, open-label, comparator controlled study to investigate the immunomodulatory effects of erythromycin and clindamycin in an LPS skin challenge model in healthy volunteers.

### Study burden and risks

Treatment with topical erythromycin, clindamycin is known to be safe and well

tolerated. Both clobetasol propionate and prednisone are known for their side effects when used in a high dose for a longer period, however in this study both products are only used for a limited amount of days (up to 4 days) and therefore no lasting effects are likely to occur. Most flu like symptoms due to the LPS are dose-related and resolved within 2-6 hours. Complications of the blister include infection (rare) and post inflammatory hyperpigmentation. To minimize the risk of post inflammatory hyperpigmentation Fitzpatrick skin types 4-6 are excluded and only healthy males are included in this study.

## Contacts

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## Trial sites

### Listed location countries

Netherlands

## Eligibility criteria

**Age**
Adults (18-64 years)
Elderly (65 years and older)

### Inclusion criteria

1. Healthy male subjects, 18 to 45 years of age, inclusive. Healthy status is defined by absence of evidence of any active or chronic disease following a detailed medical and

surgical history, a complete physical examination including vital signs, 12-lead ECG, hematology, blood chemistry, blood serology and urinalysis;
2. Body mass index (BMI) between 18 and 30 kg/m2, inclusive, and with a minimum weight of 50 kg;
3. Fitzpatrick skin type I-III (Caucasian);
4. Able and willing to give written informed consent and to comply with the study restrictions.
5. Able to work with the eDiary app.

### Exclusion criteria

1. Any disease associated with immune system impairment, including auto-immune diseases, HIV and transplantation patients;
2. Type 1 or type 2 diabetes mellitus;
3. Any vaccination within the last 3 months;
4. Family history of psoriasis;
5. History of pathological scar formation (keloid, hypertrophic scar);
6. Have any current and / or recurrent pathologically, clinical significant skin condition (including tattoos) at the treatment area (i.e. atopic dermatitis);
7. Hypersensitivity for dermatological marker at screening;
8. Requirement of immunosuppressive or immunomodulatory medication within 30 days prior to enrollment or planned to use during the course of the study;
9. Tanning due to sunbathing, excessive sun exposure or a tanning booth within 3 weeks of enrollment;
10. Participation in an investigational drug or device study within 3 months prior to screening or more than 4 times a year;
11. Loss or donation of blood over 500 mL within three months prior to screening. Or the donation of plasma within 14 days prior to screening;
12. Current smoker and/or regular user of other nicotine-containing products (e.g., patches).
13. History of or current drug or substance abuse considered significant by the PI (or medically qualified designee), including a positive urine drug screen.

## Study design

### Design

| | |
|---|---|
| Study type: | Observational invasive |
| Intervention model: | Other |
| Allocation: | Non-randomized controlled trial |
| Masking: | Open (masking not used) |
| Control: | Active |

| | |
|---|---|
| Primary purpose: | Treatment |

## Recruitment

NL

| | |
|---|---|
| Recruitment status: | Recruitment stopped |
| Start date (anticipated): | 12-10-2018 |
| Enrollment: | 30 |
| Type: | Actual |

## Medical products/devices used

| | |
|---|---|
| Product type: | Medicine |
| Brand name: | Clindamycine lotion |
| Generic name: | Clindamycine |
| Registration: | Yes - NL intended use |
| Product type: | Medicine |
| Brand name: | Dermovate ointment |
| Generic name: | Clobetasol |
| Registration: | Yes - NL intended use |
| Product type: | Medicine |
| Brand name: | Erythrogel |
| Generic name: | Erythromycine |
| Registration: | Yes - NL intended use |
| Product type: | Medicine |
| Brand name: | Prednison Apotex |
| Generic name: | Prednison |
| Registration: | Yes - NL intended use |

# Ethics review

Approved WMO

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|---|---|
| Date: | 27-09-2018 |
| Application type: | First submission |
| Review commission: | BEBO: Stichting Beoordeling Ethiek Bio-Medisch Onderzoek (Assen) |

Approved WMO

| | |
|---|---|
| Date: | 11-10-2018 |
| Application type: | First submission |
| Review commission: | BEBO: Stichting Beoordeling Ethiek Bio-Medisch Onderzoek (Assen) |

# Study registrations

## Followed up by the following (possibly more current) registration

No registrations found.

## Other (possibly less up-to-date) registrations in this register

No registrations found.

## In other registers

| Register | ID |
|---|---|
| EudraCT | EUCTR2018-003510-41-NL |
| CCMO | NL67463.056.18 |