

# The role of the microbiota in the systemic immune response

Published: 05-11-2012

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To investigate the role of the gut microbiota in the systemic priming of immune effector cells

|                              |   |
|------------------------------|---|
| <b>Ethical review</b>        | Approved WMO                                      |
| <b>Status</b>                | Recruitment stopped                               |
| <b>Health condition type</b> | Hepatobiliary neoplasms malignant and unspecified |
| <b>Study type</b>            | Interventional                                    |

## Summary

### ID

NL-OMON36859

### Source

ToetsingOnline

### Brief title

MISSION- 1

### Condition

- Hepatobiliary neoplasms malignant and unspecified

### Synonym

sepsis

### Research involving

Human

### Sponsors and support

**Primary sponsor:** Academisch Medisch Centrum

**Source(s) of monetary or material Support:** ZonMw Klinische Fellowship beurs

### Intervention

**Keyword:** antibiotics, gut microbiota, immune response

## Outcome measures

### Primary outcome

Side effects, laboratory parameters for inflammatory responses, functional assays (ex vivo inflammatory responses) and gut microbiota composition

### Secondary outcome

Not applicable

## Study description

### Background summary

Sepsis ranks among the top ten leading causes of death worldwide. Most nonsurvivors die in a state of immunosuppression. The gut microbiota exerts numerous beneficial functions in the host response against infections. Gut flora components express microorganism-associated molecular patterns (MAMPs) such as lipopolysaccharide (LPS), which are recognized by pattern recognition receptors (PRRs) expressed by neutrophils and macrophages. MAMPs from the intestinal microbiota constitutively translocate to the circulation and prime bone marrow neutrophils via PRRs. Antibiotic treatment, which is standard of care for all patients with sepsis, depletes the gut microbiota and leads to a diminished release of MAMPs. This may attribute to sepsis associated immunosuppression. Our ultimate aim is to develop new therapeutic strategies to restore immunity, such as faeces transplantation or administration of selective components of the microbiota.

### Study objective

To investigate the role of the gut microbiota in the systemic priming of immune effector cells

### Study design

Within-subject-controlled intervention study in human volunteers, n=12

### Intervention

Subjects self-administer antibiotics for seven days:  
- ciprofloxacin 500mg 2dd1 (Gram negatives and positives)

- vancomycin 250mg 3dd2 (Gram positives)

- metronidazol 500mg 3dd1 (anaerobes)

Blood and feces will be collected before taking antibiotics and 24 hours and 6 weeks after taking antibiotics.

## **Study burden and risks**

Volunteers may experience side effects when using antibiotics, mostly gastrointestinal complaints like diarrhoea. Subjects known with any allergic reaction to any previously administered antibiotic will be excluded from participation, but novel allergic reactions are possible. The burden also includes 3 visits - after the initial screening for eligibility visit \* to draw blood and collect faeces (subject himself at home). Subjects are not allowed to smoke, drink (until 48 hours after the last dose of antibiotics) or travel to tropical countries.

## **Contacts**

### **Public**

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### **Scientific**

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## **Trial sites**

### **Listed location countries**

Netherlands

## **Eligibility criteria**

### **Age**

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

## Inclusion criteria

18-35 years of age  
male  
healthy (medical history, physical exam, no medications, laboratory screening)  
non- smoking  
normal defecation pattern (<3x/ day, >3x/week)

## Exclusion criteria

allergic to antibiotics (any kind)  
recent use of antibiotics (<12 maanden)  
difficulty swallowing pills

## Study design

### Design

**Study type:** Interventional

Masking: Open (masking not used)

Control: Uncontrolled

Primary purpose: Basic science

### Recruitment

NL  
Recruitment status: Recruitment stopped

Start date (anticipated): 13-03-2012

Enrollment: 12

Type: Actual

## Ethics review

Approved WMO

|                    |                    |
|--------------------|--------------------|
| Date:              | 05-11-2012         |
| Application type:  | First submission   |
| Review commission: | METC Amsterdam UMC |
| Approved WMO       |                    |
| Date:              | 15-02-2013         |
| Application type:  | Amendment          |
| Review commission: | METC Amsterdam UMC |
| Approved WMO       |                    |
| Date:              | 03-12-2015         |
| Application type:  | Amendment          |
| Review commission: | METC Amsterdam UMC |

## Study registrations

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

No registrations found.

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

ID: 27808

Source: Nationaal Trial Register

Title:

### In other registers

| Register | ID             |
|----------|----------------|
| CCMO     | NL42072.018.12 |
| OMON     | NL-OMON27808   |