Alveolar Macrophage ImmuNOmetabolism study

No registrations found.

Ethical review	Positive opinion
Status	Recruiting
Health condition type	-
Study type	Observational non invasive

Summary

ID

NL-OMON29138

Source NTR

Brief title AMINO

Health condition

Pneumonia, pulmonary diseases

Sponsors and support

Primary sponsor: AMC **Source(s) of monetary or material Support:** AMC

Intervention

Outcome measures

Primary outcome

To analyse immunometabolic pathways in AMs of healthy volunteers after "ex vivo" exposure to respiratory pathogens or components thereof using an integrative approach.

Secondary outcome

To obtain exploratory data on the composition and diversity of the lung microbiome.
To utilize Optical Coherence Tomography (OCT) and Confocal Laser Endomicroscopy (CLE) to visualize in vivo the healthy alveolar compartment and airway wall layers and compare this to airway wall histology.

Study description

Background summary

Pneumonia is responsible for an inordinate disease burden worldwide. Alveolar macrophages (AMs) are phagocytes that reside on the surface of the lower respiratory tract, where they represent an initial line of leukocytic antimicrobial defense when pathogens invade the lower airways. AMs showcase an extreme plasticity in immunological functions, which is warranted by their localisation. AMs have the capability to transition from anti-inflammatory housekeeping cells into central nodes of immune activity during lung injury and infection. These functions are relatively well described, however the immunometabolism behind this plasticity remains enigmatic. Which metabolic changes facilitate this adaptive potential is unknown. Can we define specific immunometabolic pathways that drive these unique characteristics, also comparing this to blood-derived macrophages? In addition, we will utilize Optical Coherence Tomography and Confocal Laser Endomicroscopy to in vivo visualize the healthy alveolar compartment and airway wall layers, being the direct boundaries of the microenvironment. This is an observational study in healthy volunteers who undergo a bronchoscopy for bronchoalveolar lavage, biopsies, combined with imaging with OCT/CLE, and phlebotomy.

Study objective

Alveolar macrophages do not depend on glucose metabolism during infection, but on another metabolic source.

Study design

Healthy volunteers will undergo a bronchoscopy at 1 timepoint. At this point, the imaging (OCT and CLE) will be obtained.

The cells obtained from the broncho-alveolar lavage fluid will be used for in vitro studies in which they will be treated/stimulated for 24 hours with different bacterial components mimicing a bacterial infections and with treatments interfering with metabolic pathways.

Intervention

Bronchoscopy, phlebotomy

Contacts

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Eligibility criteria

Inclusion criteria

- 18-60 years of age
- non-smoking, or ex-smoking (≥ 2 years ago)
- no respiratory diagnosis of asthma or COPD
- no history of bronchiectasis, lung cancer, pneumothorax or other significant respiratory disease.
- no history of bleeding disorder
- not using anti-inflammatory and/or anticoagulant medication
- no major comorbidities
- BMI 17-30 kg.m2

Exclusion criteria

Individuals who are deemed immunocompromised due to disease or medication

Study design

Design

Study type: Intervention model: Observational non invasive Other

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Allocation:	Non controlled trial
Masking:	Open (masking not used)
Control:	N/A , unknown

Recruitment

NL	
Recruitment status:	Recruiting
Start date (anticipated):	09-06-2021
Enrollment:	20
Туре:	Anticipated

IPD sharing statement

Plan to share IPD: No

Ethics review

Positive opinion	
Date:	03-08-2021
Application type:	First submission

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
NTR-new	NL9673
Other	METC AMC : METC 2020_101

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Study results