

Brugia malayi microfilariae adhere to human vascular endothelial cells in a C3-dependent manner

CASE STUDY

Schroeder, J.H., McCarthy, D., Szeszak, T., Cook, D.A., Taylor, M.J., Craig, A.G., Lawson, C. and Lawrence, R.A.

PLoS Negl. Trop. Dis. 11 (2017): e0005592.

Introduction

Brugia malayi causes the tropical disease lymphatic filariasis. Microfilariae (Mf) of this nematode live in the bloodstream of the vertebrate host. Mf are taken up by blood-feeding arthropod vectors, such as mosquitos. However, Mf appearance and sequestration in the lung capillaries of infected individuals remains unresolved. To understand this mechanism, it is essential to isolate Mf from their host. MP Bio's Lymphocyte Separation Media was utilized to effectively isolate *B. malayi* and *L. sigmodontis* Mf from infected gerbils for co-culturing with human umbilical cord cells.

Overview

- **Keyword:** Microfilariae (Mf); human umbilical vein endothelial cells (HUVEC), gerbils (*Meriones unguiculatus*), *Brugia malayi*
- **Aim of the study:** To study the mechanism of Mf sequestration in the lungs of infected individuals.
- **Application:** Culturing of *B. malayi* Mf with adherent cells
- **Sample name:** *B. malayi* and *L. sigmodontis* Mf from infected gerbils (*Meriones unguiculatus*)
- **Material:** Lymphocyte Separation Medium (LSM™, SKU 0850494) from MP Bio

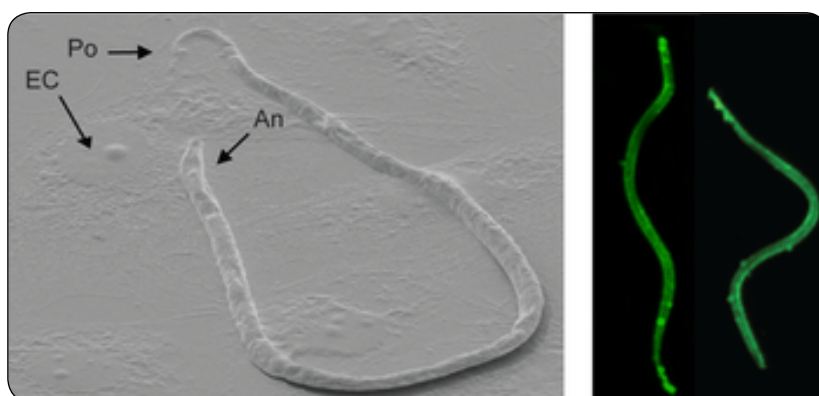


Figure 1.

Microscopic images of *B. malayi* Mf co-cultured with HUVEC in the presence of 10% intact human serum for 24 hours.

CASE STUDY

Protocol and Parameters

1. *B. malayi* and *L. sigmodontis* Mf were obtained by peritoneal lavage with RPMI-1640 from infected gerbils (*Meriones unguiculatus*).
2. Mf were isolated by centrifugation over lymphocyte separation medium (MP Biomedicals, USA). *B. malayi* microfilariae were exsheathed by incubating them for one to three hours in 20 mM CaCl₂ in Earls phosphate-free balanced salt solution.
3. 250,000 Mf were injected into groups of five 6–8 week old male BALB/c mice. Mice were tail bled at intervals, and the Mf obtained in 50µl of blood were counted following red blood cell lysis.

Conclusion

- LSM™ has been demonstrated to be effective in isolating parasites from peripheral blood samples.
- Schroeder et al successfully utilized LSM™ to isolate the microfilariae (Mf) from the blood of infected gerbils. The Mf was cocultured with HUVEC cells (isolated from human umbilical cord) to study the mechanism of Mf sequestration in the lungs of infected individuals.

LEARN MORE!
www.mpbio.com