

DO THE RODENTS HAVE A ROLE IN TRANSMISSION OF ZOO NOTIC CUT ANEOUS LEISHMANIASIS IN TURKEY?

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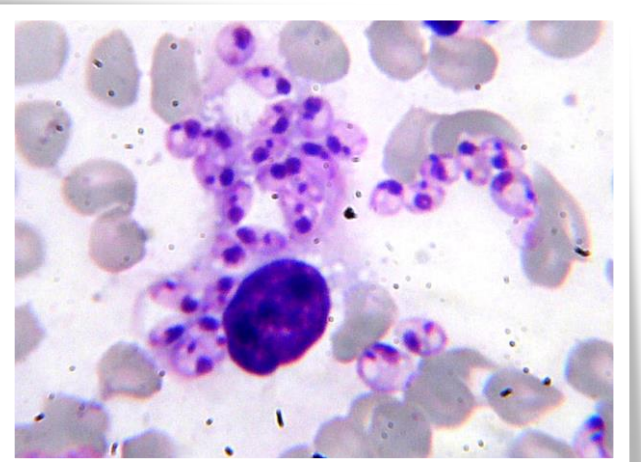
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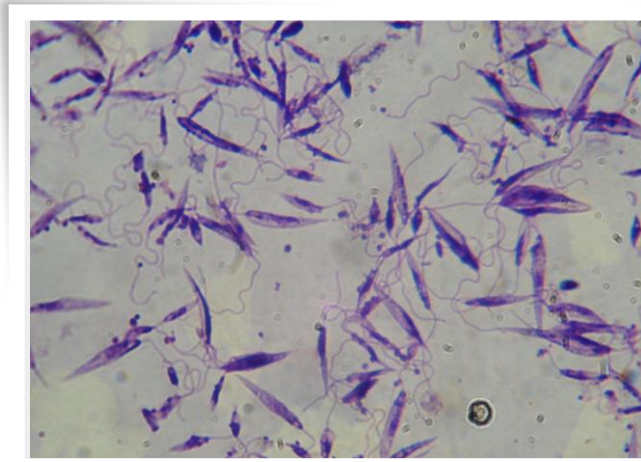
LEISHMANIASIS

- ❖ Leishmaniasis is a zoonotic/anthroponotic vector-borne parasitic infection caused by *Leishmania spp.* and transmitted by sand flies (*Phlebotomus spp.*)
- ❖ The reservoirs of *Leishmania spp.* in nature are various wild and domestic carnivora and rodents.

MORPHOLOGY OF LEISHMANIA PARASITES



Amastigotes



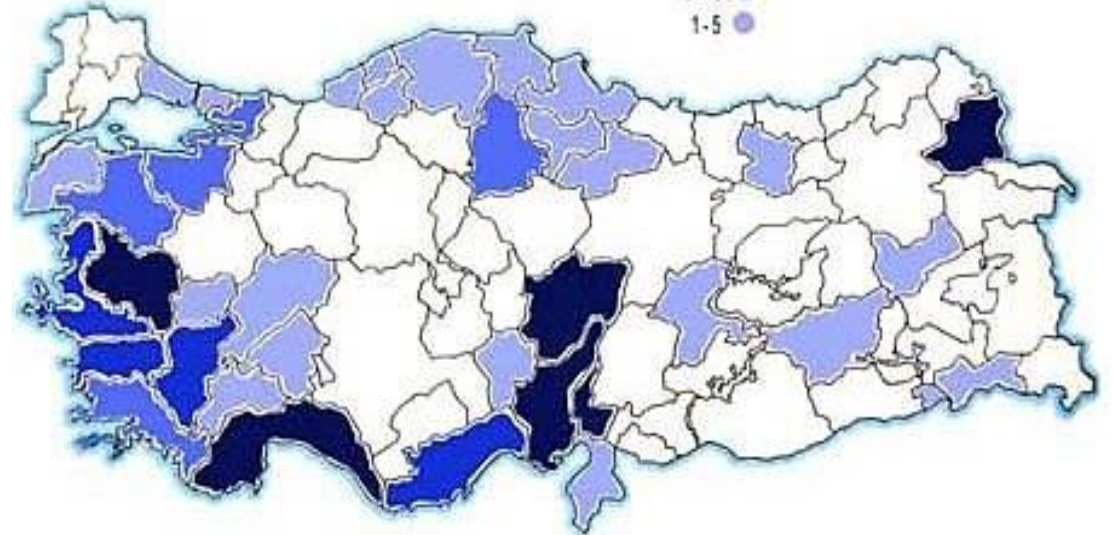
Promastigotes

LEISHMANIASIS

Türkiye'de Kutanöz Leishmaniasis

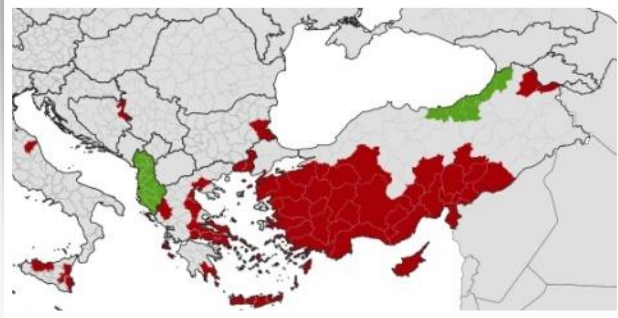


Türkiye'de Visseral Leishmaniasis



DISTRIBUTION OF CL AND VL IN TURKEY

LEISHMANIASIS



P. sergenti



P. similis

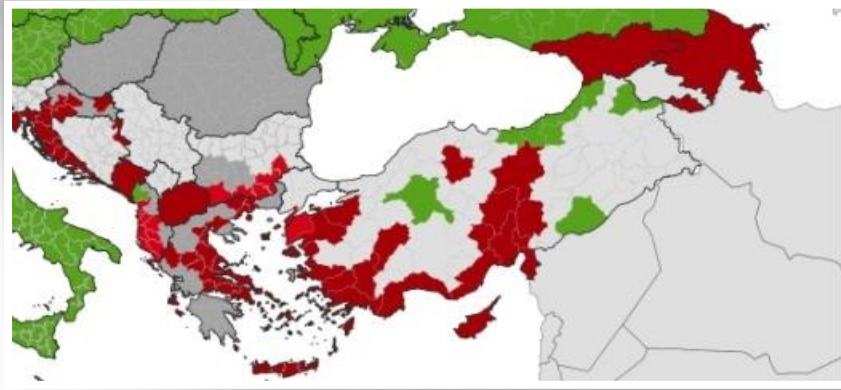


P. papatasi

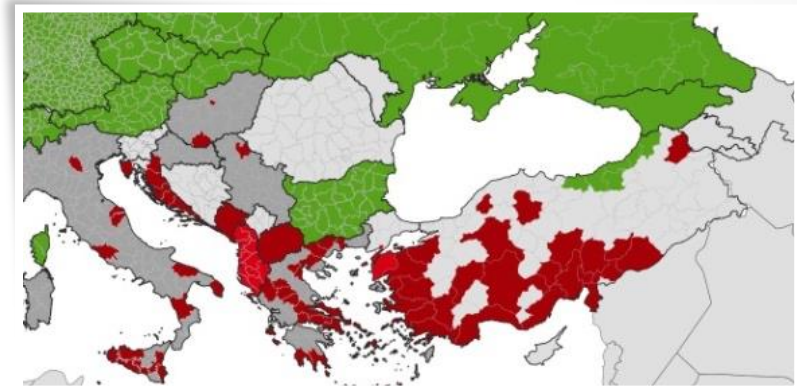
DISTRIBUTION OF THE VECTORS OF CL IN TURKEY

■ Established ■ Absent ■ No Data ■ Unknown

LEISHMANIASIS



P. tobbi

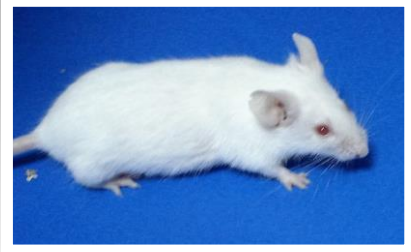
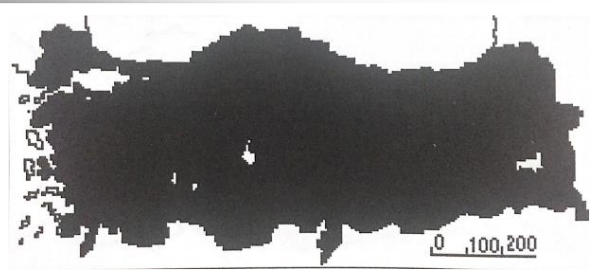


P. neglectus

DISTRIBUTION OF THE VECTORS OF VL IN TURKEY

■ Established ■ Absent ■ No Data ■ Unknown

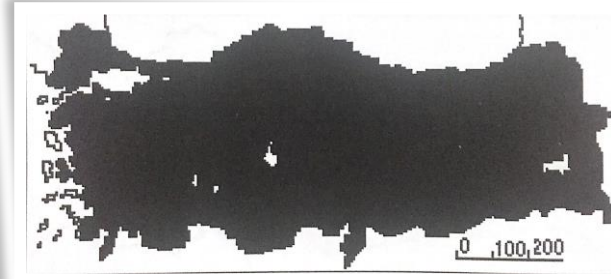
RODENTS



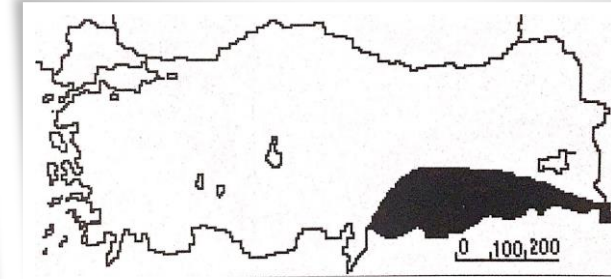
Mus spp.



Meriones spp.



Rattus spp.



Mesocricetus spp.

DISTRIBUTION OF *MUS*, *MERIONES*, *RATTUS* AND *MESOCRICETUS* GENERA THROUGHOUT TURKEY

THE AIM OF THE STUDY

- ▶ The aim of this study is to experimentally investigate whether the rodents in *Mus*, *Meriones*, *Rattus* and *Mesocricetus genera*, which inhabit in the natural habitat of Turkey, can be **natural reservoirs** of *L.tropica*, *L.infantum*, *L.major* and *L.donovani*.

WHAT WE DID IN THIS STUDY



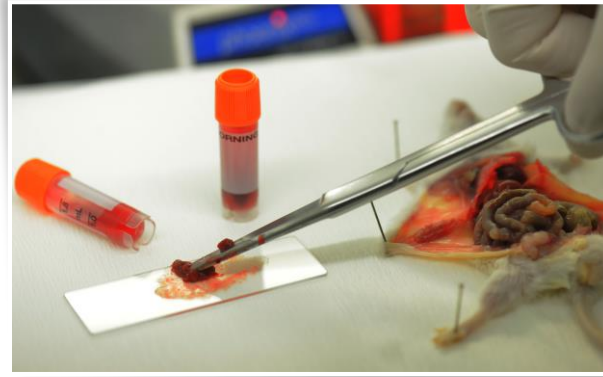
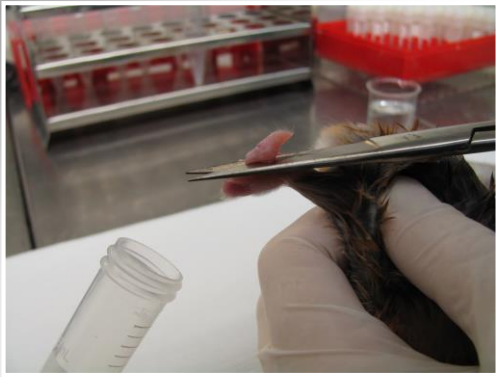
- ▶ Samples were obtained from the lesions of the CL patients
- ▶ Culturing → Leishmania promastigotes of autochthonous strains
- ▶ Intradermally injections with **100 μ l (10^8 promastigote/ml)** in the footpads

WHAT WE DID IN THIS STUDY



The scale of the lesions on the footpads of the animals were measured for **12 weeks**.

WHAT WE DID IN THIS STUDY



- ▶ At the end of the experiment the animals were sacrificed
- ▶ Tissue samples → Culturing in enriched NNN medium → Genotyping
- ▶ Touch preparations → Giemsa staining → Light microscopy (amastigotes)

RESULTS



Mus musculus



Meriones unguiculatus



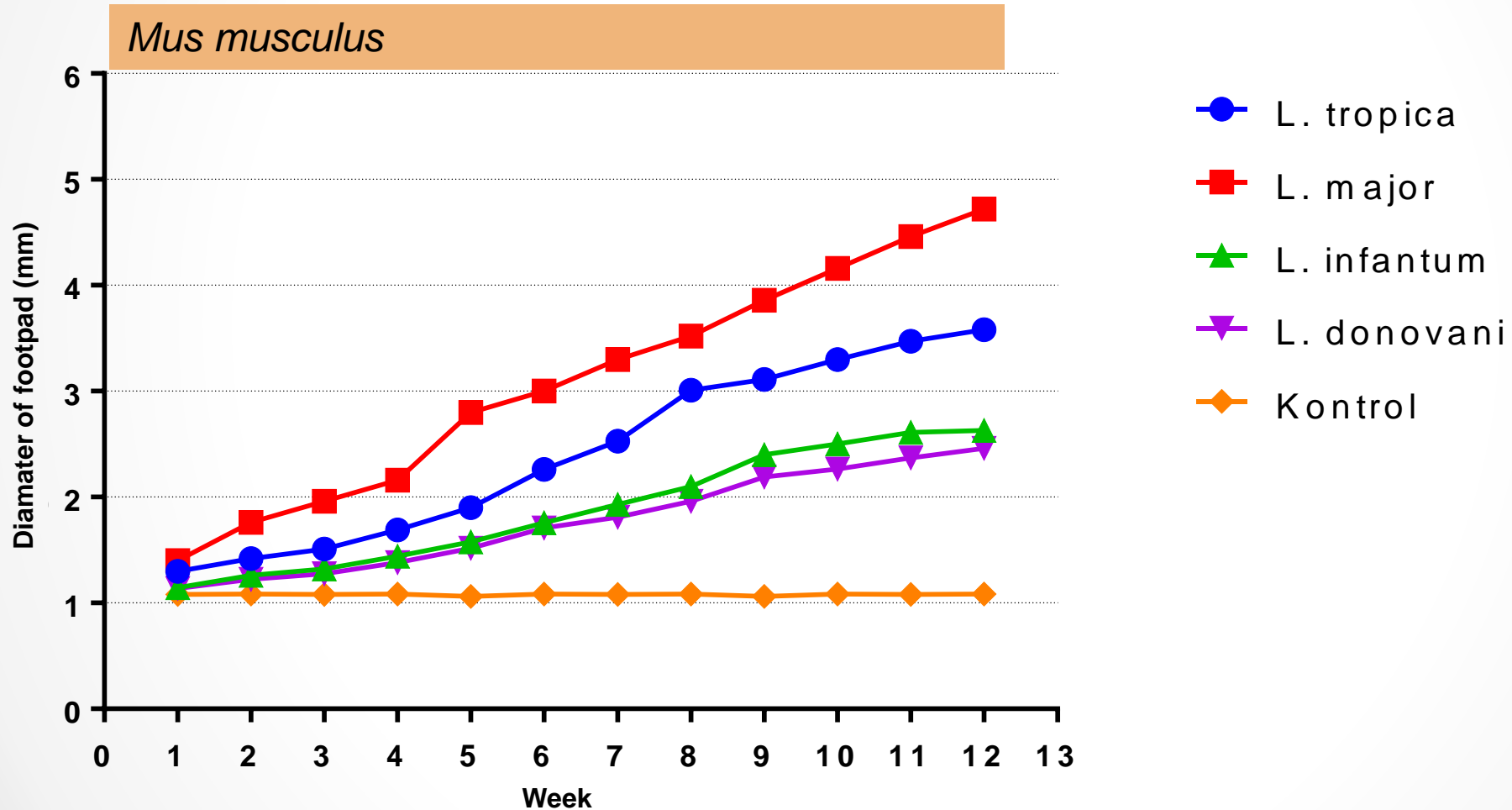
Rattus norvegicus



Mesocricetus auratus

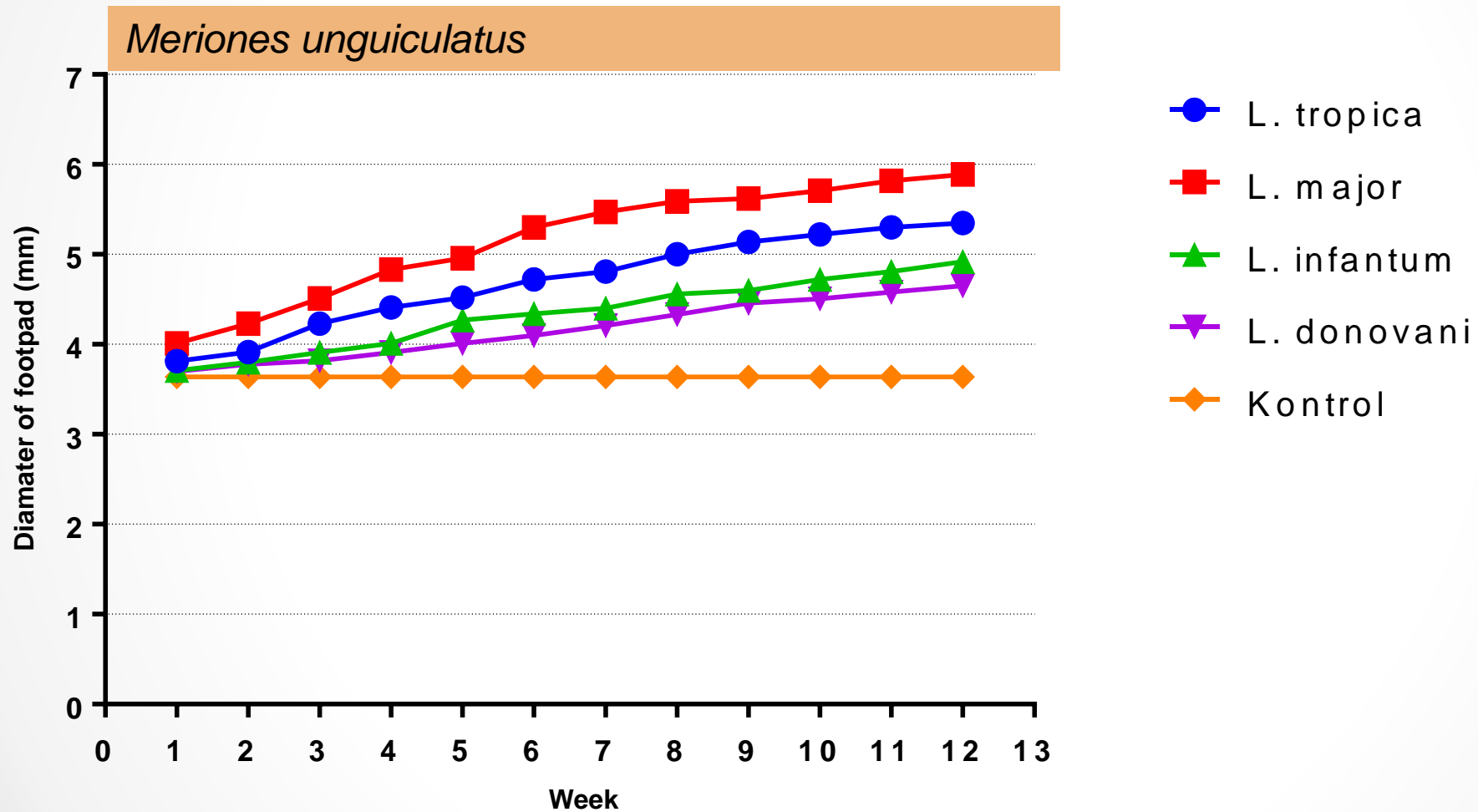
The lesions caused by *L. major* on the footpads of the rodents

RESULTS



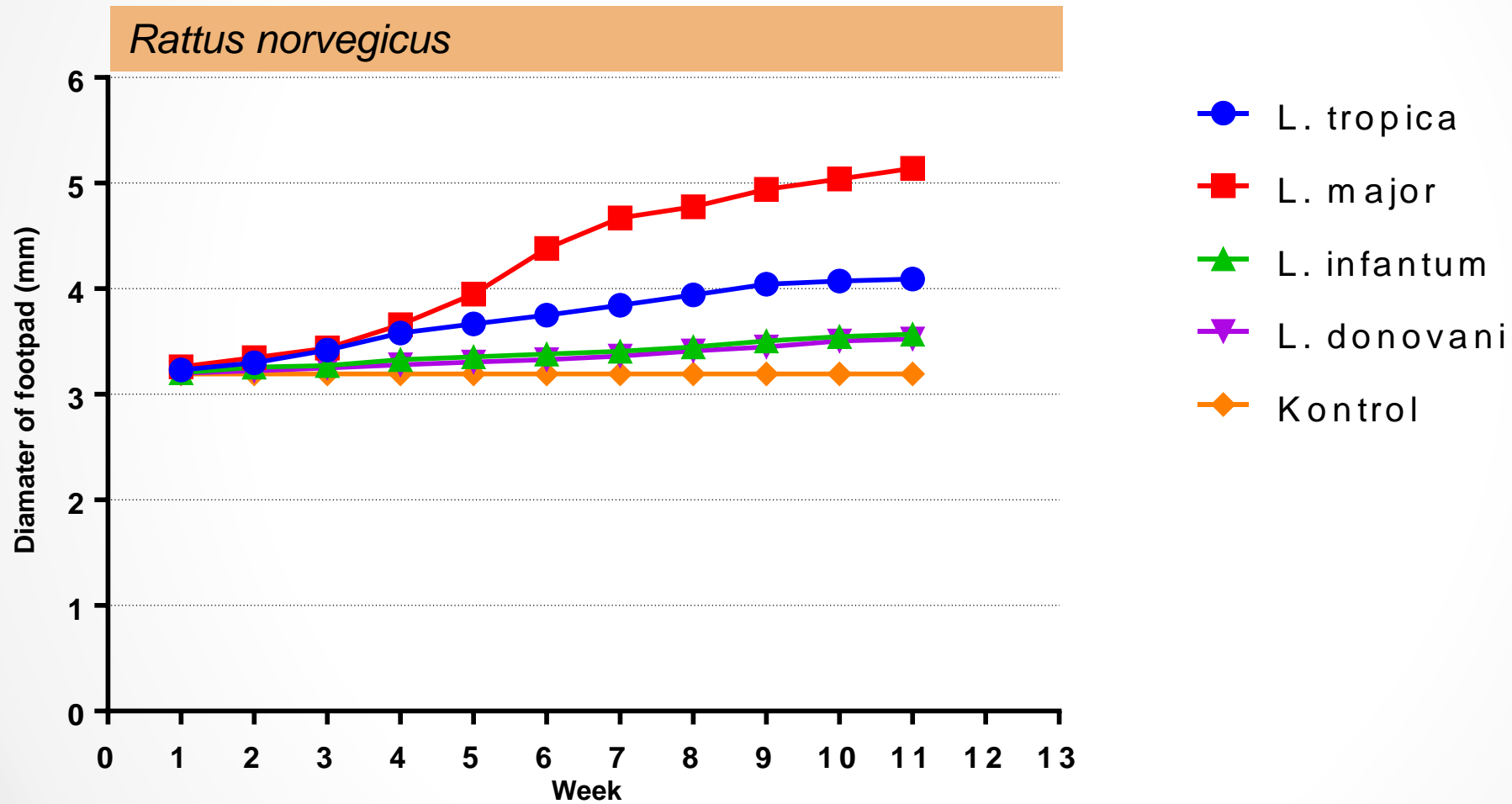
WEEKLY MEASUREMENTS OF THE FOOTPADS

RESULTS



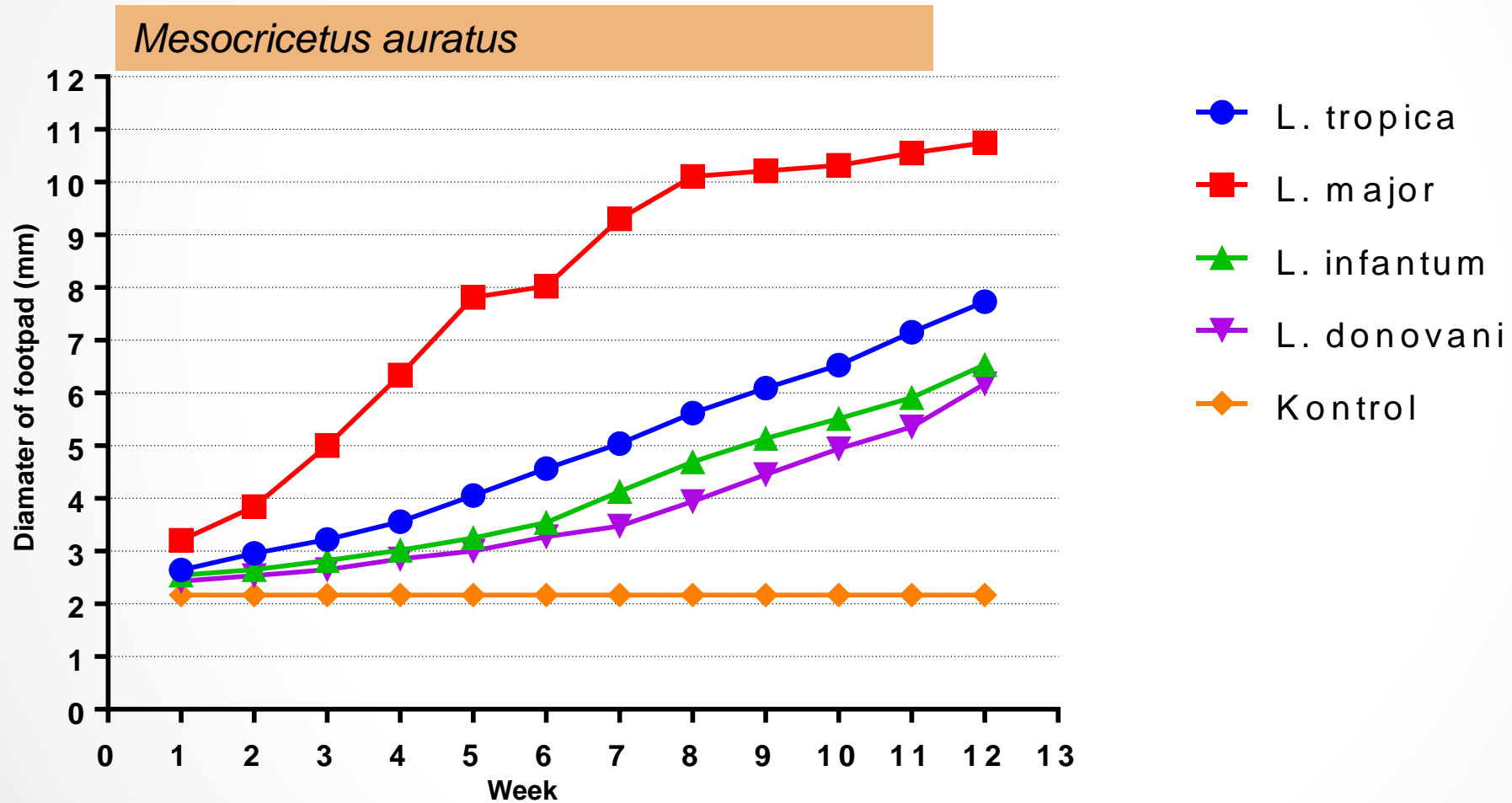
WEEKLY MEASUREMENTS OF THE FOOTPADS

RESULTS



WEEKLY MEASUREMENTS OF THE FOOTPADS

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WEEKLY MEASUREMENTS OF THE FOOTPADS

RESULTS

- ▶ It was observed that each *Leishmania species* caused **Cutaneous Leishmaniasis (CL)** in the rodents all.
- ▶ The rodent species manifesting **Visceral Leishmaniasis (VL)** are presented on the table below.

	L. tropica	L. major	L. infantum	L. donovani
Mus musculus	VL	VL	VL	VL
Mesocricetus auratus	VL	VL	VL	---
Meriones unguiculatus	VL	VL	VL	VL
Rattus norvegicus	VL	---	---	---

DISCUSSION

- ▶ The nest holes which the rodents dig in the ground are suitable locations for the sand-flies to feed and reproduce both by means of **humidity, temperature** and **blood meal availability**.
- ▶ The biological cycle of leishmania parasites among the rodents occurs via **the sand-fly vectors** existing in these nests.

CONCLUSION

- ▶ In this study it was experimentally determined that *Meriones*, *Mesocricetus*, *Rattus* and *Mus genera*, present in the natural habitat of Turkey, can serve as **the natural reservoirs** of *L. tropica*, *L. infantum*, *L. major* and *L. donovani*, thus having the potential for the spread of Leishmaniasis in Turkey.
- ▶ Important information were gathered concerning **the clinical aspects of the infection** caused by *Leishmania spp.* in their potential reservoir hosts.
- ▶ **We claim that these rodent genera are the potential reservoirs of CL.**

ACKNOWLEDGEMENTS

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- ▶ We would like to thank **Celal Bayar University Parasite Bank** and **Air Liquide** company.



