INTRAMAMMARY INFUSION OF A LIVE CULTURE OF *LACTOCOCCUS LACTIS* IN LACTATING MICE: PRELIMINARY DATA

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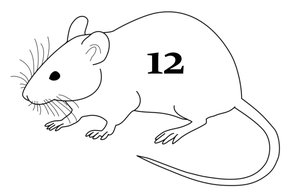
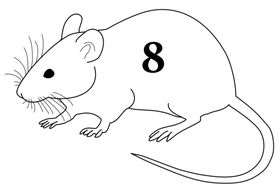
Introduction: Bacterial mastitis is one of most important disease on dairy farms worldwide, generally treated using antibiotic therapy. Antibiotics present some disadvantages including transmission of antibiotic resistance and appearance of residues in milk and dairy products. Development of alternatives is therefore encouraged in an age of mounting antibiotic resistance. Lactic acid bacteria are considered a good alternative to this therapy. Aim of the study was to evaluate the effects of an intramammary infusion of a live culture of *Lactococcus lactis* into the mammary glands of healthy mice. The animal study was conducted in accordance with both institutional guidelines and international laws and policies.

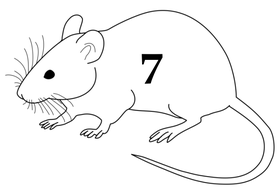
Materials and methods : L5 and R5 udders of 27 healthy female mice



GROUP 1: infused with 100µl of a live culture of *L. lactis* (8 x 10^8 CFU/ml in Trypticase Soy Broth)



GROUP 2: infused with 100µl of PBS



GROUP 3: CONTROL group untreated

Mice were sacrificed 24 h after treatments and L5 and R5 mammary glands were explanted.

Histological investigations were performed using a semiquantitative scoring system (0-3) to assess the lesions.

The number of *L. lactis* retrieved per gram from treated glands was determined on agar plates.

Results:

Moderate to diffuse alveolar and interstitial neutrophils and interstitial lymphoplasmacytic infiltration were observed in 8/12 glands of the Group 1 (Fig.1); only two udders of the Group 2 showed slight to moderate inflammation (Fig.2). The remaining glands showed no histological changes (Fig.3).

L. lactis was isolated from treated glands at a mean value of 8.6 x 10^6 CFU/g.

Groups	Microbiology (mean value)	Histology
1	8.6x 10^6 CFU/g of L. lactis	8/12 moderate to diffuse alveolar and interstitial PMN; moderate to diffuse interstitial LPC infiltration
2	NEG	2/8 slight to moderate interstitial LPC infiltration
3	NEG	7/7 no inflammatory reaction

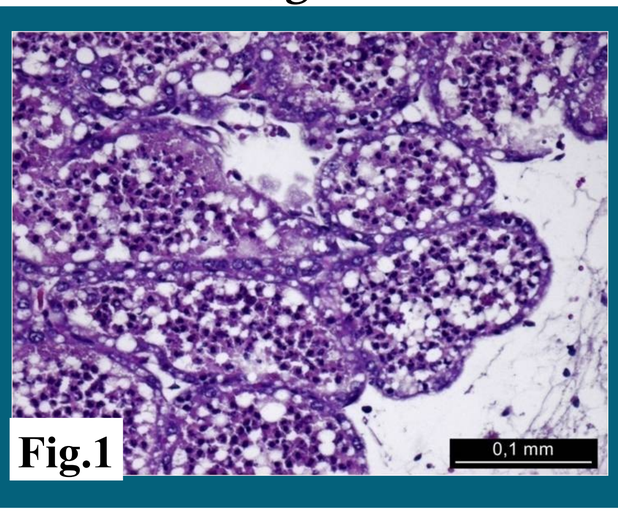


Fig.1

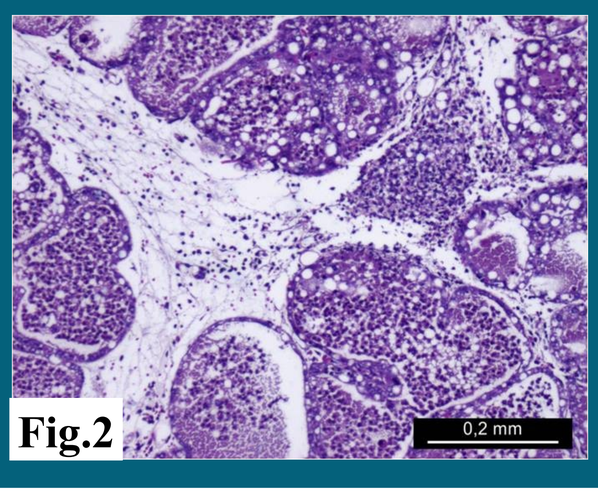


Fig.2

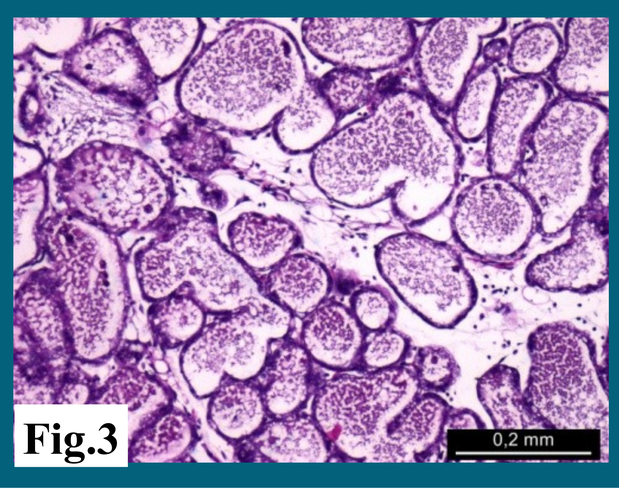


Fig.3

Conclusions: These preliminary data suggest an immune response in *L. lactis*-treated udders. Further investigations are needed to evaluate the potential use of this treatment for the mastitis therapy

This study was supported by the Italian Ministry of Health, grant number RF-2010-2373040.